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Advanced Lease Caching

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by

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Electrical Engineering

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Abstract

Since the dawn of computing, CPU performance has continually grown, buoyed by Moore's Law. Execution speed for parallelizable programs in particular has massively increased with the now widespread employment of GPUs, TPUs, and FPGAs, capable of preforming hundreds of computations simultaneously, for data processing. A major bottleneck for further performance increases, which has impeded speedup of sequential programming in particular, is the processor memory performance gap.

One of the approaches to address this block is improving cache management algorithms. Caching is transparent to software, but traditional caching algorithms forgo hardware-software collaboration. Previous work introduced the idea of assigning leases to cache blocks as a form of collaborative cache eviction policy and introduced two lease-caching algorithms, Compiler Lease of cAche Memory (CLAM) and Phased Reference Leasing (PRL), evaluating them over 7 benchmarks from the Polybench benchmark suite.

This work evaluates CLAM and PRL over all thirty benchmarks of the Polybench suite for multiple dataset sizes. Additionally, to address the flaws CLAM and PRL, two new lease-caching algorithms have been developed: Scoped Hooked Eviction Lease (SHEL) and Cross-Scope Eviction Lease (C-SHEL). These algorithms are evaluated not just for a single-level cache, typically found in embedded systems, but also for a multi-level cache as exists in more high-performance systems including multi-core CPUs. The test system uses a RISCV architecture to run benchmarks.

All four lease caching algorithms outperform the baseline Pseudo Least Recently Used (PLRU) policy at both levels of the cache hierarchy. Further, SHEL and C-SHEL display significant performance increases over PRL for certain benchmarks, demonstrating the value of scoped leasing in addressing complex reuse interval (RI) behavior.

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Chapter 1

Introduction

Since the microprocessor's invention in 1971, CPU performance has increased exponentially, driven by ever higher processor clock speeds up until 2005[1]; the addition of architectural features such as superscalar pipelines, floating-point hardware units, and multi-core networks; and software techniques such as Single Instruction Multiple Data (SIMD) instructions, out of order execution and speculative execution. Further, these CPU performance gains have not been matched by similar increases in main memory speed over the same period. The result is the current state of computing in which most programs are memory-bound.

A common solution to this problem is caching: a relatively small amount of fast memory is placed near the CPU, for which access latency is many Order Of Magnitude (OOM) lower than main memory. This intermediate level of memory can greatly reduce the time programs spend stalled while the CPU waits for data, but only if this limited storage space is effectively managed. This work expands on a previous study of alternative cache management techniques. This chapter provides an overview of cache theory and cache management.

[1]Dennard scaling, the concept that as transistor density increases, clock speeds can be increased while at the same time decreasing operating voltage resulting in constant power consumption, broke down in 2005. The resultant thermal limitations have made clock speeds significantly higher than 4 GHZ impractical (There are some CPUs that can do 5 GHZ+ now, but that's turbo frequency, not base clock).[7]

1.1 Data Locality

Locality is an inherent property of computer data and arises from how programs and data are structured. Traditionally, this is divided into two categories.

1. *Temporal Locality:* A piece of data recently referenced will likely be referenced again in the near future.

2. *Spatial Locality:* A piece of data located near a referenced piece of data will likely be referenced in the near future.

Locality can be exploited to improve computing performance. If certain data is known to have temporal locality, then recent portions of that data should be retained as close to the CPU as possible. If data is known to have spatial locality, data from the same area should be pulled and retained. By observing the data access patterns of specific programs, we can determine the locality properties of that data and from that, determine data management policies to maximize performance.

1.1.0.1 A relational theory of data locality

The proceeding definitions for types of locality are qualitative not quantitative and they do not give one the ability to convert between different measures of locality. In [27], a relational theory of data locality is developed which groups locality definitions into three groups and then shows how they can be interconverted.

1.2 Cache

A cache exploits data locality to reduce the amount of time that the CPU is stalled waiting for data from main memory. A cache is a relatively small chunk of fast on-chip memory which sits between main memory and the CPU in the memory hierarchy. Caches typically store the data most frequently used by the CPU, reducing the number of main memory accesses that must be made during program execution. Caching is

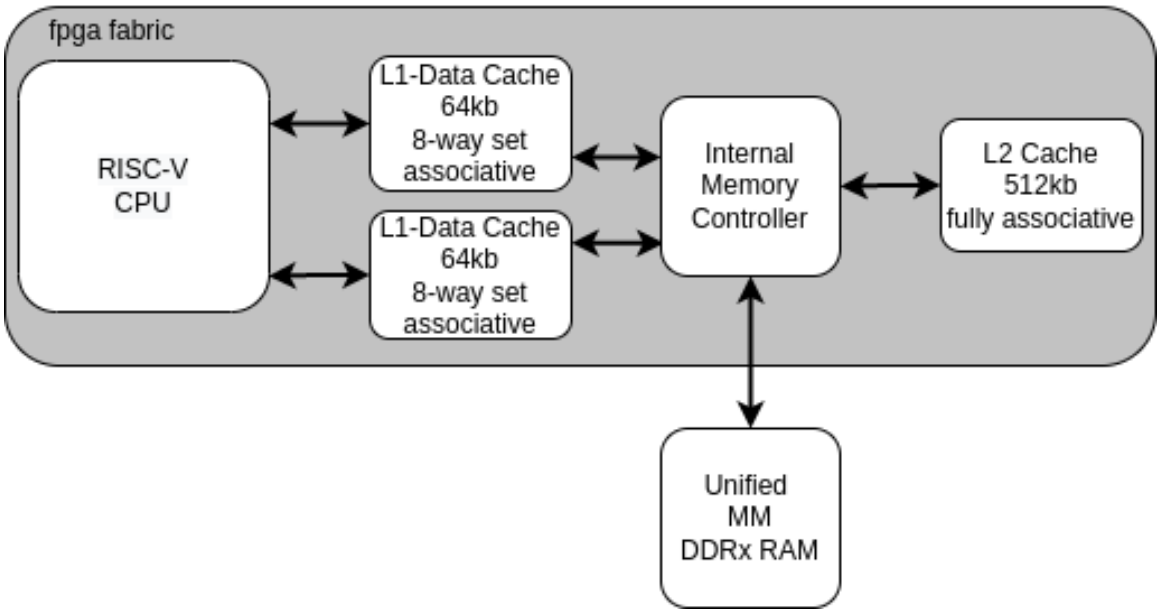

Figure 1-1: Example of a two-level cache hierarchy.

a robust strategy because the structure of caches (associativity, size, bandwidth) can be varied as needed.

High-performance CPUs have multiple levels of cache memory. Each level of increasing capacity comes with increasing latency and increased data associativity (the number of locations in a cache where a specific data block, a collection of contiguous words of fixed size, can be placed). L1 cache is typically split into a data and program cache, while L2 is almost always unified. The goal of this memory hierarchy is to keep the most relevant data and instructions close to the CPU (L1), while keeping data that is further from reuse in L2. This minimizes the amount of time that must be spent moving data between the different levels of cache. Figure 1-1 depicts a multi-level cache structure similar[2] to the multi-level cache used in this work.

1.2.1 Cache Management

Caches have finite hardware space to store data. Hence when the cache is full and a new data block must be brought in, there must be some way of deciding which block to replace. The method by which it is decided is known as an *Eviction Policy*. Eviction

[2]This work uses split L1 caches that are fully associative and not 8-way set associative.

policies generally target some type of data locality property. The effectiveness of a given policy for a given workload is generally discussed in terms of data access patterns. Common data access patterns are scanning, streaming, thrashing, sawtooth, and cyclical. Equations 1.1-1.4 taken from [13] demonstrate scanning, streaming, thrashing, and mixed data access patterns, where a represents an access, $(a_1, a_2)^K$ represents an access pattern repeated K times and P_ϵ is a probability value that the following pattern will occur.

$$\text{Recency friendly access pattern} = (a_1, a_2, \ldots a_{k-1}, a_k, a_k, a_{k-1}, \ldots, a_2, a_1)^N \quad \forall\, k \tag{1.1}$$

$$\text{Thrashing access pattern} = (a_1, a_2, \ldots a_{k-1}, a_k)^N \quad k > \text{cache\_size} \tag{1.2}$$

$$\text{Scanning access pattern} = (a_1, a_2, \ldots, a_{k-1}, a_k)^N \quad k = \infty \tag{1.3}$$

$$\text{Mixed access pattern} = ((a_1, a_2, \ldots, a_k, a_k, \ldots, a_2, a_1)^A P_\epsilon(a_1, a_2, \ldots, a_{k+1}, \ldots, a_m))^K$$

$$k < \text{cache\_size} < m \wedge \epsilon \in (0, 1) \tag{1.4}$$

(1.5)

An application's memory content (in terms of size and access pattern) determines the effectiveness of any given cache policy for that application. The subset of an application's address space that must be preserved to ensure efficient processing is defined as the *working set* [9]. The goal of any cache policy is to preserve the working set.

The optimal cache policy is the eviction of the block with the furthest future reuse and is given by Minimum (MIN)developed by Belady [6] and OPT[16] (optimal). Being a non-causal algorithm, MIN can't be implemented in practice. One of the oldest and most common eviction policies is Least Recently Used (LRU). LRU approaches MIN in performance when data has high temporal locality, a situation given by Equa-

tion 1.1, but performs poorly when it does not. If the working-set doesn't fit in the cache, the situation is known as *thrashing* and given by Equation 1.2 or if there is a burst of references with no temporal locality, called *scanning* given by Equation 1.3, then LRU will discard the working set in favor of blocks with no temporal locality. The opposite policy, Most Recently Used (MRU), preforms well with scanning and thrashing, but does poorly on data with high temporal locality. An evolution of LRU is Dynamic Re-Reference Interval Prediction (DRRIP), which dynamically selects between scan-resistant Static Re-Reference Interval Prediction (SRRIP) and thrash-resistant Bimodal Re-Reference Interval Prediction (BRRIP) [21]. A version of DRRIP found use in the last-level cache of Intel's Ivy Bridge architecture [26].

Cache management algorithms may target usage frequency instead of time through policies like Least Frequently Used (LFU) and Most Frequently Used (MFU) or hybrids of time and frequency such as Least Recently/Frequently Used (LFRU) [14]. For situations where silicon is in short supply and minimization of cache controller area is desired, random replacement (RR), which approaches and can even exceed the performance of LRU may be utilized [2]. All of the aforementioned policies approach MIN for certain access patterns and significantly under-perform for others.

Cache policies need not target just simple metrics like time or frequency. Proposed cache policies such as: Lease Hit Density (LHD) [4], Expected Hit Cost (EHC) [24], and Economic Value Added (EVA) [5] target sophisticated metrics such as hit density , expected hit count, and expected value about the average, respectively. There are even attempts to directly approximate MIN such as Hawkeye [12] and Mockingjay[22], which reconstruct MIN for past accesses and use that to predict future reuses; on a number of different benchmarks, performance is only slightly inferior to MIN.

Algorithms such as LRU, MRU, DRRIP, RR, and LHD are *reactive policies*. They are entirely hardware-based and agnostic to the software being run. OPT [16] is an example of a *prescriptive policy*, where caching is externally prescribed by software.

While sophisticated policies like EVA and Mockingjay are state-of-the-art solutions that represent significant improvements over LRU, they are still reactive policies that neglect the benefits of hardware-software collaboration. A *collaborative policy*,

in contrast to a prescriptive policy, where caching is controlled entirely by software, is software augmentation of hardware-based caching.

1.3 Objective

This work is a followup on the work done in [18]. The significant contributions are:

- The development and testing of two new lease assignment algorithms: Scope Hooked Eviction Leases (SHEL) and Cross-Scope Hooked Eviction Leases (C-SHEL).
- Evaluation of both new and old lease assignment algorithm performance on the entire suite of PolyBench benchmarks for varying dataset sizes.
- A sensitivity analysis on the impact of sampling rate on lease generation and performance.
- The implementation and evaluation of a two-level lease cache system.

1.4 Organization

This thesis is structured as follows:

- Chapter 2: Details the theory of lease caching and the various lease cache polices that have been developed.
- Chapter 3: Describes the lease cache hardware, software support for scoped leasing, the hardware reference sampler and cache line tracker.
- Chapter 4: Details the test system and the some of the metrics used for evaluation.
- Chapter 5: Details the results of testing and includes a sampling sensitivity analysis.

- Chapter 6: Describes the next steps to be taken in order to further test lease caching.
- Chapter 7: Summarizes the results of the work.

Chapter 2

Background

An optimal eviction policy for a fixed-size cache is one where the block with the furthest forward in time reuse is evicted, as demonstrated in MIN and OPT [6, 16]. However, these policies can't be implemented in practice because they require clairvoyance. Authors in [15] introduce the concept of a lease cache and Optimal Steady-State lease (OSL) which matches or exceeds OPT performance in the context of a variably-sized cache. However, OSL assigns a single lease to each data block, which is infeasible to implement in hardware due to how poorly it scales (see 2.1.2 for further information). In this chapter, various lease assignment algorithms that are extensions of OSL and make use of reference-based leasing are detailed. A general theory of lease caching is also provided.

2.1 Lease Cache

The lease cache is a prescriptive policy cache. Whenever a new object is brought into the cache or an existing object is accessed, it is assigned the lease of the accessing reference. Leases are in terms of logical time i.e., memory accesses. The lease acts as a lifetime for the object, protecting it from eviction until the lease has expired. In the event of multiple expired objects, any object can be selected for eviction.

When a lease is assigned, the program is allocating space in the cache for the object for the lifetime of the lease. When the lease is expired, the program is de-

allocating that space. By controlling what leases are assigned to what references, a compiler can control how cache space is utilized.

2.1.1 Reuse Interval

The *reuse interval* (RI) of an item is the time elapsed between two accesses of that item. It is a measure of how quickly an item is reused. In this work, RIs are given in terms of logical time e.g., an RI of 5 means that there are 4 accesses before the item is reused. The collection of RIs associated with a specific reference are known as the reference's *RI histogram*. The most pressing question for a lease cache is: what lease value should be assigned to a reference? The answer is that it should be determined by the reference's RI histogram.

The program snippet given in Figure 2-1 provides a good example of varying RI behavior, having references with short reuses, references with long reuses, and references with no reuses. In order to optimally utilize the cache every access made by $a[i-1][j]$ and $b[i][j]$ should be assigned a lease of 0, as they have no reuses. Every reference $a[i][j]$ and $a[i][j+1]$ should be assigned a short lease as they will be used in the next iteration of the inner-loop. Every reference $a[i][j+1]$ and $a[i+1][j]$ is only reused during the next iteration of the outer loop and therefore should be assigned either a long lease, if there is believed to be space, or assigned a lease of 0 to preserve cache space for references with better locality.

```
    for (j = 1; j <= 1024; j++) {
        b[i][j]=a[i][j]+a[i][j+1]+a[i][j-1]+a[i-1][j]+a[i+1][j];
} }
```

Figure 2-1: Five-point stencil example program.

Table 2.1 displays a non-artifical example of an RI histogram generated from the output of the RI hardware sampler detailed in 3.2.1, including the head and tail costs mentioned in 2.1.8.

Table 2.1: Sample generated RI histogram for reference 1836 for scoped *adi* with small dataset size and single-level cache.

RI	Count	Head Cost	Tail Cost
232	6	1392	5104
512	3	1536	1536
32	2	64	1120
272	3	816	5168
432	2	864	4752
392	1	392	5096
1	520	520	37
112	1	112	3472
312	4	1248	4680
152	2	304	4408
192	1	192	5376
352	1	352	4928
552	3	1656	0
72	3	216	2304
472	5	52360	2832

2.1.2 CARL

Compiler Assigned Reference Leasing (CARL) is a modification of OSL. OSL assigns a single lease to each data block, which means that the number of leases needed is $\mathcal{O}(n)$, making hardware implementation impractical for any reasonably sized program. To demonstrate, consider a program that makes use of 50 MB of data, which is utterly commonplace. Using the block size utilized in this paper (16 words) and a word size of 32 bits gives: $\frac{50MB}{32\frac{bits}{word}*16\frac{words}{block}}*1\frac{lease}{block} \sim 98000\ leases$. Every one of those nearly 98,000 leases would need to get 2 seperate 32-bit registers in hardware (one to store the lease value, the other to store the reference). The delay introduced by fanout alone would render a high speed design impossible, to say nothing of other considerations such as available space.

CARL by contrast, assigns a lease per data reference. And the number of references in a program is very inelastic to changes in program working-set size, allowing for a hardware implementation of the lease cache.

CARL assigns leases to references until a budget constraint is met. It is designed for a variable lease caches (unified, variable, or network) and so it is not absolutely

constrained by cache size. Instead, CARL optimizes for an average cache size equal to the size of the target cache. The budget constraint is equal to the trace length (program duration) in terms of logical time multiplied by the target cache size.

At all times, CARL assigns the lease which has the highest profit per unit cost (PPUC). CARL is greedy and so it can assign leases to references with prior lease assignments. Lease assignment continues until the total cost of the current lease assignment and all previous assignments meets the budget constraint whereupon it terminates.

Profit is defined as the number of cache hits given by a lease assignment. Unit cost is defined as the occupancy of a cache block for one unit of logical time. Cost and profit are easily determined using the RI histogram for a given reference. Suppose RI histograms are dense vectors, where the index refers to the reuse interval and the value is the number of accesses with that RI. Profit would be the number of accesses for RIs less than or equal to the lease. For a lease of i and RI vector H and maximum index RI_{max}, the profit is given by 2.1:

$$\text{Profit}(l, H) = \sum_{i=0}^{l} H[i] \tag{2.1}$$

For cost, things are slightly more complicated as there are two cases. The case where an access has a reuse interval $ri \in \mathbb{N}$ where $ri \leq l$, which means the block will occupy the space for ri units of logical time before eviction, and the case where an access has $ri > l$ where the block will occupy space for l units of time. The total cost (2.1) is the sum of these two cases.

$$\text{Cost}(l, H) = \sum_{i=0}^{l-1} i * H[i] + \sum_{i=l}^{RI_{max}} l * H[i] \tag{2.2}$$

One thing that is apparent is that not all references will necessarily be assigned a lease in the basic CARL algorithm. If the cost budget target has already been met while some references still don't have leases, or if the budget has not been met, but the reference can't be assigned a lease without going over budget, then the reference

will have no lease. In this paper however, as explained in Section 2.1.10, all references are assigned a minimum lease of 1.

2.1.3 Dual Leases

The basic CARL algorithm suffers from a significant flaw in that if there is residual budget, but any lease assignment would result in the algorithm exceeding the target, then no lease will be assigned and the cache will be under-allocated. Given that it is highly unlikely that lease assignment costs will work out such that the exact budget target is met, this is likely to be a significant problem. The solution is a *dual lease*. A dual lease is a pair of leases assigned to a reference, a short value and a long value, and an associated probability value p. The short lease is selected with probability p and the long lease selected with probability $1 - p$. A non dual lease can actually be thought of as the special case of a dual lease with $p = 1$. If there is a dual lease with short lease value l_s and long lease value l_l, and short lease probability p, the cost of the lease is given by 2.3.

$$\text{Dual\_Cost}(l_l, l_s, H) = \text{Cost}(l_s, H) * p + \text{Cost}(l_l, H) * (1 - p) \tag{2.3}$$

By varying p, we can change the impact on the overall budget, with the ideal value for p being given by 2.4.

$$\text{p} = \frac{remaining\ budget}{\text{Cost}(l_l, H) - \text{Cost}(l_s, H)} \tag{2.4}$$

The addition of dual leases also modifies the CARL algorithm. Lease assignment now terminates either when all leases are at their maximum value, the cost budget has been met, or a dual lease has been assigned.

2.1.4 Non-optimality of CARL for fixed-size Caches

CARL is optimal for a variably-sized cache[10]. It targets an average cache size, with the instantaneous cache size permitted to shrink or expand arbitrarily throughout

program execution. This is because leases are assigned based on RI histograms, which do not contain any information about the time a reuse occurred. Consequently, CARL can't bound the number of leases that are active at any given time and so the actual required cache size will vary during run-time if the RI histograms also vary during run-time. Given this, a set of lease assignments might achieve a target cache size by having a portion of program run-time in which the number of active leases exceeds the cache size, called *cache over-allocation* or *cache contention* balanced out by a portion of program run-time in which the cache has a number of active leases less than the cache size, called *cache under-allocation*. On a variably-sized cache, this presents no issue, but this is not true for a fixed-size cache.

In a fixed-size cache, cache under-allocation, which is the scenario in which there are multiple empty or expired cache lines is not necessasarily an issue, although it can be a sign that the leases being assigned to a reference are too short to capture reuses, which could lead to blocks being evicted instead of being kept. Cache contention on the otherhand, is always pernicious. If a new block needs to be brought into the cache and there are no expired cache lines, a secondary eviction policy must be employed to free up space. The policy is inherently blind to reuse behavior and hence this degrades performance, as the evicted block could have a reuse in the near future. A miss that occurs because of a premature eviction due to cache contention is called a *contention miss*.

For a program with uniformly distributed RI histograms throughout run-time it would be expected that CARL would preform equally well for both a fixed and a variably-sized cache and represent a performance ceiling. For programs with non-uniformly distributed RIs, say a program that consists of an outer loop with multiple inner loops each with different RI behavior, CARL may produce unbalanced lease assignments, in which there are significant periods of cache contention and/or cache under-allocation. To address this, several new lease assignment techniques have been developed. To prevent confusion, CARL henceforth will denote ideal cache-leasing in a variably-sized cache, while Compiler Lease of cAche Memory (CLAM) will be used to refer to CARL employed in a physical i.e., fixed-sized cache.

2.1.5 PRL: Phase Reference Leasing

The authors of [20] introduced PRL in which a program trace is naively divided into n equal width phases. Each phase has a budget target equal to $\frac{global\_budget}{n}$ and a local RI distribution. Just as in CLAM, leases are assigned to each phase in order of global PPUC. If a lease assignment would cause a phase to exceed its budget, then a dual lease is assigned to that phase instead. Unlike in CARL though, lease assignment does not terminate with the assignment of a dual lease to a phase. Instead, leases continue to be assigned to non-full phases which have not had a dual lease assigned to them until either all phases have met their target, or all leases are at their maximum values (there will not be another dual lease assignment). In this way, PRL is less greedy than CLAM because it will skip over the assignment of a higher PPUC lease to a saturated phase in favor of a lower PPUC lease assignment to a non-saturated phase. The benefits of this technique as opposed to assigning leases based on global RI histograms, as is done in CLAM, is that the increased granularity reduces the possibility of a set of lease assignments that cause a period of program execution with substantial cache contention paired with a period of program execution with cache under-allocation.

There are two main drawbacks to PRL. The first is that the phase boundaries are fixed and so fine-grained control of phase boundaries to match program execution can't be achieved. While increasing the number of phases can mitigate the problem, that also means lower number of samples per phase, leading to an increased vulnerability to sampling error. The second is that PRL only deals with the case of continuous phases of uniform length. Consider the case of a program consisting of an outer loop, inside of which there is varying phase behavior. PRL will be unable to account for this since its stuck at the level of the outer loop iteration.

2.1.6 Scopes, Phases, and Cross-Scope RIs

Before proceeding further, it is beneficial to define a few additional concepts. Scientific code is assumed to have a regular structure, with each program being composed of a

series of statements and loop nests. Each level of a loop nest can itself contain a set of statements and loops and/or loop nests. A *scope* is a textual region of a program which may contain a loop and all its internal structure. In this work, scopes have been manually specified when assigning leases. These are called *annotated scopes*. For the remainder of the work, unless explicitly noted otherwise, scope refers to an annotated scope. A *phase* is a run-time instance of a scope. Scopes thus represent fragments of program code, while phases represent periods of program execution. A *cross-scope RI* is a reuse interval which spans at least two phases of two adjacent scopes; any other RI is known as a *local-scope RI*.

2.1.7 SHEL: Scoped Hooked Eviction Lease

PRL, as previously noted, represents an incomplete solution to the problem of contention misses caused by having a fixed-size cache. In order to have more control over phase granularity, a new technique has been developed called SHEL, which encodes time information into the RI histograms. A program is broken down into a set of different program scopes, with each of these scopes representing a phase with possibly different reuse behavior. The inclusion of a scope field in the RI histograms thus allows lease assignment to be done on a scope-local basis rather than a global one. Leases that might be less profitable globally can bypass more profitable leases if they take up space in under-allocated phases. This makes for lease assignments which are more balanced over the duration of program run-time, leading to fewer contention misses.

In the algorithm, CLAM is run separately for each scope, with the execution terminating when either all scopes have been assigned a dual lease, all leases are at their maximum values, or the cost budget for all scopes have been met. SHEL addresses the problems of PRL because one can create very fine grained scopes that capture variations in phase RI behavior, even within a single iteration of an outer loop. In essence, whereas PRL is a temporal lease assignment algorithm, with each phase being a continuous portion of program run-time, SHEL is a spatial algorithm, in which each scope is a portion of a program's code.

A key thing to note is that allocations can spill across multiple scopes, due to cross-scope RIs. As a result SHEL may over-assign leases in a scope if spillover from the previous scope reduces the available cache space for that scope. SHEL makes the assumption that cross-scope RIs are a negligible portion of reuses and thus spillover can be ignored and all RIs treated as being scope-local without significant issue. This assumption is valid when the length of phase is much longer than the length of the longest lease in a phase, which can be stated as the following proposition.

Proposition 1 *Let s_{min} be the minimum number of accesses in a phase and l_{max} the longest lease assigned. If $s_{min} \gg l_{max}$, cross-scope RIs can be ignored.*

To see why this is the case, one should consider what happens at the end of a phase. The number of blocks in the cache is at most equivalent to the cache size and they will stay there for at most l_{max} accesses. The maximum possible miss penalty from an incorrect lease assignment is equal to c. When a phase is sufficiently long enough, the change in misses is overall negligible and we can treat cross-scope RIs as being local-scope RIs.

2.1.8 C-SHEL: Cross-Scope Eviction Lease

In SHEL it is assumed that cross-scope RIs are a negligible fraction of RIs in the program trace and so they can be neglected. However, situations where this is not the case could occur e.g., a program which has a loop comprised of multiple alternating phases, known as a *cyclic-phase program*. Such a program is given by 2-2. In this instance the longest lease may not be much less than the number of accesses in a phase and hence Cross-RIs may have a significant negative performance impact. The proposed solution to this issue is a technique called: C-SHEL.

The key question when assigning leases based on cross-scope RIs, is to which phase should the cost of lease be assigned. A naive approach is to assign the full cost of the lease to either the first phase, where the use occurs, or the second phase, where the reuse occurs. However, either choice fails to capture the true program behavior, resulting in incorrect allocations that can be detrimental to performance.

```
for (i = 0; i < 1024; i++) {
        set_scope(0); //signals cache that cpu is executing scope 0
    for (j = 0; j <i; j++) {
        for (k = 0; k < j; k++) {
            A[i][j] -= A[i][k] * A[k][j];
        }
        A[i][j] /= A[j][j];
    }
    set_scope(1); //signals cache that cpu is executing scope 1
    for (j = i; j < 1024; j++) {
        for (k = 0; k < i; k++) {
            A[i][j] -= A[i][k] * A[k][j];
        }
    }
}
```

Figure 2-2: Computational kernel of the Polybench LU benchmark which has a cyclic phase structure, with annotated scopes.

The cost of a given lease is composed of two components[11]. The first component is denoted *head cost*, defined as the contribution of RIs which are less than or equal to the lease. Accumulating the head cost for a given lease is trivial; one just divides the head cost among the phases which it occupies.

The second cost component is denoted *tail cost* and it is the contribution of all RIs greater than the lease. Calculating this component is less trivial because the tail cost of the RI of a sample contributes to all RIs which are lesser. Thus, unlike the head cost, the tail cost can't be calculated on a sample by sample basis and instead requires a second pass through the sampled trace. In C-SHEL, the cumulative head and tail costs for each RI in each phase is stored along with the RI histogram and is used to more accurately allocate the costs of each lease assignment between phases.

Given that with C-SHEL a lease assigned in one phase may impact the allocation in another contiguous phase, it is possible that assigning a lease for a phase may put another phase over budget. The procedure to address this is the following (phase A is the current phase that we intend to assign a lease to and phase B is a phase contiguous to phase A that would be over allocated by said lease assignment):

1. If the lease to be assigned to phase A is a dual lease, adjust the short lease percentage such that it no longer puts phase B over budget. If it is not a dual lease, make it one subject to the same criterion.

2. If the required short lease percentage results in a non-meaningful dual lease[1] attempt to change the last lease assigned to phase B into a dual lease. Achieve this, by selecting a short lease percentage such that the dual lease that would be chosen if cross-RIs were ignored i.e., the one that achieves phase A's target budget, can be assigned to phase A.

3. If there are no adjustments that can be made to phase B's last lease to prevent the phase from going over budget due to the proposed lease assignment to phase A, don't assign the lease.

2.1.9 Default Leases

During program execution there may be references to which no lease has been explicitly assigned. In this case, the reference would be assigned a uniform lease value, called a *default lease*. In the most extreme case, no references will have been explicitly assigned a lease. This may be because of a lack of ISA support or hardware clairvoyance necessary to determine the RI distributions for the program, or because the program structure is such that the algorithms would not provide significant benefit, which is the case for programs with very small data sets or very complex RI distributions. Performance of any lease algorithm in this situation defaults to that of fixed uniform leasing (FUL) whose performance has been shown in [19] to be capable of exceeding that of LRU depending on the lease value chosen. In that work, the ideal value of the default lease was determined empirically. In this work, the default lease value will be set at one, as it is assumed for reasons detailed in 3.2.1 that any

[1] A non-meaningful dual lease is a dual lease with a short lease percentage such that when it is descretized, the percentage is zero i.e., the short lease is always chosen

reference not assigned a lease will occur very infrequently and hence we will want data accessed by that reference to be prioritized for eviction.

2.1.10 Zero Leases

In prior work [20] [18], a reference could be assigned a lease of zero. This could happen either if the cost budget for the program or for a program scope (in the case of SHEL, C-SHEL) was met before all references had received a lease, or if the first lease assigned to a reference was a dual lease (in which case the short lease value would be 0). It was also possible to have a default lease of zero.

A lease of zero means that the cache is bypassed and the desired data word directly loaded from or stored to main memory. This requires a hardware implementation of a cache bypass mechanism. While some architectures such as AMD's Zen3 implement direct core to L3 connection, a cache bypass to main memory isn't something that exists in normal hardware.

Additionally, if there are multiple references to a block with a zero lease (say a stream access), it can result in worse performance than just uploading the block into cache memory. And this can be true even in the worst case where this triggers the eviction and write back of a different block that will be required in the near future. Given these issues, it is highly unlikely caches will be built with cache bypass mechanisms. As this work is intended to showcase the benefits of a lease cache using realistic hardware, the leases for all references will be set to 1 and cost budgets adjusted accordingly before any of the lease assignment algorithms are executed.

Chapter 3

Lease Cache Design

This chapter documents a modified version of lease cache hardware implementation introduced in [20]. The design presented is for a generalized n-set associative hardware cache. The software support and hardware-software interface is then detailed, including the necessary additions to support scope annotation. Two hardware support designs: a front-end reuse variable rate sampler, and a dynamic cache line tracker are presented. The designs all make use of generic parameters, for which the specific values used to generate the results in 5 are later detailed in 4.1.4.

3.1 Lease Cache Implementation

Any useful hardware lease cache implementation must achieve three things. First, it must minimize the increase in resources required compared to traditional state of the industry designs. Second, it must retain similar latencies as traditional caching technologies while minimizing any additional overhead. Finally, it must have operations that are transparent to the software so there can be coordination between the two, the main motivating factor for lease caching.

3.1.1 Hardware

The lease cache hardware design implemented as a pipeline in [20] has the following stages:

1. Lease lookup: hardware to translate a memory reference to a lease assignment.

2. Lease update: hardware to update active leases and to generate a cache replacement address.

The dedicated lease cache components are built around a general cache structure (same pipeline stages for reading and writing to the cache from CPU and main memory, same Content-Addressable Memory (CAM), communication buses, etc). This is to ensure consistency in comparisons to alternative cache policies. Indeed, the lease cache itself implements a secondary auxiliary replacement policy, which is detailed more here 3.1.1.3. The full lease cache structure is shown in Figure 3-1.

3.1.1.1 Lease Lookup Table

The lease lookup table (LLT) is a CAM. The lease lookup table originally consisted of four fields.

1. reference address: the reference address corresponding to a given lease assignment.

2. short lease: the short lease value for a given lease assignment.

3. long lease: the long lease value for a dual lease assignment, irrelevant for lease assignments that do not have dual leases.

4. short lease probability: the probability that the shorter of the two leases for a lease assignment with a dual lease will be selected.

While fields 1-3 are the direct outputs of the various lease assignment algorithms as RIs and addresses are integers, the short lease probability produced is a floating point number. In order for that to be represented in hardware, this probability value

is mapped into an integer range of 0 to 2^{d-1} via equation 3.1, where d is the bit-width of the probability field and p is the floating point value produced from the algorithm. The unsigned maximum of the field represents 100%.

$$round(p * (2 << (d-1)) - 1) \tag{3.1}$$

The fields of the table are aligned such that finding a reference address match will provide all associated information without the need for additional hashing. When the core makes a memory access request, it also provides the lease cache with the address of the accessing instruction. This reference address is simultaneously compared to all entries in the first field. This produces both the index of the matching element (if any), and a match signal which is an output from the LLT.

Given that there is only a single dual-lease per phase assigned to a single reference in that phase, there is a large amount of redundant information. Additionally, the LLT need not be full[1] and the vacant entries take up unnecessary storage space.

For any program, CLAM and PRL have only a single set of leases, and the LLT is populated with this information before program execution. In this case, because the LLT will not change during program execution, the redundant information is of no-consequence because it has no effect on performance.

The same can't be said for SHEL and C-SHEL however, which have individual sets of leases for each phase in the program. Upon a phase change, the cache must stall the CPU to populate the LLT with the lease information for the new phase fetched from main memory. Particularly in a cyclic-phase program, this could result in significant overhead costs. This motivated several changes to the original LLT structure and to the cache hardware to minimize the overhead of a phase change.

Given that only one lease in a phase has a dual lease, the only needed pieces of information are: the value of the long lease, the reference to which the dual lease is assigned, and the short lease probability value for that lease. These can be stored in memory as part of a header that precedes the actual lease information for a phase.

[1] In fact, for the LLT size and GCC options given in 4.1.4 it never is full for the benchmarks used in this work.

This allows the elimination of fields three and four of the LLT. The impact of this is a reduction of nearly 50% in clock cycles to populate the LLT (it's less than 50% because we now have a header for each phase).

LLT population can be further sped up by only populating entries in the LLT for which there are actual lease assignments e.g., if there are 128 possible entries in the LLT, but a phase has only four lease assignments, only four elements would be read in. For phases with few references, this can represent a speedup of an OOM or more! To facilitate this, the number of references in a given phase is added to the phase's header. The nuance here is that flow control means a reference does not have to be unique to a phase, and hence all entries for the previous phase must be invalidated to avoid unexpected behavior. In other words, the number of entries to be written is the greater of the number of references in the new phase and the number of references in the previous phase.

3.1.1.2 Lease Lookup

The green box in Fig 3-2 contains the lease lookup circuitry. The LLT has two outputs: a match bit indicating whether the reference is in the table, and the short lease value for the reference. In parallel to the LLT operation, the reference address is compared to the reference address of the dual lease for the phase (if any). If they match, the short lease probability of the phase's dual lease is passed through. Otherwise, the maximum probability value is passed through. If the assigned probability value is greater than the output of the LFSR, the short lease of the reference is passed through. Else, the long lease of the phase's dual lease is passed through. Ultimately, whether there is a LLT match or not determines if the lease assignment is the value read from the LLT or the default lease.

3.1.1.3 Lease Update

For choosing a replacement address in an N set-associative lease cache, there are four distinct cases to handle:

1. There are no expired cache lines in a set.

2. There is exactly one expired cache line in a set.

3. There is more than one expired cache line in a set.

4. A default lease has been assigned more than x times consecutively.

Case one represents over-allocation and the current theory of lease caching does not yet instruct which unexpired line should be selected. [6] says that the ideal eviction candidate is the block with the furthest reuse or longest remaining lease. However, all lease algorithms assign leases based on PPUC and not largest RI, and so the block with the largest lease can't be assumed to be the block with the furthest reuse. Consequently, this case requires a auxiliary policy.

The specific secondary policy chosen is random eviction. Random eviction requires minimal resources to implement: only a single additional LFSR. Moreover, random eviction tends to preform better compared to PLRU or FIFO for workloads with random access patterns or anti-recent (workloads without temporal locality), which are the sort of workloads where the lease cache would be more likely to suffer from over-allocation and consequently make use of the secondary policy.

Case two represents the trivial case, with the obvious eviction candidate being the expired line. Case three represents an under-allocated cache and presents a choice between multiple possible eviction candidates. There is no way to determine the best choice with the information the lease cache has, so the highest expired line will be selected as the eviction candidate since the highest expired line is easily determined with a standard priority encoder. There is an ideal candidate for eviction and it's likely that it will not be the highest expired line in the cache; hence under-allocation can hurt performance.

In addition to these three cases, there is a fourth practical case. As mentioned in 2.1.9 this work uses a default lease value of one. This works well so long as the assumptions of little to no reuse for any block whose reference has no assigned lease holds. However, in the event that this is not the case, the lease cache will preform poorly as is just evicting the highest expired line in the set and completely ignoring any type of data locality. Hence the lease cache is designed such that if there are more

than x (for this work 1024 was chosen) default leases assigned consecutively, the lease cache will exclusively use the auxiliary policy until a LLT match occurs, whereupon normal operation will resume.

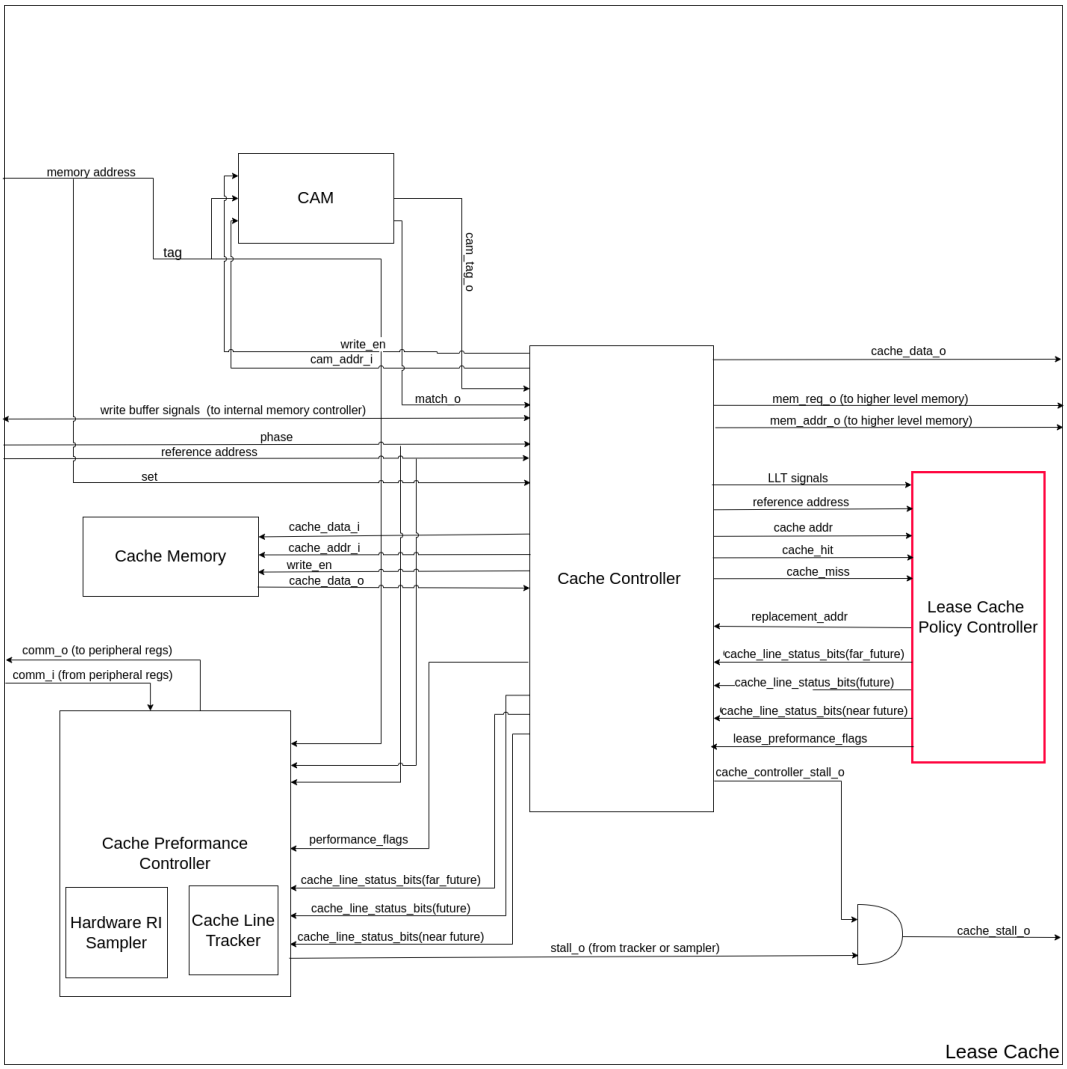

Figure 3-1: Block diagram for an n-set associative lease cache. The module outlined in red is the actual lease cache policy controller whose structure is detailed in 3-2

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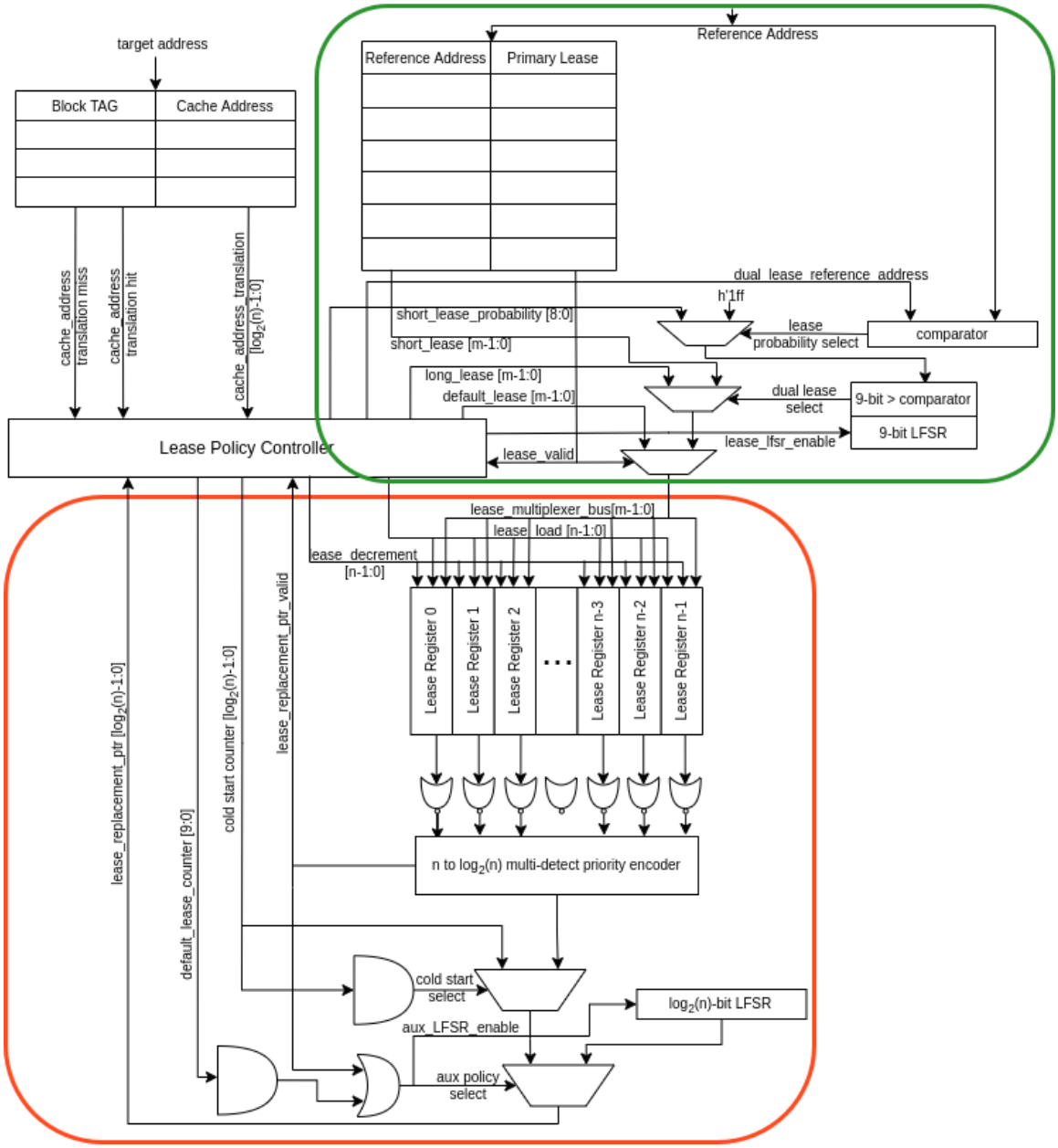

Figure 3-2: Lease cache policy controller for a fully associative cache with n blocks. The components in the dark green box are the lease lookup circuitry. The components in the red box are the replacement logic and lease update circuitry.

The red box in 3-2 contains the lease update and replacement generation logic. Once the lease lookup step has completed and the proper lease value has been determined, the lease update step commences. If there is a cache hit then the lease register corresponding to the matching block is given the lease value and all other non-zero lease registers are decremented. If there is a cache miss, then a replacement address

is generated and the associated lease register is given the value of the lease while all other non-zero lease registers are decremented; this requires an additional clock cycle compared to the cache hit.

The lease registers are fed into a reduction NOR gate array (equality comparison with 0) to generate expired flags for each lease register (a lease register is expired when its value is zero). On a per set basis, the expired flags are inputs to custom priority encoders, which determine the highest expired cache line and whether there is 0, 1, or 2+ expired lines in the set. These custom primary encoders are recursively implemented using modified 4 to 2 priority encoders that can detect if more than 1 bit is set. Fig. 3-3 depicts the design for a set with 16 lease registers. Assuming the cache is not in the cold start phase, which is when there are cache lines without a valid data block (the replacement address would just be the next highest unused line if it was), the concatenation of the set number and the output of an LSFR is the replacement address if the valid output from the encoder is false or if the default lease counter has exceeded a certain value. This covers cases one and four. In the event of cases two or three, where the valid output from the encoder is true, the replacement address is the concatenation of the encoded value and the set number.

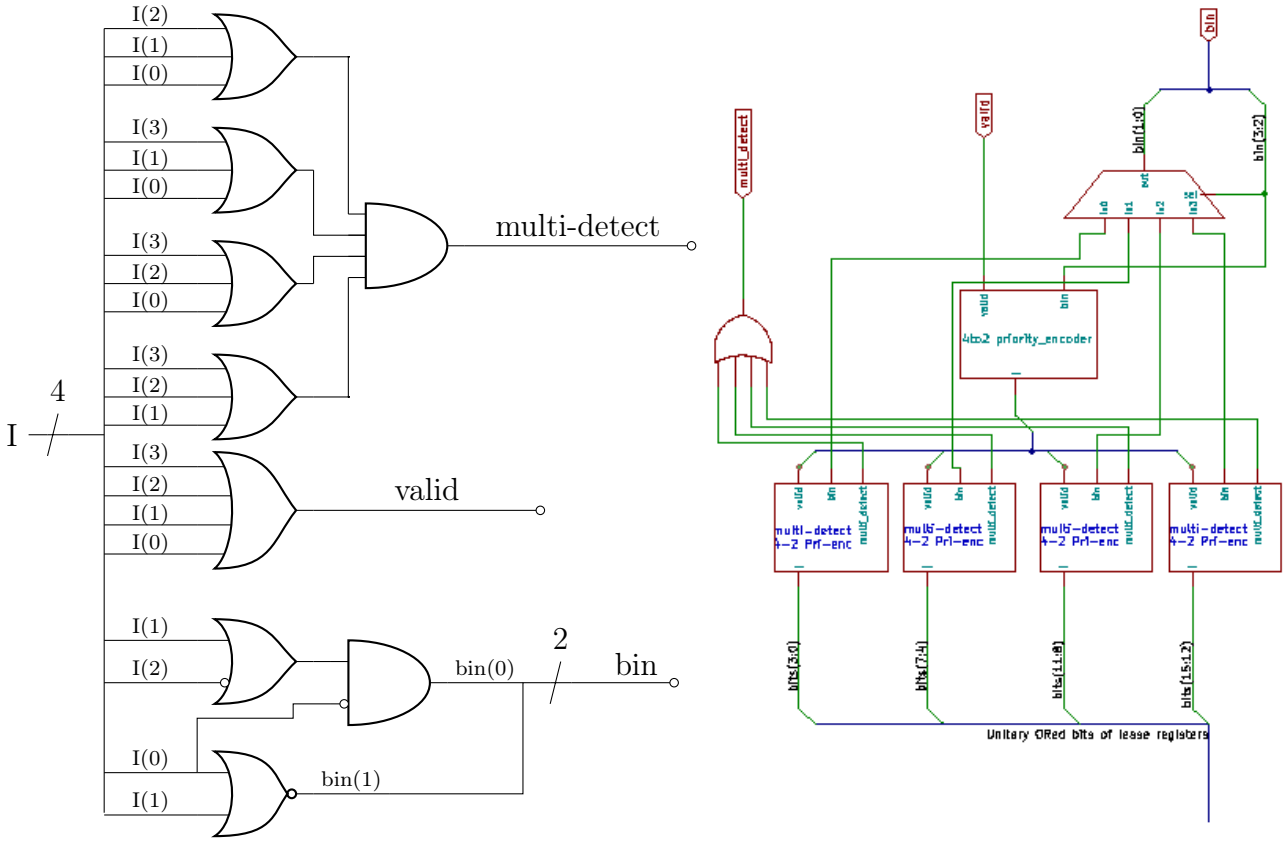

Figure 3-3: The circuit for a 4 to 2 multi-detect priority encoder(left) and the schematic for a 16 to 4 multi-detect priority encoder (right).

3.1.2 Software

In order for the architecture described in the proceeding section to work, it needs to be able to obtain the lease information from main memory when it needs to populate or repopulate the LLT. Ideally, this would happen invisibly without need for signaling from the software. This is accomplished by use of a custom linker file which deterministically places the lease partition at a specific address at the end of the read-only memory. Figure 3-4 shows the main memory structure constructed by the linker for the system used in this work. Figure 3-5 depicts a broad overview of the software flow for lease cache algorithm testing.

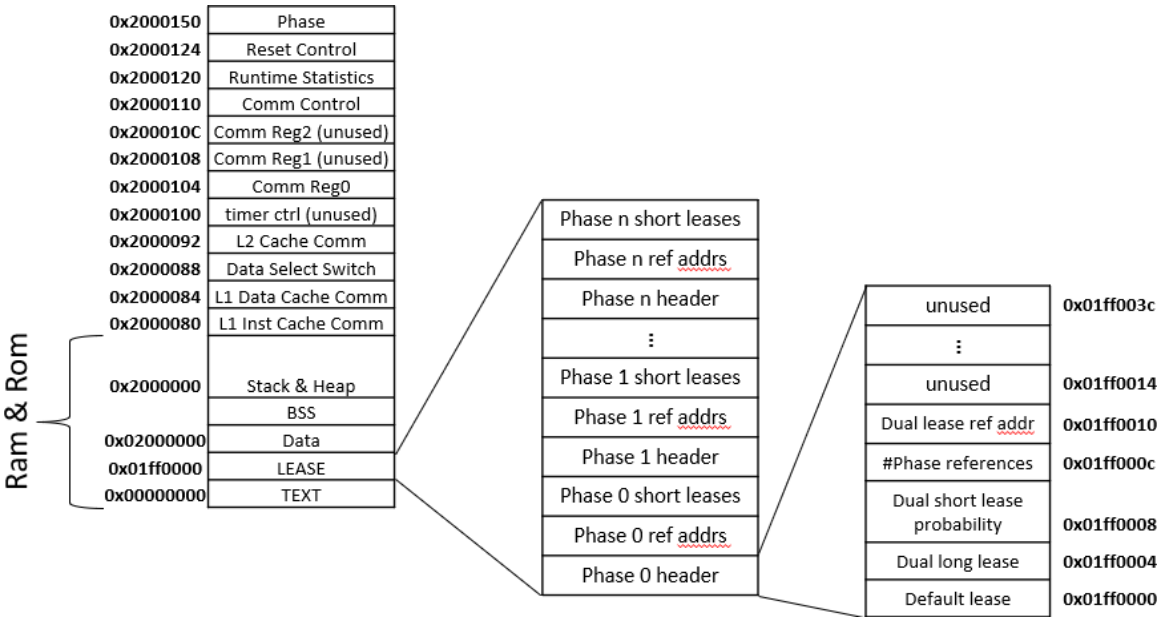

Figure 3-4: Main memory structure and I/O registers. With an LLT with L entries, there are N possible scopes where N=$\lfloor \frac{leasepartitionsize}{(2L+16)*4} \rfloor$. Main memory in the image is 512 MB and the lease partition size is 64 KB.

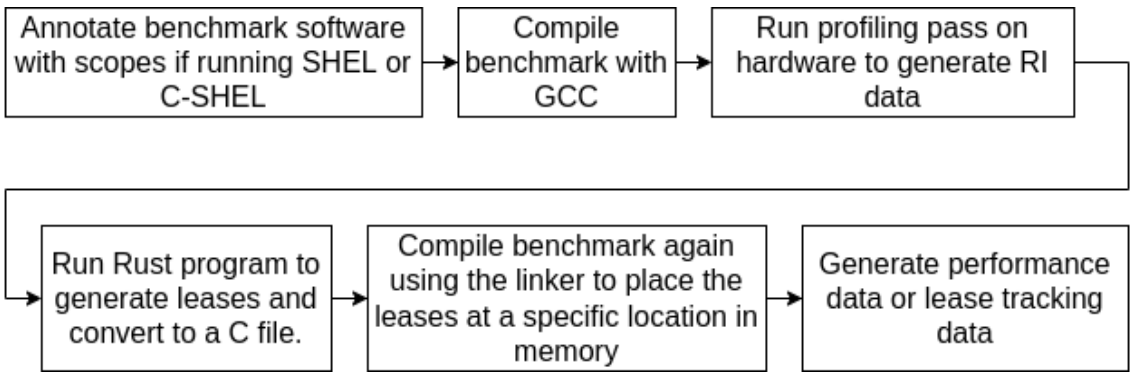

Figure 3-5: Broad overview of the software flow process to generate and evaluate cache leasing algorithms.

3.1.2.1 Scope annotation

While unnecessary for CLAM or PRL, SHEL and C-SHEL introduced programs with phases, requiring runtime population of the LLT with correct lease information. To accomplish this, a combination of hardware and software design is required. The software must have some way of signaling the cache when there is a phase change.

The method chosen to accomplish this is very similar to the way the programs signal the cache to start and stop recording cache statistics.

The beginning of each program scope is manually annotated with a function. An example of this is Figure 2-2. When the CPU executes the function, it writes to an I/O register (the phase register) the number of the new phase. The lease cache has direct and continuous access to this register and checks it every clock cycle when it's idle (not servicing a memory request). Upon detecting a phase change, the cache will stall the CPU[2] and populate the LLT with the new phase information. The cache automatically requests the correct phase information because the base address of the lease partition is hard coded into the lease cache. The lease cache calculates the base address of the phase's lease information via Eq. 3.2, where p is the phase, lba is the base address of the lease partition, l is the number of entries in the LLT, and pba is the base address of phase p.

$$pba = lba + \mathrm{p} \ll (\lceil \log_2(l) \rceil + 1) + p \ll 4 \tag{3.2}$$

3.2 Lease Cache Hardware Support

To gather the necessary information for CLAM requires additional hardware circuitry. The following section details a hardware reference sampler and its operation. Further, a cache line tracker used for real-time measurement of lease-cache utilization is described.

3.2.1 Sampler

All of the lease assignment algorithms are driven by the reuse intervals of a program. A compiler would have the necessary capability to analyze any given deterministic program i.e., a program that does not have any I/O operations from an external device, and from the High Level Programming Language (HLPL), determine the RI

[2]This is only true if the lease cache is placed at L1. If the cache is multi-level and the lease cache is not used in L1, it will just signal to the lower level cache e.g., if the lease cache is used in L2, then it will signal to L1 that it is busy.

behavior for the program. However, this would require ISA support that does not currently exist. Consequently, the necessary clairvoyance to obtain the RI histograms is achieved by an initial profiling pass of the program via usage of a hardware sampler. The hardware sampler continuously snoops on the memory bus between the cache and the CPU (for multi-level cache, it would be the bus between L1 and L2). The sampler repeatedly samples bus transactions and generates the RI histogram from the samples.

Sampling is done pseudo-randomly (via an LFSR). Sampling at a consistent rate would miss all references that don't occur on some multiple of the period. The LFSR is seeded prior to the start of a program. A counter is incremented at every access. A sample is taken when the counter value is equal to the LFSR output. The counter is then reset and the LFSR activated to generate a new random number. The process then repeats. The goal is to sample all memory references that occur in the program, but this isn't necessarily required. It is assumed that that any reference that is not captured represents an insignificant fraction of references that occur at run-time.

When sampling occurs, the tag of the block being requested by the access and the phase reference address (concatenation of the reference address of the instruction and phase in which that reference occurred) are stored in a lookup table. Each entry in the table also has an associated counter that is incremented with every subsequent memory access. When a reuse occurs (that is a lookup table match of the tag given by a new reference), the sampler writes out the corresponding entry in the lookup table, along with the associated counter value and the elapsed time since the sampling began (also in terms of logical time) to a hardware buffer which can be accessed by external hardware. The lookup table entry is removed after being written out. Figure 3-6 depicts this process.

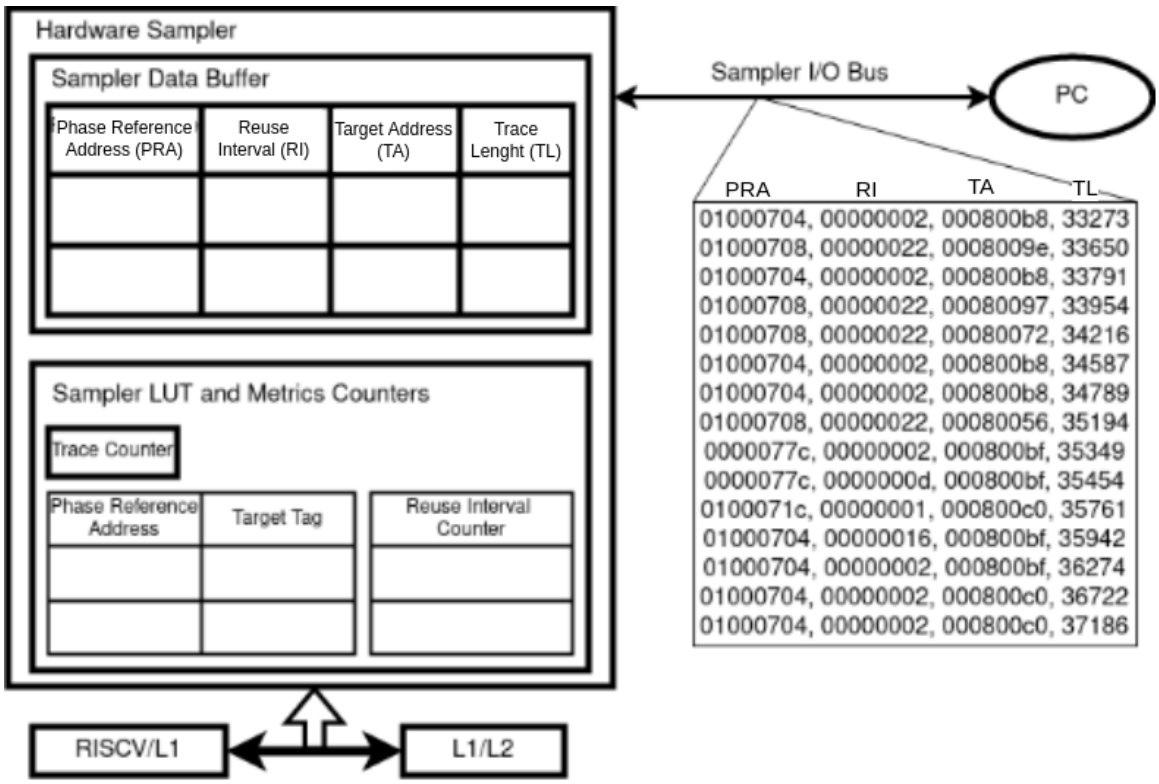

Figure 3-6: Hardware reuse sampler system overview. The csv file shows the system output with the fields in the same order as the hardware buffer.

In the event that the lookup table is full when a new sample is taken, the lookup table with the longest RI (largest counter value) is evicted from the table and written out to the buffer. This is exactly the same as with a reuse, except that the negative value of the counter (its two's compliment) is written out to indicate that this does not represent a valid RI. We call such an RI, an *infinite RI*. When sampling for a program concludes, the remaining entries in the lookup table are treated in the same manner. Given that negative values are used to represent non-RIs and the RI field is 32-bits in width, the max RI that can be detected is the max value of a 32-bit signed-int (2147483647). An RI of such a length is far beyond what would be expected in any program being tested in this work, so this does not effect the ability to determine accurately the RI histograms.

3.2.1.1 Optimal Sampling Rates

The maximum average length of an RI that can be detected by the hardware sampler is the product of the sampling rate and the lookup-table capacity. Increasing the size of the lookup table will increase the average maximum length of the RIs by decreasing the number of early evictions without changing the total number of samples taken. However, there are real limits to the capacity of the lookup table. The lookup table is a CAM, which means that it must use logic registers instead of RAM to store the data in order to be able to simultaneously compare every stored tag against the tag of the current access. In addition, there are a large number of interconnects required for the logic of the lookup table.

While feasibility for a realistic system that could be mass-adopted is not really relevant because the very idea of a profiling pass is already antithetical to the idea of lease cache use in a real system, the required logic elements constrain the size of the lookup table in our test setup to 265 entries [3]

Decreasing the sampling rate (increasing the number of references per sample) will result in a proportional increase in the maximum capturable average RI length. However, this will also decrease sampling granularity, resulting in a lower probability that the sampled RIs represent the true RI behavior of the program. In extremis, the assumption that the non-captured references represent an insignificant portion of accesses will be false. A higher sampling rate increases sampling granularity, but results in more early evictions, skewing the RI distribution by reducing its right tail.

An optimal sampling rate would be the lowest rate that could capture the maximum, non-outlier RI for a given program. However, there is no way to feasibly determine this as what that rate might be is completely dependent on the nature of the RI distribution. If there are a large number of short RIs and a small number of

[3]For the FPGA mentioned in 4.1, the maximum size of the lease lookup table is 512 entries for a system which has a single-level cache and 256 entries for a multi-level cache system (to be more specfic you can have 256 entries if you use a PLRU lease policy controller, but since sampling is policy agnositic, this ultimately doesn't matter). If you try 512 entries for a multi-level system, you will run out of Adaptive Logic Modules (ALM), which are the basic building block for Intel FPGAs. We consequently chose 256 entries for all systems to give maximum similarties between multi-level and single-level setups.

long RIs, it should be expected that even a low rate of sampling should be able to capture all these RIs without too many early evictions. If instead, there are a large number of long RIs, even if the long RIs are of the same length as in the previous program, a much higher sampling rate would be required. In this case, the sampling rate was arbitrarily chosen to be 256 accesses per sample, the same as in proceeding works, resulting in a maximum average RI length of $256^2 = 65536$.

In order to test that 256 accesses per sample is an acceptable sampling rate and the impact of selecting other sampling rates and different sampling patterns, the hardware sampler was modified to be a variable-rate hardware sampler, which can be passed sampling rates that are powers of 2 in the range 1-32767 and a seed value between 1-16383. This modified sampler was used to generate the sensitivity test results detailed in 5.2.

3.2.1.2 Why Hardware Sampling?

So at first glance, it would seem that a profiling pass with a hardware sampler is a suboptimal way of doing things that forces compromises e.g., limited lookup table size. The reason for this solution was a toolchain problem in CLAM. The RI analysis compiler we have was written in LLVM and based on source code analysis, while our experimental system uses GCC for binary compilation.

Even if we ported that analyser to GCC, it still couldn't be used to generate proper leases. First, the binary address of loads and stores is determined by the linker, so at the source level, the compiler analysis does not know the reference address. Second, lease time is counted by the number of loads and stores but at the source level, compiler analysis does not know all of the memory accesses.

Hardware sampling was deemed an acceptable alternative that could be implemented with far less effort than trying to rectify these issues.

3.2.2 Tracker

Cache utilization represents a metric for determining the effectiveness of cache management policies. Reactive caches have no concept of cache utilization as there is no way of determining if a block will be reused or not. However, lease caches do have the necessary information needed to determine the instantaneous cache utilization at any point during a program's runtime. The information comes from the lease cache's lease registers. If many leases are expired, the cache is under-allocated. If there are no expired leases, then the cache is over-allocated. This utilization metric can then be employed to fine tune lease assignment algorithms.

Collection of cache utilization is done using much of the same architecture as in 3.2.1. However, instead of sampling bus transactions, the tracker collects the status of every lease register at fixed intervals and writes them to a hardware buffer.

$$\text{long\_lease} = |(lease[N-1:16]) \tag{3.3}$$

$$\text{medium\_lease} = |(lease[15:8]) \tag{3.4}$$

$$\text{short\_lease} = |(lease[7:0]) \tag{3.5}$$

The amount of data involved makes it impractical to capture and store the exact state of each lease register so Equations 3.3-3.5 are used to approximate by splitting each lease register of N-bits into 3 non-overlapping bit groups, each one used to a drive a unitary OR reduction gate. The result is that the state of each lease register is represented with only 3 bits, each representing a reuse qualification: Far-future, future, or near-future. The unitary NOR reduction of all three bits shows whether or not the lease is expired.

Chapter 4

Test System

In order to actually test the lease cache described in the prior chapter, there must be a system which can execute programs and gather performance data during their execution. The following chapter details the system used for testing and explains a couple of the data metrics used for evaluation.

4.1 Test System

The test system for single-level (Figure 4-1) and multi-level cache (Figure 4-2) is built on the Cyclone V GT development kit[3]. The various cache memories, external and internal memory controllers, CPU core, and system controller, as well as the hardware sampler, hardware tracker, and cache performance monitors are implemented in the fabric of the development kit's FPGA. An external host computer, communicating via a software proxy with the test system's JTAG interface is used for data management and overall control. This section details the various hardware subsystems.

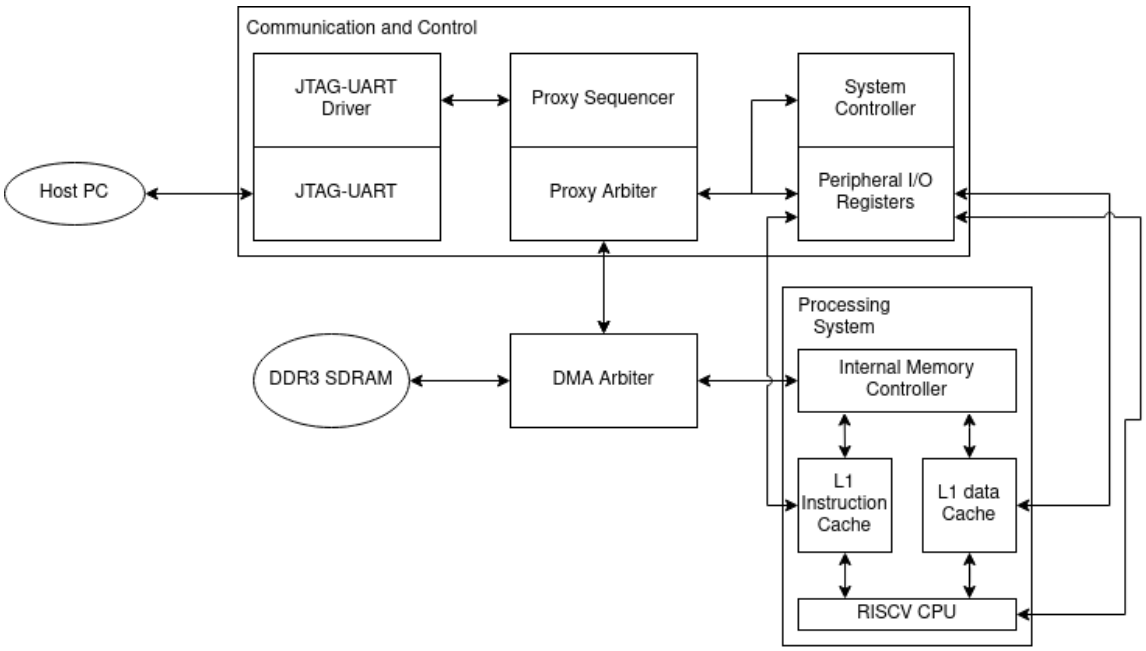

Figure 4-1: Single-level Cache Test System

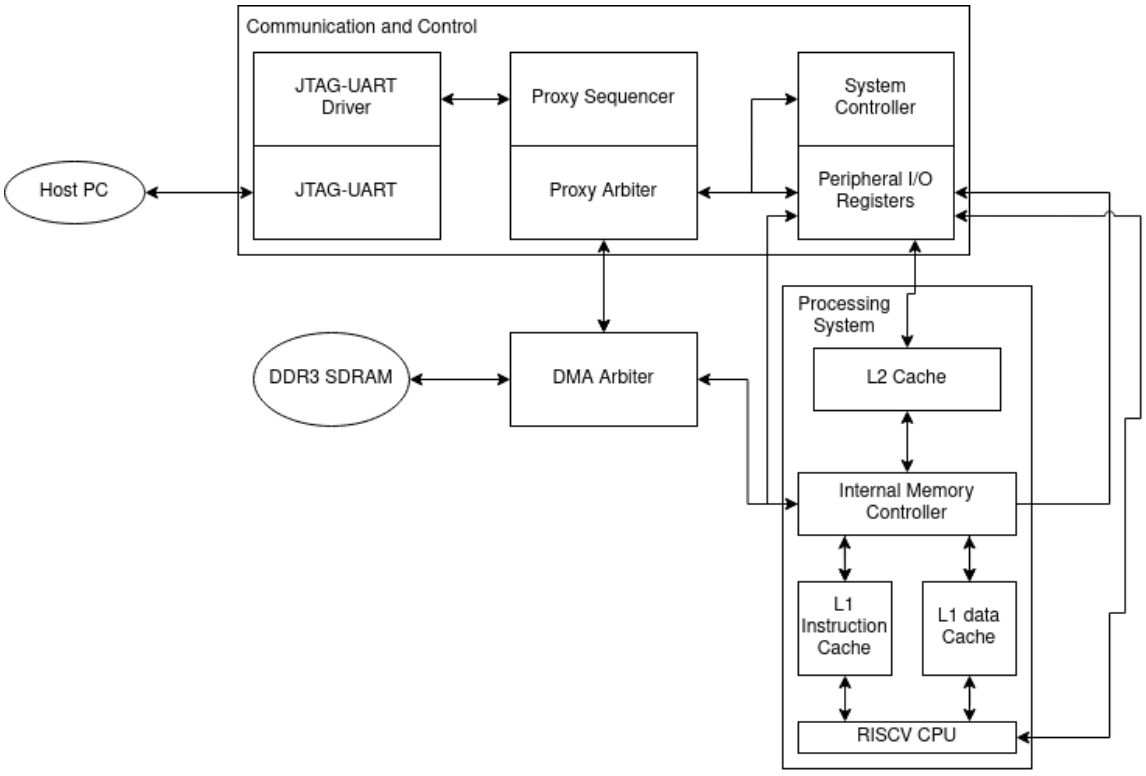

Figure 4-2: Multi-level Cache Test System

Table 4.1: Resource Usage

Project	ALMs Needed	Combinational ALUTs	Logic Registers	Block Memory Bits	Memory Blocks	DSP Blocks
Single-level lease cache	38225.1	52696	45399	3954573	525	10
Multi-level lease cache	58431.2	81982	80876	6495390	846	10
Single-level PLRU cache	29858.3	40399	33469	1604704	225	10
Multi-level PLRU cache	40249.5	52273	47695	1866848	257	10

4.1.1 Resource Useage

To gather the data used in this work, 4 different FPGA designs were required

- Single-level lease cache: a single-level cache system with a instruction cache with a PLRU policy and a data cache with a lease policy and a cache-line tracker.
- Single-level PLRU cache: a single-level cache system with a PLRU policy for both the instruction and data caches and no cache-line tracker.
- Multi-level lease cache: a multi-level cache system with split l1-caches using a PLRU policy and a combined L2 using a lease policy and a cache line-tracker.
- Multi-level PLRU cache: a multi-level cache system with all caches making use of a PLRU policy and no cache-line tracker.

Table 4.1 gives the resource used by each design. An ALM is the basic building block of Intel FPGAs, and consists of two Combinational Adaptive Look-Up Tables (ALUT), 2 full adders, and 4 registers. Digital Signal Processing (DSP) blocks are dedicated hardware blocks that contain multipliers with optional accumulators intended to be used to efficiently implement floating and fixed point operations; these are used by the hardware multipler and divider as well as the floating point Arithmetic Logic Unit (ALU) that are part of the CPU.

4.1.2 Processor System

The processor is a partial implementation of the open source RISC-V ISA [25]. The core is a six-stage pipeline that implements the 32-bit base integer instruction set

(excluding environmental calls and memory ordering instructions), the M standard extension set for multiplication and division by way of a hardware multiplier and divider, and the "F" standard extension set for single-precision floating-point by way of a hardware floating point ALU. Multiplication, division and floating point operations are implemented using Intel IP. The core has a 2-bit branch prediction with a 64-entry table managed by a LRU eviction policy, which defaults to not taking the branch for branches not in the table.

Core read and writes from the single-level cache have single-cycle latency. No cache optimizations are implemented except a write-back buffer for each level of cache. The cache is capable of performing (if zero leases were used) single word and block (a block has 16 words) read and write operations. In multi-level variants, L1 and L2 are inclusive caches. Both CPU and caches operate at a frequency of 40 MHZ.

For the single-level cache, the lease cache is employed only for the data cache, while the instruction cache makes use of a PLRU eviction policy. The reason for this is that given the code size of the benchmarks being used for testing, there is not a significant number of evictions from the instruction cache and thus there is no way to meaningfully evaluate performance in comparison to other policies. For the multi-level cache system, the lease cache is used for L2, while the L1 caches use PLRU eviction policies.

4.1.2.1 RISCV GNU Toolchain

Programs are cross-compiled using the RISC-V GNU tool chain [1], a version of the C/C++ GCC compiler. Compiled applications are linked into ELF binaries according to the custom linker file, whose structure is displayed in Figure 3-4. The compiler optimization level is O3 with vectorization specifically disabled (as support for vector instructions is not yet implemented). The exact settings used by the compiler are given in Table 4.2. It should be noted that the *riscv-none-embed* toolchain used to compile the programs in this work is deprecated and was superseded by *riscv-unknown-elf*.

Table 4.2: RISC-V Tool Chain Compiler Options

Compiler Option	Compiler Value	Description
specs	nosys.specs	System is bare-metal without support for system calls. Links library nosys.
march	rv32imf	Hardware supports the 32-bit RISC-V integer base instruction set (I) and the standard multiplication (M) and single-precision floating point (F) extensions.
mdiv	n\a	Use hardware division instructions.
mfdiv	n\a	Use hardware floating point division instructions.
mabi	ilp32f	Integer; pointer; and long types are 32-bit and 32-bit floating point values can be passed in registers.
O3	n\a	Use O3 optimization levels.
fno-tree-slp-vectorize	n\a	Do not preform basic block vectorization on trees
fno-tree-loop-vectorize	n\a	Do not preform loop vectorization on trees
fno-tree-vectorize	n\a	Do not preform vectorization on trees (probably redundant with previous two options.)

4.1.3 Control and Communication

The system is bare-metal and requires external infrastructure for data acquisition and system control. While the development board does have a number of different standard communication ports (4x PCIe, gigabit Ethernet, 2 high-speed mezzanine connectors (HSMC) with 4 high speed transceivers each, and one serial digital interface (SDI) channel), to reduce development time, the dev kit's JTAG port is used for communication with the external host. This solution had been previously developed as a workaround for the lack of I/O ports (besides an archaic PS/2 connector) on the DE0-CV dev kit, for which the system had originally been designed. The hardware communication interface in the FPGA fabric consists of a JTAG-UART circuit, which receives and transmit packets, connected to a communications proxy which sequences the raw packets into a protocol and communicates with other hardware sub-systems. The proxy connects to the following:

1. *DMA arbiter*: A DMA controller which allows the proxy to write program binaries directly to main memory.

2. *Peripheral I/O Registers*: Controls test execution, internal system resets, and gathers data from cache performance controllers, the hardware RI sampler, and the cache line tracker.

4.1.3.1 Test Sequence

The procedure for reuse interval sampling and cache line tracking is quite similar to the procedure for performance evaluation. The host puts all but the JTAG-UART interface into reset and seizes read and write control of system main memory. The host transmits the contents of the compressed[1] binary to the FPGA over the JTAG-UART interface as a sequence of packets. These packets are then sequenced into a series of writes to main memory by the hardware proxy on the FPGA. The host then reads back from the locations it wrote in main memory. If there is a discrepancy, the correct value will then be rewritten to that address and the value checked once more. This process repeats until either the value written is the value read or a certain number of iterations has been reached whereupon the program will terminate with an error.

Assuming that the program has been successfully written, the host relinquishes access to main memory to the CPU and brings all systems out of reset. In the case of a lease cache, the CPU will remain stalled until the set of leases for the 0^{th} phase is loaded into the lease lookup table. Program execution commences next.

Program run-time initialization and, with three exceptions (*cholesky*, *lu*, and *ludcmp*), pre-kernel array initialization represents negligible portions of program execution time. As such, sampling, tracking, and performance evaluation is only preformed on the program kernel. If the working set of a program is significantly larger than the cache, having different initial cache states upon kernel initiation should have little impact on measured performance. It will have no impact on comparisons between lease assignment algorithms since they all will operate identically on code segments whose references have no assigned leases and hence will end up with the same state;

[1] compression in this case means that the binary output of the compiler has been compacted such that it only contains the actual program code and values for ROM locations that need to be initalized.

the only impact should be on comparing non-lease policies to lease policies. Consequently, since flushing the cache before kernel execution requires the implementation of non-trivial hardware complexity, the cache is not flushed before kernel initiation.

Each cache has a dedicated hardware performance monitor which logs general cache performance statistics such as hits, misses, write-backs, etc, as well as lease-cache specific ones such as evictions that occurred when there are 0, 1, or 2+ leases expired and the number of default leases assigned. At the beginning of kernel execution, the CPU sets a flag that tells the monitors to begin recording data. During tracking or sampling, it will additionally enable the tracker or sampler, respectively.

During the course of program execution, the host is continually polling the value of a test status flag in a peripheral register. When the kernel execution completes, the RISC CPU clears the flag it had previously set, terminating all data recording and then sets the test status flag high, notifying the host that kernel execution has ended. The host then requests the performance statistics from all caches in the system. These values are written out to a CSV file and also output to the terminal screen. This procedure remains constant regardless if it is a single-level cache or a multi-level cache system.

There are some minor differences when tracking or sampling. After loading the binary, the software proxy will pull the peripherals and cache, but not the CPU out of reset. The sampler or tracker is then selected by writing to a peripheral register. If sampling, the proxy will write directly to the sampler, specifying a given initial seed for the LFSR and sampling rate. If tracking, the proxy will write the sampling rate directly to the tracker. Only after these is the CPU pulled out of reset.

During kernel execution, when the sampler or tracker is full, the CPU is stalled and a flag is set. The host is polling not just for the test status flag, but also for this buffer full flag. If the flag is high, the host writes out the contents of the buffer in question to a CSV file and then clears the buffer, allowing execution to resume. When kernel execution terminates, sampling or tracking is disabled. The remaining entries in the buffer are then written out to the CSV. If sampling, the remaining entries in the lookup table are additionally written first to the buffer and then to the CSV.

4.1.4 Design Parameters

The design parameters listed and used here have not been optimized. Ultimately, the correct values for efficient resource usage are application/arch specific. The current operating clock frequency is lower than that in a custom computer system. This could be improved if more effort would be dedicated to optimization and the design was properly constrained. The goal was to have a system that could rapidly generate the necessary data and display a functional lease cache for both single-level and multi-level caches. Table 4.3 shows the design parameters for the test system used to generate the results displayed in Chapter 5.

Table 4.3: Design parameters used for hardware tracker, reuse interval sampler, RISC CPU, cache controller, and lease cache policy controller.

Design Parameter	**Value**
Sampler LFSR Width	16-bit
Sampler Lookup-table Entries	256
Sampler Clock Frequency	40 MHZ
Sampler RI Counter Width	31-bit
Sampler Trace Counter Width	64-bit
Sampler Lookup Table Tag Width	23-bit
Sampler Table Reference Width	32-bit
Sampler Buffer Entries	8192
Sampler Buffer Fields Per Entry	4
Sampler Buffer Field Width (excluding Trace)	32-bit
Sampler Buffer Trace Field Width	64-bit
Sampler Average Sampling Rate	256 $\frac{references}{sample}$
Tracker Sampling Rate	256 $\frac{references}{sample}$
Tracker Buffer Fields Per Entry	4
L2 Tracker Buffer Field Width (excluding Trace)	512
L1 Tracker Buffer Field Width	128-bit
Tracker Trace Width	128-bit
Tracker Clock Frequency	40 MHZ
L2 Tag Lookup Latency	2 cycles
L1 Tag Lookup Latency	1 cycles
Cache Clock Frequency	40 MHZ
Cache Transfer Throughput	1 word per cycle
L1 Cache Access Latency	1 cycle
L2 Cache Access Latency	Minimum 20 clock cycles
Cache Word Size	32-bit
Cache Block Size	16 words

Design Parameter	Value
Cache Data Bus Width	32-bit
L1-I Capacity	8KB (128 blocks)
L1-D Capacity	8KB (128 blocks)
L1-I Associativity	Fully Associative
L1-D Associativity	Fully Associative
L2 Capacity	32KB (512 blocks)
L2 Associativity	Fully Associative
Main Memory Capacity	512 MB
Maximum ALU Latency	10 clock cycles
CPU Clock Frequency	40 MHZ
BTB Entries	64
BTB Branch PC Width	27-bit
BTB Branch Destination Width	27-bit
BTB Predictor Width	2-bit
BTB LRU Index Width	6-bit
LLT Victim Selection Latency	1 cycle
Lease Cache Clock Frequency	40 MHZ
Lease Cache LLT Entries	128
Lease Cache LLT Reference Address Width	27-bit
Lease Cache LLT Short Width	24-bit
Dual Lease Percentage Width	9-bit
Lease Cache Default Lease	1
Lease Cache Lease Register Width	24-bit
Lease Cache LFSR Width	9-bit

4.1.5 Polybench Suite

The most common benchmark suite used to test cache performance is the SPEC benchmark suite. However, the SPEC benchmark suite requires I/O operations and an OS to run and thus is not yet feasible. Instead, lease cache performance is analyzed with the PolyBench/C 4.2.1 [17], a benchmark suite consisting of 30 numerical kernels. These kernels represent real algorithms employed in such applications as machine learning, physics simulations, digital signal processing, and the evaluation of regular expressions. Table 4.4 lists the PolyBench kernels and a brief description. In order to ensure compatibility with our bare-metal system, POSIX-API calls have been removed from the programs where necessary. Results are reported for small, medium, and large datasets with the amount of data in each being on average roughly 128 KB, 1 MB, and 25 MB respectively (see Table 4.5 for exact numbers for each benchmark and Table

4.6 for summary and comparison to cache size). For the list of scope annotations for each benchmark see Table B.1.

Table 4.4: Benchmarks in the PolyBenchmark suite.

Benchmark	**Description**	**Comment**
2mm	2 Matrix Multiplications (D=A.B; E=C.D)	multi-scope benchmark
3mm	3 Matrix Multiplications (E=A.B; F=C.D; G=E.F)	multi-scope benchmark
adi	Alternating Direction Implicit solver	cyclic-phase, multi-scope benchmark
atax	Matrix Transpose and Vector Multiplication	single-scope benchmark
bicg	BiCG Sub Kernel of BiCGStab Linear Solver	single-scope benchmark
cholesky	Cholesky Decomposition	single-scope benchmark
correlation	Correlation Computation	multi-scope benchmark
covariance	Covariance Computation	multi-scope benchmark
deriche	Edge detection filter	multi-scope benchmark
doitgen	Multiresolution analysis kernel (MADNESS)	single-scope benchmark
durbin	Toeplitz system solver	single-scope benchmark
fdtd-2d	2-D Finite Different Time Domain Kernel	cyclic-phase, multi-scope benchmark
floyd-warshall	Dynamic programming search path	single-scope benchmark
gemm	Matrix-multiply C=alpha.A.B+beta.C	single-scope benchmark
gemver	Vector Multiplication and Matrix Addition	multi-scope benchmark
gesummv	Scalar	single-scope benchmark
gramschmidt	Gram-Schmidt decomposition	single-scope benchmark
heat-3d	Heat equation over 3-D space	cyclic-phase, multi-scope benchmark
jacobi-1D	1-D Jacobi stencil computation	single-scope benchmark
jacobi-2D	2-D Jacobi stencil computation	cyclic-phase, multi-scope benchmark
lu	LU decomposition	cyclic-phase, multi-scope benchmark
ludcmp	LU decomposition	cyclic-phase, multi-scope benchmark
mvt	Matrix Vector Product and Transpose	multi-scope benchmark
Nussinov	RNA folding prediction algorithm	single-scope benchmark
sedei-2d	2D Gauss-Seidel style stencil	single-scope benchmark
symm	Symmetric matrix-multiply	single-scope benchmark
syr2k	Symmetric rank-2k operations	single-scope benchmark
syrk	Symmetric rank-k operations	single-scope benchmark
trisolv	Triangular solver	single-scope benchmark
trmm	Triangular matrix-multiply	single-scope benchmark

Table 4.5: Size of data used by benchmark in KB

Benchmark	Dataset Size		
	small	medium	large
2mm	62	773.2	18520
3mm	93.2	1095.6	26760
adi	57.6	640	16000

atax	58.992	644.44	15984.4
bicg	59.456	646	15992
cholesky	115.2	1280	32000
correlation	58.24	481.92	12489.6
covariance	57.92	480.96	12484.8
deriche	393.216	5529.6	141557.76
doitgen	63.72	494.64	13543.04
durbin	0.96	3.2	16
fdtd-2d	57.76	576.4	14402
floyd-warshall	129.6	1000	31360
gemm	58.4	579.2	14480
gemver	61.44	652.8	16064
gesummv	65.88	503	13535.6
gramschmidt	64	614.4	15360
heat-3d	64	512	13824
jacobi-1d	0.96	3.2	16
jacobi-2d	64.8	500	13520
lu	115.2	1280	32000
ludcmp	116.64	1284.8	32024
mvt	59.52	646.4	16032
nussinov	130.32	1002	25010
seidel-2d	57.6	640	16000
symm	52.8	544	13600
syr2k	64	614.4	15360
syrk	44.8	422.4	10560
trisolv	58.56	643.2	16016
trmm	33.6	352	8800

Table 4.6: Dataset benchmark size vs cache size

Dataset Size	Size Range (KB)	Mean Size (KB)	Single-Level	Multi-Level	
			L1 cache size(KB)	L1 cache size (KB)	L2 cache size (KB)
small	0.96-393.216	77.8753	8	8	32
medium	3.2-5529.6	816.088	8	8	32
large	16-141558	20854.9	8	8	32

As a baseline for comparison, we make use of PLRU, which is a very common policy that provides similar results to LRU, but requires only a single status bit per cache line [23]. Table 4.7 shows the miss counts for PLRU for all data-set sizes and cache hierarchy.

Table 4.7: PLRU miss counts for the polybench suite for both single-level and multi-level and small, medium, and large dataset sizes.

Benchmark Name	PLRU Miss Count					
	Small Dataset		Medium Dataset		Large Dataset	
	Single-Level	Multi-Level	Single-Level	Multi-Level	Single-Level	Multi-Level
2mm	115776	1035	14020494	965631	1719625678	1761340347
3mm	240976	1809	21401885	1635095	2760228384	2870680140
adi	224830	65145	10286303	3056385	1412202502	1331258899
atax	873	897	10693	10010	1001530	262201
bicg	896	902	10459	10047	717956	256406
cholesky	18375	1644	697490	691771	109537537	85562875
correlation	567136	4543	14575731	13140573	2006101429	2005997772
covariance	566315	4222	14574638	13135491	2005995252	2006005660
deriche	113664	21631	1598408	1601216	40919050	40956694
doitgen	887	949	2365271	7356	528254400	34077896
durbin	15	37	49	71	562713	1115
fdtd-2d	83398	76941	2097002	2103450	337776002	273481016
floyd-warshall	359400	369951	7811238	7878925	2741361679	1594839227
gemm	17362	690	657320	669390	165702502	90334788
gemver	14717	2500	188715	30892	5468992	4756922
gesummv	980	1034	7824	7867	298755	211658
gramschmidt	209491	880	22085632	488393	2858353312	2885146724
heat-3d	78961	72748	2952601	1790904	419903001	419903144
jacobi-1d	3	97	3	98	203980	779
jacobi-2d	80241	80271	1572401	1556618	421852001	232319199
lu	164649	6927	18902949	1376967	2788089961	2442868887
ludcmp	57268	8256	18214449	1387348	2732046727	2441720634
mvt	13440	1719	169801	20147	4750250	4501754
nussinov	393813	51230	17595352	1625471	2709742045	2520857850
seidel-2d	36001	36822	1035401	1031882	374625001	142448789
symm	110666	3536	9208458	622300	1233664960	1137676476
syr2k	228320	4662	10997587	846173	1468542926	1417006202
syrk	40302	383	5070336	353785	751749744	627059055
trisolv	539	257	5210	5256	188668	128161
trmm	4049696	56	8264914	289253	1177543667	1122453236

4.2 Preformance Metrics

This section covers a couple of the evaluation metrics that will appear in the next chapter.

4.2.1 Geometric mean

The geometric mean is given by Equation 4.1.

$$\sqrt[n]{x_1 x_2 x_3 \dots x_n} \tag{4.1}$$

The geometric mean is the most common method used to sum performance on a set of benchmarks. It is popular because it preserves the rank of values through normalization (to the preformance of a reference machine), unlike the arithmetic or harmonic mean. However, the geometric mean (although less so than the arithmetic mean) is susceptible to outliers and no method of weighting individual values to compensate for this could be found in this instance. Moreover, in a mathematical sense, the geometric mean of a set of n values is the length of one side of an n-dimensional cube having the same volume as an n-dimensional rectangle whose sides are given by the n value. This is not at all intuitive nor does it tell one much of anything. Hence the geometric mean is of questionable value [8]. It has still been included in Figures 5-1-5-2 for reference, but it will not be directly addressed.

4.2.2 Cache Tenancy Spectrum

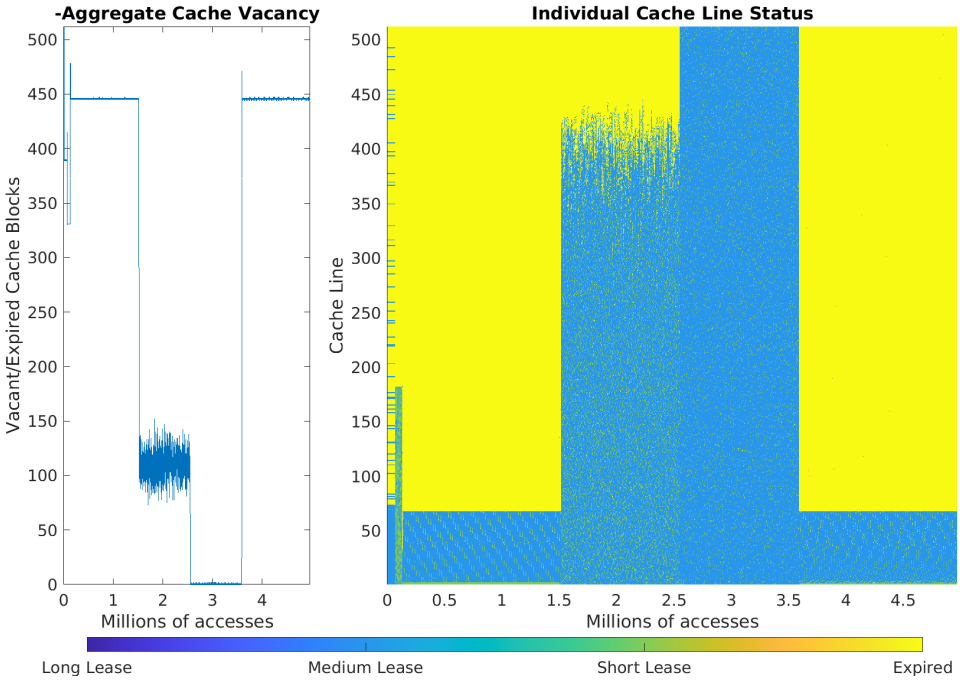

Figure 4-3: Cache tenancy spectrum for *deriche* using PRL for a medium dataset size and a multi-level cache.

Prior work introduced the cache tenancy spectrum, an example of which is given by Figure 4-3, which is plotted from the data generated by the hardware tracker detailed

in Section 3.2.2. The graph on the left is the number of cache lines with expired leases over the course of program execution, which is used as an indicator of aggregate cache vacancy. The graph on the right shows the state of the individual cache lines over program runtime, whether they have a short, mid, or long lease or are expired. For both graphs, time is measured in terms of logical time.

The main benefit of the cache tenancy spectrum is that it illustrates very nicely cache utilization for a particular set of leases. Things like phase behavior, cache contention, and under-allocation are all clearly visible. This facilitates pinpointing the nature and scope of any problems that might be impacting lease cache performance and consequently the fine-tuning of lease generation algorithms.

Chapter 5

Results and Discussion

This chapter details the results obtained using the test system described in the previous chapter. The chapter consists of a comparison between the baseline PLRU cache and the lease cache, it demonstrates the benefits of lease-caching vs current state of the industry cache management solutions. Additionally, to determine the benefits of multi-scope vs single-scope leasing and further, whether accounting for cross-scope references improves performance; evaluations of PRL vs. CLAM, PRL vs. SHEL, and SHEL vs. C-SHEL are presented. Finally, since optimal leases are generated only when there is a representative sample of the RIs in the program, the results of a sensitivity analysis of the leasing algorithms to changes in sampling rate and LSFR seed are also shown.

5.1 Lease Cache Performance

In order to thoroughly evaluate the performance of the lease cache using the developed leasing algorithms, all thirty benchmarks in the Polybench Suite were used. Previous work in [20] only used seven[1]. Tests were conducted for both the small, medium and large dataset sizes and for both single and multi-level cache systems. Because the length of the memory trace varies greatly between different benchmarks, all results

[1]The testing system previously only implemented integer instructions for the RISCV and thus was unable to run the full suite

are normalized in terms of the number of misses generated by the baseline PLRU policy.

5.1.1 CARL as a Ceiling for Lease Cache Performance

The bars labeled CARL in Figures 5-1 and 5-2 is the predicted miss count from using a given set of leases generated via the CLAM lease algorithm plus the total number of cold misses if the lease cache would have a variable size. In other words, it is the predicted number of misses that does not take into account contention misses that would occur in a real cache because of its fixed size. As such CARL can be treated as a soft ceiling for lease cache performance when compared to the baseline PLRU policy. CARL is a soft ceiling instead of a hard ceiling for two reasons:

1. The cache is not flushed prior to the beginning of the kernel. Consequently, some counted cold misses likely won't happen as the blocks will already be in the cache and the cache state between the PLRU cache and the lease cache will likely differ, potentially resulting in a different number of hits and misses unrelated to eviction.

2. The leasing algorithms predict misses using the RI histograms constructed from the output of the hardware sampler. If the sampled RIs do not constitute a representative sample of the program's behavior, then the prediction will be inaccurate.

The relative impact of Item 1 is greatest when the size of the working set is not much greater than the cache size and the maximum absolute impact will be proportional to cache size.

The impact of Item 2, can be described as the degree to which the estimated RI histograms can be trusted to be representative of the actual RI behavior. It can be estimated by looking at the sensitivity plots shown in Section 5.2. As discussed further in that section, if the results are consistent i.e., do not vary for different sampling rates and seeds, then the samples are likely to be representative of the true RI behavior.

Table 5.1: CARL miss counts for the polybench suite for both single-level and multi-level and small, medium, and large dataset sizes.

Benchmark Name	CARL Miss Count					
	Small Dataset		Medium Dataset		Large Dataset	
	Single-Level	Multi-Level	Single-Level	Multi-Level	Single-Level	Multi-Level
2mm	7907	1948	6745227	840305	1543776284	880413334
3mm	16664	1691	10327521	1321756	2525121055	1495185958
adi	68968	32883	5923243	1940000	1257305250	600147256
atax	1096	506	9620	10491	674328	247425
bicg	889	608	11868	10868	519993	245952
cholesky	15471	953	693702	595375	84939597	84475823
correlation	165447	1265	10890790	476230	1918935172	1639271911
covariance	156195	1523	10896153	466703	1918444821	1639724504
deriche	22574	24293	1138726	571390	39747098	37130448
doitgen	2618	747	301220	8751	167641963	26235510
durbin	22	37	76	66	219596	1093
fdtd-2d	73548	33473	2105871	1703184	265216706	263022920
floyd-warshall	339433	321089	7805161	7755087	1760993970	1375271410
gemm	17464	1859	663131	572159	81228253	82851017
gemver	4219	1453	40702	29563	4578756	3615133
gesummv	1050	1171	8090	7323	217190	211374
gramschmidt	13645	1873	15712613	382198	2703116387	2227232294
heat-3d	66773	32937	2070663	1502034	407804582	364329244
jacobi-1d	519	602	53	1283	128240	1269
jacobi-2d	72157	42715	1517191	1452849	261851386	211574153
lu	31270	1437	10660337	1292948	2527386255	1605160961
ludcmp	31251	1940	10531342	1296965	2514894467	1606749278
mvt	1822	938	98694	25384	4288872	3455223
nussinov	68205	38962	12880597	1358035	2528206539	1805948139
seidel-2d	30226	25028	965269	1002732	250582136	125434067
symm	16831	1148	5801345	571153	1130520141	859890316
syr2k	27141	2280	7758318	707208	1381683424	1064000868
syrk	8159	700	1882677	313260	656251624	345885420
trisolv	1354	355	6632	4936	133430	128416
trmm	7886	1439	5028988	271031	1085138575	738445605

5.1.2 Lease Caching vs PLRU for a Single-Level Cache

Figure 5-1 shows the performance for all lease-caching algorithms when using a single-level lease cache. In almost all cases, lease cache performance meets or exceeds that of PLRU. For the benchmarks where this is not the case, the primary factor is the size of the working set, which is correlated with the number of PLRU misses. *Durbin* for example has 15 and 49 misses using PLRU during kernel execution for the small and medium dataset size respectively. The working set is likely small enough that it fits inside the cache and consequently the eviction policy has little effect on benchmark execution.

For certain benchmarks CARL i.e., the declared soft performance ceiling, is greatly exceeded by the actual performance of the algorithms e.g., at the small dataset size CARL's prediction for *trisolv* is nearly 3x as many misses as CLAM and PRL achieve. This can be attributed to the first reason given in Section 5.1.1 as all of these benchmarks where this result occurrs are characterized by a very small working set size. At the large dataset size for most of the benchmarks the lease caching algorithms, especially SHEL and C-SHEL get near to or achieve CARL performance. For some of

Figure 5-1: Normalized miss counts for 13 multi-scope benchmarks (right) and 17 single-scope benchmarks (left) when using a single-level lease cache as well as their geometric means. Absolute miss counts are displayed below benchmark names. Values are reported for small (top) medium (middle) and large (bottom) datasets.

them it even exceeds it, although again, that has to do with the imperfectness of the projected misses from the RI histograms rather than any theoretical breakthrough.

5.1.3 Lease Caching vs PLRU for a Multi-Level Cache

Figure 5-2: Normalized miss counts for 13 multi-scope benchmarks (right) and 17 single-scope benchmarks (left) when using a multi-level lease cache as well as their geometric means. Absolute miss counts are displayed below benchmark names. Values are reported for small (top) medium (middle) and large (bottom) datasets.

Figure 5-2 shows the performance for all lease-caching algorithms when using a multi-level cache system, where L2 is a lease cache and L1 is a PLRU controlled cache. Looking at the small dataset, for many of the benchmarks, the lease algorithms perform worse than PLRU, frequently much worse. This is almost certainly due to the two factors mentioned in Section 5.1.1.

The cache system is functioning like it should, so there are inevitably going to be far fewer references at L2 than at L1. This means that for the small dataset size, there are not enough samples to generate accurate RI histograms; this is supported by the analysis done in Section 5.2. The much smaller number of references also means that the impact of variations in the initial state is going to be more significant. This is further compounded by the fact that the maximum magnitude of the error introduced by the failure to flush the cache state has increased four-fold because of the increased size of L2.

Looking at the medium dataset size, one can see that most benchmarks now achieve or beat PLRU in performance. Of particular note are *covariance* and *correlation* where all lease policies have 94% reduction in normalized miss count[2].

At the large dataset size, every lease policy outperforms PLRU on each benchmark except CLAM and PRL on *adi* and CLAM on *atax*. That CLAM and PRL do poorly on *adi* is the result of these algorithms producing a set of leases that cause significant over-allocation (∼70% of all evictions for PRL and CLAM in this case are random evictions). This is evidence that scoped-leasing is required to properly handle such complex RI behavior as occurs in a cyclic-phase program like *adi*.

5.1.4 CLAM vs. PRL

For a variably sized cache CLAM is optimal (provided the RI distribution is representative) as it assigns the leases with the highest global PPUC. Given that in actuality the cache is fixed-sized, the lease assignments CLAM makes may be sub-optimal causing cache under-allocation, and over-allocation over different parts of the

[2]Unless specified otherwise, all further mentions of percentage changes such as reduction or increase in this chapter refer to changes in normalized miss count.

program runtime. PRL is an attempt to address this via a temporal solution where program execution is divided into a number of equally sized phases[3] with leases being assigned to each phase in order of greatest phase local PPUC. If PRL performs as designed, CLAM and PRL should perform similarly on benchmarks where RI behavior is consistent throughout the program i.e., single-scope benchmarks. And this is broadly what is observed, especially for the single-level cache and the large dataset in the multi-level cache.

PRL should have the most improvement over CLAM on benchmarks where RI behavior varies over the course of execution, but is consistent during distinct periods separated in time e.g., multi-scope benchmarks that are not cyclic-phase programs. *2mm* and *3mm*, which are comprised of two and three independent, nested for-loops performing matrix multiplications respectively, are the best examples of this. PRL displays meaningful performance increases over CLAM on *2mm* and *3mm* except for *3mm* on a single-level cache using a medium dataset size and *2mm* on the multi-level cache using the small dataset size. Moreover, for the large dataset sizes for both cache hierarchies, the performance disparity between CLAM and PRL in terms of normalized miss count is greater for *2mm* and *3mm* than for any other benchmark.

Figure 5-3 show the cache tenancy spectrums for CLAM and PRL on gemvar for a single-level cache with a medium dataset size and is a demonstration of the benefits of PRL compared to CLAM. CLAM's leases cause the cache to be under-utilized in the first half and last fourth of the program and to be over-allocated in the other fourth. PRL reduces the allocation in the third fourth of the program, leading to reduced contention compared to CLAM while increasing utilization in the first half of the program. This more efficient utilization of the cache results in a 21% reduction for PRL compared to CLAM.

Overall, PRL due to its more conservative structure and phase aware behavior achieves an equal or lower, sometimes significantly so, normalized miss count com-

[3] In [20], it was empirically determined that increasing the number of phases above 5 provided negligible benefit, so 5 is the number of phases used for PRL in this work.

pared to CLAM in most cases and only very rarely, with the exception of the small dataset for the multi-level cache, does it have produce one that is meaningfully higher.

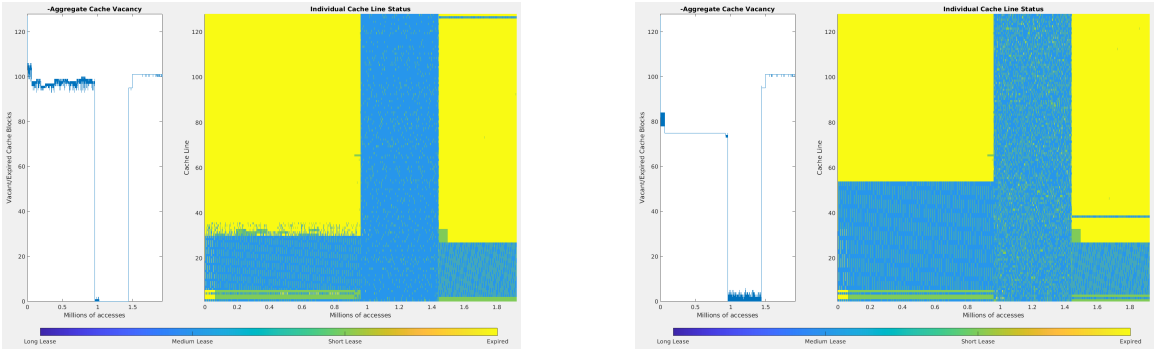

Figure 5-3: Cache tenancy spectrum for gemvar at the medium dataset size for a single-level cache for CLAM (left) and PRL (right).

5.1.5 PRL vs. SHEL

For single-scope benchmarks, the leases generated by SHEL are identical to those generated by CLAM, so it's enough to note that as mentioned in the previously section, the performance of PRL and CLAM on single-scope benchmarks are roughly similar in terms of performance. At the small dataset size in the single-level cache there is no real pattern to the relative performance of SHEL vs PRL. On some of the benchmarks with a number of phases such as *deriche* and *gemver* (6 and 4 phases respectively) SHEL outperforms PRL. Now given that SHEL has a much finer granularity to its phases, one would expect it to out-perform PRL on benchmarks with complex structures. But a look to *lu* and *ludcmp* refutes that. Both of these benchmarks are cyclic-phase benchmarks, which PRL should not be able to handle very well given its inability to escape the level of the outer-loop. Except that it not only handles them well, but it handles them better than SHEL does. Further, PRL's performance advantage over SHEL on *lu*, which has only two phases, is less than its performance advantage over SHEL on *ludcmp*, which has five phases.

At the medium dataset size for the single-level cache, things are far more clear-cut with SHEL outperforming PRL on every single benchmark except *covariance* and *correlation* on which they essentially tie. SHEL achieves 25% reduction over

PRL for *2mm*, *lu*, and *ludcmp* and a nearly 35 % reduction in *3mm*. Figure 5-4 depicts the cache tenancy spectrums for PRL and SHEL for *3mm* at the medium dataset. PRL severely under-allocates for the first two phases before fully allocating the final third. SHEL on the other hand achieves consistent and high cache utilization throughout the entirety of program runtime. This example showcases the advantages that spatial-based scoped-leasing has over temporal-based phased-leasing.

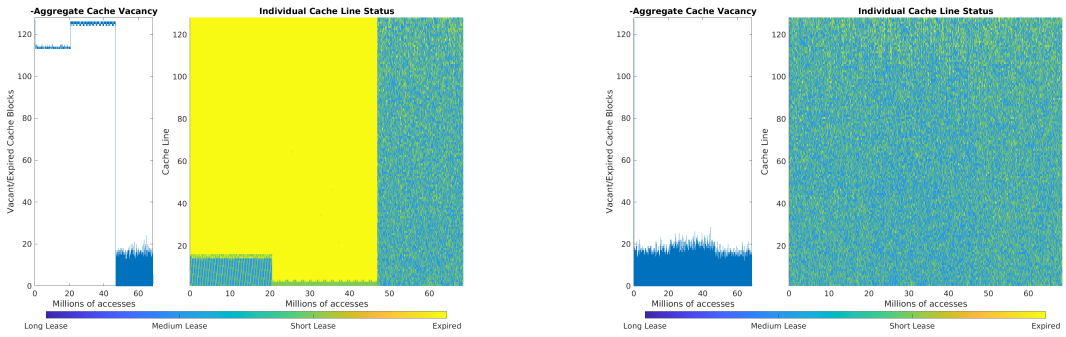

Figure 5-4: Cache tenancy spectrum for *3mm* at the medium dataset size for a single-level cache for PRL(left) and SHEL(right).

At the large dataset size for the single-level cache, SHEL meets or exceeds PRL performance for all benchmarks. Further, with the exception of *adi*, the only benchmarks where SHEL and PRL have roughly comparable performance are those benchmarks in which PRL and SHEL also achieve CARL.

At the small dataset and medium dataset size for the multi-level cache, there is again no easily perceptible pattern to the relative performance of SHEL vs PRL. Figure 5-5 shows the cache tenancy spectrum for *fdtd-2d* at the small dataset size for a multi-level cache. PRL averages a significantly lower aggregate vacancy rate over the course of program runtime compared to SHEL, while SHEL also appears to have frequent periods of significant cache contention represented by the vertical blue bars on the right graph of the cache tenancy spectrum. This can verified by looking at the number of random evictions that occurred during the run; there were 22,044 random evictions with SHEL compared to 4,079 random evictions for PRL[4].

[4] B.5

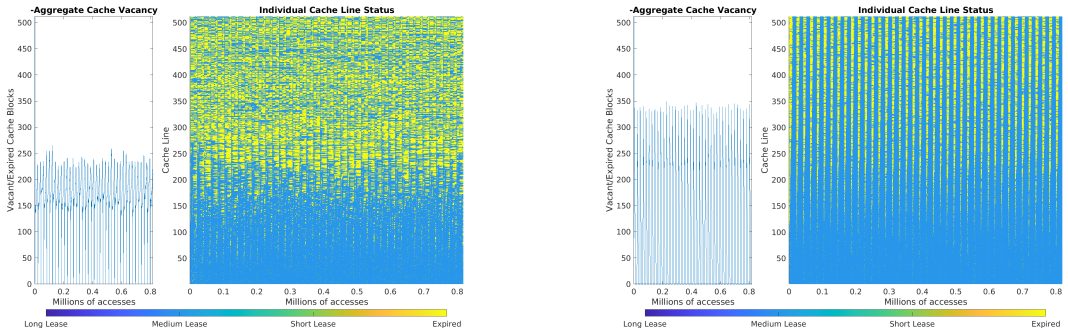

Figure 5-5: Cache tenancy spectrum for *fdtd-2d* at the small dataset size for a multi-level cache for PRL(left) and SHEL(right).

For the large dataset size for the multi-level cache, SHEL either meets or exceeds PRL for all benchmarks except for *gemver* and *mvt*, where it is within half of a percent. SHEL has a 16% reduction for *2mm*, 24% reduction for *3mm*, 28% reduction for *adi*, and 20% reduction for *lu* and *ludcmp* when compared to PRL. Moreover, where PRL and SHEL have similar performance, SHEL has often achieved CARL such as the case with *jacobi-2d* or *correlation*.

Overall, SHEL has demonstrated that the increased granularity provided by scoped leasing represents an improved solution to CLAM's potential issues of over-allocation when compared to PRL and that the added runtime overhead from phase changes is well worth it.

5.1.6 SHEL vs. C-SHEL

The goal of C-SHEL is an adjustment of SHEL to compensate for the impact of cross-phase RIs. Ideally, this means that C-SHEL would have similar performance to SHEL on non-cyclic-phase benchmarks (the benchmarks to the left of the red line on graphs in Figures 5-1-5-2) and improved performance on cyclic-phase ones.

At the small dataset size for the single-level cache, C-SHEL beats SHEL for three out of the six cyclic-phase benchmarks: *adi*, *lu*, and *ludcmp* with a 5%, 4%, and 9% reduction respectively. On the other three, C-SHEL has about a 3% increase. On three of the non-cyclic-phase benchmarks (*gemver* and *mvt*, *covariance*) C-SHEL outperforms SHEL as well, while SHEL enjoys a 6% reduction to C-SHEL on *deriche*.

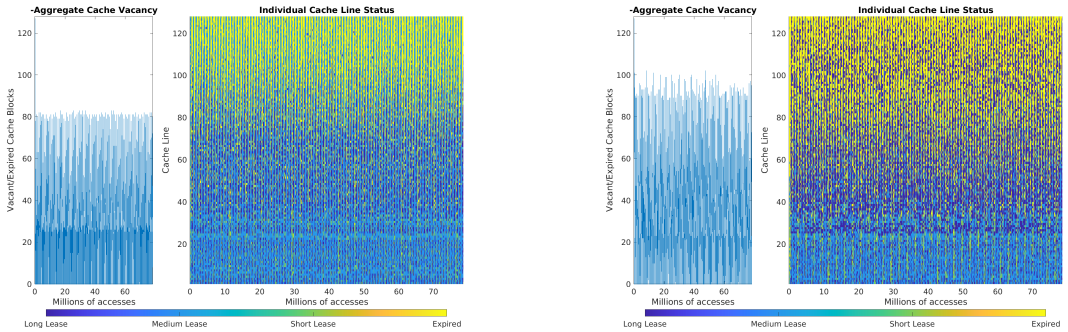

Figure 5-6: Cache tenancy spectrum for *adi* at the medium dataset size for a single-level cache for SHEL(left) and C-SHEL(right).

Turning to the medium dataset size for the single-level cache, C-SHEL is equal or worse than SHEL for every benchmark. Most surprisingly, there is an 11% increase in misses for *adi*. Figure 5-6 shows the cache tendency spectrums for the benchmark in question. The average aggregate cache vacancy rate for C-SHEL is higher than that for SHEL, which is an indication that C-SHEL is under-allocating the cache more than SHEL does. This makes sense in that C-SHEL should be more conservative in its allocation than SHEL if the leases generated for both differ as it's taking into account the impact of any cross-RIs on the budgets of other phases. In this particular instance, having a less aggressive set of leases causes performance to decline. Looking at the number of random evictions, C-SHEL has only 19107 random evictions compared to the 410,416 of SHEL (see B.3). This indicates that in this case the increased under-allocation of C-SHEL incurs a higher performance penalty than the increased cache contention of SHEL.

Figure 5-7 depicts the cache tenancy spectrum for *mvt*. SHEL maintains a high level of allocation for the last two-thirds of program runtime. C-SHEL on the other hand has a far less aggressive set of leases and there's consequently significant under-allocation for the second half of program runtime. Once again the increased under-allocation of C-SHEL negatively affects performance far more than the higher amount of cache contention that occurs using SHEL (3259 and 90 random evictions out of 135,256 and 167,889 misses equates to 2.4% and .05% misses being contention misses for SHEL and C-SHEL respectively). For the large dataset size with a single-level

io,

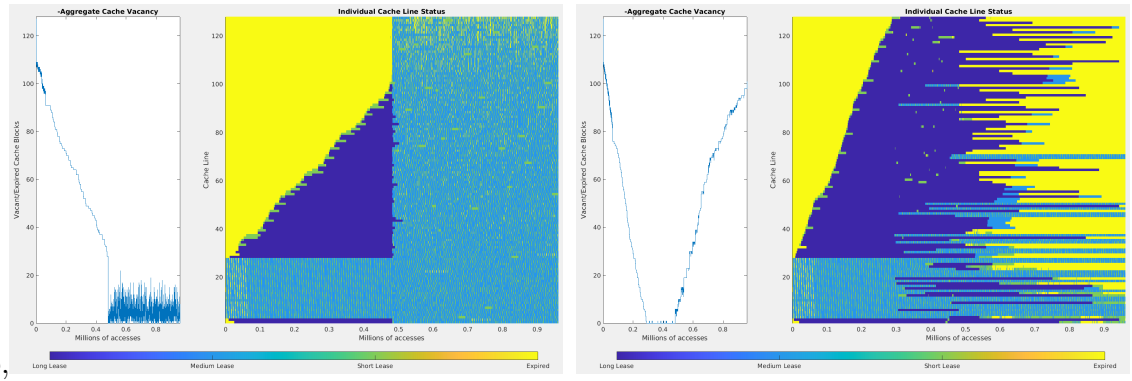

Figure 5-7: Cache tenancy spectrum for *lu* at the medium dataset size for a single-level cache for SHEL(left) and C-SHEL(right).

cache, differences between SHEL and C-SHEL performance is negligible. This holds true for the multi-level cache as well, with the exception of *gemver*, where SHEL has 4.5% performance advantage and *deriche* where SHEL has a .5% performance advantage.

Performance at the medium dataset size for the multi-level cache has no clear-cut trend. SHEL and C-SHEL have the same performance for all non-cyclical phase benchmarks except *deriche* in which SHEL enjoys 2% reduction. performance on cyclic-phase benchmarks is a bit of a wash with C-SHEL performing better for *adi*, *lu*, and *ludcmp* and worse on *jacobi-2d*, *heat-3d*, and *fdtd-2d*.

At the small dataset size for the multi-level cache, C-SHEL outperforms SHEL on 7 out of the 13 benchmarks including 3 out of the 6 cyclic-phase benchmarks: *adi*, *fdtd-2d*, and *lu*. Of particular note is *lu*, where C-SHEL achieves a 40% reduction compared to SHEL. Figure 5-8 shows the cache tenancy spectrum. The spectrums are interesting in that C-SHEL has a lower average aggregate vacancy rate compared to SHEL, completely contrary to the general assumption that C-SHEL will be more conservative with its leases compared to SHEL if the leases differ. It is also further indication that under-allocation of the cache can be just as harmful as contention (there are 0 random evictions for either policy i.e., no contention).

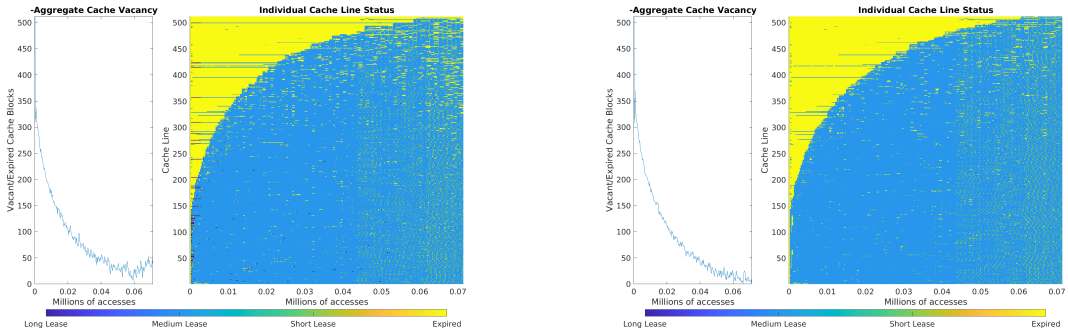

Figure 5-8: Cache tenancy spectrum for *lu* at the small dataset size for a multi-level cache for SHEL(left) and C-SHEL(right).

If C-SHEL worked as designed, it should perform similarly as SHEL on non-cyclical phase benchmarks which have few cross-RIs and better on cyclic-phase benchmarks. The empirical evidence rebuts this. SHEL and C-SHEL show significant variations in performance at times on benchmarks where there should be few cross-RIs and on numerous cyclic-phase benchmarks at both levels of cache hierarchy and varying dataset sizes, SHEL outperforms C-SHEL. The explanation for this is that it is a sampling limitation.

To elaborate, because the vast majority of reuses will not be right at a phase boundary, the cross-RIs will overwhelmingly be large RIs. And what are by far the largest RIs sampled? The answer is infinite RIs. As a refresher, infinite RIs represent either a reference that has no reuse (given the structure of our programs, a very tiny percentage of infinite RIs) or are references that do have reuses, but were evicted early from the lookup table before it occurred due to needing space in the table to take in a new sample. These early evictions are recorded as samples with RIs that are the two's compliment of their reuse interval counter at the time of their eviction. Now a thing to note is that if the sampling is representative, then these infinite-RIs most likely represent reuses that are not significantly larger than reuses that were captured.

During lease generation, the question obviously then becomes what value should an infinite RI be treated as having for the purposes of calculating cost and profit? Since they represent actual reuses for the most part, they shouldn't be discarded, so

they have to be given a value, a value that may ultimately be assigned as a lease. Originally, the value selected was the maximum value of a 32-bit signed integer: 2,147,483,647 (which was also the maximum RI the sampler could record). However, quite often this would end up with an attempt to assign this as part of a dual lease with a p very close to 1. This did not cause significant issues for CLAM, PRL, or SHEL, but assigning such a massive lease is going to represent a huge cost for the budget of other phases if one considers cross-RIs. Consequently, C-SHEL would often be unable to assign any such leases and massively under-allocate the cache. The impact of this was C-SHEL performance that was much worse than any of the other lease policies and worse than PLRU as well.

Upon discovering this, it was decided to decrease the value an infinite-RI would be treated as representing. The value 16,777,215 was chosen fairly arbitrarily based on it being:

1. Much larger than any RI sampled even for the large dataset size.
2. Much smaller than the previous value so it wouldn't have nearly the same impact on C-SHEL as the old value did.
3. The maximum value that can fit in a 24-bit number.

While this did work as desired and C-SHEL performance greatly improved, it also demonstrated that the performance of C-SHEL is largely dependent on a relatively arbitrary chosen value and also on how many early-evictions occur during sampling. Consequently, this algorithm can't be considered robust. Moreover, it must be noted that the third pass-through that has to happen to calculate tail costs for C-SHEL is immensely costly, on the order of $\mathcal{O}(n^2)$ where n is the number of samples. The impact of this is that for the large dataset size and a multi-level cache, generating leases for *ludcmp* takes just over 12 seconds for SHEL on a specific PC. It takes nearly 44.5 minutes for C-SHEL on the same PC almost entirely as a result of that third pass-through, which is an increase in run-time of nearly 22,000%. This does not bode particularly well for the feasibility of implementing C-SHEL in a compiler and certainly not for any sort of real-time employment of it.

5.2 Sampling Rate Sensitivity Analysis

A sensitivity analysis was conducted in an attempt to verify how representative the RI histograms being generated from the output of the hardware sampler are. The analysis generated results for the small and medium dataset size for single-level and multi-level caches for five different LFSR seeds (1,2,3,4,5) and five different sampling rates (64,128,256,512,and 1024 $\frac{references}{sample}$). No sensitivity analysis for the large dataset size was attempted because it is calculated to require at least an entire year to complete given our system's current clock frequency[5].

An LFSR produces a single sequence of numbers for a given characteristic polynomial that never repeats until all possible numbers have been output. Changing the initial state of an LFSR, shifts where exactly in the pattern one is, meaning that changing the seed is equivalent to changing nearly all of the samples taken during execution. Thus if the results for a lease policy change with differences in the LFSR initial seed, that is an indication that the distribution is not representative.

Changing the sampling rate is most useful as evidence of the inverse. Doubling the sampling rate i.e., decreasing the number of samples per reference, should roughly double the amount of samples taken at the cost of halving the average maximum RI that can be captured and vice versa for halving the sampling rate. If neither increasing nor decreasing the sampling rate causes the results on a specific program to change, then that is strong evidence that the RI histograms generated by the original sampling rate are representative.

With this in mind and looking at the figures in Sections A.1 and A.2, it can be seen that the chosen sampling rate of 256 likely produces representative RI histograms as results are similar not just across all seeds for that rate, but also between it and higher sampling rates 128 and 64 (and often lower sampling rates 512 and 1024).

[5]Running all benchmarks for all policies for the large dataset took ∼2.7 days to run for the single-level cache and ∼3.7 days to run for the multi-level cache. The sampling to generate the leases would take even longer because of stalls to offload buffers when full (floyd-warshall for large dataset and single-level cache takes ∼3 hours to run, but ∼10 hours to sample). 5 seeds*5 rates*2*(2.7 days+3.7 days)/(seed*rate)=320 days.

The reason that such an analysis can be considered valid is due to Prop 2 which comes from the weak law of large numbers.

Proposition 2 *For any given error tolerance et and probability p, there exists a sample size N such that if a sample size of N is randomly drawn, the estimation will be within et of the true value with probability of at least p.*

The implications of Prop 2 are that similar RI histograms are most likely to occur when samples are representative of actual RI distribution as variance due to sampling error will be small. And similar RI histograms will results in substantively similar sets of reference leases[6], which should produce similar results.

Additionally, the law of large numbers means that the more samples that are obtained, the more representative the distribution will be. Moreover, there is a sub-linear relationship between the sample size and population size needed to achieve a specific confidence level as shown in Table 5.2. This means that the estimated distribution for a larger dataset of a given benchmark should be more representative than one for a smaller dataset even if the sampling rate does not change. And the results confirm this assertion with the medium dataset size for a benchmark invariably having less variation than for the small dataset size.

[6]Substantively similar sets of leases means that the percentage of the cost budget claimed by a given reference as a result of its lease is similar between the two sets of reference leases. The actual lease value for a given reference generated from two different sets of samples will likely differ, but the actual impact of those leases may be nearly the same, hence this particular definition focused on cost allocation.

Table 5.2: Required sample size to achieve a given confidence level with a given margin of error for a given population size.

Population Size	**95% Confidence Margin of Error**				**99% Confidence Margin of Error**			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
75	63	69	72	74	67	71	73	75
300	169	217	251	291	207	246	270	295
800	260	396	526	739	363	503	615	763
2500	333	597	952	1984	524	879	1288	2173
25000	378	760	1448	6939	646	1285	2399	9972
500000	384	783	1532	9423	663	1350	2640	16055
300000000	384	784	1537	9603	663	1354	2654	16586

Chapter 6

Future Work

The current work was focused on testing a lease-cache with a single-core bare metal system using static scientific kernels with no I/O operations. While this is representative of some embedded computing systems that are focused on low power and low cost, it is far from the reality of modern general purpose processors in laptops, desktops and servers. Most such systems make use of multi-core networks with virtual memory and run with an operating system such as Linux or Windows. This section introduces the future work that must be conducted in order to evaluate lease caching for a typical non-embedded computing system.

6.1 Multi-core network

As single core performance improvements became difficult to achieve and CPU processor speeds plateaued in 2005, industry transitioned to multi-core CPUs, which have become the standard. Current CPU architectures such Intel's Alder Lake[1] and AMD's Zen 3 architecture[2]offer anywhere from 4-16 cores for typical desktop CPU's. For workstations and high-end desktops AMD offers chips with up to 64 cores. Some super-computer networks have thousands of cores.

[1]introduced November 2021
[2]introduced November 2020

Just implementing more cores on the test system is trivial and only impacted by the total amount of resources available on the FPGA. However, multi-core systems, in addition to a higher-level shared cache, have private L1 caches if not L2 for each CPU and from this, the issue of cache coherency arises. A system that is cache coherent meets the following requirements:

- *Write Propagation*: Changes to data in any cache must be propagated to any other cache that shares the data.
- *Transaction Serialization*: Reads & Writes to a location must be seen by all cores in the same order.

The reasons coherence is important are obvious enough that they do not merit mentioning. In modern systems there are two main protocols for achieving cache coherence: snoopy and directory based. In the snoopy protocol, each cache broadcasts its memory actions onto a shared bus which every cache is continuously monitoring for memory transactions involving shared blocks. This is relatively simple and effective and thus it is the protocol of choice for small networks. The downside is it does not scale as when the number of cores grows so does the size of the bus and the bandwidth it must have. In the directory based protocol, the status of blocks in the caches is maintained in a singular location. This scales far better because most transactions are point to point, but it has a significantly higher latency than snooping. Given the number of cores planned in the prospective system, the snoopy cache protocol will be used to achieve coherence.

Now the question arises, how should leases be handled in this situation? The easiest way is to have the lease cache at the level of a shared cache (L2 or L3) in which case there is only a single lease cache and all previous work applies. However, if one has a lease cache as a private cache for each CPU, then lease-caching must be adapted to handle coherence.

During a read operation by CPU, if its private cache has the block, then the solution is obvious: its a local access and just the lease for that block in that specific cache should be renewed. If a CPU attempts to read a block and its private cache

does not have the block, but another cache does, the block will transmitted over the bus. This is known as a read-update operation. Since this represents a reuse, the lease for the line in the cache sharing the data should be renewed.

For writing, there are two modes utilized for both the directory and snoopy protocols: write-update and write-invalidate. In write-invalidate, which is the more popular mode due to its simplicity and the potential to avoid unnecessary operations, when a write operation to a block in a cache occurs, all other copies of that block in other catches are invalidated. The invalidation is accomplished via a message sent on the shared bus.‘ Since they are invalidated, the leases for those lines should obviously be expired. In write-update the changed block is broadcast over the bus and all other caches that possess said block replace their copies with the broadcast version. Given that these updates don't represent reuses, only the lease for the line containing the originally modified block should be renewed with the leases for the lines containing the updated blocks in other caches being left unchanged.

6.2 Compiler integration

Currently, lease generation is preformed via a separate program written in Rust, using samples gathered from hardware and scope annotation for scoped benchmarks is done manually. The end goal however is to embed lease caching support in a compiler (likely either GCC or LVM). Scope annotation, as it follows a few clearly defined rules, can be automated without too much difficulty. Actually integrating lease generation will take a bit more effort.

The end goal would be the replacement of the hardware sampler with an Instruction Set Simulator (ISS) embedded in the compiler, which would also run the lease generation algorithms. Also, since the current scope annotations aren't guaranteed to ne, and likely aren't, optimal, embedding an ISS in the compiler would allow for multiple passes to fine-tune the placed scopes according to specific heuristics. Ultimately, compiler integration will be essential to resolving the challenges of utilizing reference leasing with an OS.

6.3 OS support

In order to run an OS such as Linux on the system, a couple of changes need to be made. First, the RISC-V instruction support must be augmented with:

- The A standard extension set for atomic instructions.
- The remaining instructions RV32I instructions (environmental calls and memory ordering instructions).
- Floating-point operations must update the floating point status register so the kernel can handle floating-point exceptions which are currently ignored.

Second, virtual memory must be implemented. This poses a formidable obstacle for our current method of leasing. In a bare metal environment, generating and assigning leases to a reference using the PC address for reference identification works well because the PC address of a given reference will always be the same. However, modern OSs invariably make use of something called virtual memory. The goal of virtual memory is to allow programs to act like they have access to the full memory address space, allowing each program to run as if they were the sole program. These virtual memory addresses are then automatically translated into physical memory addresses by hardware.

To make matters worse, as a security measure, code is loaded randomly into the virtual address space under a technique called Area Space Layout Randomization (ASLR) so the virtual memory address for a given line of code will differ almost every time the program is run. An actual solution to this issue has not yet been devised, but may involve symbols inserted by compiler acting as identifiers for the references.

The alternative is to run uclinux. Uclinux is a linux kernel and OS designed for microcontrollers without memory management units. It has support for RISCV.

Chapter 7

Conclusion

Lease-caching has again shown that it is a significant improvement over baseline state of the industry policy PLRU for a wide variety of scientific and mathematical kernels and different dataset sizes. And this has been shown not just for L1, but also for the L2 level of cache memory hierarchy. New policies SHEL and C-SHEL demonstrate the significant performance benefits of scoped leasing over CLAM due to reductions in cache under-allocation and over-allocation and also their superiority to the previous solution of PRL. Further, it has been shown that the impact of cross-scope RIs are too minimal to justify the massive increase in overhead of C-SHEL compared to SHEL on top of the fact that its inherent conservativeness usually worsens performance in programs where SHEL is already under-allocating. A sampling sensitivity analysis conducted using a variety of sampling rates and initial sampling seeds has given strong evidence that the sampling rate of 256 $\frac{samples}{reference}$ is adequate to produce a representative sample of a program's RI histograms.

Further work in the near future will focus on implementation of a multi-core network utilizing lease-caching after a system for cache coherence is developed. In the farther future, work will be targeted at compiler integration of automatic scope annotation and lease generation. Both of these developments, combined with an expansion of the instruction set architecture and the implementation of a virtual memory and virtual memory robust lease-caching will allow Linux to run on the system, providing

the opportunity to evaluate much more complex and dynamic benchmark suites than PolyBench such as SPEC.

Acronyms

ALM Adaptive Logic Modules 46, 51

ALU Arithmetic Logic Unit 51

ALUT Combinational Adaptive Look-Up Tables 51

AMD Advanced Micro Devices

ASLR Area Space Layout Randomization 84

BRRIP Bimodal Re-Reference Interval Prediction 18

BTB Branch Table Buffer

CAM Content-Addressable Memory 34

CARL Compiler Assigned Reference Leasing 23

CCX Core CompleX

CLAM Compiler Lease of cAche Memory 26

CPU Computer Processing Unit

C-SHEL Cross-Scope Hooked Eviction Leases 19

DMA Direct Memory Access

DRRIP Dynamic Re-Reference Interval Prediction 18

DSP Digital Signal Processing 51

EHC Expected Hit Cost 18

ELF Executable and Linkable Format

EVA Economic Value Added 18

FIFO First In First Out

FPGA Field Programmable Gate Array

FUL Fully Uniform Leasing

GPU Graphics Processing Unit

HLPL High Level Programming Language 43

HSMC High Speed Mezzanine Connector

IP Intellectual Property

ISA Instruction Set Architecture

JTAG Joint Access Test Group

LFRU Least Recently/Frequently Used

LFSR Linear Feedback Shift Register

LFU Lease Frequently Used

LHD Lease Hit Density 18

LLT Lease Lookup Table

LRU Least Recently Used 17

MFU Most Frequently Used

MIN Minimum 17

MRU Most Recently Used 18

OOM Order Of Magnitude 14

OPT Optimal

OS Operating System

OSL Optimal Steady-State lease 21

PC Program Counter

PCIe Peripheral Component Interconnect Express

PLRU Psuedo Lease Recently Used

PPUC Profit Per Unit Cost

PRL Phased Reference Leasing

RAM Random Access Memory

RI Reference Interval

RISC-V Reduced Instruction Set Computer 5

RR Random Replacement

SDI Serial Data Interface

SHEL Scope Hooked Eviction Leases 19

SIMD Single Instruction Multiple Data 14

SPEC Standard Performance Evaluation Corporation

SRRIP Static Re-Reference Interval Prediction 18

TPU Tensor Processing Unit

UART Universal Asynchronous Reciever Transmitter

Appendix A

Figures

A.1 Single-Level Sensitivity Analysis Plots

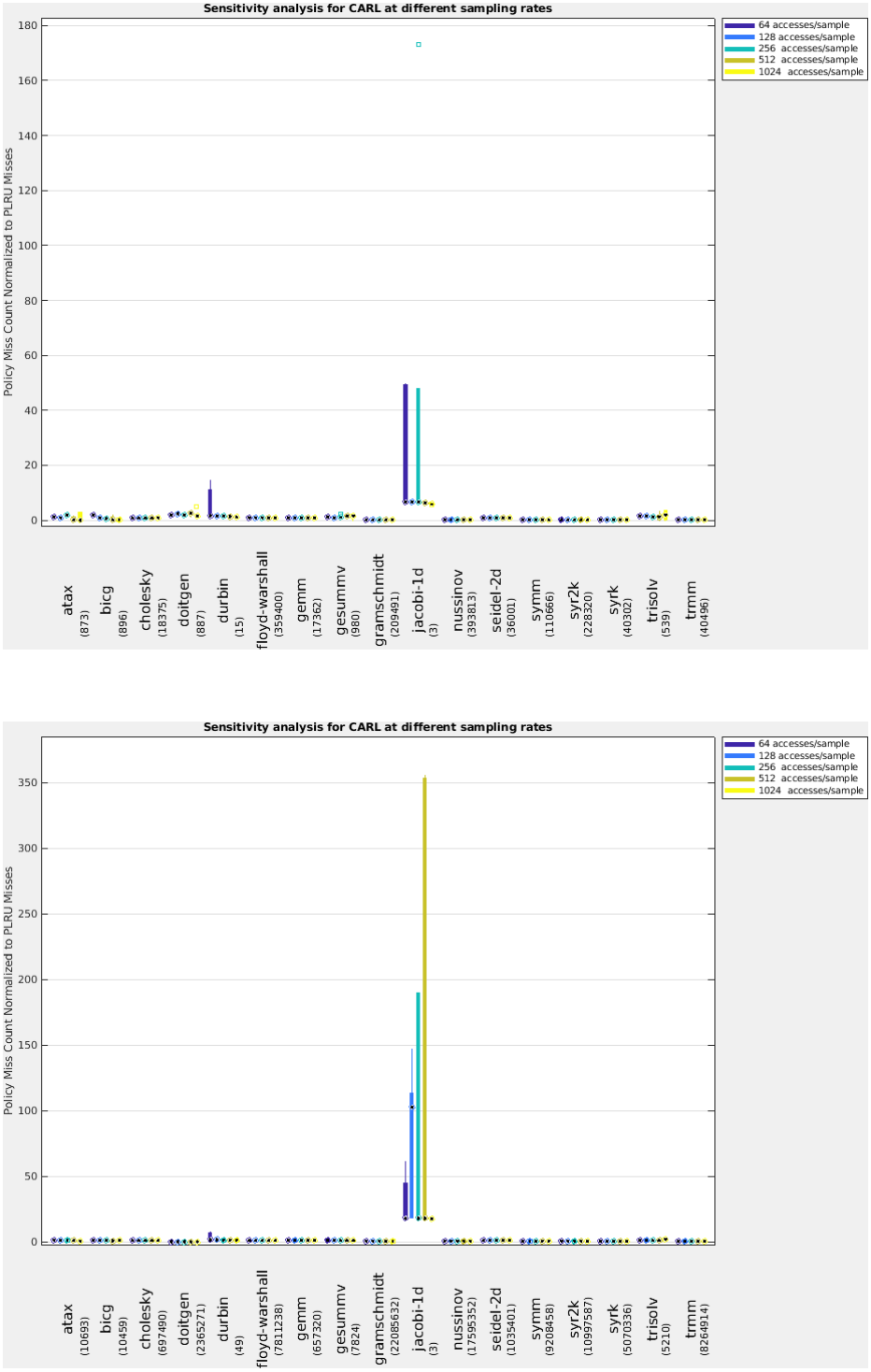

Figure A-1: Sensitivity analysis for CARL in terms of normalized miss counts for a single-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

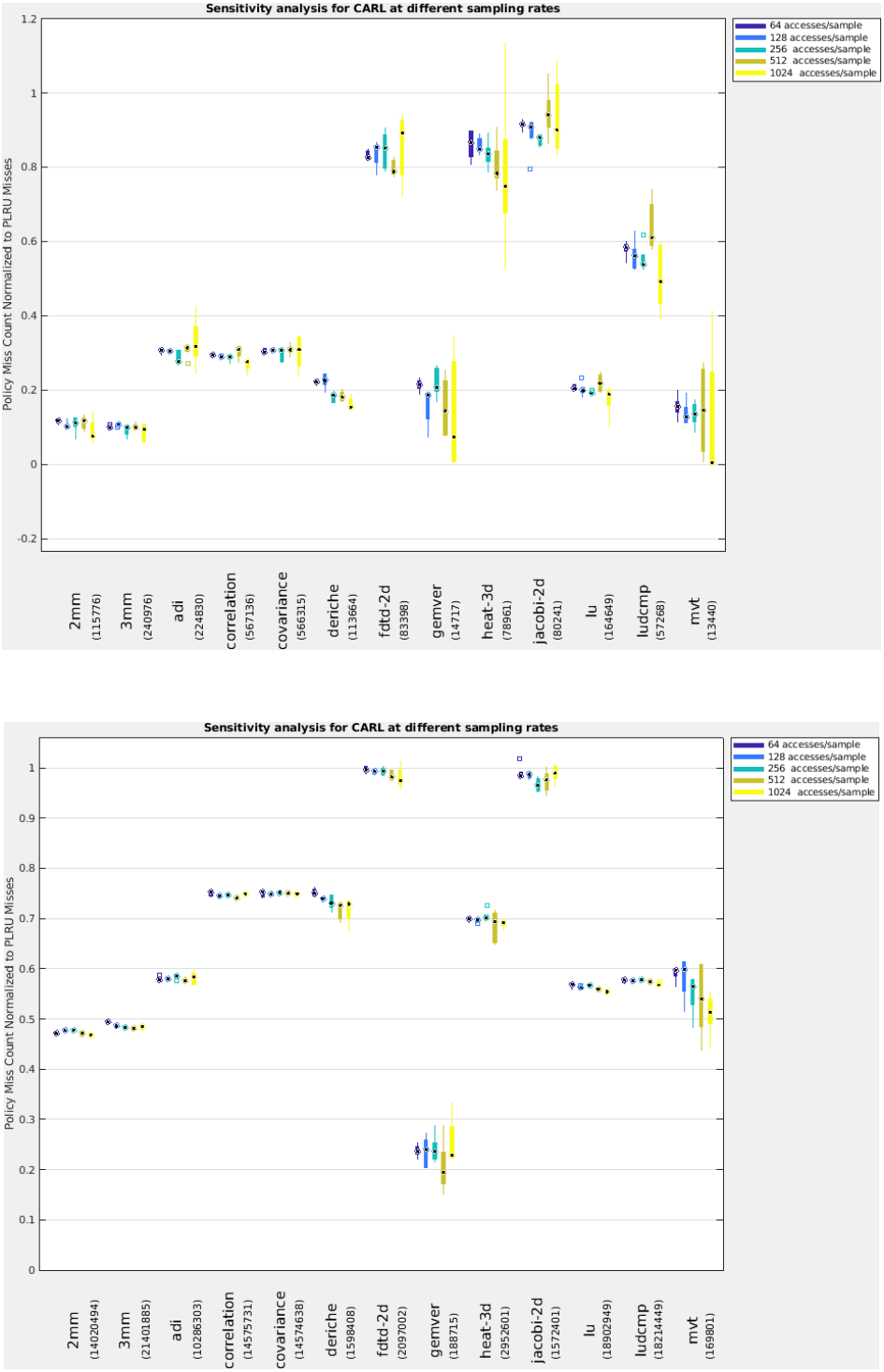

Figure A-2: Sensitivity analysis for CARL in terms of normalized miss counts for a single-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

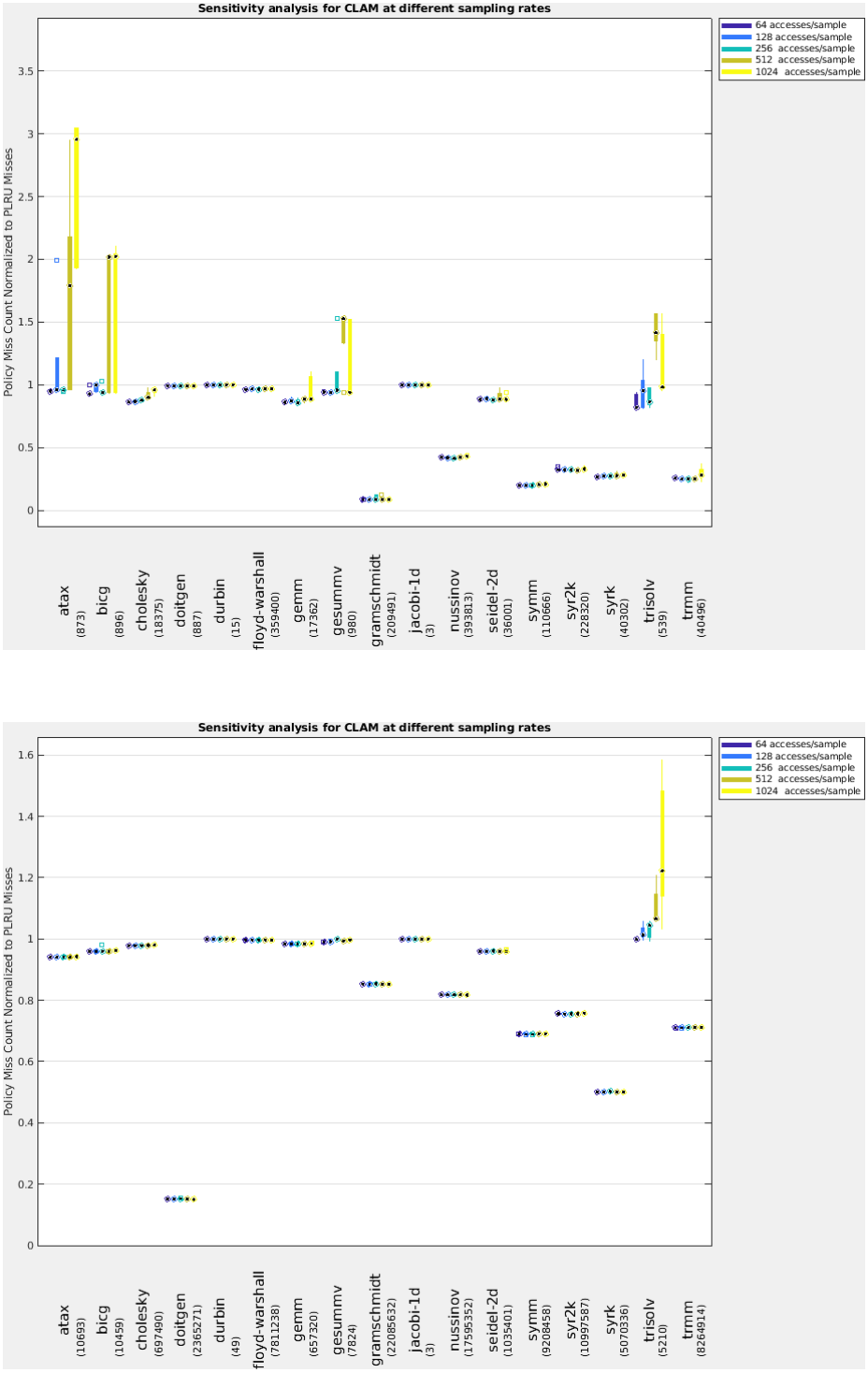

Figure A-3: Sensitivity analysis for CLAM in terms of normalized miss counts for a single-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

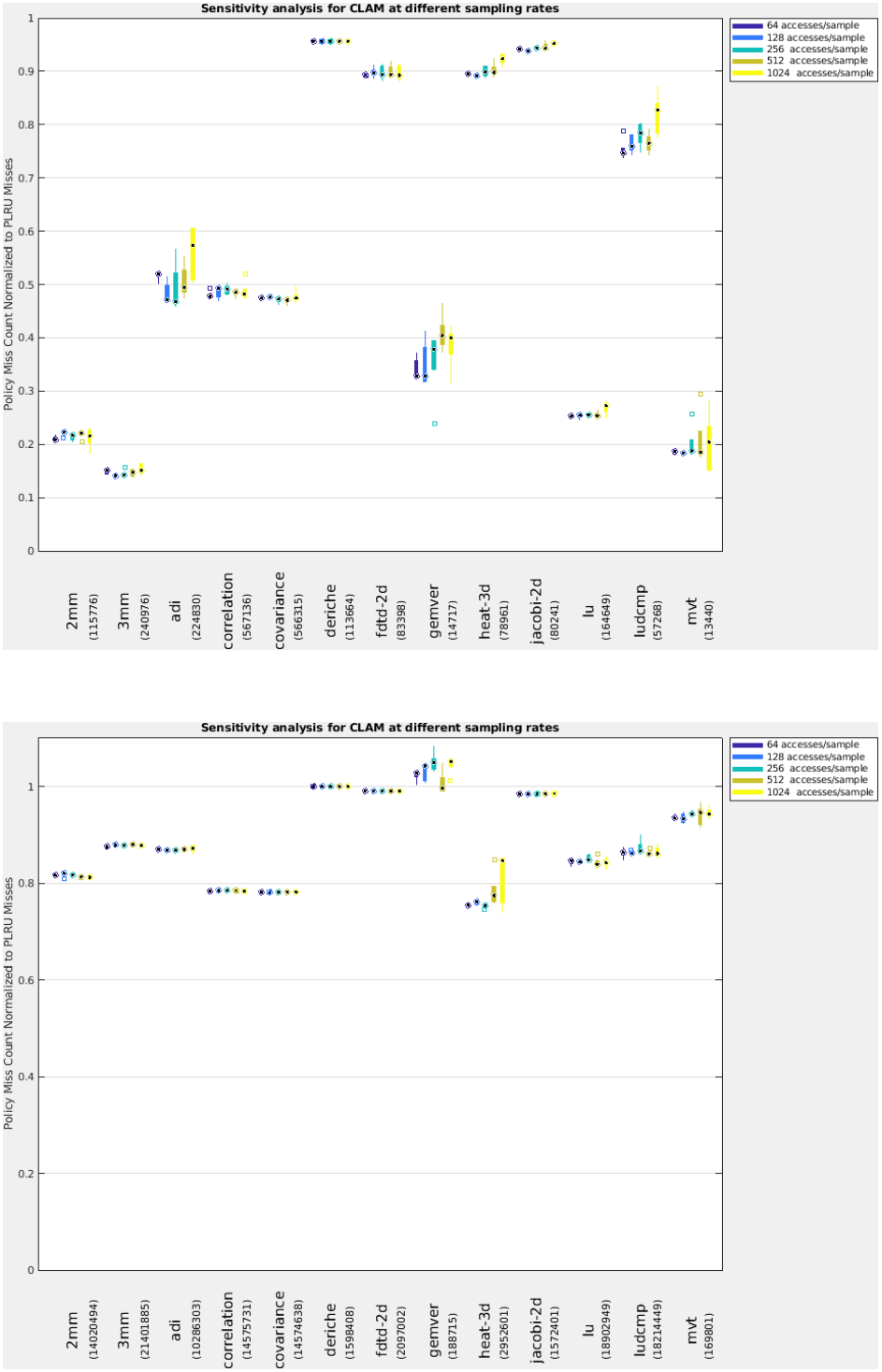

Figure A-4: Sensitivity analysis for CLAM in terms of normalized miss counts for a single-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

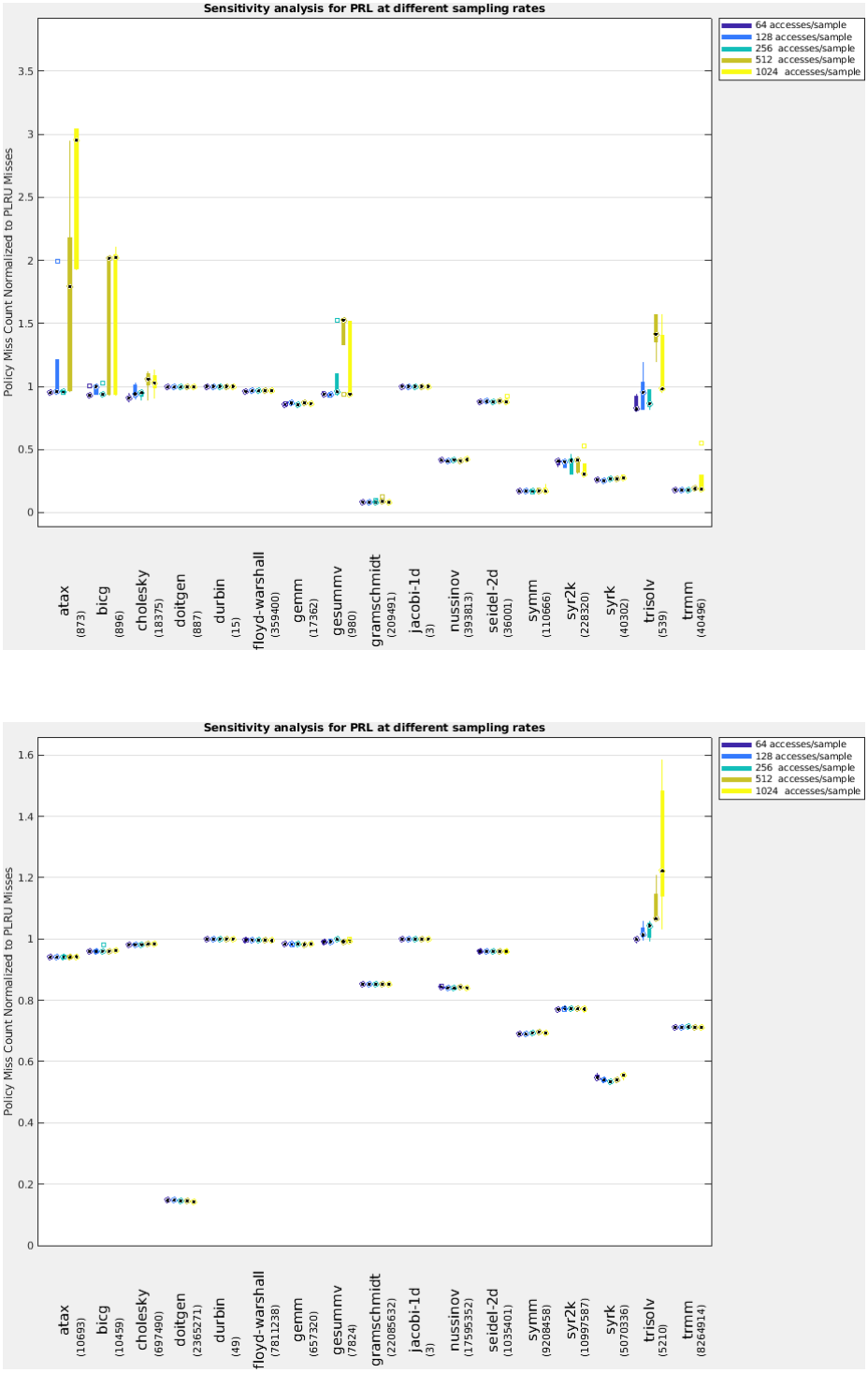

Figure A-5: Sensitivity analysis for PRL in terms of normalized miss counts for a single-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

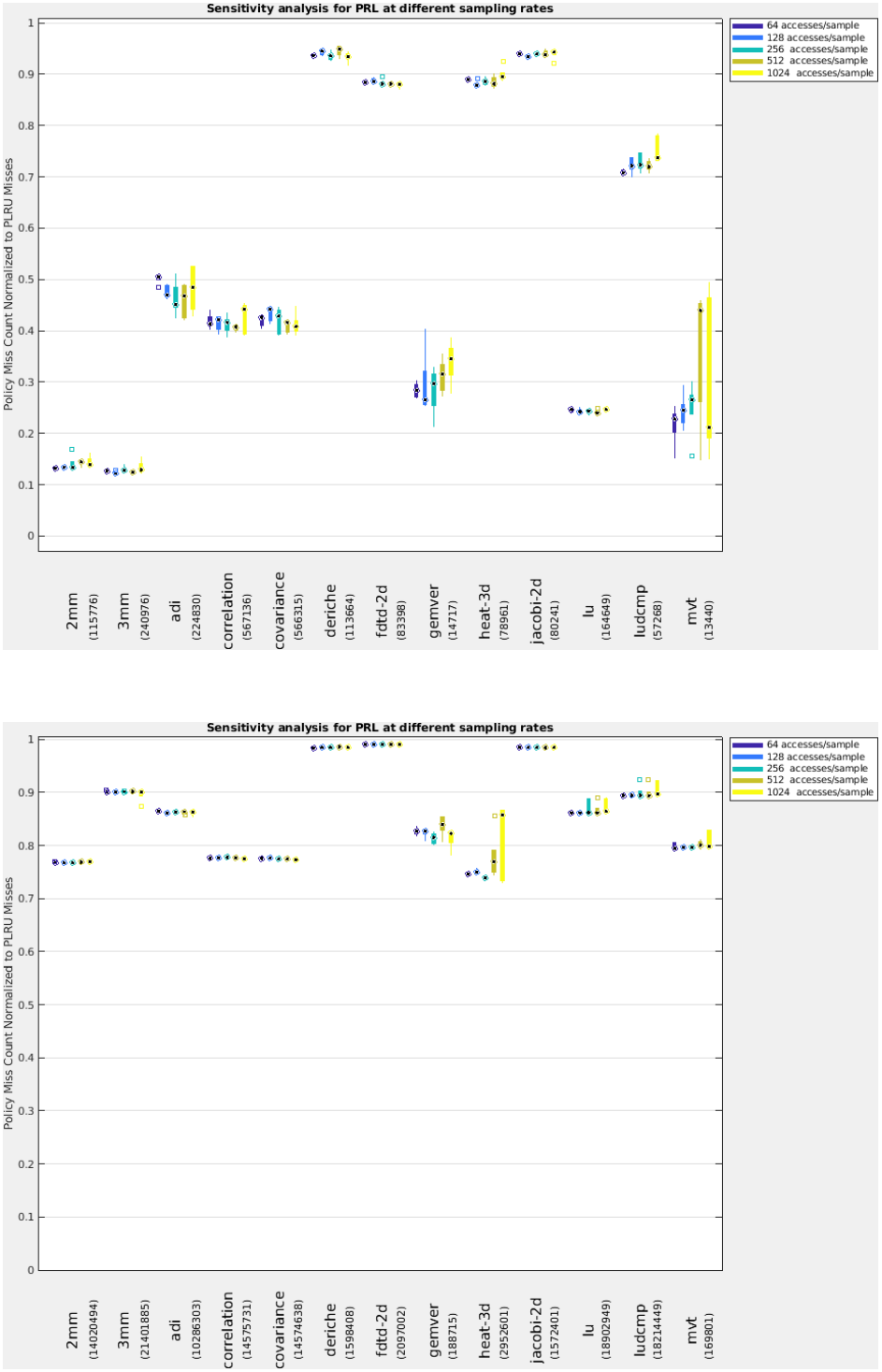

Figure A-6: Sensitivity analysis for PRL in terms of normalized miss counts for a single-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

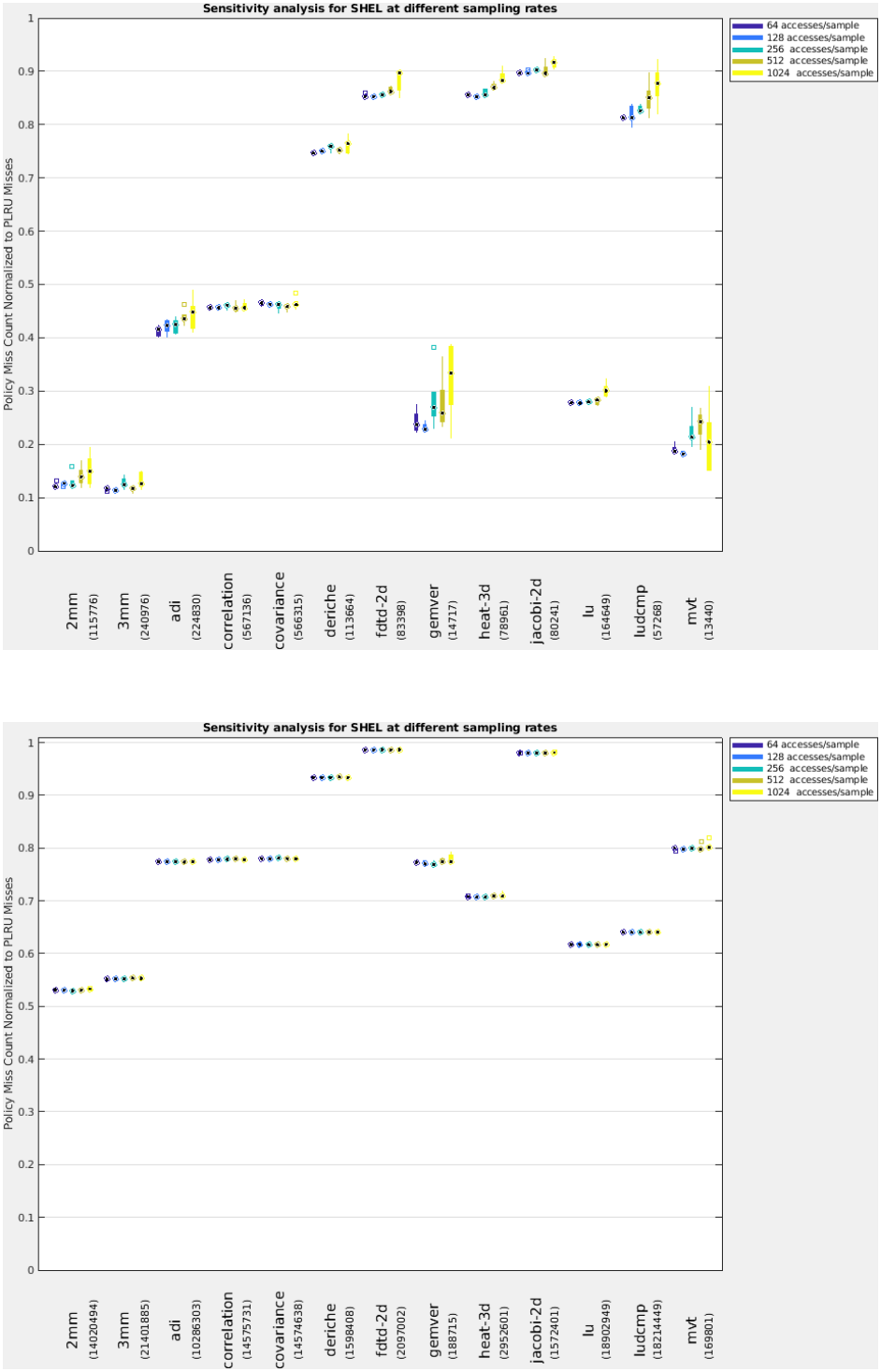

Figure A-7: Sensitivity analysis for SHEL in terms of normalized miss counts for a single-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

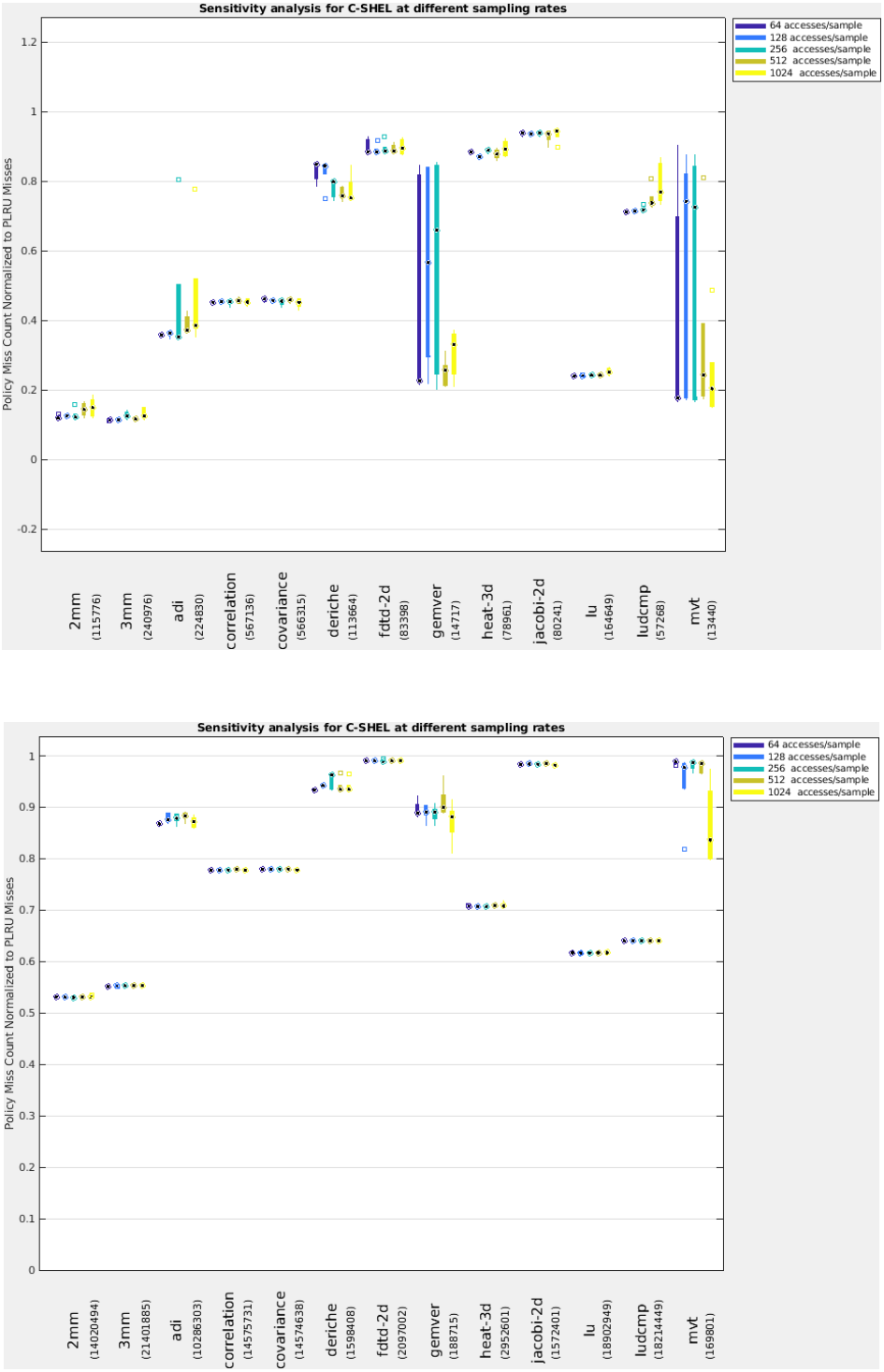

Figure A-8: Sensitivity analysis for C-SHEL in terms of normalized miss counts for a single-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

A.2 Multi-Level Sensitivity Analysis Plot

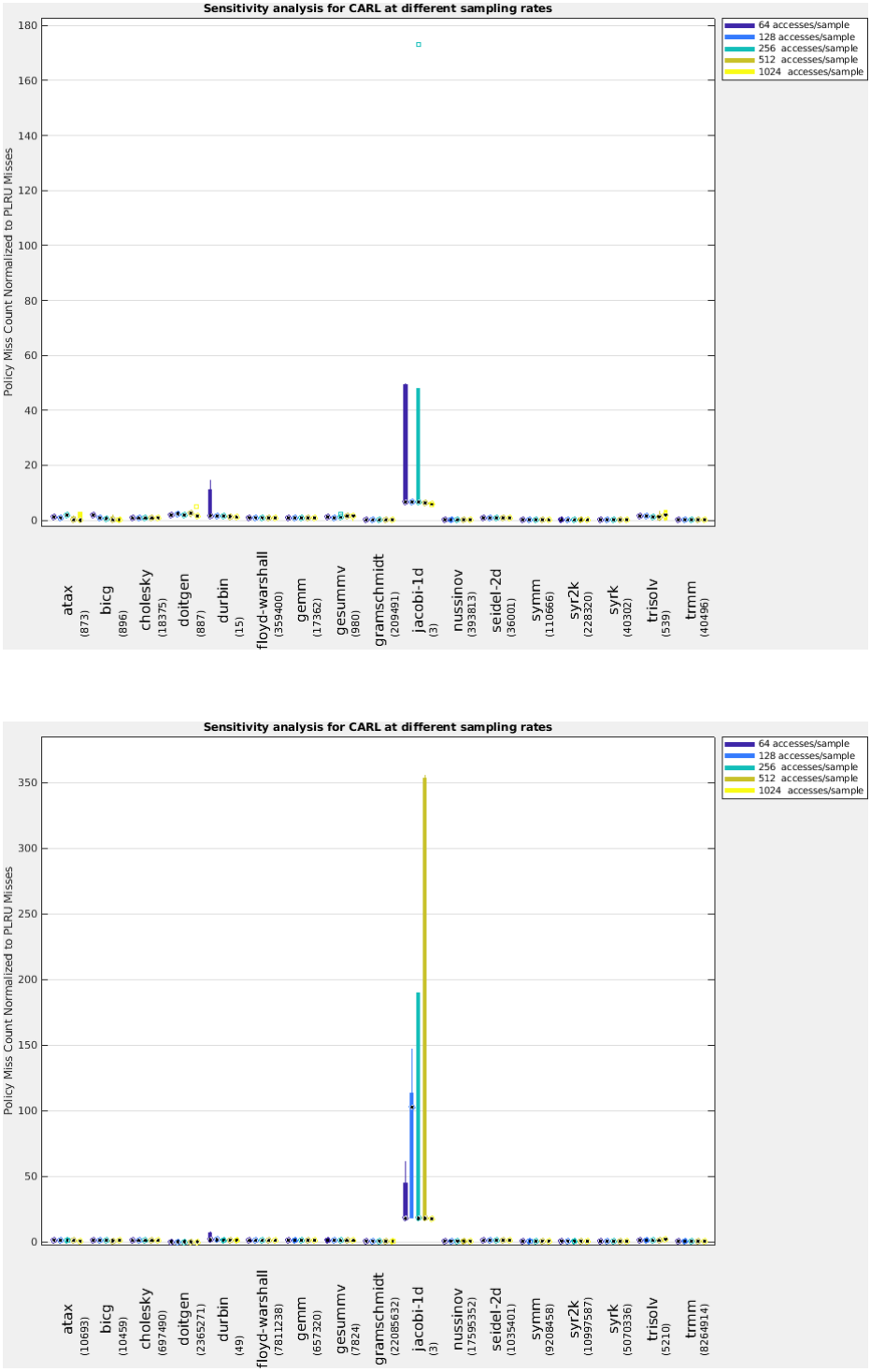

Figure A-9: Sensitivity analysis for CARL in terms of normalized miss counts for a multi-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

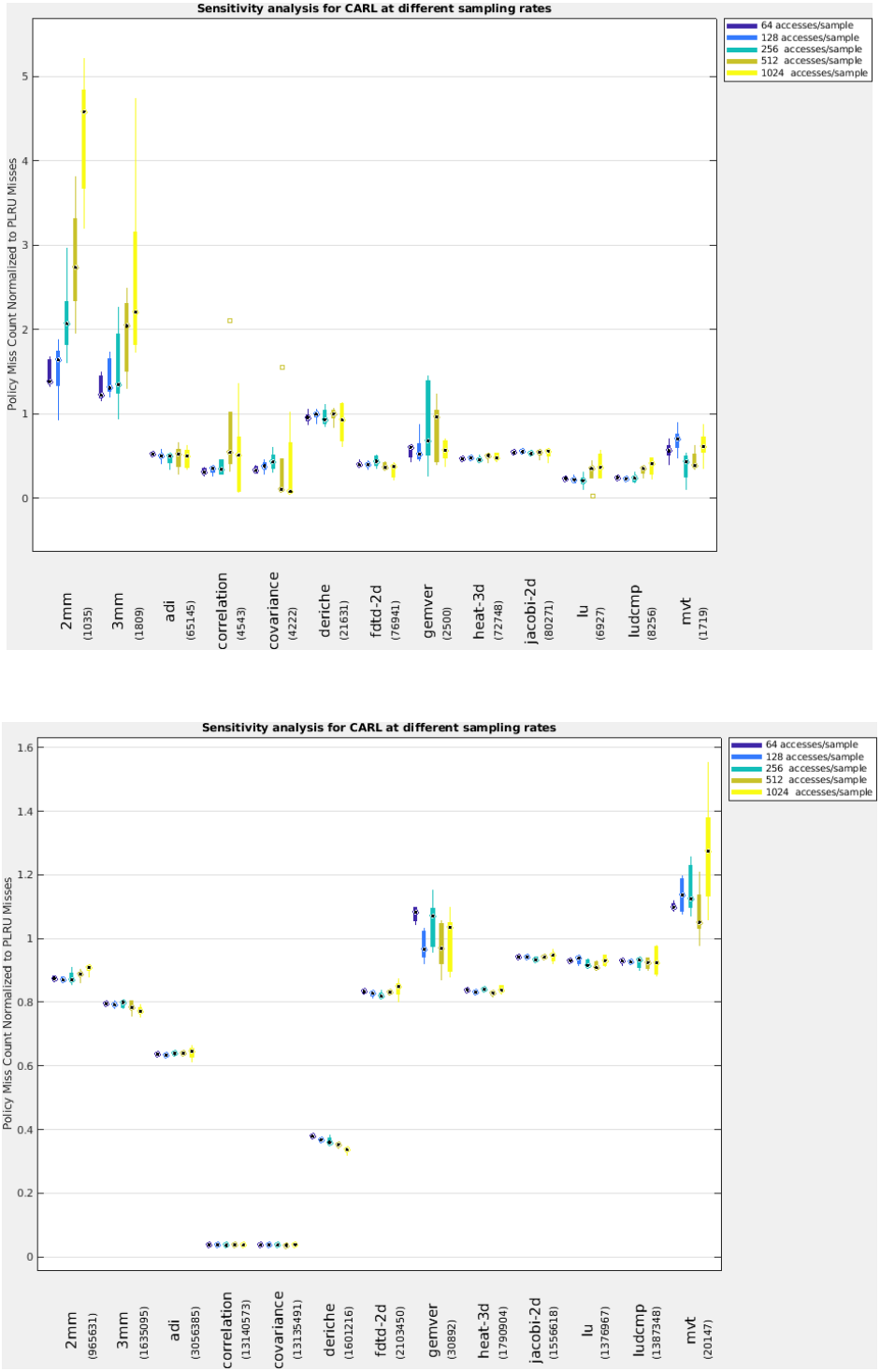

Figure A-10: Sensitivity analysis for CARL in terms of normalized miss counts for a multi-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

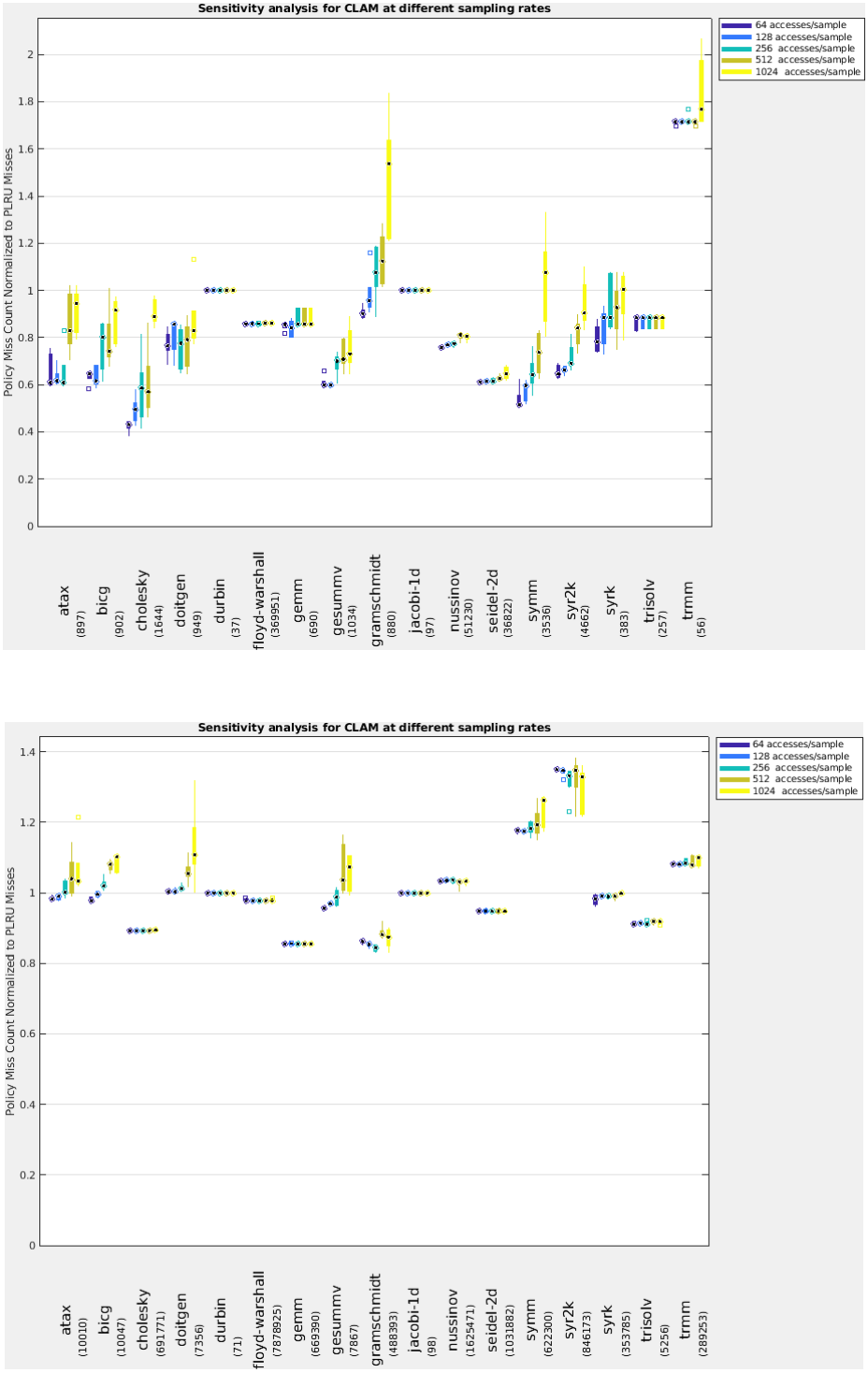

Figure A-11: Sensitivity analysis for CLAM in terms of normalized miss counts for a multi-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

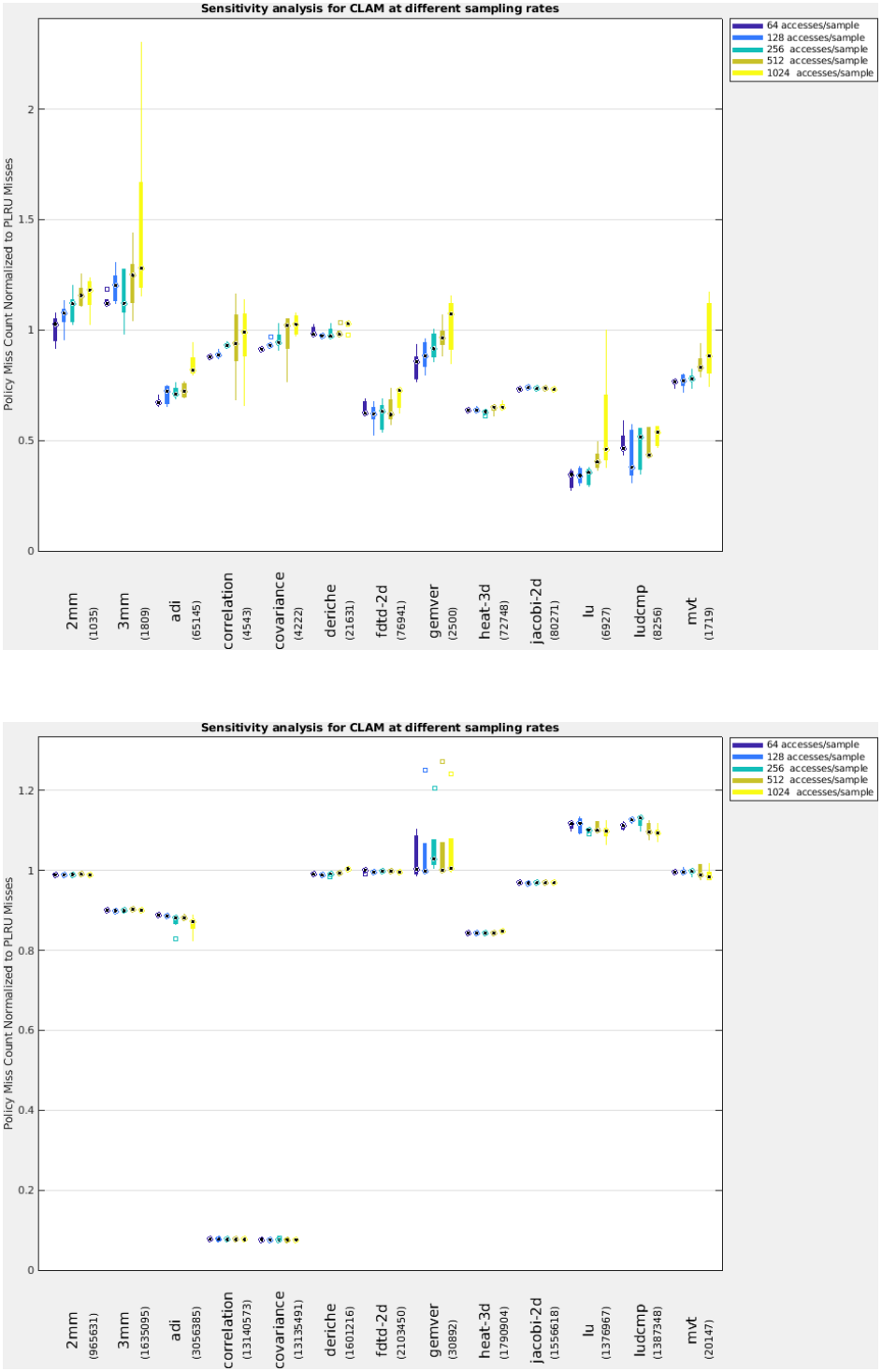

Figure A-12: Sensitivity analysis for CLAM in terms of normalized miss counts for a multi-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

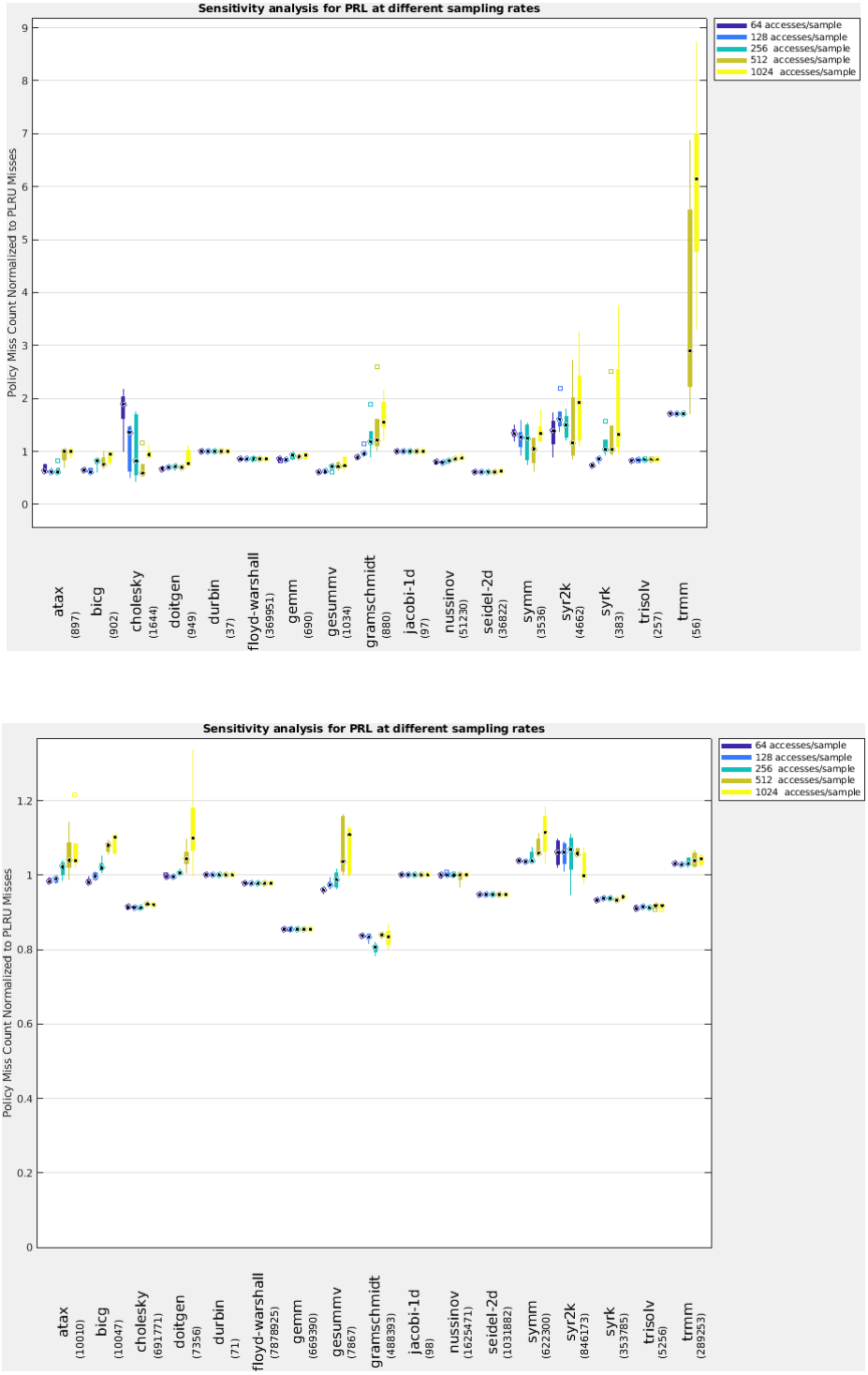

Figure A-13: Sensitivity analysis for PRL in terms of normalized miss counts for a multi-level lease cache for single-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

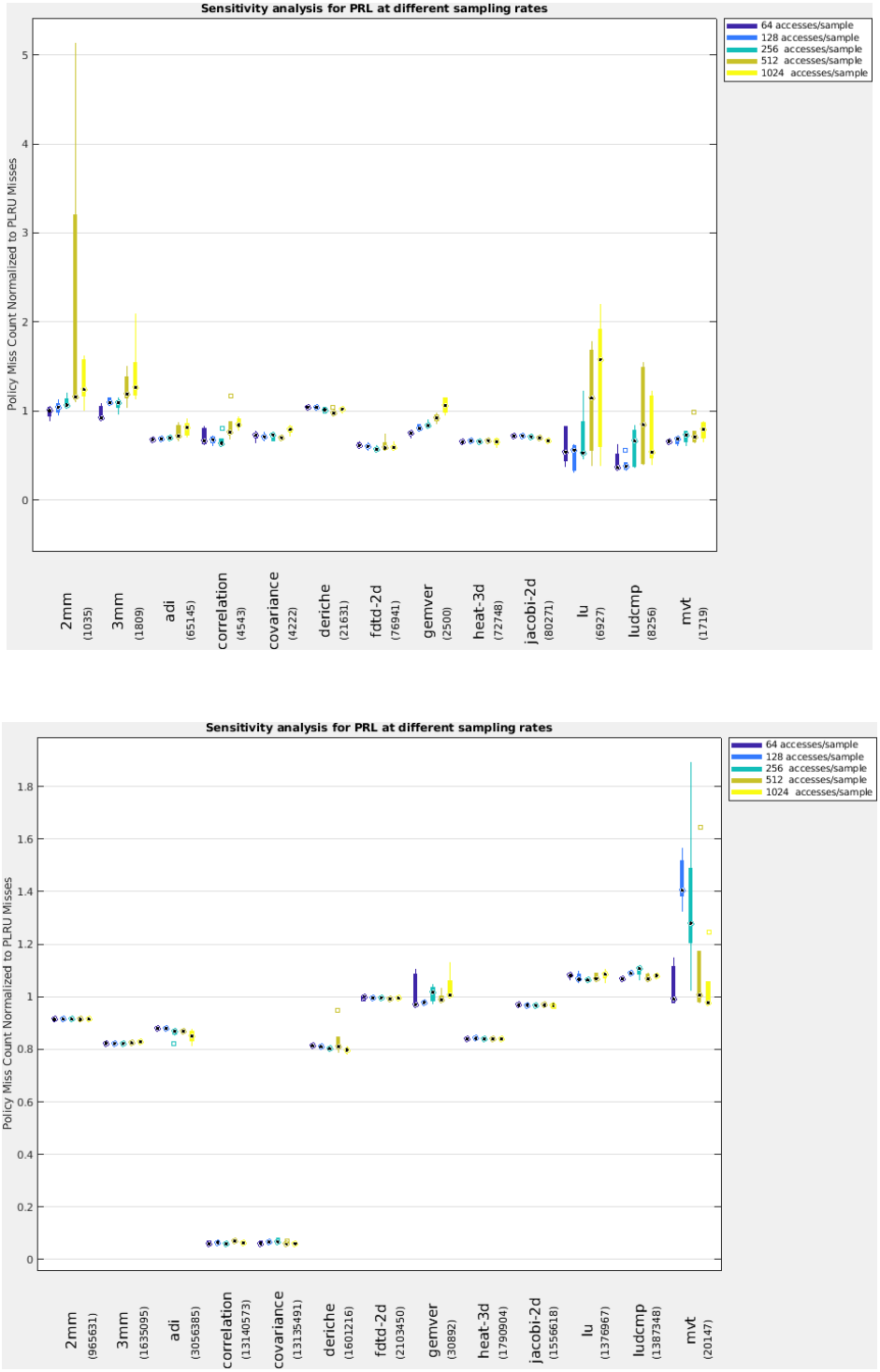

Figure A-14: Sensitivity analysis for PRL in terms of normalized miss counts for a multi-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

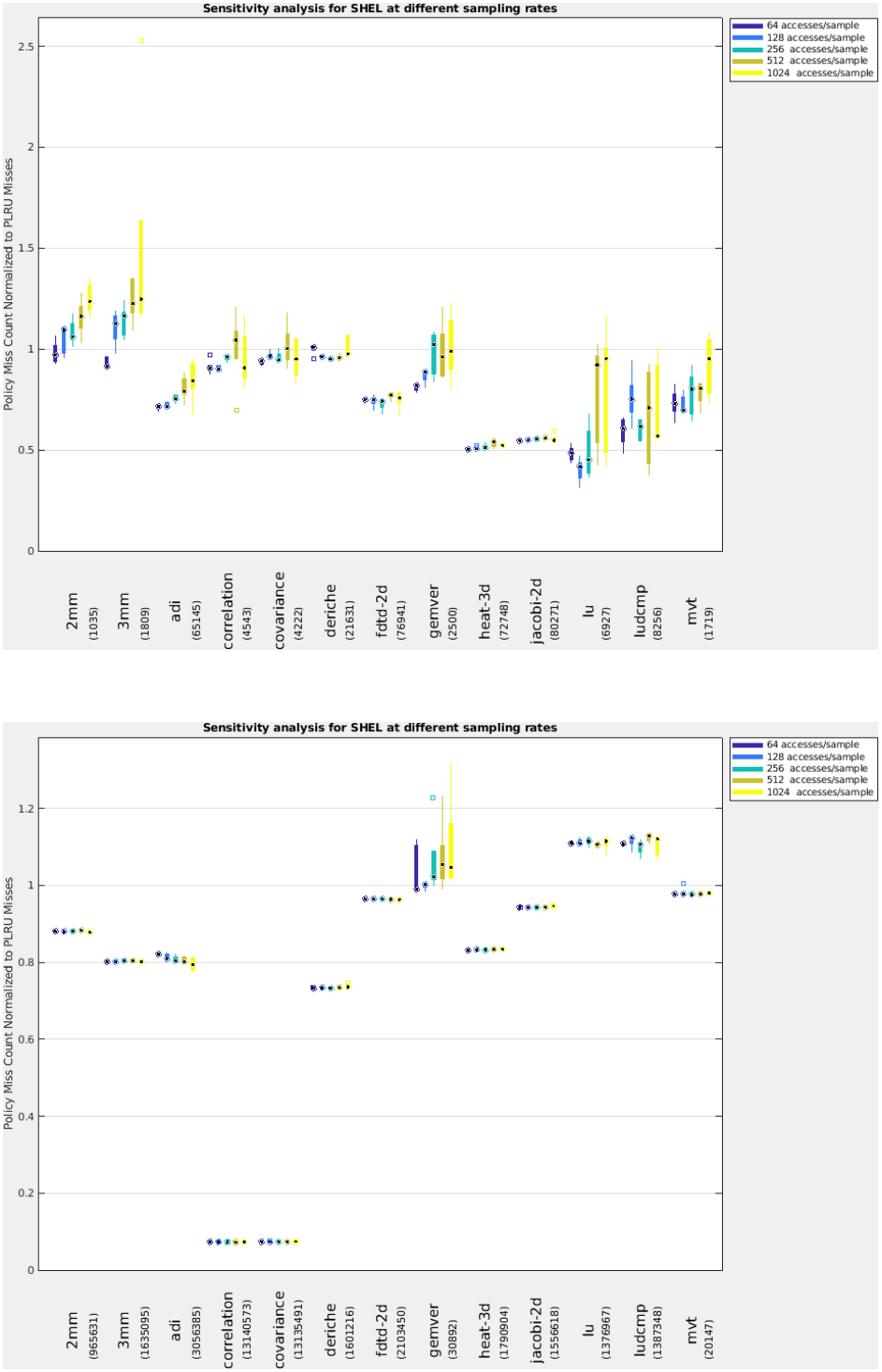

Figure A-15: Sensitivity analysis for SHEL in terms of normalized miss counts for a multi-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

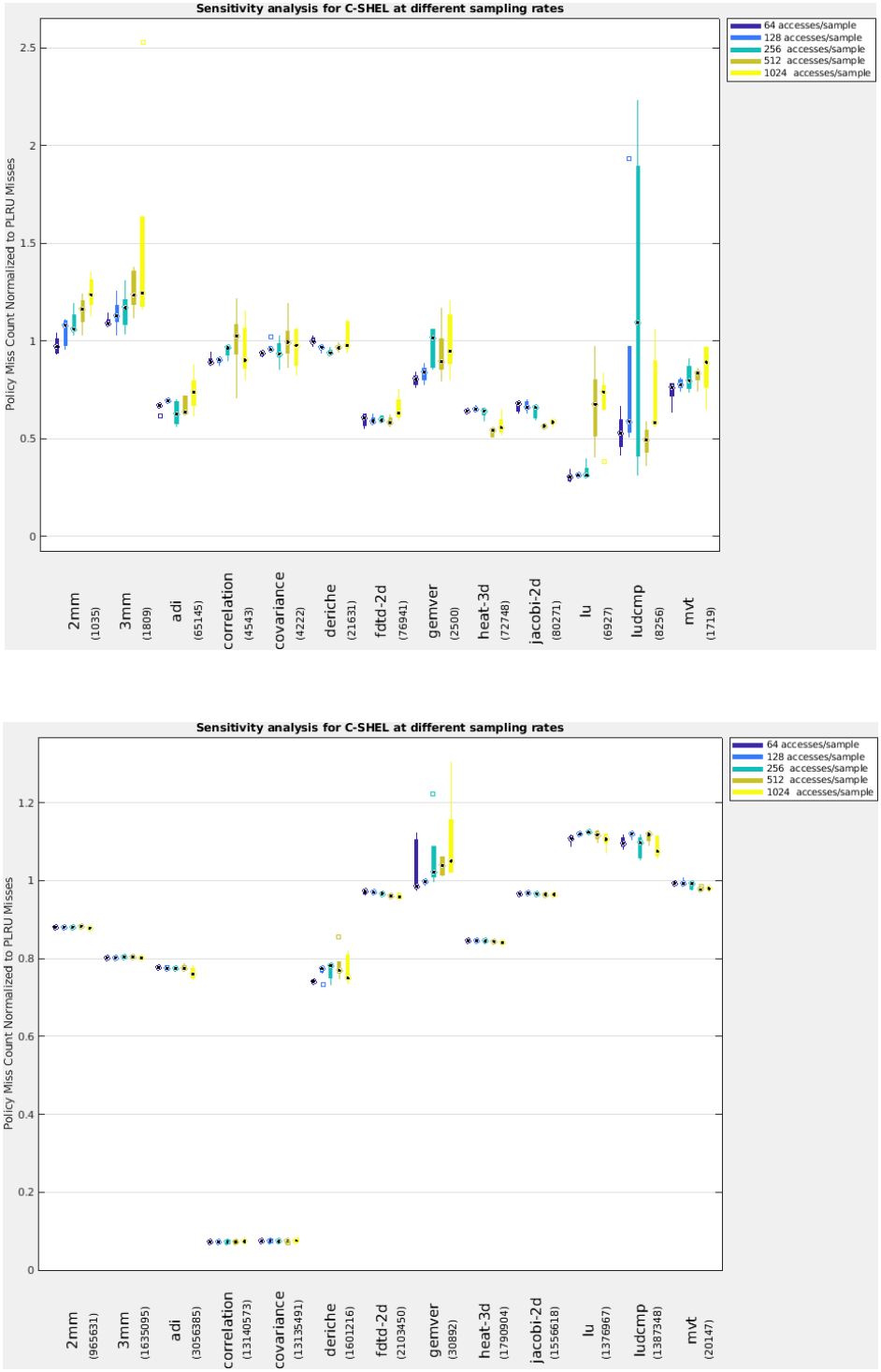

Figure A-16: Sensitivity analysis for C-SHEL in terms of normalized miss counts for a multi-level lease cache for multi-scope benchmarks. Values are reported for five different sampling rates 64, 128, 256, 512, or 1024 references per sample, and five different initial seeds for the sampling LFSR. Values are reported for small (top) and medium datasets (bottom)

Appendix B

Tables

Table B.1: Phase markers inserted for Polybench

benchmark	# of scope markers	# of phases for different data sets		
		small	medium	large
2mm	2	2	2	2
3mm	3	3	3	3
adi	3	80	200	1000
atax	1	1	1	1
bicg.	2	2	2	2
cholesky.	1	1	1	1
correlation	4	4	4	4
covariance	3	3	3	3
deriche.	6	6	6	6
doitgen.	1	1	1	1
durbin.	1	1	1	1
fdtd-2d.	3	120	300	1500
floyd-warshall	1	1	1	1
gemm	1	1	1	1
gemver.	4	4	4	4
gesummv.	1	1	1	1
gramschmidt.	1	1	1	1
heat-3d.	2	80	200	1000
jacobi-1d.	1	1	1	1
jacobi-2d.	2	80	200	1000
lu	2	240	800	4000
ludcmp	4	242	802	4002
mvt	2	2	2	2
nussinov	1	1	1	1
seidel-2d.	1	1	1	1
symm	1	1	1	1
syr2k	1	1	1	1
syrk	1	1	1	1
trisolv	1	1	1	1
trmm	1	1	1	1

Table B.2: Small dataset results for a single-level cache.

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	7298238	792626	115776	447	0	0	0	0	0
PLRU	3mm	14010385	1387324	240976	642	0	0	0	0	0
PLRU	adi	18324810	2489862	224830	128280	0	0	0	0	0
PLRU	atax	336100	99939	873	80	0	0	0	0	0
PLRU	bicg	293446	114416	896	100	0	0	0	0	0
PLRU	cholesky	3623728	860085	18375	591	0	0	0	0	0
PLRU	correlation	23831094	467671	567136	4027	0	0	0	0	0
PLRU	covariance	23784211	455567	566315	4022	0	0	0	0	0
PLRU	deriche	7006271	279572	113664	55383	0	0	0	0	0
PLRU	doitgen	4807802	1394115	887	887	0	0	0	0	0
PLRU	durbin	174144	50013	15	0	0	0	0	0	0
PLRU	fdtd-2d	11343255	2563574	83398	35926	0	0	0	0	0
PLRU	floyd-warshall	100959160	17508919	359400	338930	0	0	0	0	0
PLRU	gemm	4728846	1335040	17362	382	0	0	0	0	0
PLRU	gemver	1061942	158685	14717	1030	0	0	0	0	0
PLRU	gesummv	183889	64182	980	80	0	0	0	0	0
PLRU	gram-schmidt	13053158	1136909	209491	106884	0	0	0	0	0
PLRU	heat-3d	16677354	3653521	78961	33208	0	0	0	0	0
PLRU	jacobi-1d	2205395	311677	3	0	0	0	0	0	0
PLRU	jacobi-2d	15346697	3636880	80241	39754	0	0	0	0	0
PLRU	lu	11696396	1570371	164649	955	0	0	0	0	0
PLRU	ludcmp	7498161	1145710	57268	1115	0	0	0	0	0
PLRU	mvt	766707	73200	13440	133	0	0	0	0	0
PLRU	nussinov	31016559	2618400	393813	1268	0	0	0	0	0
PLRU	seidel-2d	11226249	2276800	36001	35447	0	0	0	0	0
PLRU	symm	6871233	758136	110666	47040	0	0	0	0	0
PLRU	syr2k	11894465	944562	228320	1713	0	0	0	0	0
PLRU	syrk	3827499	743780	40302	426	0	0	0	0	0
PLRU	trisolv	92872	21361	539	116	0	0	0	0	0
PLRU	trmm	2926375	393905	40496	355	0	0	0	0	0
CLAM	2mm	4096283	883217	25185	580	8241	7773	1	1	16944
CLAM	3mm	6686752	1594711	33589	741	22024	18994	0	0	11565
CLAM	adi	13639267	2610132	104280	69798	63688	36652	8	1	40592
CLAM	atax	334935	99974	838	49	838	838	116	8	0
CLAM	bicg	291174	114481	831	35	831	831	0	0	0
CLAM	cholesky	3539349	862545	15915	609	14586	7220	120	119	1329
CLAM	correlation	13493388	762383	272424	5042	142406	20314	407	15	130018
CLAM	covariance	13390746	751352	270530	4969	146200	21495	161	6	124330
CLAM	deriche	6607958	284471	108761	53090	15414	15118	13	6	93347
CLAM	doitgen	4807619	1394121	881	881	881	881	1	1	0
CLAM	durbin	174143	50013	15	0	0	0	1858	7	0
CLAM	fdtd-2d	10951669	2564052	74590	35862	65772	53496	1	0	8818
CLAM	floyd-warshall	100546288	17520104	347360	333476	344145	208679	0	0	3215
CLAM	gemm	4637687	1337624	14778	392	14725	13741	1	1	53
CLAM	gemver	739811	167822	5580	1007	1951	1769	482	31	3629
CLAM	gesummv	180871	64248	914	19	914	914	91	0	0
CLAM	gram-schmidt	5655898	1327963	18437	15836	11765	1670	80	80	6672
CLAM	heat-3d	16336627	3661591	70891	33168	64820	46434	1	0	6071
CLAM	jacobi-1d	2205382	311677	3	0	0	0	118	2	0
CLAM	jacobi-2d	15192557	3641247	75874	39739	68124	47989	0	0	7750
CLAM	lu	7365185	1692851	42169	1042	30722	20047	119	115	11447
CLAM	ludcmp	7060337	1157791	44949	1136	29950	18209	600	231	14999
CLAM	mvt	383584	84037	2603	156	1809	816	120	8	794

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	nussinov	23136567	2842425	169788	2161	58936	43678	1	0	110852
CLAM	seidel-2d	11134486	2279285	33516	32684	29542	1226	0	0	3974
CLAM	symm	3408747	847052	21750	10243	14220	6401	1	0	7530
CLAM	syr2k	6417286	1099124	73758	2438	19553	9139	1	0	54205
CLAM	syrk	2782193	773356	10726	604	7423	3977	1	0	3303
CLAM	trisolv	89789	21447	453	13	453	453	121	2	0
CLAM	trmm	1843814	424533	9868	366	5242	1729	0	0	4626
PRL	2mm	3895432	888842	19560	491	13638	9291	1	1	5922
PRL	3mm	6547113	1598579	29721	648	29492	28638	0	0	229
PRL	adi	13311309	2618652	95760	65755	64575	37281	8	1	31185
PRL	atax	334936	99974	838	49	838	838	116	8	0
PRL	bicg	291182	114481	831	35	831	831	0	0	0
PRL	cholesky	3604063	860723	17737	571	17737	17737	120	119	0
PRL	correlation	12195201	798548	236259	4423	188134	28115	407	15	48125
PRL	covariance	12791057	768066	253816	4195	215348	35695	161	6	38468
PRL	deriche	6452056	286858	106374	54238	84506	64378	13	6	21868
PRL	doitgen	4807590	1394121	881	881	881	881	1	1	0
PRL	durbin	174135	50013	15	0	0	0	1858	7	0
PRL	fdtd-2d	10930660	2565260	73382	35632	67745	59153	1	0	5637
PRL	floyd-warshall	100518151	17517965	346654	330946	346149	317938	0	0	505
PRL	gemm	4640397	1337544	14858	374	14858	14858	1	1	0
PRL	gemver	696475	169032	4370	981	2423	1770	482	28	1947
PRL	gesummv	180871	64248	914	19	914	914	91	0	0
PRL	gram-schmidt	5600103	1329502	16898	15391	13324	7756	80	80	3574
PRL	heat-3d	16271459	3663106	69376	33051	67444	53759	1	0	1932
PRL	jacobi-1d	2205405	311677	3	0	0	0	118	2	0
PRL	jacobi-2d	15172534	3641793	75328	39655	70762	53293	0	0	4566
PRL	lu	7244645	1696165	38855	964	37041	30917	119	116	1814
PRL	ludcmp	6927069	1161547	41193	1097	35388	26512	600	234	5805
PRL	mvt	366335	84555	2085	147	1787	934	120	8	298
PRL	nussinov	22806605	2851621	160592	1995	63536	49989	1	0	97056
PRL	seidel-2d	11089663	2280562	32239	31773	31062	4720	0	0	1177
PRL	symm	3329379	849450	19352	9412	17150	8503	1	0	2202
PRL	syr2k	6168156	1105919	66963	1716	34614	18900	1	0	32349
PRL	syrk	2794357	772968	11114	454	11114	11114	1	0	0
PRL	trisolv	89809	21447	453	13	453	453	121	2	0
PRL	trmm	1751479	427104	7297	346	6846	4506	0	0	451
SHEL	2mm	3855159	889988	18414	505	10205	600	1	1	8209
SHEL	3mm	6733142	1593464	34836	744	22118	6894	0	0	12718
SHEL	adi	13371268	2617887	96805	65932	70495	37982	208	81	26310
SHEL	correlation	13008651	775723	259084	4801	159000	20668	407	15	100084
SHEL	covariance	13273566	754534	267348	4946	151443	21510	161	6	115905
SHEL	deriche	5575987	306929	86307	42656	85801	73741	18	10	506
SHEL	fdtd-2d	10891455	2576039	70933	35953	69163	35856	288	42	1770
SHEL	gemver	661360	170010	3392	1011	2592	1761	362	19	800
SHEL	heat-3d	16212175	3665118	67364	33153	66334	50322	1	0	1030
SHEL	jacobi-2d	15055955	3645192	71929	39566	71624	66197	0	0	305
SHEL	lu	7546610	1688567	46453	1093	31796	22385	119	107	14657
SHEL	ludcmp	7170121	1155786	47192	1380	33820	24333	719	277	13372
SHEL	mvt	398179	83645	2995	170	1808	872	120	8	1187
C-SHEL	2mm	3855195	889988	18414	505	10205	600	1	1	8209
C-SHEL	3mm	6740329	1593278	35022	755	22192	8315	0	0	12830
C-SHEL	adi	12713135	2635419	79273	55770	77225	63781	208	81	2048
C-SHEL	correlation	12997518	776122	258685	4824	161898	21675	407	15	96787
C-SHEL	covariance	13147799	758158	263724	4855	157088	22309	161	6	106636
C-SHEL	deriche	5868806	300990	92246	49146	91726	78453	18	10	520
C-SHEL	fdtd-2d	10954791	2573717	73255	35532	69770	61983	288	42	3485

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
C-SHEL	gemver	646343	170430	2972	957	2602	1763	362	20	370
C-SHEL	heat-3d	16294083	3663020	69462	33141	65748	48553	1	0	3714
C-SHEL	jacobi-2d	15149338	3642647	74474	39493	71491	55940	0	0	2983
C-SHEL	lu	7312197	1695090	39930	1002	34402	25728	119	114	5528
C-SHEL	ludcmp	6989013	1160878	42100	1256	35489	27426	719	283	6611
C-SHEL	mvt	374154	84333	2307	152	1803	937	120	8	504

Table B.3: Medium dataset results for a single-level cache.

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	651273571	30210908	14020494	4734	0	0	0	0	0
PLRU	3mm	985344502	47110015	21401885	7118	0	0	0	0	0
PLRU	adi	680042798	68320409	10286303	5219248	0	0	0	0	0
PLRU	atax	3749593	1109023	10693	371	0	0	0	0	0
PLRU	bicg	3263919	1269547	10459	184	0	0	0	0	0
PLRU	cholesky	132484710	31462710	697490	5242	0	0	0	0	0
PLRU	correla-tion	598030339	8477476	14575731	34647	0	0	0	0	0
PLRU	covariance	597819609	8382204	14574638	34641	0	0	0	0	0
PLRU	deriche	98338136	3931212	1598408	777687	0	0	0	0	0
PLRU	doitgen	157954230	19594733	2365271	11567	0	0	0	0	0
PLRU	durbin	1847412	558661	49	0	0	0	0	0	0
PLRU	fdtd-2d	282822350	64776410	2097002	898683	0	0	0	0	0
PLRU	floyd-warshall	2161757337	375105279	7811238	7680777	0	0	0	0	0
PLRU	gemm	150841953	41670682	657320	2853	0	0	0	0	0
PLRU	gemver	12652071	1733289	188715	10161	0	0	0	0	0
PLRU	gesummv	1413546	493178	7824	110	0	0	0	0	0
PLRU	gram-schmidt	985617400	18258368	22085632	5737174	0	0	0	0	0
PLRU	heat-3d	432243113	84846501	2952601	729800	0	0	0	0	0
PLRU	jacobi-1d	18413878	2627297	3	0	0	0	0	0	0
PLRU	jacobi-2d	302711123	72232400	1572401	775277	0	0	0	0	0
PLRU	lu	882716378	45176451	18902949	10035	0	0	0	0	0
PLRU	ludcmp	845905539	25014149	18214449	13217	0	0	0	0	0
PLRU	mvt	9211655	790999	169801	176	0	0	0	0	0
PLRU	nussinov	979059280	45651901	17595352	8342	0	0	0	0	0
PLRU	seidel-2d	316337680	63042600	1035401	995025	0	0	0	0	0
PLRU	symm	470688850	19639544	9208458	4442743	0	0	0	0	0
PLRU	syr2k	512955515	23764255	10997587	176362	0	0	0	0	0
PLRU	syrk	249073158	18123506	5070336	8832	0	0	0	0	0
PLRU	trisolv	991081	235790	5210	88	0	0	0	0	0
PLRU	trmm	342879463	6159087	8264914	3055	0	0	0	0	0
CLAM	2mm	564077665	32728046	11503356	45108	6228491	6061448	1	1	5274865
CLAM	3mm	896889342	49706066	18805834	76661	9814805	8779492	0	0	8991029
CLAM	adi	644154456	69661674	8944338	5231781	5902095	3600219	8	4	3042243
CLAM	atax	3727413	1109667	10049	130	10049	10049	8	0	0
CLAM	bicg	3249101	1269959	10047	104	10047	10047	8	0	0
CLAM	cholesky	132060102	31477166	683034	5280	679068	379126	400	393	3966
CLAM	correla-tion	488437668	11616477	11436730	40701	10681452	2504014	246	244	755278
CLAM	covariance	486880783	11555409	11401433	40491	10652895	2488088	1	1	748538
CLAM	deriche	95097371	3931608	1598008	777588	1115923	906933	14	7	482085
CLAM	doitgen	87124255	21601266	358738	9906	294383	120504	3	1	64355
CLAM	durbin	1847395	558661	49	0	0	0	419	1	0

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	fdtd-2d	281601296	64730645	2077957	898540	2046843	1489327	1	0	31114
CLAM	floyd-warshall	2161059688	375124014	7773250	7647461	7759752	4941307	0	0	13498
CLAM	gemm	150631481	41682047	645955	3145	643624	453700	1	1	2331
CLAM	gemver	13017866	1727419	194583	11403	28329	27958	802	52	166254
CLAM	gesummv	1410738	493243	7759	54	7759	7759	501	16	0
CLAM	gram-schmidt	889513177	21501309	18842691	5800118	15086999	12550125	0	0	3755692
CLAM	heat-3d	406804193	86156126	2231876	731041	2057770	1151242	1	0	174106
CLAM	jacobi-1d	18413877	2627297	3	0	0	0	499	2	0
CLAM	jacobi-2d	302280063	72256311	1548490	775365	1534885	1147132	0	0	13605
CLAM	lu	791732425	47849714	16229686	61374	9593278	9516692	0	0	6636408
CLAM	ludcmp	754573892	27490786	15737014	34210	9189154	9126033	5	3	6547860
CLAM	mvt	8871801	801759	159041	682	90868	10597	0	0	68173
CLAM	nussinov	868751440	48864437	14382816	25398	12169052	6181551	1	0	2213764
CLAM	seidel-2d	314572010	63083749	994252	990088	991298	476909	0	0	2954
CLAM	symm	321580837	22491438	6356564	1568713	5418449	2208093	1	0	938115
CLAM	syr2k	411375898	26454454	8307388	82383	7371810	3211257	1	0	935578
CLAM	syrk	161278872	20648680	2545162	83959	1566636	571682	1	0	978526
CLAM	trisolv	998947	235562	5438	31	5438	5438	2	2	0
CLAM	trmm	257102264	8560525	5863476	10418	4926811	2020687	0	0	936665
PRL	2mm	536762346	33475798	10755604	6539	10518431	8918402	1	1	237173
PRL	3mm	912481412	49219271	19292629	9686	18959598	17109451	0	0	333031
PRL	adi	641706402	69733811	8872201	5239213	6013224	3801383	8	4	2858977
PRL	atax	3727087	1109667	10049	130	10049	10049	8	0	0
PRL	bicg	3249228	1269959	10047	104	10047	10047	8	0	0
PRL	cholesky	132101953	31475777	684423	5248	682951	527801	400	398	1472
PRL	correla-tion	484885577	11715625	11337582	39237	10756661	3674361	246	244	580921
PRL	covariance	482591519	11676683	11280159	37990	10851938	4517640	1	1	428221
PRL	deriche	93312791	3957136	1572480	777591	1488896	913723	14	7	83584
PRL	doitgen	86545248	21617396	342608	8821	308523	179433	3	1	34085
PRL	durbin	1847381	558661	49	0	0	0	419	1	0
PRL	fdtd-2d	281588495	64731210	2077392	898536	2050484	1551062	1	0	26908
PRL	floyd-warshall	2160937450	375117392	7770436	7638893	7765070	6220736	0	0	5366
PRL	gemm	150628584	41682047	645955	3145	643624	453700	1	1	2331
PRL	gemver	11418112	1768114	153888	10329	128365	23745	802	52	25523
PRL	gesummv	1410944	493243	7759	54	7759	7759	501	16	0
PRL	gram-schmidt	887578122	21530156	18813844	5800200	15217071	12667650	0	0	3596773
PRL	heat-3d	405582662	86196946	2191056	730362	2107511	1239805	1	0	83545
PRL	jacobi-1d	18413871	2627297	3	0	0	0	499	2	0
PRL	jacobi-2d	302255020	72257069	1547732	775327	1536130	1176193	0	0	11602
PRL	lu	812031347	47267639	16811761	44490	12386750	10852997	0	0	4425011
PRL	ludcmp	775897665	26944123	16283677	16484	15107200	12793317	5	3	1176477
PRL	mvt	8023469	825245	135555	207	130607	58697	0	0	4948
PRL	nussinov	882106868	48475605	14771648	14134	14015656	10003186	1	0	755992
PRL	seidel-2d	314510295	63085388	992613	990023	992613	991663	0	0	0
PRL	symm	321995441	22457847	6390155	1698242	6312226	5156638	1	0	77929
PRL	syr2k	418869227	26253457	8508385	7472	8462647	7681094	1	0	45738
PRL	syrk	165689893	20506434	2687408	10878	2607822	2122443	1	0	79586
PRL	trisolv	998872	235563	5437	30	5437	5437	2	2	0
PRL	trmm	259262442	8516579	5907422	3392	5871535	5207219	0	0	35887
SHEL	2mm	418762963	36809627	7421775	9165	6853072	3286206	1	1	568703
SHEL	3mm	649534597	56675285	11836615	15258	10777565	4703269	0	0	1059050
SHEL	adi	607182297	70630382	7976330	5209990	7565914	5451667	608	342	410416
SHEL	correla-tion	485655080	11693543	11359664	39578	10724169	2859974	246	244	635495

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
SHEL	covariance	486079551	11577862	11378980	39943	10696171	2573822	1	1	682809
SHEL	deriche	90488692	4037068	1492552	777467	1483737	1028276	18	10	8815
SHEL	fdtd-2d	281547030	64805323	2068089	898715	2062333	1269247	508	102	5756
SHEL	gemver	11106471	1776813	145189	10222	142531	94480	402	26	2658
SHEL	heat-3d	398266408	85709633	2089469	729894	2042303	776649	1	0	47166
SHEL	jacobi-2d	302020158	72263807	1540994	775201	1537100	1093922	0	0	3894
SHEL	lu	630237346	52417553	11661847	32463	8763697	4011478	0	0	2898150
SHEL	ludcmp	610635053	31568474	11660124	24772	8746907	3973100	1202	457	2913217
SHEL	mvt	8011710	825544	135256	202	131997	78593	0	0	3259
C-SHEL	2mm	418768602	36809627	7421775	9165	6853072	3286206	1	1	568703
C-SHEL	3mm	649558358	56674647	11837253	15377	10767562	4656968	0	0	1069691
C-SHEL	adi	646911231	69492079	9114633	5182817	9095526	8935815	608	321	19107
C-SHEL	correla-tion	485324321	11702835	11350372	39345	10736993	3012775	246	244	613379
C-SHEL	covariance	485815235	11585468	11371374	39837	10707262	2689365	1	1	664112
C-SHEL	deriche	90496865	4037026	1492594	777505	1482968	1017367	18	10	9626
C-SHEL	fdtd-2d	281844436	64788242	2085170	898659	2069985	1496081	508	102	15185
C-SHEL	gemver	11738184	1758945	163057	10177	162850	157090	402	26	207
C-SHEL	heat-3d	398289028	85709101	2090001	729899	2042129	799404	1	0	47872
C-SHEL	jacobi-2d	302294423	72256525	1548276	775340	1535519	1159178	0	0	12757
C-SHEL	lu	630284538	52416222	11663178	32765	8732842	3981251	0	0	2930336
C-SHEL	ludcmp	610716610	31566277	11662321	24737	8730301	3954691	1202	447	2932020
C-SHEL	mvt	9161311	792911	167889	174	167799	155602	0	0	90

Table B.4: Large dataset results for a single-level cache.

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	78838220141	3251014324	1719625678	105126	0	0	0	0	0
PLRU	3mm	125755895874	5342361616	2760228384	162001	0	0	0	0	0
PLRU	adi	92540785283	8552830507	1412202502	656684084	0	0	0	0	0
PLRU	atax	120039603	26930570	1001530	250650	0	0	0	0	0
PLRU	bicg	100586981	31206044	717956	249904	0	0	0	0	0
PLRU	cholesky	17288986089	3894463463	109537537	126066	0	0	0	0	0
PLRU	correla-tion	82258130097	1033624578	2006101429	870267	0	0	0	0	0
PLRU	covari-ance	82247325967	1031088950	2005995252	870201	0	0	0	0	0
PLRU	deriche	2519319999	100638730	40919050	19906647	0	0	0	0	0
PLRU	doitgen	24115656579	1094625604	528254400	315070	0	0	0	0	0
PLRU	durbin	65910687	13430757	562713	200006	0	0	0	0	0
PLRU	fdtd-2d	38930616467	8054528007	337776002	112463097	0	0	0	0	0
PLRU	floyd-warshall	434556173873	64490025602	2741361679	1368037280	0	0	0	0	0
PLRU	gemm	21836277829	5116497500	165702502	83127596	0	0	0	0	0
PLRU	gemver	349799504	42541010	5468992	250501	0	0	0	0	0
PLRU	gesummv	41286745	13226447	298755	290	0	0	0	0	0
PLRU	gram-schmidt	125317960297	2182246688	2858353312	720401554	0	0	0	0	0

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	heat-3d	6368475574 7	127244125 01	419903001	104548596	0	0	0	0	0
PLRU	jacobi-1d	467424557	65732520	203980	102076	0	0	0	0	0
PLRU	jacobi-2d	4885223796 2	968697200 0	421852001	105463064	0	0	0	0	0
PLRU	lu	1276631264 30	521390703 9	278808996 1	249941	0	0	0	0	0
PLRU	ludcmp	1222665016 35	261530426 9	273204672 7	1298802	0	0	0	0	0
PLRU	mvt	251794781	19253750	4750250	377	0	0	0	0	0
PLRU	nussinov	1420877766 30	512149420 8	270974204 5	197470	0	0	0	0	0
PLRU	seidel-2d	4959728889 0	762736500 0	374625001	124875064	0	0	0	0	0
PLRU	symm	6345016522 4	236753504 2	123366496 0	598602561	0	0	0	0	0
PLRU	syr2k	6685393290 1	285649827 6	146854292 6	36417053	0	0	0	0	0
PLRU	syrk	3598291356 5	213209145 8	751749744	35243168	0	0	0	0	0
PLRU	trisolv	26799670	5816332	188668	252	0	0	0	0	0
PLRU	trmm	4833485462 0	623056334	117754366 7	75018	0	0	0	0	0
CLAM	2mm	7877486495 1	325449144 7	171614855 5	1539607	153100404 4	846556366	1	1	185144511
CLAM	3mm	1292962822 95	524141447 8	286117552 2	3046379	249024169 6	2026224414	0	0	370933826
CLAM	adi	8891393227 4	864060891 8	132442259 3	656241793	124592852 4	1215455437	8	2	78494069
CLAM	atax	111582576	27165174	766926	190207	647493	509072	0	0	119433
CLAM	bicg	90751471	31427852	496148	240590	489641	22951	0	0	6507
CLAM	cholesky	1638388971 4	391962753 5	84373465	126591	84286490	43612757	1	0	86975
CLAM	correla-tion	7949082404 1	111678641 8	192293958 9	940332	191389737 9	1310049766	7	5	9042210
CLAM	covari-ance	7947300042 9	111443030 8	192265389 4	940703	191350303 8	1306628360	1	1	9150856
CLAM	deriche	2425205322	100639121	40918655	19906553	38771863	23224627	14	9	2146792
CLAM	doitgen	1215104376 7	143422595 9	188654045	604606	164535273	41282647	3	1	24118772
CLAM	durbin	57200827	13668906	324564	138420	194183	107014	28	4	130381
CLAM	fdtd-2d	3521519236 3	812936910 1	262332904	112462441	262310958	187659128	3	0	21946
CLAM	floyd-warshall	4035879287 39	654186028 68	181322663 0	136803866 9	176062496 6	600760473	0	0	52601664
CLAM	gemm	1883137435 5	519954741 5	82652587	77634	82629990	82283544	1	1	22597
CLAM	gemver	341058618	42790993	5219009	255887	4498614	749700	2	2	720395
CLAM	gesummv	38105483	13313745	211457	250	211457	211457	0	0	0
CLAM	gram-schmidt	1309429273 14	226397816 5	277662183 5	721338199	268411713 5	2009546990	0	0	92504700
CLAM	heat-3d	6302754772 3	127540262 86	418313716	104611739	406661637	212460424	1	0	11652079
CLAM	jacobi-1d	464757058	65807130	129370	123546	123369	2078	0	0	6001
CLAM	jacobi-2d	4468806146 3	980538742 2	303436579	105814721	258023714	152387600	0	0	45412865
CLAM	lu	1214376849 20	538916546 2	261283153 8	1196671	249007439 4	1628013235	0	0	122757144

policy	benchmark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	ludcmp	118395541467	2734740714	2612598286	738018	2490560841	1628063455	5	3	122037445
CLAM	mvt	234099569	19755375	4248625	377	4248625	2013355	0	0	0
CLAM	nussinov	136428658010	5267843416	2563392837	654167	2503777823	1243493267	1	0	59615014
CLAM	seidel-2d	450198220500	7751276721	250713280	124885474	249398791	32395015	0	0	1314489
CLAM	symm	557334974003	2461669227	1139530775	533255837	1115229248	530870123	1	0	24301527
CLAM	syr2k	637445740477	2931901983	1393139219	10170694	1367684436	680383470	1	0	25454783
CLAM	syrk	328311492113	2211873759	671967443	9496064	648458162	295339796	1	0	23509281
CLAM	trisolv	24559632	5878734	126266	129	126266	126146	1	0	0
CLAM	trmm	455008348113	703686606	1096913395	270466	1071899299	538188552	0	0	25014096
PRL	2mm	745397329511	3369713235	1600926767	171343	1592237944	1141392554	1	1	8688823
PRL	3mm	121939513726	5453751505	2648838495	220915	2641120376	2237604545	0	0	7718119
PRL	adi	889458513500	8640297492	1324734019	656712374	1246552124	1221371794	8	2	78181895
PRL	atax	111568215	27165480	766620	195004	661133	539483	0	0	105487
PRL	bicg	90767756	31429128	494872	245067	494554	158307	0	0	318
PRL	cholesky	163837001488	3919631032	84369968	126372	84317378	58129401	1	0	52590
PRL	correlation	794533801855	1117802565	1921923442	920549	1915409444	1442355505	7	5	6513998
PRL	covariance	794253071333	1115805149	1921279053	906826	1916471090	1597660904	1	1	4807963
PRL	deriche	2422438069	100760861	40796915	19906551	40442474	23362003	14	9	354441
PRL	doitgen	121137492691	1435251682	187628322	581334	166501781	46121732	3	1	21126541
PRL	durbin	57581012	13654057	339413	118120	338704	313060	28	5	709
PRL	fdtd-2d	352112164655	8129377731	262324274	112462487	262316105	188139922	3	0	8169
PRL	floyd-warshall	403572266656	65418676753	1813121847	1368038688	1764342104	667081431	0	0	48779743
PRL	gemm	188313101714	5199548284	82651718	76775	82632334	82398047	1	1	19384
PRL	gemver	332712277	43007299	5002703	250358	4989469	782116	2	2	13234
PRL	gesummv	38099851	13313745	211457	250	211457	211457	0	0	0
PRL	gram-schmidt	130895975588	2264837987	2775762013	721304338	2687519512	2029594280	0	0	88242501
PRL	heat-3d	630239839820	12754079948	418260054	104611291	406765787	212554376	1	0	11494267
PRL	jacobi-1d	464724176	65808005	128495	123263	127288	78474	0	0	1207
PRL	jacobi-2d	447168185230	9804509530	304314471	105814836	258905036	153269587	0	0	45409435
PRL	lu	121319934389	5392494420	2609502580	371604	2593576226	2162304476	0	0	15926354
PRL	ludcmp	118224914769	2737464013	2609874987	339845	2594102020	2163991442	5	3	15772967
PRL	mvt	236710897	19679773	4324227	377	4324227	4074124	0	0	0
PRL	nussinov	136773508567	5253801775	2577434478	331826	2559779865	1783962411	1	0	17654613
PRL	seidel-2d	450165558006	7751419429	250570572	124881948	249685985	62541406	0	0	884587

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PRL	symm	56111810950	24553670225	1145832977	547982987	1144610705	1027084534	1	0	1222272
PRL	syr2k	639887179623	29243139537	1400727245	736724	1399456783	1257036698	1	0	1270462
PRL	syrk	330786683621	22024661222	681375080	491532	680567337	603771678	1	0	807743
PRL	trisolv	24559326	5878734	126266	129	126266	126146	1	0	0
PRL	trmm	457421261225	696808193	1103791808	87384	1102215115	1010967257	0	0	1576693
SHEL	2mm	733888926300	34032367622	1567403240	217256	1552707060	606587492	1	1	14696180
SHEL	3mm	119133756896	55329193022	2569670698	312875	2549939774	991167459	0	0	19730924
SHEL	adi	884337148118	86486198422	1316413167	656620746	1247028577	947758636	506	2	69384590
SHEL	deriche	2412839021	101109814	40447966	19906041	40388187	26904810	18	11	59779
SHEL	correla-tion	794819773600	1117061791	1922664216	941634	1913467607	1117861129	7	5	9196609
SHEL	covari-ance	794740669117	1114381388	1922702814	942576	1913376942	1115231744	1	1	9325872
SHEL	fdtd-2d	352229569443	8129971817	262332192	112451269	262332192	262332192	1006	500	0
SHEL	gemver	319710897	43246619	4763383	250606	4749803	320592	2	2	13580
SHEL	heat-3d	626470390708	12735562490	408753012	104562050	406798023	298239156	501	500	1954989
SHEL	jacobi-2d	433744747043	9842152252	266671749	105500628	258938297	90047169	0	0	7733452
SHEL	lu	118888834339	5458548834	2543448166	836799	2467166068	1238740730	0	0	76282098
SHEL	ludcmp	115936766066	2803824767	2543526229	626956	2467798459	1233141773	5	3	75727770
SHEL	mvt	234195817	19755311	4248689	377	4248689	2025966	0	0	0
C-SHEL	2mm	733888926300	34032367622	1567403240	217256	1552707060	606587492	1	1	14696180
C-SHEL	3mm	119247281647	5530018108	2572571892	356585	2547158877	1273852649	0	0	25413015
C-SHEL	adi	882913797115	8650670587	1314362422	655162819	1274963988	725550843	506	2	39398434
C-SHEL	covari-ance	794716886788	1114372839	1922711363	942763	1913370788	1114919544	1	1	9340575
C-SHEL	correla-tion	794819773600	1117061791	1922664216	941634	1913467607	1117861129	7	5	9196609
C-SHEL	deriche	2412839021	101109814	40447966	19906041	40388187	26904810	18	11	59779
C-SHEL	fdtd-2d	352215292839	8129964949	262339060	112448362	262339060	262339060	1006	439	0
C-SHEL	gemver	320044084	43238148	4771854	250726	4742281	321310	2	2	29573
C-SHEL	heat-3d	628340265877	12730331754	413983748	104597772	407658823	238770732	501	500	6324925
C-SHEL	jacobi-2d	433636435766	9842371956	266452045	105496562	259571434	99515680	0	0	6880611
C-SHEL	lu	118897683335	5457997910	2543999090	818484	2469959106	1251340849	0	0	74039984
C-SHEL	ludcmp	115943282432	2802655653	2544695343	586545	2478203491	1294428771	5	3	66491852
C-SHEL	mvt	234195817	19755311	4248689	377	4248689	2025966	0	0	0

Table B.5: Small dataset results for a multi-level cache.

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	3953740	33481	1035	694	0	0	0	0	0
PLRU	3mm	6873993	61571	1809	881	0	0	0	0	0
PLRU	adi	43628189	1611337	65145	53736	0	0	0	0	0
PLRU	atax	377811	1329	897	469	0	0	0	0	0
PLRU	bicg	557223	13003	902	473	0	0	0	0	0
PLRU	cholesky	3470470	19839	1644	634	0	0	0	0	0
PLRU	correlation	14050839	477288	4543	3249	0	0	0	0	0
PLRU	covariance	13976109	476215	4222	3095	0	0	0	0	0
PLRU	deriche	9654012	331619	21631	9733	0	0	0	0	0
PLRU	doitgen	4868440	2811	949	878	0	0	0	0	0
PLRU	durbin	174966	2	37	0	0	0	0	0	0
PLRU	fdtd-2d	26856233	741780	76941	36334	0	0	0	0	0
PLRU	floyd-warshall	109232533	341592	369951	347430	0	0	0	0	0
PLRU	gemm	4592679	21842	690	301	0	0	0	0	0
PLRU	gemver	932647	12866	2500	1388	0	0	0	0	0
PLRU	gesummv	334173	7011	1034	507	0	0	0	0	0
PLRU	gram-schmidt	5829193	50794	880	854	0	0	0	0	0
PLRU	heat-3d	18007619	33276	72748	33358	0	0	0	0	0
PLRU	jacobi-1d	2243877	1747	97	0	0	0	0	0	0
PLRU	jacobi-2d	17122175	39729	80271	39897	0	0	0	0	0
PLRU	lu	7610337	64638	6927	1174	0	0	0	0	0
PLRU	ludcmp	7280952	64627	8256	1210	0	0	0	0	0
PLRU	mvt	445092	2824	1719	516	0	0	0	0	0
PLRU	nussinov	24972369	236850	51230	1566	0	0	0	0	0
PLRU	seidel-2d	12004532	34634	36822	35402	0	0	0	0	0
PLRU	symm	3710348	51480	3536	1638	0	0	0	0	0
PLRU	syr2k	10836228	326719	4662	690	0	0	0	0	0
PLRU	syrk	4336737	92230	383	328	0	0	0	0	0
PLRU	trisolv	95394	434	257	198	0	0	0	0	0
PLRU	trmm	3768481	108515	56	26	0	0	0	0	0
CLAM	2mm	3950415	33330	1182	514	1182	1182	438	251	0
CLAM	3mm	6869482	61207	2172	882	2170	2170	754	525	2
CLAM	adi	43367489	1614589	61772	50556	35807	28675	8360	1839	25811
CLAM	atax	371169	1308	918	275	918	918	475	270	0
CLAM	bicg	548754	13208	697	109	697	697	17	9	0
CLAM	cholesky	3462548	20103	1380	725	1345	931	311	289	35
CLAM	correlation	14049593	477064	4767	1990	2058	1258	1372	331	2709
CLAM	covariance	13964302	476332	4104	1835	1498	688	281	184	2606
CLAM	deriche	9647326	330699	22546	10754	17916	16314	14	10	4630
CLAM	doitgen	4864265	2974	786	683	786	786	27	12	0
CLAM	durbin	174966	2	37	0	0	0	18	16	0
CLAM	fdtd-2d	26054505	761560	56514	34134	38353	34188	42	41	18161
CLAM	floyd-warshall	108137582	394029	317514	296324	315968	269981	2	2	1546
CLAM	gemm	4594437	21894	638	321	638	638	1	1	0
CLAM	gemver	919480	13245	2123	1015	1756	1710	150	111	367
CLAM	gesummv	319422	7290	755	166	755	755	219	55	0
CLAM	gram-schmidt	5841056	50290	1384	1190	1384	1384	1006	180	0
CLAM	heat-3d	17188678	56320	49702	28302	36405	29069	1528	1517	13297
CLAM	jacobi-1d	2243907	1747	97	0	0	0	238	9	0
CLAM	jacobi-2d	16433762	61395	58605	37142	40754	37158	555	208	17851
CLAM	lu	7468353	68370	3195	1080	2672	1499	1	1	523
CLAM	ludcmp	7119108	68223	4435	1148	3986	2965	1562	922	449
CLAM	mvt	449767	2647	1895	478	1543	1467	776	556	352

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	nussinov	24581508	246826	41254	1573	26855	22377	104	40	14399
CLAM	seidel-2d	11732599	46200	25256	23246	17998	2760	126	86	7258
CLAM	symm	3677879	52168	2848	1716	2101	1663	1	1	747
CLAM	syr2k	10830286	326707	4674	828	2909	1458	255	180	1765
CLAM	syrk	4332883	92310	303	222	303	303	0	0	0
CLAM	trisolv	92078	476	215	74	215	215	30	12	0
CLAM	trmm	3768942	108475	96	51	96	96	2	2	0
PRL	2mm	3968991	32826	1686	493	1686	1686	435	241	0
PRL	3mm	6868683	61235	2144	881	2142	2142	757	525	2
PRL	adi	43334178	1616214	60147	49593	36528	31116	8350	1695	23465
PRL	atax	371169	1308	918	275	918	918	475	270	0
PRL	bicg	548820	13208	697	109	697	697	17	9	0
PRL	cholesky	3469414	19616	1867	657	1861	1631	311	288	6
PRL	correlation	14005924	478270	3561	2436	3546	3508	1372	334	15
PRL	covariance	13925225	477386	3050	1849	2689	1561	272	184	361
PRL	deriche	9643899	330903	22342	10868	20357	18905	14	10	1985
PRL	doitgen	4861190	3083	677	586	677	677	28	14	0
PRL	durbin	174968	2	37	0	0	0	18	16	0
PRL	fdtd-2d	25672261	773079	44995	29011	40916	40155	42	41	4079
PRL	floyd-warshall	108139147	394274	317269	296531	317269	317269	2	2	0
PRL	gemm	4594444	21894	638	321	638	638	1	1	0
PRL	gemver	937418	12727	2641	1075	2367	2076	133	117	274
PRL	gesummv	319519	7290	755	161	755	755	218	53	0
PRL	gram-schmidt	5854955	49766	1908	1621	1908	1908	1001	179	0
PRL	heat-3d	17264603	54292	51730	28987	41764	35101	1528	1520	9966
PRL	jacobi-1d	2243898	1747	97	0	0	0	238	9	0
PRL	jacobi-2d	16266793	69068	50932	32585	50932	50932	561	124	0
PRL	lu	7521033	66944	4621	882	4621	4621	1	1	0
PRL	ludcmp	7119074	68223	4435	1148	3986	2965	1562	922	449
PRL	mvt	435231	3053	1489	257	1489	1489	775	296	0
PRL	nussinov	24927588	237282	50798	1573	45488	43369	104	40	5310
PRL	seidel-2d	11721018	48458	22998	22089	22998	22998	133	77	0
PRL	symm	3741068	50285	4731	3096	4731	4728	1	1	0
PRL	syr2k	11025825	321330	10051	695	10051	10051	255	148	0
PRL	syrk	4334759	92243	370	212	370	370	0	0	0
PRL	trisolv	92080	476	215	74	215	215	30	12	0
PRL	trmm	3783373	108081	490	49	490	490	2	2	0
SHEL	2mm	3955090	33323	1193	553	1191	1191	193	130	2
SHEL	3mm	6956579	58806	4574	918	4466	4008	4660	2308	108
SHEL	adi	43473126	1614168	62314	48445	47823	40443	1256	681	14340
SHEL	correlation	14070412	476491	5340	2184	2893	1616	1369	333	2447
SHEL	covariance	13949374	476701	3736	1707	1822	926	280	191	1914
SHEL	deriche	9658407	330081	23169	12212	22388	20257	21	16	781
SHEL	fdtd-2d	26127298	760887	57834	34878	35790	29834	649	421	22044
SHEL	gemver	925014	12893	2473	1039	2349	2201	146	118	124
SHEL	heat-3d	16905382	68924	37100	23583	36924	34287	3090	1931	176
SHEL	jacobi-2d	16038531	76083	43917	31121	43875	43167	160	59	42
SHEL	lu	7668093	63461	8104	870	8104	8104	114	103	0
SHEL	ludcmp	7145539	68293	4590	1148	4583	4502	1352	698	7
SHEL	mvt	448742	2680	1863	455	1702	1551	772	564	161
C-SHEL	2mm	3954098	33349	1167	522	1165	1165	193	130	2
C-SHEL	3mm	6956485	58806	4574	918	4466	4008	4660	2308	108
C-SHEL	adi	43322157	1618986	57496	46053	55475	49135	1528	651	1870
C-SHEL	correlation	14067723	476575	5256	2171	2854	1549	1393	329	2402
C-SHEL	covariance	13949638	476696	3741	1640	1741	848	280	192	2000
C-SHEL	deriche	9691961	329131	24119	12569	21410	17073	21	16	2709
C-SHEL	fdtd-2d	25779429	771504	47217	29572	40159	36842	649	439	7058

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
C-SHEL	gemver	928544	12997	2369	1017	2208	2071	144	119	161
C-SHEL	heat-3d	16918347	68498	37526	23736	36997	33944	3090	1913	529
C-SHEL	jacobi-2d	16107698	73613	46387	32161	44792	38184	160	62	1595
C-SHEL	lu	7558217	66447	5118	882	5118	5118	114	100	0
C-SHEL	ludcmp	7152575	68110	4773	1129	4752	4687	1354	694	21
C-SHEL	mvt	437184	3011	1532	305	1532	1532	781	356	0

Table B.6: Medium dataset results for a multi-level cache.

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	479106410	12779292	965631	5151	0	0	0	0	0
PLRU	3mm	740985495	19869775	1635095	7542	0	0	0	0	0
PLRU	adi	1324587981	46528909	3056385	1767690	0	0	0	0	0
PLRU	atax	4288286	19611	10010	442	0	0	0	0	0
PLRU	bicg	4613408	62608	10047	465	0	0	0	0	0
PLRU	cholesky	147699535	19741	691771	5445	0	0	0	0	0
PLRU	correla-tion	870739648	1506802	13140573	35008	0	0	0	0	0
PLRU	covariance	870221299	1504092	13135491	35013	0	0	0	0	0
PLRU	deriche	182022469	3366874	1601216	778692	0	0	0	0	0
PLRU	doitgen	169256001	4507421	7356	7310	0	0	0	0	0
PLRU	durbin	1848955	3	71	0	0	0	0	0	0
PLRU	fdtd-2d	689023613	18736832	2103450	904812	0	0	0	0	0
PLRU	floyd-warshall	2337999606	7618318	7878925	7685322	0	0	0	0	0
PLRU	gemm	166508448	13856	669390	4258	0	0	0	0	0
PLRU	gemver	12173698	218932	30892	10573	0	0	0	0	0
PLRU	gesummv	2074491	26185	7867	528	0	0	0	0	0
PLRU	gram-schmidt	734247853	28407377	488393	416397	0	0	0	0	0
PLRU	heat-3d	460633062	1891513	1790904	730042	0	0	0	0	0
PLRU	jacobi-1d	18795793	19019	98	0	0	0	0	0	0
PLRU	jacobi-2d	337241917	775273	1556618	775410	0	0	0	0	0
PLRU	lu	605462660	14859568	1376967	10233	0	0	0	0	0
PLRU	ludcmp	589578164	15017558	1387348	10703	0	0	0	0	0
PLRU	mvt	7741256	160933	20147	560	0	0	0	0	0
PLRU	nussinov	805564561	16832866	1625471	8705	0	0	0	0	0
PLRU	seidel-2d	337365874	963152	1031882	995024	0	0	0	0	0
PLRU	symm	338872434	11689785	622300	300725	0	0	0	0	0
PLRU	syr2k	383780969	10825209	846173	3159	0	0	0	0	0
PLRU	syrk	169750220	3868733	353785	2609	0	0	0	0	0
PLRU	trisolv	1109420	203	5256	511	0	0	0	0	0
PLRU	trmm	229920629	7854615	289253	3041	0	0	0	0	0
CLAM	2mm	478711855	12790457	954467	5425	811890	665261	1	1	142577

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	3mm	735306817	20022779	1482090	9037	1199001	956180	3656	2365	283089
CLAM	adi	1310776415	46923670	2661324	1764431	1718616	1265150	105	3	942708
CLAM	atax	4292778	19267	10354	298	10354	10354	325	178	0
CLAM	bicg	4635828	61586	11069	863	11069	11069	46	27	0
CLAM	cholesky	145151945	89057	622455	5468	598442	317985	33	30	24013
CLAM	correla-tion	428080221	13658708	988666	35067	462999	65260	279	276	525667
CLAM	covariance	428083113	13639295	1000286	34965	457841	64113	3	2	542445
CLAM	deriche	179665599	3369967	1598119	761849	476705	258152	16	13	1121414
CLAM	doitgen	169264889	4506622	8155	7532	8155	8155	1032	3	0
CLAM	durbin	1848980	3	71	0	0	0	42	41	0
CLAM	fdtd-2d	687113890	18730219	2095855	901618	1672792	665839	102	102	423063
CLAM	floyd-warshall	2334947360	7794611	7702632	7552691	7696027	6873375	2	2	6605
CLAM	gemm	162715942	110573	572673	4516	567661	314234	1	1	5012
CLAM	gemver	12196959	218098	31727	10427	31483	30700	633	526	244
CLAM	gesummv	2061899	26233	7819	356	7819	7819	15	1	0
CLAM	gram-schmidt	731175080	28489113	406657	383785	359082	326416	836	460	47575
CLAM	heat-3d	450666673	2198449	1508667	729648	1491597	1241656	21	9	17070
CLAM	jacobi-1d	18795769	19019	98	0	0	0	1134	7	0
CLAM	jacobi-2d	335647908	825436	1506454	774472	1464986	1106407	302	198	41468
CLAM	lu	610330700	14723367	1513167	10250	855480	810644	1	1	657687
CLAM	ludcmp	594195414	14888567	1515544	10745	873197	830192	1469	1449	642347
CLAM	mvt	7731560	161153	19926	589	19745	19678	128	26	181
CLAM	nussinov	807510045	16780441	1677896	8723	1190542	1136611	37	34	487354
CLAM	seidel-2d	336750260	1017110	977924	971984	977636	926251	306	206	288
CLAM	symm	341734400	11581410	730675	340305	416886	339306	1	1	313789
CLAM	syr2k	390540620	10637289	1034093	15460	540315	468546	3	3	493778
CLAM	syrk	169591541	3870438	352080	5410	250966	227182	0	0	101114
CLAM	trisolv	1093097	633	4826	19	4826	4826	124	20	0
CLAM	trmm	230678136	7832873	310995	3075	236819	210395	0	0	74176
PRL	2mm	476102616	12861609	883315	5408	883222	883107	1	1	93
PRL	3mm	730562258	20151941	1352928	8948	1331211	1086523	3653	2365	21717
PRL	adi	1308920795	46986091	2598903	1735056	1738940	1372258	105	3	859963
PRL	atax	4292741	19267	10354	298	10354	10354	325	178	0
PRL	bicg	4635764	61586	11069	863	11069	11069	46	27	0
PRL	cholesky	145786801	71560	639952	5461	639920	637213	33	30	32
PRL	correla-tion	422449238	13811440	835934	35008	828249	495282	279	266	7685
PRL	covariance	420443406	13847088	792493	35021	788046	352745	3	2	4447
PRL	deriche	170130892	3697256	1270830	538860	1083160	719217	16	12	187670
PRL	doitgen	169263024	4506696	8081	7471	8081	8081	1032	3	0
PRL	durbin	1848960	3	71	0	0	0	42	41	0
PRL	fdtd-2d	686956183	18735207	2090867	899847	1683567	864935	102	102	407300

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PRL	floyd-warshall	2334949722	7794611	7702632	7552691	7696027	6873375	2	2	6605
PRL	gemm	162668550	111874	571372	4496	571372	571372	1	1	0
PRL	gemver	12197781	217692	32133	10386	32133	32133	654	457	0
PRL	gesummv	2061266	26220	7832	384	7832	7832	15	1	0
PRL	gram-schmidt	730671705	28504202	391568	378979	366405	354851	849	425	25163
PRL	heat-3d	450457933	2204531	1502585	726465	1502585	1502585	10	9	0
PRL	jacobi-1d	18795782	19019	98	0	0	0	1134	7	0
PRL	jacobi-2d	335524383	833083	1498807	773691	1488546	1350413	308	192	10261
PRL	lu	609233290	14753290	1483244	10249	1016402	973842	1	1	466842
PRL	ludcmp	593137303	14917636	1486475	10627	1024535	983359	1466	1441	461940
PRL	mvt	7722693	161384	19695	527	19695	19695	130	26	0
PRL	nussinov	805854169	16825424	1632913	8722	1218285	1171610	37	34	414628
PRL	seidel-2d	336749300	1017231	977803	974481	977803	977803	306	206	0
PRL	symm	339224034	11669785	642300	310015	549849	487492	1	1	92451
PRL	syr2k	386040269	10761019	910363	11716	595152	514761	3	3	315211
PRL	syrk	168931242	3889397	333121	4540	277948	259666	0	0	55173
PRL	trisolv	1093119	633	4826	19	4826	4826	124	20	0
PRL	trmm	230189830	7846008	297860	3070	256629	232552	0	0	41231
SHEL	2mm	474822223	12897205	847718	5822	839311	789991	2	2	8407
SHEL	3mm	729030398	20194027	1310843	7917	1293665	1033070	1	1	17178
SHEL	adi	1305394045	47105011	2480283	1681363	1800721	1380134	605	304	679562
SHEL	correla-tion	426837897	13691783	955592	35064	478545	64299	279	275	477047
SHEL	covariance	428216369	13632518	1007065	35027	458947	65855	3949	3897	548118
SHEL	deriche	166698432	3795754	1172336	457562	1162424	860180	20	16	9912
SHEL	fdtd-2d	685996157	18818580	2021702	903807	1971603	1361466	308	206	50099
SHEL	gemver	12302490	215622	34202	10401	28504	20691	640	444	5698
SHEL	heat-3d	449856008	2187327	1495090	728078	1495090	1495090	110	20	0
SHEL	jacobi-2d	334619271	860805	1471086	772550	1466692	1251341	400	196	4394
SHEL	lu	611772196	14686553	1549982	10259	899161	850777	0	0	650821
SHEL	ludcmp	592933857	14925854	1479052	11009	1044461	918337	2001	1909	434591
SHEL	mvt	7726595	161278	19802	582	19802	19802	131	27	0
C-SHEL	2mm	474823363	12897205	847718	5822	839311	789991	2	2	8407
C-SHEL	3mm	729014257	20194449	1310421	7913	1294305	1053319	1	1	16116
C-SHEL	adi	1301675949	47229178	2356116	1636737	1841134	1625640	605	304	514982
C-SHEL	correla-tion	427264697	13680195	967180	35071	465506	65085	279	276	501674
C-SHEL	covariance	428196444	13633007	1006576	35027	458937	66036	3947	3898	547639
C-SHEL	deriche	167692465	3767612	1200478	471862	1196570	1017747	20	16	3908
C-SHEL	fdtd-2d	686629229	18802265	2038017	903399	1993900	1616574	308	206	44117

policy	bench-mark	clock-cycles	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
C-SHEL	gemver	12302166	215622	34202	10401	28504	20691	640	444	5698
C-SHEL	heat-3d	450283613	2174777	1507640	729759	1496592	1322603	110	110	11048
C-SHEL	jacobi-2d	335593715	827272	1504619	774329	1460823	1101752	400	201	43796
C-SHEL	lu	610783935	14713319	1523216	10258	978446	926142	0	0	544770
C-SHEL	ludcmp	592493018	14937688	1467218	10955	1064062	1028360	2003	1936	403156
C-SHEL	mvt	7728231	161241	19839	589	19826	19813	130	27	13

Table B.7: Large dataset results for a multi-level cache.

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	2mm	118934900113	816826	1761340347	489258	0	0	0	0	0
PLRU	3mm	193027318968	1354185	2870680140	768711	0	0	0	0	0
PLRU	adi	199561070043	5008686184	1331258899	661997172	0	0	0	0	0
PLRU	atax	118187411	998616	262201	1609	0	0	0	0	0
PLRU	bicg	112519927	1480564	256406	1466	0	0	0	0	0
PLRU	cholesky	188043476833	24886975	85562875	131386	0	0	0	0	0
PLRU	correla-tion	126140632434	1284765	2005997772	870658	0	0	0	0	0
PLRU	covari-ance	126126286448	982759	2006005660	870584	0	0	0	0	0
PLRU	deriche	4686293359	86224201	40956694	19938712	0	0	0	0	0
PLRU	doitgen	183550203133	522349573	34077896	420498	0	0	0	0	0
PLRU	durbin	59839845	742447	1115	318	0	0	0	0	0
PLRU	fdtd-2d	883517440911	2422510067	273481016	115087912	0	0	0	0	0
PLRU	floyd-warshall	450742619379	2526789497	1594839227	1368037776	0	0	0	0	0
PLRU	gemm	213525543555	32564343	90334788	4515281	0	0	0	0	0
PLRU	gemver	454131074	1618713	4756922	251784	0	0	0	0	0
PLRU	gesummv	51749426	465068	211658	673	0	0	0	0	0
PLRU	gram-schmidt	187644711689	717331334	2885146724	720638548	0	0	0	0	0
PLRU	heat-3d	726152786002	111510496	419903144	104548884	0	0	0	0	0
PLRU	jacobi-1d	472154813	614318	779	254	0	0	0	0	0
PLRU	jacobi-2d	525346383002	294995922	232319199	105463320	0	0	0	0	0
PLRU	lu	175689228482	350701216	2442868887	582255	0	0	0	0	0
PLRU	ludcmp	173035761416	358090751	2441720634	2153493	0	0	0	0	0
PLRU	mvt	346276433	254612	4501754	1801	0	0	0	0	0
PLRU	nussinov	194779587736	226630646	2520857850	481293	0	0	0	0	0
PLRU	seidel-2d	500878994900	357051289	142448789	124875122	0	0	0	0	0

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
PLRU	symm	85436761476	706674203	1137676476	544589464	0	0	0	0	0
PLRU	syr2k	985269218999	191649998	1417006202	42469871	0	0	0	0	0
PLRU	syrk	47782143694	172434568	627059055	33632492	0	0	0	0	0
PLRU	trisolv	28918417	72568	128161	651	0	0	0	0	0
PLRU	trmm	722659255593	69588288	1122453236	75003	0	0	0	0	0
CLAM	2mm	110994239796	220454332	1541702842	434971	830859546	818592485	2	2	710843296
CLAM	3mm	180002666165	358007686	2514026638	734342	1427562920	1263150792	0	0	1086463718
CLAM	adi	203465158706	479293308	1547011496	718398464	567121242	287287734	6	4	979890254
CLAM	atax	118721860	982210	278607	10946	241903	236714	181	121	36704
CLAM	bicg	112289566	1487113	249857	507	249857	249857	1	1	0
CLAM	cholesky	18767667985	26284565	84165285	126354	83975175	61260799	129	128	190110
CLAM	correla-tion	113909605746	355937999	1651344541	908780	1631111635	835451016	84	84	20232906
CLAM	covari-ance	113906685491	355300149	1651688269	910421	1630527582	753284277	78	78	21160687
CLAM	deriche	4700056526	85654987	41525904	19906577	35848822	23225123	79	15	5677082
CLAM	doitgen	181024600076	529447721	26979748	366874	25955243	14254713	3	2	1024505
CLAM	durbin	59819523	743290	272	0	0	0	5	2	0
CLAM	fdtd-2d	881027407339	2434478648	262011430	112415385	262011430	262011430	3	3	0
CLAM	floyd-warshall	443014861930	2742230771	1379397953	136803779 1	136677330 7	1298550204	0	0	12624646
CLAM	gemm	212250997596	40268420	82630711	69712	82628132	82577896	2	2	2579
CLAM	gemver	426286708	2418693	3956942	251015	3576333	606691	254	254	380609
CLAM	gesummv	51785894	464148	212578	850	212578	212578	121	83	0
CLAM	gram-schmidt	174188034384	1088367482	2514110576	667806439	2119046398	1739039147	2	2	395064178
CLAM	heat-3d	721296950401	135564023	402623117	104599161	360828772	206378793	8	8	41794345
CLAM	jacobi-1d	471828020	613092	97	0	0	0	6	3	0
CLAM	jacobi-2d	519182467992	316505499	210809621	105353449	210809621	210809621	1	0	0
CLAM	lu	169262547017	5444819148	2249088188	598296	1517529182	1335181121	0	0	731559006
CLAM	ludcmp	166440564495	550716671	2249086672	1817214	1519129877	1334721871	5	5	729956795
CLAM	mvt	314940188	1130006	3626358	931	3427416	702531	0	0	198942
CLAM	nussinov	174774126922	788126439	1959362057	428331	1748021383	928389037	168	164	211340674
CLAM	seidel-2d	494571311669	374597778	124902300	124801092	124902300	124902300	3	3	0
CLAM	symm	769637285596	947541107	896809572	258568992	806072659	355969879	1	1	90736913
CLAM	syr2k	878483209624	495243724	1113412476	15272605	1030886619	492040103	3	2	82525857
CLAM	syrk	394311989881	405821848	393671775	14827660	312446801	139615678	2	2	81224974
CLAM	trisolv	28867231	74528	126201	266	126201	126201	0	0	0

policy	bench-mark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
CLAM	trmm	605190341000	3935454576	798496048	207034	704819158	295687275	0	0	93676890
PRL	2mm	100618340256	5020162220	1260140954	128858	1246082888	1040702059	2	2	14058066
PRL	3mm	173025827095	5416323220	2330402004	200128	2317393359	2123374058	0	0	13008645
PRL	adi	203463787270	4792969585	1546974998	718347396	570117427	288436255	6	4	976857571
PRL	atax	117932290	1008030	252787	3258	252787	252787	181	121	0
PRL	bicg	112288192	1487140	249830	484	249830	249830	1	1	0
PRL	cholesky	187671791225	26306034	84143816	126332	84121749	83268430	129	127	22067
PRL	correla-tion	113863949261	3572042622	1650078278	908599	1634323420	1014032292	84	84	15754858
PRL	covari-ance	113851932019	3568441221	1650144297	905783	1633770732	922282812	78	78	16373565
PRL	deriche	4679877142	86467037	40713854	19545755	39303960	23312805	79	13	1409894
PRL	doitgen	180984173833	5295610119	26866450	365066	26204210	18368518	3	2	662240
PRL	durbin	59819496	743290	272	0	0	0	5	2	0
PRL	fdtd-2d	881027460339	2434478648	262011430	112415385	262011430	262011430	3	3	0
PRL	floyd-warshall	442964241079	2743921516	137770720 8	136803779 1	136804196 5	1302227125	0	0	9665243
PRL	gemm	212250037772	40271577	82627554	69529	82626013	82589668	2	2	1541
PRL	gemver	420825951	2562856	3812779	250842	3769341	2314750	254	254	43438
PRL	gesummv	51785613	464148	212578	850	212578	212578	121	83	0
PRL	gram-schmidt	174220801106	1086943745	251553431 3	668111691	212093493 4	1742436653	2	2	394599379
PRL	heat-3d	721415897119	1352386670	402948470	104599079	361156761	206711230	8	8	41791709
PRL	jacobi-1d	471828019	613092	97	0	0	0	6	3	0
PRL	jacobi-2d	519182784745	3165045223	210810597	105354220	210810597	210810597	1	0	0
PRL	lu	165530512784	6444305557	214913954 5	583506	205686304 0	1741142043	0	0	92276505
PRL	ludcmp	162740389012	6505348552	214926849 1	1824305	205651567 2	1739931790	5	5	92752819
PRL	mvt	312248985	1202445	3553919	832	3552733	3493756	0	0	1186
PRL	nussinov	176478831935	7427783881	200471011 5	426828	193884084 4	1409849891	168	164	65869271
PRL	seidel-2d	494571320006	3745977774	124902304	124800056	124902304	124902304	3	3	0
PRL	symm	771636957553	9468094500	897541229	264821139	893232377	808634329	1	1	4308852
PRL	syr2k	888065934555	4689286776	113972752 4	8656734	113837322 1	1084724768	3	2	1354303
PRL	syrk	403725429997	3804665119	419027104	7767335	417660155	394664143	2	2	1366949
PRL	trisolv	28866846	74524	126205	266	126205	126205	0	0	0
PRL	trmm	611165943288	3780492334	813992290	197276	811144815	735615544	0	0	2847475
SHEL	2mm	902674475116	7862722007	975884966	176692	946164122	541025645	2	2	29720844
SHEL	3mm	148385468870	1215795968	165623835 7	309464	161328263 0	870412144	3	3	42955727
SHEL	adi	194806223046	5168057202	117188788 1	511398871	109313057 6	896340125	2	2	78757305

policy	benchmark	clock-cycles	hits	misses	writebacks	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
SHEL	correlation	113905788197	356017648	1651264889	910217	1631656514	755155889	157	157	19608375
SHEL	covariance	113890266980	355758075	1651230344	908913	1631614943	754802906	80	80	19615401
SHEL	deriche	4631883187	87894796	39286099	18704223	39183463	27236240	82	18	102636
SHEL	fdtd-2d	880908683639	2433976239	262014844	112422939	262014844	262014844	6	5	0
SHEL	gemver	421316590	2544630	3831005	250876	3757912	2158664	253	253	73093
SHEL	heat-3d	705844673755	167201985	364211655	104549020	361900586	242759647	11	11	2311069
SHEL	jacobi-2d	519182680202	316505856	210809265	105352947	210809265	210809265	0	0	0
SHEL	lu	147756024705	1117084392	1676485711	422697	1401415239	683428498	1	1	275070472
SHEL	ludcmp	145118293405	1121306399	1678504986	1762690	1406755148	691848531	8	7	271749838
SHEL	mvt	312719986	1189953	3566413	860	3507340	1749791	1	1	59073
C-SHEL	2mm	902674475116	786272207	975884966	176692	946164122	541025645	2	2	29720844
C-SHEL	3mm	148385468870	1215795968	1656238357	309464	1613282630	870412144	3	3	42955727
C-SHEL	adi	194980193205	5173579651	1166365432	518156645	1165933204	1164253517	2	2	432228
C-SHEL	correlation	113905975054	356001865	1651280672	908703	1631627932	754345275	157	157	19652740
C-SHEL	covariance	113889965224	355755385	1651233034	910894	1631626411	755647303	80	80	19606623
C-SHEL	deriche	4642582941	87594215	39586680	18865949	39515748	32036875	82	18	70932
C-SHEL	fdtd-2d	880958631004	2433920547	262070536	112374437	262070536	262070536	6	5	0
C-SHEL	gemver	429486430	2323857	4051778	250840	4021043	3888924	253	253	30735
C-SHEL	heat-3d	705844673755	167201985	364211655	104549020	361900586	242759647	11	11	2311069
C-SHEL	jacobi-2d	519183070201	316505940	210809181	105351017	210809181	210809181	0	0	0
C-SHEL	lu	147752906458	1117123326	1676446777	423256	1403516770	687859083	1	1	272930007
C-SHEL	ludcmp	145115679794	1121246264	1678565121	1763355	1404640879	687484405	8	7	273924242
C-SHEL	mvt	312705082	1189869	3566497	869	3506888	1731181	1	1	59609

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	2mm	883088	25314	567	9721	8960	1	1	15593
1	64	CLAM	3mm	1593800	34500	750	21359	17069	0	0	13141
1	64	CLAM	adi	2595827	118585	76837	59924	35733	8	1	58661
1	64	CLAM	atax	99983	829	41	829	829	0	0	0
1	64	CLAM	bicg	114481	831	35	831	831	0	0	0
1	64	CLAM	cholesky	862475	15985	603	15102	7951	1	0	883
1	64	CLAM	correlation	763821	270986	5010	143974	20346	327	10	127012
1	64	CLAM	covariance	754810	267072	4886	150262	21428	81	1	116810
1	64	CLAM	deriche	284471	108761	52882	15411	15117	14	7	93350
1	64	CLAM	doitgen	1394121	881	881	881	881	1	0	0
1	64	CLAM	durbin	50013	15	0	0	0	20	1	0
1	64	CLAM	fdtd-2d	2564073	74569	35639	65205	51889	1	0	9364

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	floyd-warshall	17523827	346027	335157	341569	121924	0	0	4458
1	64	CLAM	gemm	1337386	15016	424	14171	6179	1	1	845
1	64	CLAM	gemver	168613	4789	968	2236	1762	122	10	2553
1	64	CLAM	gesummv	64220	942	21	942	942	91	0	0
1	64	CLAM	gram-schmidt	1328239	18161	15700	12094	2045	0	0	6067
1	64	CLAM	heat-3d	3661551	70931	33130	64787	46684	1	0	6144
1	64	CLAM	jacobi-1d	311677	3	0	0	0	2	1	0
1	64	CLAM	jacobi-2d	3641592	75529	39519	70612	53480	0	0	4917
1	64	CLAM	lu	1693649	41371	1035	31789	22279	0	0	9582
1	64	CLAM	ludcmp	1159991	42749	1021	32203	22034	5	3	10546
1	64	CLAM	mvt	84212	2428	146	1712	601	0	0	716
1	64	CLAM	nussinov	2845836	166377	2070	59418	42902	1	0	106959
1	64	CLAM	seidel-2d	2280743	32058	31673	31284	12866	0	0	774
1	64	CLAM	symm	847026	21776	10311	14147	6508	1	0	7629
1	64	CLAM	syr2k	1093571	79311	2432	15186	6657	1	0	64125
1	64	CLAM	syrk	773231	10851	512	6502	3314	1	0	4349
1	64	CLAM	trisolv	21402	498	15	498	498	2	2	0
1	64	CLAM	trmm	424758	9643	358	5321	1750	0	0	4322
1	64	C-SHEL	2mm	893136	15266	474	12272	4741	1	1	2994
1	64	C-SHEL	3mm	1601430	26870	663	25209	13104	0	0	1661
1	64	C-SHEL	adi	2634227	80465	55761	77522	54396	88	25	2943
1	64	C-SHEL	correlation	780054	254753	4734	165205	22527	87	5	89548
1	64	C-SHEL	covariance	764549	257333	4744	163544	22909	81	1	93789
1	64	C-SHEL	deriche	303790	89446	46102	88720	72734	17	9	726
1	64	C-SHEL	fdtd-2d	2569423	77549	35619	73981	59282	128	2	3568
1	64	C-SHEL	gemver	160904	12498	997	12367	11781	122	10	131
1	64	C-SHEL	heat-3d	3661695	70787	33164	65017	46620	1	0	5770
1	64	C-SHEL	jacobi-2d	3642608	74513	39439	71387	55483	0	0	3126
1	64	C-SHEL	lu	1695514	39506	985	35258	27906	0	0	4248
1	64	C-SHEL	ludcmp	1162486	40492	1117	37051	29701	124	10	3441
1	64	C-SHEL	mvt	74457	12183	142	11979	11354	0	0	204
1	64	PRL	2mm	892496	15906	455	15239	12733	1	1	667
1	64	PRL	3mm	1598541	29759	645	29389	27364	0	0	370
1	64	PRL	adi	2601249	113163	73959	61183	36089	8	1	51980
1	64	PRL	atax	99983	829	41	829	829	0	0	0
1	64	PRL	bicg	114481	831	35	831	831	0	0	0
1	64	PRL	cholesky	860985	17475	581	17475	17475	1	0	0
1	64	PRL	correlation	784142	250665	4170	214651	35147	327	9	36014
1	64	PRL	covariance	792662	229220	4236	199319	38349	81	1	29901
1	64	PRL	deriche	286631	106601	54057	83896	64365	14	6	22705
1	64	PRL	doitgen	1394121	881	881	881	881	1	1	0
1	64	PRL	durbin	50013	15	0	0	0	20	1	0
1	64	PRL	fdtd-2d	2564692	73950	35665	65584	53920	1	0	8366
1	64	PRL	floyd-warshall	17522202	344883	332280	343735	245007	0	0	1148
1	64	PRL	gemm	1337466	14936	409	14351	7689	1	1	585
1	64	PRL	gemver	169421	3981	958	2472	1764	122	10	1509
1	64	PRL	gesummv	64220	942	21	942	942	91	0	0
1	64	PRL	gram-schmidt	1328946	17454	15521	12693	3445	0	0	4761
1	64	PRL	heat-3d	3662326	70156	33150	66029	50646	1	0	4127
1	64	PRL	jacobi-1d	311677	3	0	0	0	2	1	0
1	64	PRL	jacobi-2d	3641823	75298	39445	71532	56454	0	0	3766
1	64	PRL	lu	1695448	39572	989	35107	27666	0	0	4465
1	64	PRL	ludcmp	1162327	40413	1004	36137	28490	5	3	4276
1	64	PRL	mvt	83223	3417	133	3417	3417	0	0	0
1	64	PRL	nussinov	2847924	164289	1757	96940	69023	1	0	67349

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	PRL	seidel-2d	2281037	31764	31465	31764	31764	0	0	0
1	64	PRL	symm	849828	18974	9268	17514	8944	1	0	1460
1	64	PRL	syr2k	1073168	99714	378	99259	93562	1	0	455
1	64	PRL	syrk	773920	10162	353	10019	9360	1	0	143
1	64	PRL	trisolv	21402	498	14	498	498	2	2	0
1	64	PRL	trmm	427234	7167	346	7164	6800	0	0	3
1	64	SHEL	2mm	893172	15230	472	12258	3800	1	1	2972
1	64	SHEL	3mm	1601476	26824	654	25395	15288	0	0	1429
1	64	SHEL	adi	2621325	93367	62216	72260	32430	88	42	21107
1	64	SHEL	correlation	776062	258745	4794	160286	21684	87	5	98459
1	64	SHEL	covariance	762461	259421	4748	163673	24168	81	1	95748
1	64	SHEL	deriche	308179	85057	41517	84092	62228	17	9	965
1	64	SHEL	fdtd-2d	2575837	71135	35804	68957	40891	128	2	2178
1	64	SHEL	gemver	169325	4077	1049	3789	3087	122	10	288
1	64	SHEL	heat-3d	3664864	67618	33150	66003	42193	1	0	1615
1	64	SHEL	jacobi-2d	3645172	71949	39636	71050	51873	0	0	899
1	64	SHEL	lu	1689229	45791	1054	32090	23761	0	0	13701
1	64	SHEL	ludcmp	1156638	46340	1227	34120	25472	124	10	12220
1	64	SHEL	mvt	84185	2455	146	1790	604	0	0	665
1	128	CLAM	2mm	882642	25760	566	9577	9002	1	1	16183
1	128	CLAM	3mm	1593995	34305	723	22242	18702	0	0	12063
1	128	CLAM	adi	2608515	105897	70465	62345	32808	8	1	43552
1	128	CLAM	atax	99070	1742	34	1742	1742	0	0	0
1	128	CLAM	bicg	114474	838	41	838	838	124	8	0
1	128	CLAM	cholesky	862522	15938	594	15553	10173	120	118	385
1	128	CLAM	correlation	755315	279492	5076	145381	25501	326	94	134111
1	128	CLAM	covariance	755046	266836	4875	150806	21421	160	5	116030
1	128	CLAM	deriche	284481	108751	52875	15344	15108	14	7	93407
1	128	CLAM	doitgen	1394121	881	881	881	881	1	0	0
1	128	CLAM	durbin	50013	15	0	0	0	375	1	0
1	128	CLAM	fdtd-2d	2563541	75101	35918	65490	51917	1	0	9611
1	128	CLAM	floyd-warshall	17519589	347200	332906	344063	173849	0	0	3137
1	128	CLAM	gemm	1337563	14839	387	14802	13777	1	1	37
1	128	CLAM	gemver	167906	5496	1013	2112	1762	242	17	3384
1	128	CLAM	gesummv	64240	922	26	922	922	181	6	0
1	128	CLAM	gram-schmidt	1328485	17915	15663	12117	2200	80	80	5798
1	128	CLAM	heat-3d	3662247	70235	33121	65803	49883	1	0	4432
1	128	CLAM	jacobi-1d	311677	3	0	0	0	159	2	0
1	128	CLAM	jacobi-2d	3641819	75302	39662	70769	54169	0	0	4533
1	128	CLAM	lu	1692725	42295	1038	32016	21899	119	113	10279
1	128	CLAM	ludcmp	1160167	42573	1083	33095	23397	600	311	9478
1	128	CLAM	mvt	84236	2404	149	1683	301	0	0	721
1	128	CLAM	nussinov	2847537	164676	2082	60266	43785	180	10	104410
1	128	CLAM	seidel-2d	2281005	31796	31505	31781	31260	0	0	15
1	128	CLAM	symm	847006	21796	10315	13889	6181	1	0	7907
1	128	CLAM	syr2k	1098991	73891	2326	18750	10314	1	0	55141
1	128	CLAM	syrk	772570	11512	609	5660	2622	1	0	5852
1	128	CLAM	trisolv	21461	439	14	439	439	2	2	0
1	128	CLAM	trmm	424844	9557	361	5412	1865	0	0	4145
1	128	C-SHEL	2mm	893675	14727	473	12255	3632	1	1	2472
1	128	C-SHEL	3mm	1600759	27541	662	25015	10831	0	0	2526
1	128	C-SHEL	adi	2632752	81940	56053	77196	46155	248	121	4744
1	128	C-SHEL	correlation	776015	258792	4829	160841	21943	247	15	97951
1	128	C-SHEL	covariance	760254	261628	4839	160470	23540	160	5	101158
1	128	C-SHEL	deriche	297277	95959	40660	94428	67615	18	10	1531
1	128	C-SHEL	fdtd-2d	2573158	73814	35747	67992	58850	208	42	5822
1	128	C-SHEL	gemver	165069	8333	1062	8052	7276	242	17	281

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	C-SHEL	heat-3d	3663229	69253	33119	66160	50983	1	0	3093
1	128	C-SHEL	jacobi-2d	3642063	75058	39632	71380	55711	0	0	3678
1	128	C-SHEL	lu	1694758	40262	988	35149	27038	119	116	5113
1	128	C-SHEL	ludcmp	1162334	40644	1137	36214	28389	600	289	4430
1	128	C-SHEL	mvt	84252	2388	146	1775	230	0	0	613
1	128	PRL	2mm	892872	15530	455	15111	12592	1	1	419
1	128	PRL	3mm	1598942	29358	645	29283	29115	0	0	75
1	128	PRL	adi	2609642	104770	70062	63283	36689	8	1	41487
1	128	PRL	atax	99070	1742	34	1742	1742	0	0	0
1	128	PRL	bicg	114474	838	41	838	838	124	8	0
1	128	PRL	cholesky	859450	19010	546	19010	19010	120	119	0
1	128	PRL	correlation	806182	228625	4255	198517	38307	326	93	30108
1	128	PRL	covariance	787937	233945	4367	192338	32494	160	5	41607
1	128	PRL	deriche	286732	106500	49668	84267	64345	14	6	22233
1	128	PRL	doitgen	1394121	881	881	881	881	1	1	0
1	128	PRL	durbin	50013	15	0	0	0	375	1	0
1	128	PRL	fdtd-2d	2564749	73893	35742	66078	56780	1	0	7815
1	128	PRL	floyd-warshall	17517655	346591	330518	345892	294191	0	0	699
1	128	PRL	gemm	1337632	14770	354	14770	14770	1	1	0
1	128	PRL	gemver	169052	4350	981	2497	1759	242	17	1853
1	128	PRL	gesummv	64242	920	25	920	920	181	6	0
1	128	PRL	gram-schmidt	1329197	17203	15436	12711	4132	80	80	4492
1	128	PRL	heat-3d	3663171	69311	33075	66947	55221	1	0	2364
1	128	PRL	jacobi-1d	311677	3	0	0	0	159	2	0
1	128	PRL	jacobi-2d	3642169	74952	39617	72148	58040	0	0	2804
1	128	PRL	lu	1693595	41425	1018	34125	24871	119	115	7300
1	128	PRL	ludcmp	1161425	41315	1144	37542	30138	600	267	3773
1	128	PRL	mvt	83615	3025	136	3025	3025	0	0	0
1	128	PRL	nussinov	2855416	156797	1972	64438	50086	180	10	92359
1	128	PRL	seidel-2d	2281061	31740	31447	31740	31740	0	0	0
1	128	PRL	symm	850467	18335	9149	17686	8545	1	0	649
1	128	PRL	syr2k	1091915	80967	648	76602	61129	1	0	4365
1	128	PRL	syrk	773974	10108	419	9740	8434	1	0	368
1	128	PRL	trisolv	21461	439	14	439	439	2	2	0
1	128	PRL	trmm	427216	7185	350	7152	5941	0	0	33
1	128	SHEL	2mm	893754	14648	468	12240	3081	1	1	2408
1	128	SHEL	3mm	1600662	27638	664	24961	10912	0	0	2677
1	128	SHEL	adi	2621769	92923	60702	73447	32574	248	121	19476
1	128	SHEL	correlation	774066	260741	4835	158269	21254	247	15	102472
1	128	SHEL	covariance	761557	260325	4780	159852	22517	160	5	100473
1	128	SHEL	deriche	307491	85745	41037	80595	29130	18	9	5150
1	128	SHEL	fdtd-2d	2575454	71518	35965	68156	30274	208	42	3362
1	128	SHEL	gemver	170125	3277	1056	2535	1298	242	17	742
1	128	SHEL	heat-3d	3665496	66986	33125	66665	59169	1	0	321
1	128	SHEL	jacobi-2d	3645292	71829	38867	71509	60665	0	0	320
1	128	SHEL	lu	1688492	46528	1088	32634	23285	119	108	13894
1	128	SHEL	ludcmp	1157452	45526	1158	34095	25275	600	291	11431
1	128	SHEL	mvt	84236	2404	149	1683	301	0	0	721
1	256	CLAM	2mm	883217	25185	580	8241	7773	1	1	16944
1	256	CLAM	3mm	1594689	33611	745	21987	18746	0	0	11624
1	256	CLAM	adi	2611349	103063	69247	64017	36634	8	1	39046
1	256	CLAM	atax	99974	838	49	838	838	116	8	0
1	256	CLAM	bicg	114481	831	35	831	831	0	0	0
1	256	CLAM	cholesky	862545	15915	609	14586	7220	120	119	1329
1	256	CLAM	correlation	762383	272424	5042	142406	20314	407	15	130018
1	256	CLAM	covariance	751352	270530	4969	146200	21495	161	6	124330
1	256	CLAM	deriche	284471	108761	53090	15414	15118	13	6	93347

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	CLAM	doitgen	1394121	881	881	881	881	1	1	0
1	256	CLAM	durbin	50013	15	0	0	0	1858	7	0
1	256	CLAM	fdtd-2d	2564052	74590	35862	65772	53496	1	0	8818
1	256	CLAM	floyd-warshall	17522383	344726	332202	344032	264581	0	0	694
1	256	CLAM	gemm	1337624	14778	392	14725	13741	1	1	53
1	256	CLAM	gemver	167830	5572	1008	1943	1761	362	23	3629
1	256	CLAM	gesummv	64248	914	19	914	914	91	0	0
1	256	CLAM	gram-schmidt	1327963	18437	15836	11765	1670	80	80	6672
1	256	CLAM	heat-3d	3661507	70975	33154	64884	46362	1	0	6091
1	256	CLAM	jacobi-1d	311677	3	0	0	0	118	2	0
1	256	CLAM	jacobi-2d	3641436	75685	39629	70057	52853	0	0	5628
1	256	CLAM	lu	1692851	42169	1042	30722	20047	119	115	11447
1	256	CLAM	ludcmp	1157791	44949	1136	29950	18209	600	231	14999
1	256	CLAM	mvt	84037	2603	156	1809	816	120	8	794
1	256	CLAM	nussinov	2842435	169778	2161	59132	43887	1	0	110646
1	256	CLAM	seidel-2d	2280268	32533	31969	30729	3355	0	0	1804
1	256	CLAM	symm	847052	21750	10243	14220	6401	1	0	7530
1	256	CLAM	syr2k	1101505	71377	2265	21220	10923	1	0	50157
1	256	CLAM	syrk	773356	10726	604	7423	3977	1	0	3303
1	256	CLAM	trisolv	21447	453	13	453	453	121	2	0
1	256	CLAM	trmm	423815	10586	380	4824	1482	0	0	5762
1	256	C-SHEL	2mm	889988	18414	505	10205	600	1	1	8209
1	256	C-SHEL	3mm	1593278	35022	755	22192	8315	0	0	12830
1	256	C-SHEL	adi	2635419	79273	55770	77225	63781	208	81	2048
1	256	C-SHEL	correlation	776141	258666	4805	161725	21391	486	94	96941
1	256	C-SHEL	covariance	763691	258191	4766	165936	24417	161	6	92255
1	256	C-SHEL	deriche	300990	92246	49146	91726	78453	18	10	520
1	256	C-SHEL	fdtd-2d	2573717	73255	35532	69770	61983	288	42	3485
1	256	C-SHEL	gemver	170430	2972	957	2602	1763	362	20	370
1	256	C-SHEL	heat-3d	3663020	69462	33141	65748	48553	1	0	3714
1	256	C-SHEL	jacobi-2d	3642647	74474	39493	71491	55940	0	0	2983
1	256	C-SHEL	lu	1695090	39930	1002	34402	25728	119	114	5528
1	256	C-SHEL	ludcmp	1160878	42100	1256	35489	27426	719	283	6611
1	256	C-SHEL	mvt	84333	2307	152	1803	937	120	8	504
1	256	PRL	2mm	888842	19560	491	13638	9291	1	1	5922
1	256	PRL	3mm	1598579	29721	648	29492	28638	0	0	229
1	256	PRL	adi	2618652	95760	65755	64575	37281	8	1	31185
1	256	PRL	atax	99974	838	49	838	838	116	8	0
1	256	PRL	bicg	114481	831	35	831	831	0	0	0
1	256	PRL	cholesky	860723	17737	571	17737	17737	120	119	0
1	256	PRL	correlation	798548	236259	4423	188134	28115	407	15	48125
1	256	PRL	covariance	768066	253816	4195	215348	35695	161	6	38468
1	256	PRL	deriche	286858	106374	54238	84506	64378	13	6	21868
1	256	PRL	doitgen	1394121	881	881	881	881	1	1	0
1	256	PRL	durbin	50013	15	0	0	0	1858	7	0
1	256	PRL	fdtd-2d	2565260	73382	35632	67745	59153	1	0	5637
1	256	PRL	floyd-warshall	17525886	345081	336281	342831	324066	0	0	2250
1	256	PRL	gemm	1337544	14858	374	14858	14858	1	1	0
1	256	PRL	gemver	169039	4363	980	2416	1763	362	20	1947
1	256	PRL	gesummv	64248	914	19	914	914	91	0	0
1	256	PRL	gram-schmidt	1329502	16898	15391	13324	7756	80	80	3574
1	256	PRL	heat-3d	3663127	69355	33124	67441	54417	1	0	1914
1	256	PRL	jacobi-1d	311677	3	0	0	0	118	2	0
1	256	PRL	jacobi-2d	3641767	75354	39498	71639	56157	0	0	3715
1	256	PRL	lu	1696165	38855	964	37041	30917	119	116	1814

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	PRL	ludcmp	1161547	41193	1097	35388	26512	600	234	5805
1	256	PRL	mvt	84555	2085	147	1787	934	120	8	298
1	256	PRL	nussinov	2851845	160368	1999	63635	50507	1	0	96733
1	256	PRL	seidel-2d	2281113	31688	31376	31688	31688	0	0	0
1	256	PRL	symm	849450	19352	9412	17150	8503	1	0	2202
1	256	PRL	syr2k	1103650	69232	1322	49230	29258	1	0	20002
1	256	PRL	syrk	772968	11114	454	11114	11114	1	0	0
1	256	PRL	trisolv	21447	453	13	453	453	121	2	0
1	256	PRL	trmm	427104	7297	346	6846	4506	0	0	451
1	256	SHEL	2mm	889988	18414	505	10205	600	1	1	8209
1	256	SHEL	3mm	1593464	34836	744	22118	6894	0	0	12718
1	256	SHEL	adi	2617887	96805	65932	70495	37982	208	81	26310
1	256	SHEL	correlation	773534	261273	4833	159377	21803	486	94	101896
1	256	SHEL	covariance	759912	261970	4828	159508	22981	161	6	102462
1	256	SHEL	deriche	306929	86307	42656	85801	73741	18	10	506
1	256	SHEL	fdtd-2d	2576039	70933	35953	69163	35856	288	42	1770
1	256	SHEL	gemver	170010	3392	1011	2592	1761	362	19	800
1	256	SHEL	heat-3d	3665118	67364	33153	66334	50322	1	0	1030
1	256	SHEL	jacobi-2d	3645192	71929	39566	71624	66197	0	0	305
1	256	SHEL	lu	1688567	46453	1093	31796	22385	119	107	14657
1	256	SHEL	ludcmp	1155786	47192	1380	33820	24333	719	277	13372
1	256	SHEL	mvt	83645	2995	170	1808	872	120	8	1187
1	512	CLAM	2mm	882070	26332	581	9558	9063	1	1	16774
1	512	CLAM	3mm	1592613	35687	764	20612	16541	0	0	15075
1	512	CLAM	adi	2603170	111242	72659	61967	38304	8	1	49275
1	512	CLAM	atax	99129	1683	34	1683	1683	116	8	0
1	512	CLAM	bicg	113498	1814	33	1814	1814	124	8	0
1	512	CLAM	cholesky	861930	16530	614	14828	6420	120	119	1702
1	512	CLAM	correlation	756324	278483	5191	131831	18743	486	94	146652
1	512	CLAM	covariance	761337	260545	4789	159537	22844	161	6	101008
1	512	CLAM	deriche	284474	108758	53084	15413	15115	14	7	93345
1	512	CLAM	doitgen	1394121	881	881	881	881	1	1	0
1	512	CLAM	durbin	50013	15	0	0	0	2717	7	0
1	512	CLAM	fdtd-2d	2561823	76819	35928	63823	38528	1	0	12996
1	512	CLAM	floyd-warshall	17498032	346034	310024	343212	241656	0	0	2822
1	512	CLAM	gemm	1336733	15669	504	13325	1824	1	1	2344
1	512	CLAM	gemver	167917	5485	1012	2081	1768	482	28	3404
1	512	CLAM	gesummv	63665	1497	23	1497	1497	181	6	0
1	512	CLAM	gram-schmidt	1327859	18541	15723	12558	2597	80	80	5983
1	512	CLAM	heat-3d	3661141	71341	33126	67006	51072	1	0	4335
1	512	CLAM	jacobi-1d	311677	3	0	0	0	159	2	0
1	512	CLAM	jacobi-2d	3641024	76097	39597	70548	52345	0	0	5549
1	512	CLAM	lu	1693227	41793	1038	32265	22247	119	113	9528
1	512	CLAM	ludcmp	1158898	43842	1179	32248	21430	719	445	11594
1	512	CLAM	mvt	84264	2376	153	1802	955	120	8	574
1	512	CLAM	nussinov	2843442	168771	2060	59979	42575	1	0	108792
1	512	CLAM	seidel-2d	2279734	33067	32246	30140	2150	0	0	2927
1	512	CLAM	symm	846421	22381	11386	14868	6433	1	0	7513
1	512	CLAM	syr2k	1100299	72583	2340	20482	10177	1	0	52101
1	512	CLAM	syrk	772923	11159	706	6984	3779	1	0	4175
1	512	CLAM	trisolv	21146	754	11	754	754	121	2	0
1	512	CLAM	trmm	424364	10037	374	5034	1597	0	0	5003
1	512	C-SHEL	2mm	893305	15097	470	12920	8297	1	1	2177
1	512	C-SHEL	3mm	1600274	28026	666	24869	9808	0	0	3157
1	512	C-SHEL	adi	2623697	90995	60399	77046	38206	208	121	13949
1	512	C-SHEL	correlation	768085	266722	4981	148597	20206	486	93	118125
1	512	C-SHEL	covariance	767287	254595	4696	168459	24593	161	6	86136

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	C-SHEL	deriche	308811	84425	55263	83161	53581	18	11	1264
1	512	C-SHEL	fdtd-2d	2572949	74023	35630	67526	57074	288	2	6497
1	512	C-SHEL	gemver	170276	3126	970	2612	1775	482	27	514
1	512	C-SHEL	heat-3d	3661623	70859	33127	67135	51977	1	0	3724
1	512	C-SHEL	jacobi-2d	3641244	75877	39518	71531	54964	0	0	4346
1	512	C-SHEL	lu	1695105	39915	1001	35388	27279	119	116	4527
1	512	C-SHEL	ludcmp	1160725	42253	1364	36965	27966	957	461	5288
1	512	C-SHEL	mvt	75763	10877	158	10823	10189	120	8	54
1	512	PRL	2mm	892866	15536	451	15536	15523	1	1	0
1	512	PRL	3mm	1597172	31128	661	28506	25158	0	0	2622
1	512	PRL	adi	2603840	110572	72574	62685	40912	8	1	47887
1	512	PRL	atax	99129	1683	34	1683	1683	116	8	0
1	512	PRL	bicg	113498	1814	33	1814	1814	124	8	0
1	512	PRL	cholesky	859186	19274	564	19274	19274	120	119	0
1	512	PRL	correlation	807217	227590	4214	200138	40678	486	94	27452
1	512	PRL	covariance	797516	224366	4002	224359	223155	161	6	7
1	512	PRL	deriche	287546	105686	54293	85669	64378	14	7	20017
1	512	PRL	doitgen	1394121	881	881	881	881	1	1	0
1	512	PRL	durbin	50013	15	0	0	0	2717	7	0
1	512	PRL	fdtd-2d	2565159	73483	35640	67672	59433	1	0	5811
1	512	PRL	floyd-warshall	17498094	345444	309809	344852	322242	0	0	592
1	512	PRL	gemm	1337600	14802	385	14802	14802	1	1	0
1	512	PRL	gemver	169169	4233	989	2449	1773	482	30	1784
1	512	PRL	gesummv	63665	1497	21	1497	1497	181	6	0
1	512	PRL	gram-schmidt	1328762	17638	15615	13797	7077	80	80	3841
1	512	PRL	heat-3d	3662071	70411	33076	68076	57291	1	0	2335
1	512	PRL	jacobi-1d	311677	3	0	0	0	159	2	0
1	512	PRL	jacobi-2d	3641435	75686	39447	72552	58283	0	0	3134
1	512	PRL	lu	1695516	39504	983	36831	29990	119	117	2673
1	512	PRL	ludcmp	1162233	40507	1086	38132	31481	719	449	2375
1	512	PRL	mvt	80462	6178	127	6178	6178	120	8	0
1	512	PRL	nussinov	2844545	167668	1881	87366	58861	1	0	80302
1	512	PRL	seidel-2d	2280746	32055	31449	31327	10619	0	0	728
1	512	PRL	symm	849613	19189	9678	17571	8676	1	0	1618
1	512	PRL	syr2k	1073463	99419	589	98876	92620	1	0	543
1	512	PRL	syrk	773337	10745	562	10720	10489	1	0	25
1	512	PRL	trisolv	21146	754	11	754	754	121	2	0
1	512	PRL	trmm	426723	7678	335	7678	7678	0	0	0
1	512	SHEL	2mm	893305	15097	470	12920	8297	1	1	2177
1	512	SHEL	3mm	1600370	27930	671	24859	9749	0	0	3071
1	512	SHEL	adi	2619559	95133	64759	74010	38615	208	121	21123
1	512	SHEL	correlation	767095	267712	4947	149673	20815	486	93	118039
1	512	SHEL	covariance	768105	253777	4678	168112	24097	161	6	85665
1	512	SHEL	deriche	308550	84686	55262	83294	53479	18	11	1392
1	512	SHEL	fdtd-2d	2574368	72604	35846	68126	22778	288	2	4478
1	512	SHEL	gemver	169823	3579	1061	2586	1501	482	28	993
1	512	SHEL	heat-3d	3664248	68234	33123	67709	57979	1	0	525
1	512	SHEL	jacobi-2d	3644685	72436	38991	71394	44693	0	0	1042
1	512	SHEL	lu	1688241	46779	1085	32859	23460	119	102	13920
1	512	SHEL	ludcmp	1154248	48730	1525	35332	25346	957	459	13398
1	512	SHEL	mvt	83022	3618	152	3419	2829	120	8	199
1	1024	CLAM	2mm	883367	25035	576	7867	5906	1	1	17168
1	1024	CLAM	3mm	1593321	34979	736	23991	23345	0	0	10988
1	1024	CLAM	adi	2577811	136601	85147	61565	26270	2328	1145	75036
1	1024	CLAM	atax	99129	1683	34	1683	1683	116	8	0
1	1024	CLAM	bicg	114474	838	41	838	838	124	8	0
1	1024	CLAM	cholesky	860331	18129	583	18129	18129	239	114	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	CLAM	correlation	761423	273384	5010	140452	19904	406	89	132932
1	1024	CLAM	covariance	753215	268667	4944	147555	20960	161	6	121112
1	1024	CLAM	deriche	284469	108763	53088	15414	15111	14	7	93349
1	1024	CLAM	doitgen	1394121	881	881	881	881	1	1	0
1	1024	CLAM	durbin	50013	15	0	0	0	4081	7	0
1	1024	CLAM	fdtd-2d	2564184	74458	35636	65945	55228	1	0	8513
1	1024	CLAM	floyd-warshall	17517283	347753	331128	346123	275545	0	0	1630
1	1024	CLAM	gemm	1337309	15093	662	15093	15093	1	1	0
1	1024	CLAM	gemver	167482	5920	1063	4060	3351	482	208	1860
1	1024	CLAM	gesummv	64242	920	25	920	920	271	6	0
1	1024	CLAM	gram-schmidt	1327940	18460	15904	13395	3208	80	80	5065
1	1024	CLAM	heat-3d	3658591	73891	33183	65754	43697	1	0	8137
1	1024	CLAM	jacobi-1d	311677	3	0	0	0	159	2	0
1	1024	CLAM	jacobi-2d	3640520	76601	39697	67318	45853	1	1	9283
1	1024	CLAM	lu	1691276	43744	1033	33398	22101	119	115	10346
1	1024	CLAM	ludcmp	1158315	44425	1478	35686	24800	838	553	8739
1	1024	CLAM	mvt	83898	2742	145	2496	1641	120	8	246
1	1024	CLAM	nussinov	2846421	165792	2078	64321	46059	181	11	101471
1	1024	CLAM	seidel-2d	2281027	31774	31221	31753	30532	1	1	21
1	1024	CLAM	symm	846563	22239	11361	13926	6226	1	0	8313
1	1024	CLAM	syr2k	1089613	83269	3126	17007	8266	1	0	66262
1	1024	CLAM	syrk	773273	10809	1126	9439	6342	1	0	1370
1	1024	CLAM	trisolv	21378	522	17	522	522	121	2	0
1	1024	CLAM	trmm	422989	11412	383	4367	1176	0	0	7045
1	1024	C-SHEL	2mm	886390	22012	547	8889	664	1	1	13123
1	1024	C-SHEL	3mm	1598879	29421	674	24883	7777	0	0	4538
1	1024	C-SHEL	adi	2616842	97850	68227	69665	39963	4928	727	28185
1	1024	C-SHEL	correlation	772206	262601	4849	157432	22071	406	88	105169
1	1024	C-SHEL	covariance	759487	262395	4835	158127	22958	161	6	104268
1	1024	C-SHEL	deriche	308421	84815	55117	84093	71013	18	10	722
1	1024	C-SHEL	fdtd-2d	2572337	74635	35846	70405	59857	2768	850	4230
1	1024	C-SHEL	gemver	168517	4885	1042	4192	3342	482	208	693
1	1024	C-SHEL	heat-3d	3662044	70438	33109	68959	51699	1	0	1479
1	1024	C-SHEL	jacobi-2d	3641325	75796	39723	68354	44256	1	1	7442
1	1024	C-SHEL	lu	1693588	41432	993	36451	27421	119	117	4981
1	1024	C-SHEL	ludcmp	1153097	49881	1649	37508	26547	957	589	12373
1	1024	C-SHEL	mvt	83898	2742	145	2496	1641	120	8	246
1	1024	PRL	2mm	891236	17166	469	14705	9699	1	1	2461
1	1024	PRL	3mm	1598252	30048	647	30013	29986	0	0	35
1	1024	PRL	adi	2596444	117968	76672	63947	37305	2328	965	54021
1	1024	PRL	atax	99129	1683	34	1683	1683	116	8	0
1	1024	PRL	bicg	114474	838	41	838	838	124	8	0
1	1024	PRL	cholesky	857531	20929	537	20929	20929	239	112	0
1	1024	PRL	correlation	780167	254640	4149	216805	33534	406	73	37835
1	1024	PRL	covariance	799760	222122	4001	221981	214242	161	6	141
1	1024	PRL	deriche	286605	106627	54057	83736	64350	14	7	22891
1	1024	PRL	doitgen	1394121	881	881	881	881	1	1	0
1	1024	PRL	durbin	50013	15	0	0	0	4081	7	0
1	1024	PRL	fdtd-2d	2565263	73379	35608	67816	60015	1	0	5563
1	1024	PRL	floyd-warshall	17512669	347414	328637	347414	347414	0	0	0
1	1024	PRL	gemm	1337376	15026	615	15026	15026	1	1	0
1	1024	PRL	gemver	168324	5078	1055	4197	3367	482	225	881
1	1024	PRL	gesummv	64242	920	25	920	920	271	6	0
1	1024	PRL	gram-schmidt	1328469	17931	16088	14763	9332	80	80	3168
1	1024	PRL	heat-3d	3659388	73094	33149	67214	47557	1	0	5880

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	PRL	jacobi-1d	311677	3	0	0	0	159	2	0
1	1024	PRL	jacobi-2d	3641197	75924	39501	71026	53615	1	1	4898
1	1024	PRL	lu	1694579	40441	977	37702	30108	119	119	2739
1	1024	PRL	ludcmp	1160885	41855	1303	40461	34941	838	555	1394
1	1024	PRL	mvt	83898	2742	145	2496	1641	120	8	246
1	1024	PRL	nussinov	2846776	165437	1849	90370	60824	181	11	75067
1	1024	PRL	seidel-2d	2281139	31662	31190	31661	31661	1	1	1
1	1024	PRL	symm	850467	18335	9200	18335	16938	1	0	0
1	1024	PRL	syr2k	1103720	69162	1579	49844	30501	1	0	19318
1	1024	PRL	syrk	772144	11938	668	11938	11938	1	0	0
1	1024	PRL	trisolv	21378	522	17	522	522	121	2	0
1	1024	PRL	trmm	426819	7582	338	7582	7582	0	0	0
1	1024	SHEL	2mm	885770	22632	563	8583	913	1	1	14049
1	1024	SHEL	3mm	1598824	29476	673	24784	9736	0	0	4692
1	1024	SHEL	adi	2604317	110375	72740	69110	27611	4928	729	41265
1	1024	SHEL	correlation	772455	262352	4777	158384	22396	406	89	103968
1	1024	SHEL	covariance	760382	261500	4825	157961	22505	161	6	103539
1	1024	SHEL	deriche	308474	84762	55171	83245	60236	18	10	1517
1	1024	SHEL	fdtd-2d	2572180	74792	35955	70502	44699	2768	1713	4290
1	1024	SHEL	gemver	168496	4906	1094	4078	3207	482	161	828
1	1024	SHEL	heat-3d	3662063	70419	33169	68555	34024	1	0	1864
1	1024	SHEL	jacobi-2d	3643319	73802	39721	69703	24103	1	1	4099
1	1024	SHEL	lu	1685522	49498	1050	36047	23049	119	103	13451
1	1024	SHEL	ludcmp	1153471	49507	1657	36466	25127	957	602	13041
1	1024	SHEL	mvt	83898	2742	145	2496	1641	120	8	246
2	64	CLAM	2mm	884184	24218	548	10719	9090	1	1	13499
2	64	CLAM	3mm	1591811	36489	777	20061	16526	0	0	16428
2	64	CLAM	adi	2597464	116948	76092	60417	35630	9	0	56531
2	64	CLAM	atax	99975	837	49	837	837	116	8	0
2	64	CLAM	bicg	114481	831	35	831	831	0	0	0
2	64	CLAM	cholesky	862673	15787	605	14428	6800	1	0	1359
2	64	CLAM	correlation	764257	270550	4993	145352	20723	247	10	125198
2	64	CLAM	covariance	753420	268462	4966	149146	21499	161	6	119316
2	64	CLAM	deriche	284475	108757	52799	15356	15110	14	7	93401
2	64	CLAM	doitgen	1394121	881	881	881	881	1	0	0
2	64	CLAM	durbin	50013	15	0	0	0	138	2	0
2	64	CLAM	fdtd-2d	2564076	74566	35617	65165	52438	1	0	9401
2	64	CLAM	floyd-warshall	17520808	347164	333987	343645	167244	0	0	3519
2	64	CLAM	gemm	1337466	14936	409	14351	7689	1	1	585
2	64	CLAM	gemver	168570	4832	968	2251	1770	122	10	2581
2	64	CLAM	gesummv	64247	915	20	915	915	1	0	0
2	64	CLAM	gram-schmidt	1328373	18027	15603	11879	1946	0	0	6148
2	64	CLAM	heat-3d	3661820	70662	33141	65268	48131	1	0	5394
2	64	CLAM	jacobi-1d	311677	3	0	0	0	2	1	0
2	64	CLAM	jacobi-2d	3641473	75648	39583	70514	53008	0	0	5134
2	64	CLAM	lu	1693214	41806	1029	31590	23044	0	0	10216
2	64	CLAM	ludcmp	1160035	42705	1029	31975	21814	243	154	10730
2	64	CLAM	mvt	84219	2421	147	1704	694	0	0	717
2	64	CLAM	nussinov	2845568	166645	2091	59758	43362	1	0	106887
2	64	CLAM	seidel-2d	2281133	31668	31394	31668	31668	0	0	0
2	64	CLAM	symm	847750	21052	10764	14519	6623	1	0	6533
2	64	CLAM	syr2k	1099729	73153	2211	18358	10047	1	0	54795
2	64	CLAM	syrk	773526	10556	481	7318	4254	1	0	3238
2	64	CLAM	trisolv	21457	443	19	443	443	121	7	0
2	64	CLAM	trmm	423848	10553	368	4829	1525	0	0	5724
2	64	C-SHEL	2mm	894587	13815	456	12993	8019	1	1	822
2	64	C-SHEL	3mm	1600594	27706	681	24481	11788	0	0	3225

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	C-SHEL	adi	2634311	80381	55242	77043	47542	9	2	3338
2	64	C-SHEL	correlation	777966	256841	4810	162765	22077	247	10	94076
2	64	C-SHEL	covariance	760163	261719	4841	156866	20680	161	6	104853
2	64	C-SHEL	deriche	296604	96632	54940	96189	83930	18	11	443
2	64	C-SHEL	fdtd-2d	2573257	73715	35762	69037	59242	289	42	4678
2	64	C-SHEL	gemver	170100	3302	956	2565	1775	122	10	737
2	64	C-SHEL	heat-3d	3662645	69837	33147	65657	48722	1	0	4180
2	64	C-SHEL	jacobi-2d	3641669	75452	39499	70894	54337	0	0	4558
2	64	C-SHEL	lu	1694923	40097	981	34742	28315	0	0	5355
2	64	C-SHEL	ludcmp	1161960	41018	1101	36315	28355	5	3	4703
2	64	C-SHEL	mvt	84402	2238	145	1752	926	0	0	486
2	64	PRL	2mm	893264	15138	454	14955	13827	1	1	183
2	64	PRL	3mm	1597241	31059	660	29287	25989	0	0	1772
2	64	PRL	adi	2600971	113441	74196	61092	35912	9	0	52349
2	64	PRL	atax	99975	837	49	837	837	116	8	0
2	64	PRL	bicg	114481	831	35	831	831	0	0	0
2	64	PRL	cholesky	861763	16697	578	16697	16697	1	0	0
2	64	PRL	correlation	800600	234207	4338	190918	30809	247	10	43289
2	64	PRL	covariance	780582	241300	4467	184380	27503	161	6	56920
2	64	PRL	deriche	286816	106416	54124	84498	64362	14	6	21918
2	64	PRL	doitgen	1394121	881	881	881	881	1	1	0
2	64	PRL	durbin	50013	15	0	0	0	138	2	0
2	64	PRL	fdtd-2d	2564890	73752	35624	65642	56107	1	0	8110
2	64	PRL	floyd-warshall	17519032	346637	331655	345100	242708	0	0	1537
2	64	PRL	gemm	1337569	14833	395	14740	12807	1	1	93
2	64	PRL	gemver	169230	4172	966	2451	1769	122	10	1721
2	64	PRL	gesummv	64247	915	20	915	915	1	0	0
2	64	PRL	gram-schmidt	1328986	17414	15321	12262	2782	0	0	5152
2	64	PRL	heat-3d	3662267	70215	33133	65849	49678	1	0	4366
2	64	PRL	jacobi-1d	311677	3	0	0	0	2	1	0
2	64	PRL	jacobi-2d	3641706	75415	39562	71675	57217	0	0	3740
2	64	PRL	lu	1694467	40553	1018	33897	26905	0	0	6656
2	64	PRL	ludcmp	1162188	40552	993	35584	27543	243	139	4968
2	64	PRL	mvt	83711	2929	137	2929	2929	0	0	0
2	64	PRL	nussinov	2849471	162742	1862	90742	65139	1	0	72000
2	64	PRL	seidel-2d	2281216	31585	31149	31585	31585	0	0	0
2	64	PRL	symm	850421	18381	9230	18273	10234	1	0	108
2	64	PRL	syr2k	1079673	93209	442	91260	76865	1	0	1949
2	64	PRL	syrk	773658	10424	361	10401	10131	1	0	23
2	64	PRL	trisolv	21457	443	19	443	443	121	7	0
2	64	PRL	trmm	427168	7233	348	7098	5482	0	0	135
2	64	SHEL	2mm	894463	13939	457	12939	7832	1	1	1000
2	64	SHEL	3mm	1600256	28044	677	24441	11360	0	0	3603
2	64	SHEL	adi	2624385	90307	59829	76001	50033	9	2	14306
2	64	SHEL	correlation	775206	259601	4778	158116	20899	247	10	101485
2	64	SHEL	covariance	757398	264484	4869	155401	21879	161	6	109083
2	64	SHEL	deriche	308428	84808	41243	82737	48550	18	11	2071
2	64	SHEL	fdtd-2d	2575882	71090	35960	68513	31208	289	42	2577
2	64	SHEL	gemver	170078	3324	1053	2383	952	122	10	941
2	64	SHEL	heat-3d	3665095	67387	33163	66076	43921	1	0	1311
2	64	SHEL	jacobi-2d	3645231	71890	39648	71175	55298	0	0	715
2	64	SHEL	lu	1689165	45855	1067	32179	24797	0	0	13676
2	64	SHEL	ludcmp	1156444	46534	1142	33504	24697	5	3	13030
2	64	SHEL	mvt	83874	2766	150	1695	709	0	0	1071
2	128	CLAM	2mm	882558	25844	551	9623	9055	1	1	16221
2	128	CLAM	3mm	1594247	34053	715	22524	19948	0	0	11529
2	128	CLAM	adi	2603206	111206	72770	60653	39827	9	0	50553

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	CLAM	atax	99973	839	51	839	839	116	8	0
2	128	CLAM	bicg	114408	904	108	904	904	0	0	0
2	128	CLAM	cholesky	862442	16018	610	13641	5234	239	7	2377
2	128	CLAM	correlation	764118	270689	4980	142039	19112	486	94	128650
2	128	CLAM	covariance	751684	270198	4971	145125	20730	161	6	125073
2	128	CLAM	deriche	284473	108759	52741	15415	15115	14	7	93344
2	128	CLAM	doitgen	1394121	881	881	881	881	1	0	0
2	128	CLAM	durbin	50013	15	0	0	0	761	2	0
2	128	CLAM	fdtd-2d	2564635	74007	35803	66513	54297	1	0	7494
2	128	CLAM	floyd-warshall	17518276	347760	332329	343095	139306	0	0	4665
2	128	CLAM	gemm	1336596	15806	745	13714	2189	1	1	2092
2	128	CLAM	gemver	168740	4662	959	2327	1773	242	10	2335
2	128	CLAM	gesummv	64239	923	29	923	923	271	6	0
2	128	CLAM	gram-schmidt	1328619	17781	15523	12067	2369	0	0	5714
2	128	CLAM	heat-3d	3661854	70628	33146	65398	48597	1	0	5230
2	128	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
2	128	CLAM	jacobi-2d	3641983	75138	39614	70933	54260	0	0	4205
2	128	CLAM	lu	1693103	41917	1033	30866	20528	119	115	11051
2	128	CLAM	ludcmp	1158000	44740	1107	30017	18570	243	66	14723
2	128	CLAM	mvt	84113	2527	158	1704	594	120	8	823
2	128	CLAM	nussinov	2847300	164913	2071	60639	44099	1	0	104274
2	128	CLAM	seidel-2d	2280739	32062	31698	31273	13105	0	0	789
2	128	CLAM	symm	847336	21466	10965	14041	6324	1	0	7425
2	128	CLAM	syr2k	1099766	73116	2353	18733	10669	1	0	54383
2	128	CLAM	syrk	773203	10879	590	7101	3888	1	0	3778
2	128	CLAM	trisolv	21251	649	13	649	649	121	2	0
2	128	CLAM	trmm	423902	10499	370	4882	1513	0	0	5617
2	128	C-SHEL	2mm	893748	14654	466	12106	2946	1	1	2548
2	128	C-SHEL	3mm	1600645	27655	664	25121	12058	0	0	2534
2	128	C-SHEL	adi	2631935	82757	56420	76868	45346	169	82	5889
2	128	C-SHEL	correlation	778607	256200	4681	163235	21544	407	15	92965
2	128	C-SHEL	covariance	764581	257301	4754	164660	23349	161	6	92641
2	128	C-SHEL	deriche	296747	96489	53525	93387	61319	18	10	3102
2	128	C-SHEL	fdtd-2d	2573184	73788	35396	69946	56113	209	40	3842
2	128	C-SHEL	gemver	161020	12382	996	12190	11676	242	10	192
2	128	C-SHEL	heat-3d	3663111	69371	33118	65794	48787	1	0	3577
2	128	C-SHEL	jacobi-2d	3641991	75130	39628	71306	55382	0	0	3824
2	128	C-SHEL	lu	1695379	39641	994	34567	26050	119	114	5074
2	128	C-SHEL	ludcmp	1162050	40928	1108	37264	29588	600	304	3664
2	128	C-SHEL	mvt	74824	11816	163	11524	11005	120	8	292
2	128	PRL	2mm	892986	15416	455	14565	11232	1	1	851
2	128	PRL	3mm	1598856	29444	645	29336	29088	0	0	108
2	128	PRL	adi	2603986	110426	72731	61193	41247	9	0	49233
2	128	PRL	atax	99975	837	49	837	837	116	8	0
2	128	PRL	bicg	114408	904	108	904	904	0	0	0
2	128	PRL	cholesky	859879	18581	554	18581	18581	239	7	0
2	128	PRL	correlation	792737	242070	4502	181821	25519	486	93	60249
2	128	PRL	covariance	770462	251420	4616	172636	25266	161	6	78784
2	128	PRL	deriche	285787	107445	53764	80912	64336	14	6	26533
2	128	PRL	doitgen	1394121	881	881	881	881	1	1	0
2	128	PRL	durbin	50013	15	0	0	0	761	2	0
2	128	PRL	fdtd-2d	2564952	73690	35723	66059	56784	1	0	7631
2	128	PRL	floyd-warshall	17516692	346565	329648	345958	290606	0	0	607
2	128	PRL	gemm	1337308	15094	647	15094	15094	1	1	0
2	128	PRL	gemver	169654	3748	959	2511	1770	242	10	1237
2	128	PRL	gesummv	64242	920	25	920	920	271	6	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	PRL	gram-schmidt	1329020	17380	15365	12301	2999	0	0	5079
2	128	PRL	heat-3d	3663021	69461	33070	66832	54304	1	0	2629
2	128	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
2	128	PRL	jacobi-2d	3642139	74982	39602	71768	57117	0	0	3214
2	128	PRL	lu	1695155	39865	984	34549	26259	119	114	5316
2	128	PRL	ludcmp	1160512	42228	1050	34354	24534	243	79	7874
2	128	PRL	mvt	83346	3294	144	3294	3294	120	8	0
2	128	PRL	nussinov	2849621	162592	1824	90041	64026	1	0	72551
2	128	PRL	seidel-2d	2281041	31760	31508	31760	31760	0	0	0
2	128	PRL	symm	849858	18944	9526	16923	8150	1	0	2021
2	128	PRL	syr2k	1080821	92061	590	89276	72395	1	0	2785
2	128	PRL	syrk	773637	10445	438	10420	10201	1	0	25
2	128	PRL	trisolv	21253	647	12	647	647	121	2	0
2	128	PRL	trmm	427234	7167	346	7164	6800	0	0	3
2	128	SHEL	2mm	893748	14654	466	12106	2946	1	1	2548
2	128	SHEL	3mm	1600838	27462	662	25271	12649	0	0	2191
2	128	SHEL	adi	2617508	97184	63622	69474	31181	169	82	27710
2	128	SHEL	correlation	776077	258730	4802	160567	21480	407	15	98163
2	128	SHEL	covariance	759815	262067	4856	156436	20978	161	6	105631
2	128	SHEL	deriche	307959	85277	41159	82117	38224	18	10	3160
2	128	SHEL	fdtd-2d	2575959	71013	35671	70224	55883	209	42	789
2	128	SHEL	gemver	170036	3366	1050	2936	1653	242	10	430
2	128	SHEL	heat-3d	3665048	67434	33151	66114	42285	1	0	1320
2	128	SHEL	jacobi-2d	3645193	71928	38966	71237	52483	0	0	691
2	128	SHEL	lu	1689364	45656	1065	31923	22538	119	106	13733
2	128	SHEL	ludcmp	1156406	46572	1191	34912	25715	600	308	11660
2	128	SHEL	mvt	84132	2508	152	1914	679	120	8	594
2	256	CLAM	2mm	884674	23728	550	11028	8985	1	1	12700
2	256	CLAM	3mm	1593977	34323	750	21487	17091	0	0	12836
2	256	CLAM	adi	2609534	104878	69662	62031	27320	9	0	42847
2	256	CLAM	atax	99975	837	49	837	837	116	8	0
2	256	CLAM	bicg	114472	840	43	840	840	124	8	0
2	256	CLAM	cholesky	862526	15934	604	14655	7347	239	125	1279
2	256	CLAM	correlation	761628	273179	5035	141551	20436	327	10	131628
2	256	CLAM	covariance	760145	261737	4809	156195	21421	161	6	105542
2	256	CLAM	deriche	284472	108760	52814	15370	15112	14	7	93390
2	256	CLAM	doitgen	1394121	881	881	881	881	1	1	0
2	256	CLAM	durbin	50013	15	0	0	0	2846	9	0
2	256	CLAM	fdtd-2d	2562780	75862	35929	64939	43386	1	0	10923
2	256	CLAM	floyd-warshall	17518947	348542	333887	342135	128173	0	0	6407
2	256	CLAM	gemm	1337532	14870	456	14788	13321	1	1	82
2	256	CLAM	gemver	169893	3509	1058	2284	1018	362	25	1225
2	256	CLAM	gesummv	63665	1497	21	1497	1497	181	6	0
2	256	CLAM	gram-schmidt	1328283	18117	15629	11976	2110	80	80	6141
2	256	CLAM	heat-3d	3660688	71794	33164	64683	45591	1	0	7111
2	256	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
2	256	CLAM	jacobi-2d	3641105	76016	39604	70506	52893	0	0	5510
2	256	CLAM	lu	1692968	42052	1045	31602	21437	119	116	10450
2	256	CLAM	ludcmp	1156825	45915	1242	30336	18369	719	490	15579
2	256	CLAM	mvt	84116	2524	160	1729	751	120	8	795
2	256	CLAM	nussinov	2850859	161354	2052	61973	45813	1	0	99381
2	256	CLAM	seidel-2d	2280959	31842	31307	31681	26759	0	0	161
2	256	CLAM	symm	847176	21626	11069	13841	6206	1	0	7785
2	256	CLAM	syr2k	1099247	73635	2207	18763	10672	1	0	54872
2	256	CLAM	syrk	772809	11273	550	6747	3970	1	0	4526
2	256	CLAM	trisolv	21434	466	18	466	466	240	7	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	CLAM	trmm	425195	9206	354	5492	1901	0	0	3714
2	256	C-SHEL	2mm	894330	14072	461	12949	7737	1	1	1123
2	256	C-SHEL	3mm	1598410	29890	699	23957	7682	0	0	5933
2	256	C-SHEL	adi	2636938	77754	53945	77350	66043	209	121	404
2	256	C-SHEL	correlation	779121	255686	4737	165430	22865	406	89	90256
2	256	C-SHEL	covariance	769536	252346	4666	169273	23755	161	6	83073
2	256	C-SHEL	deriche	302406	90830	40545	90469	82384	18	10	361
2	256	C-SHEL	fdtd-2d	2573019	73953	35558	69157	52327	369	42	4796
2	256	C-SHEL	gemver	160996	12406	1040	11800	11244	362	23	606
2	256	C-SHEL	heat-3d	3662186	70296	33160	65642	46617	1	0	4654
2	256	C-SHEL	jacobi-2d	3641782	75339	39423	71130	53936	0	0	4209
2	256	C-SHEL	lu	1694943	40077	999	34877	26623	119	116	5200
2	256	C-SHEL	ludcmp	1161855	41123	1178	37756	30498	481	344	3367
2	256	C-SHEL	mvt	75431	11209	177	11074	10335	120	8	135
2	256	PRL	2mm	892948	15454	458	14654	11436	1	1	800
2	256	PRL	3mm	1597383	30917	666	28209	24938	0	0	2708
2	256	PRL	adi	2612798	101614	68693	64314	37619	9	0	37300
2	256	PRL	atax	99975	837	49	837	837	116	8	0
2	256	PRL	bicg	114474	838	41	838	838	124	8	0
2	256	PRL	cholesky	862064	16396	585	16379	15170	239	125	17
2	256	PRL	correlation	814364	220443	4065	212684	96794	327	9	7759
2	256	PRL	covariance	800105	221777	4072	210031	72947	161	6	11746
2	256	PRL	deriche	287894	105338	48208	86327	64412	14	7	19011
2	256	PRL	doitgen	1394121	881	881	881	881	1	1	0
2	256	PRL	durbin	50013	15	0	0	0	2846	9	0
2	256	PRL	fdtd-2d	2565156	73486	35648	66760	58296	1	0	6726
2	256	PRL	floyd-warshall	17516001	346565	328989	346241	323673	0	0	324
2	256	PRL	gemm	1337538	14864	420	14864	14864	1	1	0
2	256	PRL	gemver	170254	3148	966	2613	1776	362	25	535
2	256	PRL	gesummv	63665	1497	21	1497	1497	181	6	0
2	256	PRL	gram-schmidt	1329036	17364	15393	12430	3381	80	80	4934
2	256	PRL	heat-3d	3662510	69972	33082	67048	53998	1	0	2924
2	256	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
2	256	PRL	jacobi-2d	3641485	75636	39440	72336	58056	0	0	3300
2	256	PRL	lu	1694480	40540	1000	34222	25239	119	115	6318
2	256	PRL	ludcmp	1159889	42851	1164	34128	24594	719	487	8723
2	256	PRL	mvt	83039	3601	143	3601	3601	120	8	0
2	256	PRL	nussinov	2840480	171733	1719	116497	83174	1	0	55236
2	256	PRL	seidel-2d	2281054	31747	31254	31747	31747	0	0	0
2	256	PRL	symm	849700	19102	9654	16887	8198	1	0	2215
2	256	PRL	syr2k	1078705	94177	412	93514	87500	1	0	663
2	256	PRL	syrk	773397	10685	367	10553	10319	1	0	132
2	256	PRL	trisolv	21434	466	18	466	466	240	7	0
2	256	PRL	trmm	427208	7193	342	7193	7193	0	0	0
2	256	SHEL	2mm	894535	13867	458	13066	8534	1	1	801
2	256	SHEL	3mm	1598618	29682	684	24146	8173	0	0	5536
2	256	SHEL	adi	2622848	91844	60029	73872	38696	209	121	17972
2	256	SHEL	correlation	771254	263553	4812	154715	20829	406	89	108838
2	256	SHEL	covariance	769209	252673	4662	170241	24711	161	6	82432
2	256	SHEL	deriche	306383	86853	40915	79232	41254	18	10	7621
2	256	SHEL	fdtd-2d	2575580	71392	35816	69417	42145	369	42	1975
2	256	SHEL	gemver	167774	5628	1062	5258	4406	362	25	370
2	256	SHEL	heat-3d	3664023	68459	33168	66169	30808	1	0	2290
2	256	SHEL	jacobi-2d	3644681	72440	39023	71252	43155	0	0	1188
2	256	SHEL	lu	1688759	46261	1056	32440	22762	119	114	13821
2	256	SHEL	ludcmp	1155669	47309	1400	35776	26612	481	355	11533
2	256	SHEL	mvt	83781	2859	148	2530	1804	120	8	329

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	CLAM	2mm	882807	25595	579	8654	8180	1	1	16941
2	512	CLAM	3mm	1591407	36893	791	19836	16484	0	0	17057
2	512	CLAM	adi	2598025	116387	75683	60433	36163	9	0	55954
2	512	CLAM	atax	99974	838	49	838	838	116	8	0
2	512	CLAM	bicg	113504	1808	28	1808	1808	0	0	0
2	512	CLAM	cholesky	861940	16520	607	15788	9370	477	125	732
2	512	CLAM	correlation	755130	279677	5028	146067	26033	326	89	133610
2	512	CLAM	covariance	751352	270530	4969	146200	21495	81	6	124330
2	512	CLAM	deriche	284467	108765	53086	15418	15118	14	7	93347
2	512	CLAM	doitgen	1394121	881	881	881	881	1	1	0
2	512	CLAM	durbin	50013	15	0	0	0	4703	8	0
2	512	CLAM	fdtd-2d	2564045	74597	35836	66426	47463	1	0	8171
2	512	CLAM	floyd-warshall	17496979	348170	311925	342781	190091	0	0	5389
2	512	CLAM	gemm	1336860	15542	715	14034	3358	2	2	1508
2	512	CLAM	gemver	167647	5755	990	2962	1824	482	26	2793
2	512	CLAM	gesummv	63665	1497	21	1497	1497	271	6	0
2	512	CLAM	gram-schmidt	1328146	18254	15780	11966	1857	80	80	6288
2	512	CLAM	heat-3d	3662125	70357	33091	66481	46849	1	0	3876
2	512	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
2	512	CLAM	jacobi-2d	3641749	75372	39516	71994	57711	0	0	3378
2	512	CLAM	lu	1692607	42413	1037	31887	21629	0	0	10526
2	512	CLAM	ludcmp	1159585	43155	1196	34280	24103	838	490	8875
2	512	CLAM	mvt	84145	2495	158	1553	247	120	8	942
2	512	CLAM	nussinov	2847969	164244	2062	62099	45492	1	0	102145
2	512	CLAM	seidel-2d	2277503	35298	33279	31631	1469	1	1	3667
2	512	CLAM	symm	846217	22585	11524	13894	6226	1	0	8691
2	512	CLAM	syr2k	1098486	74396	2388	18993	9615	1	0	55403
2	512	CLAM	syrk	772236	11846	813	5925	2520	1	0	5921
2	512	CLAM	trisolv	21255	645	73	645	645	359	102	0
2	512	CLAM	trmm	424337	10064	363	5174	1707	1	1	4890
2	512	C-SHEL	2mm	888715	19687	503	11381	7720	1	1	8306
2	512	C-SHEL	3mm	1600197	28103	671	24285	12893	0	0	3818
2	512	C-SHEL	adi	2631297	83395	57884	76708	55891	249	121	6687
2	512	C-SHEL	correlation	780206	254601	4722	166636	23314	326	88	87965
2	512	C-SHEL	covariance	759130	262752	4837	156059	22362	81	6	106693
2	512	C-SHEL	deriche	303692	89544	54903	86382	52809	18	10	3162
2	512	C-SHEL	fdtd-2d	2571940	75032	35819	71879	58641	329	2	3153
2	512	C-SHEL	gemver	169605	3797	965	3553	1815	482	26	244
2	512	C-SHEL	heat-3d	3663914	68568	32957	66736	51336	1	0	1832
2	512	C-SHEL	jacobi-2d	3641891	75230	39417	72098	58541	0	0	3132
2	512	C-SHEL	lu	1694702	40318	995	35348	27100	0	0	4970
2	512	C-SHEL	ludcmp	1160815	42163	1228	37192	30420	838	511	4971
2	512	C-SHEL	mvt	84290	2350	153	1779	923	120	8	571
2	512	PRL	2mm	890877	17525	475	14572	9548	1	1	2953
2	512	PRL	3mm	1598259	30041	652	29328	26563	0	0	713
2	512	PRL	adi	2604459	109953	72555	61603	36377	9	0	48350
2	512	PRL	atax	99974	838	49	838	838	116	8	0
2	512	PRL	bicg	113504	1808	28	1808	1808	0	0	0
2	512	PRL	cholesky	857885	20575	540	20575	20575	477	123	0
2	512	PRL	correlation	803755	231052	4297	195449	34920	326	89	35603
2	512	PRL	covariance	785049	236833	4365	189995	30457	81	6	46838
2	512	PRL	deriche	284683	108549	53688	76587	64316	14	7	31962
2	512	PRL	doitgen	1394121	881	881	881	881	1	1	0
2	512	PRL	durbin	50013	15	0	0	0	4703	8	0
2	512	PRL	fdtd-2d	2565147	73495	35671	66896	58279	1	0	6599
2	512	PRL	floyd-warshall	17497371	347273	311289	344785	258827	0	0	2488

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	PRL	gemm	1337307	15095	661	15013	13648	2	2	82
2	512	PRL	gemver	169394	4008	958	3518	1975	482	26	490
2	512	PRL	gesummv	63665	1497	21	1497	1497	271	6	0
2	512	PRL	gram-schmidt	1327168	19232	15406	15518	10274	80	80	3714
2	512	PRL	heat-3d	3663279	69203	33050	67743	55221	1	0	1460
2	512	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
2	512	PRL	jacobi-2d	3642027	75094	39464	73582	64421	0	0	1512
2	512	PRL	lu	1695532	39488	970	37285	30537	0	0	2203
2	512	PRL	ludcmp	1161766	40974	1146	40953	39960	838	507	21
2	512	PRL	mvt	84634	2006	145	1821	938	120	8	185
2	512	PRL	nussinov	2850480	161733	1840	81425	58504	1	0	80308
2	512	PRL	seidel-2d	2280854	31947	31330	31933	29270	1	1	14
2	512	PRL	symm	849741	19061	9898	19061	19061	1	0	0
2	512	PRL	syr2k	1099979	72903	1123	58856	38960	1	0	14047
2	512	PRL	syrk	773689	10393	573	10126	9008	1	0	267
2	512	PRL	trisolv	21255	645	73	645	645	359	102	0
2	512	PRL	trmm	426672	7729	333	7728	7728	1	1	1
2	512	SHEL	2mm	888715	19687	503	11381	7720	1	1	8306
2	512	SHEL	3mm	1600165	28135	677	24278	10602	0	0	3857
2	512	SHEL	adi	2616814	97878	66296	69607	33292	249	121	28271
2	512	SHEL	correlation	780616	254191	4675	166394	22960	326	89	87797
2	512	SHEL	covariance	758060	263822	4815	157943	23485	81	6	105879
2	512	SHEL	deriche	307821	85415	55281	81561	32897	18	9	3854
2	512	SHEL	fdtd-2d	2575496	71476	35613	69882	52577	329	2	1594
2	512	SHEL	gemver	169261	4141	1062	3480	1400	482	26	661
2	512	SHEL	heat-3d	3663826	68656	32857	66065	33322	1	0	2591
2	512	SHEL	jacobi-2d	3645426	71695	39357	71649	70591	0	0	46
2	512	SHEL	lu	1689878	45142	1038	34567	24684	0	0	10575
2	512	SHEL	ludcmp	1154224	48754	1342	34725	26473	838	490	14029
2	512	SHEL	mvt	84075	2565	155	1565	261	120	8	1000
2	1024	CLAM	2mm	887087	21315	526	12785	9071	1	1	8530
2	1024	CLAM	3mm	1594356	33944	966	22995	22667	6300	394	10949
2	1024	CLAM	adi	2599858	114554	72601	67898	39661	9	0	46656
2	1024	CLAM	atax	98151	2661	960	2661	2661	116	8	0
2	1024	CLAM	bicg	113498	1814	33	1814	1814	124	8	0
2	1024	CLAM	cholesky	861101	17359	630	14196	5024	239	125	3163
2	1024	CLAM	correlation	740263	294544	5365	122294	22737	406	89	172250
2	1024	CLAM	covariance	752565	269317	4908	147182	21038	3401	3166	122135
2	1024	CLAM	deriche	284476	108756	52735	15394	15091	14	7	93362
2	1024	CLAM	doitgen	1394121	881	881	881	881	1	1	0
2	1024	CLAM	durbin	50013	15	0	0	0	5928	9	0
2	1024	CLAM	fdtd-2d	2562443	76199	35928	64417	41740	1	0	11782
2	1024	CLAM	floyd-warshall	17519519	344820	329760	344248	284489	0	0	572
2	1024	CLAM	gemm	1337039	15363	488	13649	2486	1	1	1714
2	1024	CLAM	gemver	167523	5879	1086	3126	2650	482	123	2753
2	1024	CLAM	gesummv	64248	914	19	914	914	181	0	0
2	1024	CLAM	gram-schmidt	1328436	17964	15654	12374	2429	0	0	5590
2	1024	CLAM	heat-3d	3660664	71818	33098	65963	46900	1	0	5855
2	1024	CLAM	jacobi-1d	311677	3	0	0	0	159	2	0
2	1024	CLAM	jacobi-2d	3640165	76956	39722	66973	44769	0	0	9983
2	1024	CLAM	lu	1693844	41176	1008	34078	24690	119	116	7098
2	1024	CLAM	ludcmp	1157674	45066	1747	35405	24536	957	655	9661
2	1024	CLAM	mvt	82812	3828	144	3647	3443	120	8	181
2	1024	CLAM	nussinov	2833122	179091	2224	58128	42852	1	0	120963
2	1024	CLAM	seidel-2d	2279011	33790	32945	33173	13490	1	1	617
2	1024	CLAM	symm	846311	22491	10518	13991	6050	1	0	8500

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	CLAM	syr2k	1097152	75730	2466	19073	8157	1	0	56657
2	1024	CLAM	syrk	771965	12117	1285	7036	2641	1	0	5081
2	1024	CLAM	trisolv	21371	529	16	529	529	478	107	0
2	1024	CLAM	trmm	425134	9267	355	5455	2088	0	0	3812
2	1024	C-SHEL	2mm	894567	13835	455	13501	11742	1	1	334
2	1024	C-SHEL	3mm	1600428	27872	910	25655	13532	6300	394	2217
2	1024	C-SHEL	adi	2628502	86190	61060	74542	39833	7169	1381	11648
2	1024	C-SHEL	correlation	770872	263935	4877	154551	21291	406	89	109384
2	1024	C-SHEL	covariance	758524	263358	4835	157079	22696	3401	3163	106279
2	1024	C-SHEL	deriche	307695	85541	41329	85170	80219	18	10	371
2	1024	C-SHEL	fdtd-2d	2573657	73315	35284	71121	60261	330	30	2194
2	1024	C-SHEL	gemver	169616	3786	1026	3458	2628	482	110	328
2	1024	C-SHEL	heat-3d	3663811	68671	33122	68239	58669	1	0	432
2	1024	C-SHEL	jacobi-2d	3641287	75834	39547	68933	43826	0	0	6901
2	1024	C-SHEL	lu	1695223	39797	981	36477	28878	119	116	3320
2	1024	C-SHEL	ludcmp	1161023	41955	1284	39092	32227	1076	671	2863
2	1024	C-SHEL	mvt	80088	6552	150	6470	6279	120	8	82
2	1024	PRL	2mm	892451	15951	435	15951	15951	1	1	0
2	1024	PRL	3mm	1598780	29520	942	29449	29247	6300	394	71
2	1024	PRL	adi	2614294	100118	66086	69306	41637	9	0	30812
2	1024	PRL	atax	98151	2661	960	2661	2661	116	8	0
2	1024	PRL	bicg	113498	1814	33	1814	1814	124	8	0
2	1024	PRL	cholesky	859878	18582	574	18582	18582	239	123	0
2	1024	PRL	correlation	776701	258106	4740	162003	22837	406	89	96103
2	1024	PRL	covariance	790624	231258	4240	199320	38573	3401	3166	31938
2	1024	PRL	deriche	287143	106089	49207	85093	64379	14	7	20996
2	1024	PRL	doitgen	1394121	881	881	881	881	1	1	0
2	1024	PRL	durbin	50013	15	0	0	0	5928	9	0
2	1024	PRL	fdtd-2d	2565404	73238	35547	68676	60623	1	0	4562
2	1024	PRL	floyd-warshall	17515786	344861	328047	344861	344861	0	0	0
2	1024	PRL	gemm	1337522	14880	434	14880	14864	1	1	0
2	1024	PRL	gemver	168617	4785	1061	3390	2652	482	123	1395
2	1024	PRL	gesummv	64248	914	19	914	914	181	0	0
2	1024	PRL	gram-schmidt	1329140	17260	15461	13196	5674	0	0	4064
2	1024	PRL	heat-3d	3662100	70382	33008	67835	54682	1	0	2547
2	1024	PRL	jacobi-1d	311677	3	0	0	0	159	2	0
2	1024	PRL	jacobi-2d	3640978	76143	39506	71447	54347	0	0	4696
2	1024	PRL	lu	1695006	40014	985	35862	27979	119	118	4152
2	1024	PRL	ludcmp	1160519	42221	1398	41885	39140	957	628	336
2	1024	PRL	mvt	80521	6119	122	6119	6119	120	8	0
2	1024	PRL	nussinov	2841929	170284	2091	62344	49424	1	0	107940
2	1024	PRL	seidel-2d	2279597	33204	32526	33203	33203	1	1	1
2	1024	PRL	symm	850494	18308	9209	18295	12885	1	0	13
2	1024	PRL	syr2k	1103070	69812	1372	47367	29205	1	0	22445
2	1024	PRL	syrk	773514	10568	622	10417	9191	1	0	151
2	1024	PRL	trisolv	21371	529	16	529	529	478	107	0
2	1024	PRL	trmm	412078	22323	322	22323	22323	0	0	0
2	1024	SHEL	2mm	894567	13835	455	13501	11742	1	1	334
2	1024	SHEL	3mm	1600601	27699	912	25574	13048	6300	394	2125
2	1024	SHEL	adi	2613986	100706	67774	71321	23108	7169	1441	29385
2	1024	SHEL	correlation	766935	267872	4988	145795	19091	406	89	122077
2	1024	SHEL	covariance	759087	262795	4832	157017	22327	3401	3166	105778
2	1024	SHEL	deriche	306339	86897	42569	80885	47572	18	10	6012
2	1024	SHEL	fdtd-2d	2576066	70906	35248	68877	34647	330	42	2029
2	1024	SHEL	gemver	169056	4346	1059	3474	2667	482	129	872
2	1024	SHEL	heat-3d	3662989	69493	33178	67559	36127	1	0	1934
2	1024	SHEL	jacobi-2d	3642527	74594	39233	69491	12852	0	0	5103

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	SHEL	lu	1684892	50128	1092	32174	21488	119	105	17954
2	1024	SHEL	ludcmp	1156038	46940	1406	37316	27558	1076	669	9624
2	1024	SHEL	mvt	82457	4183	148	4026	3735	120	8	157
3	64	CLAM	2mm	883658	24744	553	10455	9036	1	1	14289
3	64	CLAM	3mm	1593692	34608	757	21278	16723	0	0	13330
3	64	CLAM	adi	2601444	112968	74252	60971	36178	8	1	51997
3	64	CLAM	atax	99983	829	41	829	829	0	0	0
3	64	CLAM	bicg	114415	897	101	897	897	0	0	0
3	64	CLAM	cholesky	862617	15843	611	14197	6557	119	0	1646
3	64	CLAM	correlation	763622	271185	4979	144839	20794	87	5	126346
3	64	CLAM	covariance	751145	270737	4987	145567	21105	81	1	125170
3	64	CLAM	deriche	284467	108765	53086	15418	15118	13	7	93347
3	64	CLAM	doitgen	1394121	881	881	881	881	1	0	0
3	64	CLAM	durbin	50013	15	0	0	0	20	2	0
3	64	CLAM	fdtd-2d	2564044	74598	35649	65188	51319	0	0	9410
3	64	CLAM	floyd-warshall	17523446	345465	334087	342573	170806	0	0	2892
3	64	CLAM	gemm	1337239	15163	436	13895	3847	0	0	1268
3	64	CLAM	gemver	167917	5485	1005	2078	1754	122	10	3407
3	64	CLAM	gesummv	64220	942	21	942	942	0	0	0
3	64	CLAM	gram-schmidt	1328409	17991	15562	11941	1946	0	0	6050
3	64	CLAM	heat-3d	3661591	70891	33168	64820	46434	0	0	6071
3	64	CLAM	jacobi-1d	311677	3	0	0	0	3	1	0
3	64	CLAM	jacobi-2d	3641385	75736	39651	69572	51712	0	0	6164
3	64	CLAM	lu	1692998	42022	1058	30834	20835	0	0	11188
3	64	CLAM	ludcmp	1157653	45087	1282	30299	18940	362	274	14788
3	64	CLAM	mvt	84084	2556	148	1757	835	0	0	799
3	64	CLAM	nussinov	2847042	165171	2099	60014	43744	1	0	105157
3	64	CLAM	seidel-2d	2281022	31779	31485	31565	16879	0	0	214
3	64	CLAM	symm	846942	21860	11154	13650	6092	0	0	8210
3	64	CLAM	syr2k	1099084	73798	2248	18042	10077	0	0	55756
3	64	CLAM	syrk	773104	10978	693	7135	3877	0	0	3843
3	64	CLAM	trisolv	21392	508	13	508	508	120	1	0
3	64	CLAM	trmm	424038	10363	374	4877	1504	0	0	5486
3	64	C-SHEL	2mm	894365	14037	462	12991	7663	1	1	1046
3	64	C-SHEL	3mm	1600134	28166	675	24617	10029	0	0	3549
3	64	C-SHEL	adi	2633531	81161	56386	77308	54282	128	70	3853
3	64	C-SHEL	correlation	780559	254248	4685	167538	22811	87	5	86710
3	64	C-SHEL	covariance	765698	256184	4717	166309	23428	81	1	89875
3	64	C-SHEL	deriche	296733	96503	54985	95585	77246	17	10	918
3	64	C-SHEL	fdtd-2d	2573158	73814	35480	69159	53959	248	3	4655
3	64	C-SHEL	gemver	161482	11920	997	11849	11445	2	2	71
3	64	C-SHEL	heat-3d	3662279	70203	33155	65381	47794	0	0	4822
3	64	C-SHEL	jacobi-2d	3641957	75164	39562	70166	52006	0	0	4998
3	64	C-SHEL	lu	1694934	40086	1009	34111	26118	0	0	5975
3	64	C-SHEL	ludcmp	1162317	40661	1084	36037	27994	5	3	4624
3	64	C-SHEL	mvt	84238	2402	144	1759	948	0	0	643
3	64	PRL	2mm	892890	15512	456	15140	12782	1	1	372
3	64	PRL	3mm	1597703	30597	654	29354	26567	0	0	1243
3	64	PRL	adi	2605421	108991	72155	61899	36658	8	1	47092
3	64	PRL	atax	99983	829	41	829	829	0	0	0
3	64	PRL	bicg	114415	897	101	897	897	0	0	0
3	64	PRL	cholesky	862378	16082	590	15884	11787	119	0	198
3	64	PRL	correlation	805841	228966	4247	197929	37981	87	4	31037
3	64	PRL	covariance	788855	233027	4306	194905	34541	81	1	38122
3	64	PRL	deriche	287425	105807	54273	85529	64372	13	6	20278
3	64	PRL	doitgen	1394121	881	881	881	881	1	1	0
3	64	PRL	durbin	50013	15	0	0	0	20	2	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	PRL	fdtd-2d	2564949	73693	35689	65843	55901	0	0	7850
3	64	PRL	floyd-warshall	17521773	344771	331892	344427	298097	0	0	344
3	64	PRL	gemm	1337553	14849	397	14652	12808	0	0	197
3	64	PRL	gemver	169083	4319	986	2517	1762	122	10	1802
3	64	PRL	gesummv	64220	942	21	942	942	0	0	0
3	64	PRL	gram-schmidt	1329066	17334	15338	12304	3087	0	0	5030
3	64	PRL	heat-3d	3662071	70411	33133	65542	48213	0	0	4869
3	64	PRL	jacobi-1d	311677	3	0	0	0	3	1	0
3	64	PRL	jacobi-2d	3641533	75588	39550	70026	51737	0	0	5562
3	64	PRL	lu	1694413	40607	1015	32962	23924	0	0	7645
3	64	PRL	ludcmp	1161866	40874	1072	40689	38040	362	284	185
3	64	PRL	mvt	84586	2054	142	2054	1342	0	0	0
3	64	PRL	nussinov	2852886	159327	1890	78627	57573	1	0	80700
3	64	PRL	seidel-2d	2281186	31615	31335	31615	31615	0	0	0
3	64	PRL	symm	850194	18608	9323	17222	8294	0	0	1386
3	64	PRL	syr2k	1089950	82932	570	77470	57636	0	0	5462
3	64	PRL	syrk	773612	10470	549	10408	10061	0	0	62
3	64	PRL	trisolv	21392	508	13	508	508	120	1	0
3	64	PRL	trmm	426542	7859	345	6489	3603	0	0	1370
3	64	SHEL	2mm	894379	14023	461	13024	7936	1	1	999
3	64	SHEL	3mm	1600021	28279	667	24649	8461	0	0	3630
3	64	SHEL	adi	2619087	95605	64305	69964	30122	128	82	25641
3	64	SHEL	correlation	777852	256955	4729	162352	22176	87	5	94603
3	64	SHEL	covariance	760784	261098	4796	158698	22250	81	1	102400
3	64	SHEL	deriche	308446	84790	55257	82435	42920	17	10	2355
3	64	SHEL	fdtd-2d	2575838	71134	35737	69471	46995	248	3	1663
3	64	SHEL	gemver	170129	3273	1035	2739	1736	2	2	534
3	64	SHEL	heat-3d	3664669	67813	33159	65637	32448	0	0	2176
3	64	SHEL	jacobi-2d	3644953	72168	39634	70835	47247	0	0	1333
3	64	SHEL	lu	1689744	45276	1047	32030	23272	0	0	13246
3	64	SHEL	ludcmp	1156223	46755	1114	33156	24064	5	3	13599
3	64	SHEL	mvt	84083	2557	146	1768	851	0	0	789
3	128	CLAM	2mm	882519	25883	564	9050	8709	1	1	16833
3	128	CLAM	3mm	1594986	33314	737	22317	21470	0	0	10997
3	128	CLAM	adi	2608531	105881	70322	62540	33823	8	1	43341
3	128	CLAM	atax	99982	830	41	830	830	0	0	0
3	128	CLAM	bicg	114416	896	27	896	896	0	0	0
3	128	CLAM	cholesky	862569	15891	609	14697	6602	119	7	1194
3	128	CLAM	correlation	753432	281375	5097	144079	26142	326	84	137296
3	128	CLAM	covariance	752228	269654	4927	146884	21103	81	1	122770
3	128	CLAM	deriche	284471	108761	52742	15419	15115	13	7	93342
3	128	CLAM	doitgen	1394121	881	881	881	881	1	0	0
3	128	CLAM	durbin	50013	15	0	0	0	138	2	0
3	128	CLAM	fdtd-2d	2563773	74869	35910	65512	51814	0	0	9357
3	128	CLAM	floyd-warshall	17523508	345574	334187	342360	154149	0	0	3214
3	128	CLAM	gemm	1337306	15096	664	14789	10205	0	0	307
3	128	CLAM	gemver	167314	6088	1081	1503	1056	122	2	4585
3	128	CLAM	gesummv	64248	914	19	914	914	90	0	0
3	128	CLAM	gram-schmidt	1328320	18080	15598	11875	1872	0	0	6205
3	128	CLAM	heat-3d	3662087	70395	33134	65778	49779	0	0	4617
3	128	CLAM	jacobi-1d	311677	3	0	0	0	3	1	0
3	128	CLAM	jacobi-2d	3641458	75663	39703	69288	49897	0	0	6375
3	128	CLAM	lu	1693455	41565	1037	31540	21528	119	0	10025
3	128	CLAM	ludcmp	1159240	43500	1156	31866	21111	481	270	11634
3	128	CLAM	mvt	84154	2486	158	1763	753	120	8	723

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	CLAM	nussinov	2845262	166951	2159	59910	43241	1	0	107041
3	128	CLAM	seidel-2d	2281120	31681	31364	31624	25002	0	0	57
3	128	CLAM	symm	847057	21745	11166	13892	6147	0	0	7853
3	128	CLAM	syr2k	1099248	73634	2349	18962	10551	0	0	54672
3	128	CLAM	syrk	773127	10955	552	6484	3366	0	0	4471
3	128	CLAM	trisolv	21386	514	19	514	514	239	12	0
3	128	CLAM	trmm	424334	10067	370	4943	1544	0	0	5124
3	128	C-SHEL	2mm	893315	15087	469	12457	5965	1	1	2630
3	128	C-SHEL	3mm	1601318	26982	663	25474	15222	0	0	1508
3	128	C-SHEL	adi	2636512	78180	54182	77800	70507	248	82	380
3	128	C-SHEL	correlation	780988	253819	4708	168738	23749	326	84	85081
3	128	C-SHEL	covariance	760524	261358	4818	160094	22774	81	1	101264
3	128	C-SHEL	deriche	297231	96005	39210	94120	60556	17	10	1885
3	128	C-SHEL	fdtd-2d	2573328	73644	35650	67879	59422	288	3	5765
3	128	C-SHEL	gemver	168727	4675	1005	4559	4337	122	10	116
3	128	C-SHEL	heat-3d	3663736	68746	33118	66281	52223	0	0	2465
3	128	C-SHEL	jacobi-2d	3641539	75582	39706	69808	51811	0	0	5774
3	128	C-SHEL	lu	1695445	39575	994	35206	27243	119	0	4369
3	128	C-SHEL	ludcmp	1161990	40988	1178	36211	28172	124	117	4777
3	128	C-SHEL	mvt	76653	9987	176	9859	9037	120	8	128
3	128	PRL	2mm	892428	15974	463	14724	10473	1	1	1250
3	128	PRL	3mm	1599005	29295	647	29223	29148	0	0	72
3	128	PRL	adi	2608692	105720	70576	63357	36956	8	1	42363
3	128	PRL	atax	99982	830	41	830	830	0	0	0
3	128	PRL	bicg	114416	896	27	896	896	0	0	0
3	128	PRL	cholesky	861185	17275	581	17275	17275	119	7	0
3	128	PRL	correlation	811215	223592	4155	206966	55753	326	84	16626
3	128	PRL	covariance	784256	237626	4395	189094	30128	81	1	48532
3	128	PRL	deriche	286631	106601	49783	83924	64346	13	6	22677
3	128	PRL	doitgen	1394121	881	881	881	881	1	1	0
3	128	PRL	durbin	50013	15	0	0	0	138	2	0
3	128	PRL	fdtd-2d	2564253	74389	35837	65700	53828	0	0	8689
3	128	PRL	floyd-warshall	17521780	344740	331904	344435	303200	0	0	305
3	128	PRL	gemm	1337325	15077	647	15077	15077	0	0	0
3	128	PRL	gemver	167457	5945	1024	1834	1676	122	2	4111
3	128	PRL	gesummv	64248	914	19	914	914	90	0	0
3	128	PRL	gram-schmidt	1329180	17220	15339	12406	3346	0	0	4814
3	128	PRL	heat-3d	3663178	69304	33088	66917	54996	0	0	2387
3	128	PRL	jacobi-1d	311677	3	0	0	0	3	1	0
3	128	PRL	jacobi-2d	3641884	75237	39671	70990	54648	0	0	4247
3	128	PRL	lu	1694736	40284	994	34886	26292	119	0	5398
3	128	PRL	ludcmp	1161591	41149	1110	36140	28068	481	272	5009
3	128	PRL	mvt	83880	2760	144	2760	2760	120	8	0
3	128	PRL	nussinov	2851928	160285	1838	84730	61643	1	0	75555
3	128	PRL	seidel-2d	2281160	31641	31328	31641	31641	0	0	0
3	128	PRL	symm	849865	18937	9593	17030	8261	0	0	1907
3	128	PRL	syr2k	1092152	80730	665	76347	60908	0	0	4383
3	128	PRL	syrk	773772	10310	369	10095	9333	0	0	215
3	128	PRL	trisolv	21386	514	19	514	514	239	12	0
3	128	PRL	trmm	426810	7591	352	6855	4599	0	0	736
3	128	SHEL	2mm	893374	15028	472	12352	5108	1	1	2676
3	128	SHEL	3mm	1601318	26982	663	25474	15222	0	0	1508
3	128	SHEL	adi	2624242	90450	60080	75960	50086	248	82	14490
3	128	SHEL	correlation	778953	255854	4745	165767	22781	326	84	90087
3	128	SHEL	covariance	757015	264867	4944	154961	21651	81	1	109906
3	128	SHEL	deriche	307579	85657	27542	80657	21530	17	10	5000
3	128	SHEL	fdtd-2d	2575697	71275	35961	68930	40731	288	3	2345

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	SHEL	gemver	169922	3480	1053	2825	1503	122	10	655
3	128	SHEL	heat-3d	3665275	67207	33153	66395	50676	0	0	812
3	128	SHEL	jacobi-2d	3644713	72408	39817	70553	31596	0	0	1855
3	128	SHEL	lu	1688484	46536	1060	31567	22337	119	1	14969
3	128	SHEL	ludcmp	1155281	47697	1235	32965	23670	124	107	14732
3	128	SHEL	mvt	84120	2520	152	2123	981	120	8	397
3	256	CLAM	2mm	883265	25137	573	10004	8983	1	1	15133
3	256	CLAM	3mm	1590656	37644	796	19220	16466	0	0	18424
3	256	CLAM	adi	2600285	114127	74432	60660	36159	8	1	53467
3	256	CLAM	atax	99974	838	49	838	838	116	8	0
3	256	CLAM	bicg	114482	830	33	830	830	124	8	0
3	256	CLAM	cholesky	862141	16319	606	14126	5706	357	231	2193
3	256	CLAM	correlation	755899	278908	5058	147401	25952	246	89	131507
3	256	CLAM	covariance	750784	271098	5016	142571	19941	1	1	128527
3	256	CLAM	deriche	284461	108771	52746	15369	15057	13	7	93402
3	256	CLAM	doitgen	1394121	881	881	881	881	1	1	0
3	256	CLAM	durbin	50013	15	0	0	0	2480	2	0
3	256	CLAM	fdtd-2d	2564167	74475	35827	66428	48688	0	0	8047
3	256	CLAM	floyd-warshall	17522648	345177	332881	343241	207042	0	0	1936
3	256	CLAM	gemm	1337509	14893	466	14622	10352	0	0	271
3	256	CLAM	gemver	167571	5831	972	1837	1713	362	22	3994
3	256	CLAM	gesummv	64220	942	27	942	942	270	6	0
3	256	CLAM	gram-schmidt	1319198	27202	17438	6672	1286	0	0	20530
3	256	CLAM	heat-3d	3662347	70135	33119	65894	50415	0	0	4241
3	256	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
3	256	CLAM	jacobi-2d	3641346	75775	39724	68808	49388	0	0	6967
3	256	CLAM	lu	1692638	42382	1041	30979	20529	119	0	11403
3	256	CLAM	ludcmp	1158601	44139	1218	33114	22957	481	189	11025
3	256	CLAM	mvt	84118	2522	157	1741	712	120	8	781
3	256	CLAM	nussinov	2849329	162884	2046	62562	46122	1	0	100322
3	256	CLAM	seidel-2d	2281073	31728	31417	31705	30025	0	0	23
3	256	CLAM	symm	847134	21668	11051	14259	6464	0	0	7409
3	256	CLAM	syr2k	1098708	74174	2311	18580	9765	0	0	55594
3	256	CLAM	syrk	772257	11825	697	5365	2119	1	0	6460
3	256	CLAM	trisolv	21458	442	18	442	442	358	12	0
3	256	CLAM	trmm	424283	10118	365	5064	1591	0	0	5054
3	256	C-SHEL	2mm	894282	14120	458	12997	7565	1	1	1123
3	256	C-SHEL	3mm	1595386	32914	716	22315	5871	0	0	10599
3	256	C-SHEL	adi	2623852	90840	60302	75561	40944	168	81	15279
3	256	C-SHEL	correlation	777464	257343	4758	163519	22436	167	10	93824
3	256	C-SHEL	covariance	756541	265341	4850	154454	22516	1	1	110887
3	256	C-SHEL	deriche	308674	84562	40882	82829	45706	17	10	1733
3	256	C-SHEL	fdtd-2d	2573006	73966	35793	67165	57764	368	43	6801
3	256	C-SHEL	gemver	160798	12604	969	12603	12587	362	16	1
3	256	C-SHEL	heat-3d	3662297	70185	33112	66145	51060	0	0	4040
3	256	C-SHEL	jacobi-2d	3641486	75635	39695	69336	50477	0	0	6299
3	256	C-SHEL	lu	1695180	39840	992	35056	26713	119	0	4784
3	256	C-SHEL	ludcmp	1161857	41121	1184	37617	30520	1195	733	3504
3	256	C-SHEL	mvt	84403	2237	149	1766	934	120	8	471
3	256	PRL	2mm	893209	15193	452	15151	14757	1	1	42
3	256	PRL	3mm	1594562	33738	690	27223	25151	0	0	6515
3	256	PRL	adi	2607409	107003	71349	62349	36511	8	1	44654
3	256	PRL	atax	99974	838	49	838	838	116	8	0
3	256	PRL	bicg	114482	830	33	830	830	124	8	0
3	256	PRL	cholesky	860828	17632	583	17632	17632	357	230	0
3	256	PRL	correlation	806258	228549	4274	198465	37796	246	89	30084
3	256	PRL	covariance	773755	248127	4610	173778	23943	1	1	74349

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	PRL	deriche	286609	106623	54089	83616	64353	13	7	23007
3	256	PRL	doitgen	1394121	881	881	881	881	1	1	0
3	256	PRL	durbin	50013	15	0	0	0	2480	2	0
3	256	PRL	fdtd-2d	2565069	73573	35682	66592	57573	0	0	6981
3	256	PRL	floyd-warshall	17517545	344836	328980	344836	344836	0	0	0
3	256	PRL	gemm	1337495	14907	432	14907	14907	0	0	0
3	256	PRL	gemver	168833	4569	964	2440	1768	362	20	2129
3	256	PRL	gesummv	64220	942	27	942	942	270	6	0
3	256	PRL	gram-schmidt	1329481	16919	15393	13227	7253	0	0	3692
3	256	PRL	heat-3d	3662937	69545	33084	66766	54202	0	0	2779
3	256	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
3	256	PRL	jacobi-2d	3642011	75110	39640	71273	55376	0	0	3837
3	256	PRL	lu	1695635	39385	977	36408	29361	119	0	2977
3	256	PRL	ludcmp	1161322	41418	1186	37954	30735	481	215	3464
3	256	PRL	mvt	83093	3547	138	3547	3547	120	8	0
3	256	PRL	nussinov	2847008	165205	1749	101232	71179	1	0	63973
3	256	PRL	seidel-2d	2281234	31567	31191	31567	31567	0	0	0
3	256	PRL	symm	850519	18283	9165	18071	10635	0	0	212
3	256	PRL	syr2k	1065866	107016	440	106751	102237	0	0	265
3	256	PRL	syrk	773802	10280	499	9910	8537	1	0	370
3	256	PRL	trisolv	21458	442	18	442	442	358	12	0
3	256	PRL	trmm	427125	7276	347	7034	5307	0	0	242
3	256	SHEL	2mm	894164	14238	460	12951	7106	1	1	1287
3	256	SHEL	3mm	1596004	32296	710	22546	6074	0	0	9750
3	256	SHEL	adi	2615386	99306	64734	68825	30310	168	81	30481
3	256	SHEL	correlation	778633	256174	4739	163298	22475	167	10	92876
3	256	SHEL	covariance	755536	266346	4936	152816	21923	1	1	113530
3	256	SHEL	deriche	308382	84854	41061	82103	37513	17	10	2751
3	256	SHEL	fdtd-2d	2575727	71245	35955	68774	38701	368	43	2471
3	256	SHEL	gemver	169408	3994	997	3820	3316	362	21	174
3	256	SHEL	heat-3d	3664907	67575	33165	65904	39158	0	0	1671
3	256	SHEL	jacobi-2d	3644648	72473	39039	70372	31692	0	0	2101
3	256	SHEL	lu	1689561	45459	1064	32891	23295	119	0	12568
3	256	SHEL	ludcmp	1154911	48067	1238	35102	25731	1195	706	12965
3	256	SHEL	mvt	84006	2634	167	1748	728	120	8	886
3	512	CLAM	2mm	882739	25663	588	8787	8456	1	1	16876
3	512	CLAM	3mm	1594919	33381	738	22392	21866	0	0	10989
3	512	CLAM	adi	2589738	124674	79803	60772	34741	8	1	63902
3	512	CLAM	atax	99249	1563	777	1563	1563	0	0	0
3	512	CLAM	bicg	114480	832	35	832	832	124	8	0
3	512	CLAM	cholesky	862229	16231	615	14288	5753	238	0	1943
3	512	CLAM	correlation	760780	274027	4948	155033	26956	325	88	118994
3	512	CLAM	covariance	755383	266499	4898	152040	21993	81	1	114459
3	512	CLAM	deriche	284467	108765	53086	15418	15118	13	7	93347
3	512	CLAM	doitgen	1394121	881	881	881	881	1	1	0
3	512	CLAM	durbin	50013	15	0	0	0	1600	2	0
3	512	CLAM	fdtd-2d	2563263	75379	35679	65173	47588	1	0	10206
3	512	CLAM	floyd-warshall	17517499	347892	331637	343456	159750	0	0	4436
3	512	CLAM	gemm	1337351	15051	657	14959	13477	0	0	92
3	512	CLAM	gemver	166545	6857	1003	3672	2653	482	27	3185
3	512	CLAM	gesummv	63665	1497	21	1497	1497	180	6	0
3	512	CLAM	gram-schmidt	1328020	18380	15798	11984	1758	0	0	6396
3	512	CLAM	heat-3d	3659408	73074	33200	63303	40065	0	0	9771
3	512	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
3	512	CLAM	jacobi-2d	3640161	76960	39765	67371	44987	0	0	9589

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	CLAM	lu	1693234	41786	1022	32209	22401	119	1	9577
3	512	CLAM	ludcmp	1160194	42546	1236	35569	26018	838	474	6977
3	512	CLAM	mvt	83913	2727	143	2481	1629	0	0	246
3	512	CLAM	nussinov	2845496	166717	2089	62254	45223	1	0	104463
3	512	CLAM	seidel-2d	2281055	31746	31212	31741	31336	0	0	5
3	512	CLAM	symm	845556	23246	11983	13952	6144	0	0	9294
3	512	CLAM	syr2k	1101848	71034	2178	21587	11425	1	0	49447
3	512	CLAM	syrk	773528	10554	650	7781	4849	0	0	2773
3	512	CLAM	trisolv	21137	763	10	763	763	239	7	0
3	512	CLAM	trmm	425232	9169	359	5531	2092	0	0	3638
3	512	C-SHEL	2mm	891706	16696	489	11472	2687	1	1	5224
3	512	C-SHEL	3mm	1602030	26270	648	25925	22583	0	0	345
3	512	C-SHEL	adi	2631737	82955	57165	76371	40336	288	121	6584
3	512	C-SHEL	correlation	775803	259004	4805	162016	22544	325	88	96988
3	512	C-SHEL	covariance	761884	259998	4793	161621	23464	81	1	98377
3	512	C-SHEL	deriche	307524	85712	55278	80189	34692	17	10	5523
3	512	C-SHEL	fdtd-2d	2570594	76378	35497	74051	63165	288	34	2327
3	512	C-SHEL	gemver	168756	4646	1008	4360	2591	482	26	286
3	512	C-SHEL	heat-3d	3662318	70164	32989	65794	38699	0	0	4370
3	512	C-SHEL	jacobi-2d	3641282	75839	39578	69820	46308	0	0	6019
3	512	C-SHEL	lu	1695184	39836	994	35713	28074	119	1	4123
3	512	C-SHEL	ludcmp	1156769	46209	1305	31423	19714	957	622	14786
3	512	C-SHEL	mvt	83374	3266	140	3266	3266	0	0	0
3	512	PRL	2mm	891919	16483	465	14931	10582	1	1	1552
3	512	PRL	3mm	1598868	29432	646	29266	28627	0	0	166
3	512	PRL	adi	2618898	95514	65558	65289	37328	8	1	30225
3	512	PRL	atax	99249	1563	777	1563	1563	0	0	0
3	512	PRL	bicg	114480	832	35	832	832	124	8	0
3	512	PRL	cholesky	858335	20125	549	20125	20125	238	0	0
3	512	PRL	correlation	809383	225424	4013	225422	224814	325	88	2
3	512	PRL	covariance	786239	235643	4340	191283	31498	81	1	44360
3	512	PRL	deriche	286563	106669	54041	83617	64355	13	7	23052
3	512	PRL	doitgen	1394121	881	881	881	881	1	1	0
3	512	PRL	durbin	50013	15	0	0	0	1600	2	0
3	512	PRL	fdtd-2d	2565002	73640	35657	66087	56647	1	0	7553
3	512	PRL	floyd-warshall	17522648	346901	336415	344810	342522	0	0	2091
3	512	PRL	gemm	1337333	15069	623	15069	15069	0	0	0
3	512	PRL	gemver	168148	5254	962	4271	2721	482	27	983
3	512	PRL	gesummv	63665	1497	21	1497	1497	180	6	0
3	512	PRL	gram-schmidt	1328250	18150	15740	12280	2123	0	0	5870
3	512	PRL	heat-3d	3661226	71256	33145	66114	47549	0	0	5142
3	512	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
3	512	PRL	jacobi-2d	3640773	76348	39720	70184	50264	0	0	6164
3	512	PRL	lu	1695576	39444	970	38093	32067	119	0	1351
3	512	PRL	ludcmp	1161524	41216	1239	39591	33554	838	515	1625
3	512	PRL	mvt	80574	6066	117	6066	6066	0	0	0
3	512	PRL	nussinov	2854476	157737	1939	65852	51169	1	0	91885
3	512	PRL	seidel-2d	2281180	31621	31184	31621	31621	0	0	0
3	512	PRL	symm	846999	21803	12575	21803	21803	0	0	0
3	512	PRL	syr2k	1077742	95140	585	94267	85771	1	0	873
3	512	PRL	syrk	772792	11290	515	11290	11290	0	0	0
3	512	PRL	trisolv	21137	763	10	763	763	239	7	0
3	512	PRL	trmm	427197	7204	346	7078	5388	0	0	126
3	512	SHEL	2mm	892292	16110	478	11702	2527	1	1	4408
3	512	SHEL	3mm	1602013	26287	647	25893	22839	0	0	394
3	512	SHEL	adi	2616699	97993	64149	72245	21983	288	121	25748
3	512	SHEL	correlation	776821	257986	4749	162307	22814	325	88	95679

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	SHEL	covariance	762406	259476	4810	161297	23036	81	1	98179
3	512	SHEL	deriche	307317	85919	55271	80686	33524	17	10	5233
3	512	SHEL	fdtd-2d	2575063	71909	35676	69648	48910	288	41	2261
3	512	SHEL	gemver	168025	5377	1083	4371	2389	482	29	1006
3	512	SHEL	heat-3d	3662803	69679	32895	65623	21673	0	0	4056
3	512	SHEL	jacobi-2d	3642845	74276	39179	69863	23398	0	0	4413
3	512	SHEL	lu	1688119	46901	1059	32147	22905	119	0	14754
3	512	SHEL	ludcmp	1151448	51530	1400	30934	20157	957	651	20596
3	512	SHEL	mvt	83374	3266	140	3266	3266	0	0	0
3	1024	CLAM	2mm	881600	26802	564	11237	9248	1	1	15565
3	1024	CLAM	3mm	1588342	39958	824	16727	14084	0	0	23231
3	1024	CLAM	adi	2577890	136522	87158	63534	37780	4649	546	72988
3	1024	CLAM	atax	99129	1683	34	1683	1683	116	8	0
3	1024	CLAM	bicg	114480	832	35	832	832	124	8	0
3	1024	CLAM	cholesky	860623	17837	601	17837	17837	476	237	0
3	1024	CLAM	correlation	766367	268440	4919	149368	21498	406	88	119072
3	1024	CLAM	covariance	740109	281773	5194	125670	18202	81	1	156103
3	1024	CLAM	deriche	284472	108760	52831	15414	15117	13	7	93346
3	1024	CLAM	doitgen	1394121	881	881	881	881	1	1	0
3	1024	CLAM	durbin	50013	15	0	0	0	7044	2	0
3	1024	CLAM	fdtd-2d	2565210	73432	35631	66860	58757	0	0	6572
3	1024	CLAM	floyd-warshall	17496050	348574	310151	345930	234733	0	0	2644
3	1024	CLAM	gemm	1337388	15014	659	14998	14552	0	0	16
3	1024	CLAM	gemver	167176	6226	1151	5443	3865	602	217	783
3	1024	CLAM	gesummv	63671	1491	15	1491	1491	180	0	0
3	1024	CLAM	gram-schmidt	1329149	17251	15369	12575	4029	80	80	4676
3	1024	CLAM	heat-3d	3660026	72456	33131	67363	49330	0	0	5093
3	1024	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
3	1024	CLAM	jacobi-2d	3641204	75917	39709	70412	52459	0	0	5505
3	1024	CLAM	lu	1689737	45283	1068	30259	18261	119	0	15024
3	1024	CLAM	ludcmp	1155209	47531	1590	32179	19649	957	644	15352
3	1024	CLAM	mvt	83713	2927	141	2739	2074	0	0	188
3	1024	CLAM	nussinov	2848468	163745	2053	65102	47816	1	0	98643
3	1024	CLAM	seidel-2d	2280874	31927	31333	31520	11673	4721	44	407
3	1024	CLAM	symm	845607	23195	11870	12911	5519	1	0	10284
3	1024	CLAM	syr2k	1101251	71631	2260	20765	10626	1	0	50866
3	1024	CLAM	syrk	772866	11216	669	6987	3354	1	0	4229
3	1024	CLAM	trisolv	21386	514	19	514	514	358	12	0
3	1024	CLAM	trmm	421621	12780	397	3481	721	1	1	9299
3	1024	C-SHEL	2mm	891094	17308	498	10148	1527	1	1	7160
3	1024	C-SHEL	3mm	1591944	36356	782	19073	3146	0	0	17283
3	1024	C-SHEL	adi	2635573	79119	54924	77797	53334	288	121	1322
3	1024	C-SHEL	correlation	778542	256265	4711	166252	24036	406	89	90013
3	1024	C-SHEL	covariance	772374	249508	4635	174357	24710	81	1	75151
3	1024	C-SHEL	deriche	304429	88807	54903	88411	81251	17	9	396
3	1024	C-SHEL	fdtd-2d	2569662	77310	35843	69801	52485	368	37	7509
3	1024	C-SHEL	gemver	167886	5516	1051	4909	4065	602	227	607
3	1024	C-SHEL	heat-3d	3663481	69001	32300	69001	69001	0	0	0
3	1024	C-SHEL	jacobi-2d	3641893	75228	39618	72174	57522	0	0	3054
3	1024	C-SHEL	lu	1692034	42986	1024	33839	23836	119	0	9147
3	1024	C-SHEL	ludcmp	1154528	48450	1843	30861	18001	1076	705	17589
3	1024	C-SHEL	mvt	83794	2846	140	2733	2216	0	0	113
3	1024	PRL	2mm	892321	16081	462	15282	11849	1	1	799
3	1024	PRL	3mm	1590569	37731	775	20021	16983	0	0	17710
3	1024	PRL	adi	2595732	118680	78645	70422	39582	4649	494	48258
3	1024	PRL	atax	99129	1683	34	1683	1683	116	8	0
3	1024	PRL	bicg	114480	832	35	832	832	124	8	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	PRL	cholesky	858781	19679	561	19679	19679	476	232	0
3	1024	PRL	correlation	813006	221801	4070	213740	98993	406	89	8061
3	1024	PRL	covariance	767778	254104	4716	168111	24625	81	1	85993
3	1024	PRL	deriche	288920	104312	54982	88414	64409	13	7	15898
3	1024	PRL	doitgen	1394121	881	881	881	881	1	1	0
3	1024	PRL	durbin	50013	15	0	0	0	7044	2	0
3	1024	PRL	fdtd-2d	2566020	72622	35267	70573	64982	0	0	2049
3	1024	PRL	floyd-warshall	17496343	347956	309688	347428	318257	0	0	528
3	1024	PRL	gemm	1337419	14983	594	14983	14983	0	0	0
3	1024	PRL	gemver	167691	5711	1059	5186	4331	602	212	525
3	1024	PRL	gesummv	63671	1491	15	1491	1491	180	0	0
3	1024	PRL	gram-schmidt	1329676	16724	15467	14005	10948	80	80	2719
3	1024	PRL	heat-3d	3662393	70089	32874	69862	67466	0	0	227
3	1024	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
3	1024	PRL	jacobi-2d	3643209	73912	38640	73912	73912	0	0	0
3	1024	PRL	lu	1693586	41434	1000	35632	26849	119	0	5802
3	1024	PRL	ludcmp	1157720	45020	1496	35400	24978	957	699	9620
3	1024	PRL	mvt	83803	2837	139	2725	2453	0	0	112
3	1024	PRL	nussinov	2851926	160287	2012	66469	49987	1	0	93818
3	1024	PRL	seidel-2d	2281140	31661	31225	31660	31660	4721	41	1
3	1024	PRL	symm	850032	18770	9594	18770	18770	1	0	0
3	1024	PRL	syr2k	1052289	120593	540	120592	120583	1	0	1
3	1024	PRL	syrk	773088	10994	519	10994	10960	1	0	0
3	1024	PRL	trisolv	21386	514	19	514	514	358	12	0
3	1024	PRL	trmm	425611	8790	349	6077	2537	1	1	2713
3	1024	SHEL	2mm	891094	17308	498	10148	1527	1	1	7160
3	1024	SHEL	3mm	1591944	36356	782	19073	3146	0	0	17283
3	1024	SHEL	adi	2622434	92258	60096	75966	36357	288	121	16292
3	1024	SHEL	correlation	779125	255682	4712	167075	24390	406	89	88607
3	1024	SHEL	covariance	748111	273771	5019	140864	20570	81	1	132907
3	1024	SHEL	deriche	308527	84709	55168	83537	61323	17	10	1172
3	1024	SHEL	fdtd-2d	2574496	72476	35953	68211	35292	368	43	4265
3	1024	SHEL	gemver	167671	5731	1112	4849	3997	602	192	882
3	1024	SHEL	heat-3d	3663235	69247	33038	69025	64712	0	0	222
3	1024	SHEL	jacobi-2d	3644211	72910	39690	72327	61976	0	0	583
3	1024	SHEL	lu	1687365	47655	1054	34129	21475	119	0	13526
3	1024	SHEL	ludcmp	1152029	50949	1827	32687	20008	1076	700	18262
3	1024	SHEL	mvt	83696	2944	144	2735	2136	0	0	209
4	64	CLAM	2mm	884184	24218	548	10719	9090	1	1	13499
4	64	CLAM	3mm	1591811	36489	777	20061	16526	0	0	16428
4	64	CLAM	adi	2597464	116948	76092	60417	35630	8	1	56531
4	64	CLAM	atax	99975	837	49	837	837	116	8	0
4	64	CLAM	bicg	114481	831	35	831	831	0	0	0
4	64	CLAM	cholesky	862682	15778	606	14460	6925	119	115	1318
4	64	CLAM	correlation	764476	270331	4970	145649	20527	167	10	124682
4	64	CLAM	covariance	753274	268608	4917	149000	21653	1	1	119608
4	64	CLAM	deriche	284473	108759	52850	15354	15115	13	7	93405
4	64	CLAM	doitgen	1394121	881	881	881	881	1	0	0
4	64	CLAM	durbin	50013	15	0	0	0	138	2	0
4	64	CLAM	fdtd-2d	2564076	74566	35617	65165	52438	0	0	9401
4	64	CLAM	floyd-warshall	17524100	345355	334423	342517	167271	0	0	2838
4	64	CLAM	gemm	1337466	14936	409	14351	7689	0	0	585
4	64	CLAM	gemver	168577	4825	967	2233	1769	122	10	2592
4	64	CLAM	gesummv	64247	915	20	915	915	0	0	0
4	64	CLAM	gram-schmidt	1328373	18027	15603	11879	1946	0	0	6148

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	CLAM	heat-3d	3661820	70662	33141	65268	48131	0	0	5394
4	64	CLAM	jacobi-1d	311677	3	0	0	0	3	1	0
4	64	CLAM	jacobi-2d	3641551	75570	39582	70735	53881	0	0	4835
4	64	CLAM	lu	1693898	41122	1021	32296	23457	0	0	8826
4	64	CLAM	ludcmp	1159947	42793	1035	31867	21785	362	254	10926
4	64	CLAM	mvt	84130	2510	147	1707	719	0	0	803
4	64	CLAM	nussinov	2845568	166645	2091	59758	43362	1	0	106887
4	64	CLAM	seidel-2d	2281133	31668	31394	31668	31668	0	0	0
4	64	CLAM	symm	847750	21052	10764	14519	6623	0	0	6533
4	64	CLAM	syr2k	1099454	73428	2226	18404	10405	0	0	55024
4	64	CLAM	syrk	773388	10694	489	7327	4351	0	0	3367
4	64	CLAM	trisolv	21462	438	14	438	438	1	1	0
4	64	CLAM	trmm	423848	10553	368	4829	1525	0	0	5724
4	64	C-SHEL	2mm	894598	13804	456	13052	8542	1	1	752
4	64	C-SHEL	3mm	1600603	27697	677	24457	11748	0	0	3240
4	64	C-SHEL	adi	2634511	80181	55167	77129	48663	8	2	3052
4	64	C-SHEL	correlation	776679	258128	4773	163434	23106	167	10	94694
4	64	C-SHEL	covariance	760111	261771	4846	159093	22008	1	1	102678
4	64	C-SHEL	deriche	296614	96622	54839	96152	84066	17	11	470
4	64	C-SHEL	fdtd-2d	2573371	73601	35721	68775	59458	288	43	4826
4	64	C-SHEL	gemver	170053	3349	956	2584	1775	122	10	765
4	64	C-SHEL	heat-3d	3662645	69837	33147	65657	48722	0	0	4180
4	64	C-SHEL	jacobi-2d	3641540	75581	39620	70923	54434	0	0	4658
4	64	C-SHEL	lu	1695456	39564	980	35438	28455	0	0	4126
4	64	C-SHEL	ludcmp	1161960	41018	1101	36315	28355	5	3	4703
4	64	C-SHEL	mvt	84329	2311	147	1741	924	0	0	570
4	64	PRL	2mm	893208	15194	453	14932	13363	1	1	262
4	64	PRL	3mm	1597730	30570	654	29014	25958	0	0	1556
4	64	PRL	adi	2600971	113441	74196	61092	35912	8	1	52349
4	64	PRL	atax	99975	837	49	837	837	116	8	0
4	64	PRL	bicg	114481	831	35	831	831	0	0	0
4	64	PRL	cholesky	861749	16711	582	16711	16711	119	114	0
4	64	PRL	correlation	800492	234315	4314	191678	32100	167	9	42637
4	64	PRL	covariance	779941	241941	4455	184898	28394	1	1	57043
4	64	PRL	deriche	286816	106416	54124	84498	64362	13	6	21918
4	64	PRL	doitgen	1394121	881	881	881	881	1	1	0
4	64	PRL	durbin	50013	15	0	0	0	138	2	0
4	64	PRL	fdtd-2d	2564890	73752	35624	65642	56107	0	0	8110
4	64	PRL	floyd-warshall	17520607	344771	330774	344423	305802	0	0	348
4	64	PRL	gemm	1337569	14833	395	14740	12807	0	0	93
4	64	PRL	gemver	169432	3970	960	2478	1771	122	10	1492
4	64	PRL	gesummv	64247	915	20	915	915	0	0	0
4	64	PRL	gram-schmidt	1328986	17414	15321	12262	2782	0	0	5152
4	64	PRL	heat-3d	3662267	70215	33133	65849	49678	0	0	4366
4	64	PRL	jacobi-1d	311677	3	0	0	0	3	1	0
4	64	PRL	jacobi-2d	3641706	75415	39562	71675	57217	0	0	3740
4	64	PRL	lu	1695497	39523	986	35380	28653	0	0	4143
4	64	PRL	ludcmp	1162188	40552	993	35584	27543	362	254	4968
4	64	PRL	mvt	83583	3057	136	3057	3057	0	0	0
4	64	PRL	nussinov	2849471	162742	1862	90742	65139	1	0	72000
4	64	PRL	seidel-2d	2281216	31585	31149	31585	31585	0	0	0
4	64	PRL	symm	850339	18463	9226	18394	10664	0	0	69
4	64	PRL	syr2k	1079673	93209	442	91260	76865	0	0	1949
4	64	PRL	syrk	773658	10424	361	10401	10131	0	0	23
4	64	PRL	trisolv	21462	438	14	438	438	1	1	0
4	64	PRL	trmm	427125	7276	347	7034	5306	0	0	242
4	64	SHEL	2mm	894449	13953	459	12977	8162	1	1	976

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	SHEL	3mm	1600256	28044	677	24441	11360	0	0	3603
4	64	SHEL	adi	2624357	90335	59828	76020	50078	8	2	14315
4	64	SHEL	correlation	775452	259355	4784	158594	21334	167	10	100761
4	64	SHEL	covariance	757611	264271	4869	156709	22550	1	1	107562
4	64	SHEL	deriche	308428	84808	41243	82737	48550	17	11	2071
4	64	SHEL	fdtd-2d	2575854	71118	35965	68604	33158	288	43	2514
4	64	SHEL	gemver	169907	3495	1055	2546	1470	122	10	949
4	64	SHEL	heat-3d	3665095	67387	33163	66076	43921	0	0	1311
4	64	SHEL	jacobi-2d	3645231	71890	39648	71175	55298	0	0	715
4	64	SHEL	lu	1689405	45615	1046	32738	24587	0	0	12877
4	64	SHEL	ludcmp	1156444	46534	1142	33504	24697	5	3	13030
4	64	SHEL	mvt	84120	2520	147	1712	750	0	0	808
4	128	CLAM	2mm	882537	25865	560	9763	9072	1	1	16102
4	128	CLAM	3mm	1594353	33947	713	22510	20086	0	0	11437
4	128	CLAM	adi	2598448	115964	75222	59605	38135	8	1	56359
4	128	CLAM	atax	99973	839	51	839	839	116	8	0
4	128	CLAM	bicg	114408	904	108	904	904	0	0	0
4	128	CLAM	cholesky	862524	15936	613	13102	4275	0	0	2834
4	128	CLAM	correlation	751891	282916	5178	140578	25375	247	10	142338
4	128	CLAM	covariance	751660	270222	4984	143950	20252	1	1	126272
4	128	CLAM	deriche	284473	108759	52741	15415	15115	13	7	93344
4	128	CLAM	doitgen	1394121	881	881	881	881	1	0	0
4	128	CLAM	durbin	50013	15	0	0	0	139	8	0
4	128	CLAM	fdtd-2d	2562489	76153	35727	63978	41916	0	0	12175
4	128	CLAM	floyd-warshall	17517409	347558	331175	343279	188700	0	0	4279
4	128	CLAM	gemm	1337620	14782	390	14731	13708	0	0	51
4	128	CLAM	gemver	168740	4662	959	2327	1773	242	10	2335
4	128	CLAM	gesummv	64242	920	25	920	920	270	6	0
4	128	CLAM	gram-schmidt	1328661	17739	15531	12024	2189	80	80	5715
4	128	CLAM	heat-3d	3662190	70292	33116	65729	49316	0	0	4563
4	128	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
4	128	CLAM	jacobi-2d	3641863	75258	39643	70976	54292	0	0	4282
4	128	CLAM	lu	1693103	41917	1033	30866	20528	0	0	11051
4	128	CLAM	ludcmp	1158000	44740	1107	30017	18570	243	66	14723
4	128	CLAM	mvt	84190	2450	152	1710	602	120	8	740
4	128	CLAM	nussinov	2847300	164913	2071	60639	44099	1	0	104274
4	128	CLAM	seidel-2d	2280739	32062	31698	31273	13105	0	0	789
4	128	CLAM	symm	846956	21846	11271	14233	6579	0	0	7613
4	128	CLAM	syr2k	1099766	73116	2353	18733	10669	0	0	54383
4	128	CLAM	syrk	772987	11095	603	6593	3341	0	0	4502
4	128	CLAM	trisolv	21372	528	15	528	528	239	100	0
4	128	CLAM	trmm	424038	10363	374	4877	1504	0	0	5486
4	128	C-SHEL	2mm	893769	14633	474	12247	3509	1	1	2386
4	128	C-SHEL	3mm	1600732	27568	661	25145	12052	0	0	2423
4	128	C-SHEL	adi	2632072	82620	56375	76845	44566	168	82	5775
4	128	C-SHEL	correlation	777461	257346	4717	164199	23367	247	10	93147
4	128	C-SHEL	covariance	763528	258354	4743	163996	23738	1	1	94358
4	128	C-SHEL	deriche	296747	96489	53525	93387	61319	17	10	3102
4	128	C-SHEL	fdtd-2d	2570563	76409	35840	70285	53246	208	43	6124
4	128	C-SHEL	gemver	161001	12401	996	12227	11760	242	10	174
4	128	C-SHEL	heat-3d	3663795	68687	33123	66218	51469	0	0	2469
4	128	C-SHEL	jacobi-2d	3641962	75159	39620	71227	55328	0	0	3932
4	128	C-SHEL	lu	1695379	39641	994	34567	26050	0	0	5074
4	128	C-SHEL	ludcmp	1162050	40928	1108	37264	29588	600	304	3664
4	128	C-SHEL	mvt	75850	10790	170	10596	9820	120	8	194
4	128	PRL	2mm	892614	15788	457	15391	12866	1	1	397
4	128	PRL	3mm	1598741	29559	648	29457	29132	0	0	102

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	PRL	adi	2604451	109961	72136	60973	40079	8	1	48988
4	128	PRL	atax	99975	837	49	837	837	116	8	0
4	128	PRL	bicg	114408	904	108	904	904	0	0	0
4	128	PRL	cholesky	861627	16833	582	16833	16833	0	0	0
4	128	PRL	correlation	792221	242586	4453	181113	25672	247	9	61473
4	128	PRL	covariance	770301	251581	4639	171891	24790	1	1	79690
4	128	PRL	deriche	285787	107445	53764	80912	64336	13	6	26533
4	128	PRL	doitgen	1394121	881	881	881	881	1	1	0
4	128	PRL	durbin	50013	15	0	0	0	139	8	0
4	128	PRL	fdtd-2d	2564058	74584	35638	65235	52292	0	0	9349
4	128	PRL	floyd-warshall	17516658	346498	329506	345729	307713	0	0	769
4	128	PRL	gemm	1337551	14851	354	14851	14851	0	0	0
4	128	PRL	gemver	169654	3748	959	2511	1770	242	10	1237
4	128	PRL	gesummv	64242	920	25	920	920	270	6	0
4	128	PRL	gram-schmidt	1329147	17253	15466	12817	4657	80	80	4436
4	128	PRL	heat-3d	3663340	69142	33059	67150	56484	0	0	1992
4	128	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
4	128	PRL	jacobi-2d	3642139	74982	39602	71768	57117	0	0	3214
4	128	PRL	lu	1695155	39865	984	34549	26259	0	0	5316
4	128	PRL	ludcmp	1160512	42228	1050	34354	24534	243	79	7874
4	128	PRL	mvt	83346	3294	144	3294	3294	120	8	0
4	128	PRL	nussinov	2849621	162592	1824	90041	64026	1	0	72551
4	128	PRL	seidel-2d	2281041	31760	31508	31760	31760	0	0	0
4	128	PRL	symm	850312	18490	9355	17765	8945	0	0	725
4	128	PRL	syr2k	1080821	92061	590	89276	72395	0	0	2785
4	128	PRL	syrk	773801	10281	452	10230	9760	0	0	51
4	128	PRL	trisolv	21372	528	15	528	528	239	100	0
4	128	PRL	trmm	427332	7069	344	7067	6811	0	0	2
4	128	SHEL	2mm	893769	14633	474	12247	3509	1	1	2386
4	128	SHEL	3mm	1600831	27469	667	25103	11485	0	0	2366
4	128	SHEL	adi	2616571	98121	64024	69438	31255	168	82	28683
4	128	SHEL	correlation	778106	256701	4755	162429	22067	247	10	94272
4	128	SHEL	covariance	759560	262322	4874	156768	21876	1	1	105554
4	128	SHEL	deriche	307959	85277	41159	82117	38224	17	10	3160
4	128	SHEL	fdtd-2d	2575953	71019	35674	70187	56326	208	43	832
4	128	SHEL	gemver	170036	3366	1050	2936	1653	242	10	430
4	128	SHEL	heat-3d	3665138	67344	33150	66176	45803	0	0	1168
4	128	SHEL	jacobi-2d	3645193	71928	38966	71237	52483	0	0	691
4	128	SHEL	lu	1689696	45324	1062	32005	22454	0	0	13319
4	128	SHEL	ludcmp	1156406	46572	1191	34912	25715	600	308	11660
4	128	SHEL	mvt	84194	2446	157	1911	641	120	8	535
4	256	CLAM	2mm	884353	24049	548	10877	9037	1	1	13172
4	256	CLAM	3mm	1593625	34675	754	21233	16730	0	0	13442
4	256	CLAM	adi	2609079	105333	70110	61923	27086	8	1	43410
4	256	CLAM	atax	99975	837	49	837	837	116	8	0
4	256	CLAM	bicg	114472	840	43	840	840	124	8	0
4	256	CLAM	cholesky	862104	16356	628	12603	3820	238	0	3753
4	256	CLAM	correlation	748697	286110	5189	134959	24627	247	10	151151
4	256	CLAM	covariance	756502	265380	4881	153411	22118	81	1	111969
4	256	CLAM	deriche	284472	108760	52814	15370	15112	13	7	93390
4	256	CLAM	doitgen	1394121	881	881	881	881	1	1	0
4	256	CLAM	durbin	50013	15	0	0	0	1739	8	0
4	256	CLAM	fdtd-2d	2562336	76306	35929	64143	41087	0	0	12163
4	256	CLAM	floyd-warshall	17517509	347226	330892	344026	203131	0	0	3200
4	256	CLAM	gemm	1336748	15654	475	13247	1654	0	0	2407
4	256	CLAM	gemver	167598	5804	1018	1816	1752	242	18	3988

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	CLAM	gesummv	64224	938	20	938	938	0	0	0
4	256	CLAM	gram-schmidt	1328368	18032	15620	11923	1979	80	80	6109
4	256	CLAM	heat-3d	3660451	72031	33171	64990	44400	0	0	7041
4	256	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
4	256	CLAM	jacobi-2d	3641220	75901	39685	68427	49402	0	0	7474
4	256	CLAM	lu	1693049	41971	1036	31617	21614	119	0	10354
4	256	CLAM	ludcmp	1156732	46008	1257	30336	18716	719	506	15672
4	256	CLAM	mvt	84202	2438	155	1735	722	120	8	703
4	256	CLAM	nussinov	2850859	161354	2052	61973	45813	1	0	99381
4	256	CLAM	seidel-2d	2281162	31639	31359	31639	31639	0	0	0
4	256	CLAM	symm	847116	21686	11032	13685	6128	0	0	8001
4	256	CLAM	syr2k	1099553	73329	2161	18638	10867	0	0	54691
4	256	CLAM	syrk	773302	10780	504	7001	3764	0	0	3779
4	256	CLAM	trisolv	21374	526	13	526	526	120	95	0
4	256	CLAM	trmm	425348	9053	358	5664	2358	0	0	3389
4	256	C-SHEL	2mm	894255	14147	463	12889	6823	1	1	1258
4	256	C-SHEL	3mm	1598164	30136	690	23726	7848	0	0	6410
4	256	C-SHEL	adi	2636887	77805	53949	77434	65734	208	121	371
4	256	C-SHEL	correlation	773238	261569	4878	157790	21828	247	10	103779
4	256	C-SHEL	covariance	773733	248149	4597	174430	23752	81	1	73719
4	256	C-SHEL	deriche	302352	90884	40597	90512	80937	17	10	372
4	256	C-SHEL	fdtd-2d	2569584	77388	35740	73435	56718	368	43	3953
4	256	C-SHEL	gemver	169563	3839	970	2517	1763	242	18	1322
4	256	C-SHEL	heat-3d	3662471	70011	33138	66491	47112	0	0	3520
4	256	C-SHEL	jacobi-2d	3642173	74948	39567	69822	50551	0	0	5126
4	256	C-SHEL	lu	1694943	40077	999	34877	26623	119	0	5200
4	256	C-SHEL	ludcmp	1161855	41123	1178	37756	30498	481	344	3367
4	256	C-SHEL	mvt	76885	9755	160	9609	8669	120	8	146
4	256	PRL	2mm	892948	15454	458	14654	11436	1	1	800
4	256	PRL	3mm	1596723	31577	662	28239	25141	0	0	3338
4	256	PRL	adi	2612798	101614	68693	64314	37619	8	1	37300
4	256	PRL	atax	99975	837	49	837	837	116	8	0
4	256	PRL	bicg	114474	838	41	838	838	124	8	0
4	256	PRL	cholesky	861455	17005	586	17005	17005	238	0	0
4	256	PRL	correlation	797424	237383	4412	187135	28320	247	9	50248
4	256	PRL	covariance	799260	222622	4082	208911	65406	81	1	13711
4	256	PRL	deriche	287894	105338	48208	86327	64412	13	7	19011
4	256	PRL	doitgen	1394121	881	881	881	881	1	1	0
4	256	PRL	durbin	50013	15	0	0	0	1739	8	0
4	256	PRL	fdtd-2d	2563945	74697	35877	65910	54125	0	0	8787
4	256	PRL	floyd-warshall	17513748	346377	327497	346377	346119	0	0	0
4	256	PRL	gemm	1337562	14840	378	14840	14840	0	0	0
4	256	PRL	gemver	168530	4872	994	2271	1766	242	18	2601
4	256	PRL	gesummv	64224	938	20	938	938	0	0	0
4	256	PRL	gram-schmidt	1329149	17251	15355	12587	3767	80	80	4664
4	256	PRL	heat-3d	3661704	70778	33102	66708	49880	0	0	4070
4	256	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
4	256	PRL	jacobi-2d	3641512	75609	39592	70661	53512	0	0	4948
4	256	PRL	lu	1694480	40540	1000	34222	25239	119	0	6318
4	256	PRL	ludcmp	1159889	42851	1164	34128	24594	719	487	8723
4	256	PRL	mvt	83069	3571	138	3571	3571	120	8	0
4	256	PRL	nussinov	2840480	171733	1719	116497	83174	1	0	55236
4	256	PRL	seidel-2d	2281272	31529	31093	31529	31529	0	0	0
4	256	PRL	symm	849700	19102	9654	16887	8198	0	0	2215
4	256	PRL	syr2k	1078721	94161	410	93515	87399	0	0	646
4	256	PRL	syrk	773633	10449	363	10431	10179	0	0	18

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	PRL	trisolv	21374	526	13	526	526	120	95	0
4	256	PRL	trmm	426909	7492	340	7492	7492	0	0	0
4	256	SHEL	2mm	894287	14115	462	12802	6749	1	1	1313
4	256	SHEL	3mm	1598342	29958	693	23793	8299	0	0	6165
4	256	SHEL	adi	2622999	91693	60093	74055	39312	208	121	17638
4	256	SHEL	correlation	770178	264629	4849	155210	21767	247	10	109419
4	256	SHEL	covariance	762910	258972	4811	164020	23628	81	1	94952
4	256	SHEL	deriche	306383	86853	40915	79232	41254	17	10	7621
4	256	SHEL	fdtd-2d	2575582	71390	35805	69449	42867	368	43	1941
4	256	SHEL	gemver	169447	3955	1077	2499	1446	242	18	1456
4	256	SHEL	heat-3d	3664030	68452	33167	66752	42604	0	0	1700
4	256	SHEL	jacobi-2d	3644497	72624	39677	70323	39990	0	0	2301
4	256	SHEL	lu	1688950	46070	1053	32426	22944	119	0	13644
4	256	SHEL	ludcmp	1155690	47288	1397	35776	26678	481	365	11512
4	256	SHEL	mvt	83777	2863	151	2543	1862	120	8	320
4	512	CLAM	2mm	882912	25490	587	8608	8249	1	1	16882
4	512	CLAM	3mm	1591407	36893	791	19836	16484	0	0	17057
4	512	CLAM	adi	2607426	106986	69958	63867	34832	8	1	43119
4	512	CLAM	atax	99974	838	49	838	838	116	8	0
4	512	CLAM	bicg	113504	1808	28	1808	1808	0	0	0
4	512	CLAM	cholesky	860389	18071	626	15720	9062	357	215	2351
4	512	CLAM	correlation	759729	275078	4935	152738	26435	406	89	122340
4	512	CLAM	covariance	754133	267749	4943	148685	20721	81	1	119064
4	512	CLAM	deriche	284467	108765	53086	15418	15118	13	7	93347
4	512	CLAM	doitgen	1394121	881	881	881	881	1	1	0
4	512	CLAM	durbin	50013	15	0	0	0	4703	8	0
4	512	CLAM	fdtd-2d	2564381	74261	35819	66685	51737	0	0	7576
4	512	CLAM	floyd-warshall	17496979	348170	311925	342781	190091	0	0	5389
4	512	CLAM	gemm	1337030	15372	699	14204	4755	0	0	1168
4	512	CLAM	gemver	167452	5950	1015	2660	2262	482	27	3290
4	512	CLAM	gesummv	63732	1430	23	1430	1430	270	6	0
4	512	CLAM	gram-schmidt	1319639	26761	17431	7154	1483	80	80	19607
4	512	CLAM	heat-3d	3661625	70857	33052	67151	47901	0	0	3706
4	512	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
4	512	CLAM	jacobi-2d	3641685	75436	39396	70772	54061	0	0	4664
4	512	CLAM	lu	1693287	41733	1019	32971	23095	119	0	8762
4	512	CLAM	ludcmp	1158462	44278	1300	34099	23762	719	491	10179
4	512	CLAM	mvt	84184	2456	155	1803	946	120	8	653
4	512	CLAM	nussinov	2847969	164244	2062	62099	45492	1	0	102145
4	512	CLAM	seidel-2d	2280876	31925	31335	31632	23206	0	0	293
4	512	CLAM	symm	843418	25384	11815	11504	4337	0	0	13880
4	512	CLAM	syr2k	1099056	73826	2382	19099	9784	0	0	54727
4	512	CLAM	syrk	773517	10565	652	7971	5004	0	0	2594
4	512	CLAM	trisolv	21053	847	13	847	847	477	106	0
4	512	CLAM	trmm	423849	10552	372	4826	1564	0	0	5726
4	512	C-SHEL	2mm	890006	18396	506	11015	4513	1	1	7381
4	512	C-SHEL	3mm	1599558	28742	677	23994	5850	0	0	4748
4	512	C-SHEL	adi	2631022	83670	58055	76661	55800	248	121	7009
4	512	C-SHEL	correlation	780479	254328	4734	167861	23925	406	89	86467
4	512	C-SHEL	covariance	762940	258942	4800	161300	22937	81	1	97642
4	512	C-SHEL	deriche	304018	89218	54869	85916	52506	17	10	3302
4	512	C-SHEL	fdtd-2d	2572989	73983	35513	69468	52059	368	34	4515
4	512	C-SHEL	gemver	169590	3812	948	3808	3524	482	25	4
4	512	C-SHEL	heat-3d	3663168	69314	32997	67304	51189	0	0	2010
4	512	C-SHEL	jacobi-2d	3642841	74280	39232	71803	57238	0	0	2477
4	512	C-SHEL	lu	1695242	39778	989	36078	28256	119	0	3700
4	512	C-SHEL	ludcmp	1161444	41534	1255	38758	31916	838	425	2776

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	C-SHEL	mvt	84176	2464	141	2464	2457	120	8	0
4	512	PRL	2mm	891716	16686	470	14413	9608	1	1	2273
4	512	PRL	3mm	1599017	29283	645	29220	28884	0	0	63
4	512	PRL	adi	2609177	105235	69612	64926	38743	8	1	40309
4	512	PRL	atax	99974	838	49	838	838	116	8	0
4	512	PRL	bicg	113504	1808	28	1808	1808	0	0	0
4	512	PRL	cholesky	859030	19430	594	19430	19430	357	213	0
4	512	PRL	correlation	800200	234607	4324	192837	32484	406	89	41770
4	512	PRL	covariance	784642	237240	4385	189067	29566	81	1	48173
4	512	PRL	deriche	284690	108542	53689	76646	64317	13	7	31896
4	512	PRL	doitgen	1394121	881	881	881	881	1	1	0
4	512	PRL	durbin	50013	15	0	0	0	4703	8	0
4	512	PRL	fdtd-2d	2565147	73495	35671	66896	58279	0	0	6599
4	512	PRL	floyd-warshall	17497371	347273	311289	344785	258827	0	0	2488
4	512	PRL	gemm	1337346	15056	657	15016	14010	0	0	40
4	512	PRL	gemver	168594	4808	990	2841	2116	482	28	1967
4	512	PRL	gesummv	63732	1430	23	1430	1430	270	6	0
4	512	PRL	gram-schmidt	1320000	26400	17369	7629	2060	80	80	18771
4	512	PRL	heat-3d	3662887	69595	33069	68604	59140	0	0	991
4	512	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
4	512	PRL	jacobi-2d	3641846	75275	39407	72399	59404	0	0	2876
4	512	PRL	lu	1695532	39488	970	37285	30537	119	0	2203
4	512	PRL	ludcmp	1161068	41672	1192	39034	31959	719	501	2638
4	512	PRL	mvt	82641	3999	135	3999	3999	120	8	0
4	512	PRL	nussinov	2850480	161733	1840	81425	58504	1	0	80308
4	512	PRL	seidel-2d	2281002	31799	31300	31799	31799	0	0	0
4	512	PRL	symm	846705	22097	10553	15177	6919	0	0	6920
4	512	PRL	syr2k	1102278	70604	1185	53862	33848	0	0	16742
4	512	PRL	syrk	772794	11288	521	11288	11288	0	0	0
4	512	PRL	trisolv	21053	847	13	847	847	477	106	0
4	512	PRL	trmm	426609	7792	349	6875	4016	0	0	917
4	512	SHEL	2mm	891541	16861	497	11399	2801	1	1	5462
4	512	SHEL	3mm	1599558	28742	677	23994	5850	0	0	4748
4	512	SHEL	adi	2616679	98013	66525	69605	33686	248	121	28408
4	512	SHEL	correlation	780571	254236	4687	167415	23430	406	89	86821
4	512	SHEL	covariance	762844	259038	4825	162607	23582	81	1	96431
4	512	SHEL	deriche	307801	85435	55285	81435	31875	17	10	4000
4	512	SHEL	fdtd-2d	2575505	71467	35794	69494	44752	368	43	1973
4	512	SHEL	gemver	169590	3812	948	3808	3524	482	25	4
4	512	SHEL	heat-3d	3663371	69111	32894	66973	39094	0	0	2138
4	512	SHEL	jacobi-2d	3645215	71906	38773	71778	68128	0	0	128
4	512	SHEL	lu	1690081	44939	1048	34867	25293	119	0	10072
4	512	SHEL	ludcmp	1156466	46512	1493	36900	27365	838	455	9612
4	512	SHEL	mvt	83594	3046	152	2791	2379	120	8	255
4	1024	CLAM	2mm	884204	24198	543	10968	9071	1	1	13230
4	1024	CLAM	3mm	1591803	36497	956	20445	16522	2800	175	16052
4	1024	CLAM	adi	2601005	113407	74438	65107	37848	2328	899	48300
4	1024	CLAM	atax	98151	2661	960	2661	2661	116	8	0
4	1024	CLAM	bicg	113498	1814	33	1814	1814	124	8	0
4	1024	CLAM	cholesky	861760	16700	628	13974	4979	357	7	2726
4	1024	CLAM	correlation	761205	273602	5045	139880	19900	406	89	133722
4	1024	CLAM	covariance	757745	264137	6006	159765	23688	3321	248	104372
4	1024	CLAM	deriche	284477	108755	52732	15393	15090	13	7	93362
4	1024	CLAM	doitgen	1394121	881	881	881	881	1	1	0
4	1024	CLAM	durbin	50013	15	0	0	0	5928	8	0
4	1024	CLAM	fdtd-2d	2564655	73987	35806	66376	49698	0	0	7611

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	CLAM	floyd-warshall	17519519	344820	329760	344248	284489	0	0	572
4	1024	CLAM	gemm	1333145	19257	993	7963	240	0	0	11294
4	1024	CLAM	gemver	167716	5686	1049	5159	3019	482	26	527
4	1024	CLAM	gesummv	64242	920	25	920	920	270	6	0
4	1024	CLAM	gram-schmidt	1328315	18085	15785	12619	2590	3240	240	5466
4	1024	CLAM	heat-3d	3659565	72917	33144	62963	41329	1	0	9954
4	1024	CLAM	jacobi-1d	311677	3	0	0	0	119	2	0
4	1024	CLAM	jacobi-2d	3640709	76412	39660	68220	47647	1	1	8192
4	1024	CLAM	lu	1688553	46467	1080	27440	14725	119	0	19027
4	1024	CLAM	ludcmp	1152752	49988	1189	28177	14665	957	549	21811
4	1024	CLAM	mvt	84614	2026	146	1796	943	120	8	230
4	1024	CLAM	nussinov	2833122	179091	2224	58128	42852	1	0	120963
4	1024	CLAM	seidel-2d	2281035	31766	31210	31732	29739	1	1	34
4	1024	CLAM	symm	844896	23906	11935	13258	5375	0	0	10648
4	1024	CLAM	syr2k	1100616	72266	2349	20858	10303	0	0	51408
4	1024	CLAM	syrk	771617	12465	1058	6312	2684	0	0	6153
4	1024	CLAM	trisolv	21171	729	18	729	729	358	100	0
4	1024	CLAM	trmm	423310	11091	380	4453	1235	0	0	6638
4	1024	C-SHEL	2mm	893821	14581	464	12093	4491	1	1	2488
4	1024	C-SHEL	3mm	1592082	36218	840	21632	4873	2800	175	14586
4	1024	C-SHEL	adi	2627852	86840	61443	74289	39764	7168	1385	12551
4	1024	C-SHEL	correlation	784769	250038	4631	174775	24506	406	89	75263
4	1024	C-SHEL	covariance	765663	256219	5753	168688	24771	3321	244	87531
4	1024	C-SHEL	deriche	307767	85469	41311	85144	81143	17	10	325
4	1024	C-SHEL	fdtd-2d	2574002	72970	35076	71516	57909	2648	1189	1454
4	1024	C-SHEL	gemver	168109	5293	1000	5088	4535	482	26	205
4	1024	C-SHEL	heat-3d	3660553	71929	33132	64196	42369	1	0	7733
4	1024	C-SHEL	jacobi-2d	3640847	76274	39647	69562	49764	1	1	6712
4	1024	C-SHEL	lu	1690778	44242	1074	30220	18571	119	0	14022
4	1024	C-SHEL	ludcmp	1160295	42683	1347	37541	28912	1076	697	5142
4	1024	C-SHEL	mvt	84614	2026	146	1796	943	120	8	230
4	1024	PRL	2mm	892833	15569	451	15519	15056	1	1	50
4	1024	PRL	3mm	1597240	31060	793	28762	25423	2800	175	2298
4	1024	PRL	adi	2617892	96520	66035	67084	38920	2328	603	29436
4	1024	PRL	atax	98151	2661	960	2661	2661	116	8	0
4	1024	PRL	bicg	113498	1814	33	1814	1814	124	8	0
4	1024	PRL	cholesky	861745	16715	608	16206	10199	357	7	509
4	1024	PRL	correlation	812512	222295	4077	212293	87660	406	89	10002
4	1024	PRL	covariance	794960	226922	5050	204732	46423	3321	240	22190
4	1024	PRL	deriche	287067	106165	49265	85031	64370	13	7	21134
4	1024	PRL	doitgen	1394121	881	881	881	881	1	1	0
4	1024	PRL	durbin	50013	15	0	0	0	5928	8	0
4	1024	PRL	fdtd-2d	2565064	73578	35687	66176	57661	0	0	7402
4	1024	PRL	floyd-warshall	17515786	344861	328047	344861	344861	0	0	0
4	1024	PRL	gemm	1337247	15155	506	14102	4748	0	0	1053
4	1024	PRL	gemver	168120	5282	976	5079	4600	482	26	203
4	1024	PRL	gesummv	64242	920	25	920	920	270	6	0
4	1024	PRL	gram-schmidt	1328929	17471	15656	13222	4467	3240	240	4249
4	1024	PRL	heat-3d	3661808	70674	33062	66287	49061	1	0	4387
4	1024	PRL	jacobi-1d	311677	3	0	0	0	119	2	0
4	1024	PRL	jacobi-2d	3641478	75643	39430	72568	58657	1	1	3075
4	1024	PRL	lu	1694099	40921	1020	34340	24972	119	0	6581
4	1024	PRL	ludcmp	1158117	44623	1111	34503	23553	957	551	10120
4	1024	PRL	mvt	79971	6669	127	6669	6669	120	8	0
4	1024	PRL	nussinov	2841929	170284	2091	62344	49424	1	0	107940

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	PRL	seidel-2d	2281144	31657	31221	31656	31656	1	1	1
4	1024	PRL	symm	848558	20244	10078	16492	7785	0	0	3752
4	1024	PRL	syr2k	1094817	78065	913	69397	50162	0	0	8668
4	1024	PRL	syrk	772029	12053	525	12053	12053	0	0	0
4	1024	PRL	trisolv	21171	729	18	729	729	358	100	0
4	1024	PRL	trmm	427025	7376	338	7376	7376	0	0	0
4	1024	SHEL	2mm	893821	14581	464	12093	4491	1	1	2488
4	1024	SHEL	3mm	1592969	35331	871	21686	3809	2800	175	13645
4	1024	SHEL	adi	2613763	100929	67673	71197	23657	7168	1428	29732
4	1024	SHEL	correlation	778177	256630	4726	166948	24476	406	89	89682
4	1024	SHEL	covariance	765208	256674	5763	169793	25259	3321	246	86881
4	1024	SHEL	deriche	306311	86925	42617	80878	47538	17	10	6047
4	1024	SHEL	fdtd-2d	2572059	74913	35524	68450	18810	2648	2078	6463
4	1024	SHEL	gemver	167779	5623	1045	5246	3643	482	26	377
4	1024	SHEL	heat-3d	3662803	69679	33163	66023	29499	1	0	3656
4	1024	SHEL	jacobi-2d	3643561	73560	39127	69998	18413	1	1	3562
4	1024	SHEL	lu	1681678	53342	1177	27144	15433	119	0	26198
4	1024	SHEL	ludcmp	1152734	50244	1594	37075	25322	1076	687	13169
4	1024	SHEL	mvt	84614	2026	146	1796	943	120	8	230
5	64	CLAM	2mm	884658	23744	552	10875	9002	1	1	12869
5	64	CLAM	3mm	1591853	36447	753	20933	17014	0	0	15514
5	64	CLAM	adi	2596621	117791	76522	59990	35785	9	0	57801
5	64	CLAM	atax	99983	829	41	829	829	0	0	0
5	64	CLAM	bicg	114480	832	35	832	832	0	0	0
5	64	CLAM	cholesky	862586	15874	609	14219	6458	1	0	1655
5	64	CLAM	correlation	755190	279617	5073	144407	25050	246	89	135210
5	64	CLAM	covariance	751305	270577	5022	144602	20725	81	6	125975
5	64	CLAM	deriche	284467	108765	53086	15418	15118	14	7	93347
5	64	CLAM	doitgen	1394121	881	881	881	881	1	0	0
5	64	CLAM	durbin	50013	15	0	0	0	20	2	0
5	64	CLAM	fdtd-2d	2564330	74312	35638	65332	52356	1	0	8980
5	64	CLAM	floyd-warshall	17521364	348389	336112	341688	107990	0	0	6701
5	64	CLAM	gemm	1337518	14884	407	14534	10458	1	1	350
5	64	CLAM	gemver	168211	5191	1009	2112	1764	362	21	3079
5	64	CLAM	gesummv	64239	923	29	923	923	91	6	0
5	64	CLAM	gram-schmidt	1327563	18837	15996	11521	1512	0	0	7316
5	64	CLAM	heat-3d	3661873	70609	33152	65271	47989	1	0	5338
5	64	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
5	64	CLAM	jacobi-2d	3641621	75500	39680	70176	52529	0	0	5324
5	64	CLAM	lu	1693346	41674	1019	31270	21334	0	0	10404
5	64	CLAM	ludcmp	1160459	42281	1019	32833	22992	4	2	9448
5	64	CLAM	mvt	84119	2521	153	1707	541	0	0	814
5	64	CLAM	nussinov	2846928	165285	2080	60147	43352	0	0	105138
5	64	CLAM	seidel-2d	2280945	31856	31542	31496	13659	0	0	360
5	64	CLAM	symm	846334	22468	10546	13128	5782	1	0	9340
5	64	CLAM	syr2k	1099050	73832	2159	18080	9754	1	0	55752
5	64	CLAM	syrk	773250	10832	538	6684	3441	1	0	4148
5	64	CLAM	trisolv	21462	438	14	438	438	121	2	0
5	64	CLAM	trmm	424199	10202	371	5029	1576	0	0	5173
5	64	C-SHEL	2mm	894580	13822	458	13072	8554	1	1	750
5	64	C-SHEL	3mm	1600665	27635	667	24746	9381	0	0	2889
5	64	C-SHEL	adi	2634170	80522	56076	77603	53028	129	41	2919
5	64	C-SHEL	correlation	777732	257075	4751	163612	22548	246	88	93463
5	64	C-SHEL	covariance	760224	261658	4807	159920	22518	81	6	101738
5	64	C-SHEL	deriche	300796	92440	49327	91528	69713	18	10	912
5	64	C-SHEL	fdtd-2d	2570254	76718	35769	71701	55100	209	2	5017
5	64	C-SHEL	gemver	170238	3164	972	2599	1763	362	18	565

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	C-SHEL	heat-3d	3662586	69896	33124	65591	48747	1	0	4305
5	64	C-SHEL	jacobi-2d	3641700	75421	39665	70355	52344	0	0	5066
5	64	C-SHEL	lu	1695385	39635	993	34225	25913	0	0	5410
5	64	C-SHEL	ludcmp	1162189	40789	1086	36121	28361	124	115	4668
5	64	C-SHEL	mvt	78185	8455	146	8246	7608	0	0	209
5	64	PRL	2mm	893111	15291	454	14979	13251	1	1	312
5	64	PRL	3mm	1597597	30703	659	28877	25573	0	0	1826
5	64	PRL	adi	2600531	113881	74490	60872	35977	9	0	53009
5	64	PRL	atax	99983	829	41	829	829	0	0	0
5	64	PRL	bicg	114481	831	35	831	831	0	0	0
5	64	PRL	cholesky	862034	16426	504	16426	16426	1	0	0
5	64	PRL	correlation	795110	239697	4478	183643	26235	246	88	56054
5	64	PRL	covariance	780467	241415	4434	184294	27820	81	5	57121
5	64	PRL	deriche	286485	106747	54052	83303	64361	14	6	23444
5	64	PRL	doitgen	1394121	881	881	881	881	1	1	0
5	64	PRL	durbin	50013	15	0	0	0	20	2	0
5	64	PRL	fdtd-2d	2564764	73878	35641	65538	54672	1	0	8340
5	64	PRL	floyd-warshall	17518801	346581	331470	345523	262270	0	0	1058
5	64	PRL	gemm	1337570	14832	389	14828	14806	1	1	4
5	64	PRL	gemver	168924	4478	993	2407	1762	362	19	2071
5	64	PRL	gesummv	64242	920	25	920	920	91	6	0
5	64	PRL	gram-schmidt	1328861	17539	15444	12140	2707	0	0	5399
5	64	PRL	heat-3d	3662412	70070	33120	65930	50443	1	0	4140
5	64	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
5	64	PRL	jacobi-2d	3641694	75427	39683	70694	51225	0	0	4733
5	64	PRL	lu	1694356	40664	1009	33607	24422	0	0	7057
5	64	PRL	ludcmp	1161719	41021	1006	35490	27042	4	2	5531
5	64	PRL	mvt	83500	3140	135	3140	3140	0	0	0
5	64	PRL	nussinov	2845816	166397	1745	103908	73283	0	0	62489
5	64	PRL	seidel-2d	2281118	31683	31408	31683	31683	0	0	0
5	64	PRL	symm	849416	19386	9456	16552	8028	1	0	2834
5	64	PRL	syr2k	1087497	85385	722	81562	64640	1	0	3823
5	64	PRL	syrk	773941	10141	366	10015	9306	1	0	126
5	64	PRL	trisolv	21462	438	14	438	438	121	2	0
5	64	PRL	trmm	426891	7510	348	6558	3782	0	0	952
5	64	SHEL	2mm	894550	13852	459	13102	8875	1	1	750
5	64	SHEL	3mm	1600156	28144	666	24485	8211	0	0	3659
5	64	SHEL	adi	2620607	94085	62632	71417	31149	129	41	22668
5	64	SHEL	correlation	776217	258590	4774	161045	21501	246	89	97545
5	64	SHEL	covariance	758414	263468	4883	156424	21921	81	6	107044
5	64	SHEL	deriche	308047	85189	41600	81813	37264	18	10	3376
5	64	SHEL	fdtd-2d	2575352	71620	35965	67961	31968	209	2	3659
5	64	SHEL	gemver	169706	3696	1061	2560	1576	362	21	1136
5	64	SHEL	heat-3d	3664892	67590	33161	65891	37964	1	0	1699
5	64	SHEL	jacobi-2d	3645069	72052	39009	71070	45751	0	0	982
5	64	SHEL	lu	1689222	45798	1039	31869	22897	0	0	13929
5	64	SHEL	ludcmp	1156309	46669	1147	33289	24413	124	113	13380
5	64	SHEL	mvt	84152	2488	148	1884	607	0	0	604
5	128	CLAM	2mm	883876	24526	549	10262	8947	1	1	14264
5	128	CLAM	3mm	1592675	35625	740	21352	17029	0	0	14273
5	128	CLAM	adi	2608998	105414	69975	62106	31511	9	0	43308
5	128	CLAM	atax	99982	830	41	830	830	0	0	0
5	128	CLAM	bicg	114467	845	46	845	845	124	8	0
5	128	CLAM	cholesky	862689	15771	609	13947	5621	239	124	1824
5	128	CLAM	correlation	768923	265884	4858	151772	20960	326	82	114112
5	128	CLAM	covariance	754285	267597	4897	151173	21822	81	1	116424
5	128	CLAM	deriche	284472	108760	52831	15414	15117	14	7	93346

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	CLAM	doitgen	1394121	881	881	881	881	1	0	0
5	128	CLAM	durbin	50013	15	0	0	0	139	2	0
5	128	CLAM	fdtd-2d	2564025	74617	35828	66572	47974	1	0	8045
5	128	CLAM	floyd-warshall	17521662	346057	333124	341563	121684	0	0	4494
5	128	CLAM	gemm	1337186	15216	689	14549	8024	1	1	667
5	128	CLAM	gemver	168580	4822	964	2285	1765	122	10	2537
5	128	CLAM	gesummv	64242	920	25	920	920	181	6	0
5	128	CLAM	gram-schmidt	1328723	17677	15445	12199	2470	80	80	5478
5	128	CLAM	heat-3d	3661708	70774	33145	65110	47406	1	0	5664
5	128	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
5	128	CLAM	jacobi-2d	3641689	75432	39469	70971	54513	0	0	4461
5	128	CLAM	lu	1694379	40641	1017	32839	23555	0	0	7802
5	128	CLAM	ludcmp	1159524	43216	1052	31892	21389	243	216	11324
5	128	CLAM	mvt	84166	2474	158	1592	339	120	8	882
5	128	CLAM	nussinov	2845515	166698	2097	60079	43721	0	0	106619
5	128	CLAM	seidel-2d	2280773	32028	31467	31348	7327	0	0	680
5	128	CLAM	symm	847231	21571	11036	14113	6416	1	0	7458
5	128	CLAM	syr2k	1099340	73542	2187	18780	10053	1	0	54762
5	128	CLAM	syrk	772684	11398	640	6334	3146	1	0	5064
5	128	CLAM	trisolv	21459	441	12	441	441	121	12	0
5	128	CLAM	trmm	424524	9877	370	5275	1805	0	0	4602
5	128	C-SHEL	2mm	894443	13959	460	13227	9662	1	1	732
5	128	C-SHEL	3mm	1601433	26867	658	25153	16304	0	0	1714
5	128	C-SHEL	adi	2633209	81483	55843	77910	63294	129	41	3573
5	128	C-SHEL	correlation	773652	261155	4782	159457	21823	326	84	101698
5	128	C-SHEL	covariance	762285	259597	4819	161925	22758	81	1	97672
5	128	C-SHEL	deriche	308103	85133	55301	81789	34339	18	10	3344
5	128	C-SHEL	fdtd-2d	2573480	73492	35636	68521	60603	289	42	4971
5	128	C-SHEL	gemver	170180	3222	966	2617	1777	122	10	605
5	128	C-SHEL	heat-3d	3663867	68615	33151	65966	49283	1	0	2649
5	128	C-SHEL	jacobi-2d	3641659	75462	39529	71210	55436	0	0	4252
5	128	C-SHEL	lu	1695628	39392	986	35549	28173	0	0	3843
5	128	C-SHEL	ludcmp	1161834	41144	1121	36311	28270	600	240	4833
5	128	C-SHEL	mvt	84307	2333	150	1787	961	120	8	546
5	128	PRL	2mm	893531	14871	453	14623	13035	1	1	248
5	128	PRL	3mm	1597591	30709	668	28486	25182	0	0	2223
5	128	PRL	adi	2610570	103842	69572	63534	36854	9	0	40308
5	128	PRL	atax	99982	830	41	830	830	0	0	0
5	128	PRL	bicg	114474	838	41	838	838	124	8	0
5	128	PRL	cholesky	861910	16550	578	16550	16536	239	125	0
5	128	PRL	correlation	795513	239294	4427	185488	27579	326	83	53806
5	128	PRL	covariance	771596	250286	4611	174037	25446	81	1	76249
5	128	PRL	deriche	285792	107440	53814	80936	64353	14	6	26504
5	128	PRL	doitgen	1394121	881	881	881	881	1	1	0
5	128	PRL	durbin	50013	15	0	0	0	139	2	0
5	128	PRL	fdtd-2d	2565115	73527	35659	66578	57758	1	0	6949
5	128	PRL	floyd-warshall	17518006	344819	328760	344738	336063	0	0	81
5	128	PRL	gemm	1337353	15049	659	14913	12593	1	1	136
5	128	PRL	gemver	169497	3905	956	2541	1767	122	10	1364
5	128	PRL	gesummv	64242	920	25	920	920	181	6	0
5	128	PRL	gram-schmidt	1329333	17067	15316	12700	4340	80	80	4367
5	128	PRL	heat-3d	3662138	70344	33126	65731	49574	1	0	4613
5	128	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
5	128	PRL	jacobi-2d	3641831	75290	39448	71926	57130	0	0	3364
5	128	PRL	lu	1695725	39295	984	35303	27571	0	0	3992

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	PRL	ludcmp	1162609	40131	1038	37110	29782	243	221	3021
5	128	PRL	mvt	82677	3963	138	3963	3963	120	8	0
5	128	PRL	nussinov	2855961	156252	1975	65257	50507	0	0	90995
5	128	PRL	seidel-2d	2281091	31710	31220	31710	31710	0	0	0
5	128	PRL	symm	848832	19970	9204	19969	19562	1	0	1
5	128	PRL	syr2k	1080578	92304	431	90191	76752	1	0	2113
5	128	PRL	syrk	774014	10068	462	9307	7553	1	0	761
5	128	PRL	trisolv	21459	441	12	441	441	121	12	0
5	128	PRL	trmm	427095	7306	344	7306	7269	0	0	0
5	128	SHEL	2mm	894479	13923	453	13189	9657	1	1	734
5	128	SHEL	3mm	1601246	27054	658	25011	14189	0	0	2043
5	128	SHEL	adi	2619481	95211	64002	70680	30762	129	41	24531
5	128	SHEL	correlation	772796	262011	4882	156942	20841	326	83	105069
5	128	SHEL	covariance	761464	260418	4808	158551	21799	81	1	101867
5	128	SHEL	deriche	308284	84952	55289	82054	38033	18	11	2898
5	128	SHEL	fdtd-2d	2575825	71147	35957	69650	48236	289	42	1497
5	128	SHEL	gemver	169792	3610	1044	2600	1748	122	10	1010
5	128	SHEL	heat-3d	3664647	67835	33166	65634	34361	1	0	2201
5	128	SHEL	jacobi-2d	3645304	71817	39649	71336	60742	0	0	481
5	128	SHEL	lu	1689861	45159	1048	32873	24101	0	0	12286
5	128	SHEL	ludcmp	1154875	48103	1276	32429	22600	600	196	15674
5	128	SHEL	mvt	84190	2450	152	1653	344	120	8	797
5	256	CLAM	2mm	882641	25761	570	10010	8966	1	1	15751
5	256	CLAM	3mm	1593853	34447	747	22314	17994	0	0	12133
5	256	CLAM	adi	2586568	127844	81027	57792	34817	9	0	70052
5	256	CLAM	atax	99983	829	41	829	829	0	0	0
5	256	CLAM	bicg	114394	918	45	918	918	124	8	0
5	256	CLAM	cholesky	862353	16107	618	13376	4638	239	7	2731
5	256	CLAM	correlation	753905	280902	5140	144238	25743	406	89	136664
5	256	CLAM	covariance	754285	267597	4897	151173	21822	81	1	116424
5	256	CLAM	deriche	284471	108761	53090	15414	15118	14	7	93347
5	256	CLAM	doitgen	1394121	881	881	881	881	1	1	0
5	256	CLAM	durbin	50013	15	0	0	0	999	8	0
5	256	CLAM	fdtd-2d	2564969	73673	35657	65716	55675	1	0	7957
5	256	CLAM	floyd-warshall	17516729	346596	329638	345666	288481	0	0	930
5	256	CLAM	gemm	1337260	15142	680	14615	7919	1	1	527
5	256	CLAM	gemver	167913	5489	1072	2297	1932	602	195	3192
5	256	CLAM	gesummv	64248	914	19	914	914	181	0	0
5	256	CLAM	gram-schmidt	1319312	27088	17443	7062	1589	80	80	20026
5	256	CLAM	heat-3d	3661991	70491	33138	65532	48710	1	0	4959
5	256	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
5	256	CLAM	jacobi-2d	3641630	75491	39685	70195	51613	0	0	5296
5	256	CLAM	lu	1693696	41324	1024	33067	23334	119	113	8257
5	256	CLAM	ludcmp	1159831	42909	1072	32293	22063	481	259	10616
5	256	CLAM	mvt	83185	3455	160	2653	1828	120	8	802
5	256	CLAM	nussinov	2845066	167147	2112	60161	43318	0	0	106986
5	256	CLAM	seidel-2d	2281145	31656	31339	31656	31656	0	0	0
5	256	CLAM	symm	846460	22342	10408	13823	6115	1	0	8519
5	256	CLAM	syr2k	1099048	73834	2183	19253	9232	1	0	54581
5	256	CLAM	syrk	772948	11134	711	6658	3533	1	0	4476
5	256	CLAM	trisolv	21373	527	14	527	527	240	102	0
5	256	CLAM	trmm	423589	10812	365	4480	1146	0	0	6332
5	256	C-SHEL	2mm	894153	14249	459	12697	4935	1	1	1552
5	256	C-SHEL	3mm	1600690	27610	669	24858	13510	0	0	2752
5	256	C-SHEL	adi	2533386	181306	157943	174911	157381	249	121	6395
5	256	C-SHEL	correlation	786627	248180	4575	174907	23482	406	89	73273
5	256	C-SHEL	covariance	759440	262442	4834	157860	22618	81	1	104582

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	C-SHEL	deriche	307119	86117	28033	79761	19593	18	10	6356
5	256	C-SHEL	fdtd-2d	2572811	74161	35887	71620	57230	289	42	2541
5	256	C-SHEL	gemver	163705	9697	1131	9523	8944	602	205	174
5	256	C-SHEL	heat-3d	3661951	70531	33131	65426	48657	1	0	5105
5	256	C-SHEL	jacobi-2d	3641684	75437	39674	70390	52459	0	0	5047
5	256	C-SHEL	lu	1695324	39696	977	35684	27276	119	116	4012
5	256	C-SHEL	ludcmp	1162110	40868	1232	37574	29871	957	600	3294
5	256	C-SHEL	mvt	74826	11814	166	11682	10542	120	8	132
5	256	PRL	2mm	892401	16001	457	15366	12575	1	1	635
5	256	PRL	3mm	1598694	29606	645	29528	29224	0	0	78
5	256	PRL	adi	2599223	115189	75090	60824	35402	9	0	54365
5	256	PRL	atax	99983	829	41	829	829	0	0	0
5	256	PRL	bicg	114394	918	45	918	918	124	8	0
5	256	PRL	cholesky	861022	17438	580	17438	17438	239	7	0
5	256	PRL	correlation	786956	247851	4562	176583	25700	406	88	71268
5	256	PRL	covariance	779214	242668	4470	183318	27256	81	1	59350
5	256	PRL	deriche	285410	107822	51440	79239	64316	14	7	28583
5	256	PRL	doitgen	1394121	881	881	881	881	1	1	0
5	256	PRL	durbin	50013	15	0	0	0	999	8	0
5	256	PRL	fdtd-2d	2565497	73145	35562	68324	60168	1	0	4821
5	256	PRL	floyd-warshall	17522375	346640	335640	344587	342837	0	0	2053
5	256	PRL	gemm	1337362	15040	623	15040	15040	1	1	0
5	256	PRL	gemver	169476	3926	1045	2725	1940	602	206	1201
5	256	PRL	gesummv	64248	914	19	914	914	181	0	0
5	256	PRL	gram-schmidt	1326385	20015	16217	11446	2024	80	80	8569
5	256	PRL	heat-3d	3662471	70011	33125	66056	51076	1	0	3955
5	256	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
5	256	PRL	jacobi-2d	3642014	75107	39629	71762	57121	0	0	3345
5	256	PRL	lu	1694962	40058	999	35498	26867	119	119	4560
5	256	PRL	ludcmp	1162248	40492	1046	36903	29366	481	271	3589
5	256	PRL	mvt	82586	4054	140	4054	4054	120	8	0
5	256	PRL	nussinov	2853120	159093	2039	64716	49523	0	0	94377
5	256	PRL	seidel-2d	2281159	31642	31323	31642	31642	0	0	0
5	256	PRL	symm	849590	19212	9296	17160	8217	1	0	2052
5	256	PRL	syr2k	1103842	69040	1138	48570	28356	1	0	20470
5	256	PRL	syrk	773055	11027	537	11027	11027	1	0	0
5	256	PRL	trisolv	21373	527	14	527	527	240	102	0
5	256	PRL	trmm	426868	7533	348	6682	3741	0	0	851
5	256	SHEL	2mm	894153	14249	459	12697	4935	1	1	1552
5	256	SHEL	3mm	1600690	27610	669	24858	13510	0	0	2752
5	256	SHEL	adi	2619044	95648	66062	83538	63308	249	121	12110
5	256	SHEL	correlation	773206	261601	4827	160237	22678	406	89	101364
5	256	SHEL	covariance	759521	262361	4804	158448	22952	81	1	103913
5	256	SHEL	deriche	307079	86157	28128	79999	22397	18	10	6158
5	256	SHEL	fdtd-2d	2575421	71551	35963	68993	46043	289	42	2558
5	256	SHEL	gemver	169596	3806	1142	3485	2701	602	206	321
5	256	SHEL	heat-3d	3665117	67365	33166	66165	44610	1	0	1200
5	256	SHEL	jacobi-2d	3644868	72253	39811	70782	35316	0	0	1471
5	256	SHEL	lu	1689243	45777	1054	32717	23308	119	105	13060
5	256	SHEL	ludcmp	1155177	47801	1443	34738	25071	957	556	13063
5	256	SHEL	mvt	82989	3651	156	3279	2660	120	8	372
5	512	CLAM	2mm	884724	23678	572	10646	8734	1	1	13032
5	512	CLAM	3mm	1594821	33479	738	22529	22138	0	0	10950
5	512	CLAM	adi	2604922	109490	73145	63986	34603	9	0	45504
5	512	CLAM	atax	98234	2578	965	2578	2578	116	8	0
5	512	CLAM	bicg	114474	838	41	838	838	124	8	0
5	512	CLAM	cholesky	861461	16999	650	11565	2855	239	124	5434

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	CLAM	correlation	766019	268788	4950	146694	20328	246	89	122094
5	512	CLAM	covariance	756443	265439	4911	151508	21085	81	1	113931
5	512	CLAM	deriche	284470	108762	53044	15343	15116	14	7	93419
5	512	CLAM	doitgen	1394121	881	881	881	881	1	1	0
5	512	CLAM	durbin	50013	15	0	0	0	1976	8	0
5	512	CLAM	fdtd-2d	2564179	74463	35804	65592	43845	1	0	8871
5	512	CLAM	floyd-warshall	17519418	347163	332688	344115	193829	0	0	3048
5	512	CLAM	gemm	1337515	14887	438	14887	14887	1	1	0
5	512	CLAM	gemver	167385	6017	1109	2090	1678	602	220	3927
5	512	CLAM	gesummv	64242	920	25	920	920	271	6	0
5	512	CLAM	gram-schmidt	1328182	18218	15646	11761	1778	80	80	6457
5	512	CLAM	heat-3d	3661551	70931	33142	65688	48906	1	0	5243
5	512	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
5	512	CLAM	jacobi-2d	3641431	75690	39539	72015	56964	0	0	3675
5	512	CLAM	lu	1691301	43719	1062	30854	20008	119	111	12865
5	512	CLAM	ludcmp	1157316	45424	1182	32660	21694	957	615	12764
5	512	CLAM	mvt	82678	3962	160	1514	928	0	0	2448
5	512	CLAM	nussinov	2844560	167653	2071	59886	44015	0	0	107767
5	512	CLAM	seidel-2d	2280873	31928	31324	31511	12993	0	0	417
5	512	CLAM	symm	847886	20916	10561	14964	6721	1	0	5952
5	512	CLAM	syr2k	1102138	70744	2286	20890	11580	1	0	49854
5	512	CLAM	syrk	771384	12698	1261	6037	2223	1	0	6661
5	512	CLAM	trisolv	21052	848	14	848	848	359	107	0
5	512	CLAM	trmm	422906	11495	372	4227	1177	1	1	7268
5	512	C-SHEL	2mm	894618	13784	454	13377	10774	1	1	407
5	512	C-SHEL	3mm	1599910	28390	669	25019	10413	0	0	3371
5	512	C-SHEL	adi	2618169	96523	66375	73510	40718	2529	2402	23013
5	512	C-SHEL	correlation	775663	259144	4810	162081	23374	246	89	97063
5	512	C-SHEL	covariance	761699	260183	4778	160208	22926	81	1	99975
5	512	C-SHEL	deriche	307010	86226	54793	86023	84102	18	10	203
5	512	C-SHEL	fdtd-2d	2573662	73310	35114	70091	46800	369	42	3219
5	512	C-SHEL	gemver	170308	3094	1026	2793	1930	602	183	301
5	512	C-SHEL	heat-3d	3664543	67939	33123	66900	54773	1	0	1039
5	512	C-SHEL	jacobi-2d	3644975	72146	38979	72142	72066	0	0	4
5	512	C-SHEL	lu	1694115	40905	1017	34272	24931	119	115	6633
5	512	C-SHEL	ludcmp	1160597	42381	1301	37962	29590	1195	904	4419
5	512	C-SHEL	mvt	83253	3387	134	3387	3387	0	0	0
5	512	PRL	2mm	891651	16751	417	16751	16751	1	1	0
5	512	PRL	3mm	1598203	30097	646	30076	30027	0	0	21
5	512	PRL	adi	2619770	94642	65806	66224	36232	9	0	28418
5	512	PRL	atax	98234	2578	965	2578	2578	116	8	0
5	512	PRL	bicg	114474	838	41	838	838	124	8	0
5	512	PRL	cholesky	862040	16420	602	16080	11161	239	125	340
5	512	PRL	correlation	802363	232444	4295	193890	33896	246	89	38554
5	512	PRL	covariance	799015	222867	4110	208712	64981	81	1	14155
5	512	PRL	deriche	285348	107884	51485	78808	64310	14	7	29076
5	512	PRL	doitgen	1394121	881	881	881	881	1	1	0
5	512	PRL	durbin	50013	15	0	0	0	1976	8	0
5	512	PRL	fdtd-2d	2564848	73794	35756	66455	56280	1	0	7339
5	512	PRL	floyd-warshall	17523163	346740	336580	344652	342175	0	0	2088
5	512	PRL	gemm	1337554	14848	420	14848	14848	1	1	0
5	512	PRL	gemver	168762	4640	1085	2651	1935	602	230	1989
5	512	PRL	gesummv	64242	920	25	920	920	271	6	0
5	512	PRL	gram-schmidt	1328813	17587	15403	12147	2779	80	80	5440
5	512	PRL	heat-3d	3663554	68928	33023	68151	62945	1	0	777

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
5	512	PRL	jacobi-2d	3641993	75128	39429	73045	61958	0	0	2083
5	512	PRL	lu	1694011	41009	1001	34073	24855	119	114	6936
5	512	PRL	ludcmp	1160530	42210	1150	37036	28304	957	603	5174
5	512	PRL	mvt	80738	5902	113	5902	5902	0	0	0
5	512	PRL	nussinov	2852867	159346	1881	76319	54177	0	0	83027
5	512	PRL	seidel-2d	2281166	31635	31198	31635	31635	0	0	0
5	512	PRL	symm	850234	18568	9282	17640	8577	1	0	928
5	512	PRL	syr2k	1074527	98355	582	97926	93598	1	0	429
5	512	PRL	syrk	773530	10552	844	9609	6970	1	0	943
5	512	PRL	trisolv	21052	848	14	848	848	359	107	0
5	512	PRL	trmm	426996	7405	350	7226	5597	1	1	179
5	512	SHEL	2mm	894618	13784	454	13377	10774	1	1	407
5	512	SHEL	3mm	1599910	28390	669	25019	10413	0	0	3371
5	512	SHEL	adi	2610550	104142	69545	69717	22665	2529	2402	34425
5	512	SHEL	correlation	776354	258453	4774	161715	22378	246	89	96738
5	512	SHEL	covariance	762232	259650	4762	160438	22614	81	1	99212
5	512	SHEL	deriche	308208	85028	55123	83886	66005	18	10	1142
5	512	SHEL	fdtd-2d	2574090	72882	35507	66609	9370	369	42	6273
5	512	SHEL	gemver	169956	3446	1092	2823	1953	602	209	623
5	512	SHEL	heat-3d	3664173	68309	33164	66189	36569	1	0	2120
5	512	SHEL	jacobi-2d	3645434	71687	39206	71686	71618	0	0	1
5	512	SHEL	lu	1688404	46616	1060	33375	23206	119	113	13241
5	512	SHEL	ludcmp	1155127	47851	1335	37069	26634	1195	841	10782
5	512	SHEL	mvt	83253	3387	134	3387	3387	0	0	0
5	1024	CLAM	2mm	882220	26182	624	9241	7735	6401	201	16941
5	1024	CLAM	3mm	1588930	39370	804	19119	16706	0	0	20251
5	1024	CLAM	adi	2585505	128907	82346	67802	36863	11609	2984	61105
5	1024	CLAM	atax	98234	2578	965	2578	2578	116	8	0
5	1024	CLAM	bicg	113421	1891	1027	1891	1891	124	8	0
5	1024	CLAM	cholesky	860846	17614	603	16679	12766	358	125	935
5	1024	CLAM	correlation	763821	270986	5010	143974	20346	327	10	127012
5	1024	CLAM	covariance	755094	266788	4911	151141	21463	81	1	115647
5	1024	CLAM	deriche	284463	108769	52856	15384	15124	14	7	93385
5	1024	CLAM	doitgen	1394121	881	881	881	881	1	1	0
5	1024	CLAM	durbin	50013	15	0	0	0	6046	3	0
5	1024	CLAM	fdtd-2d	2562490	76152	35929	64162	41765	1	0	11990
5	1024	CLAM	floyd-warshall	17497387	347872	311852	345610	279660	0	0	2262
5	1024	CLAM	gemm	1334033	18369	1333	10932	420	1	1	7437
5	1024	CLAM	gemver	168809	4593	1070	2596	1934	602	198	1997
5	1024	CLAM	gesummv	63671	1491	15	1491	1491	181	0	0
5	1024	CLAM	gram-schmidt	1328490	17910	15690	12790	2755	80	80	5120
5	1024	CLAM	heat-3d	3658913	73569	33192	64249	41710	1	0	9320
5	1024	CLAM	jacobi-1d	311677	3	0	0	0	43	1	0
5	1024	CLAM	jacobi-2d	3641015	76106	39584	70253	51699	0	0	5853
5	1024	CLAM	lu	1690148	44872	1081	29372	17729	119	111	15500
5	1024	CLAM	ludcmp	1155371	47369	1793	32530	20484	957	662	14839
5	1024	CLAM	mvt	84614	2026	146	1796	943	120	8	230
5	1024	CLAM	nussinov	2842138	170075	2098	63435	44441	0	0	106640
5	1024	CLAM	seidel-2d	2281101	31700	31225	31699	31699	1	1	1
5	1024	CLAM	symm	842593	26209	11937	10080	4258	1	0	16129
5	1024	CLAM	syr2k	1097726	75156	2449	18798	8691	1	0	56358
5	1024	CLAM	syrk	772827	11255	816	7533	3930	1	0	3722
5	1024	CLAM	trisolv	21052	848	14	848	848	479	108	0
5	1024	CLAM	trmm	419141	15260	427	1543	237	1	1	13717
5	1024	C-SHEL	2mm	889070	19332	639	9998	506	6401	201	9334
5	1024	C-SHEL	3mm	1597863	30437	687	23487	12887	0	0	6950

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	C-SHEL	adi	2539934	174758	148992	169404	154284	2569	2378	5354
5	1024	C-SHEL	correlation	777836	256971	4735	164333	23286	327	10	92638
5	1024	C-SHEL	covariance	778001	243881	4518	181768	26211	81	1	62113
5	1024	C-SHEL	deriche	296641	96595	52473	96356	92811	18	10	239
5	1024	C-SHEL	fdtd-2d	2570178	76794	35793	67190	39674	369	42	9604
5	1024	C-SHEL	gemver	170294	3108	1040	3096	2210	602	219	12
5	1024	C-SHEL	heat-3d	3659359	73123	33183	65100	43696	1	0	8023
5	1024	C-SHEL	jacobi-2d	3645050	72071	39418	72016	70571	0	0	55
5	1024	C-SHEL	lu	1694032	40988	1010	33869	24189	119	115	7119
5	1024	C-SHEL	ludcmp	1158933	44045	1549	37934	28768	957	663	6111
5	1024	C-SHEL	mvt	84614	2026	146	1796	943	120	8	230
5	1024	PRL	2mm	889597	18805	492	14491	9172	6401	201	4314
5	1024	PRL	3mm	1595404	32896	675	28155	25303	0	0	4741
5	1024	PRL	adi	2605539	108873	72966	71203	37725	11609	2779	37670
5	1024	PRL	atax	98234	2578	965	2578	2578	116	8	0
5	1024	PRL	bicg	113421	1891	1027	1891	1891	124	8	0
5	1024	PRL	cholesky	859558	18902	565	18902	18902	358	124	0
5	1024	PRL	correlation	784142	250665	4170	214651	35147	327	9	36014
5	1024	PRL	covariance	789638	232244	4262	196105	36056	81	1	36139
5	1024	PRL	deriche	285741	107491	53825	80901	64336	14	7	26590
5	1024	PRL	doitgen	1394121	881	881	881	881	1	1	0
5	1024	PRL	durbin	50013	15	0	0	0	6046	3	0
5	1024	PRL	fdtd-2d	2564736	73906	35766	66067	57082	1	0	7839
5	1024	PRL	floyd-warshall	17497242	347534	311919	347208	336995	0	0	326
5	1024	PRL	gemm	1337159	15243	738	15243	15243	1	1	0
5	1024	PRL	gemver	169312	4090	1076	2713	1964	602	225	1377
5	1024	PRL	gesummv	63671	1491	15	1491	1491	181	0	0
5	1024	PRL	gram-schmidt	1329193	17207	15878	14512	10348	80	80	2695
5	1024	PRL	heat-3d	3661640	70842	33090	68216	54557	1	0	2626
5	1024	PRL	jacobi-1d	311677	3	0	0	0	43	1	0
5	1024	PRL	jacobi-2d	3641456	75665	39475	72884	59458	0	0	2781
5	1024	PRL	lu	1694473	40547	988	35119	26393	119	114	5428
5	1024	PRL	ludcmp	1160834	41906	1365	41408	38219	957	689	498
5	1024	PRL	mvt	84614	2026	146	1796	943	120	8	230
5	1024	PRL	nussinov	2853120	159093	1988	67764	50872	0	0	91329
5	1024	PRL	seidel-2d	2281134	31667	31309	31666	31666	1	1	1
5	1024	PRL	symm	843524	25278	12013	13794	8320	1	0	11484
5	1024	PRL	syr2k	1106440	66442	1774	33521	18957	1	0	32921
5	1024	PRL	syrk	773302	10780	590	10737	10480	1	0	43
5	1024	PRL	trisolv	21052	848	14	848	848	479	108	0
5	1024	PRL	trmm	427300	7101	338	7100	6918	1	1	1
5	1024	SHEL	2mm	889070	19332	639	9998	506	6401	201	9334
5	1024	SHEL	3mm	1597863	30437	687	23487	12887	0	0	6950
5	1024	SHEL	adi	2620554	94138	63965	81567	63136	2569	1656	12571
5	1024	SHEL	correlation	776122	258685	4772	162917	23336	327	10	95768
5	1024	SHEL	covariance	760522	261360	4818	159000	22516	81	1	102360
5	1024	SHEL	deriche	304143	89093	44926	88879	83672	18	10	214
5	1024	SHEL	fdtd-2d	2571736	75236	35790	62466	27827	369	42	12770
5	1024	SHEL	gemver	170294	3108	1040	3096	2210	602	219	12
5	1024	SHEL	heat-3d	3660540	71942	32990	65876	10347	1	0	6066
5	1024	SHEL	jacobi-2d	3644542	72579	39698	71167	45807	0	0	1412
5	1024	SHEL	lu	1687147	47873	1069	32328	20622	119	105	15545
5	1024	SHEL	ludcmp	1150037	52941	1993	35480	23106	957	654	17461
5	1024	SHEL	mvt	84614	2026	146	1796	943	120	8	230

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	2mm	32788021	11443381	45133	6168582	6001755	1	1	5274799
1	64	CLAM	3mm	49804584	18707316	74250	9982026	8781846	0	0	8725290
1	64	CLAM	adi	69644165	8961847	5226904	5882710	3583316	11	3	3079137
1	64	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
1	64	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
1	64	CLAM	cholesky	31477643	682557	5274	677596	351456	1	0	4961
1	64	CLAM	correlation	11616477	11436730	40701	10681452	2504014	7	5	755278
1	64	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
1	64	CLAM	deriche	3931607	1598009	777594	1119982	906942	14	7	478027
1	64	CLAM	doitgen	21601998	358006	9807	295096	123041	3	1	62910
1	64	CLAM	durbin	558661	49	0	0	0	20	1	0
1	64	CLAM	fdtd-2d	64730553	2078049	898533	2046249	1472492	1	0	31800
1	64	CLAM	floyd-warshall	375126143	7786232	7660926	7766684	7749695	0	0	19548
1	64	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
1	64	CLAM	gemver	1728899	193103	11408	26849	26473	2	2	166254
1	64	CLAM	gesummv	493245	7757	52	7757	7757	1	0	0
1	64	CLAM	gram-schmidt	21507089	18836911	5800800	15111609	12571991	0	0	3725302
1	64	CLAM	heat-3d	86166186	2221816	731098	2044518	1136362	1	0	177298
1	64	CLAM	jacobi-1d	2627297	3	0	0	0	101	0	0
1	64	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
1	64	CLAM	lu	48295175	15784225	61454	9193388	9130961	0	0	6590837
1	64	CLAM	ludcmp	27280236	15947564	34350	9397756	9337358	5	3	6549808
1	64	CLAM	mvt	800361	160439	709	87433	10577	0	0	73006
1	64	CLAM	nussinov	48860066	14387187	25207	12213808	6235843	1	0	2173379
1	64	CLAM	seidel-2d	63085358	992643	989988	992512	905505	0	0	131
1	64	CLAM	symm	22485760	6362242	1573022	5397509	2167627	1	0	964733
1	64	CLAM	syr2k	26448657	8313185	85141	7330521	3123422	1	0	982664
1	64	CLAM	syrk	20659567	2534275	77967	1644180	633452	1	0	890095
1	64	CLAM	trisolv	235827	5173	51	5173	5173	2	2	0
1	64	CLAM	trmm	8545649	5878352	10782	4896576	1943133	0	0	981776
1	64	C-SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
1	64	C-SHEL	3mm	56708164	11803736	14534	10850304	5062725	0	0	953432
1	64	C-SHEL	adi	69666076	8940636	5186979	8919561	8754191	208	3	21075
1	64	C-SHEL	correlation	11717167	11336040	39250	10762009	3167678	7	5	574031
1	64	C-SHEL	covariance	11586725	11370117	39825	10708314	2694697	1	1	661803
1	64	C-SHEL	deriche	4036013	1493607	776579	1486636	1139321	18	10	6971
1	64	C-SHEL	fdtd-2d	64791723	2081689	898652	2070314	1554340	208	2	11375
1	64	C-SHEL	gemver	1751959	170043	10156	169903	164931	2	2	140
1	64	C-SHEL	heat-3d	85704439	2094663	729922	2031981	62606	1	0	62682
1	64	C-SHEL	jacobi-2d	72257809	1546992	775266	1537898	1182492	0	0	9094
1	64	C-SHEL	lu	52412779	11666621	32565	8748974	3996467	0	0	2917647
1	64	C-SHEL	ludcmp	31565451	11663147	24592	8731998	3953651	5	3	2931149
1	64	C-SHEL	mvt	794124	166676	177	166583	155082	0	0	93
1	64	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
1	64	PRL	3mm	49243285	19268615	9060	19006463	17363068	0	0	262152
1	64	PRL	adi	69712252	8893760	5240105	5968267	3798913	11	3	2925493
1	64	PRL	atax	1109667	10049	130	10049	10049	8	0	0
1	64	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
1	64	PRL	cholesky	31475053	685147	5251	684601	616555	1	0	546
1	64	PRL	correlation	11742545	11310662	38075	10862830	4339372	7	5	447832
1	64	PRL	covariance	11648520	11308322	38599	10801340	3859645	1	1	506982
1	64	PRL	deriche	3957135	1572481	777596	1488897	913724	14	7	83584
1	64	PRL	doitgen	21601998	358006	9807	295096	123041	3	1	62910
1	64	PRL	durbin	558661	49	0	0	0	20	1	0
1	64	PRL	fdtd-2d	64730812	2077790	898529	2048611	1505491	1	0	29179
1	64	PRL	floyd-warshall	375119889	7782505	7655088	7775023	7750626	0	0	7482

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	PRL	gemm	41682405	645597	2944	644714	565122	1	1	883
1	64	PRL	gemver	1765326	156676	10381	124206	22522	2	2	32470
1	64	PRL	gesummv	493245	7757	52	7757	7757	1	0	0s
1	64	PRL	gram-schmidt	21530156	18813844	5800200	15217071	12667650	0	0	3596773
1	64	PRL	heat-3d	86189966	2198036	730667	2074294	1167539	1	0	123742
1	64	PRL	jacobi-1d	2627297	3	0	0	0	101	0	0
1	64	PRL	jacobi-2d	72256263	1548538	775340	1534859	1145360	0	0	13679
1	64	PRL	lu	47799614	16279786	18879	15120610	12838475	0	0	1159176
1	64	PRL	ludcmp	26932170	16295630	16071	15197096	12936422	5	3	1098534
1	64	PRL	mvt	825937	134863	198	132081	81865	0	0	2782
1	64	PRL	nussinov	48431684	14815569	13768	14129665	10278991	1	0	685904
1	64	PRL	seidel-2d	63085461	992540	989947	992540	992540	0	0	0
1	64	PRL	symm	22506226	6341776	1653603	6278599	5258907	1	0	63177
1	64	PRL	syr2k	26281121	8480721	8590	8422851	7477173	1	0	57870
1	64	PRL	syrk	20416658	2777184	6161	2740933	2440532	1	0	36251
1	64	PRL	trisolv	235827	5173	51	5173	5173	2	2	0
1	64	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
1	64	SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
1	64	SHEL	3mm	56709889	11802011	14305	10862147	5148014	0	0	939864
1	64	SHEL	adi	70639737	7966975	5209579	7595492	5559723	208	3	371483
1	64	SHEL	correlation	11708647	11344560	39097	10748885	3030050	7	5	595675
1	64	SHEL	covariance	11577416	11379426	39966	10696628	2568369	1	1	682798
1	64	SHEL	deriche	4036179	1493441	777557	1480748	913393	18	10	12693
1	64	SHEL	fdtd-2d	64805629	2067783	898613	2062699	1461218	208	2	5084
1	64	SHEL	gemver	1775957	146045	10247	140195	55772	2	2	5850
1	64	SHEL	heat-3d	85704357	2094745	729931	2030636	588824	1	0	64109
1	64	SHEL	jacobi-2d	72263073	1541728	775240	1536460	999930	0	0	5268
1	64	SHEL	lu	52408869	11670531	32858	8749397	3997759	0	0	2921134
1	64	SHEL	ludcmp	31571524	11657074	24456	8744348	3975123	5	3	2912726
1	64	SHEL	mvt	825918	134882	187	133020	96020	0	0	1862
1	128	CLAM	2mm	32728046	11503356	45108	6228491	6061448	1	1	5274865
1	128	CLAM	3mm	49706066	18805834	76661	9814805	8779492	0	0	8991029
1	128	CLAM	adi	69678546	8927466	5234314	5921015	3762348	8	4	3006451
1	128	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
1	128	CLAM	bicg	1269958	10048	105	10048	10048	7	0	0
1	128	CLAM	cholesky	31477410	682790	5274	678970	393048	400	398	3820
1	128	CLAM	correlation	11609734	11443473	40636	10669892	2432433	246	244	773581
1	128	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
1	128	CLAM	deriche	3931600	1598016	777598	1117283	906955	13	7	480733
1	128	CLAM	doitgen	21603450	356554	9803	296180	127817	3	1	60374
1	128	CLAM	durbin	558661	49	0	0	0	418	1	0
1	128	CLAM	fdtd-2d	64730638	2077964	898533	2047390	1479042	1	0	30574
1	128	CLAM	floyd-warshall	375125679	7773975	7649689	7758223	4696897	0	0	15752
1	128	CLAM	gemm	41681513	646489	3308	642454	317798	1	1	4035
1	128	CLAM	gemver	1725250	196752	11423	30466	30078	2	2	166286
1	128	CLAM	gesummv	493246	7756	51	7756	7756	1	0	0
1	128	CLAM	gram-schmidt	21512650	18831350	5800500	15126614	12586491	0	0	3704736
1	128	CLAM	heat-3d	86135104	2252898	731364	2029136	1136677	1	0	223762
1	128	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
1	128	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
1	128	CLAM	lu	48090114	15989286	60765	9400600	9338845	0	0	6588686
1	128	CLAM	ludcmp	27399107	15828693	34056	9280842	9219054	5	3	6547851
1	128	CLAM	mvt	799735	161065	756	85689	10404	0	0	75376
1	128	CLAM	nussinov	48861259	14385994	25480	12176125	6190413	1	0	2209869
1	128	CLAM	seidel-2d	63083860	994141	988346	991682	557177	0	0	2459
1	128	CLAM	symm	22490970	6357032	1569664	5417953	2207915	1	0	939079

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	CLAM	syr2k	26425158	8336684	80603	7421191	3187561	1	0	915493
1	128	CLAM	syrk	20654964	2538878	81019	1605315	599543	1	0	933563
1	128	CLAM	trisolv	235812	5188	51	5188	5188	2	2	0
1	128	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
1	128	C-SHEL	2mm	36788928	7442474	9672	6813251	3083114	1	1	629223
1	128	C-SHEL	3mm	56681728	11830172	15302	10790220	4763176	0	0	1039952
1	128	C-SHEL	adi	69604235	9002477	5158501	8980968	8887954	308	102	21509
1	128	C-SHEL	correlation	11708876	11344331	39193	10748686	3031113	7	5	595645
1	128	C-SHEL	covariance	11594056	11362786	39606	10720633	2782947	1	1	642153
1	128	C-SHEL	deriche	4024062	1505558	737820	1499899	1208282	17	10	5659
1	128	C-SHEL	fdtd-2d	64797969	2075443	898617	2064055	1753052	108	2	11388
1	128	C-SHEL	gemver	1758708	163294	10176	163128	158118	2	2	166
1	128	C-SHEL	heat-3d	85707984	2091118	729910	2033154	594187	1	0	57964
1	128	C-SHEL	jacobi-2d	72256247	1548554	775355	1534802	1144989	0	0	13752
1	128	C-SHEL	lu	52415459	11663941	32472	8761489	4014873	0	0	2902452
1	128	C-SHEL	ludcmp	31567917	11660681	24812	8733336	3961287	5	3	2927345
1	128	C-SHEL	mvt	795197	165603	178	165386	156614	0	0	217
1	128	PRL	2mm	33481269	10750133	6383	10541253	9056911	1	1	208880
1	128	PRL	3mm	49231502	19280398	9339	18985821	17231426	0	0	294577
1	128	PRL	adi	69745316	8860696	5238583	6037613	3810060	8	4	2823083
1	128	PRL	atax	1109667	10049	130	10049	10049	8	0	0
1	128	PRL	bicg	1269958	10048	105	10048	10048	7	0	0
1	128	PRL	cholesky	31474906	685294	5248	684869	626660	400	398	425
1	128	PRL	correlation	11749056	11304151	37874	10876356	4519767	246	244	427795
1	128	PRL	covariance	11665249	11291593	38281	10827717	4173492	1	1	463876
1	128	PRL	deriche	3957135	1572481	777596	1488897	913724	13	7	83584
1	128	PRL	doitgen	21609133	350871	9351	301089	146095	3	1	49782
1	128	PRL	durbin	558661	49	0	0	0	418	1	0
1	128	PRL	fdtd-2d	64731119	2077483	898534	2049847	1534110	1	0	27636
1	128	PRL	floyd-warshall	375120805	7771045	7642573	7763902	5684777	0	0	7143
1	128	PRL	gemm	41682384	645618	2978	644700	565269	1	1	918
1	128	PRL	gemver	1766224	155778	10349	125311	22635	2	2	30467
1	128	PRL	gesummv	493246	7756	51	7756	7756	1	0	0
1	128	PRL	gram-schmidt	21552333	18791667	5800039	15296593	12742882	0	0	3495074
1	128	PRL	heat-3d	86149630	2238372	731167	2049347	1146314	1	0	189025
1	128	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
1	128	PRL	jacobi-2d	72256198	1548603	775347	1534803	1139454	0	0	13800
1	128	PRL	lu	47788368	16291032	17412	15326562	13132061	0	0	964470
1	128	PRL	ludcmp	26929298	16298502	16025	15180089	12902688	5	3	1118413
1	128	PRL	mvt	825700	135100	212	131564	72439	0	0	3536
1	128	PRL	nussinov	48411007	14836246	13737	14140106	10187151	1	0	696140
1	128	PRL	seidel-2d	63085266	992735	987875	992713	975491	0	0	22
1	128	PRL	symm	22490724	6357278	1673316	6311038	5473749	1	0	46240
1	128	PRL	syr2k	26233969	8527873	7790	8476319	7476921	1	0	51554
1	128	PRL	syrk	20467838	2726004	8606	2669133	2268712	1	0	56871
1	128	PRL	trisolv	235812	5188	51	5188	5188	2	2	0
1	128	PRL	trmm	8518367	5905634	3498	5855106	4994542	0	0	50528
1	128	SHEL	2mm	36788928	7442474	9672	6813251	3083114	1	1	629223
1	128	SHEL	3mm	56691739	11820161	15085	10812306	4878129	0	0	1007855
1	128	SHEL	adi	70638915	7967797	5209736	7594246	5551604	308	102	373551
1	128	SHEL	correlation	11701166	11352041	39385	10735442	2892637	7	5	616599
1	128	SHEL	covariance	11577210	11379632	40006	10696133	2582156	1	1	683499
1	128	SHEL	deriche	4036841	1492779	725184	1483191	992816	17	10	9588
1	128	SHEL	fdtd-2d	64805420	2067992	898718	2062914	1418351	108	2	5078
1	128	SHEL	gemver	1776736	145266	10215	142182	85770	2	2	3084
1	128	SHEL	heat-3d	85707853	2091249	729919	2032762	571509	1	0	58487
1	128	SHEL	jacobi-2d	72263073	1541728	775240	1536460	999930	0	0	5268

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	SHEL	lu	52420624	11658776	32343	8778878	4033117	0	0	2879898
1	128	SHEL	ludcmp	31566450	11662148	24506	8749303	3980482	5	3	2912845
1	128	SHEL	mvt	824632	136168	225	129797	43194	0	0	6371
1	256	CLAM	2mm	32728046	11503356	45108	6228491	6061448	1	1	5274865
1	256	CLAM	3mm	49706066	18805834	76661	9814805	8779492	0	0	8991029
1	256	CLAM	adi	69661674	8944338	5231781	5902095	3600219	8	4	3042243
1	256	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
1	256	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
1	256	CLAM	cholesky	31477166	683034	5280	679068	379126	400	393	3966
1	256	CLAM	correlation	11616477	11436730	40701	10681452	2504014	246	244	755278
1	256	CLAM	covariance	11555409	11401433	40491	10652895	2488088	1	1	748538
1	256	CLAM	deriche	3931608	1598008	777588	1115923	906933	14	7	482085
1	256	CLAM	doitgen	21601266	358738	9906	294383	120504	3	1	64355
1	256	CLAM	durbin	558661	49	0	0	0	419	1	0
1	256	CLAM	fdtd-2d	64730645	2077957	898540	2046843	1489327	1	0	31114
1	256	CLAM	floyd-warshall	375127217	7774173	7651345	7757387	4620855	0	0	16786
1	256	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
1	256	CLAM	gemver	1727419	194583	11403	28329	27958	802	52	166254
1	256	CLAM	gesummv	493243	7759	54	7759	7759	501	16	0
1	256	CLAM	gram-schmidt	21501309	18842691	5800118	15086999	12550125	0	0	3755692
1	256	CLAM	heat-3d	86156126	2231876	731041	2057770	1151242	1	0	174106
1	256	CLAM	jacobi-1d	2627297	3	0	0	0	499	2	0
1	256	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
1	256	CLAM	lu	47849714	16229686	61374	9593278	9516692	0	0	6636408
1	256	CLAM	ludcmp	27490786	15737014	34210	9189154	9126033	5	3	6547860
1	256	CLAM	mvt	801759	159041	682	90868	10597	0	0	68173
1	256	CLAM	nussinov	48864437	14382816	25398	12169052	6181551	1	0	2213764
1	256	CLAM	seidel-2d	63083749	994252	990088	991298	476909	0	0	2954
1	256	CLAM	symm	22491438	6356564	1568713	5418449	2208093	1	0	938115
1	256	CLAM	syr2k	26454454	8307388	82383	7371810	3211257	1	0	935578
1	256	CLAM	syrk	20648680	2545162	83959	1566636	571682	1	0	978526
1	256	CLAM	trisolv	235562	5438	31	5438	5438	2	2	0
1	256	CLAM	trmm	8560525	5863476	10418	4926811	2020687	0	0	936665
1	256	C-SHEL	2mm	36809627	7421775	9165	6853072	3286206	1	1	568703
1	256	C-SHEL	3mm	56674647	11837253	15377	10767562	4656968	0	0	1069691
1	256	C-SHEL	adi	69492079	9114633	5182817	9095526	8935815	608	321	19107
1	256	C-SHEL	correlation	11702835	11350372	39345	10736993	3012775	246	244	613379
1	256	C-SHEL	covariance	11585468	11371374	39837	10707262	2689365	1	1	664112
1	256	C-SHEL	deriche	4037026	1492594	777505	1482968	1017367	18	10	9626
1	256	C-SHEL	fdtd-2d	64788242	2085170	898659	2069985	1496081	508	102	15185
1	256	C-SHEL	gemver	1758945	163057	10177	162850	157090	402	26	207
1	256	C-SHEL	heat-3d	85709101	2090001	729899	2042129	799404	1	0	47872
1	256	C-SHEL	jacobi-2d	72256525	1548276	775340	1535519	1159178	0	0	12757
1	256	C-SHEL	lu	52416222	11663178	32765	8732842	3981251	0	0	2930336
1	256	C-SHEL	ludcmp	31566277	11662321	24737	8730301	3954691	1202	447	2932020
1	256	C-SHEL	mvt	792911	167889	174	167799	155602	0	0	90
1	256	PRL	2mm	33475798	10755604	6539	10518431	8918402	1	1	237173
1	256	PRL	3mm	49219271	19292629	9686	18959598	17109451	0	0	333031
1	256	PRL	adi	69733811	8872201	5239213	6013224	3801383	8	4	2858977
1	256	PRL	atax	1109667	10049	130	10049	10049	8	0	0
1	256	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
1	256	PRL	cholesky	31475777	684423	5248	682951	527801	400	398	1472
1	256	PRL	correlation	11715625	11337582	39237	10756661	3674361	246	244	580921
1	256	PRL	covariance	11676683	11280159	37990	10851938	4517640	1	1	428221
1	256	PRL	deriche	3957136	1572480	777591	1488896	913723	14	7	83584
1	256	PRL	doitgen	21617396	342608	8821	308523	179433	3	1	34085
1	256	PRL	durbin	558661	49	0	0	0	419	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	PRL	fdtd-2d	64731210	2077392	898536	2050484	1551062	1	0	26908
1	256	PRL	floyd-warshall	375122963	7772255	7645589	7761455	5211351	0	0	10800
1	256	PRL	gemm	41682047	645955	3145	643624	453700	1	1	2331
1	256	PRL	gemver	1768114	153888	10329	128365	23745	802	52	25523
1	256	PRL	gesummv	493243	7759	54	7759	7759	501	16	0
1	256	PRL	gram-schmidt	21530156	18813844	5800200	15217071	12667650	0	0	3596773
1	256	PRL	heat-3d	86196946	2191056	730362	2107511	1239805	1	0	83545
1	256	PRL	jacobi-1d	2627297	3	0	0	0	499	2	0
1	256	PRL	jacobi-2d	72257069	1547732	775327	1536130	1176193	0	0	11602
1	256	PRL	lu	47267639	16811761	44490	12386750	10852997	0	0	4425011
1	256	PRL	ludcmp	26944123	16283677	16484	15107200	12793317	5	3	1176477
1	256	PRL	mvt	825245	135555	207	130607	58697	0	0	4948
1	256	PRL	nussinov	48475605	14771648	14134	14015656	10003186	1	0	755992
1	256	PRL	seidel-2d	63085388	992613	990023	992613	991663	0	0	0
1	256	PRL	symm	22457847	6390155	1698242	6312226	5156638	1	0	77929
1	256	PRL	syr2k	26253457	8508385	7472	8462647	7681094	1	0	45738
1	256	PRL	syrk	20506434	2687408	10878	2607822	2122443	1	0	79586
1	256	PRL	trisolv	235563	5437	30	5437	5437	2	2	0
1	256	PRL	trmm	8516579	5907422	3392	5871535	5207219	0	0	35887
1	256	SHEL	2mm	36809627	7421775	9165	6853072	3286206	1	1	568703
1	256	SHEL	3mm	56675285	11836615	15258	10777565	4703269	0	0	1059050
1	256	SHEL	adi	70630382	7976330	5209990	7565914	5451667	608	342	410416
1	256	SHEL	correlation	11693543	11359664	39578	10724169	2859974	246	244	635495
1	256	SHEL	covariance	11577862	11378980	39943	10696171	2573822	1	1	682809
1	256	SHEL	deriche	4037068	1492552	777467	1483737	1028276	18	10	8815
1	256	SHEL	fdtd-2d	64805323	2068089	898715	2062333	1269247	508	102	5756
1	256	SHEL	gemver	1776813	145189	10222	142531	94480	402	26	2658
1	256	SHEL	heat-3d	85709633	2089469	729894	2042303	776649	1	0	47166
1	256	SHEL	jacobi-2d	72263807	1540994	775201	1537100	1093922	0	0	3894
1	256	SHEL	lu	52417553	11661847	32463	8763697	4011478	0	0	2898150
1	256	SHEL	ludcmp	31568474	11660124	24772	8746907	3973100	1202	457	2913217
1	256	SHEL	mvt	825544	135256	202	131997	78593	0	0	3259
1	512	CLAM	2mm	32756266	11475136	45166	6200337	6033418	1	1	5274799
1	512	CLAM	3mm	49727050	18784850	76010	9857964	8782672	0	0	8926886
1	512	CLAM	adi	69658840	8947172	5229605	5899400	3731350	8	4	3047772
1	512	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
1	512	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
1	512	CLAM	cholesky	31477505	682695	5309	673040	247607	400	399	9655
1	512	CLAM	correlation	11636688	11416519	40038	10713356	2752136	727	20	703163
1	512	CLAM	covariance	11555409	11401433	40491	10652895	2488088	241	1	748538
1	512	CLAM	deriche	3931590	1598026	777607	1101739	906954	13	6	496287
1	512	CLAM	doitgen	21601998	358006	9807	295096	123041	3	1	62910
1	512	CLAM	durbin	558661	49	0	0	0	817	1	0
1	512	CLAM	fdtd-2d	64730701	2077901	898537	2047596	1483302	1	0	30305
1	512	CLAM	floyd-warshall	375122221	7771584	7644221	7762534	5452442	0	0	9050
1	512	CLAM	gemm	41681349	646653	3503	642610	327412	1	1	4043
1	512	CLAM	gemver	1723956	198046	11427	31760	31372	402	27	166286
1	512	CLAM	gesummv	493234	7768	63	7768	7768	751	16	0
1	512	CLAM	gram-schmidt	21502575	18841425	5638915	15169206	12620635	240	240	3672219
1	512	CLAM	heat-3d	86146906	2241096	731164	2045333	1143640	1	0	195763
1	512	CLAM	jacobi-1d	2627297	3	0	0	0	498	2	0
1	512	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
1	512	CLAM	lu	48213325	15866075	60975	9279197	9217191	0	0	6586878
1	512	CLAM	ludcmp	27336180	15891620	34404	9297577	9222243	1601	1524	6594043
1	512	CLAM	mvt	799756	161044	756	85441	10527	0	0	75603

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	CLAM	nussinov	48861173	14386080	25704	12140705	6130002	1	0	2245375
1	512	CLAM	seidel-2d	63084186	993815	990144	991933	604842	0	0	1882
1	512	CLAM	symm	22481099	6366903	1575690	5381385	2143500	1	0	985518
1	512	CLAM	syr2k	26418687	8343155	84939	7361808	3054571	1	0	981347
1	512	CLAM	syrk	20657146	2536696	79111	1636334	627220	1	0	900362
1	512	CLAM	trisolv	235479	5521	52	5521	5521	2	2	0
1	512	CLAM	trmm	8575036	5848965	10094	4956250	2087672	0	0	892715
1	512	C-SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
1	512	C-SHEL	3mm	56676797	11835103	15338	10790294	4788147	0	0	1044809
1	512	C-SHEL	adi	69668007	8938705	5187774	8916750	8737447	608	302	21955
1	512	C-SHEL	correlation	11725878	11327329	38894	10775721	3279403	966	259	551608
1	512	C-SHEL	covariance	11578049	11378793	39883	10696471	2578410	241	1	682322
1	512	C-SHEL	deriche	4036490	1493130	776787	1485745	1134274	17	10	7385
1	512	C-SHEL	fdtd-2d	64795809	2077603	898488	2065728	1577552	808	102	11875
1	512	C-SHEL	gemver	1740241	181761	10148	180942	174707	402	27	819
1	512	C-SHEL	heat-3d	85707006	2092096	729899	2041948	848888	101	100	50148
1	512	C-SHEL	jacobi-2d	72256247	1548554	775355	1534802	1144989	0	0	13752
1	512	C-SHEL	lu	52415861	11663539	32894	8726761	3971073	0	0	2936778
1	512	C-SHEL	ludcmp	31568371	11660227	24856	8746826	3977729	1202	44	2913401
1	512	C-SHEL	mvt	796633	164167	403	164050	157400	400	25	117
1	512	PRL	2mm	33470034	10761368	6811	10494244	8778197	1	1	267124
1	512	PRL	3mm	49237264	19274636	9136	19010428	17365593	0	0	264208
1	512	PRL	adi	69729143	8876869	5239197	5998774	3795853	8	4	2878095
1	512	PRL	atax	1109667	10049	130	10049	10049	8	0	0
1	512	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
1	512	PRL	cholesky	31478111	682089	5275	677369	377200	400	399	4720
1	512	PRL	correlation	11777376	11275831	38060	10872315	5303087	727	20	403516
1	512	PRL	covariance	11640045	11316797	38777	10786847	3679604	241	1	529950
1	512	PRL	deriche	3955463	1574153	777605	1483293	913787	13	6	90860
1	512	PRL	doitgen	21620226	339778	8707	311138	192220	3	1	28640
1	512	PRL	durbin	558661	49	0	0	0	817	1	0
1	512	PRL	fdtd-2d	64731589	2077013	898529	2053238	1579119	1	0	23775
1	512	PRL	floyd-warshall	375112632	7768713	7634381	7767836	7341675	0	0	877
1	512	PRL	gemm	41681881	646121	3334	643850	456369	1	1	2271
1	512	PRL	gemver	1769794	152208	10295	130785	25012	402	27	21423
1	512	PRL	gesummv	493244	7758	53	7758	7758	751	16	0
1	512	PRL	gram-schmidt	21570463	18773537	5579630	15500458	12938469	240	240	3273079
1	512	PRL	heat-3d	86175825	2212177	730744	2082170	1176496	1	0	130007
1	512	PRL	jacobi-1d	2627297	3	0	0	0	498	2	0
1	512	PRL	jacobi-2d	72257728	1547073	775310	1537344	1209939	0	0	9729
1	512	PRL	lu	47801296	16278104	18262	15205403	12953547	0	0	1072701
1	512	PRL	ludcmp	26401956	16825844	28694	12283296	10835953	1601	1391	4542548
1	512	PRL	mvt	824785	136015	231	129647	42849	0	0	6368
1	512	PRL	nussinov	48478996	14768257	14150	14015720	10031837	1	0	752537
1	512	PRL	seidel-2d	63084186	993815	990144	991933	604842	0	0	1882
1	512	PRL	symm	22411495	6436507	1744689	6364166	5251016	1	0	72341
1	512	PRL	syr2k	26191293	8570549	10401	8491606	7013281	1	0	78943
1	512	PRL	syrk	20462230	2731612	8642	2677086	2282752	1	0	54526
1	512	PRL	trisolv	235482	5518	51	5518	5518	2	2	0
1	512	PRL	trmm	8453152	5970849	3282	5946744	5419105	0	0	24105
1	512	SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
1	512	SHEL	3mm	56687497	11824403	15011	10813282	4870325	0	0	1011121
1	512	SHEL	adi	70652910	7953802	5208775	7639806	5740862	608	302	313996
1	512	SHEL	correlation	11718343	11334864	39071	10763843	3164669	966	259	571021
1	512	SHEL	covariance	11570165	11386677	40105	10683286	2502380	241	1	703391
1	512	SHEL	deriche	4036318	1493302	777518	1481748	929135	17	10	11554
1	512	SHEL	fdtd-2d	64805413	2067999	898609	2062696	1449862	808	102	5303

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	SHEL	gemver	1776610	145392	10219	142106	86326	402	27	3286
1	512	SHEL	heat-3d	85705602	2093500	729913	2041310	858690	101	100	52190
1	512	SHEL	jacobi-2d	72264220	1540581	775223	1538028	1210562	0	0	2553
1	512	SHEL	lu	52415942	11663458	32745	8734584	3972528	0	0	2928874
1	512	SHEL	ludcmp	31569485	11659113	24657	8763662	4000008	1202	45	2895451
1	512	SHEL	mvt	825649	135151	293	134379	118895	400	25	772
1	1024	CLAM	2mm	32833434	11397968	45463	6122249	5955050	1	1	5275719
1	1024	CLAM	3mm	49850100	18661800	73697	10041993	8776651	0	0	8619807
1	1024	CLAM	adi	69640968	8965044	5225814	5878031	3632725	8	4	3087013
1	1024	CLAM	atax	1109639	10077	156	10077	10077	398	25	0
1	1024	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
1	1024	CLAM	cholesky	31476827	683373	5269	679672	425451	400	389	3701
1	1024	CLAM	correlation	11610098	11443109	40826	10670097	2407546	967	35	773012
1	1024	CLAM	covariance	11564092	11392750	40452	10667007	2580825	241	16	725743
1	1024	CLAM	deriche	3931592	1598024	777604	1115938	906948	14	7	482086
1	1024	CLAM	doitgen	21605202	354802	9576	297627	130758	3	1	57175
1	1024	CLAM	durbin	558661	49	0	0	0	1216	22	0
1	1024	CLAM	fdtd-2d	64730806	2077796	898531	2049234	1531978	1	0	28562
1	1024	CLAM	floyd-warshall	375095186	7788505	7640376	7769578	5017356	0	0	18927
1	1024	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
1	1024	CLAM	gemver	1723217	198785	11679	32704	31945	1202	77	166081
1	1024	CLAM	gesummv	493204	7798	81	7798	7798	501	16	0
1	1024	CLAM	gram-schmidt	21512940	18831060	5800235	15138788	12596893	240	240	3692272
1	1024	CLAM	heat-3d	86202945	2185057	730439	2092258	1234520	1	0	92799
1	1024	CLAM	jacobi-1d	2627297	3	0	0	0	399	2	0
1	1024	CLAM	jacobi-2d	72255908	1548893	775333	1534252	1134341	0	0	14641
1	1024	CLAM	lu	48429060	15650340	60677	9061603	8998318	0	0	6588737
1	1024	CLAM	ludcmp	27699216	15528584	34148	8978499	8915358	2000	1386	6550085
1	1024	CLAM	mvt	801076	159724	954	90323	10674	400	25	69401
1	1024	CLAM	nussinov	48868574	14378679	25685	12143267	6142965	1	0	2235412
1	1024	CLAM	seidel-2d	63084186	993815	990144	991933	604842	0	0	1882
1	1024	CLAM	symm	22472351	6375651	1579941	5355591	2095053	1	0	1020060
1	1024	CLAM	syr2k	26420973	8340869	85485	7384747	3092049	1	0	956122
1	1024	CLAM	syrk	20658863	2534979	78307	1645746	634439	1	0	889233
1	1024	CLAM	trisolv	233444	7556	58	7556	7556	2	2	0
1	1024	CLAM	trmm	8534187	5889814	11131	4863651	1850304	0	0	1026163
1	1024	C-SHEL	2mm	36777153	7454249	10103	6773125	2890649	1	1	681124
1	1024	C-SHEL	3mm	56685046	11826854	14747	10833354	5021709	0	0	993500
1	1024	C-SHEL	adi	69486285	9120427	5139373	9098213	8911605	708	310	22214
1	1024	C-SHEL	correlation	11674700	11378507	40086	10693715	2563059	1206	274	684792
1	1024	C-SHEL	covariance	11629004	11327838	39005	10776216	3281333	241	16	551622
1	1024	C-SHEL	deriche	4035592	1494028	726284	1488622	1224639	18	11	5406
1	1024	C-SHEL	fdtd-2d	64793101	2080311	898539	2062736	1485810	708	102	17575
1	1024	C-SHEL	gemver	1768797	153205	10367	153047	148497	1202	77	158
1	1024	C-SHEL	heat-3d	85716492	2082610	729873	2050159	876530	101	100	32451
1	1024	C-SHEL	jacobi-2d	72257636	1547165	775293	1536352	1148986	0	0	10813
1	1024	C-SHEL	lu	52408429	11670971	33829	8576283	3796011	0	0	3094688
1	1024	C-SHEL	ludcmp	31563890	11664708	25422	8806961	4036510	3197	2451	2857747
1	1024	C-SHEL	mvt	804732	156068	348	155415	145531	400	25	653
1	1024	PRL	2mm	33448540	10782862	7480	10424592	8421504	1	1	358270
1	1024	PRL	3mm	49254038	19257862	8131	19125753	18071183	0	0	132109
1	1024	PRL	adi	69729143	8876869	5239197	5998774	3795853	8	4	2878095
1	1024	PRL	atax	1109639	10077	156	10077	10077	398	25	0
1	1024	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
1	1024	PRL	cholesky	31473623	686577	5248	686341	669450	400	398	236
1	1024	PRL	correlation	11719000	11334207	38856	10825095	3879559	967	35	509112
1	1024	PRL	covariance	11686170	11270672	37866	10876053	4891502	241	16	394619

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	PRL	deriche	3955750	1573866	777605	1484652	913113	14	7	89214
1	1024	PRL	doitgen	21622278	337726	8459	313857	211443	3	1	23869
1	1024	PRL	durbin	558661	49	0	0	0	1216	22	0
1	1024	PRL	fdtd-2d	64731336	2077266	898529	2053706	1607949	1	0	23560
1	1024	PRL	floyd-warshall	375084864	7782917	7627695	7782279	7527887	0	0	638
1	1024	PRL	gemm	41682405	645597	2944	644714	565122	1	1	883
1	1024	PRL	gemver	1765784	156218	10564	125188	22714	1202	77	31030
1	1024	PRL	gesummv	493231	7771	66	7771	7771	501	16	0
1	1024	PRL	gram-schmidt	21536387	18807613	5800277	15232826	12677812	240	240	3574787
1	1024	PRL	heat-3d	86230560	2157442	729736	2155559	2076701	1	0	1883
1	1024	PRL	jacobi-1d	2627297	3	0	0	0	399	2	0
1	1024	PRL	jacobi-2d	72256948	1547853	775328	1536243	1180410	0	0	11610
1	1024	PRL	lu	47748157	16331243	18143	15276115	13001962	0	0	1055128
1	1024	PRL	ludcmp	26933060	16294740	16367	15129397	12832998	2000	1397	1165343
1	1024	PRL	mvt	819789	141011	308	141011	141011	400	25	0
1	1024	PRL	nussinov	48487308	14759945	14320	14011799	10027188	1	0	748146
1	1024	PRL	seidel-2d	63085700	992301	989514	992301	992301	0	0	0
1	1024	PRL	symm	22493249	6354753	1668273	6305587	5433796	1	0	49166
1	1024	PRL	syr2k	26234161	8527681	11780	8455811	7136464	1	0	71870
1	1024	PRL	syrk	20378181	2815661	5326	2790659	2556333	1	0	25002
1	1024	PRL	trisolv	233444	7556	58	7556	7556	2	2	0
1	1024	PRL	trmm	8503898	5920103	3323	5892061	5319999	0	0	28042
1	1024	SHEL	2mm	36777153	7454249	10103	6773125	2890649	1	1	681124
1	1024	SHEL	3mm	56698502	11813398	14514	10862448	5156633	0	0	950950
1	1024	SHEL	adi	70643746	7962966	5193502	7613021	5634051	708	342	349945
1	1024	SHEL	correlation	11675741	11377466	40040	10695650	2575490	1206	274	681816
1	1024	SHEL	covariance	11612294	11344548	39321	10749368	3029272	241	16	595180
1	1024	SHEL	deriche	4037188	1492432	724878	1484623	1068798	18	10	7809
1	1024	SHEL	fdtd-2d	64804745	2068667	898727	2061255	1107002	708	102	7412
1	1024	SHEL	gemver	1773797	148205	10397	136964	34694	1202	77	11241
1	1024	SHEL	heat-3d	85715338	2083764	729878	2050352	919276	101	100	33412
1	1024	SHEL	jacobi-2d	72263610	1541191	775232	1537014	1070740	0	0	4177
1	1024	SHEL	lu	52408792	11670608	34066	8592305	3812818	0	0	3078303
1	1024	SHEL	ludcmp	31567740	11660858	25335	8822473	4055871	3197	2447	2838385
1	1024	SHEL	mvt	824800	136000	347	130477	48347	400	25	5523
2	64	CLAM	2mm	32709043	11522359	45410	6246457	6079217	1	1	5275902
2	64	CLAM	3mm	49781139	18730761	75312	9941088	8779747	0	0	8789673
2	64	CLAM	adi	69647337	8958675	5227415	5883314	3585358	9	5	3075361
2	64	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
2	64	CLAM	bicg	1269959	10047	104	10047	10047	5	0	0
2	64	CLAM	cholesky	31477742	682458	5286	676936	319627	1	0	5522
2	64	CLAM	correlation	11627727	11425480	40244	10696592	2594524	7	5	728888
2	64	CLAM	covariance	11563786	11393056	40291	10666505	2575030	1	1	726551
2	64	CLAM	deriche	3931604	1598012	777596	1111192	906939	14	7	486820
2	64	CLAM	doitgen	21607613	352391	9511	299674	141405	3	1	52717
2	64	CLAM	durbin	558661	49	0	0	0	418	2	0
2	64	CLAM	fdtd-2d	64730443	2078159	898532	2045765	1474317	1	0	32394
2	64	CLAM	floyd-warshall	375124760	7786219	7661281	7766594	7740260	0	0	19625
2	64	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
2	64	CLAM	gemver	1732476	189526	11443	23240	22846	2	2	166286
2	64	CLAM	gesummv	493245	7757	52	7757	7757	1	0	0
2	64	CLAM	gram-schmidt	21507089	18836911	5800800	15111609	12571991	0	0	3725302
2	64	CLAM	heat-3d	86158773	2229229	731150	2036743	1140717	1	0	192486
2	64	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
2	64	CLAM	jacobi-2d	72256199	1548602	775349	1534833	1142150	0	0	13769

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	CLAM	lu	48065018	16014382	60744	9424857	9364023	0	0	6589525
2	64	CLAM	ludcmp	27567011	15660789	34121	9112933	9049234	5	3	6547856
2	64	CLAM	mvt	802136	158664	721	92239	10743	0	0	66425
2	64	CLAM	nussinov	48859895	14387358	25311	12214448	6240717	1	0	2172910
2	64	CLAM	seidel-2d	63083828	994173	990293	991677	531060	0	0	2496
2	64	CLAM	symm	22491372	6356630	1569804	5426589	2219876	1	0	930041
2	64	CLAM	syr2k	26448769	8313073	84211	7340087	3136193	1	0	972986
2	64	CLAM	syrk	20661360	2532482	76747	1663562	646799	1	0	868920
2	64	CLAM	trisolv	235799	5201	51	5201	5201	2	2	0
2	64	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
2	64	C-SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
2	64	C-SHEL	3mm	56705681	11806219	14568	10850411	5056655	0	0	955808
2	64	C-SHEL	adi	69619937	8986775	5159839	8965452	8871293	209	106	21323
2	64	C-SHEL	correlation	11716911	11336296	39156	10760611	3137525	7	5	575685
2	64	C-SHEL	covariance	11594475	11362367	39623	10723193	2794931	1	1	639174
2	64	C-SHEL	deriche	4036987	1492633	777452	1483272	1055429	18	10	9361
2	64	C-SHEL	fdtd-2d	64799661	2073751	898466	2071264	1804043	409	2	2487
2	64	C-SHEL	gemver	1747519	174483	10148	174284	167725	2	2	199
2	64	C-SHEL	heat-3d	85709066	2090036	729904	2036782	660380	101	100	53254
2	64	C-SHEL	jacobi-2d	72258786	1546015	775283	1539823	1222277	0	0	6192
2	64	C-SHEL	lu	52413025	11666375	32435	8746155	3995395	0	0	2920220
2	64	C-SHEL	ludcmp	31568539	11660059	24836	8694942	3903773	5	3	2965117
2	64	C-SHEL	mvt	792957	167843	175	167665	161538	0	0	178
2	64	PRL	2mm	33470034	10761368	6811	10494244	8778197	1	1	267124
2	64	PRL	3mm	49254372	19257528	8934	19027138	17503993	0	0	230390
2	64	PRL	adi	69695194	8910818	5240773	5945388	3769339	9	5	2965430
2	64	PRL	atax	1109667	10049	130	10049	10049	8	0	0
2	64	PRL	bicg	1269959	10047	104	10047	10047	5	0	0
2	64	PRL	cholesky	31475548	684652	5248	683877	581292	1	0	775
2	64	PRL	correlation	11741268	11311939	38754	10789786	4099715	7	5	522153
2	64	PRL	covariance	11605438	11351404	39424	10733065	3182315	1	1	618339
2	64	PRL	deriche	3956939	1572677	777599	1488197	913353	14	7	84480
2	64	PRL	doitgen	21612405	347599	9166	304010	158361	3	1	43589
2	64	PRL	durbin	558661	49	0	0	0	418	2	0
2	64	PRL	fdtd-2d	64730641	2077961	898530	2047342	1494337	1	0	30619
2	64	PRL	floyd-warshall	375119060	7782806	7655003	7773818	7750307	0	0	8988
2	64	PRL	gemm	41682405	645597	2944	644714	565122	1	1	883
2	64	PRL	gemver	1763787	158215	10410	121324	22080	2	2	36891
2	64	PRL	gesummv	493245	7757	52	7757	7757	1	0	0
2	64	PRL	gram-schmidt	21519656	18824344	5800287	15162172	12616380	0	0	3662172
2	64	PRL	heat-3d	86173322	2214680	730918	2056034	1156960	1	0	158646
2	64	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
2	64	PRL	jacobi-2d	72256199	1548602	775349	1534833	1142150	0	0	13769
2	64	PRL	lu	47786947	16292453	17744	15319857	13137834	0	0	972596
2	64	PRL	ludcmp	26940642	16287158	16388	15073349	12765661	5	3	1213809
2	64	PRL	mvt	823902	136898	175	136898	136898	0	0	0
2	64	PRL	nussinov	48429366	14817887	13686	14131938	10271002	1	0	685949
2	64	PRL	seidel-2d	63085392	992609	990115	992609	992609	0	0	0
2	64	PRL	symm	22499088	6348914	1662149	6293591	5357795	1	0	55323
2	64	PRL	syr2k	26305009	8456833	10120	8383877	7267299	1	0	72956
2	64	PRL	syrk	20333473	2860369	3708	2846312	2690884	1	0	14057
2	64	PRL	trisolv	235797	5203	51	5203	5203	2	2	0
2	64	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
2	64	SHEL	2mm	36789397	7442005	9548	6812194	3087451	1	1	629811
2	64	SHEL	3mm	56715103	11796797	14347	10865579	5126925	0	0	931218
2	64	SHEL	adi	70635241	7971471	5209977	7579649	5484145	209	106	391822
2	64	SHEL	correlation	11708655	11344552	39269	10748542	3013233	7	5	596010

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	SHEL	covariance	11586787	11370055	39752	10710524	2699341	1	1	659531
2	64	SHEL	deriche	4037196	1492424	777432	1483040	1062181	18	10	9384
2	64	SHEL	fdtd-2d	64805339	2068073	898601	2062009	1351924	409	2	6064
2	64	SHEL	gemver	1776079	145923	10240	140758	66336	2	2	5165
2	64	SHEL	heat-3d	85709537	2089565	729909	2038136	692454	101	100	51429
2	64	SHEL	jacobi-2d	72263138	1541663	775231	1536382	997481	0	0	5281
2	64	SHEL	lu	52420010	11659390	32590	8762313	4015032	0	0	2897077
2	64	SHEL	ludcmp	31570207	11658391	24515	8730259	3951797	5	3	2928132
2	64	SHEL	mvt	825168	135632	203	131284	67925	0	0	4348
2	128	CLAM	2mm	32728046	11503356	45108	6228491	6061448	1	1	5274865
2	128	CLAM	3mm	49696562	18815338	76887	9779264	8773428	0	0	9036074
2	128	CLAM	adi	69691372	8914640	5239291	5939982	3776737	9	5	2974658
2	128	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
2	128	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
2	128	CLAM	cholesky	31477511	682689	5286	676598	320707	1	0	6091
2	128	CLAM	correlation	11617947	11435260	40586	10682484	2524862	247	20	752776
2	128	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
2	128	CLAM	deriche	3931607	1598009	777594	1110503	906925	14	7	487506
2	128	CLAM	doitgen	21599273	360731	9977	292454	114069	3	1	68277
2	128	CLAM	durbin	558661	49	0	0	0	20	2	0
2	128	CLAM	fdtd-2d	64730553	2078049	898533	2046249	1472492	1	0	31800
2	128	CLAM	floyd-warshall	375095304	7788266	7640153	7768976	5170984	0	0	19290
2	128	CLAM	gemm	41682054	645948	3099	643682	470906	1	1	2266
2	128	CLAM	gemver	1730917	191085	11430	24799	24407	402	27	166286
2	128	CLAM	gesummv	493183	7819	52	7819	7819	251	0	0
2	128	CLAM	gram-schmidt	21509333	18834667	5800504	15120228	12579942	0	0	3714439
2	128	CLAM	heat-3d	86139842	2248160	731279	2035899	1139047	1	0	212261
2	128	CLAM	jacobi-1d	2627297	3	0	0	0	2	1	0
2	128	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
2	128	CLAM	lu	48123402	15955998	61200	9367621	9305645	0	0	6588377
2	128	CLAM	ludcmp	27535614	15692186	34300	9144328	9080814	5	3	6547858
2	128	CLAM	mvt	804119	156681	670	95433	10853	0	0	61248
2	128	CLAM	nussinov	48860572	14386681	25265	12214773	6250168	1	0	2171908
2	128	CLAM	seidel-2d	63085336	992665	990163	992663	988872	0	0	2
2	128	CLAM	symm	22490970	6357032	1569664	5417953	2207915	1	0	939079
2	128	CLAM	syr2k	26456501	8305341	81352	7377666	3238145	1	0	927675
2	128	CLAM	syrk	20658604	2535238	79297	1624741	617823	1	0	910497
2	128	CLAM	trisolv	235722	5278	51	5278	5278	2	2	0
2	128	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
2	128	C-SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
2	128	C-SHEL	3mm	56680991	11830909	15385	10775319	4700295	0	0	1055590
2	128	C-SHEL	adi	69440123	9166589	5181534	9147545	8993116	109	105	19044
2	128	C-SHEL	correlation	11714616	11338591	39032	10759379	3126212	7	5	579212
2	128	C-SHEL	covariance	11595977	11360865	39591	10725094	2813367	1	1	635771
2	128	C-SHEL	deriche	4021882	1507738	687316	1500413	1144684	18	10	7325
2	128	C-SHEL	fdtd-2d	64797153	2076259	898631	2063666	1736891	409	102	12593
2	128	C-SHEL	gemver	1753941	168061	10172	167845	161202	402	27	216
2	128	C-SHEL	heat-3d	85714577	2084525	729878	2048357	870129	1	0	36168
2	128	C-SHEL	jacobi-2d	72256793	1548008	775335	1534928	1139289	0	0	13080
2	128	C-SHEL	lu	52413656	11665744	32527	8764912	4010078	0	0	2900832
2	128	C-SHEL	ludcmp	31563617	11664981	24744	8767691	4005369	5	3	2897290
2	128	C-SHEL	mvt	793001	167799	175	167694	156795	0	0	105
2	128	PRL	2mm	33467468	10763934	7039	10477704	8678107	1	1	286230
2	128	PRL	3mm	49243260	19268640	8841	19049409	17588569	0	0	219231
2	128	PRL	adi	69751424	8854588	5238279	6053152	3831488	9	5	2801436
2	128	PRL	atax	1109667	10049	130	10049	10049	8	0	0
2	128	PRL	bicg	1269959	10047	104	10047	10047	8	0	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	PRL	cholesky	31475169	685031	5248	684486	615605	1	0	545
2	128	PRL	correlation	11724672	11328535	39165	10768583	3836487	247	20	559952
2	128	PRL	covariance	11640045	11316797	38777	10786847	3679604	1	1	529950
2	128	PRL	deriche	3955489	1574127	753710	1483795	912854	14	7	90332
2	128	PRL	doitgen	21601266	358738	9906	294383	120504	3	1	64355
2	128	PRL	durbin	558661	49	0	0	0	20	2	0
2	128	PRL	fdtd-2d	64730954	2077648	898532	2049042	1518520	1	0	28606
2	128	PRL	floyd-warshall	375090524	7784013	7632438	7778407	5991511	0	0	5606
2	128	PRL	gemm	41682054	645948	3099	643682	470906	1	1	2266
2	128	PRL	gemver	1765326	156676	10381	124206	22522	402	27	32470
2	128	PRL	gesummv	493183	7819	52	7819	7819	251	0	0
2	128	PRL	gram-schmidt	21519409	18824591	5800507	15151558	12607505	0	0	3673033
2	128	PRL	heat-3d	86186262	2201740	730617	2094477	1198946	1	0	107263
2	128	PRL	jacobi-1d	2627297	3	0	0	0	2	1	0
2	128	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
2	128	PRL	lu	47793216	16286184	17802	15290102	13081092	0	0	996082
2	128	PRL	ludcmp	26940443	16287357	16439	15127817	12823643	5	3	1159540
2	128	PRL	mvt	825189	135611	176	135592	134672	0	0	19
2	128	PRL	nussinov	48484063	14763190	14214	14010449	10038042	1	0	752741
2	128	PRL	seidel-2d	63085378	992623	990122	992623	992623	0	0	0
2	128	PRL	symm	22501813	6346189	1659067	6287559	5319690	1	0	58630
2	128	PRL	syr2k	26246900	8514942	9805	8443608	7293713	1	0	71334
2	128	PRL	syrk	20462675	2731167	8012	2677206	2287106	1	0	53961
2	128	PRL	trisolv	235722	5278	51	5278	5278	2	2	0
2	128	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
2	128	SHEL	2mm	36796354	7435048	9407	6826235	3141037	1	1	608813
2	128	SHEL	3mm	56680991	11830909	15385	10775319	4700295	0	0	1055590
2	128	SHEL	adi	70650123	7956589	5208970	7625765	5691185	109	105	330824
2	128	SHEL	correlation	11710237	11342970	39308	10749978	3026990	7	5	592992
2	128	SHEL	covariance	11593487	11363355	39631	10722765	2805704	1	1	640590
2	128	SHEL	deriche	4036531	1493089	672641	1482135	929240	18	10	10954
2	128	SHEL	fdtd-2d	64805846	2067566	898581	2063173	1466561	409	102	4393
2	128	SHEL	gemver	1775395	146607	10260	139127	45660	402	27	7480
2	128	SHEL	heat-3d	85714518	2084584	729879	2048147	879176	1	0	36437
2	128	SHEL	jacobi-2d	72264559	1540242	775259	1537357	1116564	0	0	2885
2	128	SHEL	lu	52413127	11666273	32643	8780994	4034041	0	0	2885279
2	128	SHEL	ludcmp	31571926	11656672	24397	8761945	3996660	5	3	2894727
2	128	SHEL	mvt	825327	135473	203	131718	74106	0	0	3755
2	256	CLAM	2mm	32768911	11462491	45339	6186833	6019982	1	1	5275658
2	256	CLAM	3mm	49696562	18815338	76887	9779264	8773428	0	0	9036074
2	256	CLAM	adi	69695070	8910942	5240830	5945399	3788810	9	5	2965543
2	256	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
2	256	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
2	256	CLAM	cholesky	31477547	682653	5317	673930	231507	1	0	8723
2	256	CLAM	correlation	11591344	11461863	40944	10646899	2312883	487	5	814964
2	256	CLAM	covariance	11571765	11385077	40161	10678519	2708757	241	1	706558
2	256	CLAM	deriche	3931593	1598023	777605	1109164	906945	14	7	488859
2	256	CLAM	doitgen	21601266	358738	9906	294383	120504	3	1	64355
2	256	CLAM	durbin	558661	49	0	0	0	20	2	0
2	256	CLAM	fdtd-2d	64730443	2078159	898532	2045765	1474317	1	0	32394
2	256	CLAM	floyd-warshall	375097620	7788604	7642725	7768321	4941130	0	0	20283
2	256	CLAM	gemm	41681380	646622	3382	642405	326388	1	1	4217
2	256	CLAM	gemver	1724030	197972	11444	31736	31345	402	3	166236
2	256	CLAM	gesummv	493179	7823	57	7823	7823	1	0	0
2	256	CLAM	gram-schmidt	21491591	18852409	5644743	15138877	12593534	240	240	3713532

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	CLAM	heat-3d	86163535	2224467	731065	2043027	1145797	1	0	181440
2	256	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
2	256	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
2	256	CLAM	lu	48040419	16038981	60990	9450142	9389921	0	0	6588839
2	256	CLAM	ludcmp	26815896	16411904	33777	9862046	9802415	1601	656	6549858
2	256	CLAM	mvt	800778	160022	734	88907	10539	0	0	71115
2	256	CLAM	nussinov	48862863	14384390	25297	12177666	6189274	1	0	2206724
2	256	CLAM	seidel-2d	63083190	994811	990181	990896	507869	0	0	3915
2	256	CLAM	symm	22486939	6361063	4715943	5403975	2177551	1	0	957088
2	256	CLAM	syr2k	26449878	8311964	83821	7350855	3158973	1	0	961109
2	256	CLAM	syrk	20648680	2545162	83959	1566636	571682	1	0	978526
2	256	CLAM	trisolv	235527	5473	51	5473	5473	2	2	0
2	256	CLAM	trmm	8545649	5878352	10782	4896576	1943133	0	0	981776
2	256	C-SHEL	2mm	36796527	7434875	9368	6826405	3159434	1	1	608470
2	256	C-SHEL	3mm	56685527	11826373	15239	10788337	4754041	0	0	1038036
2	256	C-SHEL	adi	69460553	9146159	5183265	9125590	8961890	509	312	20569
2	256	C-SHEL	correlation	11717778	11335429	39142	10761707	3140135	487	5	573722
2	256	C-SHEL	covariance	11559697	11397145	40249	10668773	2396637	241	1	728372
2	256	C-SHEL	deriche	3990402	1539218	722275	1534423	1248054	18	11	4795
2	256	C-SHEL	fdtd-2d	64798286	2075126	898513	2063400	1595133	609	102	11726
2	256	C-SHEL	gemver	1753372	168630	10169	168402	162050	402	2	228
2	256	C-SHEL	heat-3d	85713190	2085912	729890	2053429	1016258	101	100	32483
2	256	C-SHEL	jacobi-2d	72258820	1545981	775288	1539959	1229136	0	0	6022
2	256	C-SHEL	lu	52421466	11657934	32052	8797887	4049214	0	0	2860047
2	256	C-SHEL	ludcmp	31567568	11661030	24364	8782080	4025373	404	195	2878950
2	256	C-SHEL	mvt	796708	164092	177	164031	160286	0	0	61
2	256	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
2	256	PRL	3mm	49218659	19293241	9738	18948011	17041683	0	0	345230
2	256	PRL	adi	69747175	8858837	5238325	6044343	3812270	9	5	2814494
2	256	PRL	atax	1109667	10049	130	10049	10049	8	0	0
2	256	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
2	256	PRL	cholesky	31475263	684937	5237	684295	579528	1	0	642
2	256	PRL	correlation	11703414	11349793	38877	10798731	3597958	487	5	551062
2	256	PRL	covariance	11654966	11301876	38480	10813073	3982430	241	1	488803
2	256	PRL	deriche	3955597	1574019	753601	1484354	912752	14	7	89665
2	256	PRL	doitgen	21616613	343391	8867	307925	176989	3	1	35466
2	256	PRL	durbin	558661	49	0	0	0	20	2	0
2	256	PRL	fdtd-2d	64731110	2077492	898538	2049806	1533279	1	0	27686
2	256	PRL	floyd-warshall	375094084	7785889	7637174	7774713	5323299	0	0	11176
2	256	PRL	gemm	41681996	646006	3144	643711	472645	1	1	2295
2	256	PRL	gemver	1770641	151361	10271	131832	26015	402	2	19529
2	256	PRL	gesummv	493187	7815	51	7815	7815	1	0	0
2	256	PRL	gram-schmidt	21518392	18825608	5624907	15258853	12701050	240	240	3566755
2	256	PRL	heat-3d	86204938	2183064	730416	2094729	1241908	1	0	88335
2	256	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
2	256	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
2	256	PRL	lu	47783601	16295799	17496	15321469	13137805	0	0	974330
2	256	PRL	ludcmp	26922395	16305405	14891	15399460	13290645	1601	843	905945
2	256	PRL	mvt	826288	134512	178	133779	115298	0	0	733
2	256	PRL	nussinov	48482221	14765032	14189	14012000	10028549	1	0	753032
2	256	PRL	seidel-2d	63085700	992301	989788	992301	992301	0	0	0
2	256	PRL	symm	22466658	6381344	4686057	6298693	5105288	1	0	82651
2	256	PRL	syr2k	26261773	8500069	10809	8421459	7172627	1	0	78610
2	256	PRL	syrk	20479958	2713884	9258	2648795	2207094	1	0	65089
2	256	PRL	trisolv	235527	5473	51	5473	5473	2	2	0
2	256	PRL	trmm	8545544	5878457	3583	5818879	4886145	0	0	59578
2	256	SHEL	2mm	36796527	7434875	9368	6826405	3159434	1	1	608470

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	SHEL	3mm	56693524	11818376	14883	10811092	4861212	0	0	1007284
2	256	SHEL	adi	70642471	7964241	5209377	7602746	5603085	509	356	361495
2	256	SHEL	correlation	11700900	11352307	39420	10735801	2901611	487	5	616506
2	256	SHEL	covariance	11561840	11395002	40279	10672719	2393186	241	1	722283
2	256	SHEL	deriche	4037226	1492394	724389	1483715	1066558	18	10	8679
2	256	SHEL	fdtd-2d	64804417	2068995	898714	2062544	1264659	609	102	6451
2	256	SHEL	gemver	1776549	145453	10227	141697	79073	402	2	3756
2	256	SHEL	heat-3d	85712769	2086333	729875	2054767	1058408	101	100	31566
2	256	SHEL	jacobi-2d	72263368	1541433	775224	1536578	1020466	0	0	4855
2	256	SHEL	lu	52413643	11665757	32425	8801295	4059090	0	0	2864462
2	256	SHEL	ludcmp	31571818	11656780	24334	8799079	4045932	404	207	2857701
2	256	SHEL	mvt	825074	135726	206	131043	66359	0	0	4683
2	512	CLAM	2mm	32929053	11302349	45403	6027517	5860439	1	1	5274832
2	512	CLAM	3mm	49652676	18859224	77210	9717767	8778695	0	0	9141457
2	512	CLAM	adi	69664065	8941947	5231121	5905728	3754992	9	5	3036219
2	512	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
2	512	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
2	512	CLAM	cholesky	31476958	683242	5297	676688	307989	1198	418	6554
2	512	CLAM	correlation	11610350	11442857	40871	10672028	2435505	1206	259	770829
2	512	CLAM	covariance	11545811	11411031	40641	10638949	2383165	241	1	772082
2	512	CLAM	deriche	3931591	1598025	777609	1096992	906931	14	7	501033
2	512	CLAM	doitgen	21599273	360731	9977	292454	114069	3	1	68277
2	512	CLAM	durbin	558661	49	0	0	0	418	2	0
2	512	CLAM	fdtd-2d	64730568	2078034	898530	2046995	1482988	1	0	31039
2	512	CLAM	floyd-warshall	375096782	7789988	7643190	7765915	4967107	0	0	24073
2	512	CLAM	gemm	41682146	645856	3131	643941	495713	1	1	1915
2	512	CLAM	gemver	1733860	188142	11718	21907	21341	802	361	166235
2	512	CLAM	gesummv	493231	7771	66	7771	7771	501	16	0
2	512	CLAM	gram-schmidt	21502353	18841647	5800282	15085700	12547907	240	240	3755947
2	512	CLAM	heat-3d	86099661	2288341	731984	1953179	1106887	1	0	335162
2	512	CLAM	jacobi-1d	2627297	3	0	0	0	3	1	0
2	512	CLAM	jacobi-2d	72255908	1548893	775333	1534252	1134341	0	0	14641
2	512	CLAM	lu	48232109	15847291	61163	9260394	9196422	0	0	6586897
2	512	CLAM	ludcmp	27558278	15669522	34868	9121799	9057921	404	395	6547723
2	512	CLAM	mvt	804374	156426	863	96760	10943	400	25	59666
2	512	CLAM	nussinov	48858459	14388794	25196	12217666	6246272	1	0	2171128
2	512	CLAM	seidel-2d	63085262	992739	990105	992489	889633	0	0	250
2	512	CLAM	symm	22491644	6356358	1569767	5417056	2205672	1	0	939302
2	512	CLAM	syr2k	26425862	8335980	80776	7420830	3187593	1	0	915150
2	512	CLAM	syrk	20659071	2534771	78107	1655361	641481	1	0	879410
2	512	CLAM	trisolv	235123	5877	396	5877	5877	1199	408	0
2	512	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
2	512	C-SHEL	2mm	36753182	7478220	10740	6704362	2581299	1	1	773858
2	512	C-SHEL	3mm	56649605	11862295	16022	10695800	4266380	0	0	1166495
2	512	C-SHEL	adi	69529406	9077306	5133752	9054588	8964058	609	405	22718
2	512	C-SHEL	correlation	11691913	11361294	39569	10723468	2793937	967	20	637826
2	512	C-SHEL	covariance	11594293	11362549	39612	10723268	2811450	241	1	639281
2	512	C-SHEL	deriche	4034241	1495379	726959	1477396	793426	18	10	17983
2	512	C-SHEL	fdtd-2d	64797147	2076265	898625	2062554	1714596	609	102	13711
2	512	C-SHEL	gemver	1753899	168103	10518	167870	161590	802	399	233
2	512	C-SHEL	heat-3d	85697068	2102034	729958	2022009	552228	1	0	80025
2	512	C-SHEL	jacobi-2d	72255884	1548917	775342	1534102	1130672	0	0	14815
2	512	C-SHEL	lu	52414745	11664655	32848	8730068	3970749	0	0	2934587
2	512	C-SHEL	ludcmp	31565437	11663161	24614	8802258	4048595	1202	825	2860903
2	512	C-SHEL	mvt	793138	167662	177	167483	156355	0	0	179
2	512	PRL	2mm	33451605	10779797	7443	10439260	8508630	1	1	340537
2	512	PRL	3mm	49212670	19299230	9916	18936400	16998404	0	0	362830

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	PRL	adi	69724179	8881833	5239824	5991488	3788391	9	5	2890345
2	512	PRL	atax	1109667	10049	130	10049	10049	8	0	0
2	512	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
2	512	PRL	cholesky	31473497	686703	5251	686491	650154	1198	414	212
2	512	PRL	correlation	11719177	11334030	38981	10824376	3875533	1206	259	509654
2	512	PRL	covariance	11665249	11291593	38281	10827717	4173492	241	1	463876
2	512	PRL	deriche	3953134	1576482	756059	1475218	912013	14	7	101264
2	512	PRL	doitgen	21617396	342608	8821	308523	179433	3	1	34085
2	512	PRL	durbin	558661	49	0	0	0	418	2	0
2	512	PRL	fdtd-2d	64730875	2077727	898535	2049427	1527562	1	0	28300
2	512	PRL	floyd-warshall	375094236	7786748	7637982	7772900	5277064	0	0	13848
2	512	PRL	gemm	41682304	645698	3006	644955	579675	1	1	743
2	512	PRL	gemver	1760648	161354	10777	116988	22318	802	372	44366
2	512	PRL	gesummv	493231	7771	66	7771	7771	501	16	0
2	512	PRL	gram-schmidt	21519791	18824209	5800779	15159389	12615140	240	240	3664820
2	512	PRL	heat-3d	86116352	2271650	731816	1979785	1112821	1	0	291865
2	512	PRL	jacobi-1d	2627297	3	0	0	0	3	1	0
2	512	PRL	jacobi-2d	72256948	1547853	775328	1536243	1180410	0	0	11610
2	512	PRL	lu	47793666	16285734	17909	15263122	13030907	0	0	1022612
2	512	PRL	ludcmp	26941257	16286543	17603	15113096	12800800	404	393	1173447
2	512	PRL	mvt	822916	137884	283	137884	137884	400	25	0
2	512	PRL	nussinov	48398363	14848890	13240	14207854	10458235	1	0	641036
2	512	PRL	seidel-2d	63085616	992385	989884	992385	992385	0	0	0
2	512	PRL	symm	22447411	6400591	1706077	6325106	5176812	1	0	75485
2	512	PRL	syr2k	26207705	8554137	7191	8509526	7618823	1	0	44611
2	512	PRL	syrk	20439087	2754755	7727	2709643	2361481	1	0	45112
2	512	PRL	trisolv	235123	5877	396	5877	5877	1199	408	0
2	512	PRL	trmm	8575975	5848026	3600	5784031	4778638	0	0	63995
2	512	SHEL	2mm	36760412	7470990	10623	6718409	2638466	1	1	752581
2	512	SHEL	3mm	56656129	11855771	15878	10712789	4385681	0	0	1142982
2	512	SHEL	adi	70636858	7969854	5193359	7591711	5526390	609	403	378143
2	512	SHEL	correlation	11676535	11376672	39938	10698612	2591258	967	20	678060
2	512	SHEL	covariance	11584986	11371856	39778	10709181	2701368	241	1	662675
2	512	SHEL	deriche	4034413	1495207	726505	1478062	795437	18	10	17145
2	512	SHEL	fdtd-2d	64806392	2067020	898720	2063441	1496954	609	102	3579
2	512	SHEL	gemver	1775880	146122	10548	142366	79742	802	377	3756
2	512	SHEL	heat-3d	85697521	2101581	729962	2022093	522006	1	0	79488
2	512	SHEL	jacobi-2d	72263610	1541191	775232	1537014	1070740	0	0	4177
2	512	SHEL	lu	52415521	11663879	32416	8749940	3999981	0	0	2913939
2	512	SHEL	ludcmp	31567696	11660902	24368	8815984	4062231	1202	825	2844918
2	512	SHEL	mvt	825271	135529	210	131656	69774	0	0	3873
2	1024	CLAM	2mm	32846005	11385397	45342	6110565	5943523	1	1	5274832
2	1024	CLAM	3mm	49759957	18751943	75698	9895613	8776860	0	0	8856330
2	1024	CLAM	adi	69570683	9035329	5208768	5783473	3134669	9	5	3251856
2	1024	CLAM	atax	1109618	10098	179	10098	10098	398	25	0
2	1024	CLAM	bicg	1269934	10072	128	10072	10072	418	26	0
2	1024	CLAM	cholesky	31476952	683248	5257	680261	432320	400	24	2987
2	1024	CLAM	correlation	11628217	11424990	40642	10696933	2593181	1446	274	728057
2	1024	CLAM	covariance	11570140	11386702	40322	10677220	2687074	481	16	709482
2	1024	CLAM	deriche	3931591	1598025	777605	1119986	906951	14	7	478039
2	1024	CLAM	doitgen	21586026	373978	10748	282232	83885	3	1	91746
2	1024	CLAM	durbin	558661	49	0	0	0	2451	26	0
2	1024	CLAM	fdtd-2d	64731183	2077419	898525	2050448	1536014	1	0	26971
2	1024	CLAM	floyd-warshall	375125848	7774582	7650362	7757732	4692036	0	0	16850
2	1024	CLAM	gemm	41680041	647961	5701	647270	568942	1	1	691
2	1024	CLAM	gemver	1722396	199606	11676	33525	32766	1202	77	166081

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	CLAM	gesummv	493161	7841	69	7841	7841	751	16	0
2	1024	CLAM	gram-schmidt	21499059	18844941	5640481	15172298	12625255	240	240	3672643
2	1024	CLAM	heat-3d	85872365	2515637	732687	2030202	1287793	1	0	485435
2	1024	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
2	1024	CLAM	jacobi-2d	72255502	1549299	775357	1533555	1117441	0	0	15744
2	1024	CLAM	lu	48155712	15923688	61129	9334654	9273157	399	399	6589034
2	1024	CLAM	ludcmp	27541306	15686494	34545	9136003	9073425	2399	1676	6550491
2	1024	CLAM	mvt	802335	158465	964	93030	10712	400	25	65435
2	1024	CLAM	nussinov	48864222	14383031	25868	12143720	6148015	1	0	2239311
2	1024	CLAM	seidel-2d	63085305	992696	988033	992696	992696	0	0	0
2	1024	CLAM	symm	22493253	6354749	4714775	5426231	2226778	1	0	928518
2	1024	CLAM	syr2k	26403019	8358823	93167	7263205	2837938	1	0	1095618
2	1024	CLAM	syrk	20666578	2527264	72997	1714563	690556	1	0	812701
2	1024	CLAM	trisolv	234894	6106	84	6106	6106	1199	432	0
2	1024	CLAM	trmm	8522075	5901926	11332	4847892	1850019	0	0	1054034
2	1024	C-SHEL	2mm	36775417	7455985	9936	6771817	2863980	1	1	684168
2	1024	C-SHEL	3mm	56695220	11816680	14796	10820221	4922453	0	0	996459
2	1024	C-SHEL	adi	69766587	8840125	5170480	8817716	8718985	509	213	22409
2	1024	C-SHEL	correlation	11752852	11300355	38527	10821776	3736765	1446	274	478579
2	1024	C-SHEL	covariance	11579593	11377249	39981	10698356	2583403	481	16	678893
2	1024	C-SHEL	deriche	4037281	1492339	724735	1484117	1095053	18	10	8222
2	1024	C-SHEL	fdtd-2d	64795521	2077891	898678	2068876	1509498	809	102	9015
2	1024	C-SHEL	gemver	1749021	172981	10163	172607	164443	802	52	374
2	1024	C-SHEL	heat-3d	85714493	2084609	729845	2070064	1377386	101	100	14545
2	1024	C-SHEL	jacobi-2d	72262425	1542376	775253	1538081	1208447	0	0	4295
2	1024	C-SHEL	lu	52415837	11663563	32259	8745859	3992909	399	399	2917704
2	1024	C-SHEL	ludcmp	31565972	11662626	25720	8804341	4046734	3197	1893	2858285
2	1024	C-SHEL	mvt	818827	141973	324	141418	132544	400	25	555
2	1024	PRL	2mm	33443959	10787443	7608	10411248	8369286	1	1	376195
2	1024	PRL	3mm	49234992	19276908	9301	18999525	17288589	0	0	277383
2	1024	PRL	adi	69680772	8925240	5235807	5926010	3760265	9	5	2999230
2	1024	PRL	atax	1109641	10075	156	10075	10075	398	25	0
2	1024	PRL	bicg	1269934	10072	128	10072	10072	418	26	0
2	1024	PRL	cholesky	31474742	685458	5245	684772	598786	400	24	686
2	1024	PRL	correlation	11749929	11303278	38968	10804795	4308432	1446	274	498483
2	1024	PRL	covariance	11736995	11219847	36512	10995431	7095704	481	16	224416
2	1024	PRL	deriche	3957098	1572518	752095	1488920	913757	14	7	83598
2	1024	PRL	doitgen	21612043	347961	9176	303195	154489	3	1	44766
2	1024	PRL	durbin	558661	49	0	0	0	2451	26	0
2	1024	PRL	fdtd-2d	64732305	2076297	898530	2057387	1648257	1	0	18910
2	1024	PRL	floyd-warshall	375119459	7770891	7641231	7764486	5901846	0	0	6405
2	1024	PRL	gemm	41680265	647737	5624	647629	633590	1	1	108
2	1024	PRL	gemver	1768677	153325	10478	129438	23644	1202	77	23887
2	1024	PRL	gesummv	493181	7821	54	7821	7821	751	16	0
2	1024	PRL	gram-schmidt	21516904	18827096	5625392	15260131	12701574	240	240	3566965
2	1024	PRL	heat-3d	85826762	2561240	732714	2076514	1337708	1	0	484726
2	1024	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
2	1024	PRL	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
2	1024	PRL	lu	47740531	16338869	18161	15283350	13017317	399	383	1055519
2	1024	PRL	ludcmp	26893693	16334107	17287	15131018	12782811	2399	1660	1203089
2	1024	PRL	mvt	820141	140659	316	140659	140659	400	25	0
2	1024	PRL	nussinov	48448708	14798545	13757	14098437	10229830	1	0	700108
2	1024	PRL	seidel-2d	63085362	992639	988464	992639	992639	0	0	0
2	1024	PRL	symm	22463741	6384261	4686795	6295032	5067581	1	0	89229
2	1024	PRL	syr2k	26389208	8372634	23670	8166767	5743584	1	0	205867
2	1024	PRL	syrk	20365661	2828181	5075	2806758	2597143	1	0	21423

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	PRL	trisolv	234894	6106	84	6106	6106	1199	432	0
2	1024	PRL	trmm	8579021	5844980	3718	5767635	4674833	0	0	77345
2	1024	SHEL	2mm	36775417	7455985	9936	6771817	2863980	1	1	684168
2	1024	SHEL	3mm	56701719	11810181	14678	10848670	5085339	0	0	961511
2	1024	SHEL	adi	70639539	7967173	5209668	7595924	5553883	509	252	371249
2	1024	SHEL	correlation	11751851	11301356	38450	10821718	3724046	1446	274	479638
2	1024	SHEL	covariance	11579561	11377281	39999	10700378	2595448	481	16	676903
2	1024	SHEL	deriche	4037150	1492470	724742	1484624	1089176	18	10	7846
2	1024	SHEL	fdtd-2d	64803420	2069992	898730	2061914	1199992	809	102	8078
2	1024	SHEL	gemver	1776047	145955	10235	140577	59938	802	52	5378
2	1024	SHEL	heat-3d	85714900	2084202	729848	2069191	1373258	101	100	15011
2	1024	SHEL	jacobi-2d	72263610	1541191	775232	1537014	1070740	0	0	4177
2	1024	SHEL	lu	52409660	11669740	32513	8767034	4016727	399	399	2902706
2	1024	SHEL	ludcmp	31570103	11658495	25761	8818734	4061452	3197	1915	2839761
2	1024	SHEL	mvt	824826	135974	305	135532	128367	400	25	442
3	64	CLAM	2mm	32788021	11443381	45133	6168582	6001755	1	1	5274799
3	64	CLAM	3mm	49779294	18732606	75011	9919216	8773757	0	0	8813390
3	64	CLAM	adi	69649163	8956849	5228753	5889935	3621355	8	2	3066914
3	64	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
3	64	CLAM	bicg	1269959	10047	104	10047	10047	4	0	0
3	64	CLAM	cholesky	31477914	682286	5275	676929	310954	0	0	5357
3	64	CLAM	correlation	11627727	11425480	40244	10696592	2594524	7	5	728888
3	64	CLAM	covariance	11563786	11393056	40291	10666505	2575030	1	1	726551
3	64	CLAM	deriche	3931604	1598012	777598	1109153	906932	13	7	488859
3	64	CLAM	doitgen	21600558	359446	9904	293597	117430	2	1	65849
3	64	CLAM	durbin	558661	49	0	0	0	20	2	0
3	64	CLAM	fdtd-2d	64730523	2078079	898538	2046304	1481620	0	0	31775
3	64	CLAM	floyd-warshall	375109871	7788743	7655240	7768305	5012856	0	0	20438
3	64	CLAM	gemm	41682047	645955	3145	643624	453700	0	0	2331
3	64	CLAM	gemver	1728125	193877	11405	27623	27250	2	2	166254
3	64	CLAM	gesummv	493245	7757	52	7757	7757	0	0	0
3	64	CLAM	gram-schmidt	21491932	18852068	5645931	15126548	12582649	0	0	3725520
3	64	CLAM	heat-3d	86167146	2220856	731062	2045759	1136791	0	0	175097
3	64	CLAM	jacobi-1d	2627297	3	0	0	0	2	1	0
3	64	CLAM	jacobi-2d	72256199	1548602	775349	1534833	1142150	0	0	13769
3	64	CLAM	lu	48065174	16014226	61072	9425020	9364710	0	0	6589206
3	64	CLAM	ludcmp	27489063	15738737	34304	9188801	9126902	5	3	6549936
3	64	CLAM	mvt	801473	159327	711	90219	10548	0	0	69108
3	64	CLAM	nussinov	48855507	14391746	24952	12251387	6302975	1	0	2140359
3	64	CLAM	seidel-2d	63084263	993738	988184	992239	701599	0	0	1499
3	64	CLAM	symm	22491372	6356630	1569804	5426589	2219876	0	0	930041
3	64	CLAM	syr2k	26449549	8312293	85212	7330184	3122239	0	0	982109
3	64	CLAM	syrk	20661850	2531992	76694	1663485	646430	0	0	868507
3	64	CLAM	trisolv	235768	5232	50	5232	5232	1	1	0
3	64	CLAM	trmm	8568161	5855840	10282	4937760	1977548	0	0	918080
3	64	C-SHEL	2mm	36777647	7453755	9996	6785764	2954903	1	1	667991
3	64	C-SHEL	3mm	56700070	11811830	14657	10834854	5005725	0	0	976976
3	64	C-SHEL	adi	69718484	8888228	5187652	8866336	8693238	8	3	21892
3	64	C-SHEL	correlation	11709771	11343436	39236	10750680	3064479	7	5	592756
3	64	C-SHEL	covariance	11596328	11360514	39527	10725062	2815507	1	1	635452
3	64	C-SHEL	deriche	4034927	1494693	724106	1488038	1154749	17	9	6655
3	64	C-SHEL	fdtd-2d	64796899	2076513	898513	2066861	1618198	108	3	9652
3	64	C-SHEL	gemver	1755514	166488	10167	166335	161375	2	2	153
3	64	C-SHEL	heat-3d	85709660	2089442	729898	2042316	776522	0	0	47126
3	64	C-SHEL	jacobi-2d	72260060	1544741	775239	1542075	1356862	0	0	2666
3	64	C-SHEL	lu	52415010	11664390	32779	8729027	3971658	0	0	2935363
3	64	C-SHEL	ludcmp	31569296	11659302	24750	8729750	3951372	4	3	2929552

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	C-SHEL	mvt	793084	167716	175	167570	162117	0	0	146
3	64	PRL	2mm	33475798	10755604	6539	10518431	8918402	1	1	237173
3	64	PRL	3mm	49241311	19270589	9023	19025835	17433440	0	0	244754
3	64	PRL	adi	69744119	8861893	5238412	6037552	3805711	8	2	2824341
3	64	PRL	atax	1109667	10049	130	10049	10049	8	0	0
3	64	PRL	bicg	1269959	10047	104	10047	10047	4	0	0
3	64	PRL	cholesky	31476084	684116	5239	683103	549184	0	0	1013
3	64	PRL	correlation	11741354	11311853	38167	10861886	4346523	7	5	449967
3	64	PRL	covariance	11654412	11302430	38441	10810650	3954477	1	1	491780
3	64	PRL	deriche	3956216	1573400	752986	1486150	912619	13	7	87250
3	64	PRL	doitgen	21617396	342608	8821	308523	179433	2	1	34085
3	64	PRL	durbin	558661	49	0	0	0	20	2	0
3	64	PRL	fdtd-2d	64730801	2077801	898537	2048336	1501796	0	0	29465
3	64	PRL	floyd-warshall	375106378	7784463	7648570	7777569	5664199	0	0	6894
3	64	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
3	64	PRL	gemver	1765889	156113	10387	124701	22568	2	2	31412
3	64	PRL	gesummv	493245	7757	52	7757	7757	0	0	0
3	64	PRL	gram-schmidt	21517730	18826270	5627415	15239284	12684236	0	0	3586986
3	64	PRL	heat-3d	86187156	2200846	730719	2071887	1163136	0	0	128959
3	64	PRL	jacobi-1d	2627297	3	0	0	0	2	1	0
3	64	PRL	jacobi-2d	72256690	1548111	775318	1535473	1152977	0	0	12638
3	64	PRL	lu	47792114	16287286	17358	15322879	13131598	0	0	964407
3	64	PRL	ludcmp	26937299	16290501	15742	15209454	12954187	5	3	1081047
3	64	PRL	mvt	826315	134485	177	134320	128199	0	0	165
3	64	PRL	nussinov	48426750	14820503	13784	14132676	10290441	1	0	687827
3	64	PRL	seidel-2d	63084263	993738	988184	992239	701599	0	0	1499
3	64	PRL	symm	22477347	6370655	1689120	6335306	5623708	0	0	35349
3	64	PRL	syr2k	26289902	8471940	9382	8406593	7370026	0	0	65347
3	64	PRL	syrk	20392338	2801504	5375	2772275	2512013	0	0	29229
3	64	PRL	trisolv	235768	5232	50	5232	5232	1	1	0
3	64	PRL	trmm	8452709	5971292	3261	5951094	5486130	0	0	20198
3	64	SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
3	64	SHEL	3mm	56701719	11810181	14678	10848670	5085339	0	0	961511
3	64	SHEL	adi	70639737	7966975	5209579	7595492	5559723	8	3	371483
3	64	SHEL	correlation	11707939	11345268	39348	10749552	3037976	7	5	595716
3	64	SHEL	covariance	11577545	11379297	39921	10697751	2586204	1	1	681546
3	64	SHEL	deriche	4036779	1492841	724986	1482515	1013188	17	9	10326
3	64	SHEL	fdtd-2d	64806402	2067010	898595	2063715	1622121	108	3	3295
3	64	SHEL	gemver	1776383	145619	10228	141279	73427	2	2	4340
3	64	SHEL	heat-3d	85709733	2089369	729906	2042734	792126	0	0	46635
3	64	SHEL	jacobi-2d	72263361	1541440	775225	1536571	1018546	0	0	4869
3	64	SHEL	lu	52410079	11669321	32597	8745201	3995671	0	0	2924120
3	64	SHEL	ludcmp	31567695	11660903	24656	8748534	3977882	4	3	2912369
3	64	SHEL	mvt	825033	135767	204	130984	62586	0	0	4783
3	128	CLAM	2mm	32728046	11503356	45108	6228491	6061448	1	1	5274865
3	128	CLAM	3mm	49715112	18796788	76329	9827615	8779495	0	0	8969173
3	128	CLAM	adi	69676938	8929074	5234837	5922866	3774634	8	2	3006208
3	128	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
3	128	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
3	128	CLAM	cholesky	31477163	683037	5258	679562	427557	399	24	3475
3	128	CLAM	correlation	11618400	11434807	40456	10683661	2507913	7	5	751146
3	128	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
3	128	CLAM	deriche	3931604	1598012	777597	1109840	906945	13	7	488172
3	128	CLAM	doitgen	21608290	351714	9502	300036	140541	2	1	51678
3	128	CLAM	durbin	558661	49	0	0	0	20	2	0
3	128	CLAM	fdtd-2d	64730785	2077817	898531	2048247	1518512	0	0	29570

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	CLAM	floyd-warshall	375099351	7790312	7645918	7764938	4889965	0	0	25374
3	128	CLAM	gemm	41682047	645955	3145	643624	453700	0	0	2331
3	128	CLAM	gemver	1724574	197428	11415	31142	30755	2	2	166286
3	128	CLAM	gesummv	493245	7757	52	7757	7757	250	0	0
3	128	CLAM	gram-schmidt	21489540	18854460	5648329	15109198	12566985	0	0	3745262
3	128	CLAM	heat-3d	86159826	2228176	731176	2036778	1131009	0	0	191398
3	128	CLAM	jacobi-1d	2627297	3	0	0	0	3	1	0
3	128	CLAM	jacobi-2d	72255900	1548901	775342	1534242	1133901	0	0	14659
3	128	CLAM	lu	48127102	15952298	60765	9364063	9303187	0	0	6588235
3	128	CLAM	ludcmp	27551243	15676557	34308	9128277	9065716	5	3	6548280
3	128	CLAM	mvt	802340	158460	704	92389	10587	0	0	66071
3	128	CLAM	nussinov	48859647	14387606	25082	12217526	6244150	1	0	2170080
3	128	CLAM	seidel-2d	63085370	992631	990136	992631	992631	0	0	0
3	128	CLAM	symm	22486548	6361454	1572289	5405437	2183107	0	0	956017
3	128	CLAM	syr2k	26451870	8309972	84398	7339116	3143815	0	0	970856
3	128	CLAM	syrk	20657826	2536016	79354	1635847	626508	0	0	900169
3	128	CLAM	trisolv	235643	5357	53	5357	5357	1	1	0
3	128	CLAM	trmm	8556618	5867383	10569	4914199	2000642	0	0	953184
3	128	C-SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
3	128	C-SHEL	3mm	56695925	11815975	14942	10811469	4887492	0	0	1004506
3	128	C-SHEL	adi	69675725	8930987	5164371	8908268	8809302	308	103	22719
3	128	C-SHEL	correlation	11710191	11343016	39154	10750628	3036293	7	5	592388
3	128	C-SHEL	covariance	11595284	11361558	39609	10724235	2812030	1	1	637323
3	128	C-SHEL	deriche	4028306	1501314	776239	1496411	1261204	17	9	4903
3	128	C-SHEL	fdtd-2d	64788061	2085351	898661	2069044	1490820	508	3	16307
3	128	C-SHEL	gemver	1751194	170808	10155	170638	164756	2	2	170
3	128	C-SHEL	heat-3d	85710859	2088243	729885	2053027	1016557	100	100	35216
3	128	C-SHEL	jacobi-2d	72257009	1547792	775327	1535046	1112800	0	0	12746
3	128	C-SHEL	lu	52413711	11665689	32378	8747172	3992854	0	0	2918517
3	128	C-SHEL	ludcmp	31565541	11663057	24744	8716245	3934911	5	3	2946812
3	128	C-SHEL	mvt	793542	167258	175	167153	156251	0	0	105
3	128	PRL	2mm	33475798	10755604	6539	10518431	8918402	1	1	237173
3	128	PRL	3mm	49223463	19288437	9595	18972092	17176955	0	0	316345
3	128	PRL	adi	69738048	8867964	5239380	6022001	3792477	8	2	2845963
3	128	PRL	atax	1109667	10049	130	10049	10049	8	0	0
3	128	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
3	128	PRL	cholesky	31473864	686336	5244	686195	669670	399	24	141
3	128	PRL	correlation	11753635	11299572	38383	10820005	4483832	7	5	479567
3	128	PRL	covariance	11640045	11316797	38777	10786847	3679604	1	1	529950
3	128	PRL	deriche	3955970	1573646	777594	1485251	912571	13	7	88395
3	128	PRL	doitgen	21614989	345015	9012	306053	164307	2	1	38962
3	128	PRL	durbin	558661	49	0	0	0	20	2	0
3	128	PRL	fdtd-2d	64731183	2077419	898532	2050473	1548481	0	0	26946
3	128	PRL	floyd-warshall	375096333	7788029	7641072	7770598	5250538	0	0	17431
3	128	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
3	128	PRL	gemver	1765796	156206	10374	124690	22773	2	2	31516
3	128	PRL	gesummv	493245	7757	52	7757	7757	250	0	0
3	128	PRL	gram-schmidt	21512241	18831759	5630790	15222038	12669828	0	0	3609721
3	128	PRL	heat-3d	86173690	2214312	730926	2054610	1144074	0	0	159702
3	128	PRL	jacobi-1d	2627297	3	0	0	0	3	1	0
3	128	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
3	128	PRL	lu	47785807	16293593	17799	15306411	13115784	0	0	987182
3	128	PRL	ludcmp	26933099	16294701	16451	15145531	12859214	5	3	1149170
3	128	PRL	mvt	826397	134403	178	134029	123486	0	0	374
3	128	PRL	nussinov	48460682	14786571	14148	14052886	10109123	1	0	733685

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	PRL	seidel-2d	63085411	992590	990098	992590	992590	0	0	0
3	128	PRL	symm	22502021	6345981	1658251	6288347	5327940	0	0	57634
3	128	PRL	syr2k	26312287	8449555	10574	8373417	7236352	0	0	76138
3	128	PRL	syrk	20461433	2732409	8628	2677170	2278078	0	0	55239
3	128	PRL	trisolv	235648	5352	50	5352	5352	1	1	0
3	128	PRL	trmm	8548734	5875267	3486	5825991	4987245	0	0	49276
3	128	SHEL	2mm	36796354	7435048	9407	6826235	3141037	1	1	608813
3	128	SHEL	3mm	56695925	11815975	14942	10811469	4887492	0	0	1004506
3	128	SHEL	adi	70638915	7967797	5209736	7594246	5551604	308	103	373551
3	128	SHEL	correlation	11708603	11344604	39180	10750570	3044279	7	5	594034
3	128	SHEL	covariance	11587928	11368914	39740	10711576	2725243	1	1	657338
3	128	SHEL	deriche	4037297	1492323	777472	1484130	1067743	17	9	8193
3	128	SHEL	fdtd-2d	64805464	2067948	898724	2062072	1301999	508	3	5876
3	128	SHEL	gemver	1777017	144985	10205	143005	103640	2	2	1980
3	128	SHEL	heat-3d	85710859	2088243	729885	2053027	1016557	100	100	35216
3	128	SHEL	jacobi-2d	72263138	1541663	775231	1536382	997481	0	0	5281
3	128	SHEL	lu	52414412	11664988	32717	8745730	3996481	0	0	2919258
3	128	SHEL	ludcmp	31566040	11662558	24565	8729565	3951835	5	3	2932993
3	128	SHEL	mvt	825561	135239	192	132155	81502	0	0	3084
3	256	CLAM	2mm	32807336	11424066	45135	6148272	5981473	1	1	5275794
3	256	CLAM	3mm	49694256	18817644	76614	9804175	8782412	0	0	9013469
3	256	CLAM	adi	69665733	8940279	5233139	5911686	3715303	8	2	3028593
3	256	CLAM	atax	1109641	10075	156	10075	10075	398	25	0
3	256	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
3	256	CLAM	cholesky	31476566	683634	5310	673069	283116	798	635	10565
3	256	CLAM	correlation	11644337	11408870	40079	10723446	2836481	486	259	685424
3	256	CLAM	covariance	11563786	11393056	40291	10666505	2575030	1	1	726551
3	256	CLAM	deriche	3931594	1598022	777603	1114583	906948	13	7	483439
3	256	CLAM	doitgen	21593479	366525	10304	288219	101650	2	1	78306
3	256	CLAM	durbin	558661	49	0	0	0	20	2	0
3	256	CLAM	fdtd-2d	64730672	2077930	898530	2046904	1492607	0	0	31026
3	256	CLAM	floyd-warshall	375096025	7788084	7640601	7769341	5078176	0	0	18743
3	256	CLAM	gemm	41682026	645976	3132	643738	476951	0	0	2238
3	256	CLAM	gemver	1717336	204666	11407	38430	38041	802	52	166236
3	256	CLAM	gesummv	493236	7766	61	7766	7766	0	0	0
3	256	CLAM	gram-schmidt	21490428	18853572	5647492	15118831	12575300	0	0	3734741
3	256	CLAM	heat-3d	86159437	2228565	731192	2036998	1131942	0	0	191567
3	256	CLAM	jacobi-1d	2627297	3	0	0	0	2	1	0
3	256	CLAM	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
3	256	CLAM	lu	47797021	16282379	61582	9645007	9568070	0	0	6637372
3	256	CLAM	ludcmp	27436137	15791663	34139	9242375	9180631	5	3	6549288
3	256	CLAM	mvt	798966	161834	1056	83785	10495	400	25	78049
3	256	CLAM	nussinov	48872199	14375054	26091	12095504	6079601	500	31	2279550
3	256	CLAM	seidel-2d	63084001	994000	988274	992009	776353	0	0	1991
3	256	CLAM	symm	22508573	6339429	1561137	5488644	2348199	0	0	850785
3	256	CLAM	syr2k	26447719	8314123	85846	7320248	3095199	0	0	993875
3	256	CLAM	syrk	20652358	2541484	82243	1587018	587272	0	0	954466
3	256	CLAM	trisolv	235753	5247	50	5247	5247	799	25	0
3	256	CLAM	trmm	8527047	5896954	11197	4862122	1863084	0	0	1034832
3	256	C-SHEL	2mm	36800077	7431325	9369	6825834	3153359	1	1	605491
3	256	C-SHEL	3mm	56688237	11823663	15090	10802429	4821301	0	0	1021234
3	256	C-SHEL	adi	69728224	8878488	5188364	8856090	8680409	508	215	22398
3	256	C-SHEL	correlation	11702299	11350908	39288	10736797	2920417	247	5	614111
3	256	C-SHEL	covariance	11594408	11362434	39587	10723435	2795972	1	1	638999
3	256	C-SHEL	deriche	3986979	1542641	775310	1536512	1216376	17	10	6129
3	256	C-SHEL	fdtd-2d	64798212	2075200	898467	2063412	1584450	508	103	11788
3	256	C-SHEL	gemver	1750524	171478	10150	171346	166349	402	2	132

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	C-SHEL	heat-3d	85714834	2084268	729870	2050063	911373	100	100	34205
3	256	C-SHEL	jacobi-2d	72260031	1544770	775229	1542063	1359916	0	0	2707
3	256	C-SHEL	lu	52411344	11668056	32553	8731890	3977590	0	0	2936166
3	256	C-SHEL	ludcmp	31571369	11657229	24589	8744628	3970071	1201	843	2912601
3	256	C-SHEL	mvt	794899	165901	395	165646	152527	400	25	255
3	256	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
3	256	PRL	3mm	49213144	19298756	9976	18936603	16993954	0	0	362153
3	256	PRL	adi	69735669	8870343	5238904	6014290	3802393	8	2	2856053
3	256	PRL	atax	1109641	10075	156	10075	10075	398	25	0
3	256	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
3	256	PRL	cholesky	31475999	684201	5262	682134	552992	798	602	2067
3	256	PRL	correlation	11754465	11298742	38029	10890744	4769535	486	259	407998
3	256	PRL	covariance	11682650	11274192	37828	10866597	4739262	1	1	407595
3	256	PRL	deriche	3955761	1573855	777604	1484454	913035	13	7	89401
3	256	PRL	doitgen	21603450	356554	9803	296180	127817	2	1	60374
3	256	PRL	durbin	558661	49	0	0	0	20	2	0
3	256	PRL	fdtd-2d	64730965	2077637	898530	2048708	1516203	0	0	28929
3	256	PRL	floyd-warshall	375087827	7782805	7629502	7781098	6863890	0	0	1707
3	256	PRL	gemm	41682389	645613	2992	644742	565934	0	0	871
3	256	PRL	gemver	1767155	154847	10336	126980	22754	802	52	27867
3	256	PRL	gesummv	493247	7755	50	7755	7755	0	0	0
3	256	PRL	gram-schmidt	21517806	18826194	5625225	15259363	12705081	0	0	3566831
3	256	PRL	heat-3d	86183027	2204975	730756	2068561	1157303	0	0	136414
3	256	PRL	jacobi-1d	2627297	3	0	0	0	2	1	0
3	256	PRL	jacobi-2d	72256914	1547887	775339	1536174	1178757	0	0	11713
3	256	PRL	lu	47296200	16783200	43056	12496323	10886350	0	0	4286877
3	256	PRL	ludcmp	26936088	16291712	15909	15190198	12927853	5	3	1101514
3	256	PRL	mvt	825564	135236	304	131783	75341	400	25	3453
3	256	PRL	nussinov	48483396	14763857	14139	14012544	10036259	500	31	751313
3	256	PRL	seidel-2d	63085254	992747	987768	992727	990235	0	0	20
3	256	PRL	symm	22392620	6455382	1763705	6389458	5335399	0	0	65924
3	256	PRL	syr2k	26312259	8449583	10543	8373385	7222712	0	0	76198
3	256	PRL	syrk	20475364	2718478	8921	2657756	2238720	0	0	60722
3	256	PRL	trisolv	235753	5247	50	5247	5247	799	25	0
3	256	PRL	trmm	8589940	5834061	3590	5772871	4804165	0	0	61190
3	256	SHEL	2mm	36809216	7422186	9160	6849819	3277831	1	1	572367
3	256	SHEL	3mm	56688237	11823663	15090	10802429	4821301	0	0	1021234
3	256	SHEL	adi	70637399	7969313	5209696	7587006	5523593	508	240	382307
3	256	SHEL	correlation	11692699	11360508	39528	10725219	2810399	247	5	635289
3	256	SHEL	covariance	11603789	11353053	39406	10736269	2874010	1	1	616784
3	256	SHEL	deriche	4036820	1492800	777504	1482836	1017867	17	10	9964
3	256	SHEL	fdtd-2d	64805408	2068004	898606	2062881	1459536	508	103	5123
3	256	SHEL	gemver	1776931	145071	10218	143168	105732	402	2	1903
3	256	SHEL	heat-3d	85715203	2083899	729875	2050028	900112	100	100	33871
3	256	SHEL	jacobi-2d	72264341	1540460	775128	1537674	1173491	0	0	2786
3	256	SHEL	lu	52419691	11659709	32436	8746830	3993729	0	0	2912879
3	256	SHEL	ludcmp	31574185	11654413	24479	8777041	4009032	1201	863	2877372
3	256	SHEL	mvt	823897	136903	381	129030	34585	400	25	7873
3	512	CLAM	2mm	32820864	11410538	45192	6134744	5967900	1	1	5275794
3	512	CLAM	3mm	49727624	18784276	76291	9835393	8773307	0	0	8948883
3	512	CLAM	adi	69613937	8992075	5218266	5841907	3457834	8	2	3150168
3	512	CLAM	atax	1109665	10051	130	10051	10051	8	0	0
3	512	CLAM	bicg	1269958	10048	105	10048	10048	8	0	0
3	512	CLAM	cholesky	31477322	682878	5284	675575	425188	399	0	7303
3	512	CLAM	correlation	11609115	11444092	40774	10670468	2425033	486	244	773624
3	512	CLAM	covariance	11580262	11376580	40010	10693508	2796173	1	1	683072
3	512	CLAM	deriche	3931594	1598022	777603	1097678	906950	13	7	500344

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	CLAM	doitgen	21593479	366525	10304	288219	101650	2	1	78306
3	512	CLAM	durbin	558661	49	0	0	0	419	2	0
3	512	CLAM	fdtd-2d	64730553	2078049	898533	2046249	1472492	0	0	31800
3	512	CLAM	floyd-warshall	375097165	7789928	7643413	7766240	5138273	0	0	23688
3	512	CLAM	gemm	41681577	646425	3292	642456	335164	0	0	3969
3	512	CLAM	gemver	1735248	186754	11447	20403	20124	802	52	166351
3	512	CLAM	gesummv	493201	7801	81	7801	7801	500	16	0
3	512	CLAM	gram-schmidt	21502321	18841679	5800252	15085817	12548459	0	0	3755862
3	512	CLAM	heat-3d	85884636	2503366	732722	2017411	1275084	0	0	485955
3	512	CLAM	jacobi-1d	2627297	3	0	0	0	398	2	0
3	512	CLAM	jacobi-2d	72255502	1549299	775357	1533555	1117441	0	0	15744
3	512	CLAM	lu	48150447	15928953	60722	9341199	9279562	399	0	6587754
3	512	CLAM	ludcmp	27536877	15690923	34298	9142644	9080242	1601	1170	6548279
3	512	CLAM	mvt	796171	164629	1165	74503	10338	400	25	90126
3	512	CLAM	nussinov	48861610	14385643	25544	12177671	6179636	500	31	2207972
3	512	CLAM	seidel-2d	63085394	992607	990018	992607	990509	0	0	0
3	512	CLAM	symm	22488712	6359290	1571529	5401928	2181139	0	0	957362
3	512	CLAM	syr2k	26453596	8308246	82217	7371018	3221144	0	0	937228
3	512	CLAM	syrk	20646277	2547565	85966	1557335	568338	0	0	990230
3	512	CLAM	trisolv	234700	6300	47	6300	6300	799	25	0
3	512	CLAM	trmm	8535846	5888155	11064	4870396	1896624	0	0	1017759
3	512	C-SHEL	2mm	36785872	7445530	9794	6788992	2967280	1	1	656538
3	512	C-SHEL	3mm	56695220	11816680	14796	10820221	4922453	0	0	996459
3	512	C-SHEL	adi	69548210	9058502	5185449	9038721	8881633	608	215	19781
3	512	C-SHEL	correlation	11699897	11353310	39364	10732518	2882286	486	244	620792
3	512	C-SHEL	covariance	11579406	11377436	39896	10698955	2599339	1	1	678481
3	512	C-SHEL	deriche	4035852	1493768	725856	1481472	953834	17	9	12296
3	512	C-SHEL	fdtd-2d	64790906	2082506	898649	2070222	1596271	808	103	12284
3	512	C-SHEL	gemver	1752121	169881	10172	169665	163171	802	52	216
3	512	C-SHEL	heat-3d	85713518	2085584	729866	2053599	1000957	100	100	31985
3	512	C-SHEL	jacobi-2d	72255951	1548850	775340	1534182	1132849	0	0	14668
3	512	C-SHEL	lu	52413001	11666399	32661	8731704	3975889	399	1	2934695
3	512	C-SHEL	ludcmp	31568328	11660270	24477	8746621	3983618	803	801	2913649
3	512	C-SHEL	mvt	797111	163689	432	163525	156131	400	25	164
3	512	PRL	2mm	33437498	10793904	7789	10399285	8319573	1	1	394619
3	512	PRL	3mm	49231502	19280398	9339	18985821	17231426	0	0	294577
3	512	PRL	adi	69699760	8906252	5240609	5952031	3780252	8	2	2954221
3	512	PRL	atax	1109665	10051	130	10051	10051	8	0	0
3	512	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
3	512	PRL	cholesky	31476935	683265	5258	681958	670654	399	0	1307
3	512	PRL	correlation	11727893	11325314	38486	10839641	4055004	486	244	485673
3	512	PRL	covariance	11682650	11274192	37828	10866597	4739262	1	1	407595
3	512	PRL	deriche	3953631	1575985	777606	1476883	911853	13	7	99102
3	512	PRL	doitgen	21614989	345015	9012	306053	164307	2	1	38962
3	512	PRL	durbin	558661	49	0	0	0	419	2	0
3	512	PRL	fdtd-2d	64731210	2077392	898536	2050484	1551062	0	0	26908
3	512	PRL	floyd-warshall	375093294	7785343	7635966	7776435	5788157	0	0	8908
3	512	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
3	512	PRL	gemver	1763573	158429	10427	120716	22118	802	52	37713
3	512	PRL	gesummv	493231	7771	66	7771	7771	500	16	0
3	512	PRL	gram-schmidt	21532197	18811803	5799946	15213512	12663655	0	0	3598291
3	512	PRL	heat-3d	85859349	2528653	732628	2043992	1303314	0	0	484661
3	512	PRL	jacobi-1d	2627297	3	0	0	0	398	2	0
3	512	PRL	jacobi-2d	72256199	1548602	775349	1534833	1142150	0	0	13769
3	512	PRL	lu	47797581	16281819	17859	15274470	13048614	399	0	1007349

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	PRL	ludcmp	26937538	16290262	16310	15160767	12871941	1601	1162	1129495
3	512	PRL	mvt	826064	134736	266	133057	99552	400	25	1679
3	512	PRL	nussinov	48496514	14750739	14290	13974082	9941154	500	31	776657
3	512	PRL	seidel-2d	63085700	992301	988994	992301	992301	0	0	0
3	512	PRL	symm	22497978	6350024	1663078	6286426	5268694	0	0	63598
3	512	PRL	syr2k	26275610	8486232	14432	8374495	6739579	0	0	111737
3	512	PRL	syrk	20471984	2721858	9802	2659988	2240922	0	0	61870
3	512	PRL	trisolv	234700	6300	47	6300	6300	799	25	0
3	512	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
3	512	SHEL	2mm	36785872	7445530	9794	6788992	2967280	1	1	656538
3	512	SHEL	3mm	56695220	11816680	14796	10820221	4922453	0	0	996459
3	512	SHEL	adi	70651235	7955477	5208969	7631698	5720084	608	250	323779
3	512	SHEL	correlation	11690877	11362330	39696	10720472	2775924	486	244	641858
3	512	SHEL	covariance	11579787	11377055	39923	10698830	2591809	1	1	678225
3	512	SHEL	deriche	4036155	1493465	725457	1480698	904791	17	9	12767
3	512	SHEL	fdtd-2d	64804935	2068477	898615	2062530	1371735	808	103	5947
3	512	SHEL	gemver	1774157	147845	10284	137197	31376	802	51	10648
3	512	SHEL	heat-3d	85713429	2085673	729876	2053134	988362	100	100	32539
3	512	SHEL	jacobi-2d	72263418	1541383	775215	1537795	1190258	0	0	3588
3	512	SHEL	lu	52416429	11662971	32827	8728774	3975574	399	1	2934197
3	512	SHEL	ludcmp	31569391	11659207	24318	8765740	3992185	803	801	2893467
3	512	SHEL	mvt	822919	137881	375	127213	25041	400	25	10668
3	1024	CLAM	2mm	32909062	11322340	45195	6046546	5879640	1	1	5275794
3	1024	CLAM	3mm	49696562	18815338	76887	9779264	8773428	0	0	9036074
3	1024	CLAM	adi	69764551	8841461	5224800	6083391	3819679	8	2	2758070
3	1024	CLAM	atax	1109639	10077	156	10077	10077	398	25	0
3	1024	CLAM	bicg	1269934	10072	128	10072	10072	418	26	0
3	1024	CLAM	cholesky	31477027	683173	5287	677265	368716	798	24	5908
3	1024	CLAM	correlation	11600521	11452686	40949	10656937	2359958	1206	259	795749
3	1024	CLAM	covariance	11563786	11393056	40291	10666505	2575030	241	1	726551
3	1024	CLAM	deriche	3931594	1598022	777606	1123366	906945	13	7	474656
3	1024	CLAM	doitgen	21609567	350437	11061	303784	153117	2	1	46653
3	1024	CLAM	durbin	558661	49	0	0	0	817	2	0
3	1024	CLAM	fdtd-2d	64729781	2078821	898533	2041341	1424648	0	0	37480
3	1024	CLAM	floyd-warshall	375118143	7771789	7640392	7762397	5367979	0	0	9392
3	1024	CLAM	gemm	41681957	646045	3240	643821	475466	0	0	2224
3	1024	CLAM	gemver	1723725	198277	11976	32188	31417	2002	731	166089
3	1024	CLAM	gesummv	493224	7778	73	7778	7778	500	16	0
3	1024	CLAM	gram-schmidt	21514245	18829755	5628328	15232799	12680263	240	240	3596956
3	1024	CLAM	heat-3d	86131987	2256015	731532	2000789	1117249	0	0	255226
3	1024	CLAM	jacobi-1d	2627297	3	0	0	0	399	2	0
3	1024	CLAM	jacobi-2d	72255502	1549299	775357	1533555	1117441	0	0	15744
3	1024	CLAM	lu	48200786	15878614	60941	9290256	9227201	399	0	6588358
3	1024	CLAM	ludcmp	27383224	15844576	34446	9250997	9175558	1601	1180	6593579
3	1024	CLAM	mvt	796854	163946	886	75432	10418	0	0	88514
3	1024	CLAM	nussinov	48864071	14383182	26143	12065531	6040275	500	31	2317651
3	1024	CLAM	seidel-2d	63085151	992850	987827	992730	977840	0	0	120
3	1024	CLAM	symm	22498590	6349412	1567501	5447802	2263726	0	0	901610
3	1024	CLAM	syr2k	26453735	8308107	82891	7382654	3241749	0	0	925453
3	1024	CLAM	syrk	20661136	2532706	76979	1663599	647621	0	0	869107
3	1024	CLAM	trisolv	234632	6368	103	6368	6368	799	25	0
3	1024	CLAM	trmm	8545649	5878352	10782	4896576	1943133	0	0	981776
3	1024	C-SHEL	2mm	36772724	7458678	10234	6743795	2764079	1	1	714883
3	1024	C-SHEL	3mm	56662175	11849725	15708	10756901	4580176	0	0	1092824
3	1024	C-SHEL	adi	69569816	9036896	5167223	9016116	8850206	608	402	20780
3	1024	C-SHEL	correlation	11677477	11375730	39810	10708576	2647891	1206	259	667154
3	1024	C-SHEL	covariance	11604237	11352605	39443	10735422	2907838	241	1	617183

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	C-SHEL	deriche	3986671	1542949	775280	1531799	1048158	17	9	11150
3	1024	C-SHEL	fdtd-2d	64797365	2076047	898623	2063242	1722776	908	103	12805
3	1024	C-SHEL	gemver	1755570	166432	10625	166356	162156	2002	731	76
3	1024	C-SHEL	heat-3d	85708033	2091069	729886	2049989	993398	100	100	41080
3	1024	C-SHEL	jacobi-2d	72260689	1544112	775165	1543326	1469458	0	0	786
3	1024	C-SHEL	lu	52407787	11671613	33282	8703502	3938782	399	1	2968111
3	1024	C-SHEL	ludcmp	31565015	11663583	25385	8665173	3869691	2000	1987	2998410
3	1024	C-SHEL	mvt	795189	165611	176	165504	154542	0	0	107
3	1024	PRL	2mm	33443959	10787443	7608	10411248	8369286	1	1	376195
3	1024	PRL	3mm	49205687	19306213	10213	18908831	16873678	0	0	397382
3	1024	PRL	adi	69823940	8782072	5221888	6182741	3861763	8	2	2599331
3	1024	PRL	atax	1109639	10077	156	10077	10077	398	25	0
3	1024	PRL	bicg	1269934	10072	128	10072	10072	418	26	0
3	1024	PRL	cholesky	31473860	686340	5247	686180	673063	798	24	160
3	1024	PRL	correlation	11736572	11316635	38781	10799221	4122628	1206	259	517414
3	1024	PRL	covariance	11665249	11291593	38281	10827717	4173492	241	1	463876
3	1024	PRL	deriche	3954266	1575350	754928	1479241	912598	13	7	96109
3	1024	PRL	doitgen	21630048	329956	9774	325662	293992	2	1	4294
3	1024	PRL	durbin	558661	49	0	0	0	817	2	0
3	1024	PRL	fdtd-2d	64730388	2078214	898533	2045710	1460807	0	0	32504
3	1024	PRL	floyd-warshall	375113415	7770084	7635000	7765769	6370290	0	0	4315
3	1024	PRL	gemm	41681957	646045	3240	643821	475466	0	0	2224
3	1024	PRL	gemver	1774547	147455	10575	139375	43886	2002	708	8080
3	1024	PRL	gesummv	493231	7771	66	7771	7771	500	16	0
3	1024	PRL	gram-schmidt	21536768	18807232	5610908	15338550	12779886	240	240	3468682
3	1024	PRL	heat-3d	86223969	2164033	730107	2116642	1356890	0	0	47391
3	1024	PRL	jacobi-1d	2627297	3	0	0	0	399	2	0
3	1024	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
3	1024	PRL	lu	47798314	16281086	18592	15192054	12928434	399	0	1089032
3	1024	PRL	ludcmp	26410136	16817664	28226	12330573	10854150	1601	1002	4487091
3	1024	PRL	mvt	826241	134559	188	133091	100447	0	0	1468
3	1024	PRL	nussinov	48420173	14827080	15024	13983200	9520367	500	31	843880
3	1024	PRL	seidel-2d	63085302	992699	988183	992699	992699	0	0	0
3	1024	PRL	symm	22402923	6445079	1761313	6411300	5724204	0	0	33779
3	1024	PRL	syr2k	26278872	8482970	10469	8423901	7480353	0	0	59069
3	1024	PRL	syrk	20390476	2803366	5509	2775912	2526402	0	0	27454
3	1024	PRL	trisolv	234632	6368	103	6368	6368	799	25	0
3	1024	PRL	trmm	8450631	5973370	3252	5954805	5514128	0	0	18565
3	1024	SHEL	2mm	36772724	7458678	10234	6743795	2764079	1	1	714883
3	1024	SHEL	3mm	56670610	11841290	15403	10768778	4621705	0	0	1072512
3	1024	SHEL	adi	70635978	7970734	5193195	7585577	5504615	608	400	385157
3	1024	SHEL	correlation	11677477	11375730	39810	10708576	2647891	1206	259	667154
3	1024	SHEL	covariance	11586185	11370657	39776	10711344	2707485	241	1	659313
3	1024	SHEL	deriche	4034443	1495177	777528	1478786	825373	17	9	16391
3	1024	SHEL	fdtd-2d	64804821	2068591	898622	2061137	1074236	908	103	7454
3	1024	SHEL	gemver	1776476	145526	10563	144754	126930	2002	695	772
3	1024	SHEL	heat-3d	85707316	2091786	729892	2049831	1009124	100	100	41955
3	1024	SHEL	jacobi-2d	72263448	1541353	775158	1537037	1070704	0	0	4316
3	1024	SHEL	lu	52408161	11671239	33061	8719216	3948626	399	1	2952023
3	1024	SHEL	ludcmp	31563034	11665564	25251	8702148	3919757	2000	1987	2963416
3	1024	SHEL	mvt	821547	139253	276	125011	20004	0	0	14242
4	64	CLAM	2mm	32807336	11424066	45135	6148272	5981473	1	1	5275794
4	64	CLAM	3mm	49781139	18730761	75312	9941088	8779747	0	0	8789673
4	64	CLAM	adi	69658986	8947026	5230173	5896867	3638929	8	2	3050159
4	64	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
4	64	CLAM	bicg	1269959	10047	104	10047	10047	5	0	0
4	64	CLAM	cholesky	31477602	682598	5297	677194	330085	0	0	5404

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	CLAM	correlation	11627727	11425480	40244	10696592	2594524	247	5	728888
4	64	CLAM	covariance	11563786	11393056	40291	10666505	2575030	241	1	726551
4	64	CLAM	deriche	3931604	1598012	777596	1111192	906939	13	7	486820
4	64	CLAM	doitgen	21607613	352391	9511	299674	141405	2	1	52717
4	64	CLAM	durbin	558661	49	0	0	0	20	2	0
4	64	CLAM	fdtd-2d	64730443	2078159	898532	2045765	1474317	0	0	32394
4	64	CLAM	floyd-warshall	375124337	7786257	7660688	7766708	7694701	0	0	19549
4	64	CLAM	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	64	CLAM	gemver	1728105	193897	11422	27611	27219	2	2	166286
4	64	CLAM	gesummv	493245	7757	52	7757	7757	0	0	0
4	64	CLAM	gram-schmidt	21507089	18836911	5800800	15111609	12571991	0	0	3725302
4	64	CLAM	heat-3d	86155194	2232808	731245	2031429	1136557	0	0	201379
4	64	CLAM	jacobi-1d	2627297	3	0	0	0	3	1	0
4	64	CLAM	jacobi-2d	72255900	1548901	775342	1534242	1133901	0	0	14659
4	64	CLAM	lu	48065018	16014382	60744	9424857	9364023	0	0	6589525
4	64	CLAM	ludcmp	27774029	15453771	34072	8904450	8841065	5	3	6549321
4	64	CLAM	mvt	802136	158664	721	92239	10743	0	0	66425
4	64	CLAM	nussinov	48861506	14385747	25159	12212233	6236298	1	0	2173514
4	64	CLAM	seidel-2d	63083828	994173	990293	991677	531060	0	0	2496
4	64	CLAM	symm	22491372	6356630	1569804	5426589	2219876	0	0	930041
4	64	CLAM	syr2k	26448769	8313073	84211	7340087	3136193	0	0	972986
4	64	CLAM	syrk	20659494	2534348	77374	1654871	641140	0	0	879477
4	64	CLAM	trisolv	235798	5202	50	5202	5202	1	1	0
4	64	CLAM	trmm	8545649	5878352	10782	4896576	1943133	0	0	981776
4	64	C-SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
4	64	C-SHEL	3mm	56705681	11806219	14568	10850411	5056655	0	0	955808
4	64	C-SHEL	adi	69695483	8911229	5165900	8889798	8793171	308	103	21431
4	64	C-SHEL	correlation	11709180	11344027	39277	10750843	3037660	246	4	593184
4	64	C-SHEL	covariance	11596078	11360764	39609	10724862	2805970	241	1	635902
4	64	C-SHEL	deriche	4036987	1492633	777452	1483272	1055429	17	9	9361
4	64	C-SHEL	fdtd-2d	64799620	2073792	898476	2071352	1810527	408	3	2440
4	64	C-SHEL	gemver	1754491	167511	10168	167321	161517	2	2	190
4	64	C-SHEL	heat-3d	85709241	2089861	729902	2036661	671289	100	100	53200
4	64	C-SHEL	jacobi-2d	72258786	1546015	775283	1539823	1222277	0	0	6192
4	64	C-SHEL	lu	52412431	11666969	32285	8761666	4005870	0	0	2905303
4	64	C-SHEL	ludcmp	31565355	11663243	24579	8749344	3977403	5	3	2913899
4	64	C-SHEL	mvt	792957	167843	175	167665	161538	0	0	178
4	64	PRL	2mm	33448540	10782862	7480	10424592	8421504	1	1	358270
4	64	PRL	3mm	49254372	19257528	8934	19027138	17503993	0	0	230390
4	64	PRL	adi	69695197	8910815	5240773	5945385	3769336	8	2	2965430
4	64	PRL	atax	1109667	10049	130	10049	10049	8	0	0
4	64	PRL	bicg	1269959	10047	104	10047	10047	5	0	0
4	64	PRL	cholesky	31476040	684160	5252	683233	568951	0	0	927
4	64	PRL	correlation	11743828	11309379	38780	10791915	4123010	247	5	517464
4	64	PRL	covariance	11605438	11351404	39424	10733065	3182315	241	1	618339
4	64	PRL	deriche	3956939	1572677	777599	1488197	913353	13	7	84480
4	64	PRL	doitgen	21612405	347599	9166	304010	158361	2	1	43589
4	64	PRL	durbin	558661	49	0	0	0	20	2	0
4	64	PRL	fdtd-2d	64730641	2077961	898530	2047342	1494337	0	0	30619
4	64	PRL	floyd-warshall	375123068	7782912	7654639	7773827	7750573	0	0	9085
4	64	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	64	PRL	gemver	1767506	154496	10347	127471	23088	2	2	27025
4	64	PRL	gesummv	493245	7757	52	7757	7757	0	0	0
4	64	PRL	gram-schmidt	21519656	18824344	5800287	15162172	12616380	0	0	3662172
4	64	PRL	heat-3d	86173322	2214680	730918	2056034	1156960	0	0	158646

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	PRL	jacobi-1d	2627297	3	0	0	0	3	1	0
4	64	PRL	jacobi-2d	72256162	1548639	775332	1534797	1140870	0	0	13842
4	64	PRL	lu	47786947	16292453	17744	15319857	13137834	0	0	972596
4	64	PRL	ludcmp	26933233	16294567	17641	14785700	12396664	5	3	1508867
4	64	PRL	mvt	823902	136898	175	136898	136898	0	0	0
4	64	PRL	nussinov	48383418	14863835	13173	14242218	10548779	1	0	621617
4	64	PRL	seidel-2d	63085271	992730	990229	992703	974625	0	0	27
4	64	PRL	symm	22499088	6348914	1662149	6293591	5357795	0	0	55323
4	64	PRL	syr2k	26305009	8456833	10120	8383877	7267299	0	0	72956
4	64	PRL	syrk	20462270	2731572	8336	2676280	2283204	0	0	55292
4	64	PRL	trisolv	235798	5202	50	5202	5202	1	1	0
4	64	PRL	trmm	8529673	5894328	3520	5841059	4965131	0	0	53269
4	64	SHEL	2mm	36789397	7442005	9548	6812194	3087451	1	1	629811
4	64	SHEL	3mm	56715103	11796797	14347	10865579	5126925	0	0	931218
4	64	SHEL	adi	70634800	7971912	5209899	7580160	5485107	308	103	391752
4	64	SHEL	correlation	11699140	11354067	39459	10733857	2885298	246	4	620210
4	64	SHEL	covariance	11588358	11368484	39756	10712396	2711400	241	1	656088
4	64	SHEL	deriche	4037196	1492424	777432	1483040	1062181	17	9	9384
4	64	SHEL	fdtd-2d	64805375	2068037	898599	2062005	1346559	408	3	6032
4	64	SHEL	gemver	1776079	145923	10240	140758	66336	2	2	5165
4	64	SHEL	heat-3d	85709537	2089565	729909	2038136	692454	100	100	51429
4	64	SHEL	jacobi-2d	72263138	1541663	775231	1536382	997481	0	0	5281
4	64	SHEL	lu	52416388	11663012	32164	8802163	4058513	0	0	2860849
4	64	SHEL	ludcmp	31574027	11654571	24482	8741405	3975128	5	3	2913166
4	64	SHEL	mvt	825168	135632	203	131284	67925	0	0	4348
4	128	CLAM	2mm	32881072	11350330	45421	6074428	5907175	1	1	5275902
4	128	CLAM	3mm	49669789	18842111	77691	9742407	8776082	0	0	9099704
4	128	CLAM	adi	69693034	8912978	5239019	5939455	3783142	8	2	2973523
4	128	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
4	128	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
4	128	CLAM	cholesky	31477219	682981	5281	677015	355518	0	0	5966
4	128	CLAM	correlation	11627727	11425480	40244	10696592	2594524	7	5	728888
4	128	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
4	128	CLAM	deriche	3931607	1598009	777594	1110503	906925	13	7	487506
4	128	CLAM	doitgen	21599273	360731	9977	292454	114069	2	1	68277
4	128	CLAM	durbin	558661	49	0	0	0	20	2	0
4	128	CLAM	fdtd-2d	64730553	2078049	898533	2046249	1472492	0	0	31800
4	128	CLAM	floyd-warshall	375095280	7788104	7640006	7769236	5175907	0	0	18868
4	128	CLAM	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	128	CLAM	gemver	1731704	190298	11400	24010	23643	402	27	166288
4	128	CLAM	gesummv	493183	7819	52	7819	7819	250	0	0
4	128	CLAM	gram-schmidt	21509333	18834667	5800504	15120228	12579942	0	0	3714439
4	128	CLAM	heat-3d	86139141	2248861	731337	2035253	1137762	0	0	213608
4	128	CLAM	jacobi-1d	2627297	3	0	0	0	2	1	0
4	128	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
4	128	CLAM	lu	48123402	15955998	61200	9367621	9305645	0	0	6588377
4	128	CLAM	ludcmp	27535614	15692186	34300	9144328	9080814	5	3	6547858
4	128	CLAM	mvt	803896	156904	646	95031	10837	0	0	61873
4	128	CLAM	nussinov	48860120	14387133	24999	12216569	6241033	1	0	2170564
4	128	CLAM	seidel-2d	63084023	993978	990120	991544	537551	0	0	2434
4	128	CLAM	symm	22490970	6357032	1569664	5417953	2207915	0	0	939079
4	128	CLAM	syr2k	26456501	8305341	81352	7377666	3238145	0	0	927675
4	128	CLAM	syrk	20658604	2535238	79297	1624741	617823	0	0	910497
4	128	CLAM	trisolv	235723	5277	50	5277	5277	1	1	0
4	128	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
4	128	C-SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
4	128	C-SHEL	3mm	56680991	11830909	15385	10775319	4700295	0	0	1055590

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	C-SHEL	adi	69453106	9153606	5183121	9135064	8981632	308	102	18542
4	128	C-SHEL	correlation	11718488	11334719	39104	10762968	3159299	7	5	571751
4	128	C-SHEL	covariance	11596843	11359999	39595	10726345	2830820	1	1	633654
4	128	C-SHEL	deriche	4021882	1507738	687316	1500413	1144684	17	9	7325
4	128	C-SHEL	fdtd-2d	64798861	2074551	898482	2064551	1598730	508	103	10000
4	128	C-SHEL	gemver	1753941	168061	10172	167845	161202	402	27	216
4	128	C-SHEL	heat-3d	85712616	2086486	729896	2042112	737602	0	0	44374
4	128	C-SHEL	jacobi-2d	72260653	1544148	775249	1537731	1179697	0	0	6417
4	128	C-SHEL	lu	52413656	11665744	32527	8764912	4010078	0	0	2900832
4	128	C-SHEL	ludcmp	31563617	11664981	24744	8767691	4005369	5	3	2897290
4	128	C-SHEL	mvt	794900	165900	176	165793	154806	0	0	107
4	128	PRL	2mm	33487857	10743545	5833	10597519	9425383	1	1	146026
4	128	PRL	3mm	49223463	19288437	9595	18972092	17176955	0	0	316345
4	128	PRL	adi	69752249	8853763	5238118	6052751	3821460	8	2	2801012
4	128	PRL	atax	1109667	10049	130	10049	10049	8	0	0
4	128	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
4	128	PRL	cholesky	31475638	684562	5247	683743	619314	0	0	819
4	128	PRL	correlation	11719368	11333839	38550	10826575	3897935	7	5	507264
4	128	PRL	covariance	11640045	11316797	38777	10786847	3679604	1	1	529950
4	128	PRL	deriche	3955489	1574127	753710	1483795	912854	13	7	90332
4	128	PRL	doitgen	21612043	347961	9176	303195	154489	2	1	44766
4	128	PRL	durbin	558661	49	0	0	0	20	2	0
4	128	PRL	fdtd-2d	64730768	2077834	898537	2047725	1503090	0	0	30109
4	128	PRL	floyd-warshall	375090718	7783969	7632580	7778235	5955288	0	0	5734
4	128	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	128	PRL	gemver	1765326	156676	10381	124206	22522	402	27	32470
4	128	PRL	gesummv	493183	7819	52	7819	7819	250	0	0
4	128	PRL	gram-schmidt	21519409	18824591	5800507	15151558	12607505	0	0	3673033
4	128	PRL	heat-3d	86181985	2206017	730666	2089459	1186195	0	0	116558
4	128	PRL	jacobi-1d	2627297	3	0	0	0	2	1	0
4	128	PRL	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
4	128	PRL	lu	47793216	16286184	17802	15290102	13081092	0	0	996082
4	128	PRL	ludcmp	26940443	16287357	16439	15127817	12823643	5	3	1159540
4	128	PRL	mvt	825189	135611	176	135592	134672	0	0	19
4	128	PRL	nussinov	48482027	14765226	14231	14014868	10044777	1	0	750358
4	128	PRL	seidel-2d	63085700	992301	989800	992301	992301	0	0	0
4	128	PRL	symm	22501813	6346189	1659067	6287559	5319690	0	0	58630
4	128	PRL	syr2k	26246900	8514942	9805	8443608	7293713	0	0	71334
4	128	PRL	syrk	20462675	2731167	8012	2677206	2287106	0	0	53961
4	128	PRL	trisolv	235723	5277	50	5277	5277	1	1	0
4	128	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
4	128	SHEL	2mm	36792879	7438523	9596	6827104	3153642	1	1	611419
4	128	SHEL	3mm	56686220	11825680	15176	10787718	4749502	0	0	1037962
4	128	SHEL	adi	70648150	7958562	5209092	7617806	5648842	308	102	340756
4	128	SHEL	correlation	11711553	11341654	39189	10751915	3054225	7	5	589739
4	128	SHEL	covariance	11596659	11360183	39597	10725288	2835504	1	1	634895
4	128	SHEL	deriche	4036531	1493089	672641	1482135	929240	17	9	10954
4	128	SHEL	fdtd-2d	64805581	2067831	898619	2062612	1391112	508	103	5219
4	128	SHEL	gemver	1775395	146607	10260	139127	45660	402	27	7480
4	128	SHEL	heat-3d	85712616	2086486	729896	2042112	737602	0	0	44374
4	128	SHEL	jacobi-2d	72264559	1540242	775259	1537357	1116564	0	0	2885
4	128	SHEL	lu	52413127	11666273	32643	8780994	4034041	0	0	2885279
4	128	SHEL	ludcmp	31571926	11656672	24397	8761945	3996660	5	3	2894727
4	128	SHEL	mvt	825327	135473	203	131718	74106	0	0	3755
4	256	CLAM	2mm	32768911	11462491	45339	6186833	6019982	1	1	5275658
4	256	CLAM	3mm	49706066	18805834	76661	9814805	8779492	0	0	8991029
4	256	CLAM	adi	69695073	8910939	5240830	5945396	3788807	8	2	2965543

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
4	256	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
4	256	CLAM	cholesky	31477548	682652	5318	673291	225643	399	0	9361
4	256	CLAM	correlation	11597834	11455373	40918	10655786	2349895	726	244	799587
4	256	CLAM	covariance	11571765	11385077	40161	10678519	2708757	241	1	706558
4	256	CLAM	deriche	3931593	1598023	777605	1109164	906945	13	7	488859
4	256	CLAM	doitgen	21601998	358006	9807	295096	123041	2	1	62910
4	256	CLAM	durbin	558661	49	0	0	0	20	2	0
4	256	CLAM	fdtd-2d	64730279	2078323	898533	2045989	1480380	0	0	32334
4	256	CLAM	floyd-warshall	375096913	7787868	7641252	7770348	5269202	0	0	17520
4	256	CLAM	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	256	CLAM	gemver	1723956	198046	11427	31760	31372	402	2	166286
4	256	CLAM	gesummv	493179	7823	57	7823	7823	0	0	0
4	256	CLAM	gram-schmidt	21491591	18852409	5644743	15138877	12593534	240	240	3713532
4	256	CLAM	heat-3d	86163535	2224467	731065	2043027	1145797	0	0	181440
4	256	CLAM	jacobi-1d	2627297	3	0	0	0	399	2	0
4	256	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
4	256	CLAM	lu	48040419	16038981	60990	9450142	9389921	0	0	6588839
4	256	CLAM	ludcmp	27307184	15920616	34214	9326190	9250483	1601	833	6594426
4	256	CLAM	mvt	801106	159694	739	89844	10583	0	0	69850
4	256	CLAM	nussinov	48862132	14385121	25434	12173055	6183492	1	0	2212066
4	256	CLAM	seidel-2d	63083190	994811	990181	990896	507869	0	0	3915
4	256	CLAM	symm	22487919	6360083	4716482	5411788	2198743	0	0	948295
4	256	CLAM	syr2k	26449878	8311964	83821	7350855	3158973	0	0	961109
4	256	CLAM	syrk	20648680	2545162	83959	1566636	571682	0	0	978526
4	256	CLAM	trisolv	235820	5180	55	5180	5180	1	1	0
4	256	CLAM	trmm	8551740	5872261	10697	4900630	1931002	0	0	971631
4	256	C-SHEL	2mm	36796527	7434875	9368	6826405	3159434	1	1	608470
4	256	C-SHEL	3mm	56691474	11820426	15087	10800917	4841035	0	0	1019509
4	256	C-SHEL	adi	69584839	9021873	5185228	9001153	8834500	608	314	20720
4	256	C-SHEL	correlation	11708462	11344745	39289	10749541	3028934	487	5	595204
4	256	C-SHEL	covariance	11562069	11394773	40216	10672345	2415394	241	1	722428
4	256	C-SHEL	deriche	3989067	1540553	775203	1535554	1233346	17	10	4999
4	256	C-SHEL	fdtd-2d	64797971	2075441	898473	2062918	1574770	608	103	12523
4	256	C-SHEL	gemver	1754004	167998	10331	167867	162298	802	52	131
4	256	C-SHEL	heat-3d	85713190	2085912	729890	2053429	1016258	100	100	32483
4	256	C-SHEL	jacobi-2d	72256247	1548554	775355	1534802	1144989	0	0	13752
4	256	C-SHEL	lu	52421466	11657934	32052	8797887	4049214	0	0	2860047
4	256	C-SHEL	ludcmp	31567568	11661030	24364	8782080	4025373	404	195	2878950
4	256	C-SHEL	mvt	793085	167715	176	167452	159456	0	0	263
4	256	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
4	256	PRL	3mm	49218659	19293241	9738	18948011	17041683	0	0	345230
4	256	PRL	adi	69747303	8858709	5238496	6044563	3814371	8	2	2814146
4	256	PRL	atax	1109667	10049	130	10049	10049	8	0	0
4	256	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
4	256	PRL	cholesky	31475150	685050	5229	684236	569755	399	0	814
4	256	PRL	correlation	11694003	11359204	39147	10784480	3457428	726	244	574724
4	256	PRL	covariance	11665249	11291593	38281	10827717	4173492	241	1	463876
4	256	PRL	deriche	3955597	1574019	753601	1484354	912752	13	7	89665
4	256	PRL	doitgen	21616613	343391	8867	307925	176989	2	1	35466
4	256	PRL	durbin	558661	49	0	0	0	20	2	0
4	256	PRL	fdtd-2d	64731117	2077485	898531	2051427	1571335	0	0	26058
4	256	PRL	floyd-warshall	375094243	7785349	7636796	7775516	5632884	0	0	9833
4	256	PRL	gemm	41682047	645955	3145	643624	453700	0	0	2331
4	256	PRL	gemver	1770641	151361	10271	131832	26015	402	2	19529
4	256	PRL	gesummv	493187	7815	51	7815	7815	0	0	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	PRL	gram-schmidt	21518392	18825608	5624907	15258853	12701050	240	240	3566755
4	256	PRL	heat-3d	86204938	2183064	730416	2094729	1241908	0	0	88335
4	256	PRL	jacobi-1d	2627297	3	0	0	0	399	2	0
4	256	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
4	256	PRL	lu	47783601	16295799	17496	15321469	13137805	0	0	974330
4	256	PRL	ludcmp	26389318	16838482	28630	12210802	10820462	1601	660	4627680
4	256	PRL	mvt	825581	135219	176	135199	134198	0	0	20
4	256	PRL	nussinov	48480764	14766489	14148	14011861	10034454	1	0	754628
4	256	PRL	seidel-2d	63085700	992301	989790	992301	992301	0	0	0
4	256	PRL	symm	22466658	6381344	4686057	6298693	5105288	0	0	82651
4	256	PRL	syr2k	26261773	8500069	10809	8421459	7172627	0	0	78610
4	256	PRL	syrk	20479958	2713884	9258	2648795	2207094	0	0	65089
4	256	PRL	trisolv	235828	5172	50	5172	5172	1	1	0
4	256	PRL	trmm	8529673	5894328	3520	5841059	4965131	0	0	53269
4	256	SHEL	2mm	36803338	7428064	9307	6839178	3215251	1	1	588886
4	256	SHEL	3mm	56697335	11814565	14660	10817933	4944749	0	0	996632
4	256	SHEL	adi	70642263	7964449	5209328	7602755	5598289	608	344	361694
4	256	SHEL	correlation	11709529	11343678	39162	10750269	3036477	487	5	593409
4	256	SHEL	covariance	11563311	11393531	40209	10673246	2412931	241	1	720285
4	256	SHEL	deriche	4035659	1493961	777543	1480722	945537	17	9	13239
4	256	SHEL	fdtd-2d	64804359	2069053	898724	2062390	1264316	608	103	6663
4	256	SHEL	gemver	1775203	146799	10345	139122	44515	802	52	7677
4	256	SHEL	heat-3d	85712769	2086333	729875	2054767	1058408	100	100	31566
4	256	SHEL	jacobi-2d	72263368	1541433	775224	1536578	1020466	0	0	4855
4	256	SHEL	lu	52413643	11665757	32425	8801295	4059090	0	0	2864462
4	256	SHEL	ludcmp	31571818	11656780	24334	8799079	4045932	404	207	2857701
4	256	SHEL	mvt	825151	135649	215	131401	65747	0	0	4248
4	512	CLAM	2mm	32929053	11302349	45403	6027517	5860439	1	1	5274832
4	512	CLAM	3mm	49652676	18859224	77210	9717767	8778695	0	0	9141457
4	512	CLAM	adi	69664316	8941696	5230611	5905784	3750266	8	2	3035912
4	512	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
4	512	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
4	512	CLAM	cholesky	31477463	682737	5292	676861	318838	399	0	5876
4	512	CLAM	correlation	11610350	11442857	40871	10672028	2435505	726	259	770829
4	512	CLAM	covariance	11545811	11411031	40641	10638949	2383165	1	1	772082
4	512	CLAM	deriche	3931591	1598025	777609	1096992	906931	13	7	501033
4	512	CLAM	doitgen	21601998	358006	9807	295096	123041	2	1	62910
4	512	CLAM	durbin	558661	49	0	0	0	419	23	0
4	512	CLAM	fdtd-2d	64730568	2078034	898530	2046995	1482988	0	0	31039
4	512	CLAM	floyd-warshall	375095865	7788778	7641237	7769925	5163104	0	0	18853
4	512	CLAM	gemm	41682146	645856	3131	643941	495713	0	0	1915
4	512	CLAM	gemver	1731717	190285	11741	24000	23379	802	365	166285
4	512	CLAM	gesummv	493225	7777	61	7777	7777	500	0	0
4	512	CLAM	gram-schmidt	21505894	18838106	5800490	15102485	12564083	240	240	3735621
4	512	CLAM	heat-3d	86100732	2287270	732068	1956419	1106988	0	0	330851
4	512	CLAM	jacobi-1d	2627297	3	0	0	0	3	1	0
4	512	CLAM	jacobi-2d	72255783	1549018	775333	1535546	1131566	0	0	13472
4	512	CLAM	lu	48234865	15844535	61054	9256289	9193906	0	0	6588246
4	512	CLAM	ludcmp	27558278	15669522	34868	9121799	9057921	404	395	6547723
4	512	CLAM	mvt	805359	155441	881	98276	11009	400	25	57165
4	512	CLAM	nussinov	48860047	14387206	25144	12214434	6244494	500	31	2172772
4	512	CLAM	seidel-2d	63085400	992601	990079	992545	916482	0	0	56
4	512	CLAM	symm	22500631	6347371	4714538	5462101	2291979	0	0	885270
4	512	CLAM	syr2k	26451974	8309868	84192	7338864	3144257	0	0	971004
4	512	CLAM	syrk	20659071	2534771	78107	1655361	641481	0	0	879410
4	512	CLAM	trisolv	235446	5554	73	5554	5554	1198	407	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	CLAM	trmm	8545367	5878634	10845	4887810	1891359	0	0	990824
4	512	C-SHEL	2mm	36753182	7478220	10740	6704362	2581299	1	1	773858
4	512	C-SHEL	3mm	56649605	11862295	16022	10695800	4266380	0	0	1166495
4	512	C-SHEL	adi	69435051	9171661	5126259	9152996	9076514	508	202	18665
4	512	C-SHEL	correlation	11682242	11370965	39884	10705645	2673029	487	20	665320
4	512	C-SHEL	covariance	11596328	11360514	39527	10725062	2815507	1	1	635452
4	512	C-SHEL	deriche	3984850	1544770	724917	1533193	1101414	17	9	11577
4	512	C-SHEL	fdtd-2d	64798086	2075326	898618	2063811	1738979	708	3	11515
4	512	C-SHEL	gemver	1754209	167793	10510	167642	162682	802	398	151
4	512	C-SHEL	heat-3d	85697988	2101114	729960	2024904	581014	0	0	76210
4	512	C-SHEL	jacobi-2d	72255893	1548908	775330	1536114	1146865	0	0	12794
4	512	C-SHEL	lu	52407952	11671448	33038	8718004	3957399	0	0	2953444
4	512	C-SHEL	ludcmp	31565437	11663161	24614	8802258	4048595	1202	825	2860903
4	512	C-SHEL	mvt	793267	167533	176	167461	157445	0	0	72
4	512	PRL	2mm	33451605	10779797	7443	10439260	8508630	1	1	340537
4	512	PRL	3mm	49212670	19299230	9916	18936400	16998404	0	0	362830
4	512	PRL	adi	69723886	8882126	5239770	5991131	3780865	8	2	2890995
4	512	PRL	atax	1109667	10049	130	10049	10049	8	0	0
4	512	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
4	512	PRL	cholesky	31474173	686027	5248	685794	648392	399	0	233
4	512	PRL	correlation	11719177	11334030	38981	10824376	3875533	726	259	509654
4	512	PRL	covariance	11663407	11293435	38237	10827089	4127024	1	1	466346
4	512	PRL	deriche	3953134	1576482	756059	1475218	912013	13	7	101264
4	512	PRL	doitgen	21617396	342608	8821	308523	179433	2	1	34085
4	512	PRL	durbin	558661	49	0	0	0	419	23	0
4	512	PRL	fdtd-2d	64730875	2077727	898535	2049427	1527562	0	0	28300
4	512	PRL	floyd-warshall	375093716	7785624	7636543	7775929	5513189	0	0	9695
4	512	PRL	gemm	41682304	645698	3006	644955	579675	0	0	743
4	512	PRL	gemver	1760648	161354	10777	116988	22318	802	372	44366
4	512	PRL	gesummv	493247	7755	50	7755	7755	500	0	0
4	512	PRL	gram-schmidt	21518942	18825058	5800617	15161762	12615469	240	240	3663296
4	512	PRL	heat-3d	86116352	2271650	731816	1979785	1112821	0	0	291865
4	512	PRL	jacobi-1d	2627297	3	0	0	0	3	1	0
4	512	PRL	jacobi-2d	72256421	1548380	775339	1536785	1165309	0	0	11595
4	512	PRL	lu	47733154	16346246	17920	15336435	13087141	0	0	1009811
4	512	PRL	ludcmp	26941257	16286543	17603	15113096	12800800	404	393	1173447
4	512	PRL	mvt	823774	137026	309	137022	136922	400	25	4
4	512	PRL	nussinov	48402553	14844700	13199	14206171	10458981	500	31	638529
4	512	PRL	seidel-2d	63085616	992385	989884	992385	992385	0	0	0
4	512	PRL	symm	22431779	6416223	4683050	6349490	5291633	0	0	66733
4	512	PRL	syr2k	26364556	8397286	15007	8279288	6676879	0	0	117998
4	512	PRL	syrk	20439087	2754755	7727	2709643	2361481	0	0	45112
4	512	PRL	trisolv	235446	5554	73	5554	5554	1198	407	0
4	512	PRL	trmm	8520295	5903706	3429	5863101	5136986	0	0	40605
4	512	SHEL	2mm	36753182	7478220	10740	6704362	2581299	1	1	773858
4	512	SHEL	3mm	56656129	11855771	15878	10712789	4385681	0	0	1142982
4	512	SHEL	adi	70656826	7949886	5191624	7652809	5807771	508	202	297077
4	512	SHEL	correlation	11674819	11378388	39956	10693728	2534458	487	20	684660
4	512	SHEL	covariance	11585853	11370989	39798	10710352	2698028	1	1	660637
4	512	SHEL	deriche	4034674	1494946	726264	1478170	804061	17	9	16776
4	512	SHEL	fdtd-2d	64804852	2068560	898720	2062504	1327667	708	3	6056
4	512	SHEL	gemver	1775828	146174	10541	142229	78799	802	371	3945
4	512	SHEL	heat-3d	85698536	2100566	729963	2024613	556844	0	0	75953
4	512	SHEL	jacobi-2d	72263414	1541387	775151	1539348	1295419	0	0	2039
4	512	SHEL	lu	52419529	11659871	32652	8711557	3952463	0	0	2948314
4	512	SHEL	ludcmp	31567696	11660902	24368	8815984	4062231	1202	825	2844918
4	512	SHEL	mvt	825381	135419	210	131829	72495	0	0	3590

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	CLAM	2mm	32833434	11397968	45463	6122249	5955050	1	1	5275719
4	1024	CLAM	3mm	49715112	18796788	76329	9827615	8779495	0	0	8969173
4	1024	CLAM	adi	69569703	9036309	5209160	5784226	3131676	8	2	3252083
4	1024	CLAM	atax	1109618	10098	179	10098	10098	398	25	0
4	1024	CLAM	bicg	1269934	10072	128	10072	10072	418	26	0
4	1024	CLAM	cholesky	31477091	683109	5271	680218	428936	1197	24	2891
4	1024	CLAM	correlation	11627470	11425737	40198	10696673	2595800	1206	259	729064
4	1024	CLAM	covariance	11580262	11376580	40010	10693508	2796173	241	1	683072
4	1024	CLAM	deriche	3931591	1598025	777605	1119986	906951	13	7	478039
4	1024	CLAM	doitgen	21573618	386386	11340	273981	70153	2	1	112405
4	1024	CLAM	durbin	558661	49	0	0	0	2451	25	0
4	1024	CLAM	fdtd-2d	64731068	2077534	898535	2048716	1510139	0	0	28818
4	1024	CLAM	floyd-warshall	375096337	7786082	7639276	7773861	5465754	0	0	12221
4	1024	CLAM	gemm	41681913	646089	3393	644184	482441	0	0	1905
4	1024	CLAM	gemver	1723883	198119	11684	32038	31277	1202	52	166081
4	1024	CLAM	gesummv	493201	7801	81	7801	7801	750	16	0
4	1024	CLAM	gram-schmidt	21519940	18824060	5800358	15160044	12616084	240	240	3664016
4	1024	CLAM	heat-3d	85870124	2517878	732730	2032386	1291261	0	0	485492
4	1024	CLAM	jacobi-1d	2627297	3	0	0	0	399	2	0
4	1024	CLAM	jacobi-2d	72255908	1548893	775333	1534252	1134341	0	0	14641
4	1024	CLAM	lu	47884751	16194649	61304	9557537	9481249	399	4	6637112
4	1024	CLAM	ludcmp	27541306	15686494	34545	9136003	9073425	2399	1676	6550491
4	1024	CLAM	mvt	800620	160180	994	89485	10647	400	25	70695
4	1024	CLAM	nussinov	48868619	14378634	25573	12143245	6139338	500	31	2235389
4	1024	CLAM	seidel-2d	63085314	992687	988139	992687	992687	0	0	0
4	1024	CLAM	symm	22487777	6360225	4715490	5404696	2180781	0	0	955529
4	1024	CLAM	syr2k	26389092	8372750	99077	7204280	2715826	0	0	1168470
4	1024	CLAM	syrk	20665098	2528744	73928	1704566	682566	0	0	824178
4	1024	CLAM	trisolv	235619	5381	84	5381	5381	799	25	0
4	1024	CLAM	trmm	8527047	5896954	11197	4862122	1863084	0	0	1034832
4	1024	C-SHEL	2mm	36775417	7455985	9936	6771817	2863980	1	1	684168
4	1024	C-SHEL	3mm	56674928	11836972	15454	10757143	4621705	0	0	1079829
4	1024	C-SHEL	adi	69773857	8832855	5170005	8810412	8713084	608	212	22443
4	1024	C-SHEL	correlation	11725019	11328188	39033	10773981	3281161	1206	259	554207
4	1024	C-SHEL	covariance	11629692	11327150	38888	10774794	3288820	241	1	552356
4	1024	C-SHEL	deriche	4036546	1493074	725325	1487409	1200640	17	9	5665
4	1024	C-SHEL	fdtd-2d	64795745	2077667	898679	2068850	1522303	808	103	8817
4	1024	C-SHEL	gemver	1759076	162926	10368	162841	159613	802	51	85
4	1024	C-SHEL	heat-3d	85704742	2094360	729935	2029463	555302	100	100	64897
4	1024	C-SHEL	jacobi-2d	72262256	1542545	775259	1538604	1251573	0	0	3941
4	1024	C-SHEL	lu	52413649	11665751	32804	8730593	3978577	399	0	2935158
4	1024	C-SHEL	ludcmp	31564563	11664035	24916	8717222	3936999	2399	1819	2946813
4	1024	C-SHEL	mvt	825068	135732	282	131122	63669	400	25	4610
4	1024	PRL	2mm	33443959	10787443	7608	10411248	8369286	1	1	376195
4	1024	PRL	3mm	49802967	18708933	9311	18429035	16714371	0	0	279898
4	1024	PRL	adi	69680775	8925237	5235807	5926007	3760262	8	2	2999230
4	1024	PRL	atax	1109641	10075	156	10075	10075	398	25	0
4	1024	PRL	bicg	1269934	10072	128	10072	10072	418	26	0
4	1024	PRL	cholesky	31475932	684268	5243	683693	626119	1197	24	575
4	1024	PRL	correlation	11751181	11302026	38929	10806148	4333533	1206	259	495878
4	1024	PRL	covariance	11738169	11218673	36361	10995253	7125815	241	1	223420
4	1024	PRL	deriche	3957098	1572518	752095	1488920	913757	13	7	83598
4	1024	PRL	doitgen	21616613	343391	8867	307925	176989	2	1	35466
4	1024	PRL	durbin	558661	49	0	0	0	2451	25	0
4	1024	PRL	fdtd-2d	64731589	2077013	898529	2053238	1579119	0	0	23775
4	1024	PRL	floyd-warshall	375082696	7782037	7624929	7781834	7632566	0	0	203

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	PRL	gemm	41681987	646015	3185	645764	624541	0	0	251
4	1024	PRL	gemver	1766756	155246	10525	126456	22698	1202	52	28790
4	1024	PRL	gesummv	493231	7771	66	7771	7771	750	16	0
4	1024	PRL	gram-schmidt	21555969	18788031	5799956	15318595	12764276	240	240	3469436
4	1024	PRL	heat-3d	85826762	2561240	732714	2076514	1337708	0	0	484726
4	1024	PRL	jacobi-1d	2627297	3	0	0	0	399	2	0
4	1024	PRL	jacobi-2d	72257239	1547562	775319	1536786	1198605	0	0	10776
4	1024	PRL	lu	47277842	16801558	43778	12456183	10863830	399	0	4345375
4	1024	PRL	ludcmp	26893693	16334107	17287	15131018	12782811	2399	1660	1203089
4	1024	PRL	mvt	825850	134950	294	132544	88839	400	25	2406
4	1024	PRL	nussinov	48447316	14799937	13722	14098227	10225810	500	31	701710
4	1024	PRL	seidel-2d	63085362	992639	988464	992639	992639	0	0	0
4	1024	PRL	symm	22450202	6397800	4683411	6324280	5209368	0	0	73520
4	1024	PRL	syr2k	26370566	8391276	26076	8176041	5637428	0	0	215235
4	1024	PRL	syrk	20365661	2828181	5075	2806758	2597143	0	0	21423
4	1024	PRL	trisolv	235619	5381	84	5381	5381	799	25	0
4	1024	PRL	trmm	8540399	5883602	3535	5827611	4924619	0	0	55991
4	1024	SHEL	2mm	36775417	7455985	9936	6771817	2863980	1	1	684168
4	1024	SHEL	3mm	56677261	11834639	15340	10768580	4684303	0	0	1066059
4	1024	SHEL	adi	70644025	7962687	5209385	7608356	5612993	608	245	354331
4	1024	SHEL	correlation	11709146	11344061	39202	10747250	3018531	1206	259	596811
4	1024	SHEL	covariance	11593556	11363286	39607	10722181	2795765	241	1	641105
4	1024	SHEL	deriche	4037022	1492598	724837	1484262	1033050	17	9	8336
4	1024	SHEL	fdtd-2d	64803507	2069905	898730	2062389	1261253	808	103	7516
4	1024	SHEL	gemver	1772177	149825	10422	134768	29748	802	51	15057
4	1024	SHEL	heat-3d	85705535	2093567	729923	2029753	543784	100	100	63814
4	1024	SHEL	jacobi-2d	72263610	1541191	775232	1537014	1070740	0	0	4177
4	1024	SHEL	lu	52413649	11665751	32804	8730593	3978577	399	0	2935158
4	1024	SHEL	ludcmp	31567065	11661533	24921	8738899	3961721	2399	1832	2922634
4	1024	SHEL	mvt	825162	135638	303	131322	64354	400	25	4316
5	64	CLAM	2mm	32861749	11369653	45133	6093859	5927103	1	1	5275794
5	64	CLAM	3mm	49759957	18751943	75698	9895613	8776860	0	0	8856330
5	64	CLAM	adi	69676172	8929840	5234630	5922524	3779286	9	5	3007316
5	64	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
5	64	CLAM	bicg	1269959	10047	104	10047	10047	6	0	0
5	64	CLAM	cholesky	31477749	682451	5271	678052	352016	1	0	4399
5	64	CLAM	correlation	11616477	11436730	40701	10681452	2504014	7	5	755278
5	64	CLAM	covariance	11571765	11385077	40161	10678519	2708757	1	1	706558
5	64	CLAM	deriche	3931604	1598012	777595	1111182	906927	14	7	486830
5	64	CLAM	doitgen	21601998	358006	9807	295096	123041	3	1	62910
5	64	CLAM	durbin	558661	49	0	0	0	20	2	0
5	64	CLAM	fdtd-2d	64730627	2077975	898530	2048540	1514763	1	0	29435
5	64	CLAM	floyd-warshall	375126550	7786134	7661055	7766634	7744034	0	0	19500
5	64	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
5	64	CLAM	gemver	1727313	194689	11395	28403	28012	2	2	166286
5	64	CLAM	gesummv	493246	7756	51	7756	7756	1	0	0
5	64	CLAM	gram-schmidt	21501784	18842216	5800580	15095561	12558707	0	0	3746655
5	64	CLAM	heat-3d	86159459	2228543	731183	2036272	1132305	1	0	192271
5	64	CLAM	jacobi-1d	2627297	3	0	0	0	3	1	0
5	64	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
5	64	CLAM	lu	48178162	15901238	60511	9313024	9251969	0	0	6588214
5	64	CLAM	ludcmp	27492976	15734824	34296	9186047	9124292	4	3	6548777
5	64	CLAM	mvt	802433	158367	685	92699	10692	0	0	65668
5	64	CLAM	nussinov	48857640	14389613	24921	12216988	6253656	0	0	2172625
5	64	CLAM	seidel-2d	63085315	992686	990161	992626	966494	0	0	60
5	64	CLAM	symm	22491372	6356630	1569804	5426589	2219876	1	0	930041

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	CLAM	syr2k	26452597	8309245	82920	7360462	3186452	1	0	948783
5	64	CLAM	syrk	20656876	2536966	78886	1634379	626293	1	0	902587
5	64	CLAM	trisolv	235847	5153	31	5153	5153	2	2	0
5	64	CLAM	trmm	8544229	5879772	10898	4881175	1937982	0	0	998597
5	64	C-SHEL	2mm	36779513	7451889	9958	6788523	2970272	1	1	663366
5	64	C-SHEL	3mm	56714484	11797416	14386	10863031	5117853	0	0	934385
5	64	C-SHEL	adi	69682334	8924378	5164773	8902108	8804988	109	106	22270
5	64	C-SHEL	correlation	11699125	11354082	39426	10733164	2871386	7	5	620918
5	64	C-SHEL	covariance	11596866	11359976	39593	10724843	2808352	1	1	635133
5	64	C-SHEL	deriche	4037084	1492536	725046	1483645	1037718	18	10	8891
5	64	C-SHEL	fdtd-2d	64792151	2081261	898658	2070106	1559692	109	102	11155
5	64	C-SHEL	gemver	1754295	167707	10145	167475	161093	2	2	232
5	64	C-SHEL	heat-3d	85709521	2089581	729912	2037326	670658	1	0	52255
5	64	C-SHEL	jacobi-2d	72256247	1548554	775355	1534802	1144989	0	0	13752
5	64	C-SHEL	lu	52408183	11671217	32732	8735149	3979789	0	0	2936068
5	64	C-SHEL	ludcmp	31569630	11658968	24639	8750508	3988210	5	3	2908460
5	64	C-SHEL	mvt	793001	167799	175	167694	156795	0	0	105
5	64	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
5	64	PRL	3mm	49169078	19342822	10402	18910326	16775633	0	0	432496
5	64	PRL	adi	69729143	8876869	5239197	5998774	3795853	9	5	2878095
5	64	PRL	atax	1109667	10049	130	10049	10049	8	0	0
5	64	PRL	bicg	1269959	10047	104	10047	10047	6	0	0
5	64	PRL	cholesky	31474424	685776	5226	685481	626951	1	0	295
5	64	PRL	correlation	11743138	11310069	38080	10864302	4378311	7	5	445767
5	64	PRL	covariance	11648520	11308322	38599	10801340	3859645	1	1	506982
5	64	PRL	deriche	3958629	1570987	752238	1486818	912939	14	7	84169
5	64	PRL	doitgen	21617396	342608	8821	308523	179433	3	1	34085
5	64	PRL	durbin	558661	49	0	0	0	20	2	0
5	64	PRL	fdtd-2d	64731117	2077485	898531	2051427	1571335	1	0	26058
5	64	PRL	floyd-warshall	375119937	7782575	7655057	7774682	7750326	0	0	7893
5	64	PRL	gemm	41682047	645955	3145	643624	453700	1	1	2331
5	64	PRL	gemver	1766764	155238	10322	125978	22932	2	2	29260
5	64	PRL	gesummv	493246	7756	51	7756	7756	1	0	0
5	64	PRL	gram-schmidt	21528107	18815893	5799951	15205600	12654869	0	0	3610293
5	64	PRL	heat-3d	86184938	2203064	730757	2068822	1160430	1	0	134242
5	64	PRL	jacobi-1d	2627297	3	0	0	0	3	1	0
5	64	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
5	64	PRL	lu	47781986	16297414	17688	15323709	13141774	0	0	973705
5	64	PRL	ludcmp	26937282	16290518	16210	15178224	12898460	4	3	1112294
5	64	PRL	mvt	826119	134681	176	134579	130515	0	0	102
5	64	PRL	nussinov	48432298	14814955	13850	14128627	10271950	0	0	686328
5	64	PRL	seidel-2d	63085402	992599	990106	992599	992599	0	0	0
5	64	PRL	symm	22518463	6329539	1638302	6252497	5112015	1	0	77042
5	64	PRL	syr2k	26243577	8518265	6726	8476354	7749732	1	0	41911
5	64	PRL	syrk	20416770	2777072	6140	2741387	2444854	1	0	35685
5	64	PRL	trisolv	235850	5150	28	5150	5150	2	2	0
5	64	PRL	trmm	8602601	5821400	3760	5736885	4605327	0	0	84515
5	64	SHEL	2mm	36784073	7447329	9675	6801551	3028777	1	1	645778
5	64	SHEL	3mm	56718998	11792902	14275	10875702	5164405	0	0	917200
5	64	SHEL	adi	70641825	7964887	5209473	7602307	5592759	109	106	362580
5	64	SHEL	correlation	11700255	11352952	39409	10733451	2876494	7	5	619501
5	64	SHEL	covariance	11586889	11369953	39763	10711493	2722798	1	1	658460
5	64	SHEL	deriche	4036779	1492841	725021	1482631	986426	18	10	10210
5	64	SHEL	fdtd-2d	64805835	2067577	898603	2063236	1509913	109	102	4341
5	64	SHEL	gemver	1776618	145384	10209	141898	82871	2	2	3486
5	64	SHEL	heat-3d	85710549	2088553	729905	2038357	673279	1	0	50196
5	64	SHEL	jacobi-2d	72264626	1540175	775265	1537446	1108721	0	0	2729

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	SHEL	lu	52415699	11663701	32790	8746791	3990163	0	0	2916910
5	64	SHEL	ludcmp	31572974	11655624	24438	8775164	4014480	5	3	2880460
5	64	SHEL	mvt	825033	135767	204	130984	62586	0	0	4783
5	128	CLAM	2mm	32756266	11475136	45166	6200337	6033418	1	1	5274799
5	128	CLAM	3mm	49696562	18815338	76887	9779264	8773428	0	0	9036074
5	128	CLAM	adi	69652778	8953234	5228518	5892349	3689220	9	5	3060885
5	128	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
5	128	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
5	128	CLAM	cholesky	31477629	682571	5288	676427	311559	400	399	6144
5	128	CLAM	correlation	11627727	11425480	40244	10696592	2594524	246	244	728888
5	128	CLAM	covariance	11563786	11393056	40291	10666505	2575030	1	1	726551
5	128	CLAM	deriche	3931609	1598007	777592	1114568	906935	14	7	483439
5	128	CLAM	doitgen	21609133	350871	9351	301089	146095	3	1	49782
5	128	CLAM	durbin	558661	49	0	0	0	20	2	0
5	128	CLAM	fdtd-2d	64730575	2078027	898534	2046992	1502481	1	0	31035
5	128	CLAM	floyd-warshall	375125401	7773808	7649400	7758346	4825158	0	0	15462
5	128	CLAM	gemm	41682047	645955	3145	643624	453700	1	1	2331
5	128	CLAM	gemver	1725225	196777	11423	30491	30104	2	2	166286
5	128	CLAM	gesummv	493246	7756	51	7756	7756	1	0	0
5	128	CLAM	gram-schmidt	21511293	18832707	5800327	15127542	12583063	0	0	3705165
5	128	CLAM	heat-3d	86160779	2227223	731109	2038920	1142244	1	0	188303
5	128	CLAM	jacobi-1d	2627297	3	0	0	0	101	0	0
5	128	CLAM	jacobi-2d	72256199	1548602	775349	1534833	1142150	0	0	13769
5	128	CLAM	lu	48091821	15987579	60985	9399349	9337642	0	0	6588230
5	128	CLAM	ludcmp	27536493	15691307	34296	9141595	9078766	5	3	6549712
5	128	CLAM	mvt	800936	159864	708	89111	10558	0	0	70753
5	128	CLAM	nussinov	48858284	14388969	24939	12250923	6290004	0	0	2138046
5	128	CLAM	seidel-2d	63085269	992732	990095	992497	843748	0	0	235
5	128	CLAM	symm	22511496	6336506	1560419	5504512	2384506	2	1	831994
5	128	CLAM	syr2k	26419138	8342704	85151	7372209	3072773	1	0	970495
5	128	CLAM	syrk	20653709	2540133	81424	1604938	599398	1	0	935195
5	128	CLAM	trisolv	235468	5532	51	5532	5532	401	384	0
5	128	CLAM	trmm	8545649	5878352	10782	4896576	1943133	0	0	981776
5	128	C-SHEL	2mm	36782142	7449260	9823	6785912	2919064	1	1	663348
5	128	C-SHEL	3mm	56680464	11831436	15480	10780034	4703332	0	0	1051402
5	128	C-SHEL	adi	69618671	8988041	5185540	8966123	8797546	309	105	21918
5	128	C-SHEL	correlation	11708153	11345054	39285	10747696	3045815	7	5	597358
5	128	C-SHEL	covariance	11586148	11370694	39766	10708162	2680547	1	1	662532
5	128	C-SHEL	deriche	4032159	1497461	776372	1492367	1232643	18	10	5094
5	128	C-SHEL	fdtd-2d	64791207	2082205	898647	2069650	1563389	309	2	12555
5	128	C-SHEL	gemver	1751567	170435	10164	170215	163814	2	2	220
5	128	C-SHEL	heat-3d	85715207	2083895	729881	2048361	865201	1	0	35534
5	128	C-SHEL	jacobi-2d	72259570	1545231	775261	1541192	1294094	0	0	4039
5	128	C-SHEL	lu	52413108	11666292	32910	8733743	3976124	0	0	2932549
5	128	C-SHEL	ludcmp	31562861	11665737	24766	8734027	3963047	5	3	2931710
5	128	C-SHEL	mvt	821899	138901	181	138682	131767	0	0	219
5	128	PRL	2mm	33473649	10757753	6697	10506073	8838969	1	1	251680
5	128	PRL	3mm	49231502	19280398	9339	18985821	17231426	0	0	294577
5	128	PRL	adi	69695612	8910400	5240789	5945282	3780321	9	5	2965118
5	128	PRL	atax	1109667	10049	130	10049	10049	8	0	0
5	128	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
5	128	PRL	cholesky	31476946	683254	5266	681212	491157	400	399	2042
5	128	PRL	correlation	11711687	11341520	38798	10811602	3728613	246	244	529918
5	128	PRL	covariance	11648520	11308322	38599	10801340	3859645	1	1	506982
5	128	PRL	deriche	3956142	1573474	777597	1486170	913754	14	7	87304
5	128	PRL	doitgen	21617396	342608	8821	308523	179433	3	1	34085
5	128	PRL	durbin	558661	49	0	0	0	20	2	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	PRL	fdtd-2d	64731018	2077584	898420	2049928	1504442	1	0	27656
5	128	PRL	floyd-warshall	375120637	7771853	7643042	7762524	5430921	0	0	9329
5	128	PRL	gemm	41682047	645955	3145	643624	453700	1	1	2331
5	128	PRL	gemver	1769451	152551	10300	130323	25589	2	2	22228
5	128	PRL	gesummv	493246	7756	51	7756	7756	1	0	0
5	128	PRL	gram-schmidt	21530156	18813844	5800200	15217071	12667650	0	0	3596773
5	128	PRL	heat-3d	86169647	2218355	730976	2051119	1154371	1	0	167236
5	128	PRL	jacobi-1d	2627297	3	0	0	0	101	0	0
5	128	PRL	jacobi-2d	72256576	1548225	775334	1535320	1157144	0	0	12905
5	128	PRL	lu	47790942	16288458	17410	15323045	13130604	0	0	965413
5	128	PRL	ludcmp	26928914	16298886	16319	15147209	12857802	5	3	1151677
5	128	PRL	mvt	825608	135192	206	131706	76778	0	0	3486
5	128	PRL	nussinov	48442586	14804667	13886	14092857	10188522	0	0	711810
5	128	PRL	seidel-2d	63085624	992377	989876	992377	992377	0	0	0
5	128	PRL	symm	22460935	6387067	1707236	6359750	5754522	2	1	27317
5	128	PRL	syr2k	26243962	8517880	8782	8460156	7363388	1	0	57724
5	128	PRL	syrk	20448360	2745482	7390	2698313	2338315	1	0	47169
5	128	PRL	trisolv	235468	5532	51	5532	5532	401	384	0
5	128	PRL	trmm	8553404	5870597	3459	5824154	5022934	0	0	46443
5	128	SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
5	128	SHEL	3mm	56691212	11820688	15015	10806081	4852130	0	0	1014607
5	128	SHEL	adi	70637433	7969279	5209568	7586526	5527134	309	105	382753
5	128	SHEL	correlation	11700843	11352364	39265	10736178	2918360	7	5	616186
5	128	SHEL	covariance	11594782	11362060	39628	10721453	2798954	1	1	640607
5	128	SHEL	deriche	4037393	1492227	777484	1483804	1070026	18	10	8423
5	128	SHEL	fdtd-2d	64805449	2067963	898605	2062128	1355262	309	2	5835
5	128	SHEL	gemver	1776935	145067	10213	143419	108268	2	2	1648
5	128	SHEL	heat-3d	85715322	2083780	729873	2048451	867569	1	0	35329
5	128	SHEL	jacobi-2d	72263138	1541663	775231	1536382	997481	0	0	5281
5	128	SHEL	lu	52414321	11665079	32481	8750078	3996299	0	0	2915001
5	128	SHEL	ludcmp	31569272	11659326	24524	8767017	3990984	5	3	2892309
5	128	SHEL	mvt	824831	135969	224	130402	52270	0	0	5567
5	256	CLAM	2mm	32684609	11546793	45226	6271994	6105262	1	1	5274799
5	256	CLAM	3mm	49715112	18796788	76329	9827615	8779495	0	0	8969173
5	256	CLAM	adi	69673864	8932148	5233376	5917211	3752501	9	5	3014937
5	256	CLAM	atax	1109667	10049	130	10049	10049	8	0	0
5	256	CLAM	bicg	1269759	10247	304	10247	10247	8	0	0
5	256	CLAM	cholesky	31477426	682774	5292	677111	385948	1	0	5663
5	256	CLAM	correlation	11618400	11434807	40456	10683661	2507913	727	5	751146
5	256	CLAM	covariance	11555409	11401433	40491	10652895	2488088	241	1	748538
5	256	CLAM	deriche	3931611	1598005	777589	1127407	906938	14	7	470598
5	256	CLAM	doitgen	21600558	359446	9904	293597	117430	3	1	65849
5	256	CLAM	durbin	558661	49	0	0	0	419	23	0
5	256	CLAM	fdtd-2d	64730523	2078079	898538	2046304	1481620	1	0	31775
5	256	CLAM	floyd-warshall	375094191	7788620	7639165	7767552	5113760	0	0	21068
5	256	CLAM	gemm	41682054	645948	3099	643682	470906	1	1	2266
5	256	CLAM	gemver	1726388	195614	11400	29360	28987	402	2	166254
5	256	CLAM	gesummv	493168	7834	60	7834	7834	1	0	0
5	256	CLAM	gram-schmidt	21507089	18836911	5800800	15111609	12571991	0	0	3725302
5	256	CLAM	heat-3d	86186130	2201872	730707	2070630	1162437	1	0	131242
5	256	CLAM	jacobi-1d	2627297	3	0	0	0	102	1	0
5	256	CLAM	jacobi-2d	72256311	1548490	775365	1534885	1147132	0	0	13605
5	256	CLAM	lu	48065359	16014041	60331	9424475	9363355	0	0	6589566
5	256	CLAM	ludcmp	27506812	15720988	34500	9171734	9109141	5	3	6549254
5	256	CLAM	mvt	800497	160303	756	88141	10576	0	0	72162

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	CLAM	nussinov	48860698	14386555	25710	12174057	6193181	0	0	2212498
5	256	CLAM	seidel-2d	63082311	995690	990416	990273	455742	0	0	5417
5	256	CLAM	symm	22489706	6358296	1571426	5410840	2198991	1	0	947456
5	256	CLAM	syr2k	26447380	8314462	86045	7321564	3102128	1	0	992898
5	256	CLAM	syrk	20649952	2543890	83405	1576685	580176	1	0	967205
5	256	CLAM	trisolv	235468	5532	51	5532	5532	800	408	0
5	256	CLAM	trmm	8556618	5867383	10569	4914199	2000642	0	0	953184
5	256	C-SHEL	2mm	36815529	7415873	8868	6881551	3431790	1	1	534322
5	256	C-SHEL	3mm	56682557	11829343	15243	10781723	4715951	0	0	1047620
5	256	C-SHEL	adi	69568716	9037996	5185843	9016362	8848447	509	319	21634
5	256	C-SHEL	correlation	11725072	11328135	38907	10774379	3272554	727	5	553756
5	256	C-SHEL	covariance	11586432	11370410	39720	10712584	2711573	241	1	657826
5	256	C-SHEL	deriche	4036660	1492960	672505	1482369	965281	18	10	10591
5	256	C-SHEL	fdtd-2d	64798121	2075291	898614	2064270	1757059	509	2	11021
5	256	C-SHEL	gemver	1755717	166285	10171	166096	160299	402	2	189
5	256	C-SHEL	heat-3d	85709184	2089918	729866	2064044	1271372	1	0	25874
5	256	C-SHEL	jacobi-2d	72257316	1547485	775297	1535651	1129896	0	0	11834
5	256	C-SHEL	lu	52409680	11669720	32583	8770900	4015313	0	0	2898820
5	256	C-SHEL	ludcmp	31568634	11659964	24731	8749726	3978358	1202	620	2910238
5	256	C-SHEL	mvt	792983	167817	177	167616	161170	0	0	201
5	256	PRL	2mm	33483238	10748164	6232	10552893	9127596	1	1	195271
5	256	PRL	3mm	49219271	19292629	9686	18959598	17109451	0	0	333031
5	256	PRL	adi	69695070	8910942	5240830	5945399	3788810	9	5	2965543
5	256	PRL	atax	1109667	10049	130	10049	10049	8	0	0
5	256	PRL	bicg	1269759	10247	304	10247	10247	8	0	0
5	256	PRL	cholesky	31474425	685775	5249	685422	666411	1	0	353
5	256	PRL	correlation	11749744	11303463	38485	10805083	4288321	727	5	498380
5	256	PRL	covariance	11654966	11301876	38480	10813073	3982430	241	1	488803
5	256	PRL	deriche	3956795	1572821	752405	1487817	913478	14	7	85004
5	256	PRL	doitgen	21613238	346766	9141	304621	161564	3	1	42145
5	256	PRL	durbin	558661	49	0	0	0	419	23	0
5	256	PRL	fdtd-2d	64730998	2077604	898530	2049256	1518021	1	0	28348
5	256	PRL	floyd-warshall	375087680	7782626	7628458	7779795	6634316	0	0	2831
5	256	PRL	gemm	41682450	645552	2953	644835	582864	1	1	717
5	256	PRL	gemver	1765889	156113	10387	124701	22568	402	2	31412
5	256	PRL	gesummv	493184	7818	51	7818	7818	1	0	0
5	256	PRL	gram-schmidt	21522042	18821958	5800378	15167021	12622430	0	0	3654937
5	256	PRL	heat-3d	86210355	2177647	730327	2099345	1242354	1	0	78302
5	256	PRL	jacobi-1d	2627297	3	0	0	0	102	1	0
5	256	PRL	jacobi-2d	72256542	1548259	775350	1535456	1160696	0	0	12803
5	256	PRL	lu	47798140	16281260	18096	15237292	13001061	0	0	1043968
5	256	PRL	ludcmp	26941035	16286765	16600	15108984	12797113	5	3	1177781
5	256	PRL	mvt	826241	134559	188	133091	100447	0	0	1468
5	256	PRL	nussinov	48463663	14783590	13976	14053873	10133380	0	0	729717
5	256	PRL	seidel-2d	63085476	992525	990024	992525	992525	0	0	0
5	256	PRL	symm	22390579	6457423	1762202	6380469	5230643	1	0	76954
5	256	PRL	syr2k	26283058	8478784	12486	8384745	6981873	1	0	94039
5	256	PRL	syrk	20485390	2708452	9991	2639246	2192495	1	0	69206
5	256	PRL	trisolv	235468	5532	51	5532	5532	800	408	0
5	256	PRL	trmm	8516579	5907422	3392	5871535	5207219	0	0	35887
5	256	SHEL	2mm	36816404	7414998	8780	6893997	3519290	1	1	521001
5	256	SHEL	3mm	56688846	11823054	14997	10808207	4865638	0	0	1014847
5	256	SHEL	adi	70641777	7964935	5209506	7602009	5589310	509	352	362926
5	256	SHEL	correlation	11718819	11334388	38901	10763447	3171924	727	5	570941
5	256	SHEL	covariance	11587827	11369015	39759	10712298	2726695	241	1	656717
5	256	SHEL	deriche	4036656	1492964	672491	1482800	978625	18	11	10164
5	256	SHEL	fdtd-2d	64804707	2068705	898712	2063128	1384642	509	2	5577

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	SHEL	gemver	1776969	145033	10213	143473	110885	402	2	1560
5	256	SHEL	heat-3d	85709773	2089329	729868	2063026	1262254	1	0	26303
5	256	SHEL	jacobi-2d	72264098	1540703	775191	1537233	1133647	0	0	3470
5	256	SHEL	lu	52418804	11660596	32524	8779109	4032894	0	0	2881487
5	256	SHEL	ludcmp	31572346	11656252	24482	8782446	4023154	1202	594	2873806
5	256	SHEL	mvt	825391	135409	197	132039	78779	0	0	3370
5	512	CLAM	2mm	32788021	11443381	45133	6168582	6001755	1	1	5274799
5	512	CLAM	3mm	49672701	18839199	77206	9761609	8782469	0	0	9077590
5	512	CLAM	adi	69692102	8913910	5239023	5939166	3776277	9	5	2974744
5	512	CLAM	atax	1109641	10075	156	10075	10075	398	25	0
5	512	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
5	512	CLAM	cholesky	31476259	683941	5270	681355	446565	400	24	2586
5	512	CLAM	correlation	11599568	11453639	40967	10657854	2352548	1206	274	795785
5	512	CLAM	covariance	11564092	11392750	40452	10667007	2580825	481	16	725743
5	512	CLAM	deriche	3931598	1598018	777603	1145688	906961	14	7	452330
5	512	CLAM	doitgen	21593479	366525	10304	288219	101650	3	1	78306
5	512	CLAM	durbin	558661	49	0	0	0	1614	23	0
5	512	CLAM	fdtd-2d	64730395	2078207	898535	2045174	1470629	1	0	33033
5	512	CLAM	floyd-warshall	375123709	7773196	7647021	7759369	4902618	0	0	13827
5	512	CLAM	gemm	41682126	645876	3144	643718	473518	1	1	2158
5	512	CLAM	gemver	1735127	186875	11403	20588	20191	802	34	166287
5	512	CLAM	gesummv	493234	7768	63	7768	7768	501	0	0
5	512	CLAM	gram-schmidt	21512650	18831350	5800500	15126614	12586491	0	0	3704736
5	512	CLAM	heat-3d	86138193	2249809	731333	2034700	1144301	1	0	215109
5	512	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
5	512	CLAM	jacobi-2d	72255175	1549626	775375	1532739	1104433	0	0	16887
5	512	CLAM	lu	47815480	16263920	61105	9627897	9551170	399	399	6636023
5	512	CLAM	ludcmp	27543671	15684129	34181	9136282	9073309	2000	1026	6547847
5	512	CLAM	mvt	800139	160661	1015	88115	10615	400	25	72546
5	512	CLAM	nussinov	48860090	14387163	24915	12214945	6251427	0	0	2172218
5	512	CLAM	seidel-2d	63084428	993573	988122	992296	826986	0	0	1277
5	512	CLAM	symm	22482105	6365897	1574491	5381588	2137498	1	0	984309
5	512	CLAM	syr2k	26450049	8311793	83884	7350530	3160851	1	0	961263
5	512	CLAM	syrk	20654628	2539214	81219	1605761	601344	1	0	933453
5	512	CLAM	trisolv	235468	5532	51	5532	5532	800	408	0
5	512	CLAM	trmm	8551740	5872261	10697	4900630	1931002	0	0	971631
5	512	C-SHEL	2mm	36782142	7449260	9823	6785912	2919064	1	1	663348
5	512	C-SHEL	3mm	56670230	11841670	15712	10754114	4599465	0	0	1087556
5	512	C-SHEL	adi	69456538	9150174	5152079	9132761	9057753	309	120	17413
5	512	C-SHEL	correlation	11693410	11359797	39685	10723711	2780470	967	35	636086
5	512	C-SHEL	covariance	11586087	11370755	39852	10710515	2717310	481	16	660240
5	512	C-SHEL	deriche	4037187	1492433	777493	1483469	1054097	18	11	8964
5	512	C-SHEL	fdtd-2d	64797668	2075744	898425	2062179	1557400	809	102	13565
5	512	C-SHEL	gemver	1749982	172020	10156	171816	165274	802	28	204
5	512	C-SHEL	heat-3d	85712396	2086706	729859	2067050	1355224	101	100	19656
5	512	C-SHEL	jacobi-2d	72255640	1549161	775380	1533459	1114633	0	0	15702
5	512	C-SHEL	lu	52412238	11667162	32674	8770743	4012331	399	399	2896419
5	512	C-SHEL	ludcmp	31569172	11659426	24891	8714115	3927997	803	426	2945311
5	512	C-SHEL	mvt	793433	167367	448	167187	148706	400	25	180
5	512	PRL	2mm	33476167	10755235	6475	10528946	8986229	1	1	226289
5	512	PRL	3mm	49213144	19298756	9976	18936603	16993954	0	0	362153
5	512	PRL	adi	69784256	8821756	5236936	6120671	3863720	9	5	2701085
5	512	PRL	atax	1109641	10075	156	10075	10075	398	25	0
5	512	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
5	512	PRL	cholesky	31474181	686019	5251	685570	615919	400	24	449
5	512	PRL	correlation	11734087	11319120	39253	10778265	3960702	1206	274	540855
5	512	PRL	covariance	11613537	11343305	39418	10746795	3284405	481	16	596510

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	PRL	deriche	3959093	1570523	777606	1493187	914867	14	7	77336
5	512	PRL	doitgen	21613238	346766	9141	304621	161564	3	1	42145
5	512	PRL	durbin	558661	49	0	0	0	1614	23	0
5	512	PRL	fdtd-2d	64730961	2077641	898531	2048642	1517664	1	0	28999
5	512	PRL	floyd-warshall	375113641	7769460	7635476	7767100	6941314	0	0	2360
5	512	PRL	gemm	41682428	645574	2980	644713	562460	1	1	861
5	512	PRL	gemver	1764264	157738	10385	122038	22121	802	34	35700
5	512	PRL	gesummv	493245	7757	52	7757	7757	501	0	0
5	512	PRL	gram-schmidt	21520854	18823146	5800264	15167048	12622564	0	0	3656098
5	512	PRL	heat-3d	86189517	2198485	730468	2100144	1230678	1	0	98341
5	512	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
5	512	PRL	jacobi-2d	72256948	1547853	775328	1536243	1180410	0	0	11610
5	512	PRL	lu	47255674	16823726	44823	12351934	10844997	399	399	4471792
5	512	PRL	ludcmp	26948976	16278824	16331	15086773	12766007	2000	1004	1192051
5	512	PRL	mvt	825703	135097	282	135022	133112	400	25	75
5	512	PRL	nussinov	48398969	14848284	13889	14148490	10181565	0	0	699794
5	512	PRL	seidel-2d	63085274	992727	987952	992727	992727	0	0	0
5	512	PRL	symm	22429259	6418743	1720587	6319653	4990778	1	0	99090
5	512	PRL	syr2k	26279682	8482160	8751	8423343	7473430	1	0	58817
5	512	PRL	syrk	20454074	2739768	8313	2689071	2311554	1	0	50697
5	512	PRL	trisolv	235468	5532	51	5532	5532	800	408	0
5	512	PRL	trmm	8603586	5820415	3635	5753118	4738252	0	0	67297
5	512	SHEL	2mm	36791438	7439964	9652	6814303	3069437	1	1	625661
5	512	SHEL	3mm	56674117	11837783	15543	10764963	4661675	0	0	1072820
5	512	SHEL	adi	70625155	7981557	5210191	7549775	5392215	309	153	431782
5	512	SHEL	correlation	11682435	11370772	39845	10708371	2677425	967	35	662401
5	512	SHEL	covariance	11586426	11370416	39779	10710433	2704237	481	16	659983
5	512	SHEL	deriche	4036967	1492653	777466	1483423	970589	18	11	9230
5	512	SHEL	fdtd-2d	64803942	2069470	898614	2059744	929841	809	102	9726
5	512	SHEL	gemver	1774933	147069	10268	138508	38507	802	29	8561
5	512	SHEL	heat-3d	85713107	2085995	729851	2067317	1350082	101	100	18678
5	512	SHEL	jacobi-2d	72262997	1541804	775237	1536940	1092437	0	0	4864
5	512	SHEL	lu	52417831	11661569	32313	8787328	4043484	399	399	2874241
5	512	SHEL	ludcmp	31573845	11654753	24760	8725857	3951433	803	426	2928896
5	512	SHEL	mvt	824975	135825	315	131011	61222	400	25	4814
5	1024	CLAM	2mm	32909062	11322340	45195	6046546	5879640	1	1	5275794
5	1024	CLAM	3mm	49531232	18980668	80215	9510025	8777257	0	0	9470643
5	1024	CLAM	adi	69695070	8910942	5240830	5945399	3788810	9	5	2965543
5	1024	CLAM	atax	1109639	10077	156	10077	10077	398	25	0
5	1024	CLAM	bicg	1269959	10047	104	10047	10047	8	0	0
5	1024	CLAM	cholesky	31476416	683784	5286	677752	314048	1198	418	6032
5	1024	CLAM	correlation	11655288	11397919	40208	10739619	2949507	1446	274	658300
5	1024	CLAM	covariance	11564092	11392750	40452	10667007	2580825	481	16	725743
5	1024	CLAM	deriche	3931592	1598024	777606	1101725	906936	14	7	496299
5	1024	CLAM	doitgen	21610207	349797	11002	304004	152608	3	1	45793
5	1024	CLAM	durbin	558661	49	0	0	0	2450	5	0
5	1024	CLAM	fdtd-2d	64730672	2077930	898534	2047505	1501598	1	0	30425
5	1024	CLAM	floyd-warshall	375120061	7773353	7643611	7759462	4868422	0	0	13891
5	1024	CLAM	gemm	41682005	645997	3159	643539	456958	1	1	2458
5	1024	CLAM	gemver	1731039	190963	11740	24678	24061	802	365	166285
5	1024	CLAM	gesummv	493231	7771	66	7771	7771	501	16	0
5	1024	CLAM	gram-schmidt	21504407	18839593	5635753	15195741	12645276	240	240	3643852
5	1024	CLAM	heat-3d	85886370	2501632	732789	1996895	1262713	1	0	504737
5	1024	CLAM	jacobi-1d	2627297	3	0	0	0	103	1	0
5	1024	CLAM	jacobi-2d	72253337	1551464	775354	1537559	1143283	0	0	13905

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	CLAM	lu	48050649	16028751	61375	9392379	9315986	399	399	6636372
5	1024	CLAM	ludcmp	27149059	16078741	34595	9483613	9409081	2798	2370	6595128
5	1024	CLAM	mvt	799850	160950	1034	87458	10580	400	25	73492
5	1024	CLAM	nussinov	48872516	14374737	26734	12022670	5964338	0	0	2352067
5	1024	CLAM	seidel-2d	63078313	999688	990557	988238	139005	0	0	11450
5	1024	CLAM	symm	22470853	6377149	4718226	5345770	2080747	1	0	1031379
5	1024	CLAM	syr2k	26447505	8314337	85929	7319440	3096542	1	0	994897
5	1024	CLAM	syrk	20659958	2533884	77779	1667036	652343	1	0	866848
5	1024	CLAM	trisolv	232735	8265	90	8265	8265	1199	408	0
5	1024	CLAM	trmm	8534187	5889814	11131	4863651	1850304	0	0	1026163
5	1024	C-SHEL	2mm	36744187	7487215	11125	6664407	2338998	1	1	822808
5	1024	C-SHEL	3mm	56644426	11867474	16290	10674687	4220879	0	0	1192787
5	1024	C-SHEL	adi	69641418	8965294	5147290	8945469	8854108	509	205	19825
5	1024	C-SHEL	correlation	11744236	11308971	38637	10805895	3575239	1446	274	503076
5	1024	C-SHEL	covariance	11612309	11344533	39340	10750271	3035992	481	16	594262
5	1024	C-SHEL	deriche	4032281	1497339	728899	1474281	726869	18	10	23058
5	1024	C-SHEL	fdtd-2d	64797585	2075827	898623	2062797	1699719	909	102	13030
5	1024	C-SHEL	gemver	1754847	167155	10489	166920	160642	802	369	235
5	1024	C-SHEL	heat-3d	85673066	2126036	730107	1987305	303406	101	100	138731
5	1024	C-SHEL	jacobi-2d	72258479	1546322	775246	1541143	1220925	0	0	5179
5	1024	C-SHEL	lu	52409850	11669550	32765	8702920	3928362	399	399	2966630
5	1024	C-SHEL	ludcmp	31565836	11662762	24600	8749553	3976732	2798	1851	2913209
5	1024	C-SHEL	mvt	825428	135372	285	131457	67974	400	25	3915
5	1024	PRL	2mm	33455564	10775838	7180	10451850	8566320	1	1	323988
5	1024	PRL	3mm	49186833	19325067	10582	18867294	16699401	0	0	457773
5	1024	PRL	adi	69761021	8844991	5237638	6075829	3845666	9	5	2769162
5	1024	PRL	atax	1109639	10077	156	10077	10077	398	25	0
5	1024	PRL	bicg	1269959	10047	104	10047	10047	8	0	0
5	1024	PRL	cholesky	31470776	689424	5251	689421	687471	1198	422	3
5	1024	PRL	correlation	11780712	11272495	38142	10869021	5271716	1446	274	403474
5	1024	PRL	covariance	11656509	11300333	38561	10813684	4000175	481	16	486649
5	1024	PRL	deriche	3953298	1576318	755901	1475723	912549	14	7	100595
5	1024	PRL	doitgen	21626519	333485	10023	320922	255058	3	1	12563
5	1024	PRL	durbin	558661	49	0	0	0	2450	5	0
5	1024	PRL	fdtd-2d	64731179	2077423	898537	2050512	1546925	1	0	26911
5	1024	PRL	floyd-warshall	375106430	7768891	7629047	7768182	7410183	0	0	709
5	1024	PRL	gemm	41682427	645575	2964	644812	576180	1	1	763
5	1024	PRL	gemver	1765094	156908	10713	125393	23474	802	389	31515
5	1024	PRL	gesummv	493231	7771	66	7771	7771	501	16	0
5	1024	PRL	gram-schmidt	21554101	18789899	5594516	15433144	12870412	240	240	3356755
5	1024	PRL	heat-3d	85856246	2531756	732879	2027305	1294252	1	0	504451
5	1024	PRL	jacobi-1d	2627297	3	0	0	0	103	1	0
5	1024	PRL	jacobi-2d	72254167	1550634	775324	1539024	1181261	0	0	11610
5	1024	PRL	lu	47232790	16846610	45312	12263258	10823831	399	399	4583352
5	1024	PRL	ludcmp	26434758	16793042	27792	12452012	10875439	2798	2033	4341030
5	1024	PRL	mvt	825191	135609	279	135595	135061	400	25	14
5	1024	PRL	nussinov	48512859	14734394	14514	13934821	9847269	0	0	799573
5	1024	PRL	seidel-2d	63085298	992703	988127	992703	992703	0	0	0
5	1024	PRL	symm	22517110	6330892	4684484	6249382	5088098	1	0	81510
5	1024	PRL	syr2k	26207337	8554505	6509	8514706	7806195	1	0	39799
5	1024	PRL	syrk	20460368	2733474	9311	2678290	2285379	1	0	55184
5	1024	PRL	trisolv	232735	8265	90	8265	8265	1199	408	0
5	1024	PRL	trmm	8548734	5875267	3486	5825991	4987245	0	0	49276
5	1024	SHEL	2mm	36751053	7480349	11012	6679201	2403073	1	1	801148
5	1024	SHEL	3mm	56646656	11865244	16266	10689044	4309977	0	0	1176200
5	1024	SHEL	adi	70631653	7975059	5194133	7576825	5485866	509	205	398234
5	1024	SHEL	correlation	11734131	11319076	38766	10792037	3462909	1446	274	527039

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	SHEL	covariance	11596073	11360769	39646	10723677	2781413	481	16	637092
5	1024	SHEL	deriche	4032096	1497524	729090	1474335	731194	18	10	23189
5	1024	SHEL	fdtd-2d	64805165	2068247	898605	2062190	1378391	909	102	6057
5	1024	SHEL	gemver	1775863	146139	10533	142199	80167	802	357	3940
5	1024	SHEL	heat-3d	85672218	2126884	730119	1986108	286651	101	100	140776
5	1024	SHEL	jacobi-2d	72260944	1543857	775237	1540375	1164192	0	0	3482
5	1024	SHEL	lu	52409543	11669857	32780	8721978	3955511	399	399	2947879
5	1024	SHEL	ludcmp	31569207	11659391	24766	8761097	3985127	2798	1870	2898294
5	1024	SHEL	mvt	825065	135735	310	131099	59730	400	25	4636

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	2mm	33391	1121	574	1121	1121	65	0	0
1	64	CLAM	3mm	61365	2014	972	1591	1491	0	0	423
1	64	CLAM	adi	1632495	43866	39986	30776	25496	41	1	12936
1	64	CLAM	atax	1692	534	62	534	534	10	8	0
1	64	CLAM	bicg	13317	588	74	588	588	1	1	0
1	64	CLAM	cholesky	20752	731	389	549	536	12	9	182
1	64	CLAM	correlation	477848	3983	1311	817	574	263	187	3166
1	64	CLAM	covariance	476562	3874	1243	651	456	23	4	3223
1	64	CLAM	deriche	332172	21073	9372	17662	15158	14	10	3411
1	64	CLAM	doitgen	3035	725	638	725	725	3	2	0
1	64	CLAM	durbin	2	37	0	0	0	24	23	0
1	64	CLAM	fdtd-2d	770913	47161	30649	27899	22823	0	0	19262
1	64	CLAM	floyd-warshall	393849	317694	295913	314313	234199	2	2	3381
1	64	CLAM	gemm	21947	585	310	585	585	1	1	0
1	64	CLAM	gemver	13019	2349	1223	1618	1177	138	77	731
1	64	CLAM	gesummv	7427	618	62	618	618	15	1	0
1	64	CLAM	gram-schmidt	50894	780	706	780	780	3	3	0
1	64	CLAM	heat-3d	59747	46275	28623	31838	29174	4	4	14437
1	64	CLAM	jacobi-1d	1747	97	0	0	0	3	3	0
1	64	CLAM	jacobi-2d	61498	58502	37161	38888	35689	0	0	19614
1	64	CLAM	lu	69083	2482	1134	1187	745	2	2	1295
1	64	CLAM	ludcmp	68829	3829	1178	1316	1044	98	98	2513
1	64	CLAM	mvt	3233	1309	462	1018	878	36	9	291
1	64	CLAM	nussinov	249252	38828	1569	27550	24687	3	3	11278
1	64	CLAM	seidel-2d	49099	22357	21785	21904	14968	5	5	453
1	64	CLAM	symm	53193	1823	1055	696	503	1	1	1127
1	64	CLAM	syr2k	328370	3011	743	841	619	0	0	2170
1	64	CLAM	syrk	92293	320	256	320	320	0	0	0
1	64	CLAM	trisolv	464	227	126	217	202	31	11	10
1	64	CLAM	trmm	108476	95	50	95	95	2	2	0
1	64	C-SHEL	2mm	33545	971	586	971	971	1	0	0
1	64	C-SHEL	3mm	61396	1984	933	1590	1320	28	3	394
1	64	C-SHEL	adi	1632871	43611	39893	33829	28106	146	47	9631
1	64	C-SHEL	correlation	477808	4023	1325	908	661	262	185	3115
1	64	C-SHEL	covariance	476487	3950	1261	892	639	59	11	3058
1	64	C-SHEL	deriche	332223	21027	9552	20184	17618	19	13	843
1	64	C-SHEL	fdtd-2d	770445	48276	30125	40117	37630	47	45	8159
1	64	C-SHEL	gemver	13329	2037	919	1544	1432	88	31	493
1	64	C-SHEL	heat-3d	59135	46889	28852	32684	30272	88	62	14205
1	64	C-SHEL	jacobi-2d	65362	54638	35763	40723	34589	53	24	13915
1	64	C-SHEL	lu	69148	2417	1137	1144	761	0	0	1273
1	64	C-SHEL	ludcmp	69005	3878	1178	1389	1060	104	95	2489

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	C-SHEL	mvt	3196	1347	439	1193	1021	9	9	154
1	64	PRL	2mm	33419	1093	544	1093	1093	65	1	0
1	64	PRL	3mm	61400	1979	986	1807	1659	0	0	172
1	64	PRL	adi	1631441	44920	40326	32072	27328	41	2	12694
1	64	PRL	atax	1691	535	65	535	535	10	8	0
1	64	PRL	bicg	13307	598	80	598	598	1	1	0
1	64	PRL	cholesky	17893	3590	657	3590	3590	12	9	0
1	64	PRL	correlation	478807	3024	2230	3008	2992	263	197	16
1	64	PRL	covariance	477731	2705	2167	2703	2347	23	4	2
1	64	PRL	deriche	330324	22921	10269	15831	14416	14	10	7090
1	64	PRL	doitgen	3122	638	567	638	638	3	2	0
1	64	PRL	durbin	2	37	0	0	0	24	23	0
1	64	PRL	fdtd-2d	772935	45139	30012	31595	22713	0	0	13544
1	64	PRL	floyd-warshall	394490	317053	295781	316286	292998	2	2	767
1	64	PRL	gemm	21947	585	310	585	585	1	1	0
1	64	PRL	gemver	13391	1977	954	1831	1631	137	89	146
1	64	PRL	gesummv	7424	621	65	621	621	15	1	0
1	64	PRL	gram-schmidt	50894	780	706	780	780	3	3	0
1	64	PRL	heat-3d	58635	47387	29128	33381	31035	4	4	14006
1	64	PRL	jacobi-1d	1747	97	0	0	0	3	3	0
1	64	PRL	jacobi-2d	63488	56512	36355	43765	38545	0	0	12747
1	64	PRL	lu	68433	3132	1061	3132	3132	2	2	0
1	64	PRL	ludcmp	68733	3925	1105	3925	3925	97	93	0
1	64	PRL	mvt	3431	1111	268	1111	1111	36	7	0
1	64	PRL	nussinov	246818	41262	1568	34949	32780	3	3	6313
1	64	PRL	seidel-2d	49000	22456	21994	22456	22456	5	5	0
1	64	PRL	symm	50416	4600	791	4600	4600	1	1	0
1	64	PRL	syr2k	323245	8136	689	8136	8136	0	0	0
1	64	PRL	syrk	92305	308	243	308	308	0	0	0
1	64	PRL	trisolv	475	216	81	216	216	31	11	0
1	64	PRL	trmm	108475	96	51	96	96	2	2	0
1	64	SHEL	2mm	33550	966	566	932	908	1	0	34
1	64	SHEL	3mm	61637	1743	846	1589	1323	33	3	154
1	64	SHEL	adi	1629929	46553	39953	32740	26467	163	44	13662
1	64	SHEL	correlation	477714	4117	1344	980	720	262	188	3137
1	64	SHEL	covariance	476554	3883	1235	846	600	28	11	3037
1	64	SHEL	deriche	332675	20575	9440	20068	19607	19	11	507
1	64	SHEL	fdtd-2d	761077	57644	35966	30753	24114	47	45	26891
1	64	SHEL	gemver	13289	2077	1142	1323	958	88	31	754
1	64	SHEL	heat-3d	69667	36357	23068	35138	25865	88	43	1219
1	64	SHEL	jacobi-2d	75801	44199	31558	42000	21571	64	16	2199
1	64	SHEL	lu	68098	3467	1092	3225	2483	0	0	242
1	64	SHEL	ludcmp	68284	4599	1175	2676	1612	104	97	1923
1	64	SHEL	mvt	3235	1308	407	1304	1291	9	8	4
1	128	CLAM	2mm	33390	1122	573	962	846	179	127	160
1	128	CLAM	3mm	61203	2176	939	1997	1806	175	175	179
1	128	CLAM	adi	1629229	47132	41690	30520	25945	41	1	16458
1	128	CLAM	atax	1687	539	72	539	539	78	2	0
1	128	CLAM	bicg	13287	618	87	618	618	17	9	0
1	128	CLAM	cholesky	20649	834	395	752	738	130	95	82
1	128	CLAM	correlation	477806	4025	1317	829	614	99	30	3196
1	128	CLAM	covariance	476496	3940	1257	723	467	3	1	3217
1	128	CLAM	deriche	332016	21229	9363	16587	14732	14	10	4642
1	128	CLAM	doitgen	2939	821	678	821	821	3	3	0
1	128	CLAM	durbin	2	37	0	0	0	24	23	0
1	128	CLAM	fdtd-2d	770335	47739	30782	32060	25002	0	0	15679

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	CLAM	floyd-warshall	393797	317746	295940	314354	235599	2	2	3392
1	128	CLAM	gemm	21951	581	311	581	581	1	1	0
1	128	CLAM	gemver	13252	2116	1060	1619	1446	118	89	497
1	128	CLAM	gesummv	7427	618	56	618	618	15	1	0
1	128	CLAM	gram-schmidt	50832	842	708	842	842	201	128	0
1	128	CLAM	heat-3d	60364	45658	28049	31586	28593	44	29	14072
1	128	CLAM	jacobi-1d	1747	97	0	0	0	3	3	0
1	128	CLAM	jacobi-2d	60177	59823	37621	36991	35102	116	33	22832
1	128	CLAM	lu	69204	2361	1112	1398	957	2	2	963
1	128	CLAM	ludcmp	69749	2909	1134	1810	1484	119	114	1099
1	128	CLAM	mvt	3246	1296	429	1161	996	8	8	135
1	128	CLAM	nussinov	249050	39030	1568	30679	27334	3	3	8351
1	128	CLAM	seidel-2d	49002	22454	21837	22408	21317	45	45	46
1	128	CLAM	symm	52907	2109	1259	960	621	1	1	1149
1	128	CLAM	syr2k	328196	3185	737	1047	670	0	0	2138
1	128	CLAM	syrk	92255	358	213	358	358	272	101	0
1	128	CLAM	trisolv	464	227	126	217	202	31	11	10
1	128	CLAM	trmm	108475	96	51	96	96	2	2	0
1	128	C-SHEL	2mm	33374	1142	554	1121	1102	1	0	21
1	128	C-SHEL	3mm	61513	1867	864	1777	1737	31	3	90
1	128	C-SHEL	adi	1631170	45312	40450	32357	27770	243	125	12804
1	128	C-SHEL	correlation	477660	4171	1352	1015	765	338	68	3156
1	128	C-SHEL	covariance	476388	4049	1276	762	465	9	7	3287
1	128	C-SHEL	deriche	332221	21029	9640	19947	17646	21	14	1082
1	128	C-SHEL	fdtd-2d	772450	46271	30796	40959	34263	246	244	5312
1	128	C-SHEL	gemver	13421	1945	841	1945	1945	67	35	0
1	128	C-SHEL	heat-3d	58958	47066	28958	32989	30626	48	27	14077
1	128	C-SHEL	jacobi-2d	69453	50547	34136	42805	34247	126	53	7742
1	128	C-SHEL	lu	69254	2311	1098	1394	974	0	0	917
1	128	C-SHEL	ludcmp	56919	15964	1037	15964	15964	651	588	0
1	128	C-SHEL	mvt	3211	1332	437	1246	1180	36	10	86
1	128	PRL	2mm	33481	1031	560	1031	1031	178	128	0
1	128	PRL	3mm	61398	1981	875	1981	1981	175	175	0
1	128	PRL	adi	1630695	45666	40814	33084	28259	41	1	12428
1	128	PRL	atax	1687	539	72	539	539	78	2	0
1	128	PRL	bicg	13287	618	87	618	618	17	9	0
1	128	PRL	cholesky	19015	2468	646	2468	2468	131	101	0
1	128	PRL	correlation	478648	3183	2255	3183	3183	99	38	0
1	128	PRL	covariance	477427	3009	2374	2993	2781	3	1	16
1	128	PRL	deriche	330469	22776	10097	15763	13008	14	10	7013
1	128	PRL	doitgen	3077	683	578	683	683	3	2	0
1	128	PRL	durbin	2	37	0	0	0	24	23	0
1	128	PRL	fdtd-2d	772497	45577	29564	36258	26173	0	0	9319
1	128	PRL	floyd-warshall	394560	316983	295828	316702	307897	2	2	281
1	128	PRL	gemm	21951	581	311	581	581	1	1	0
1	128	PRL	gemver	13359	2009	969	1939	1891	118	102	70
1	128	PRL	gesummv	7381	664	102	664	664	15	1	0
1	128	PRL	gram-schmidt	50832	842	708	842	842	201	128	0
1	128	PRL	heat-3d	57626	48396	29103	35897	33864	44	33	12499
1	128	PRL	jacobi-1d	1747	97	0	0	0	3	3	0
1	128	PRL	jacobi-2d	62128	57872	36896	41701	37460	107	30	16171
1	128	PRL	lu	67180	4385	1074	4385	4385	2	2	0
1	128	PRL	ludcmp	69525	3133	1109	3110	2846	119	117	23
1	128	PRL	mvt	3448	1094	208	1094	1094	8	6	0
1	128	PRL	nussinov	247798	40282	1563	35377	34740	3	3	4905

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	PRL	seidel-2d	48925	22531	21943	22531	22531	45	45	0
1	128	PRL	symm	51032	3984	1050	3984	3984	1	1	0
1	128	PRL	syr2k	323878	7503	777	7503	7503	0	0	0
1	128	PRL	syrk	92257	356	204	356	356	272	93	0
1	128	PRL	trisolv	475	216	81	216	216	31	11	0
1	128	PRL	trmm	108475	96	51	96	96	2	2	0
1	128	SHEL	2mm	33382	1134	568	1134	1134	1	0	0
1	128	SHEL	3mm	61604	1776	787	1686	1642	30	3	90
1	128	SHEL	adi	1630592	45890	39789	36086	30689	243	122	9653
1	128	SHEL	correlation	477641	4190	1335	1031	787	338	75	3159
1	128	SHEL	covariance	476370	4067	1280	853	595	9	6	3214
1	128	SHEL	deriche	332234	21016	9603	19851	15261	21	15	1165
1	128	SHEL	fdtd-2d	760957	57764	36059	31331	24013	246	244	26433
1	128	SHEL	gemver	13337	2029	966	1985	1937	67	36	44
1	128	SHEL	heat-3d	69563	36461	23082	35186	26726	48	28	1275
1	128	SHEL	jacobi-2d	75671	44329	31587	42125	20414	141	40	2204
1	128	SHEL	lu	68673	2892	1108	2603	1786	0	0	289
1	128	SHEL	ludcmp	65068	7815	1217	7218	4851	656	625	597
1	128	SHEL	mvt	3370	1173	236	1173	1173	37	7	0
1	256	CLAM	2mm	33354	1158	569	1158	1158	315	146	0
1	256	CLAM	3mm	61065	2314	1000	1924	1624	255	129	390
1	256	CLAM	adi	1628793	47568	41714	30584	25349	25	1	16830
1	256	CLAM	atax	1684	542	77	542	542	40	2	0
1	256	CLAM	bicg	13126	779	197	779	779	17	15	0
1	256	CLAM	cholesky	20521	962	533	870	659	12	11	92
1	256	CLAM	correlation	477607	4224	1358	1173	713	658	213	3051
1	256	CLAM	covariance	476476	3960	1281	770	461	3	1	3190
1	256	CLAM	deriche	332223	21022	9379	17986	16436	14	10	3036
1	256	CLAM	doitgen	3141	619	577	619	619	3	2	0
1	256	CLAM	durbin	2	37	0	0	0	24	23	0
1	256	CLAM	fdtd-2d	776564	41510	27505	35881	35029	0	0	5629
1	256	CLAM	floyd-warshall	394156	317387	295860	315221	251197	2	2	2166
1	256	CLAM	gemm	21946	586	310	586	586	1	1	0
1	256	CLAM	gemver	12931	2437	1245	1624	1027	163	101	813
1	256	CLAM	gesummv	7280	765	176	765	765	218	78	0
1	256	CLAM	gram-schmidt	50891	783	708	783	783	3	3	0
1	256	CLAM	heat-3d	60222	45800	28097	31540	28932	85	52	14260
1	256	CLAM	jacobi-1d	1747	97	0	0	0	237	8	0
1	256	CLAM	jacobi-2d	61723	58277	37023	40471	36506	101	34	17806
1	256	CLAM	lu	69108	2457	1101	1605	1010	2	2	852
1	256	CLAM	ludcmp	69569	3089	1093	2438	1731	231	220	651
1	256	CLAM	mvt	3279	1263	422	1163	1002	36	9	100
1	256	CLAM	nussinov	248120	39960	1571	29157	26454	252	5	10803
1	256	CLAM	seidel-2d	48884	22572	21734	22399	19703	85	45	173
1	256	CLAM	symm	52655	2361	1306	1493	1075	1	1	868
1	256	CLAM	syr2k	328156	3225	899	1206	840	251	182	2019
1	256	CLAM	syrk	92199	414	271	414	414	272	99	0
1	256	CLAM	trisolv	464	227	126	217	202	31	11	10
1	256	CLAM	trmm	108475	96	51	96	96	193	3	0
1	256	C-SHEL	2mm	33422	1094	532	1094	1094	65	2	0
1	256	C-SHEL	3mm	61242	2138	901	2095	2040	421	398	43
1	256	C-SHEL	adi	1635853	40629	37269	37175	32259	283	120	3303
1	256	C-SHEL	correlation	477448	4383	1449	1322	1037	616	447	3061
1	256	C-SHEL	covariance	476313	4124	1349	937	546	22	3	3187
1	256	C-SHEL	deriche	332767	20483	9502	19847	18688	21	15	636
1	256	C-SHEL	fdtd-2d	773014	45707	30129	40239	33389	89	59	5468
1	256	C-SHEL	gemver	13234	2132	1004	1814	1540	147	119	318

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	C-SHEL	heat-3d	58263	47761	29040	33960	30056	88	62	13801
1	256	C-SHEL	jacobi-2d	66389	53611	35281	42314	35385	80	26	11297
1	256	C-SHEL	lu	68789	2776	1063	2763	2580	0	0	13
1	256	C-SHEL	ludcmp	70288	2595	1155	1864	1576	333	194	731
1	256	C-SHEL	mvt	3271	1272	406	1272	1272	28	0	0
1	256	PRL	2mm	33409	1103	534	1103	1103	313	135	0
1	256	PRL	3mm	61367	2012	915	1901	1786	282	129	111
1	256	PRL	adi	1629692	46669	41231	34061	29456	41	1	12454
1	256	PRL	atax	1684	542	77	542	542	40	2	0
1	256	PRL	bicg	13126	779	197	779	779	17	15	0
1	256	PRL	cholesky	20521	962	533	870	659	12	11	92
1	256	PRL	correlation	478936	2895	1965	2867	2334	658	228	28
1	256	PRL	covariance	477633	2803	2208	2783	2749	3	1	20
1	256	PRL	deriche	332222	21023	9378	17987	16437	14	10	3036
1	256	PRL	doitgen	3141	619	577	619	619	3	2	0
1	256	PRL	durbin	2	37	0	0	0	24	23	0
1	256	PRL	fdtd-2d	775304	42770	28663	38251	37165	0	0	4519
1	256	PRL	floyd-warshall	394536	317007	295928	316977	315747	2	2	30
1	256	PRL	gemm	21892	640	302	640	640	1	1	0
1	256	PRL	gemver	13267	2101	967	1959	1888	162	103	142
1	256	PRL	gesummv	7278	767	177	767	767	218	79	0
1	256	PRL	gram-schmidt	50891	783	708	783	783	3	3	0
1	256	PRL	heat-3d	58350	47672	28850	32573	29949	85	48	15099
1	256	PRL	jacobi-1d	1747	97	0	0	0	237	8	0
1	256	PRL	jacobi-2d	65104	54896	35505	47733	42490	90	32	7163
1	256	PRL	lu	63000	8565	1006	8565	8565	2	2	0
1	256	PRL	ludcmp	66363	6295	1080	6295	6295	229	214	0
1	256	PRL	mvt	3499	1043	145	1043	1043	37	6	0
1	256	PRL	nussinov	243686	44394	1567	38213	36471	252	7	6181
1	256	PRL	seidel-2d	48700	22756	22170	22756	22756	85	45	0
1	256	PRL	symm	52337	2679	1103	2315	1906	1	1	364
1	256	PRL	syr2k	325741	5640	887	5640	5541	251	167	0
1	256	PRL	syrk	92216	397	256	397	397	272	91	0
1	256	PRL	trisolv	471	220	87	220	220	31	11	0
1	256	PRL	trmm	108475	96	51	96	96	193	3	0
1	256	SHEL	2mm	33428	1088	523	1088	1088	65	2	0
1	256	SHEL	3mm	61275	2105	894	2041	1667	420	398	64
1	256	SHEL	adi	1627396	49086	41657	32635	26188	282	122	16300
1	256	SHEL	correlation	477446	4385	1444	1321	1037	616	446	3064
1	256	SHEL	covariance	476450	3987	1333	978	656	44	6	3009
1	256	SHEL	deriche	332689	20561	9545	19814	18539	21	15	747
1	256	SHEL	fdtd-2d	760760	57961	36226	29787	23132	89	81	28174
1	256	SHEL	gemver	13151	2215	1185	1804	1473	147	98	411
1	256	SHEL	heat-3d	68383	37641	23899	34876	18128	88	47	2765
1	256	SHEL	jacobi-2d	75413	44587	31641	42292	18682	80	25	2295
1	256	SHEL	lu	67661	3904	1081	3904	3904	0	0	0
1	256	SHEL	ludcmp	68396	4487	1210	3173	2085	333	202	1314
1	256	SHEL	mvt	3372	1171	252	1171	1171	28	0	0
1	512	CLAM	2mm	33302	1210	595	1210	1210	439	284	0
1	512	CLAM	3mm	61118	2261	1015	2056	2034	326	302	205
1	512	CLAM	adi	1626223	50138	44710	32694	10434	1441	913	17290
1	512	CLAM	atax	1593	633	137	633	633	84	10	0
1	512	CLAM	bicg	13247	658	94	658	658	1	1	0
1	512	CLAM	cholesky	20636	847	404	769	727	12	11	78
1	512	CLAM	correlation	476529	5302	1535	2580	1430	706	252	2722
1	512	CLAM	covariance	476367	4069	1386	1019	628	3	1	3050
1	512	CLAM	deriche	332192	21053	9324	17431	15012	14	10	3622

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	CLAM	doitgen	3146	614	568	614	614	3	2	0
1	512	CLAM	durbin	2	37	0	0	0	24	23	0
1	512	CLAM	fdtd-2d	770571	47503	31755	37055	29383	0	0	10448
1	512	CLAM	floyd-warshall	392262	319281	297617	313948	194227	2	2	5333
1	512	CLAM	gemm	21947	585	309	585	585	194	9	0
1	512	CLAM	gemver	12690	2678	1030	2188	1668	1101	743	490
1	512	CLAM	gesummv	7375	670	92	670	670	15	1	0
1	512	CLAM	gram-schmidt	50609	1065	875	1065	1065	935	180	0
1	512	CLAM	heat-3d	58644	47378	27985	34582	31128	85	66	12796
1	512	CLAM	jacobi-1d	1747	97	0	0	0	486	22	0
1	512	CLAM	jacobi-2d	61318	58682	37263	38715	36373	553	236	19967
1	512	CLAM	lu	68660	2905	1109	2085	1268	2	2	820
1	512	CLAM	ludcmp	67991	4667	1171	2291	1531	1249	997	2376
1	512	CLAM	mvt	3132	1410	465	945	869	8	8	465
1	512	CLAM	nussinov	248276	39804	1567	31552	27754	253	20	8252
1	512	CLAM	seidel-2d	47565	23891	22386	19749	4998	367	286	4142
1	512	CLAM	symm	52804	2212	1172	1260	920	1	1	952
1	512	CLAM	syr2k	327952	3429	830	1666	1147	0	0	1763
1	512	CLAM	syrk	92240	373	215	373	373	272	98	0
1	512	CLAM	trisolv	464	227	126	217	202	31	11	10
1	512	CLAM	trmm	108475	96	51	96	96	193	3	0
1	512	C-SHEL	2mm	33314	1202	548	1200	1200	266	144	2
1	512	C-SHEL	3mm	60885	2495	875	2380	2122	822	509	115
1	512	C-SHEL	adi	1629778	46704	42131	41619	35428	655	177	4934
1	512	C-SHEL	correlation	476294	5537	1632	2754	1631	616	452	2783
1	512	C-SHEL	covariance	476242	4195	1831	1657	773	291	186	2538
1	512	C-SHEL	deriche	332580	20670	9537	19920	17923	21	15	750
1	512	C-SHEL	fdtd-2d	774624	44097	27567	40566	38882	528	294	3531
1	512	C-SHEL	gemver	12437	2929	981	2744	2382	122	119	185
1	512	C-SHEL	heat-3d	66427	39597	24068	39574	39442	779	738	23
1	512	C-SHEL	jacobi-2d	74001	45999	32238	42702	31020	939	364	3297
1	512	C-SHEL	lu	68743	2822	1097	2152	1360	113	103	670
1	512	C-SHEL	ludcmp	69895	2988	1151	2357	1957	869	704	631
1	512	C-SHEL	mvt	3100	1443	470	985	914	36	10	458
1	512	PRL	2mm	33334	1178	563	1178	1178	439	273	0
1	512	PRL	3mm	61245	2134	958	2074	2068	327	302	60
1	512	PRL	adi	1618785	57576	48800	33870	19900	1426	876	23552
1	512	PRL	atax	1593	633	137	633	633	84	10	0
1	512	PRL	bicg	13247	658	94	658	658	1	1	0
1	512	PRL	cholesky	20636	847	404	769	727	12	11	78
1	512	PRL	correlation	476529	5302	1535	2580	1430	706	252	2722
1	512	PRL	covariance	477324	3112	2358	3112	3112	3	1	0
1	512	PRL	deriche	332291	20954	9365	18288	16790	14	10	2666
1	512	PRL	doitgen	3146	614	568	614	614	3	2	0
1	512	PRL	durbin	2	37	0	0	0	24	23	0
1	512	PRL	fdtd-2d	773111	44963	29286	40902	39963	0	0	4061
1	512	PRL	floyd-warshall	393657	317886	297470	317875	317461	2	2	11
1	512	PRL	gemm	21947	585	309	585	585	194	9	0
1	512	PRL	gemver	12913	2455	987	2272	2032	1114	580	183
1	512	PRL	gesummv	7375	670	92	670	670	15	1	0
1	512	PRL	gram-schmidt	50609	1065	875	1065	1065	935	180	0
1	512	PRL	heat-3d	56196	49826	29348	39448	35840	85	74	10378
1	512	PRL	jacobi-1d	1747	97	0	0	0	486	22	0
1	512	PRL	jacobi-2d	64110	55890	36106	45901	40920	556	187	9989
1	512	PRL	lu	68885	2680	1088	2091	1437	2	2	589

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	PRL	ludcmp	69397	3261	1104	2843	2089	1248	996	418
1	512	PRL	mvt	3331	1211	242	1211	1211	8	6	0
1	512	PRL	nussinov	244840	43240	1568	40571	40154	252	16	2669
1	512	PRL	seidel-2d	48766	22690	21879	22690	22690	367	284	0
1	512	PRL	symm	52762	2254	1218	1275	923	1	1	979
1	512	PRL	syr2k	318578	12803	624	12803	12803	0	0	0
1	512	PRL	syrk	92243	370	213	370	370	272	93	0
1	512	PRL	trisolv	471	220	87	220	220	31	11	0
1	512	PRL	trmm	108284	287	50	287	287	193	3	0
1	512	SHEL	2mm	33314	1202	548	1200	1200	266	144	2
1	512	SHEL	3mm	60923	2457	876	2343	2097	822	502	114
1	512	SHEL	adi	1629143	47339	42101	40976	36383	683	172	6212
1	512	SHEL	correlation	476321	5510	1654	2826	1569	616	448	2684
1	512	SHEL	covariance	476045	4392	1820	1708	767	296	187	2684
1	512	SHEL	deriche	332686	20564	9588	19383	17314	21	15	1181
1	512	SHEL	fdtd-2d	761867	56854	35604	35607	25510	528	333	21247
1	512	SHEL	gemver	12336	3030	1089	2879	2530	129	121	151
1	512	SHEL	heat-3d	66735	39289	24049	39224	38435	770	740	65
1	512	SHEL	jacobi-2d	74276	45724	32130	41411	18020	942	375	4313
1	512	SHEL	lu	68604	2961	1118	2140	1359	113	102	821
1	512	SHEL	ludcmp	69787	3096	1169	2440	1941	869	700	656
1	512	SHEL	mvt	3119	1424	456	1207	958	36	9	217
1	1024	CLAM	2mm	33452	1060	528	1060	1060	635	277	0
1	1024	CLAM	3mm	61288	2091	880	2091	2091	547	398	0
1	1024	CLAM	adi	1624494	51867	45334	36803	25379	3205	644	14910
1	1024	CLAM	atax	1378	848	235	846	846	408	185	2
1	1024	CLAM	bicg	13050	855	219	855	855	17	13	0
1	1024	CLAM	cholesky	20039	1444	724	1390	923	130	94	54
1	1024	CLAM	correlation	477502	4329	1874	1718	867	1143	365	2611
1	1024	CLAM	covariance	475954	4482	1374	1401	786	267	178	3081
1	1024	CLAM	deriche	330997	22248	10652	19212	17662	1551	1358	3036
1	1024	CLAM	doitgen	2686	1074	554	1074	1074	3	1	0
1	1024	CLAM	durbin	2	37	0	0	0	24	23	0
1	1024	CLAM	fdtd-2d	760623	57451	34952	21976	4969	0	0	35475
1	1024	CLAM	floyd-warshall	392854	318689	297013	314755	221859	2	2	3934
1	1024	CLAM	gemm	21947	585	309	585	585	194	9	0
1	1024	CLAM	gemver	12690	2678	1030	2188	1668	1101	743	490
1	1024	CLAM	gesummv	7375	670	92	670	670	15	1	0
1	1024	CLAM	gram-schmidt	50609	1065	875	1065	1065	935	180	0
1	1024	CLAM	heat-3d	58644	47378	27985	34582	31128	85	66	12796
1	1024	CLAM	jacobi-1d	1747	97	0	0	0	486	22	0
1	1024	CLAM	jacobi-2d	61318	58682	37263	38715	36373	553	236	19967
1	1024	CLAM	lu	68660	2905	1109	2085	1268	2	2	820
1	1024	CLAM	ludcmp	67991	4667	1171	2291	1531	1249	997	2376
1	1024	CLAM	mvt	3132	1410	465	945	869	8	8	465
1	1024	CLAM	nussinov	246616	41464	1573	31162	27467	3	3	10302
1	1024	CLAM	seidel-2d	47680	23776	22360	20316	5917	367	288	3460
1	1024	CLAM	symm	51212	3804	1099	3785	3763	1	1	19
1	1024	CLAM	syr2k	326242	5139	1197	3505	1589	251	181	1634
1	1024	CLAM	syrk	92209	404	254	404	404	272	91	0
1	1024	CLAM	trisolv	464	227	126	217	202	31	11	10
1	1024	CLAM	trmm	108455	116	51	116	116	193	3	0
1	1024	C-SHEL	2mm	33236	1280	527	1278	1278	658	293	2
1	1024	C-SHEL	3mm	60957	2423	867	2423	2423	591	397	0
1	1024	C-SHEL	adi	1636307	40175	36041	40024	40024	5563	1704	0
1	1024	C-SHEL	correlation	477861	3970	2237	2724	1670	1082	653	1246
1	1024	C-SHEL	covariance	475968	4469	1445	1536	785	296	179	2933

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	C-SHEL	deriche	332971	20279	9465	20172	20149	1557	1338	107
1	1024	C-SHEL	fdtd-2d	766439	52282	33817	39405	27564	648	418	12877
1	1024	C-SHEL	gemver	13361	2005	746	2005	2005	118	113	0
1	1024	C-SHEL	heat-3d	67350	38674	23916	37106	31043	48	45	1568
1	1024	C-SHEL	jacobi-2d	73100	46900	32668	42798	32565	930	391	4102
1	1024	C-SHEL	lu	66489	5076	1101	5076	5076	113	100	0
1	1024	C-SHEL	ludcmp	68077	4806	1221	4474	3476	1366	1070	332
1	1024	C-SHEL	mvt	3177	1366	451	1164	1024	37	10	202
1	1024	PRL	2mm	33471	1041	525	1041	1041	635	279	0
1	1024	PRL	3mm	61332	2047	880	2047	2047	545	398	0
1	1024	PRL	adi	1630580	45781	41290	38144	26486	3235	607	7483
1	1024	PRL	atax	1370	856	240	854	854	411	188	2
1	1024	PRL	bicg	13050	855	219	855	855	17	13	0
1	1024	PRL	cholesky	20039	1444	724	1390	923	130	94	54
1	1024	PRL	correlation	477709	4122	1919	4122	4122	1143	365	0
1	1024	PRL	covariance	477223	3213	1954	3213	3213	267	198	0
1	1024	PRL	deriche	331191	22054	10676	20915	19166	1551	1342	1139
1	1024	PRL	doitgen	2686	1074	554	1074	1074	3	1	0
1	1024	PRL	durbin	2	37	0	0	0	24	23	0
1	1024	PRL	fdtd-2d	767279	50795	33053	25401	14240	0	0	25394
1	1024	PRL	floyd-warshall	393579	317964	297012	317964	317964	2	2	0
1	1024	PRL	gemm	21947	585	309	585	585	194	9	0
1	1024	PRL	gemver	12913	2455	987	2272	2032	1114	580	183
1	1024	PRL	gesummv	7375	670	92	670	670	15	1	0
1	1024	PRL	gram-schmidt	50609	1065	875	1065	1065	935	180	0
1	1024	PRL	heat-3d	56196	49826	29348	39448	35840	85	74	10378
1	1024	PRL	jacobi-1d	1747	97	0	0	0	486	22	0
1	1024	PRL	jacobi-2d	64110	55890	36106	45901	40920	556	187	9989
1	1024	PRL	lu	68885	2680	1088	2091	1437	2	2	589
1	1024	PRL	ludcmp	69397	3261	1104	2843	2089	1248	996	418
1	1024	PRL	mvt	3331	1211	242	1211	1211	8	6	0
1	1024	PRL	nussinov	242324	45756	1572	41964	41072	3	3	3792
1	1024	PRL	seidel-2d	48100	23356	22482	23356	23356	367	284	0
1	1024	PRL	symm	50832	4184	1313	4179	4158	1	1	5
1	1024	PRL	syr2k	326237	5144	1196	3634	1659	251	180	1510
1	1024	PRL	syrk	91790	823	280	823	823	272	90	0
1	1024	PRL	trisolv	471	220	87	220	220	31	11	0
1	1024	PRL	trmm	108212	359	51	359	359	193	3	0
1	1024	SHEL	2mm	33236	1280	527	1278	1278	658	293	2
1	1024	SHEL	3mm	60957	2423	867	2423	2423	591	397	0
1	1024	SHEL	adi	1632280	44202	39868	44051	44051	5563	1990	0
1	1024	SHEL	correlation	477890	3941	2135	2673	1660	1050	712	1268
1	1024	SHEL	covariance	475968	4469	1445	1536	785	296	179	2933
1	1024	SHEL	deriche	332525	20725	9632	20034	18560	1557	1176	691
1	1024	SHEL	fdtd-2d	760316	58405	36392	31312	22680	648	431	27093
1	1024	SHEL	gemver	13361	2005	746	2005	2005	118	113	0
1	1024	SHEL	heat-3d	68799	37225	22972	36909	32133	48	47	316
1	1024	SHEL	jacobi-2d	75516	44484	31645	42671	27762	942	344	1813
1	1024	SHEL	lu	68052	3513	1099	3361	2284	113	103	152
1	1024	SHEL	ludcmp	68183	4700	1197	4498	3524	1365	1053	202
1	1024	SHEL	mvt	3284	1259	299	1259	1259	37	8	0
2	64	CLAM	2mm	33516	996	575	924	903	1	0	72
2	64	CLAM	3mm	61361	2018	994	1603	1503	31	2	415
2	64	CLAM	adi	1633886	42475	39379	28974	22067	41	1	13347
2	64	CLAM	atax	1680	546	76	546	546	48	10	0
2	64	CLAM	bicg	13321	584	92	584	584	57	11	0
2	64	CLAM	cholesky	20850	633	350	531	518	12	11	102

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	CLAM	correlation	477769	4062	1368	790	598	94	24	3272
2	64	CLAM	covariance	476576	3860	1297	665	495	33	4	3195
2	64	CLAM	deriche	331009	22236	9847	16110	13585	14	10	6126
2	64	CLAM	doitgen	3037	723	643	723	723	28	9	0
2	64	CLAM	durbin	2	37	0	0	0	31	29	0
2	64	CLAM	fdtd-2d	770162	47912	31673	27860	23454	42	41	20052
2	64	CLAM	floyd-warshall	393788	317755	295911	314463	233808	2	2	3292
2	64	CLAM	gemm	21942	590	319	590	590	1	1	0
2	64	CLAM	gemver	13421	1947	1013	1425	1369	95	34	522
2	64	CLAM	gesummv	7429	616	50	616	616	15	1	0
2	64	CLAM	gram-schmidt	50840	834	757	834	834	3	3	0
2	64	CLAM	heat-3d	59487	46535	28751	32044	29375	85	55	14491
2	64	CLAM	jacobi-1d	1747	97	0	0	0	4	4	0
2	64	CLAM	jacobi-2d	60843	59157	37413	38511	36642	110	42	20646
2	64	CLAM	lu	69585	1980	1076	1275	946	1	1	705
2	64	CLAM	ludcmp	68556	4102	1172	1438	1198	59	51	2664
2	64	CLAM	mvt	3215	1327	461	820	789	0	0	507
2	64	CLAM	nussinov	249588	38492	1570	27348	24569	104	35	11144
2	64	CLAM	seidel-2d	48956	22500	21803	22045	16729	84	82	455
2	64	CLAM	symm	53202	1814	1106	825	591	23	6	989
2	64	CLAM	syr2k	328150	3231	726	779	569	3	3	2452
2	64	CLAM	syrk	92275	338	285	338	338	0	0	0
2	64	CLAM	trisolv	478	213	74	213	213	10	2	0
2	64	CLAM	trmm	108475	96	51	96	96	2	2	0
2	64	C-SHEL	2mm	33480	1036	578	786	716	66	2	250
2	64	C-SHEL	3mm	61412	1968	992	1680	1575	32	3	288
2	64	C-SHEL	adi	1632193	44289	40068	30191	24981	44	9	13947
2	64	C-SHEL	correlation	477524	4307	1444	1096	892	421	278	3211
2	64	C-SHEL	covariance	476561	3876	1287	710	480	9	6	3166
2	64	C-SHEL	deriche	331683	21567	9841	19668	18224	21	13	1899
2	64	C-SHEL	fdtd-2d	775118	43603	28847	38242	37450	47	45	5361
2	64	C-SHEL	gemver	13416	1950	967	1892	1823	29	26	58
2	64	C-SHEL	heat-3d	58514	47510	29158	32140	30158	88	62	15370
2	64	C-SHEL	jacobi-2d	64972	55028	35955	40990	35896	103	37	14038
2	64	C-SHEL	lu	69598	1967	1077	1231	950	1	1	736
2	64	C-SHEL	ludcmp	67349	5534	1171	4971	3305	153	103	563
2	64	C-SHEL	mvt	3196	1347	464	867	829	9	9	480
2	64	PRL	2mm	33529	983	592	983	983	1	1	0
2	64	PRL	3mm	61710	1669	897	1669	1669	32	2	0
2	64	PRL	adi	1632630	43731	39893	30269	25001	41	1	13308
2	64	PRL	atax	1656	570	76	570	570	47	10	0
2	64	PRL	bicg	13321	584	92	584	584	57	11	0
2	64	PRL	cholesky	18375	3108	657	3108	3108	12	10	0
2	64	PRL	correlation	478948	2883	2236	2812	1929	94	36	71
2	64	PRL	covariance	477259	3177	2253	2480	1696	33	4	697
2	64	PRL	deriche	330667	22578	9985	15163	12310	14	10	7415
2	64	PRL	doitgen	3137	623	571	623	623	28	7	0
2	64	PRL	durbin	2	37	0	0	0	31	29	0
2	64	PRL	fdtd-2d	772790	45284	30640	31573	22697	42	41	13711
2	64	PRL	floyd-warshall	394464	317079	295731	316022	281868	2	2	1057
2	64	PRL	gemm	21942	590	319	590	590	1	1	0
2	64	PRL	gemver	13618	1750	842	1750	1750	95	36	0
2	64	PRL	gesummv	7423	622	52	622	622	15	1	0
2	64	PRL	gram-schmidt	50860	814	736	814	814	3	3	0
2	64	PRL	heat-3d	58982	47040	28921	33088	30581	85	56	13952

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	PRL	jacobi-1d	1747	97	0	0	0	4	4	0
2	64	PRL	jacobi-2d	61962	58038	36983	41908	37980	109	25	16130
2	64	PRL	lu	65780	5785	790	5785	5785	1	1	0
2	64	PRL	ludcmp	69876	2782	1083	2714	2359	60	57	68
2	64	PRL	mvt	3402	1140	317	1140	1140	0	0	0
2	64	PRL	nussinov	246584	41496	1570	35339	33269	104	35	6157
2	64	PRL	seidel-2d	48834	22622	22232	22622	22622	84	82	0
2	64	PRL	symm	50791	4225	981	4225	4225	23	6	0
2	64	PRL	syr2k	327213	4168	863	3681	3023	3	3	487
2	64	PRL	syrk	92332	281	212	281	281	0	0	0
2	64	PRL	trisolv	478	213	74	213	213	10	2	0
2	64	PRL	trmm	108475	96	51	96	96	2	2	0
2	64	SHEL	2mm	33476	1040	583	793	750	66	2	247
2	64	SHEL	3mm	61725	1655	868	1649	1588	32	3	6
2	64	SHEL	adi	1630546	45936	39947	34252	28144	43	1	11533
2	64	SHEL	correlation	477430	4401	1474	1196	982	421	339	3205
2	64	SHEL	covariance	476464	3973	1291	775	594	9	6	3198
2	64	SHEL	deriche	331269	21981	10029	18873	15906	21	13	3108
2	64	SHEL	fdtd-2d	760283	58438	36116	30665	24914	47	45	27773
2	64	SHEL	gemver	13406	1960	1013	1828	1723	29	28	132
2	64	SHEL	heat-3d	69471	36553	23248	34841	23296	88	41	1712
2	64	SHEL	jacobi-2d	76078	43922	31564	42319	24688	98	21	1603
2	64	SHEL	lu	68553	3012	831	3000	2913	1	1	12
2	64	SHEL	ludcmp	67886	4997	1237	3366	1627	155	87	1631
2	64	SHEL	mvt	3121	1422	512	1139	957	9	9	283
2	128	CLAM	2mm	33398	1114	599	1114	1114	635	272	0
2	128	CLAM	3mm	61329	2050	997	1700	1571	31	2	350
2	128	CLAM	adi	1632666	43695	40074	31197	25147	1	1	12344
2	128	CLAM	atax	1684	542	68	542	542	108	19	0
2	128	CLAM	bicg	13358	547	66	547	547	57	11	0
2	128	CLAM	cholesky	20669	814	400	663	581	12	10	151
2	128	CLAM	correlation	477783	4048	1305	726	559	170	12	3322
2	128	CLAM	covariance	476517	3919	1239	704	485	3	1	3215
2	128	CLAM	deriche	332178	21067	9371	17575	15072	14	10	3492
2	128	CLAM	doitgen	2932	828	721	814	777	3	1	14
2	128	CLAM	durbin	2	37	0	0	0	31	29	0
2	128	CLAM	fdtd-2d	770346	47728	31019	26949	22900	0	0	20779
2	128	CLAM	floyd-warshall	393809	317734	296398	315134	243261	2	2	2600
2	128	CLAM	gemm	21934	598	324	598	598	1	1	0
2	128	CLAM	gemver	13374	1994	1045	1456	1382	88	32	538
2	128	CLAM	gesummv	7428	617	63	617	617	15	1	0
2	128	CLAM	gram-schmidt	50824	850	779	850	850	3	3	0
2	128	CLAM	heat-3d	59496	46526	28789	32155	29328	45	32	14371
2	128	CLAM	jacobi-1d	1747	97	0	0	0	253	18	0
2	128	CLAM	jacobi-2d	61703	58297	37057	40604	36724	100	41	17693
2	128	CLAM	lu	69411	2154	1076	1546	1091	1	1	608
2	128	CLAM	ludcmp	70106	2552	1117	1670	1418	46	44	882
2	128	CLAM	mvt	3173	1369	450	1030	949	8	8	339
2	128	CLAM	nussinov	248538	39542	1569	29041	25969	121	48	10501
2	128	CLAM	seidel-2d	49045	22411	21729	22232	18713	43	3	179
2	128	CLAM	symm	53132	1884	1265	1150	789	23	6	734
2	128	CLAM	syr2k	328223	3158	748	957	648	3	3	2201
2	128	CLAM	syrk	92334	279	219	279	279	0	0	0
2	128	CLAM	trisolv	476	215	74	215	215	10	2	0
2	128	CLAM	trmm	108475	96	51	96	96	2	2	0
2	128	C-SHEL	2mm	33524	992	591	988	976	65	2	4
2	128	C-SHEL	3mm	61284	2096	929	1964	1897	206	179	132

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	C-SHEL	adi	1630691	45791	40750	33261	28133	203	103	12379
2	128	C-SHEL	correlation	477785	4046	1330	853	662	493	23	3193
2	128	C-SHEL	covariance	476136	4301	1319	1076	621	3	1	3225
2	128	C-SHEL	deriche	332327	20923	9620	19371	16137	21	15	1552
2	128	C-SHEL	fdtd-2d	770237	48484	30450	40667	38350	89	59	7817
2	128	C-SHEL	gemver	13240	2126	1016	1867	1698	56	29	259
2	128	C-SHEL	heat-3d	59342	46682	28760	32310	29469	48	31	14372
2	128	C-SHEL	jacobi-2d	67086	52914	35041	42046	34956	158	48	10868
2	128	C-SHEL	lu	69401	2164	1063	1564	1164	114	104	600
2	128	C-SHEL	ludcmp	68447	4436	1220	2131	1373	280	182	2305
2	128	C-SHEL	mvt	3229	1314	432	1137	997	38	10	177
2	128	PRL	2mm	33408	1104	590	1104	1104	635	277	0
2	128	PRL	3mm	61440	1939	993	1828	1764	31	2	111
2	128	PRL	adi	1631681	44680	40333	31978	27070	1	1	12548
2	128	PRL	atax	1684	542	68	542	542	108	19	0
2	128	PRL	bicg	13358	547	67	547	547	57	11	0
2	128	PRL	cholesky	20390	1093	483	1030	993	12	11	63
2	128	PRL	correlation	478866	2965	2266	2654	1479	170	12	311
2	128	PRL	covariance	477504	2932	2185	2911	2906	3	1	21
2	128	PRL	deriche	330764	22481	10125	16554	13881	14	9	5927
2	128	PRL	doitgen	3074	686	603	686	686	3	1	0
2	128	PRL	durbin	2	37	0	0	0	31	29	0
2	128	PRL	fdtd-2d	771675	46399	29799	33836	24158	0	0	12563
2	128	PRL	floyd-warshall	394372	317171	296374	317081	313948	2	2	90
2	128	PRL	gemm	21934	598	324	598	598	1	1	0
2	128	PRL	gemver	13409	1959	965	1828	1785	88	31	131
2	128	PRL	gesummv	7425	620	63	620	620	15	1	0
2	128	PRL	gram-schmidt	50828	846	772	846	846	3	3	0
2	128	PRL	heat-3d	58371	47651	29092	33939	31281	45	31	13712
2	128	PRL	jacobi-1d	1747	97	0	0	0	253	18	0
2	128	PRL	jacobi-2d	63755	56245	36113	44982	39797	102	12	11263
2	128	PRL	lu	69411	2154	1076	1546	1091	1	1	608
2	128	PRL	ludcmp	68043	4615	841	4615	4615	45	44	0
2	128	PRL	mvt	3344	1198	218	1198	1198	8	6	0
2	128	PRL	nussinov	246513	41567	1567	35881	33684	121	48	5686
2	128	PRL	seidel-2d	49012	22444	21797	22444	22444	43	3	0
2	128	PRL	symm	50512	4504	975	4504	4504	23	6	0
2	128	PRL	syr2k	324393	6988	769	6988	6988	3	3	0
2	128	PRL	syrk	92317	296	215	296	296	0	0	0
2	128	PRL	trisolv	476	215	74	215	215	10	2	0
2	128	PRL	trmm	108475	96	51	96	96	2	2	0
2	128	SHEL	2mm	33526	990	580	975	955	65	2	15
2	128	SHEL	3mm	61288	2092	921	1969	1878	205	179	123
2	128	SHEL	adi	1628000	48482	42665	35246	27170	202	79	13085
2	128	SHEL	correlation	477741	4090	1366	907	721	462	84	3183
2	128	SHEL	covariance	476210	4227	1324	1078	631	3	1	3149
2	128	SHEL	deriche	332654	20596	9542	19977	18687	21	15	619
2	128	SHEL	fdtd-2d	761081	57640	35673	32264	24932	89	70	25376
2	128	SHEL	gemver	13223	2143	1070	1924	1651	56	29	219
2	128	SHEL	heat-3d	67903	38121	24028	33027	14268	48	24	5094
2	128	SHEL	jacobi-2d	75976	44024	31517	42327	21018	159	39	1697
2	128	SHEL	lu	69400	2165	1063	1565	1166	114	104	600
2	128	SHEL	ludcmp	66686	6197	1215	4495	2061	278	180	1702
2	128	SHEL	mvt	3170	1373	469	1161	969	36	10	212
2	256	CLAM	2mm	33354	1158	613	1158	1158	315	170	0
2	256	CLAM	3mm	61350	2029	909	2029	2029	404	304	0
2	256	CLAM	adi	1631405	44956	40563	32661	26382	41	1	12141

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	CLAM	atax	1680	546	75	546	546	109	17	0
2	256	CLAM	bicg	13182	723	157	723	723	57	16	0
2	256	CLAM	cholesky	20703	780	372	687	666	12	11	93
2	256	CLAM	correlation	477504	4327	1339	1188	713	288	61	3139
2	256	CLAM	covariance	476389	4047	1316	1010	654	281	173	3037
2	256	CLAM	deriche	331681	21564	9591	16842	12255	14	9	4722
2	256	CLAM	doitgen	2974	786	683	786	786	27	12	0
2	256	CLAM	durbin	2	37	0	0	0	31	29	0
2	256	CLAM	fdtd-2d	767980	50094	32151	35456	27711	42	41	14638
2	256	CLAM	floyd-warshall	392773	318770	297019	314557	216972	2	2	4213
2	256	CLAM	gemm	21893	639	322	639	639	1	1	0
2	256	CLAM	gemver	13166	2202	1091	2005	1781	158	100	197
2	256	CLAM	gesummv	7418	627	69	627	627	15	1	0
2	256	CLAM	gram-schmidt	50744	930	767	930	930	419	181	0
2	256	CLAM	heat-3d	59628	46394	28595	31999	29188	85	48	14395
2	256	CLAM	jacobi-1d	1747	97	0	0	0	238	9	0
2	256	CLAM	jacobi-2d	60502	59498	37479	36299	33913	115	28	23199
2	256	CLAM	lu	69551	2014	1065	1363	1073	1	1	651
2	256	CLAM	ludcmp	68069	4589	1178	1828	1320	167	81	2761
2	256	CLAM	mvt	3207	1335	462	831	805	8	8	504
2	256	CLAM	nussinov	249287	38793	1571	23762	19162	267	17	15031
2	256	CLAM	seidel-2d	48407	23049	22067	21749	11795	124	83	1300
2	256	CLAM	symm	52310	2706	1411	1783	1286	454	238	923
2	256	CLAM	syr2k	328188	3193	840	1285	922	3	3	1908
2	256	CLAM	syrk	92290	323	204	323	323	0	0	0
2	256	CLAM	trisolv	476	215	74	215	215	10	2	0
2	256	CLAM	trmm	108475	96	51	96	96	2	2	0
2	256	C-SHEL	2mm	33278	1238	671	1236	1213	191	127	2
2	256	C-SHEL	3mm	61264	2116	920	2116	2116	626	399	0
2	256	C-SHEL	adi	1638765	37717	33992	37566	37566	645	119	0
2	256	C-SHEL	correlation	477442	4389	1355	1274	745	293	66	3115
2	256	C-SHEL	covariance	476490	3947	1298	884	608	46	11	3063
2	256	C-SHEL	deriche	332198	21052	9796	18991	14500	21	15	2061
2	256	C-SHEL	fdtd-2d	771174	47547	31282	39726	31796	608	375	7821
2	256	C-SHEL	gemver	12707	2659	1114	2534	2418	122	120	125
2	256	C-SHEL	heat-3d	59323	46701	28769	32532	30044	88	64	14169
2	256	C-SHEL	jacobi-2d	66063	53937	35435	39936	32770	135	52	14001
2	256	C-SHEL	lu	69446	2119	1054	1522	1173	114	104	597
2	256	C-SHEL	ludcmp	54432	18451	1029	18451	18451	270	207	0
2	256	C-SHEL	mvt	3171	1372	470	888	846	36	10	484
2	256	PRL	2mm	33361	1151	603	1151	1151	315	166	0
2	256	PRL	3mm	61459	1920	891	1920	1920	405	304	0
2	256	PRL	adi	1630997	45364	40416	33959	28466	41	1	11251
2	256	PRL	atax	1680	546	75	546	546	109	17	0
2	256	PRL	bicg	13182	723	157	723	723	57	16	0
2	256	PRL	cholesky	18727	2756	635	2756	2756	12	10	0
2	256	PRL	correlation	478996	2835	2265	2835	2797	288	72	0
2	256	PRL	covariance	477339	3097	2201	3097	3097	281	176	0
2	256	PRL	deriche	330447	22798	10200	16949	13900	14	10	5849
2	256	PRL	doitgen	3074	686	603	686	686	27	15	0
2	256	PRL	durbin	2	37	0	0	0	31	29	0
2	256	PRL	fdtd-2d	773678	44396	29727	40250	38232	42	41	4146
2	256	PRL	floyd-warshall	393865	317678	296742	317675	317568	2	2	3
2	256	PRL	gemm	21893	639	322	639	639	1	1	0
2	256	PRL	gemver	13359	2009	860	2009	2009	159	79	0
2	256	PRL	gesummv	7418	627	69	627	627	15	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	PRL	gram-schmidt	50613	1061	836	1061	1061	402	184	0
2	256	PRL	heat-3d	57018	49004	29974	33612	31552	85	48	15392
2	256	PRL	jacobi-1d	1747	97	0	0	0	238	9	0
2	256	PRL	jacobi-2d	61479	58521	37139	40767	36944	107	26	17754
2	256	PRL	lu	67907	3658	1091	3658	3658	1	1	0
2	256	PRL	ludcmp	69660	2998	1089	2609	2214	167	71	389
2	256	PRL	mvt	3211	1331	456	1020	843	8	8	311
2	256	PRL	nussinov	248777	39303	1572	28594	25931	268	18	10709
2	256	PRL	seidel-2d	48413	23043	22484	23043	23043	124	82	0
2	256	PRL	symm	50604	4412	1196	4412	4412	463	222	0
2	256	PRL	syr2k	324386	6995	759	6995	6995	3	3	0
2	256	PRL	syrk	92217	396	212	396	396	0	0	0
2	256	PRL	trisolv	476	215	74	215	215	10	2	0
2	256	PRL	trmm	108474	97	50	97	97	2	2	0
2	256	SHEL	2mm	33299	1217	639	1217	1217	191	127	0
2	256	SHEL	3mm	61273	2107	918	2107	2107	626	399	0
2	256	SHEL	adi	1628898	47584	40074	37050	31320	652	129	10383
2	256	SHEL	correlation	477393	4438	1354	1280	764	292	77	3158
2	256	SHEL	covariance	476368	4069	1306	920	670	83	11	3149
2	256	SHEL	deriche	332523	20727	9646	19425	15986	21	15	1302
2	256	SHEL	fdtd-2d	763364	55357	35220	33889	25075	608	398	21468
2	256	SHEL	gemver	12703	2663	1100	2550	2464	129	120	113
2	256	SHEL	heat-3d	66749	39275	24898	31322	7477	88	45	7953
2	256	SHEL	jacobi-2d	75045	44955	31722	41038	14387	139	48	3917
2	256	SHEL	lu	68442	3123	1097	3123	3123	114	104	0
2	256	SHEL	ludcmp	67502	5381	1238	3600	2177	274	178	1781
2	256	SHEL	mvt	3091	1452	496	1275	1022	35	9	177
2	512	CLAM	2mm	33366	1146	590	1146	1146	633	279	0
2	512	CLAM	3mm	61122	2257	944	2239	2130	1017	462	18
2	512	CLAM	adi	1631219	45142	41475	32000	24799	469	63	12988
2	512	CLAM	atax	1354	872	239	872	872	412	229	0
2	512	CLAM	bicg	13237	668	71	668	668	57	11	0
2	512	CLAM	cholesky	20470	1013	336	956	933	311	290	57
2	512	CLAM	correlation	478722	3109	2417	3105	2696	633	244	4
2	512	CLAM	covariance	475979	4457	1396	1396	723	266	179	3061
2	512	CLAM	deriche	332015	21230	9327	16593	14827	14	10	4637
2	512	CLAM	doitgen	2908	852	742	771	720	275	14	81
2	512	CLAM	durbin	2	37	0	0	0	31	29	0
2	512	CLAM	fdtd-2d	766897	51177	32512	27647	25692	42	41	23530
2	512	CLAM	floyd-warshall	393176	318367	296152	312961	194853	2	2	5406
2	512	CLAM	gemm	21893	639	322	639	639	1	1	0
2	512	CLAM	gemver	12957	2411	1087	2207	2003	150	123	204
2	512	CLAM	gesummv	7227	818	239	818	818	229	90	0
2	512	CLAM	gram-schmidt	50684	990	897	990	990	884	65	0
2	512	CLAM	heat-3d	57748	48274	29557	31379	29881	44	25	16895
2	512	CLAM	jacobi-1d	1747	97	0	0	0	253	18	0
2	512	CLAM	jacobi-2d	60874	59126	37350	36537	35338	561	307	22589
2	512	CLAM	lu	68780	2785	1116	2248	1497	430	409	537
2	512	CLAM	ludcmp	69156	3502	1156	2805	2047	582	96	697
2	512	CLAM	mvt	3115	1427	450	962	905	37	9	465
2	512	CLAM	nussinov	247155	40925	1570	28189	24592	121	48	12736
2	512	CLAM	seidel-2d	48099	23357	21972	20531	6882	367	321	2826
2	512	CLAM	symm	52411	2605	1685	1936	1255	23	6	669
2	512	CLAM	syr2k	327464	3917	1071	2098	1195	254	183	1819
2	512	CLAM	syrk	92200	413	200	413	413	0	0	0
2	512	CLAM	trisolv	476	215	74	215	215	10	2	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	CLAM	trmm	108475	96	51	96	96	193	3	0
2	512	C-SHEL	2mm	33282	1234	518	1234	1234	389	252	0
2	512	C-SHEL	3mm	61353	2027	859	2027	2027	414	180	0
2	512	C-SHEL	adi	1635067	41415	38851	38508	34150	884	627	2756
2	512	C-SHEL	correlation	478610	3221	2430	3221	3218	689	253	0
2	512	C-SHEL	covariance	475391	5046	1510	2308	1100	105	11	2738
2	512	C-SHEL	deriche	332360	20890	9527	20178	19376	21	15	712
2	512	C-SHEL	fdtd-2d	775400	43321	30322	30750	18912	169	88	12571
2	512	C-SHEL	gemver	13379	1987	826	1987	1987	393	62	0
2	512	C-SHEL	heat-3d	66643	39381	24593	33713	20925	810	759	5668
2	512	C-SHEL	jacobi-2d	75484	44516	31571	43312	35890	562	251	1204
2	512	C-SHEL	lu	66890	4675	1104	4675	4675	542	502	0
2	512	C-SHEL	ludcmp	68806	4077	1125	3520	2492	1508	965	557
2	512	C-SHEL	mvt	3142	1401	457	951	897	36	10	450
2	512	PRL	2mm	29189	5323	338	5323	5323	629	279	0
2	512	PRL	3mm	61234	2145	909	2145	2145	1021	470	0
2	512	PRL	adi	1629892	46469	41535	35195	29606	439	41	11120
2	512	PRL	atax	1313	913	251	913	913	418	235	0
2	512	PRL	bicg	13220	685	90	685	685	57	11	0
2	512	PRL	cholesky	20470	1013	336	956	933	311	290	57
2	512	PRL	correlation	478386	3445	2538	3445	3445	633	251	0
2	512	PRL	covariance	477480	2956	2151	2956	2956	266	184	0
2	512	PRL	deriche	330799	22446	10063	17161	14451	14	10	5285
2	512	PRL	doitgen	3092	668	589	668	668	274	13	0
2	512	PRL	durbin	2	37	0	0	0	31	29	0
2	512	PRL	fdtd-2d	774473	43601	29511	39495	38199	42	41	4106
2	512	PRL	floyd-warshall	394639	316904	295721	316848	314006	2	2	56
2	512	PRL	gemm	21893	639	322	639	639	1	1	0
2	512	PRL	gemver	12999	2369	1068	2241	2059	149	122	128
2	512	PRL	gesummv	7227	818	239	818	818	229	90	0
2	512	PRL	gram-schmidt	50694	980	888	980	980	884	64	0
2	512	PRL	heat-3d	59103	46919	28572	38312	35479	44	23	8607
2	512	PRL	jacobi-1d	1747	97	0	0	0	253	18	0
2	512	PRL	jacobi-2d	61887	58113	36907	41516	37863	562	293	16597
2	512	PRL	lu	60139	11426	974	11426	11426	430	350	0
2	512	PRL	ludcmp	59796	12862	993	12862	12862	580	231	0
2	512	PRL	mvt	3321	1221	253	1221	1221	35	6	0
2	512	PRL	nussinov	245338	42742	1570	32066	28716	121	48	10676
2	512	PRL	seidel-2d	48432	23024	22480	23024	23024	367	321	0
2	512	PRL	symm	50577	4439	1459	4439	4439	23	6	0
2	512	PRL	syr2k	327403	3978	1081	2251	1310	254	182	1727
2	512	PRL	syrk	92169	444	203	444	444	0	0	0
2	512	PRL	trisolv	476	215	74	215	215	10	2	0
2	512	PRL	trmm	108409	162	51	162	162	193	3	0
2	512	SHEL	2mm	33282	1234	518	1234	1234	389	252	0
2	512	SHEL	3mm	61405	1975	847	1975	1975	414	180	0
2	512	SHEL	adi	1625215	51267	39454	41795	34376	920	663	9321
2	512	SHEL	correlation	478660	3171	2444	3171	3127	688	196	0
2	512	SHEL	covariance	475443	4994	1512	2300	1116	83	11	2694
2	512	SHEL	deriche	332492	20758	9634	19507	16811	21	14	1251
2	512	SHEL	fdtd-2d	758580	60141	36479	30168	24896	169	125	29973
2	512	SHEL	gemver	13217	2149	1019	1897	1679	380	94	252
2	512	SHEL	heat-3d	65972	40052	25020	32105	7618	810	768	7947
2	512	SHEL	jacobi-2d	75696	44304	31586	41784	18217	562	243	2520
2	512	SHEL	lu	65005	6560	1080	6560	6560	542	489	0
2	512	SHEL	ludcmp	65689	7194	1199	6243	3257	1508	972	951
2	512	SHEL	mvt	3232	1311	427	1154	1015	37	10	157

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	CLAM	2mm	33256	1256	599	1255	1255	831	447	1
2	1024	CLAM	3mm	60747	2632	990	2632	2632	741	525	0
2	1024	CLAM	adi	1623124	53237	46655	41463	31206	5889	990	11620
2	1024	CLAM	atax	1354	872	239	872	872	412	229	0
2	1024	CLAM	bicg	13079	826	186	826	826	57	36	0
2	1024	CLAM	cholesky	20022	1461	728	1430	997	311	290	31
2	1024	CLAM	correlation	476637	5194	2139	2666	1440	4821	1615	2528
2	1024	CLAM	covariance	476106	4330	1350	1272	716	266	176	3058
2	1024	CLAM	deriche	332076	21169	9325	16894	15011	14	10	4275
2	1024	CLAM	doitgen	2962	798	691	798	798	267	15	0
2	1024	CLAM	durbin	2	37	0	0	0	31	29	0
2	1024	CLAM	fdtd-2d	770180	47894	30738	38091	32219	42	41	9803
2	1024	CLAM	floyd-warshall	394415	317128	295232	315342	266807	2	2	1786
2	1024	CLAM	gemm	21893	639	322	639	639	1	1	0
2	1024	CLAM	gemver	13036	2332	768	2326	2326	1078	541	6
2	1024	CLAM	gesummv	7207	838	209	838	838	15	1	0
2	1024	CLAM	gram-schmidt	50602	1072	915	1072	1072	1543	121	0
2	1024	CLAM	heat-3d	58199	47823	28827	34503	30656	85	51	13320
2	1024	CLAM	jacobi-1d	1747	97	0	0	0	253	18	0
2	1024	CLAM	jacobi-2d	60445	59555	37570	37102	35320	550	220	22453
2	1024	CLAM	lu	64627	6938	970	6938	6938	429	398	0
2	1024	CLAM	ludcmp	68804	3854	1152	2597	2066	663	431	1257
2	1024	CLAM	mvt	2521	2021	475	1740	1591	775	645	281
2	1024	CLAM	nussinov	248201	39879	1566	26814	22122	121	48	13065
2	1024	CLAM	seidel-2d	46726	24730	23130	18991	1792	367	323	5739
2	1024	CLAM	symm	51088	3928	3216	3769	3610	23	6	159
2	1024	CLAM	syr2k	327170	4211	1322	2399	1301	255	182	1812
2	1024	CLAM	syrk	92200	413	291	413	413	2700	3	0
2	1024	CLAM	trisolv	476	215	74	215	215	10	2	0
2	1024	CLAM	trmm	108475	96	51	96	96	193	3	0
2	1024	C-SHEL	2mm	33109	1407	520	1405	1405	783	411	2
2	1024	C-SHEL	3mm	61250	2130	858	2130	2130	629	399	0
2	1024	C-SHEL	adi	1628482	48000	43691	47849	47849	3205	1628	0
2	1024	C-SHEL	correlation	477126	4705	1865	2103	1130	1685	456	2602
2	1024	C-SHEL	covariance	475919	4518	1504	1791	974	348	182	2727
2	1024	C-SHEL	deriche	332285	20965	9635	19819	17116	21	17	1146
2	1024	C-SHEL	fdtd-2d	770289	48432	31280	40488	33364	649	426	7944
2	1024	C-SHEL	gemver	12344	3022	775	3021	3021	2099	1082	1
2	1024	C-SHEL	heat-3d	63734	42290	26302	34873	26492	88	47	7417
2	1024	C-SHEL	jacobi-2d	72232	47768	32884	42761	33695	560	178	5007
2	1024	C-SHEL	lu	66373	5192	1122	5192	5192	542	506	0
2	1024	C-SHEL	ludcmp	64109	8774	1147	8774	8774	5600	2250	0
2	1024	C-SHEL	mvt	3428	1115	132	1115	1115	37	7	0
2	1024	PRL	2mm	33253	1259	580	1258	1258	833	437	1
2	1024	PRL	3mm	60902	2477	915	2477	2477	743	525	0
2	1024	PRL	adi	1621779	54582	47805	43435	30102	5842	876	10993
2	1024	PRL	atax	1313	913	251	913	913	418	235	0
2	1024	PRL	bicg	13005	900	231	900	900	57	29	0
2	1024	PRL	cholesky	20022	1461	728	1430	997	311	290	31
2	1024	PRL	correlation	477546	4285	2030	4275	4264	4822	1688	10
2	1024	PRL	covariance	476880	3556	1215	3556	3549	266	173	0
2	1024	PRL	deriche	332241	21004	9384	18117	16631	14	10	2887
2	1024	PRL	doitgen	2820	940	558	940	940	266	14	0
2	1024	PRL	durbin	2	37	0	0	0	31	29	0
2	1024	PRL	fdtd-2d	772455	45619	28595	38918	37834	42	41	6701
2	1024	PRL	floyd-warshall	394422	317121	295541	317121	317121	2	2	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	PRL	gemm	21893	639	322	639	639	1	1	0
2	1024	PRL	gemver	12988	2380	754	2374	2374	1078	540	6
2	1024	PRL	gesummv	7100	945	256	945	945	15	1	0
2	1024	PRL	gram-schmidt	50307	1367	1100	1367	1367	1547	124	0
2	1024	PRL	heat-3d	58570	47452	28483	38837	33795	85	54	8615
2	1024	PRL	jacobi-1d	1747	97	0	0	0	253	18	0
2	1024	PRL	jacobi-2d	65103	54897	35568	48292	43315	554	167	6605
2	1024	PRL	lu	60636	10929	1002	10929	10929	429	357	0
2	1024	PRL	ludcmp	62522	10136	1024	10136	10136	664	558	0
2	1024	PRL	mvt	3020	1522	291	1522	1522	774	329	0
2	1024	PRL	nussinov	244506	43574	1568	39268	37665	121	47	4306
2	1024	PRL	seidel-2d	48005	23451	22988	23451	23451	367	321	0
2	1024	PRL	symm	50816	4200	3377	4179	4141	23	6	21
2	1024	PRL	syr2k	325574	5807	1187	5662	5057	255	170	145
2	1024	PRL	syrk	92185	428	271	428	428	2698	3	0
2	1024	PRL	trisolv	476	215	74	215	215	10	2	0
2	1024	PRL	trmm	108386	185	51	185	185	193	3	0
2	1024	SHEL	2mm	33109	1407	520	1405	1405	783	411	2
2	1024	SHEL	3mm	61250	2130	858	2130	2130	629	399	0
2	1024	SHEL	adi	1621534	54948	46855	51224	43580	3176	1887	3573
2	1024	SHEL	correlation	477169	4662	1873	2040	1093	1684	394	2622
2	1024	SHEL	covariance	475997	4440	1501	1756	1034	315	183	2684
2	1024	SHEL	deriche	332161	21089	9788	19123	14300	21	17	1966
2	1024	SHEL	fdtd-2d	758530	60191	35081	38435	29915	649	445	21756
2	1024	SHEL	gemver	12284	3082	777	3081	3081	2098	1121	1
2	1024	SHEL	heat-3d	67144	38880	24450	34553	11672	88	40	4327
2	1024	SHEL	jacobi-2d	76181	43819	31474	43128	36284	560	130	691
2	1024	SHEL	lu	64968	6597	1099	6597	6597	542	495	0
2	1024	SHEL	ludcmp	64603	8280	1163	8280	8280	5601	2453	0
2	1024	SHEL	mvt	3180	1363	441	1121	1007	36	10	242
3	64	CLAM	2mm	33430	1082	586	1020	1002	1	0	62
3	64	CLAM	3mm	61349	2030	942	1625	1266	27	2	405
3	64	CLAM	adi	1632717	43644	40005	29771	24393	43	1	13719
3	64	CLAM	atax	1580	646	150	646	646	19	15	0
3	64	CLAM	bicg	13328	577	59	577	577	26	16	0
3	64	CLAM	cholesky	20750	733	401	584	582	11	10	149
3	64	CLAM	correlation	477850	3981	1281	767	598	14	12	3214
3	64	CLAM	covariance	476594	3842	1306	647	452	8	5	3195
3	64	CLAM	deriche	332022	21223	9335	16594	14781	13	10	4629
3	64	CLAM	doitgen	2997	763	636	763	763	28	9	0
3	64	CLAM	durbin	2	37	0	0	0	14	13	0
3	64	CLAM	fdtd-2d	764776	53298	32911	35752	32983	42	41	17546
3	64	CLAM	floyd-warshall	393824	317719	295875	314498	231547	2	2	3221
3	64	CLAM	gemm	21942	590	311	590	590	1	1	0
3	64	CLAM	gemver	13219	2149	1181	1332	1082	94	36	817
3	64	CLAM	gesummv	7427	618	65	618	618	20	7	0
3	64	CLAM	gram-schmidt	50900	774	701	774	774	3	3	0
3	64	CLAM	heat-3d	60244	45778	28312	31019	28476	44	24	14759
3	64	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
3	64	CLAM	jacobi-2d	61402	58598	37181	39343	36269	119	32	19255
3	64	CLAM	lu	68981	2584	1139	1178	711	2	2	1406
3	64	CLAM	ludcmp	69065	3593	1175	1435	1024	60	53	2158
3	64	CLAM	mvt	3274	1268	436	1045	926	36	9	223
3	64	CLAM	nussinov	249291	38789	1569	27886	25155	21	16	10903
3	64	CLAM	seidel-2d	48915	22541	21812	21637	13332	6	6	904
3	64	CLAM	symm	53125	1891	1087	848	598	23	6	1043

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	CLAM	syr2k	328201	3180	751	913	601	3	3	2267
3	64	CLAM	syrk	92329	284	230	284	284	1	1	0
3	64	CLAM	trisolv	461	230	130	230	213	20	9	0
3	64	CLAM	trmm	108475	96	51	96	96	2	2	0
3	64	C-SHEL	2mm	33551	965	570	910	899	1	0	55
3	64	C-SHEL	3mm	61425	1955	870	1511	945	31	2	444
3	64	C-SHEL	adi	1632964	43518	39665	30336	24732	203	96	13031
3	64	C-SHEL	correlation	477741	4090	1296	779	568	19	16	3311
3	64	C-SHEL	covariance	476444	3993	1266	774	600	34	6	3219
3	64	C-SHEL	deriche	331803	21447	9947	19771	19049	20	14	1676
3	64	C-SHEL	fdtd-2d	776171	42550	27719	39491	38028	128	51	3059
3	64	C-SHEL	gemver	13256	2110	966	1654	1483	37	35	456
3	64	C-SHEL	heat-3d	59308	46716	28758	32417	30019	43	24	14299
3	64	C-SHEL	jacobi-2d	64941	55059	35914	40929	35071	122	60	14130
3	64	C-SHEL	lu	69463	2102	1117	1389	1005	61	59	713
3	64	C-SHEL	ludcmp	69450	3433	1234	1657	1162	158	109	1776
3	64	C-SHEL	mvt	3268	1275	431	1078	960	37	9	197
3	64	PRL	2mm	33433	1079	601	1079	1079	1	0	0
3	64	PRL	3mm	61707	1672	853	1628	1591	31	2	44
3	64	PRL	adi	1631451	44910	40490	31632	26993	43	1	13124
3	64	PRL	atax	1537	689	139	689	689	19	15	0
3	64	PRL	bicg	13328	577	59	577	577	26	16	0
3	64	PRL	cholesky	18204	3279	638	3279	3279	11	9	0
3	64	PRL	correlation	478209	3622	1464	1134	699	14	12	2488
3	64	PRL	covariance	477148	3288	2169	2035	1033	8	5	1253
3	64	PRL	deriche	330582	22663	10055	15356	12314	13	9	7307
3	64	PRL	doitgen	3107	653	569	653	653	28	6	0
3	64	PRL	durbin	2	37	0	0	0	14	13	0
3	64	PRL	fdtd-2d	766640	51434	32381	36983	35320	42	41	14451
3	64	PRL	floyd-warshall	394705	316838	295870	316797	313813	2	2	41
3	64	PRL	gemm	21942	590	311	590	590	1	1	0
3	64	PRL	gemver	13494	1874	989	1409	1384	95	35	465
3	64	PRL	gesummv	7409	636	72	636	636	20	7	0
3	64	PRL	gram-schmidt	50899	775	701	775	775	3	3	0
3	64	PRL	heat-3d	58844	47178	28916	33182	30932	44	25	13996
3	64	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
3	64	PRL	jacobi-2d	62671	57329	36543	41800	37552	114	36	15529
3	64	PRL	lu	67837	3728	1090	3728	3728	2	2	0
3	64	PRL	ludcmp	67431	5227	873	5227	5227	60	55	0
3	64	PRL	mvt	3453	1089	246	1089	1089	36	7	0
3	64	PRL	nussinov	247772	40308	1566	32927	30673	21	16	7381
3	64	PRL	seidel-2d	49062	22394	21860	22394	22394	6	6	0
3	64	PRL	symm	49662	5354	636	5354	5354	23	6	0
3	64	PRL	syr2k	324908	6473	775	6473	6473	3	3	0
3	64	PRL	syrk	92347	266	204	266	266	1	1	0
3	64	PRL	trisolv	478	213	77	213	213	20	8	0
3	64	PRL	trmm	108475	96	51	96	96	2	2	0
3	64	SHEL	2mm	33554	962	570	904	891	1	0	58
3	64	SHEL	3mm	61726	1654	786	1524	1144	30	2	130
3	64	SHEL	adi	1629290	47192	41766	32606	24914	202	87	14435
3	64	SHEL	correlation	477759	4072	1296	853	656	19	16	3219
3	64	SHEL	covariance	476458	3979	1263	762	581	34	6	3217
3	64	SHEL	deriche	331507	21743	10068	19388	17666	20	14	2355
3	64	SHEL	fdtd-2d	760626	58095	36265	30348	23930	128	89	27747
3	64	SHEL	gemver	13297	2069	1111	1807	1632	37	35	262
3	64	SHEL	heat-3d	69548	36476	23086	35065	24293	43	16	1411
3	64	SHEL	jacobi-2d	76400	43600	31269	42844	32644	142	33	756

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	SHEL	lu	68205	3360	1129	2981	2116	61	58	379
3	64	SHEL	ludcmp	68878	4005	1234	2402	1391	161	114	1603
3	64	SHEL	mvt	3287	1256	426	1215	1205	36	9	41
3	128	CLAM	2mm	33412	1100	606	1078	1071	115	1	22
3	128	CLAM	3mm	61013	2366	998	2099	1856	519	398	267
3	128	CLAM	adi	1633755	42606	39846	28400	19772	3	1	14052
3	128	CLAM	atax	1673	553	79	553	553	157	24	0
3	128	CLAM	bicg	13285	620	87	620	620	26	16	0
3	128	CLAM	cholesky	20745	738	374	629	580	11	10	109
3	128	CLAM	correlation	477669	4162	1292	993	638	255	33	3169
3	128	CLAM	covariance	476346	4090	1286	878	565	8	5	3212
3	128	CLAM	deriche	332337	20908	9351	17818	15623	13	10	3090
3	128	CLAM	doitgen	3028	732	645	732	732	28	11	0
3	128	CLAM	durbin	2	37	0	0	0	14	13	0
3	128	CLAM	fdtd-2d	768587	49487	31566	27968	21473	42	41	21519
3	128	CLAM	floyd-warshall	393576	317967	295945	313998	219305	2	2	3969
3	128	CLAM	gemm	21980	552	312	552	552	1	1	0
3	128	CLAM	gemver	13023	2345	1221	1301	996	160	68	1044
3	128	CLAM	gesummv	7416	629	56	629	629	20	7	0
3	128	CLAM	gram-schmidt	50853	821	745	821	821	94	3	0
3	128	CLAM	heat-3d	58050	47972	29168	32940	29895	45	37	15032
3	128	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
3	128	CLAM	jacobi-2d	60685	59315	37437	37899	35715	29	6	21416
3	128	CLAM	lu	69004	2561	1120	1439	943	2	2	1122
3	128	CLAM	ludcmp	69532	3126	1166	1596	1193	155	101	1530
3	128	CLAM	mvt	3160	1382	447	1002	923	35	9	380
3	128	CLAM	nussinov	248716	39364	1572	30012	26125	271	20	9352
3	128	CLAM	seidel-2d	48802	22654	21871	20988	7153	85	7	1666
3	128	CLAM	symm	52903	2113	1179	1204	886	23	5	909
3	128	CLAM	syr2k	328294	3087	734	859	640	3	3	2228
3	128	CLAM	syrk	92312	301	238	301	301	1	1	0
3	128	CLAM	trisolv	459	232	129	232	232	51	24	0
3	128	CLAM	trmm	108475	96	51	96	96	2	2	0
3	128	C-SHEL	2mm	33397	1119	603	1094	1084	201	164	25
3	128	C-SHEL	3mm	61100	2280	969	1941	1738	328	303	339
3	128	C-SHEL	adi	1631279	45203	40364	32638	26705	202	64	12414
3	128	C-SHEL	correlation	477678	4153	1278	1030	692	16	15	3123
3	128	C-SHEL	covariance	476414	4023	1311	945	578	3	1	3078
3	128	C-SHEL	deriche	332988	20262	9371	19852	18837	20	14	410
3	128	C-SHEL	fdtd-2d	774078	44643	29485	39574	32365	88	68	5069
3	128	C-SHEL	gemver	13141	2225	866	2069	1889	157	57	156
3	128	C-SHEL	heat-3d	56895	49129	29776	33182	31002	83	63	15947
3	128	C-SHEL	jacobi-2d	64796	55204	36050	39701	33857	114	31	15503
3	128	C-SHEL	lu	69333	2232	1095	1335	1004	61	59	897
3	128	C-SHEL	ludcmp	68034	4849	1251	2017	1041	233	199	2832
3	128	C-SHEL	mvt	3139	1404	451	985	937	36	10	419
3	128	PRL	2mm	33435	1077	598	1077	1077	116	2	0
3	128	PRL	3mm	61294	2085	910	2085	2085	547	398	0
3	128	PRL	adi	1632205	44156	40278	31366	25890	3	1	12636
3	128	PRL	atax	1673	553	79	553	553	157	24	0
3	128	PRL	bicg	13282	623	89	623	623	26	16	0
3	128	PRL	cholesky	19244	2239	672	2239	2239	11	9	0
3	128	PRL	correlation	479060	2771	2233	2771	2473	255	33	0
3	128	PRL	covariance	477437	2999	2275	2695	1558	8	5	304
3	128	PRL	deriche	330991	22254	10027	16685	13969	13	10	5569
3	128	PRL	doitgen	3105	655	592	655	655	28	14	0
3	128	PRL	durbin	2	37	0	0	0	14	13	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	PRL	fdtd-2d	771008	47066	30886	34105	24991	42	41	12961
3	128	PRL	floyd-warshall	394353	317190	295741	315617	265091	2	2	1573
3	128	PRL	gemm	21980	552	312	552	552	1	1	0
3	128	PRL	gemver	13370	1998	996	1787	1709	140	106	211
3	128	PRL	gesummv	7396	649	73	649	649	20	7	0
3	128	PRL	gram-schmidt	50853	821	745	821	821	94	3	0
3	128	PRL	heat-3d	57259	48763	29491	35898	32290	45	32	12865
3	128	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
3	128	PRL	jacobi-2d	61552	58448	37145	39976	36783	24	4	18472
3	128	PRL	lu	67688	3877	1049	3877	3877	2	2	0
3	128	PRL	ludcmp	69958	2700	1147	1628	1278	155	101	1072
3	128	PRL	mvt	3293	1249	319	1249	1249	35	8	0
3	128	PRL	nussinov	245499	42581	1568	38916	38383	271	19	3665
3	128	PRL	seidel-2d	48957	22499	22035	22499	22499	46	6	0
3	128	PRL	symm	50550	4466	754	4466	4466	23	5	0
3	128	PRL	syr2k	321189	10192	664	10192	10192	3	3	0
3	128	PRL	syrk	92285	328	233	328	328	1	1	0
3	128	PRL	trisolv	476	215	78	215	215	51	23	0
3	128	PRL	trmm	108475	96	51	96	96	2	2	0
3	128	SHEL	2mm	33378	1138	630	1138	1130	202	180	0
3	128	SHEL	3mm	61225	2155	921	1944	1727	328	303	211
3	128	SHEL	adi	1628703	47779	38561	34145	22112	202	48	13483
3	128	SHEL	correlation	477634	4197	1322	1042	693	16	15	3155
3	128	SHEL	covariance	476350	4087	1293	1023	688	3	1	3064
3	128	SHEL	deriche	332796	20454	9455	19886	19695	20	14	568
3	128	SHEL	fdtd-2d	765191	53530	34512	35041	26290	88	75	18489
3	128	SHEL	gemver	13125	2241	1074	1951	1767	160	48	290
3	128	SHEL	heat-3d	69155	36869	23364	34207	17458	83	29	2662
3	128	SHEL	jacobi-2d	75929	44071	31534	42276	25199	101	21	1795
3	128	SHEL	lu	68291	3274	1058	2701	1676	61	58	573
3	128	SHEL	ludcmp	66997	5886	1248	3818	1579	229	170	2068
3	128	SHEL	mvt	3351	1192	245	1192	1192	38	8	0
3	256	CLAM	2mm	33262	1250	599	1250	1250	706	317	0
3	256	CLAM	3mm	61602	1777	894	1777	1777	78	1	0
3	256	CLAM	adi	1626492	49869	42841	27722	21964	28	2	21993
3	256	CLAM	atax	1656	570	94	570	570	155	26	0
3	256	CLAM	bicg	13351	554	51	554	554	26	16	0
3	256	CLAM	cholesky	20142	1341	678	1275	874	310	290	66
3	256	CLAM	correlation	477659	4172	1349	1003	716	612	93	3169
3	256	CLAM	covariance	476064	4372	1456	1309	671	8	5	3063
3	256	CLAM	deriche	330860	22385	10057	16471	13559	13	10	5914
3	256	CLAM	doitgen	3024	736	610	736	736	28	8	0
3	256	CLAM	durbin	2	37	0	0	0	14	13	0
3	256	CLAM	fdtd-2d	769550	48524	31544	27101	23761	42	41	21423
3	256	CLAM	floyd-warshall	394204	317339	295327	314540	244458	2	2	2799
3	256	CLAM	gemm	21940	592	311	592	592	1	1	0
3	256	CLAM	gemver	13080	2288	1194	1765	1618	167	55	523
3	256	CLAM	gesummv	7340	705	121	705	705	20	7	0
3	256	CLAM	gram-schmidt	50632	1042	866	1042	1042	344	180	0
3	256	CLAM	heat-3d	59983	46039	28444	31318	28498	45	30	14721
3	256	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
3	256	CLAM	jacobi-2d	61051	58949	37226	39051	35713	78	34	19898
3	256	CLAM	lu	69016	2549	1115	1625	1085	2	2	924
3	256	CLAM	ludcmp	69793	2865	1111	2165	1663	214	121	700
3	256	CLAM	mvt	3198	1344	470	822	783	8	8	522

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	CLAM	nussinov	248416	39664	1569	25775	20648	21	17	13889
3	256	CLAM	seidel-2d	48051	23405	22198	20006	2589	328	246	3399
3	256	CLAM	symm	52816	2200	1358	1603	1211	454	241	597
3	256	CLAM	syr2k	327573	3808	903	1727	882	3	3	2081
3	256	CLAM	syrk	92274	339	263	339	339	1	1	0
3	256	CLAM	trisolv	459	232	130	232	215	51	24	0
3	256	CLAM	trmm	108472	99	51	99	99	2	2	0
3	256	C-SHEL	2mm	33362	1154	614	1154	1154	316	170	0
3	256	C-SHEL	3mm	61400	1980	893	1969	1939	411	179	11
3	256	C-SHEL	adi	1631736	44746	40596	32292	26076	244	104	12303
3	256	C-SHEL	correlation	477420	4411	1444	1275	987	98	24	3136
3	256	C-SHEL	covariance	476091	4346	1447	1291	782	40	6	3055
3	256	C-SHEL	deriche	333116	20134	9293	20134	20116	20	16	0
3	256	C-SHEL	fdtd-2d	773802	44919	29084	41647	39695	647	415	3272
3	256	C-SHEL	gemver	12705	2661	1054	2661	2661	1169	554	0
3	256	C-SHEL	heat-3d	58202	47822	29223	34138	31891	803	769	13684
3	256	C-SHEL	jacobi-2d	72030	47970	32852	43964	35161	93	19	4006
3	256	C-SHEL	lu	69407	2158	1089	1508	1100	61	59	650
3	256	C-SHEL	ludcmp	69235	3648	1164	2114	1539	339	238	1534
3	256	C-SHEL	mvt	3070	1473	448	1014	981	35	10	459
3	256	PRL	2mm	33261	1251	598	1251	1251	705	319	0
3	256	PRL	3mm	61638	1741	885	1741	1741	79	1	0
3	256	PRL	adi	1631813	44548	40299	34440	28589	43	1	9954
3	256	PRL	atax	1656	570	94	570	570	155	26	0
3	256	PRL	bicg	13350	555	53	555	555	26	16	0
3	256	PRL	cholesky	20139	1344	674	1284	879	310	290	60
3	256	PRL	correlation	478172	3659	1945	1917	920	612	104	1742
3	256	PRL	covariance	477349	3087	2468	3086	3025	8	5	1
3	256	PRL	deriche	331346	21899	9808	17010	14334	13	10	4889
3	256	PRL	doitgen	3086	674	576	674	674	28	9	0
3	256	PRL	durbin	2	37	0	0	0	14	13	0
3	256	PRL	fdtd-2d	770114	47960	31152	27598	23327	42	41	20362
3	256	PRL	floyd-warshall	394710	316833	295288	316814	316232	2	2	19
3	256	PRL	gemm	21940	592	311	592	592	1	1	0
3	256	PRL	gemver	13258	2110	997	1926	1880	156	76	184
3	256	PRL	gesummv	7297	748	130	748	748	20	7	0
3	256	PRL	gram-schmidt	50632	1042	866	1042	1042	344	180	0
3	256	PRL	heat-3d	58174	47848	29156	37135	33816	45	37	10713
3	256	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
3	256	PRL	jacobi-2d	63023	56977	36432	43376	38320	80	34	13601
3	256	PRL	lu	67977	3588	907	3588	3588	2	2	0
3	256	PRL	ludcmp	69583	3075	1122	2519	1970	214	122	556
3	256	PRL	mvt	3294	1248	412	1160	1081	8	8	88
3	256	PRL	nussinov	245886	42194	1571	36295	33907	21	17	5899
3	256	PRL	seidel-2d	49021	22435	21863	22435	22435	328	245	0
3	256	PRL	symm	49510	5506	986	5506	5506	469	219	0
3	256	PRL	syr2k	325407	5974	796	5974	5974	3	3	0
3	256	PRL	syrk	92254	359	252	359	359	1	1	0
3	256	PRL	trisolv	476	215	77	215	215	51	23	0
3	256	PRL	trmm	108472	99	51	99	99	2	2	0
3	256	SHEL	2mm	33363	1153	612	1153	1153	316	168	0
3	256	SHEL	3mm	61437	1943	878	1939	1914	410	179	4
3	256	SHEL	adi	1627784	48698	43034	35585	26815	244	87	12962
3	256	SHEL	correlation	477469	4362	1412	1240	968	98	25	3122
3	256	SHEL	covariance	476172	4265	1429	1367	841	40	6	2898
3	256	SHEL	deriche	332748	20502	9485	19977	19846	20	15	525
3	256	SHEL	fdtd-2d	761416	57305	35224	36673	26722	647	420	20632

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	SHEL	gemver	12641	2725	1138	2725	2725	1169	553	0
3	256	SHEL	heat-3d	68645	37379	23761	35610	28872	803	763	1769
3	256	SHEL	jacobi-2d	75103	44897	31800	42673	24313	76	25	2224
3	256	SHEL	lu	69038	2527	1112	1618	1090	61	58	909
3	256	SHEL	ludcmp	67795	5088	1148	3857	2337	340	252	1231
3	256	SHEL	mvt	3163	1380	413	1296	1167	36	10	84
3	512	CLAM	2mm	33364	1148	601	1148	1148	115	1	0
3	512	CLAM	3mm	61491	1888	877	1888	1888	819	226	0
3	512	CLAM	adi	1631061	45300	40211	39039	24311	43	1	6107
3	512	CLAM	atax	1515	711	178	711	711	155	25	0
3	512	CLAM	bicg	12991	914	267	914	914	26	22	0
3	512	CLAM	cholesky	20061	1422	730	1339	721	11	10	83
3	512	CLAM	correlation	477677	4154	1330	938	641	417	76	3216
3	512	CLAM	covariance	476006	4430	1499	1728	938	285	180	2702
3	512	CLAM	deriche	330870	22375	9972	15657	12415	13	10	6718
3	512	CLAM	doitgen	3009	751	622	751	751	28	11	0
3	512	CLAM	durbin	2	37	0	0	0	14	13	0
3	512	CLAM	fdtd-2d	774078	43996	29706	32199	18285	42	41	11797
3	512	CLAM	floyd-warshall	393732	317811	296460	315496	252179	2	2	2315
3	512	CLAM	gemm	21940	592	311	592	592	1	1	0
3	512	CLAM	gemver	13002	2366	1219	1972	1642	160	106	394
3	512	CLAM	gesummv	7218	827	127	827	827	20	7	0
3	512	CLAM	gram-schmidt	50767	907	746	907	907	415	184	0
3	512	CLAM	heat-3d	59208	46814	28358	33087	30642	1807	955	13727
3	512	CLAM	jacobi-1d	1747	97	0	0	0	236	7	0
3	512	CLAM	jacobi-2d	60793	59207	37374	38586	35902	510	268	20621
3	512	CLAM	lu	68121	3444	1078	2834	1522	2	2	610
3	512	CLAM	ludcmp	68047	4611	1189	2730	1391	532	149	1881
3	512	CLAM	mvt	3090	1452	452	981	968	34	9	471
3	512	CLAM	nussinov	246147	41933	1574	34832	32167	269	20	7101
3	512	CLAM	seidel-2d	48430	23026	22044	20350	4581	329	285	2676
3	512	CLAM	symm	52065	2951	1961	2496	1854	454	260	455
3	512	CLAM	syr2k	327735	3646	874	1526	837	3	3	2120
3	512	CLAM	syrk	92258	355	261	355	355	1	1	0
3	512	CLAM	trisolv	459	232	130	232	215	51	24	0
3	512	CLAM	trmm	108476	95	50	95	95	2	2	0
3	512	C-SHEL	2mm	33448	1068	597	1068	1068	635	277	0
3	512	C-SHEL	3mm	60929	2451	911	2451	2451	622	398	0
3	512	C-SHEL	adi	1636168	40314	36839	40082	39206	243	121	81
3	512	C-SHEL	correlation	477107	4724	1580	1525	1160	297	144	3199
3	512	C-SHEL	covariance	476393	4044	2070	2467	1524	343	186	1577
3	512	C-SHEL	deriche	332824	20426	9531	19988	19764	20	17	438
3	512	C-SHEL	fdtd-2d	772371	46350	28479	42327	41084	567	348	4023
3	512	C-SHEL	gemver	13131	2235	1079	2037	1936	148	116	198
3	512	C-SHEL	heat-3d	66267	39757	24965	35344	18687	83	35	4413
3	512	C-SHEL	jacobi-2d	75535	44465	31377	44294	41737	563	265	171
3	512	C-SHEL	lu	67784	3781	1100	3769	3569	429	408	12
3	512	C-SHEL	ludcmp	69187	3696	1193	3065	2118	1261	1000	631
3	512	C-SHEL	mvt	3110	1433	432	1159	1063	36	10	274
3	512	PRL	2mm	33371	1141	594	1141	1141	115	2	0
3	512	PRL	3mm	61500	1879	879	1879	1879	819	222	0
3	512	PRL	adi	1629842	46519	39368	39672	18755	9	1	6693
3	512	PRL	atax	1436	790	196	790	790	155	26	0
3	512	PRL	bicg	12991	914	267	914	914	26	22	0
3	512	PRL	cholesky	19566	1917	705	1917	1917	11	9	0
3	512	PRL	correlation	478720	3111	2297	3111	3111	417	89	0
3	512	PRL	covariance	477477	2959	2288	2959	2957	285	194	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	PRL	deriche	332160	21085	9387	18207	16599	13	10	2878
3	512	PRL	doitgen	3077	683	586	683	683	28	14	0
3	512	PRL	durbin	2	37	0	0	0	14	13	0
3	512	PRL	fdtd-2d	771110	46964	30275	38413	33965	42	41	8551
3	512	PRL	floyd-warshall	393634	317909	298105	317901	317074	2	2	8
3	512	PRL	gemm	21940	592	311	592	592	1	1	0
3	512	PRL	gemver	13144	2224	1034	2224	2224	150	122	0
3	512	PRL	gesummv	7199	846	145	846	846	20	7	0
3	512	PRL	gram-schmidt	49389	2285	1806	2285	2285	398	193	0
3	512	PRL	heat-3d	57369	48653	29342	38447	33102	1807	952	10206
3	512	PRL	jacobi-1d	1747	97	0	0	0	236	7	0
3	512	PRL	jacobi-2d	65563	54437	35180	48623	43824	514	241	5814
3	512	PRL	lu	67413	4152	1100	4152	4152	2	2	0
3	512	PRL	ludcmp	69314	3344	1102	2706	1759	532	140	638
3	512	PRL	mvt	3431	1111	52	1111	1111	36	6	0
3	512	PRL	nussinov	242288	45792	1571	42873	42389	269	18	2919
3	512	PRL	seidel-2d	48998	22458	21862	22458	22458	329	283	0
3	512	PRL	symm	51320	3696	1742	3662	3515	460	251	34
3	512	PRL	syr2k	325963	5418	850	5289	4793	3	3	129
3	512	PRL	syrk	92215	398	253	398	398	1	1	0
3	512	PRL	trisolv	476	215	77	215	215	51	23	0
3	512	PRL	trmm	108185	386	50	386	386	2	2	0
3	512	SHEL	2mm	33448	1068	597	1068	1068	635	277	0
3	512	SHEL	3mm	60937	2443	906	2443	2443	624	398	0
3	512	SHEL	adi	1621543	54939	46602	38693	33408	242	155	16095
3	512	SHEL	correlation	477134	4697	1513	1543	1195	297	143	3154
3	512	SHEL	covariance	476389	4048	2079	2405	1417	284	187	1643
3	512	SHEL	deriche	332610	20640	9585	19965	19268	20	17	675
3	512	SHEL	fdtd-2d	758294	60427	36571	31731	23799	567	335	28696
3	512	SHEL	gemver	12781	2585	1229	1961	1495	150	117	624
3	512	SHEL	heat-3d	65102	40922	25689	33674	14543	83	37	7248
3	512	SHEL	jacobi-2d	75956	44044	31347	43650	37173	563	260	394
3	512	SHEL	lu	67643	3922	1124	3906	3713	429	408	16
3	512	SHEL	ludcmp	69163	3720	1192	3197	2251	1262	1011	523
3	512	SHEL	mvt	3160	1383	399	1301	1187	35	10	82
3	1024	CLAM	2mm	33289	1223	563	1223	1223	707	305	0
3	1024	CLAM	3mm	61065	2314	865	2314	2314	1022	472	0
3	1024	CLAM	adi	1620820	55541	43747	47938	32146	43	1	7449
3	1024	CLAM	atax	1515	711	178	711	711	155	25	0
3	1024	CLAM	bicg	13024	881	231	881	881	26	22	0
3	1024	CLAM	cholesky	19870	1613	730	1562	1011	310	289	51
3	1024	CLAM	correlation	477329	4502	1376	1434	897	1848	353	3068
3	1024	CLAM	covariance	476291	4145	1396	1185	700	285	182	2960
3	1024	CLAM	deriche	330787	22458	10613	17839	16182	13	10	4619
3	1024	CLAM	doitgen	2997	763	597	763	763	27	13	0
3	1024	CLAM	durbin	2	37	0	0	0	14	13	0
3	1024	CLAM	fdtd-2d	762251	55823	34043	35550	26172	42	41	20273
3	1024	CLAM	floyd-warshall	392538	319005	295874	314101	210365	2	2	4904
3	1024	CLAM	gemm	21940	592	311	592	592	1	1	0
3	1024	CLAM	gemver	12467	2901	1179	2549	2155	862	672	352
3	1024	CLAM	gesummv	7120	925	132	925	925	773	397	0
3	1024	CLAM	gram-schmidt	50320	1354	1150	1354	1354	1004	179	0
3	1024	CLAM	heat-3d	58648	47374	28976	33517	31352	3086	2000	13857
3	1024	CLAM	jacobi-1d	1747	97	0	0	0	236	7	0
3	1024	CLAM	jacobi-2d	61341	58659	37198	40332	37631	516	270	18327

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	CLAM	lu	67326	4239	1125	3732	2671	430	410	507
3	1024	CLAM	ludcmp	67994	4664	1187	3080	2130	1250	630	1584
3	1024	CLAM	mvt	3259	1283	320	1283	1283	36	9	0
3	1024	CLAM	nussinov	247261	40819	1572	22062	12235	271	64	18757
3	1024	CLAM	seidel-2d	48343	23113	22070	20449	5011	329	289	2664
3	1024	CLAM	symm	51870	3146	1593	2779	2189	455	241	367
3	1024	CLAM	syr2k	327503	3878	937	1921	1031	3	3	1957
3	1024	CLAM	syrk	92228	385	258	385	385	1	1	0
3	1024	CLAM	trisolv	459	232	130	232	215	51	24	0
3	1024	CLAM	trmm	108472	99	51	99	99	2	2	0
3	1024	C-SHEL	2mm	33168	1348	578	1348	1348	438	272	0
3	1024	C-SHEL	3mm	61125	2255	890	2255	2255	1322	758	0
3	1024	C-SHEL	adi	1626492	49990	40409	49839	49839	3858	1129	0
3	1024	C-SHEL	correlation	477737	4094	2164	3173	2062	1555	460	921
3	1024	C-SHEL	covariance	476312	4125	1368	989	663	99	6	3136
3	1024	C-SHEL	deriche	332114	21136	9667	18961	15480	20	17	2175
3	1024	C-SHEL	fdtd-2d	760586	58135	33922	43646	41236	605	382	14489
3	1024	C-SHEL	gemver	13096	2270	669	2270	2270	147	103	0
3	1024	C-SHEL	heat-3d	65632	40392	25149	35515	27853	5046	3337	4877
3	1024	C-SHEL	jacobi-2d	74990	45010	31843	43857	36843	962	367	1153
3	1024	C-SHEL	lu	65738	5827	1123	5804	5429	489	464	23
3	1024	C-SHEL	ludcmp	68253	4630	1074	4329	3500	1248	640	301
3	1024	C-SHEL	mvt	2867	1676	240	1676	1676	784	414	0
3	1024	PRL	2mm	32894	1618	541	1618	1618	699	289	0
3	1024	PRL	3mm	61097	2282	867	2282	2282	1022	470	0
3	1024	PRL	adi	1623515	52846	42580	50326	42206	43	1	2366
3	1024	PRL	atax	1436	790	196	790	790	155	26	0
3	1024	PRL	bicg	13024	881	231	881	881	26	22	0
3	1024	PRL	cholesky	19926	1557	724	1519	995	310	290	38
3	1024	PRL	correlation	478028	3803	2241	3792	3792	1848	376	11
3	1024	PRL	covariance	477092	3344	2370	3344	3344	285	194	0
3	1024	PRL	deriche	330934	22311	10666	19375	18086	13	11	2936
3	1024	PRL	doitgen	3066	694	566	694	694	28	9	0
3	1024	PRL	durbin	2	37	0	0	0	14	13	0
3	1024	PRL	fdtd-2d	771577	46497	29907	42344	41445	42	41	4153
3	1024	PRL	floyd-warshall	393592	317951	295422	316048	265972	2	2	1903
3	1024	PRL	gemm	21940	592	311	592	592	1	1	0
3	1024	PRL	gemver	12465	2903	1063	2586	2259	865	675	317
3	1024	PRL	gesummv	7110	935	116	935	935	773	402	0
3	1024	PRL	gram-schmidt	50320	1354	1150	1354	1354	1004	179	0
3	1024	PRL	heat-3d	62854	43168	26271	43159	43133	3086	1910	9
3	1024	PRL	jacobi-1d	1747	97	0	0	0	236	7	0
3	1024	PRL	jacobi-2d	69047	50953	33101	50946	50917	514	223	7
3	1024	PRL	lu	56253	15312	857	15312	15312	430	327	0
3	1024	PRL	ludcmp	68674	3984	1059	3887	3490	1251	637	97
3	1024	PRL	mvt	3418	1124	54	1124	1124	36	6	0
3	1024	PRL	nussinov	245590	42490	1572	38597	37900	268	41	3893
3	1024	PRL	seidel-2d	48784	22672	21926	22672	22672	329	281	0
3	1024	PRL	symm	48625	6391	1243	6391	6391	470	219	0
3	1024	PRL	syr2k	322436	8945	784	8945	8945	3	3	0
3	1024	PRL	syrk	92107	506	245	506	506	1	1	0
3	1024	PRL	trisolv	476	215	77	215	215	51	23	0
3	1024	PRL	trmm	108227	344	50	344	344	2	2	0
3	1024	SHEL	2mm	33168	1348	578	1348	1348	438	272	0
3	1024	SHEL	3mm	61125	2255	890	2255	2255	1322	758	0
3	1024	SHEL	adi	1616299	60183	48902	42057	29824	3928	965	17975
3	1024	SHEL	correlation	477711	4120	2132	3219	2047	1530	528	901

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	SHEL	covariance	476425	4012	1381	935	621	40	6	3077
3	1024	SHEL	deriche	332118	21132	9718	18817	15859	20	17	2315
3	1024	SHEL	fdtd-2d	757907	60814	36678	32381	24464	605	351	28433
3	1024	SHEL	gemver	13050	2316	725	2316	2316	149	102	0
3	1024	SHEL	heat-3d	67647	38377	24154	36137	28937	5046	3328	2240
3	1024	SHEL	jacobi-2d	76007	43993	31329	43485	35886	961	341	508
3	1024	SHEL	lu	64960	6605	1138	5989	4572	489	469	616
3	1024	SHEL	ludcmp	68208	4675	1144	4617	4233	1250	633	58
3	1024	SHEL	mvt	2765	1778	420	1700	1587	776	444	78
4	64	CLAM	2mm	33449	1063	570	1033	1019	116	1	30
4	64	CLAM	3mm	61352	2027	911	1543	1103	28	2	484
4	64	CLAM	adi	1629996	46365	41102	29989	25682	36	1	16222
4	64	CLAM	atax	1689	537	77	537	537	46	8	0
4	64	CLAM	bicg	13379	526	55	526	526	17	9	0
4	64	CLAM	cholesky	20785	698	341	594	497	11	9	104
4	64	CLAM	correlation	477855	3976	1318	721	538	170	12	3255
4	64	CLAM	covariance	476637	3799	1254	614	437	8	5	3185
4	64	CLAM	deriche	331461	21784	9714	16789	14188	13	9	4995
4	64	CLAM	doitgen	3110	650	582	650	650	27	8	0
4	64	CLAM	durbin	2	37	0	0	0	12	11	0
4	64	CLAM	fdtd-2d	770194	47880	31117	26491	23260	0	0	21389
4	64	CLAM	floyd-warshall	394068	317475	295821	314891	247441	2	2	2584
4	64	CLAM	gemm	21969	563	291	563	563	1	1	0
4	64	CLAM	gemver	13230	2138	1191	1258	1036	37	31	880
4	64	CLAM	gesummv	7420	625	50	625	625	20	7	0
4	64	CLAM	gram-schmidt	50875	799	707	799	799	95	4	0
4	64	CLAM	heat-3d	59422	46600	28741	32315	29775	4	4	14285
4	64	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
4	64	CLAM	jacobi-2d	61130	58870	37279	39048	36950	30	1	19822
4	64	CLAM	lu	69174	2391	1133	1076	703	2	2	1315
4	64	CLAM	ludcmp	68844	3814	1182	1698	1249	61	56	2116
4	64	CLAM	mvt	3220	1322	459	809	790	36	9	513
4	64	CLAM	nussinov	248998	39082	1570	26750	23766	6	6	12332
4	64	CLAM	seidel-2d	48601	22855	22017	20989	7030	126	46	1866
4	64	CLAM	symm	53229	1787	1083	774	557	1	1	1013
4	64	CLAM	syr2k	328465	2916	701	708	550	3	3	2208
4	64	CLAM	syrk	92314	299	234	299	299	1	1	0
4	64	CLAM	trisolv	463	228	124	228	228	2	2	0
4	64	CLAM	trmm	108475	96	51	96	96	2	2	0
4	64	C-SHEL	2mm	33511	1005	590	969	958	65	2	36
4	64	C-SHEL	3mm	61438	1942	948	1545	1330	27	2	397
4	64	C-SHEL	adi	1636475	40007	34240	36235	31207	83	40	3621
4	64	C-SHEL	correlation	477865	3966	1267	768	610	170	11	3198
4	64	C-SHEL	covariance	476553	3884	1276	686	493	25	3	3198
4	64	C-SHEL	deriche	330986	22264	10155	18532	14333	20	16	3732
4	64	C-SHEL	fdtd-2d	772040	46681	29590	40240	38120	127	81	6441
4	64	C-SHEL	gemver	13357	2009	975	1594	1415	66	38	415
4	64	C-SHEL	heat-3d	59600	46424	28718	32138	29677	47	27	14286
4	64	C-SHEL	jacobi-2d	69417	50583	33992	42423	35155	28	2	8160
4	64	C-SHEL	lu	69447	2118	1097	1201	886	1	1	917
4	64	C-SHEL	ludcmp	68527	4356	1170	2656	1567	107	102	1700
4	64	C-SHEL	mvt	3447	1096	261	1096	1096	0	0	0
4	64	PRL	2mm	33475	1037	560	1037	1037	115	1	0
4	64	PRL	3mm	61722	1657	818	1612	1584	30	2	45
4	64	PRL	adi	1632443	43918	39370	33516	28251	43	1	10248
4	64	PRL	atax	1688	538	76	538	538	46	8	0
4	64	PRL	bicg	13369	536	65	536	536	17	9	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	PRL	cholesky	18512	2971	664	2971	2971	11	9	0
4	64	PRL	correlation	479012	2819	2245	2819	2816	170	12	0
4	64	PRL	covariance	477454	2982	2288	2619	1699	8	5	363
4	64	PRL	deriche	330886	22359	10055	16512	13968	13	10	5847
4	64	PRL	doitgen	3110	650	582	650	650	27	8	0
4	64	PRL	durbin	2	37	0	0	0	12	11	0
4	64	PRL	fdtd-2d	770782	47292	30671	27709	22951	0	0	19583
4	64	PRL	floyd-warshall	394491	317052	295724	316380	295006	2	2	672
4	64	PRL	gemm	21968	564	291	564	564	1	1	0
4	64	PRL	gemver	13505	1863	935	1832	1811	37	34	31
4	64	PRL	gesummv	7418	627	51	627	627	20	7	0
4	64	PRL	gram-schmidt	50875	799	707	799	799	95	4	0
4	64	PRL	heat-3d	58055	47967	29297	34382	32053	4	4	13585
4	64	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
4	64	PRL	jacobi-2d	62333	57667	36787	41311	37155	33	1	16356
4	64	PRL	lu	65793	5772	800	5772	5772	2	2	0
4	64	PRL	ludcmp	69762	2896	1113	2836	2539	60	58	60
4	64	PRL	mvt	3356	1186	378	1155	1142	36	9	31
4	64	PRL	nussinov	248037	40043	1573	30750	28803	6	6	9293
4	64	PRL	seidel-2d	48886	22570	21961	21878	13454	88	45	692
4	64	PRL	symm	50307	4709	887	4709	4709	1	1	0
4	64	PRL	syr2k	325675	5706	883	5705	5609	3	3	1
4	64	PRL	syrk	92331	282	213	282	282	1	1	0
4	64	PRL	trisolv	479	212	73	212	212	2	2	0
4	64	PRL	trmm	108475	96	51	96	96	2	2	0
4	64	SHEL	2mm	33511	1005	584	965	954	66	2	40
4	64	SHEL	3mm	61737	1643	834	1530	1407	30	2	113
4	64	SHEL	adi	1629785	46697	41448	33994	25989	83	40	12552
4	64	SHEL	correlation	477859	3972	1284	845	671	167	11	3127
4	64	SHEL	covariance	476546	3891	1244	780	590	25	3	3111
4	64	SHEL	deriche	331415	21835	10006	19394	17742	20	15	2441
4	64	SHEL	fdtd-2d	761884	56837	35156	33179	25495	127	82	23658
4	64	SHEL	gemver	13322	2044	1134	1538	1165	66	36	506
4	64	SHEL	heat-3d	69054	36970	23485	34028	15665	47	23	2942
4	64	SHEL	jacobi-2d	75862	44138	31555	41881	17892	20	1	2257
4	64	SHEL	lu	67860	3705	947	3393	2665	1	1	312
4	64	SHEL	ludcmp	67535	5348	1192	3119	1542	110	99	2229
4	64	SHEL	mvt	3324	1219	447	1118	1074	0	0	101
4	128	CLAM	2mm	33335	1177	565	1177	1177	252	144	0
4	128	CLAM	3mm	61355	2024	931	2007	1848	202	3	17
4	128	CLAM	adi	1627875	48486	42171	29866	25752	3	1	18466
4	128	CLAM	atax	1593	633	147	633	633	47	10	0
4	128	CLAM	bicg	13376	529	55	529	529	17	9	0
4	128	CLAM	cholesky	20777	706	370	609	578	11	10	97
4	128	CLAM	correlation	477832	3999	1314	800	605	249	24	3199
4	128	CLAM	covariance	476523	3913	1301	695	504	8	5	3218
4	128	CLAM	deriche	332161	21084	9318	16984	14963	13	10	4100
4	128	CLAM	doitgen	3112	648	566	648	648	27	5	0
4	128	CLAM	durbin	2	37	0	0	0	12	11	0
4	128	CLAM	fdtd-2d	777863	40211	27061	34216	32759	42	41	5995
4	128	CLAM	floyd-warshall	393196	318347	296301	313528	211962	2	2	4819
4	128	CLAM	gemm	21980	552	312	552	552	1	1	0
4	128	CLAM	gemver	12954	2414	1191	1755	1353	56	26	659
4	128	CLAM	gesummv	7409	636	48	636	636	7	7	0
4	128	CLAM	gram-schmidt	50875	799	707	799	799	95	4	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	CLAM	heat-3d	60445	45577	28388	30600	27525	85	55	14977
4	128	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
4	128	CLAM	jacobi-2d	60237	59763	37597	37521	36348	27	1	22242
4	128	CLAM	lu	68899	2666	1130	1572	962	2	2	1094
4	128	CLAM	ludcmp	67904	4754	1190	1836	1150	233	215	2918
4	128	CLAM	mvt	3305	1237	410	1099	980	36	9	138
4	128	CLAM	nussinov	248649	39431	1570	31594	28619	23	19	7837
4	128	CLAM	seidel-2d	48366	23090	22205	20563	5080	6	6	2527
4	128	CLAM	symm	53183	1833	1083	741	541	1	1	1092
4	128	CLAM	syr2k	328398	2983	726	745	595	3	3	2238
4	128	CLAM	syrk	92274	339	277	339	339	1	1	0
4	128	CLAM	trisolv	462	229	125	229	229	29	14	0
4	128	CLAM	trmm	108475	96	51	96	96	2	2	0
4	128	C-SHEL	2mm	33500	1016	616	1006	997	52	1	10
4	128	C-SHEL	3mm	61354	2026	968	1797	1584	31	2	229
4	128	C-SHEL	adi	1631416	45066	40304	36293	30795	123	43	8622
4	128	C-SHEL	correlation	477852	3979	1304	811	617	249	22	3168
4	128	C-SHEL	covariance	476405	4032	1274	956	681	247	172	3076
4	128	C-SHEL	deriche	332492	20758	9700	19820	17714	20	16	938
4	128	C-SHEL	fdtd-2d	773812	44909	30829	37928	30443	87	54	6981
4	128	C-SHEL	gemver	13264	2102	943	1804	1607	145	41	298
4	128	C-SHEL	heat-3d	58864	47160	28875	33267	30865	47	33	13893
4	128	C-SHEL	jacobi-2d	67312	52688	35001	42871	35436	103	21	9817
4	128	C-SHEL	lu	69410	2155	1088	1435	1070	61	59	720
4	128	C-SHEL	ludcmp	68682	4201	1211	1921	1350	107	103	2280
4	128	C-SHEL	mvt	3166	1377	417	1248	1120	9	9	129
4	128	PRL	2mm	33334	1178	557	1178	1178	251	144	0
4	128	PRL	3mm	61469	1910	890	1910	1910	206	3	0
4	128	PRL	adi	1631503	44858	40235	33612	28031	3	1	11092
4	128	PRL	atax	1592	634	137	634	634	48	8	0
4	128	PRL	bicg	13375	530	56	530	530	17	9	0
4	128	PRL	cholesky	20652	831	359	754	712	11	10	77
4	128	PRL	correlation	478498	3333	2357	2526	1439	249	37	807
4	128	PRL	covariance	477164	3272	2081	2171	1287	8	5	1101
4	128	PRL	deriche	330842	22403	10025	16347	13454	13	10	6056
4	128	PRL	doitgen	3111	649	566	649	649	27	5	0
4	128	PRL	durbin	2	37	0	0	0	12	11	0
4	128	PRL	fdtd-2d	775516	42558	27336	36460	35787	42	41	6098
4	128	PRL	floyd-warshall	394373	317170	296059	316859	307003	2	2	311
4	128	PRL	gemm	21980	552	312	552	552	1	1	0
4	128	PRL	gemver	13231	2137	985	1901	1795	63	28	236
4	128	PRL	gesummv	7403	642	48	642	642	7	7	0
4	128	PRL	gram-schmidt	50875	799	707	799	799	95	4	0
4	128	PRL	heat-3d	59566	46456	28763	32091	29537	85	57	14365
4	128	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
4	128	PRL	jacobi-2d	61871	58129	36933	41277	37039	18	1	16852
4	128	PRL	lu	69280	2285	998	1942	1513	2	2	343
4	128	PRL	ludcmp	69796	2862	1116	2081	1516	232	217	781
4	128	PRL	mvt	3490	1052	190	1052	1052	36	7	0
4	128	PRL	nussinov	247497	40583	1568	35985	35360	23	19	4598
4	128	PRL	seidel-2d	48993	22463	22179	22450	21974	6	6	13
4	128	PRL	symm	51702	3314	743	3314	3314	1	1	0
4	128	PRL	syr2k	323880	7501	722	7501	7501	3	3	0
4	128	PRL	syrk	92296	317	252	317	317	1	1	0
4	128	PRL	trisolv	478	213	74	213	213	29	13	0
4	128	PRL	trmm	108475	96	51	96	96	2	2	0
4	128	SHEL	2mm	33500	1016	625	1016	1007	52	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	SHEL	3mm	61442	1938	952	1815	1739	32	2	123
4	128	SHEL	adi	1630000	46482	40202	36559	30749	123	47	9772
4	128	SHEL	correlation	477813	4018	1308	811	629	249	24	3207
4	128	SHEL	covariance	476405	4032	1274	956	681	247	172	3076
4	128	SHEL	deriche	332432	20818	9663	19967	17992	20	16	851
4	128	SHEL	fdtd-2d	762184	56537	35864	31887	23580	87	70	24650
4	128	SHEL	gemver	13154	2212	1108	1942	1699	139	35	270
4	128	SHEL	heat-3d	69290	36734	23214	35317	28181	47	27	1417
4	128	SHEL	jacobi-2d	76224	43776	31409	42951	30716	99	19	825
4	128	SHEL	lu	68616	2949	1105	2189	1448	61	58	760
4	128	SHEL	ludcmp	66448	6435	1210	4220	2104	110	102	2215
4	128	SHEL	mvt	3348	1195	190	1195	1195	9	6	0
4	256	CLAM	2mm	33434	1078	557	1078	1078	115	1	0
4	256	CLAM	3mm	61067	2312	961	2262	2064	398	180	50
4	256	CLAM	adi	1630077	46284	42345	31326	22890	42	1	14804
4	256	CLAM	atax	1481	745	185	745	745	404	133	0
4	256	CLAM	bicg	13134	771	167	771	771	17	15	0
4	256	CLAM	cholesky	20503	980	372	914	875	310	288	66
4	256	CLAM	correlation	477606	4225	1340	1110	746	414	186	3115
4	256	CLAM	covariance	476596	3840	1561	1624	824	285	189	2216
4	256	CLAM	deriche	332217	21028	9390	18012	16305	13	10	3016
4	256	CLAM	doitgen	3127	633	575	633	633	27	8	0
4	256	CLAM	durbin	2	37	0	0	0	12	11	0
4	256	CLAM	fdtd-2d	775532	42542	29668	36027	23237	0	0	6515
4	256	CLAM	floyd-warshall	394267	317276	295725	315062	249233	2	2	2214
4	256	CLAM	gemm	21946	586	312	586	586	1	1	0
4	256	CLAM	gemver	12844	2524	1279	2055	1614	148	122	469
4	256	CLAM	gesummv	7308	737	163	737	737	20	7	0
4	256	CLAM	gram-schmidt	50727	947	867	947	947	3	3	0
4	256	CLAM	heat-3d	60181	45841	28358	31013	28153	45	26	14828
4	256	CLAM	jacobi-1d	1747	97	0	0	0	2	2	0
4	256	CLAM	jacobi-2d	60934	59066	37381	39099	36447	74	37	19967
4	256	CLAM	lu	68906	2659	1107	1705	1203	430	411	954
4	256	CLAM	ludcmp	68055	4603	1177	1717	1230	119	116	2886
4	256	CLAM	mvt	3202	1340	453	897	841	36	9	443
4	256	CLAM	nussinov	248212	39868	1570	27707	24714	23	19	12161
4	256	CLAM	seidel-2d	48922	22534	21708	22313	19302	126	45	221
4	256	CLAM	symm	52743	2273	1391	1376	983	1	1	897
4	256	CLAM	syr2k	327936	3445	728	1076	729	3	3	2369
4	256	CLAM	syrk	92203	410	278	410	410	1	1	0
4	256	CLAM	trisolv	462	229	125	229	229	29	14	0
4	256	CLAM	trmm	108475	96	51	96	96	2	2	0
4	256	C-SHEL	2mm	33418	1098	601	1098	1098	238	128	0
4	256	C-SHEL	3mm	61505	1875	827	1824	1780	404	304	51
4	256	C-SHEL	adi	1639797	36685	35306	36403	35798	244	81	131
4	256	C-SHEL	correlation	477744	4087	1306	1046	719	497	208	3041
4	256	C-SHEL	covariance	476834	3603	1534	1388	700	247	176	2215
4	256	C-SHEL	deriche	332976	20274	9319	19737	18623	20	15	537
4	256	C-SHEL	fdtd-2d	773677	45044	30499	39474	30763	125	47	5570
4	256	C-SHEL	gemver	12823	2543	1265	2052	1590	118	113	491
4	256	C-SHEL	heat-3d	60698	45326	27771	35338	29827	47	23	9988
4	256	C-SHEL	jacobi-2d	71662	48338	33044	43802	35737	159	59	4536
4	256	C-SHEL	lu	69267	2298	1097	1467	1138	61	59	831
4	256	C-SHEL	ludcmp	58152	14731	944	14731	14731	230	216	0
4	256	C-SHEL	mvt	3242	1301	447	1013	906	9	9	288
4	256	PRL	2mm	33434	1078	555	1078	1078	115	2	0
4	256	PRL	3mm	61286	2093	889	2093	2093	411	180	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	PRL	adi	1629590	46771	41369	35095	29159	43	1	11522
4	256	PRL	atax	1481	745	185	745	745	404	133	0
4	256	PRL	bicg	13134	771	167	771	771	17	15	0
4	256	PRL	cholesky	18594	2889	630	2889	2889	310	273	0
4	256	PRL	correlation	478872	2959	2247	2959	2959	414	198	0
4	256	PRL	covariance	477216	3220	2216	3220	3220	285	186	0
4	256	PRL	deriche	330796	22449	10032	16595	14219	13	10	5854
4	256	PRL	doitgen	3127	633	575	633	633	27	8	0
4	256	PRL	durbin	2	37	0	0	0	12	11	0
4	256	PRL	fdtd-2d	775070	43004	29520	38882	37495	0	0	4122
4	256	PRL	floyd-warshall	394502	317041	295832	316819	308900	2	2	222
4	256	PRL	gemm	21946	586	312	586	586	1	1	0
4	256	PRL	gemver	13084	2284	1094	2186	2150	148	121	98
4	256	PRL	gesummv	7302	743	162	743	743	20	7	0
4	256	PRL	gram-schmidt	50014	1660	1358	1660	1660	3	3	0
4	256	PRL	heat-3d	57631	48391	29446	33803	29473	45	36	14588
4	256	PRL	jacobi-1d	1747	97	0	0	0	2	2	0
4	256	PRL	jacobi-2d	61979	58021	36948	41661	37531	70	38	16360
4	256	PRL	lu	68387	3178	842	3156	3027	430	403	22
4	256	PRL	ludcmp	67206	5452	1110	5452	5452	119	117	0
4	256	PRL	mvt	3413	1129	248	1129	1129	36	7	0
4	256	PRL	nussinov	247199	40881	1572	31764	29445	23	19	9117
4	256	PRL	seidel-2d	48784	22672	22413	22672	22672	87	45	0
4	256	PRL	symm	52030	2986	1326	2897	2649	1	1	89
4	256	PRL	syr2k	323832	7549	586	7549	7549	3	3	0
4	256	PRL	syrk	92188	425	268	425	425	1	1	0
4	256	PRL	trisolv	478	213	74	213	213	29	13	0
4	256	PRL	trmm	108476	95	50	95	95	2	2	0
4	256	SHEL	2mm	33418	1098	601	1098	1098	238	128	0
4	256	SHEL	3mm	61491	1889	840	1853	1816	403	304	36
4	256	SHEL	adi	1626220	50262	41380	32324	28203	243	86	17787
4	256	SHEL	correlation	477592	4239	1321	1129	783	497	217	3110
4	256	SHEL	covariance	476447	3990	1348	958	668	247	171	3032
4	256	SHEL	deriche	332708	20542	9515	19977	19929	20	15	565
4	256	SHEL	fdtd-2d	766609	52112	34057	36469	26566	125	59	15643
4	256	SHEL	gemver	12814	2552	1263	2124	1653	119	119	428
4	256	SHEL	heat-3d	68999	37025	23471	36388	33038	47	23	637
4	256	SHEL	jacobi-2d	76403	43597	31395	42659	28939	160	51	938
4	256	SHEL	lu	68866	2699	1124	1616	1114	61	59	1083
4	256	SHEL	ludcmp	68397	4486	1196	2935	1768	232	212	1551
4	256	SHEL	mvt	3431	1112	267	1112	1112	9	7	0
4	512	CLAM	2mm	33210	1302	553	1302	1302	639	297	0
4	512	CLAM	3mm	61307	2072	898	2072	2072	1028	461	0
4	512	CLAM	adi	1629271	47090	41814	35473	29202	754	319	11463
4	512	CLAM	atax	1481	745	185	745	745	404	133	0
4	512	CLAM	bicg	13293	612	86	612	612	17	9	0
4	512	CLAM	cholesky	20547	936	530	837	653	11	10	99
4	512	CLAM	correlation	477571	4260	1606	1726	777	854	200	2534
4	512	CLAM	covariance	476125	4311	1292	1100	607	41	11	3211
4	512	CLAM	deriche	331995	21250	9344	16618	14724	13	10	4632
4	512	CLAM	doitgen	3110	650	564	650	650	27	7	0
4	512	CLAM	durbin	2	37	0	0	0	12	11	0
4	512	CLAM	fdtd-2d	771668	46406	30678	26947	20868	42	41	19459
4	512	CLAM	floyd-warshall	393196	318347	295275	316900	276298	2	2	1447
4	512	CLAM	gemm	21946	586	312	586	586	1	1	0
4	512	CLAM	gemver	12933	2435	1097	1971	1843	371	105	464

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	CLAM	gesummv	7313	732	139	732	732	20	7	0
4	512	CLAM	gram-schmidt	50778	896	707	896	896	1663	187	0
4	512	CLAM	heat-3d	61612	44410	27547	28571	22530	85	39	15839
4	512	CLAM	jacobi-1d	1747	97	0	0	0	245	12	0
4	512	CLAM	jacobi-2d	60875	59125	37382	38650	35690	513	261	20475
4	512	CLAM	lu	69024	2541	1078	2396	1849	2	2	145
4	512	CLAM	ludcmp	69080	3578	1158	2601	1724	1177	946	977
4	512	CLAM	mvt	3185	1357	427	1133	1014	8	8	224
4	512	CLAM	nussinov	246518	41562	1573	32146	29440	273	28	9416
4	512	CLAM	seidel-2d	48434	23022	21926	20850	8367	923	350	2172
4	512	CLAM	symm	52696	2320	1507	1660	1270	1	1	660
4	512	CLAM	syr2k	327443	3938	913	1723	1084	3	3	2215
4	512	CLAM	syrk	92283	330	265	330	330	1	1	0
4	512	CLAM	trisolv	462	229	125	229	229	29	14	0
4	512	CLAM	trmm	108475	96	51	96	96	2	2	0
4	512	C-SHEL	2mm	33357	1159	603	1159	1159	630	277	0
4	512	C-SHEL	3mm	61202	2178	886	2178	2178	904	461	0
4	512	C-SHEL	adi	1635727	40755	33535	40604	40604	1683	750	0
4	512	C-SHEL	correlation	477274	4557	1436	1469	782	608	195	3088
4	512	C-SHEL	covariance	476206	4231	1431	1499	939	279	170	2732
4	512	C-SHEL	deriche	332381	20869	9635	19606	17395	20	17	1263
4	512	C-SHEL	fdtd-2d	770770	47951	31484	40404	31593	646	368	7547
4	512	C-SHEL	gemver	12965	2401	931	2340	2166	120	96	61
4	512	C-SHEL	heat-3d	69084	36940	22586	36940	36940	767	761	0
4	512	C-SHEL	jacobi-2d	73991	46009	31984	44197	36759	563	258	1812
4	512	C-SHEL	lu	66396	5169	847	5169	5169	61	57	0
4	512	C-SHEL	ludcmp	68537	4346	986	4339	4203	1254	988	7
4	512	C-SHEL	mvt	3265	1278	352	1278	1278	37	9	0
4	512	PRL	2mm	31864	2648	471	2648	2648	634	266	0
4	512	PRL	3mm	60643	2736	885	2736	2736	1009	461	0
4	512	PRL	adi	1633298	43063	36802	41576	39445	831	201	1333
4	512	PRL	atax	1327	899	237	899	899	409	189	0
4	512	PRL	bicg	13286	619	103	619	619	17	9	0
4	512	PRL	cholesky	20511	972	517	886	695	11	10	86
4	512	PRL	correlation	478447	3384	2018	3384	3384	854	212	0
4	512	PRL	covariance	477559	2877	2195	2877	2877	41	11	0
4	512	PRL	deriche	332127	21118	9425	18167	16623	13	10	2951
4	512	PRL	doitgen	3109	651	566	651	651	27	7	0
4	512	PRL	durbin	2	37	0	0	0	12	11	0
4	512	PRL	fdtd-2d	775343	42731	28977	35705	22912	42	41	7026
4	512	PRL	floyd-warshall	393542	318001	295381	317874	314071	2	2	127
4	512	PRL	gemm	21909	623	308	623	623	1	1	0
4	512	PRL	gemver	13064	2304	1005	1886	1768	385	67	418
4	512	PRL	gesummv	7309	736	141	736	736	20	7	0
4	512	PRL	gram-schmidt	50778	896	707	896	896	1663	187	0
4	512	PRL	heat-3d	57991	48031	29000	33934	29403	85	52	14097
4	512	PRL	jacobi-1d	1747	97	0	0	0	245	12	0
4	512	PRL	jacobi-2d	63880	56120	36095	44894	39443	521	252	11226
4	512	PRL	lu	59145	12420	923	12420	12420	2	2	0
4	512	PRL	ludcmp	60503	12155	1050	12153	12138	1180	957	2
4	512	PRL	mvt	3439	1103	58	1103	1103	8	5	0
4	512	PRL	nussinov	244290	43790	1563	37855	35755	272	19	5935
4	512	PRL	seidel-2d	48317	23139	22621	23139	23139	696	342	0
4	512	PRL	symm	50536	4480	1190	4480	4480	1	1	0
4	512	PRL	syr2k	326976	4405	899	3773	2952	3	3	632
4	512	PRL	syrk	91655	958	262	958	958	1	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	PRL	trisolv	478	213	74	213	213	29	13	0
4	512	PRL	trmm	108475	96	51	96	96	2	2	0
4	512	SHEL	2mm	33357	1159	603	1159	1159	630	277	0
4	512	SHEL	3mm	61202	2178	886	2178	2178	904	461	0
4	512	SHEL	adi	1618699	57783	46981	38589	34192	1683	1182	19043
4	512	SHEL	correlation	477061	4770	1478	1586	900	586	221	3184
4	512	SHEL	covariance	476206	4231	1431	1499	939	279	170	2732
4	512	SHEL	deriche	332524	20726	9620	20063	19142	20	17	663
4	512	SHEL	fdtd-2d	759751	58970	36541	31347	24477	646	429	27623
4	512	SHEL	gemver	12964	2402	899	2400	2390	122	118	2
4	512	SHEL	heat-3d	69229	36795	22789	36792	36670	772	750	3
4	512	SHEL	jacobi-2d	75117	44883	31586	43174	28064	563	267	1709
4	512	SHEL	lu	65187	6378	824	6378	6378	61	57	0
4	512	SHEL	ludcmp	65213	7670	994	7614	6452	1257	1040	56
4	512	SHEL	mvt	3372	1171	208	1171	1171	38	7	0
4	1024	CLAM	2mm	33229	1283	539	1283	1283	310	134	0
4	1024	CLAM	3mm	59202	4177	925	4177	4177	4766	2524	0
4	1024	CLAM	adi	1624058	52303	45945	43942	34334	657	20	8207
4	1024	CLAM	atax	1481	745	185	745	745	404	133	0
4	1024	CLAM	bicg	13219	686	130	686	686	1026	454	0
4	1024	CLAM	cholesky	19910	1573	733	1527	991	310	289	46
4	1024	CLAM	correlation	478840	2991	2076	2980	2888	1848	362	11
4	1024	CLAM	covariance	475866	4570	1976	2190	1080	285	186	2380
4	1024	CLAM	deriche	331020	22225	10620	18907	16488	13	10	3318
4	1024	CLAM	doitgen	3025	735	567	735	735	27	5	0
4	1024	CLAM	durbin	2	37	0	0	0	12	11	0
4	1024	CLAM	fdtd-2d	767746	50328	32320	37746	29892	42	41	12582
4	1024	CLAM	floyd-warshall	393108	318435	296353	313752	213301	2	2	4683
4	1024	CLAM	gemm	21946	586	312	586	586	1	1	0
4	1024	CLAM	gemver	12590	2778	1095	2489	2003	2096	1193	289
4	1024	CLAM	gesummv	7313	732	139	732	732	20	7	0
4	1024	CLAM	gram-schmidt	50054	1620	1426	1620	1620	955	118	0
4	1024	CLAM	heat-3d	59316	46706	28705	31954	26990	1528	1488	14752
4	1024	CLAM	jacobi-1d	1747	97	0	0	0	245	12	0
4	1024	CLAM	jacobi-2d	60278	59722	37643	36963	35112	519	267	22759
4	1024	CLAM	lu	68946	2619	1074	2084	1675	430	408	535
4	1024	CLAM	ludcmp	68734	3924	1091	3380	2335	1261	1009	544
4	1024	CLAM	mvt	3026	1516	230	1516	1516	775	355	0
4	1024	CLAM	nussinov	246572	41508	1573	29136	22078	273	22	12372
4	1024	CLAM	seidel-2d	48728	22728	21954	21355	8956	126	46	1373
4	1024	CLAM	symm	50301	4715	1171	4715	4715	1	1	0
4	1024	CLAM	syr2k	327273	4108	944	2404	1332	3	3	1704
4	1024	CLAM	syrk	92256	357	256	357	357	1	1	0
4	1024	CLAM	trisolv	462	229	125	229	229	29	14	0
4	1024	CLAM	trmm	108462	109	51	109	109	2	2	0
4	1024	C-SHEL	2mm	33272	1244	622	1244	1244	708	321	0
4	1024	C-SHEL	3mm	61281	2099	914	2087	2049	534	304	12
4	1024	C-SHEL	adi	1632181	44301	38416	44150	44150	1082	281	0
4	1024	C-SHEL	correlation	478194	3637	1963	2352	1138	1676	242	1285
4	1024	C-SHEL	covariance	476955	3482	2018	2359	1132	279	188	1123
4	1024	C-SHEL	deriche	329480	23770	11129	22353	20803	20	19	1417
4	1024	C-SHEL	fdtd-2d	772873	45848	30024	42228	34157	606	389	3620
4	1024	C-SHEL	gemver	12588	2778	766	2774	2774	1889	1020	4
4	1024	C-SHEL	heat-3d	58365	47659	29126	33967	31762	87	60	13692
4	1024	C-SHEL	jacobi-2d	73019	46981	32493	40674	8925	553	188	6307
4	1024	C-SHEL	lu	68930	2635	1097	1892	1533	489	470	743
4	1024	C-SHEL	ludcmp	65890	6993	1169	6993	6993	1365	1016	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	C-SHEL	mvt	2880	1663	245	1663	1663	785	451	0
4	1024	PRL	2mm	33229	1283	539	1283	1283	310	134	0
4	1024	PRL	3mm	59589	3790	919	3790	3790	4762	2143	0
4	1024	PRL	adi	1628670	47691	43370	46412	41485	660	1	1125
4	1024	PRL	atax	1327	899	237	899	899	409	189	0
4	1024	PRL	bicg	13219	686	130	686	686	1026	454	0
4	1024	PRL	cholesky	19941	1542	727	1509	1012	310	290	33
4	1024	PRL	correlation	478007	3824	2486	3813	3813	1848	381	11
4	1024	PRL	covariance	476956	3480	2446	3480	3480	285	180	0
4	1024	PRL	deriche	331236	22009	10690	21449	19813	13	9	560
4	1024	PRL	doitgen	3023	737	570	737	737	27	5	0
4	1024	PRL	durbin	2	37	0	0	0	12	11	0
4	1024	PRL	fdtd-2d	774874	43200	29367	37367	36305	42	41	5833
4	1024	PRL	floyd-warshall	394267	317276	295970	316455	291424	2	2	821
4	1024	PRL	gemm	21861	671	335	671	671	1	1	0
4	1024	PRL	gemver	12487	2881	1026	2823	2746	2109	1111	58
4	1024	PRL	gesummv	7303	742	146	742	742	20	7	0
4	1024	PRL	gram-schmidt	50054	1620	1426	1620	1620	955	118	0
4	1024	PRL	heat-3d	60510	45512	27771	42272	37921	1528	1492	3240
4	1024	PRL	jacobi-1d	1747	97	0	0	0	245	12	0
4	1024	PRL	jacobi-2d	66678	53322	34616	49736	45719	515	242	3586
4	1024	PRL	lu	58908	12657	949	12657	12657	430	341	0
4	1024	PRL	ludcmp	63117	9541	1045	9541	9541	1258	906	0
4	1024	PRL	mvt	3177	1365	68	1365	1365	784	271	0
4	1024	PRL	nussinov	243369	44711	1572	42026	41360	273	23	2685
4	1024	PRL	seidel-2d	48149	23307	23066	23307	23307	126	45	0
4	1024	PRL	symm	50191	4825	1188	4825	4825	1	1	0
4	1024	PRL	syr2k	316162	15219	676	15219	15219	3	3	0
4	1024	PRL	syrk	91170	1443	249	1443	1443	1	1	0
4	1024	PRL	trisolv	478	213	74	213	213	29	13	0
4	1024	PRL	trmm	108277	294	50	294	294	2	2	0
4	1024	SHEL	2mm	33274	1242	619	1242	1242	707	322	0
4	1024	SHEL	3mm	61279	2101	914	2101	2101	537	304	0
4	1024	SHEL	adi	1621621	54861	46813	45023	37954	1081	369	9687
4	1024	SHEL	correlation	478182	3649	1974	2379	1169	1656	252	1270
4	1024	SHEL	covariance	476955	3482	2018	2359	1132	279	188	1123
4	1024	SHEL	deriche	329998	23252	10868	22569	21554	20	19	683
4	1024	SHEL	fdtd-2d	766970	51751	32941	39724	31295	606	364	12027
4	1024	SHEL	gemver	12588	2778	766	2774	2774	1889	1020	4
4	1024	SHEL	heat-3d	67920	38104	24139	33340	17251	87	37	4764
4	1024	SHEL	jacobi-2d	72440	47560	32785	40130	8534	551	176	7430
4	1024	SHEL	lu	68669	2896	1102	2497	1882	489	469	399
4	1024	SHEL	ludcmp	65491	7392	1159	7392	7392	1364	1008	0
4	1024	SHEL	mvt	2907	1636	223	1636	1636	786	421	0
5	64	CLAM	2mm	33564	948	589	925	903	1	0	23
5	64	CLAM	3mm	61238	2141	1004	1631	1459	77	1	510
5	64	CLAM	adi	1633075	43286	39769	30050	24285	41	1	13082
5	64	CLAM	atax	1545	681	160	681	681	84	10	0
5	64	CLAM	bicg	13321	584	68	584	584	17	9	0
5	64	CLAM	cholesky	20776	707	380	580	553	12	11	127
5	64	CLAM	correlation	477803	4028	1282	877	618	183	177	3151
5	64	CLAM	covariance	476558	3878	1281	742	528	26	4	3136
5	64	CLAM	deriche	332188	21057	9314	17065	14944	14	10	3992
5	64	CLAM	doitgen	2953	807	713	803	801	28	8	4
5	64	CLAM	durbin	2	37	0	0	0	18	16	0
5	64	CLAM	fdtd-2d	766463	51611	32807	32341	27775	42	41	19270

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	CLAM	floyd-warshall	394363	317180	295452	315064	258030	2	2	2116
5	64	CLAM	gemm	21941	591	322	591	591	1	1	0
5	64	CLAM	gemver	13448	1920	1035	1423	1359	93	33	497
5	64	CLAM	gesummv	7366	679	130	679	679	15	1	0
5	64	CLAM	gram-schmidt	50880	794	738	794	794	3	3	0
5	64	CLAM	heat-3d	60197	45825	28462	31025	28022	85	53	14800
5	64	CLAM	jacobi-1d	1747	97	0	0	0	4	4	0
5	64	CLAM	jacobi-2d	60619	59381	37453	37014	35055	129	70	22367
5	64	CLAM	lu	69673	1892	1077	1105	901	1	1	787
5	64	CLAM	ludcmp	67774	4884	1180	1383	1000	98	91	3501
5	64	CLAM	mvt	3225	1317	463	871	817	29	0	446
5	64	CLAM	nussinov	249089	38991	1573	27556	24536	3	3	11435
5	64	CLAM	seidel-2d	48788	22668	21907	21802	13461	86	44	866
5	64	CLAM	symm	52799	2217	1287	805	537	1	1	1412
5	64	CLAM	syr2k	328459	2922	712	804	617	3	3	2118
5	64	CLAM	syrk	92330	283	214	283	283	0	0	0
5	64	CLAM	trisolv	479	212	73	212	212	10	2	0
5	64	CLAM	trmm	108475	96	51	96	96	2	2	0
5	64	C-SHEL	2mm	33434	1082	691	1046	1013	52	1	36
5	64	C-SHEL	3mm	61305	2075	1010	1790	1649	32	3	285
5	64	C-SHEL	adi	1632513	43969	39938	30695	25567	164	51	13123
5	64	C-SHEL	correlation	477782	4049	1324	914	664	183	176	3135
5	64	C-SHEL	covariance	476427	4010	1311	764	508	30	11	3246
5	64	C-SHEL	deriche	331315	21935	10125	19287	17647	21	14	2648
5	64	C-SHEL	fdtd-2d	770673	48048	30333	42437	39859	49	20	5611
5	64	C-SHEL	gemver	13459	1907	870	1852	1741	93	37	55
5	64	C-SHEL	heat-3d	59361	46663	28769	32444	29883	88	51	14219
5	64	C-SHEL	jacobi-2d	68537	51463	34489	42766	35647	50	30	8697
5	64	C-SHEL	lu	69645	1920	1079	1112	898	1	1	808
5	64	C-SHEL	ludcmp	68160	4723	1165	1361	1172	173	164	3362
5	64	C-SHEL	mvt	3234	1309	450	1008	888	9	9	301
5	64	PRL	2mm	33586	926	548	926	926	1	1	0
5	64	PRL	3mm	61498	1881	913	1881	1881	78	1	0
5	64	PRL	adi	1632037	44324	40179	31368	26487	41	1	12802
5	64	PRL	atax	1543	683	159	683	683	84	10	0
5	64	PRL	bicg	13284	621	97	621	621	17	10	0
5	64	PRL	cholesky	19830	1653	581	1653	1653	12	10	0
5	64	PRL	correlation	478051	3780	1528	1314	748	183	177	2466
5	64	PRL	covariance	477377	3059	2139	2502	1409	26	4	557
5	64	PRL	deriche	330806	22439	10122	16599	13971	14	10	5840
5	64	PRL	doitgen	3127	633	579	633	633	28	5	0
5	64	PRL	durbin	2	37	0	0	0	18	16	0
5	64	PRL	fdtd-2d	768357	49717	32048	35644	27404	42	41	14073
5	64	PRL	floyd-warshall	394761	316782	295417	316442	305286	2	2	340
5	64	PRL	gemm	21941	591	322	591	591	1	1	0
5	64	PRL	gemver	13467	1901	997	1668	1532	93	35	233
5	64	PRL	gesummv	7362	683	131	683	683	15	1	0
5	64	PRL	gram-schmidt	50895	779	719	779	779	3	3	0
5	64	PRL	heat-3d	59405	46617	28733	32518	30124	85	58	14099
5	64	PRL	jacobi-1d	1747	97	0	0	0	4	4	0
5	64	PRL	jacobi-2d	61296	58704	37178	39020	36168	135	59	19684
5	64	PRL	lu	68978	2587	1039	2570	2337	1	1	17
5	64	PRL	ludcmp	69671	2987	1119	2952	2688	98	92	35
5	64	PRL	mvt	3410	1132	279	1132	1132	28	0	0
5	64	PRL	nussinov	247200	40880	1570	34806	32763	3	3	6074

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	PRL	seidel-2d	48893	22563	22211	22563	22563	48	44	0
5	64	PRL	symm	50109	4907	902	4907	4907	1	1	0
5	64	PRL	syr2k	324267	7114	601	7114	7114	3	3	0
5	64	PRL	syrk	92319	294	215	294	294	0	0	0
5	64	PRL	trisolv	479	212	73	212	212	10	2	0
5	64	PRL	trmm	108475	96	51	96	96	2	2	0
5	64	SHEL	2mm	33407	1109	694	1041	1012	52	1	68
5	64	SHEL	3mm	61633	1747	877	1730	1679	31	3	17
5	64	SHEL	adi	1631473	45009	38559	34623	29486	163	45	10235
5	64	SHEL	correlation	477718	4113	1265	983	715	183	176	3130
5	64	SHEL	covariance	476452	3985	1290	819	584	30	11	3166
5	64	SHEL	deriche	331353	21897	10109	19156	16458	21	15	2741
5	64	SHEL	fdtd-2d	761053	57668	36044	30005	23385	49	35	27663
5	64	SHEL	gemver	13372	1994	1079	1637	1393	93	34	357
5	64	SHEL	heat-3d	69761	36263	23131	35724	30623	88	41	539
5	64	SHEL	jacobi-2d	76105	43895	31419	42415	27006	62	18	1480
5	64	SHEL	lu	68427	3138	1050	3138	3138	1	1	0
5	64	SHEL	ludcmp	67387	5496	1161	3603	1889	172	163	1893
5	64	SHEL	mvt	3455	1088	206	1088	1088	9	6	0
5	128	CLAM	2mm	33521	991	585	991	991	1	0	0
5	128	CLAM	3mm	61161	2218	934	2121	1961	423	396	97
5	128	CLAM	adi	1627260	49101	42562	27904	24855	39	1	21043
5	128	CLAM	atax	1660	566	86	566	566	46	8	0
5	128	CLAM	bicg	13349	556	72	556	556	17	9	0
5	128	CLAM	cholesky	20525	958	548	795	527	12	10	163
5	128	CLAM	correlation	477882	3949	1331	849	623	263	188	3100
5	128	CLAM	covariance	476506	3930	1317	713	485	3	1	3217
5	128	CLAM	deriche	332041	21204	9356	16570	14549	14	10	4634
5	128	CLAM	doitgen	2948	812	706	812	812	28	12	0
5	128	CLAM	durbin	2	37	0	0	0	18	16	0
5	128	CLAM	fdtd-2d	765828	52246	32862	31634	27994	0	0	20612
5	128	CLAM	floyd-warshall	394553	316990	295241	315646	275139	2	2	1344
5	128	CLAM	gemm	21922	610	313	610	610	1	1	0
5	128	CLAM	gemver	13164	2204	1097	1614	1347	289	35	590
5	128	CLAM	gesummv	7426	619	51	619	619	15	1	0
5	128	CLAM	gram-schmidt	50655	1019	924	1019	1019	137	62	0
5	128	CLAM	heat-3d	59814	46208	28492	31757	28978	45	29	14451
5	128	CLAM	jacobi-1d	1747	97	0	0	0	4	4	0
5	128	CLAM	jacobi-2d	61430	58570	37129	39580	36287	80	39	18990
5	128	CLAM	lu	69524	2041	1095	1204	895	1	1	837
5	128	CLAM	ludcmp	68228	4430	1173	1516	1222	155	59	2914
5	128	CLAM	mvt	3220	1322	456	989	895	8	8	333
5	128	CLAM	nussinov	249037	39043	1569	25826	21863	104	26	13217
5	128	CLAM	seidel-2d	48494	22962	21718	21390	10279	86	45	1572
5	128	CLAM	symm	52815	2201	1288	1067	753	1	1	1134
5	128	CLAM	syr2k	328323	3058	744	930	656	3	3	2128
5	128	CLAM	syrk	92271	342	289	342	342	0	0	0
5	128	CLAM	trisolv	476	215	74	215	215	30	12	0
5	128	CLAM	trmm	108475	96	51	96	96	2	2	0
5	128	C-SHEL	2mm	33364	1152	729	1031	996	1	0	121
5	128	C-SHEL	3mm	61341	2039	948	1777	1651	32	3	262
5	128	C-SHEL	adi	1631005	45477	40734	32819	27667	203	129	12507
5	128	C-SHEL	correlation	477735	4096	1308	938	661	251	172	3158
5	128	C-SHEL	covariance	476403	4034	1279	815	598	9	6	3219
5	128	C-SHEL	deriche	331970	21280	9877	19654	17434	21	15	1626
5	128	C-SHEL	fdtd-2d	773418	45303	28712	40343	39662	169	117	4960
5	128	C-SHEL	gemver	13355	2011	993	1559	1504	117	58	452

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	C-SHEL	heat-3d	58196	47828	29224	34299	32137	88	59	13529
5	128	C-SHEL	jacobi-2d	63540	56460	36424	41564	36601	74	35	14896
5	128	C-SHEL	lu	69494	2071	1089	1265	944	1	1	806
5	128	C-SHEL	ludcmp	67495	5388	1167	5371	5357	166	119	17
5	128	C-SHEL	mvt	3265	1278	438	1090	946	37	10	188
5	128	PRL	2mm	33529	983	551	983	983	1	1	0
5	128	PRL	3mm	61309	2070	879	2070	2070	423	396	0
5	128	PRL	adi	1632537	43824	39941	32489	27417	41	1	11181
5	128	PRL	atax	1660	566	86	566	566	46	8	0
5	128	PRL	bicg	13349	556	73	556	556	17	9	0
5	128	PRL	cholesky	19075	2408	667	2408	2408	12	10	0
5	128	PRL	correlation	478744	3087	2261	3086	3082	263	203	1
5	128	PRL	covariance	477643	2793	2259	2731	1992	3	1	62
5	128	PRL	deriche	330696	22549	10097	16259	12894	14	9	6290
5	128	PRL	doitgen	3100	660	586	660	660	28	13	0
5	128	PRL	durbin	2	37	0	0	0	18	16	0
5	128	PRL	fdtd-2d	767963	50111	31687	34675	26997	0	0	15436
5	128	PRL	floyd-warshall	394772	316771	295273	316666	313375	2	2	105
5	128	PRL	gemm	21922	610	313	610	610	1	1	0
5	128	PRL	gemver	13219	2149	1000	1719	1589	288	38	430
5	128	PRL	gesummv	7411	634	53	634	634	15	1	0
5	128	PRL	gram-schmidt	50665	1009	914	1009	1009	137	63	0
5	128	PRL	heat-3d	57240	48782	29758	34393	32163	45	33	14389
5	128	PRL	jacobi-1d	1747	97	0	0	0	4	4	0
5	128	PRL	jacobi-2d	62982	57018	36543	43512	38506	80	34	13506
5	128	PRL	lu	67310	4255	800	4255	4255	1	1	0
5	128	PRL	ludcmp	69536	3122	1107	3120	2952	154	52	2
5	128	PRL	mvt	3365	1177	307	1177	1177	8	6	0
5	128	PRL	nussinov	248102	39978	1565	31261	29041	104	26	8717
5	128	PRL	seidel-2d	48772	22684	21717	22684	22684	49	43	0
5	128	PRL	symm	49329	5687	696	5687	5687	1	1	0
5	128	PRL	syr2k	325003	6378	825	6378	6378	3	3	0
5	128	PRL	syrk	92283	330	274	330	330	0	0	0
5	128	PRL	trisolv	476	215	74	215	215	30	12	0
5	128	PRL	trmm	108475	96	51	96	96	2	2	0
5	128	SHEL	2mm	33371	1145	724	1045	1003	1	0	100
5	128	SHEL	3mm	61341	2039	944	1781	1668	31	3	258
5	128	SHEL	adi	1629919	46563	40326	34770	28905	204	122	11642
5	128	SHEL	correlation	477752	4079	1295	957	680	251	175	3122
5	128	SHEL	covariance	476403	4034	1279	815	598	9	6	3219
5	128	SHEL	deriche	332281	20969	9701	19893	17930	21	15	1076
5	128	SHEL	fdtd-2d	758900	59821	36462	30517	25267	169	116	29304
5	128	SHEL	gemver	13102	2264	1186	1395	1066	118	41	869
5	128	SHEL	heat-3d	69176	36848	23185	35694	31713	88	48	1154
5	128	SHEL	jacobi-2d	76180	43820	31494	42664	29877	76	24	1156
5	128	SHEL	lu	68994	2571	937	2355	1959	1	1	216
5	128	SHEL	ludcmp	67879	5004	1233	4216	2654	166	109	788
5	128	SHEL	mvt	3243	1300	457	1061	918	37	10	239
5	256	CLAM	2mm	33450	1062	548	1062	1062	127	126	0
5	256	CLAM	3mm	61365	2014	855	1907	1395	399	304	107
5	256	CLAM	adi	1630179	46182	40981	31534	24042	1	1	14494
5	256	CLAM	atax	1693	533	61	533	533	84	10	0
5	256	CLAM	bicg	13291	614	88	614	614	17	9	0
5	256	CLAM	cholesky	20801	682	354	581	560	12	11	101
5	256	CLAM	correlation	477649	4182	1261	1126	729	377	210	3056
5	256	CLAM	covariance	476447	3989	1281	897	611	247	171	3092
5	256	CLAM	deriche	332240	21005	9373	17969	16332	14	10	3036

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	CLAM	doitgen	2948	812	706	812	812	28	12	0
5	256	CLAM	durbin	2	37	0	0	0	18	16	0
5	256	CLAM	fdtd-2d	764655	53419	32957	36822	33557	42	41	16597
5	256	CLAM	floyd-warshall	394106	317437	295382	314661	242879	2	2	2776
5	256	CLAM	gemm	21893	639	322	639	639	1	1	0
5	256	CLAM	gemver	13231	2137	1038	1560	1478	378	94	577
5	256	CLAM	gesummv	7321	724	133	724	724	222	39	0
5	256	CLAM	gram-schmidt	50627	1047	930	1047	1047	137	63	0
5	256	CLAM	heat-3d	61671	44351	27703	27782	21727	85	49	16569
5	256	CLAM	jacobi-1d	1747	97	0	0	0	238	9	0
5	256	CLAM	jacobi-2d	61406	58594	37217	40779	37554	159	65	17815
5	256	CLAM	lu	69496	2069	1057	1474	1146	1	1	595
5	256	CLAM	ludcmp	68403	4255	1191	2252	1341	226	132	2003
5	256	CLAM	mvt	3118	1424	465	937	898	35	9	487
5	256	CLAM	nussinov	248492	39588	1570	30287	25612	352	36	9301
5	256	CLAM	seidel-2d	48903	22553	21614	22428	20534	126	84	125
5	256	CLAM	symm	53051	1965	1139	1090	765	1	1	875
5	256	CLAM	syr2k	328300	3081	889	1040	793	3	3	2041
5	256	CLAM	syrk	92292	321	258	321	321	0	0	0
5	256	CLAM	trisolv	476	215	74	215	215	30	12	0
5	256	CLAM	trmm	108475	96	51	96	96	2	2	0
5	256	C-SHEL	2mm	33452	1064	590	1064	1064	190	127	0
5	256	C-SHEL	3mm	61003	2377	1001	2236	2092	312	179	141
5	256	C-SHEL	adi	1630750	45732	41322	33068	26291	241	127	12513
5	256	C-SHEL	correlation	477602	4229	1338	1216	794	377	206	3013
5	256	C-SHEL	covariance	476491	3946	1304	918	631	42	11	3028
5	256	C-SHEL	deriche	332925	20325	9338	19671	18500	21	13	654
5	256	C-SHEL	fdtd-2d	771075	47646	29629	41965	39787	607	363	5681
5	256	C-SHEL	gemver	13208	2158	1018	1920	1759	150	103	238
5	256	C-SHEL	heat-3d	62837	43187	26646	36433	31939	48	23	6754
5	256	C-SHEL	jacobi-2d	67169	52831	35083	43010	36109	160	60	9821
5	256	C-SHEL	lu	69462	2103	1048	1502	1187	114	104	601
5	256	C-SHEL	ludcmp	63856	9027	1139	9027	9027	441	294	0
5	256	C-SHEL	mvt	2973	1570	481	1120	1022	35	10	450
5	256	PRL	2mm	33451	1061	546	1061	1061	127	127	0
5	256	PRL	3mm	61400	1979	869	1967	1934	401	304	12
5	256	PRL	adi	1633386	42975	39934	38506	33178	1	1	4315
5	256	PRL	atax	1693	533	61	533	533	84	10	0
5	256	PRL	bicg	13164	741	154	741	741	17	15	0
5	256	PRL	cholesky	20773	710	354	616	587	12	11	94
5	256	PRL	correlation	478954	2877	2197	2877	2850	377	210	0
5	256	PRL	covariance	477652	2784	2159	2772	2693	247	181	12
5	256	PRL	deriche	332222	21023	9379	17987	16437	14	10	3036
5	256	PRL	doitgen	3075	685	602	685	685	27	15	0
5	256	PRL	durbin	2	37	0	0	0	18	16	0
5	256	PRL	fdtd-2d	774175	43899	29374	39833	38796	42	41	4066
5	256	PRL	floyd-warshall	394624	316919	295455	316581	305599	2	2	338
5	256	PRL	gemm	21893	639	322	639	639	1	1	0
5	256	PRL	gemver	13309	2059	851	2059	2059	389	90	0
5	256	PRL	gesummv	7306	739	140	739	739	214	51	0
5	256	PRL	gram-schmidt	50636	1038	919	1038	1038	137	62	0
5	256	PRL	heat-3d	59656	46366	28590	32054	29116	85	53	14312
5	256	PRL	jacobi-1d	1747	97	0	0	0	238	9	0
5	256	PRL	jacobi-2d	63202	56798	36417	44438	39679	159	61	12360
5	256	PRL	lu	66303	5262	793	5262	5262	1	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	PRL	ludcmp	65641	7017	813	7017	7017	228	196	0
5	256	PRL	mvt	3190	1352	409	1230	1087	36	9	122
5	256	PRL	nussinov	245696	42384	1571	39001	38389	352	37	3383
5	256	PRL	seidel-2d	48480	22976	22227	22976	22976	126	84	0
5	256	PRL	symm	49741	5275	675	5275	5275	1	1	0
5	256	PRL	syr2k	322938	8443	725	8443	8443	3	3	0
5	256	PRL	syrk	92015	598	259	598	598	0	0	0
5	256	PRL	trisolv	476	215	74	215	215	30	12	0
5	256	PRL	trmm	108475	96	51	96	96	2	2	0
5	256	SHEL	2mm	33467	1049	572	1049	1049	191	127	0
5	256	SHEL	3mm	61131	2249	955	2202	2194	327	179	47
5	256	SHEL	adi	1625873	50609	44433	35585	27749	242	123	14873
5	256	SHEL	correlation	477529	4302	1337	1218	795	377	220	3084
5	256	SHEL	covariance	476491	3946	1304	918	631	42	11	3028
5	256	SHEL	deriche	332737	20513	9508	19726	18381	21	14	787
5	256	SHEL	fdtd-2d	761682	57039	35385	34730	24504	607	363	22309
5	256	SHEL	gemver	13266	2100	1041	1939	1786	158	86	161
5	256	SHEL	heat-3d	69478	36546	23081	36110	31965	48	30	436
5	256	SHEL	jacobi-2d	76175	43825	31348	42580	29821	159	39	1245
5	256	SHEL	lu	66853	4712	810	4712	4712	114	93	0
5	256	SHEL	ludcmp	67506	5377	1232	4294	2203	442	320	1083
5	256	SHEL	mvt	2953	1590	494	1312	901	35	10	278
5	512	CLAM	2mm	33315	1197	533	1197	1197	437	258	0
5	512	CLAM	3mm	60767	2612	1013	2588	2519	1314	771	24
5	512	CLAM	adi	1626933	49428	42907	37286	29032	731	505	11988
5	512	CLAM	atax	1308	918	275	918	918	475	270	0
5	512	CLAM	bicg	13176	729	209	729	729	17	12	0
5	512	CLAM	cholesky	20722	761	342	684	630	4	4	77
5	512	CLAM	correlation	477123	4708	1499	1624	1237	513	315	3084
5	512	CLAM	covariance	477196	3240	2234	2567	1359	37	4	673
5	512	CLAM	deriche	332160	21085	9411	18004	15953	14	10	3081
5	512	CLAM	doitgen	2974	786	683	786	786	27	12	0
5	512	CLAM	durbin	2	37	0	0	0	18	16	0
5	512	CLAM	fdtd-2d	761053	57021	34064	26577	3933	42	41	30444
5	512	CLAM	floyd-warshall	394021	317522	295726	315112	256986	2	2	2410
5	512	CLAM	gemm	21894	638	321	638	638	1	1	0
5	512	CLAM	gemver	13157	2211	1007	2211	2211	150	122	0
5	512	CLAM	gesummv	7321	724	134	724	724	216	86	0
5	512	CLAM	gram-schmidt	50541	1133	953	1133	1133	407	181	0
5	512	CLAM	heat-3d	58565	47457	28779	31723	25835	2366	1547	15734
5	512	CLAM	jacobi-1d	1747	97	0	0	0	238	9	0
5	512	CLAM	jacobi-2d	60096	59904	37581	36928	35841	550	236	22976
5	512	CLAM	lu	68931	2634	1051	2101	1544	429	407	533
5	512	CLAM	ludcmp	69119	3539	1156	2460	1804	983	825	1079
5	512	CLAM	mvt	2919	1623	482	1128	1084	783	324	495
5	512	CLAM	nussinov	246182	41898	1574	28772	24002	253	25	13126
5	512	CLAM	seidel-2d	48589	22867	21746	21645	12416	126	84	1222
5	512	CLAM	symm	52138	2878	1434	2060	1522	1	1	818
5	512	CLAM	syr2k	327175	4206	758	2412	1242	3	3	1794
5	512	CLAM	syrk	92326	287	219	287	287	0	0	0
5	512	CLAM	trisolv	476	215	74	215	215	30	12	0
5	512	CLAM	trmm	108475	96	51	96	96	2	2	0
5	512	C-SHEL	2mm	33225	1291	574	1291	1291	784	429	0
5	512	C-SHEL	3mm	61149	2231	897	2231	2231	442	223	0
5	512	C-SHEL	adi	1629502	46980	42688	35489	27580	785	159	11340
5	512	C-SHEL	correlation	477171	4660	1501	1609	1217	726	438	3051
5	512	C-SHEL	covariance	476789	3648	1772	1899	894	42	11	1749

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	C-SHEL	deriche	331749	21501	9971	19584	15578	21	15	1917
5	512	C-SHEL	fdtd-2d	773986	44735	31062	38135	29489	368	322	6600
5	512	C-SHEL	gemver	13195	2171	1008	2146	2142	142	115	25
5	512	C-SHEL	heat-3d	69168	36856	23050	35846	31169	2368	1180	1010
5	512	C-SHEL	jacobi-2d	74706	45294	31903	44067	36462	160	61	1227
5	512	C-SHEL	lu	64805	6760	1059	6760	6760	542	490	0
5	512	C-SHEL	ludcmp	68010	4873	1240	3174	1579	443	293	1699
5	512	C-SHEL	mvt	3053	1490	458	1040	984	35	10	450
5	512	PRL	2mm	33315	1197	533	1197	1197	437	258	0
5	512	PRL	3mm	60943	2436	914	2436	2436	1317	759	0
5	512	PRL	adi	1622678	53683	44681	39350	34042	733	462	14179
5	512	PRL	atax	1308	918	275	918	918	475	270	0
5	512	PRL	bicg	13140	765	220	765	765	17	13	0
5	512	PRL	cholesky	20594	889	373	816	777	4	4	73
5	512	PRL	correlation	478277	3554	2356	3554	3554	513	327	0
5	512	PRL	covariance	477383	3053	2326	3053	3053	37	4	0
5	512	PRL	deriche	332159	21086	9419	18187	16579	14	10	2899
5	512	PRL	doitgen	3101	659	589	659	659	28	13	0
5	512	PRL	durbin	2	37	0	0	0	18	16	0
5	512	PRL	fdtd-2d	760254	57820	34898	36207	30956	42	41	21613
5	512	PRL	floyd-warshall	394436	317107	295683	317107	317107	2	2	0
5	512	PRL	gemm	21894	638	321	638	638	1	1	0
5	512	PRL	gemver	13218	2150	886	2150	2150	156	103	0
5	512	PRL	gesummv	7315	730	136	730	730	216	86	0
5	512	PRL	gram-schmidt	50537	1137	958	1137	1137	407	182	0
5	512	PRL	heat-3d	55986	50036	30154	34555	31945	2366	1668	15481
5	512	PRL	jacobi-1d	1747	97	0	0	0	238	9	0
5	512	PRL	jacobi-2d	66111	53889	35027	49704	45038	558	183	4185
5	512	PRL	lu	63652	7913	1032	7913	7913	429	367	0
5	512	PRL	ludcmp	65706	6952	869	6952	6952	982	849	0
5	512	PRL	mvt	2839	1703	424	1655	1557	777	484	48
5	512	PRL	nussinov	244021	44059	1573	35492	33126	250	5	8567
5	512	PRL	seidel-2d	48694	22762	22162	22762	22762	126	84	0
5	512	PRL	symm	52138	2878	1434	2060	1522	1	1	818
5	512	PRL	syr2k	323067	8314	632	8314	8314	3	3	0
5	512	PRL	syrk	92257	356	204	356	356	0	0	0
5	512	PRL	trisolv	476	215	74	215	215	30	12	0
5	512	PRL	trmm	108438	133	51	133	133	2	2	0
5	512	SHEL	2mm	33188	1328	613	1328	1328	784	446	0
5	512	SHEL	3mm	61162	2218	908	2218	2218	440	223	0
5	512	SHEL	adi	1624950	51532	44384	35177	26759	625	129	16204
5	512	SHEL	correlation	477091	4740	1486	1641	1249	702	409	3099
5	512	SHEL	covariance	476616	3821	1754	1916	967	36	11	1905
5	512	SHEL	deriche	332003	21247	9832	19768	17744	21	15	1479
5	512	SHEL	fdtd-2d	759413	59308	36261	33146	25324	368	316	26162
5	512	SHEL	gemver	13195	2171	1008	2146	2142	142	115	25
5	512	SHEL	heat-3d	68536	37488	23624	34708	24661	2368	1159	2780
5	512	SHEL	jacobi-2d	75160	44840	31691	43018	29440	158	50	1822
5	512	SHEL	lu	64443	7122	1058	7122	7122	542	487	0
5	512	SHEL	ludcmp	67037	5846	1252	3154	1484	444	297	2692
5	512	SHEL	mvt	3108	1435	428	1276	1142	35	10	159
5	1024	CLAM	2mm	33330	1182	514	1182	1182	438	251	0
5	1024	CLAM	3mm	61207	2172	882	2170	2170	754	525	2
5	1024	CLAM	adi	1614589	61772	50556	35807	28675	8360	1839	25811
5	1024	CLAM	atax	1308	918	275	918	918	475	270	0
5	1024	CLAM	bicg	13208	697	109	697	697	17	9	0
5	1024	CLAM	cholesky	20103	1380	725	1345	931	311	289	35

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	CLAM	correlation	477064	4767	1990	2058	1258	1372	331	2709
5	1024	CLAM	covariance	476332	4104	1835	1498	688	281	184	2606
5	1024	CLAM	deriche	330699	22546	10754	17916	16314	14	10	4630
5	1024	CLAM	doitgen	2974	786	683	786	786	27	12	0
5	1024	CLAM	durbin	2	37	0	0	0	18	16	0
5	1024	CLAM	fdtd-2d	761560	56514	34134	38353	34188	42	41	18161
5	1024	CLAM	floyd-warshall	394211	317332	296224	316119	279516	2	2	1213
5	1024	CLAM	gemm	21894	638	321	638	638	1	1	0
5	1024	CLAM	gemver	13245	2123	1015	1756	1710	150	111	367
5	1024	CLAM	gesummv	7290	755	166	755	755	219	55	0
5	1024	CLAM	gram-schmidt	50290	1384	1190	1384	1384	1006	180	0
5	1024	CLAM	heat-3d	56320	49702	28302	36405	29069	1528	1517	13297
5	1024	CLAM	jacobi-1d	1747	97	0	0	0	238	9	0
5	1024	CLAM	jacobi-2d	61395	58605	37142	40754	37158	555	208	17851
5	1024	CLAM	lu	68370	3195	1080	2672	1499	1	1	523
5	1024	CLAM	ludcmp	68223	4435	1148	3986	2965	1562	922	449
5	1024	CLAM	mvt	2647	1895	478	1543	1467	776	556	352
5	1024	CLAM	nussinov	246826	41254	1573	26855	22377	104	40	14399
5	1024	CLAM	seidel-2d	46200	25256	23246	17998	2760	126	86	7258
5	1024	CLAM	symm	52168	2848	1716	2101	1663	1	1	747
5	1024	CLAM	syr2k	326707	4674	828	2909	1458	255	180	1765
5	1024	CLAM	syrk	92310	303	222	303	303	0	0	0
5	1024	CLAM	trisolv	476	215	74	215	215	30	12	0
5	1024	CLAM	trmm	108475	96	51	96	96	2	2	0
5	1024	C-SHEL	2mm	33349	1167	522	1165	1165	193	130	2
5	1024	C-SHEL	3mm	58806	4574	918	4466	4008	4660	2308	108
5	1024	C-SHEL	adi	1618986	57496	46053	55475	49135	1528	651	1870
5	1024	C-SHEL	correlation	476575	5256	2171	2854	1549	1393	329	2402
5	1024	C-SHEL	covariance	476696	3741	1640	1741	848	280	192	2000
5	1024	C-SHEL	deriche	329131	24119	12569	21410	17073	21	16	2709
5	1024	C-SHEL	fdtd-2d	771504	47217	29572	40159	36842	649	439	7058
5	1024	C-SHEL	gemver	12997	2369	1017	2208	2071	144	119	161
5	1024	C-SHEL	heat-3d	68498	37526	23736	36997	33944	3090	1913	529
5	1024	C-SHEL	jacobi-2d	73613	46387	32161	44792	38184	160	62	1595
5	1024	C-SHEL	lu	66447	5118	882	5118	5118	114	100	0
5	1024	C-SHEL	ludcmp	68110	4773	1129	4752	4687	1354	694	21
5	1024	C-SHEL	mvt	3011	1532	305	1532	1532	781	356	0
5	1024	PRL	2mm	32826	1686	493	1686	1686	435	241	0
5	1024	PRL	3mm	61235	2144	881	2142	2142	757	525	2
5	1024	PRL	adi	1616214	60147	49593	36528	31116	8350	1695	23465
5	1024	PRL	atax	1308	918	275	918	918	475	270	0
5	1024	PRL	bicg	13208	697	109	697	697	17	9	0
5	1024	PRL	cholesky	19616	1867	657	1861	1631	311	288	6
5	1024	PRL	correlation	478270	3561	2436	3546	3508	1372	334	15
5	1024	PRL	covariance	477386	3050	1849	2689	1561	272	184	361
5	1024	PRL	deriche	330903	22342	10868	20357	18905	14	10	1985
5	1024	PRL	doitgen	3083	677	586	677	677	28	14	0
5	1024	PRL	durbin	2	37	0	0	0	18	16	0
5	1024	PRL	fdtd-2d	773079	44995	29011	40916	40155	42	41	4079
5	1024	PRL	floyd-warshall	394274	317269	296531	317269	317269	2	2	0
5	1024	PRL	gemm	21894	638	321	638	638	1	1	0
5	1024	PRL	gemver	12727	2641	1075	2367	2076	133	117	274
5	1024	PRL	gesummv	7290	755	161	755	755	218	53	0
5	1024	PRL	gram-schmidt	49766	1908	1621	1908	1908	1001	179	0
5	1024	PRL	heat-3d	54292	51730	28987	41764	35101	1528	1520	9966

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	PRL	jacobi-1d	1747	97	0	0	0	238	9	0
5	1024	PRL	jacobi-2d	69068	50932	32585	50932	50932	561	124	0
5	1024	PRL	lu	66944	4621	882	4621	4621	1	1	0
5	1024	PRL	ludcmp	68223	4435	1148	3986	2965	1562	922	449
5	1024	PRL	mvt	3053	1489	257	1489	1489	775	296	0
5	1024	PRL	nussinov	237282	50798	1573	45488	43369	104	40	5310
5	1024	PRL	seidel-2d	48458	22998	22089	22998	22998	133	77	0
5	1024	PRL	symm	50285	4731	3096	4731	4728	1	1	0
5	1024	PRL	syr2k	321330	10051	695	10051	10051	255	148	0
5	1024	PRL	syrk	92243	370	212	370	370	0	0	0
5	1024	PRL	trisolv	476	215	74	215	215	30	12	0
5	1024	PRL	trmm	108081	490	49	490	490	2	2	0
5	1024	SHEL	2mm	33323	1193	553	1191	1191	193	130	2
5	1024	SHEL	3mm	58806	4574	918	4466	4008	4660	2308	108
5	1024	SHEL	adi	1614168	62314	48445	47823	40443	1256	681	14340
5	1024	SHEL	correlation	476491	5340	2184	2893	1616	1369	333	2447
5	1024	SHEL	covariance	476701	3736	1707	1822	926	280	191	1914
5	1024	SHEL	deriche	330081	23169	12212	22388	20257	21	16	781
5	1024	SHEL	fdtd-2d	760887	57834	34878	35790	29834	649	421	22044
5	1024	SHEL	gemver	12893	2473	1039	2349	2201	146	118	124
5	1024	SHEL	heat-3d	68924	37100	23583	36924	34287	3090	1931	176
5	1024	SHEL	jacobi-2d	76083	43917	31121	43875	43167	160	59	42
5	1024	SHEL	lu	63461	8104	870	8104	8104	114	103	0
5	1024	SHEL	ludcmp	68293	4590	1148	4583	4502	1352	698	7
5	1024	SHEL	mvt	2680	1863	455	1702	1551	772	564	161

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	2mm	12789883	955041	5286	806071	643843	1	1	148970
1	64	CLAM	3mm	20033588	1471281	7702	1202462	951827	0	0	268819
1	64	CLAM	adi	46875487	2709507	1782577	1683760	1199736	104	3	1025747
1	64	CLAM	atax	19832	9789	180	9789	9789	31	26	0
1	64	CLAM	bicg	62863	9792	157	9792	9792	2	2	0
1	64	CLAM	cholesky	94185	617327	5468	591621	300346	32	29	25706
1	64	CLAM	correlation	13641117	1006257	35048	457883	61411	39	38	548374
1	64	CLAM	covariance	13639269	1000312	35020	456465	62849	0	0	543847
1	64	CLAM	deriche	3381864	1586222	752690	502268	258231	16	13	1083954
1	64	CLAM	doitgen	4507399	7378	7363	7378	7378	4	3	0
1	64	CLAM	durbin	3	71	0	0	0	59	56	0
1	64	CLAM	fdtd-2d	18720052	2106022	901303	1688338	933771	0	0	417684
1	64	CLAM	floyd-warshall	7784803	7712440	7564325	7686832	4828941	2	2	25608
1	64	CLAM	gemm	110425	572821	4031	567499	387765	1	1	5322
1	64	CLAM	gemver	215675	34150	10347	24032	22718	109	107	10118
1	64	CLAM	gesummv	26533	7519	111	7519	7519	15	1	0
1	64	CLAM	gram-schmidt	28479203	416567	386843	354255	315805	2	2	62312
1	64	CLAM	heat-3d	2199414	1507702	729827	1485539	1210571	17	7	22163
1	64	CLAM	jacobi-1d	19019	98	0	0	0	104	2	0
1	64	CLAM	jacobi-2d	824250	1507640	774523	1455772	1070489	204	96	51868

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	CLAM	lu	14690273	1546261	10255	799498	752476	2	2	746763
1	64	CLAM	ludcmp	14877730	1526381	10731	856549	761631	124	110	669832
1	64	CLAM	mvt	161010	20069	581	19687	19405	25	25	382
1	64	CLAM	nussinov	16785781	1672556	8720	1181928	1127753	35	32	490628
1	64	CLAM	seidel-2d	1016622	978412	971899	976483	818590	104	104	1929
1	64	CLAM	symm	11579463	732622	347195	444879	363840	1	1	287743
1	64	CLAM	syr2k	10526883	1144499	18195	504529	472179	0	0	639970
1	64	CLAM	syrk	3871472	351046	4411	240341	219749	0	0	110705
1	64	CLAM	trisolv	610	4849	43	4849	4849	134	112	0
1	64	CLAM	trmm	7830182	313686	3070	229617	208126	0	0	84069
1	64	C-SHEL	2mm	12895487	849436	5248	834011	719755	2	2	15425
1	64	C-SHEL	3mm	20196290	1308580	7573	1288901	981612	1	1	19679
1	64	C-SHEL	adi	47210098	2375196	1637907	1857838	1660458	6	5	517358
1	64	C-SHEL	correlation	13694719	952656	35061	477732	63145	40	39	474924
1	64	C-SHEL	covariance	13668372	971211	35028	459064	62821	17	17	512147
1	64	C-SHEL	deriche	3795664	1172426	457568	1161261	823360	20	16	11165
1	64	C-SHEL	fdtd-2d	18795160	2045122	903855	1996544	1459369	110	108	48578
1	64	C-SHEL	gemver	215087	34737	10595	24096	22607	80	79	10641
1	64	C-SHEL	heat-3d	2168793	1513624	729842	1482529	1166807	8	8	31095
1	64	C-SHEL	jacobi-2d	830691	1501200	774033	1461941	1102524	0	0	39259
1	64	C-SHEL	lu	14739705	1496830	10257	949424	907766	0	0	547406
1	64	C-SHEL	ludcmp	14851982	1552924	11107	906617	883690	62	62	646307
1	64	C-SHEL	mvt	161044	20036	596	19714	19656	127	27	322
1	64	PRL	2mm	12861569	883355	5277	878469	864644	1	1	4886
1	64	PRL	3mm	20159092	1345777	7679	1337152	1213534	0	0	8625
1	64	PRL	adi	46898660	2686334	1772358	1690579	1226930	104	3	995755
1	64	PRL	atax	19836	9785	175	9785	9785	31	26	0
1	64	PRL	bicg	62866	9789	158	9789	9789	2	2	0
1	64	PRL	cholesky	80400	631112	5468	630842	611500	32	29	270
1	64	PRL	correlation	13877720	769654	35067	705754	95455	39	39	63900
1	64	PRL	covariance	13866337	773244	35024	688973	95083	0	0	84271
1	64	PRL	deriche	3663453	1304633	554867	1095263	708550	16	13	209370
1	64	PRL	doitgen	4507465	7312	7298	7312	7312	4	3	0
1	64	PRL	durbin	3	71	0	0	0	59	56	0
1	64	PRL	fdtd-2d	18721529	2104545	900665	1691905	980397	0	0	412640
1	64	PRL	floyd-warshall	7793127	7704116	7560716	7702809	7473420	2	2	1307
1	64	PRL	gemm	110899	572347	4021	572241	570505	1	1	106
1	64	PRL	gemver	215634	34191	10399	24287	23069	109	107	9904
1	64	PRL	gesummv	26536	7516	121	7516	7516	15	1	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	64	PRL	gram-schmidt	28489189	406581	383985	359667	339676	2	2	46914
1	64	PRL	heat-3d	2202212	1504904	729776	1487874	1249802	15	7	17030
1	64	PRL	jacobi-1d	19019	98	0	0	0	104	2	0
1	64	PRL	jacobi-2d	824659	1507231	774517	1457009	1075495	207	92	50222
1	64	PRL	lu	14742978	1493556	10254	973643	941863	2	2	519913
1	64	PRL	ludcmp	14922176	1481935	10569	1022472	942605	124	117	459463
1	64	PRL	mvt	158793	22286	520	22286	22286	25	25	0
1	64	PRL	nussinov	16844772	1613565	8721	1217793	1174887	35	32	395772
1	64	PRL	seidel-2d	1017795	977239	971419	977203	967287	104	104	36
1	64	PRL	symm	11664558	647527	312421	542756	474871	1	1	104771
1	64	PRL	syr2k	10773398	897984	10701	596735	533202	0	0	301249
1	64	PRL	syrk	3892766	329752	3294	272925	255858	0	0	56827
1	64	PRL	trisolv	610	4849	43	4849	4849	134	112	0
1	64	PRL	trmm	7845332	298536	3067	252640	234872	0	0	45896
1	64	SHEL	2mm	12895487	849436	5248	834011	719755	2	2	15425
1	64	SHEL	3mm	20196290	1308580	7573	1288901	981612	1	1	19679
1	64	SHEL	adi	47074576	2510718	1691646	1773992	1318449	6	5	736726
1	64	SHEL	correlation	13693885	953490	35060	477803	61813	40	39	475687
1	64	SHEL	covariance	13666106	973477	35029	458733	61325	17	17	514744
1	64	SHEL	deriche	3794876	1173214	457675	1161947	796444	20	16	11267
1	64	SHEL	fdtd-2d	18811545	2028737	904552	1956906	1113617	110	83	71831
1	64	SHEL	gemver	215182	34642	10522	24377	23205	80	78	10265
1	64	SHEL	heat-3d	2191763	1490654	729012	1490371	1473347	8	8	283
1	64	SHEL	jacobi-2d	862825	1469066	772156	1464178	1062732	0	0	4888
1	64	SHEL	lu	14702220	1534315	10259	899122	861468	0	0	635193
1	64	SHEL	ludcmp	14876803	1528103	10948	941885	897190	61	61	586218
1	64	SHEL	mvt	161410	19670	545	19670	19670	131	27	0
1	128	CLAM	2mm	12790456	954468	5258	808918	652430	1	1	145550
1	128	CLAM	3mm	20038351	1466518	7749	1207084	950835	0	0	259434
1	128	CLAM	adi	46889875	2695119	1776466	1689124	1211223	4	3	1005995
1	128	CLAM	atax	19659	9962	222	9962	9962	96	31	0
1	128	CLAM	bicg	62650	10005	379	10005	10005	2	2	0
1	128	CLAM	cholesky	93981	617531	5468	591193	295752	32	29	26338
1	128	CLAM	correlation	13641112	1006262	35063	459486	64071	39	38	546776
1	128	CLAM	covariance	13638997	1000584	35018	456722	62654	3	2	543862
1	128	CLAM	deriche	3380689	1587397	753485	500180	258260	16	13	1087217
1	128	CLAM	doitgen	4507399	7378	7363	7378	7378	4	3	0
1	128	CLAM	durbin	3	71	0	0	0	59	56	0
1	128	CLAM	fdtd-2d	18717752	2108322	901903	1684404	891539	0	0	423918

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	CLAM	floyd-warshall	7787138	7710105	7553313	7680077	4601953	2	2	30028
1	128	CLAM	gemm	111167	572079	4519	568687	377210	1	1	3392
1	128	CLAM	gemver	211193	38632	10398	24279	22404	83	82	14353
1	128	CLAM	gesummv	26475	7577	154	7577	7577	15	1	0
1	128	CLAM	gram-schmidt	28479449	416321	386714	354880	317456	2	2	61441
1	128	CLAM	heat-3d	2198801	1508315	729832	1484721	1203765	34	8	23594
1	128	CLAM	jacobi-1d	19019	98	0	0	0	312	4	0
1	128	CLAM	jacobi-2d	824865	1507025	774464	1458384	1078348	103	97	48641
1	128	CLAM	lu	14731044	1505490	10237	844811	804230	2	2	660679
1	128	CLAM	ludcmp	14839594	1564517	10806	773024	730522	191	146	791493
1	128	CLAM	mvt	160937	20142	595	19712	19479	125	26	430
1	128	CLAM	nussinov	16774354	1683983	8721	1172261	1104979	35	32	511722
1	128	CLAM	seidel-2d	1016997	978037	971464	976953	871452	103	5	1084
1	128	CLAM	symm	11586351	725734	344191	453487	366850	1	1	272247
1	128	CLAM	syr2k	10533668	1137714	17883	504040	474796	0	0	633674
1	128	CLAM	syrk	3872526	349992	4370	242772	222807	0	0	107220
1	128	CLAM	trisolv	630	4829	43	4829	4829	31	26	0
1	128	CLAM	trmm	7831115	312753	3073	231510	209876	0	0	81243
1	128	C-SHEL	2mm	12895326	849597	5213	834614	708895	2	2	14983
1	128	C-SHEL	3mm	20193005	1311865	7662	1287873	936411	1	1	23992
1	128	C-SHEL	adi	47216761	2368533	1635343	1857787	1664462	405	304	510746
1	128	C-SHEL	correlation	13693256	954119	35073	477395	63407	40	39	476724
1	128	C-SHEL	covariance	13676585	962998	35030	460175	61750	20	19	502823
1	128	C-SHEL	deriche	3727640	1240450	492094	1237544	1088150	20	15	2906
1	128	C-SHEL	fdtd-2d	18800750	2039532	904052	1984775	1555373	8	7	54757
1	128	C-SHEL	gemver	219100	30724	10583	29808	28241	191	83	916
1	128	C-SHEL	heat-3d	2168165	1514252	729869	1482185	1159129	108	48	32067
1	128	C-SHEL	jacobi-2d	824599	1507292	774626	1459002	1080043	98	0	48290
1	128	C-SHEL	lu	14693233	1543302	10259	895086	867136	399	399	648216
1	128	C-SHEL	ludcmp	14845985	1558921	11158	911940	872754	125	121	646981
1	128	C-SHEL	mvt	161041	20039	588	19711	19660	26	26	328
1	128	PRL	2mm	12861925	882999	5240	879731	872182	1	1	3268
1	128	PRL	3mm	20162968	1341901	7713	1333853	1213065	0	0	8048
1	128	PRL	adi	46903978	2681016	1771416	1695466	1230276	4	3	985550
1	128	PRL	atax	19682	9939	160	9939	9939	96	31	0
1	128	PRL	bicg	62638	10017	392	10017	10017	2	2	0
1	128	PRL	cholesky	78532	632980	5463	632880	625078	32	29	100
1	128	PRL	correlation	13878146	769228	35067	709029	95714	39	38	60199
1	128	PRL	covariance	13850358	789223	35024	662584	79219	3	2	126639

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	128	PRL	deriche	3665896	1302190	554276	1114547	750747	16	13	187643
1	128	PRL	doitgen	4507465	7312	7298	7312	7312	4	3	0
1	128	PRL	durbin	3	71	0	0	0	59	56	0
1	128	PRL	fdtd-2d	18721886	2104188	900330	1694407	1017282	0	0	409781
1	128	PRL	floyd-warshall	7797305	7699938	7548098	7697083	7309297	2	2	2855
1	128	PRL	gemm	111986	571260	4500	571255	571246	1	1	5
1	128	PRL	gemver	219446	30379	10392	29872	27107	83	82	507
1	128	PRL	gesummv	26467	7585	154	7585	7585	15	1	0
1	128	PRL	gram-schmidt	28496802	398968	381291	364068	353822	2	2	34900
1	128	PRL	heat-3d	2200318	1506798	729833	1486144	1227185	36	8	20654
1	128	PRL	jacobi-1d	19019	98	0	0	0	312	4	0
1	128	PRL	jacobi-2d	825200	1506690	774567	1459723	1086143	103	97	46967
1	128	PRL	lu	14776766	1459768	10236	1045134	1009529	2	2	414634
1	128	PRL	ludcmp	14873359	1530752	10676	932418	895615	191	119	598334
1	128	PRL	mvt	150798	30281	543	30281	30281	93	25	0
1	128	PRL	nussinov	16831926	1626411	8721	1205522	1160366	35	32	420889
1	128	PRL	seidel-2d	1017701	977333	971182	977315	974768	102	5	18
1	128	PRL	symm	11667039	645046	311375	544024	474675	1	1	101022
1	128	PRL	syr2k	10753146	918236	11110	588126	509524	0	0	330110
1	128	PRL	syrk	3892207	330311	3390	271952	254875	0	0	58359
1	128	PRL	trisolv	630	4829	43	4829	4829	31	26	0
1	128	PRL	trmm	7847467	296401	3071	252906	235180	0	0	43495
1	128	SHEL	2mm	12895326	849597	5213	834614	708895	2	2	14983
1	128	SHEL	3mm	20192245	1312625	7665	1286814	911239	1	1	25811
1	128	SHEL	adi	47062919	2522375	1696619	1769628	1320084	405	304	752747
1	128	SHEL	correlation	13692613	954762	35071	477205	61499	40	39	477557
1	128	SHEL	covariance	13671734	967849	35030	459762	62393	20	19	508087
1	128	SHEL	deriche	3795486	1172604	457532	1162125	865958	20	16	10479
1	128	SHEL	fdtd-2d	18811082	2029200	904617	1956113	1113608	8	7	73087
1	128	SHEL	gemver	219407	30417	10405	29848	29231	191	79	569
1	128	SHEL	heat-3d	2191742	1490675	729003	1490556	1482239	108	10	119
1	128	SHEL	jacobi-2d	864000	1467891	772196	1463101	776480	92	0	4790
1	128	SHEL	lu	14684277	1552258	10259	864447	837602	399	399	687811
1	128	SHEL	ludcmp	14834914	1569992	11172	864378	821670	125	125	705614
1	128	SHEL	mvt	161394	19686	562	19686	19686	26	26	0
1	256	CLAM	2mm	12789643	955281	5359	807223	652055	1	1	148058
1	256	CLAM	3mm	20039912	1464957	7776	1206990	949517	0	0	257967
1	256	CLAM	adi	47049795	2535199	1706057	1752272	1484111	104	3	782927
1	256	CLAM	atax	19590	10031	247	10031	10031	66	17	0
1	256	CLAM	bicg	62457	10198	271	10198	10198	125	31	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	CLAM	cholesky	93621	617891	5468	591291	296678	32	29	26600
1	256	CLAM	correlation	13641428	1005946	35046	458385	61701	279	276	547561
1	256	CLAM	covariance	13634379	1005202	35021	455310	60959	3	2	549892
1	256	CLAM	deriche	3380379	1587707	753937	499588	258303	16	13	1088119
1	256	CLAM	doitgen	4507315	7462	7376	7462	7462	4	3	0
1	256	CLAM	durbin	3	71	0	0	0	59	56	0
1	256	CLAM	fdtd-2d	18732190	2093884	898562	1684132	952494	0	0	409752
1	256	CLAM	floyd-warshall	7784310	7712933	7564696	7685725	4675545	2	2	27208
1	256	CLAM	gemm	111090	572156	4015	569114	473310	1	1	3042
1	256	CLAM	gemver	218420	31405	10316	29920	21017	83	82	1485
1	256	CLAM	gesummv	26280	7772	327	7772	7772	15	1	0
1	256	CLAM	gram-schmidt	28483238	412532	385676	356488	326147	242	242	56044
1	256	CLAM	heat-3d	2198401	1508715	729808	1485786	1198623	37	8	22929
1	256	CLAM	jacobi-1d	19019	98	0	0	0	104	2	0
1	256	CLAM	jacobi-2d	824563	1507327	774559	1458717	1080955	296	104	48610
1	256	CLAM	lu	14720048	1516486	10249	840414	751805	2	2	676072
1	256	CLAM	ludcmp	14880777	1523334	10771	846933	754626	55	55	676401
1	256	CLAM	mvt	161038	20041	593	19721	19433	126	26	320
1	256	CLAM	nussinov	16786046	1672291	8721	1181829	1129343	254	99	490462
1	256	CLAM	seidel-2d	1017012	978022	972753	977705	940234	203	105	317
1	256	CLAM	symm	11580099	731986	346355	445683	366354	1	1	286303
1	256	CLAM	syr2k	10530942	1140440	17943	503179	472905	0	0	637261
1	256	CLAM	syrk	3874058	348460	4571	245894	226711	0	0	102566
1	256	CLAM	trisolv	610	4849	43	4849	4849	134	112	0
1	256	CLAM	trmm	7831940	311928	3135	232801	211552	0	0	79127
1	256	C-SHEL	2mm	12894475	850448	5337	834041	674594	2	2	16407
1	256	C-SHEL	3mm	20190030	1314840	7852	1284547	829864	1	1	30293
1	256	C-SHEL	adi	47223372	2361922	1634660	1858769	1657303	205	104	503153
1	256	C-SHEL	correlation	13705297	942078	35049	490465	61128	40	40	451613
1	256	C-SHEL	covariance	13677752	961831	35029	459952	62028	20	19	501879
1	256	C-SHEL	deriche	3716267	1251823	498024	1241930	901184	20	15	9893
1	256	C-SHEL	fdtd-2d	18798510	2041772	904421	1984155	1554719	210	208	57617
1	256	C-SHEL	gemver	218981	30843	10534	29022	22085	109	108	1821
1	256	C-SHEL	heat-3d	2177201	1505216	729846	1487633	1239353	108	27	17583
1	256	C-SHEL	jacobi-2d	833227	1498664	773936	1466251	1126547	208	192	32413
1	256	C-SHEL	lu	14686215	1550320	10259	880560	852181	0	0	669760
1	256	C-SHEL	ludcmp	14944507	1460399	10898	1097916	1018606	1048	1030	362483
1	256	C-SHEL	mvt	161105	19975	596	19691	19564	127	27	284
1	256	PRL	2mm	12861937	882987	5339	879097	869466	1	1	3890

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	PRL	3mm	20161940	1342929	7752	1340597	1307812	0	0	2332
1	256	PRL	adi	47071537	2513457	1698040	1761486	1505889	104	3	751971
1	256	PRL	atax	19386	10235	252	10235	10235	66	15	0
1	256	PRL	bicg	62457	10198	271	10198	10198	125	31	0
1	256	PRL	cholesky	76461	635051	5457	635051	635051	32	29	0
1	256	PRL	correlation	13765486	881888	35044	558258	66378	279	275	323630
1	256	PRL	covariance	13740349	899232	34886	529087	66949	3	2	370145
1	256	PRL	deriche	3683729	1284357	545757	1096633	732591	16	12	187724
1	256	PRL	doitgen	4507373	7404	7322	7404	7404	4	3	0
1	256	PRL	durbin	3	71	0	0	0	59	56	0
1	256	PRL	fdtd-2d	18732049	2094025	898563	1686623	963855	0	0	407402
1	256	PRL	floyd-warshall	7793149	7704094	7560685	7702871	7466103	2	2	1223
1	256	PRL	gemm	110858	572388	3925	572388	572388	1	1	0
1	256	PRL	gemver	219333	30492	10288	30433	29589	83	82	59
1	256	PRL	gesummv	26280	7772	327	7772	7772	15	1	0
1	256	PRL	gram-schmidt	28507193	388577	377552	368435	363650	242	242	20142
1	256	PRL	heat-3d	2203802	1503314	729768	1491577	1302941	25	8	11737
1	256	PRL	jacobi-1d	19019	98	0	0	0	104	2	0
1	256	PRL	jacobi-2d	825996	1505894	774513	1462654	1108035	296	101	43240
1	256	PRL	lu	14771505	1465029	10250	1036046	958740	2	2	428983
1	256	PRL	ludcmp	14926195	1477916	10656	1032228	951119	69	69	445688
1	256	PRL	mvt	142901	38178	524	38178	38178	90	25	0
1	256	PRL	nussinov	16840117	1618220	8721	1213802	1169600	254	99	404418
1	256	PRL	seidel-2d	1017169	977865	972768	977865	977865	204	105	0
1	256	PRL	symm	11667763	644322	311066	545231	476991	1	1	99091
1	256	PRL	syr2k	10766426	904956	11015	595605	504841	0	0	309351
1	256	PRL	syrk	3893490	329028	3613	274519	257156	0	0	54509
1	256	PRL	trisolv	633	4826	19	4826	4826	134	112	0
1	256	PRL	trmm	7848442	295426	3133	254130	236274	0	0	41296
1	256	SHEL	2mm	12894475	850448	5337	834041	674594	2	2	16407
1	256	SHEL	3mm	20189957	1314913	7848	1284708	846040	1	1	30205
1	256	SHEL	adi	47064317	2520977	1696342	1772476	1298088	205	104	748501
1	256	SHEL	correlation	13693726	953649	35062	477650	60909	40	39	475999
1	256	SHEL	covariance	13678378	961205	35030	460279	63072	20	19	500926
1	256	SHEL	deriche	3794646	1173444	458022	1157406	688252	20	15	16038
1	256	SHEL	fdtd-2d	18811558	2028724	904275	1959591	1129786	210	202	69133
1	256	SHEL	gemver	218921	30903	10534	28971	22041	109	107	1932
1	256	SHEL	heat-3d	2191529	1490888	728685	1490822	1487461	108	10	66
1	256	SHEL	jacobi-2d	864965	1466926	771367	1466801	1442471	210	190	125
1	256	SHEL	lu	14721750	1514785	10258	941686	896232	0	0	573099

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	256	SHEL	ludcmp	14890121	1514785	10982	978781	896057	1062	1050	536004
1	256	SHEL	mvt	161409	19671	550	19671	19671	131	27	0
1	512	CLAM	2mm	12788425	956499	6019	808505	647133	1378	2	147994
1	512	CLAM	3mm	20026014	1478855	7746	1191883	951166	0	0	286972
1	512	CLAM	adi	46881054	2703940	1783765	1703405	1184911	104	3	1000535
1	512	CLAM	atax	19712	9909	144	9909	9909	31	26	0
1	512	CLAM	bicg	62046	10609	352	10609	10609	125	33	0
1	512	CLAM	cholesky	93403	618109	5468	591461	297002	417	388	26648
1	512	CLAM	correlation	13642472	1004902	35049	462648	65217	39	38	542254
1	512	CLAM	covariance	13655108	984473	34885	458544	63876	3	2	525929
1	512	CLAM	deriche	3371879	1596207	758190	489740	261110	16	13	1106467
1	512	CLAM	doitgen	4506566	8211	7552	8211	8211	1032	3	0
1	512	CLAM	durbin	3	71	0	0	0	59	56	0
1	512	CLAM	fdtd-2d	18733771	2092303	898740	1678047	936956	0	0	414256
1	512	CLAM	floyd-warshall	7786824	7710419	7553498	7679896	4593455	2	2	30523
1	512	CLAM	gemm	110654	572592	4024	568939	470290	1	1	3653
1	512	CLAM	gemver	210494	39331	10322	23013	22741	303	110	16318
1	512	CLAM	gesummv	25901	8151	694	8151	8151	15	1	0
1	512	CLAM	gram-schmidt	28469792	425978	389912	351384	303237	242	242	74594
1	512	CLAM	heat-3d	2195436	1511680	729882	1483090	1172093	42	8	28590
1	512	CLAM	jacobi-1d	19019	98	0	0	0	307	2	0
1	512	CLAM	jacobi-2d	824886	1507004	774541	1460497	1089448	205	95	46507
1	512	CLAM	lu	14692227	1544307	10255	804460	755476	2	2	739847
1	512	CLAM	ludcmp	14840770	1563341	10812	785973	741569	298	288	777368
1	512	CLAM	mvt	161176	19903	593	19720	19625	127	26	183
1	512	CLAM	nussinov	16768671	1689666	8722	1171328	1080290	35	32	518338
1	512	CLAM	seidel-2d	1017622	977412	970613	976911	931643	297	105	501
1	512	CLAM	symm	11582629	729456	343648	440541	343371	1	1	288915
1	512	CLAM	syr2k	10531626	1139756	19125	507367	475700	0	0	632389
1	512	CLAM	syrk	3869830	352688	4509	237432	215660	0	0	115256
1	512	CLAM	trisolv	623	4836	29	4836	4836	134	112	0
1	512	CLAM	trmm	7833062	310806	3094	233954	209631	0	0	76852
1	512	C-SHEL	2mm	12891271	853652	5816	832051	626682	1629	3	21601
1	512	C-SHEL	3mm	20188753	1316117	7653	1286280	854465	1	1	29837
1	512	C-SHEL	adi	47231094	2354200	1632366	1867369	1654056	505	304	486831
1	512	C-SHEL	correlation	13694032	953343	35053	478891	64120	279	276	474452
1	512	C-SHEL	covariance	13738839	900744	35029	528754	64979	20	19	371990
1	512	C-SHEL	deriche	3736274	1231816	488304	1221249	883587	20	16	10567
1	512	C-SHEL	fdtd-2d	18831643	2008639	897567	1991253	1778250	410	307	17386

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	C-SHEL	gemver	217700	32124	10702	31107	29471	649	498	1017
1	512	C-SHEL	heat-3d	2166384	1516033	729711	1486400	1190562	108	49	29633
1	512	C-SHEL	jacobi-2d	829491	1502400	774213	1459772	1105984	193	99	42628
1	512	C-SHEL	lu	14710771	1525764	10259	969304	928670	399	399	556460
1	512	C-SHEL	ludcmp	14872581	1532325	11030	957581	916271	795	787	574744
1	512	C-SHEL	mvt	161420	19660	526	19660	19660	131	27	0
1	512	PRL	2mm	12862213	882711	5632	882192	880888	1691	2	519
1	512	PRL	3mm	20153717	1351152	7711	1332910	1105884	0	0	18242
1	512	PRL	adi	46915042	2669952	1766711	1713054	1230175	104	3	956898
1	512	PRL	atax	19717	9904	141	9904	9904	31	26	0
1	512	PRL	bicg	62046	10609	352	10609	10609	125	33	0
1	512	PRL	cholesky	75572	635940	5461	635940	635940	417	377	0
1	512	PRL	correlation	13730675	916699	34920	520580	68031	39	38	396119
1	512	PRL	covariance	13839429	800152	34882	714216	92502	3	2	85936
1	512	PRL	deriche	3669969	1298117	552694	1110333	746470	16	12	187784
1	512	PRL	doitgen	4506690	8087	7469	8087	8087	1032	3	0
1	512	PRL	durbin	3	71	0	0	0	59	56	0
1	512	PRL	fdtd-2d	18739161	2086913	898729	1694468	1002698	0	0	392445
1	512	PRL	floyd-warshall	7796869	7700374	7548614	7697222	7277551	2	2	3152
1	512	PRL	gemm	110848	572398	3976	572398	572398	1	1	0
1	512	PRL	gemver	217814	32011	10315	30227	28784	305	111	1784
1	512	PRL	gesummv	25899	8153	694	8153	8153	15	1	0
1	512	PRL	gram-schmidt	28490909	404861	383638	361479	344235	242	242	43382
1	512	PRL	heat-3d	2201008	1506108	729813	1488623	1259466	34	8	17485
1	512	PRL	jacobi-1d	19019	98	0	0	0	307	2	0
1	512	PRL	jacobi-2d	824766	1507124	774474	1465068	1115581	208	92	42056
1	512	PRL	lu	14774461	1462073	10249	1047811	966797	2	2	414262
1	512	PRL	ludcmp	14894659	1509452	10702	977741	943193	311	239	531711
1	512	PRL	mvt	161329	19750	532	19750	19750	124	26	0
1	512	PRL	nussinov	16825687	1632650	8721	1204498	1159038	35	32	428152
1	512	PRL	seidel-2d	1017961	977073	970420	977073	977073	301	105	0
1	512	PRL	symm	11652739	659346	314247	519888	403904	1	1	139458
1	512	PRL	syr2k	10764782	906600	11732	594120	518388	0	0	312480
1	512	PRL	syrk	3892583	329935	3221	272905	255254	0	0	57030
1	512	PRL	trisolv	633	4826	19	4826	4826	134	112	0
1	512	PRL	trmm	7847947	295921	3090	254634	233336	0	0	41287
1	512	SHEL	2mm	12891271	853652	5816	832051	626682	1629	3	21601
1	512	SHEL	3mm	20187801	1317069	7660	1285297	826949	1	1	31772
1	512	SHEL	adi	47093147	2492147	1685959	1787962	1324345	505	304	704185
1	512	SHEL	correlation	13693342	954033	35068	478469	63355	279	275	475564

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	512	SHEL	covariance	13677574	962009	35029	460478	63718	20	19	501531
1	512	SHEL	deriche	3793401	1174689	458788	1154823	636846	20	16	19866
1	512	SHEL	fdtd-2d	18812302	2027980	904728	1957634	1169837	410	307	70346
1	512	SHEL	gemver	211652	38172	10566	27607	24815	630	498	10565
1	512	SHEL	heat-3d	2188384	1494033	728972	1493580	1473142	108	48	453
1	512	SHEL	jacobi-2d	862168	1469723	772309	1462849	927297	201	97	6874
1	512	SHEL	lu	14698185	1538350	10258	908618	862548	399	399	629732
1	512	SHEL	ludcmp	14855672	1549234	11053	920397	876180	803	796	628837
1	512	SHEL	mvt	161420	19660	526	19660	19660	131	27	0
1	1024	CLAM	2mm	12797340	947584	5572	816201	663206	1	1	131383
1	1024	CLAM	3mm	20039121	1465748	8032	1214345	952534	0	0	251403
1	1024	CLAM	adi	46912518	2672476	1771718	1726060	1223968	104	3	946416
1	1024	CLAM	atax	19359	10262	145	10262	10262	66	10	0
1	1024	CLAM	bicg	62036	10619	856	10619	10619	125	33	0
1	1024	CLAM	cholesky	92354	619158	5468	591747	292245	417	392	27411
1	1024	CLAM	correlation	13681396	965978	35046	462970	62035	1719	1718	503008
1	1024	CLAM	covariance	13642023	997558	34885	461326	66362	3	3	536232
1	1024	CLAM	deriche	3365290	1602796	763063	476347	261151	16	13	1126449
1	1024	CLAM	doitgen	4506646	8131	7705	8131	8131	4	3	0
1	1024	CLAM	durbin	3	71	0	0	0	59	56	0
1	1024	CLAM	fdtd-2d	18718031	2108043	901573	1696341	997780	0	0	411702
1	1024	CLAM	floyd-warshall	7782787	7714456	7557046	7678084	4104534	2	2	36372
1	1024	CLAM	gemm	110249	572997	4290	568141	403927	1	1	4856
1	1024	CLAM	gemver	218746	31079	10368	30873	30027	540	435	206
1	1024	CLAM	gesummv	26145	7907	457	7907	7907	15	1	0
1	1024	CLAM	gram-schmidt	28458997	436773	392626	348768	287447	824	488	88005
1	1024	CLAM	heat-3d	2186031	1521085	730141	1487297	1207342	34	7	33788
1	1024	CLAM	jacobi-1d	19019	98	0	0	0	209	4	0
1	1024	CLAM	jacobi-2d	823220	1508670	774666	1457470	1074572	401	199	51200
1	1024	CLAM	lu	14684557	1551977	10255	802675	759985	2	2	749302
1	1024	CLAM	ludcmp	14849545	1554566	11017	818009	758929	1206	1187	736557
1	1024	CLAM	mvt	161262	19817	592	19718	19644	127	26	99
1	1024	CLAM	nussinov	16780057	1678280	8720	1181930	1126730	221	74	496350
1	1024	CLAM	seidel-2d	1015610	979424	972824	978550	879213	300	105	874
1	1024	CLAM	symm	11522145	789940	365975	363807	330664	1	1	426133
1	1024	CLAM	syr2k	10516742	1154640	20954	513886	466808	0	0	640754
1	1024	CLAM	syrk	3865918	356600	7192	247376	223343	0	0	109224
1	1024	CLAM	trisolv	632	4827	20	4827	4827	134	112	0
1	1024	CLAM	trmm	7822741	321127	3074	230031	218529	0	0	91096
1	1024	C-SHEL	2mm	12899698	845225	5539	842818	819757	2	2	2407

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	C-SHEL	3mm	20195777	1309093	8193	1291210	1031964	1	1	17883
1	1024	C-SHEL	adi	47263155	2322139	1625318	1851034	1631226	405	204	471105
1	1024	C-SHEL	correlation	13681632	965743	35059	464475	64563	279	276	501268
1	1024	C-SHEL	covariance	13676385	963198	35031	461955	63077	20	19	501243
1	1024	C-SHEL	deriche	3770754	1197336	479242	1131217	417417	20	16	66119
1	1024	C-SHEL	fdtd-2d	18835912	2004370	899664	1975075	1584848	308	206	29295
1	1024	C-SHEL	gemver	218279	31545	10354	30634	22476	92	56	911
1	1024	C-SHEL	heat-3d	2187613	1494804	727748	1494730	1490306	8	8	74
1	1024	C-SHEL	jacobi-2d	838637	1493254	773786	1464628	1113900	302	193	28626
1	1024	C-SHEL	lu	14691180	1545355	10259	941787	903989	399	399	603568
1	1024	C-SHEL	ludcmp	14856751	1548155	11205	965760	928635	2003	1960	582395
1	1024	C-SHEL	mvt	161398	19682	514	19682	19682	132	26	0
1	1024	PRL	2mm	12862988	881936	5487	881923	881906	1	1	13
1	1024	PRL	3mm	20159459	1345410	8018	1338928	1246604	0	0	6482
1	1024	PRL	adi	46932448	2652546	1761647	1732376	1252282	104	3	920170
1	1024	PRL	atax	19395	10226	166	10226	10226	66	10	0
1	1024	PRL	bicg	62036	10619	856	10619	10619	125	33	0
1	1024	PRL	cholesky	74981	636531	5455	636487	633784	417	389	44
1	1024	PRL	correlation	13824522	822852	34916	632378	79938	1719	1719	190474
1	1024	PRL	covariance	13832025	807556	34883	805030	262905	3	3	2526
1	1024	PRL	deriche	3667295	1300791	553957	1112959	749152	16	12	187832
1	1024	PRL	doitgen	4506775	8002	7592	8002	8002	4	3	0
1	1024	PRL	durbin	3	71	0	0	0	59	56	0
1	1024	PRL	fdtd-2d	18720401	2105673	900944	1702429	1087372	0	0	403244
1	1024	PRL	floyd-warshall	7794540	7702703	7550989	7697866	7036555	2	2	4837
1	1024	PRL	gemm	111014	572232	4200	572232	572232	1	1	0
1	1024	PRL	gemver	218904	30921	10353	30921	30921	523	463	0
1	1024	PRL	gesummv	26145	7907	457	7907	7907	15	1	0
1	1024	PRL	gram-schmidt	28483676	412094	385538	360273	335401	830	475	51821
1	1024	PRL	heat-3d	2201918	1505198	727874	1504594	1489505	8	7	604
1	1024	PRL	jacobi-1d	19019	98	0	0	0	209	4	0
1	1024	PRL	jacobi-2d	824950	1506940	774545	1465824	1122259	401	199	41116
1	1024	PRL	lu	14711193	1525341	10255	932886	893633	2	2	592455
1	1024	PRL	ludcmp	14905168	1498943	10808	1010320	959711	1203	1184	488623
1	1024	PRL	mvt	161397	19682	520	19682	19682	130	26	0
1	1024	PRL	nussinov	16831825	1626512	8721	1214003	1168143	221	74	412509
1	1024	PRL	seidel-2d	1015873	979161	972763	979161	979161	301	105	0
1	1024	PRL	symm	11574993	737092	348154	447217	378651	1	1	289875
1	1024	PRL	syr2k	10826200	845182	10312	640346	526936	0	0	204836

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
1	1024	PRL	syrk	3886208	336310	6364	275710	256911	0	0	60600
1	1024	PRL	trisolv	633	4826	19	4826	4826	134	112	0
1	1024	PRL	trmm	7837276	306592	3070	252247	246000	0	0	54345
1	1024	SHEL	2mm	12899698	845225	5539	842818	819757	2	2	2407
1	1024	SHEL	3mm	20196461	1308409	8194	1292102	1059511	1	1	16307
1	1024	SHEL	adi	47160756	2424538	1660896	1814770	1342163	405	204	609768
1	1024	SHEL	correlation	13681368	966007	35058	464852	63526	279	276	501155
1	1024	SHEL	covariance	13676812	962771	34899	461910	64111	20	19	500861
1	1024	SHEL	deriche	3770036	1198054	479277	1130697	401775	20	16	67357
1	1024	SHEL	fdtd-2d	18815315	2024967	903730	1965354	1209004	308	206	59613
1	1024	SHEL	gemver	218485	31339	10355	30644	23241	88	56	695
1	1024	SHEL	heat-3d	2188384	1494033	729016	1493727	1475127	8	8	306
1	1024	SHEL	jacobi-2d	860568	1471323	772169	1464871	972638	306	185	6452
1	1024	SHEL	lu	14706742	1529793	10258	927155	874622	399	399	602638
1	1024	SHEL	ludcmp	14844810	1560096	11150	905722	861383	2003	1961	654374
1	1024	SHEL	mvt	161398	19682	514	19682	19682	132	26	0
2	64	CLAM	2mm	12789965	954959	5270	806598	645881	1	1	148361
2	64	CLAM	3mm	20037161	1467708	7692	1201488	949435	0	0	266220
2	64	CLAM	adi	46865200	2719794	1788178	1679168	1188342	5	3	1040626
2	64	CLAM	atax	19655	9966	374	9966	9966	163	28	0
2	64	CLAM	bicg	62834	9821	164	9821	9821	2	2	0
2	64	CLAM	cholesky	93823	617689	5468	592083	301896	33	30	25606
2	64	CLAM	correlation	13641733	1005641	34948	459794	64206	23	22	545847
2	64	CLAM	covariance	13638943	1000638	34968	457020	63848	3	2	543618
2	64	CLAM	deriche	3379974	1588112	754283	498681	258167	16	13	1089431
2	64	CLAM	doitgen	4507401	7376	7344	7376	7376	4	3	0
2	64	CLAM	durbin	3	71	0	0	0	14	13	0
2	64	CLAM	fdtd-2d	18719337	2106737	901440	1687188	920699	0	0	419549
2	64	CLAM	floyd-warshall	7784253	7712990	7564630	7686020	4744790	2	2	26970
2	64	CLAM	gemm	110525	572721	3979	567578	392437	1	1	5143
2	64	CLAM	gemver	219260	30565	10303	28005	20818	32	27	2560
2	64	CLAM	gesummv	26572	7480	93	7480	7480	15	1	0
2	64	CLAM	gram-schmidt	28472130	423640	388981	350586	296729	2	2	73054
2	64	CLAM	heat-3d	2200502	1506614	729822	1486377	1226237	15	9	20237
2	64	CLAM	jacobi-1d	19019	98	0	0	0	206	2	0
2	64	CLAM	jacobi-2d	823284	1508606	774630	1457242	1083287	104	96	51364
2	64	CLAM	lu	14723218	1513316	10252	907406	853926	1	1	605910
2	64	CLAM	ludcmp	14875407	1528704	10789	821891	740257	54	54	706813
2	64	CLAM	mvt	161060	20019	580	19651	19357	0	0	368
2	64	CLAM	nussinov	16774671	1683666	8721	1171938	1101879	4	4	511728

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	CLAM	seidel-2d	1017957	977077	970444	977077	977077	106	106	0
2	64	CLAM	symm	11574661	737424	348951	441865	365651	31	18	295559
2	64	CLAM	syr2k	10532973	1138409	17866	504157	475606	3	3	634252
2	64	CLAM	syrk	3882141	340377	3889	251817	229367	0	0	88560
2	64	CLAM	trisolv	683	4776	21	4776	4776	28	25	0
2	64	CLAM	trmm	7830767	313101	3066	231639	210123	0	0	81462
2	64	C-SHEL	2mm	12896885	848038	5258	835312	731967	2	2	12726
2	64	C-SHEL	3mm	20192471	1312399	7612	1284858	876915	1	1	27541
2	64	C-SHEL	adi	47180032	2405262	1652040	1846649	1630340	106	5	558613
2	64	C-SHEL	correlation	13694159	953216	35065	477730	61619	40	39	475486
2	64	C-SHEL	covariance	13671200	968383	35029	459282	62204	1	1	509101
2	64	C-SHEL	deriche	3793612	1174478	459556	1161325	768109	20	16	13153
2	64	C-SHEL	fdtd-2d	18796485	2043797	903571	1997112	1499417	8	7	46685
2	64	C-SHEL	gemver	219438	30386	10573	29185	26564	34	29	1201
2	64	C-SHEL	heat-3d	2169231	1513186	729856	1482721	1170386	10	10	30465
2	64	C-SHEL	jacobi-2d	825028	1506863	774491	1460501	1109248	97	1	46362
2	64	C-SHEL	lu	14696355	1540180	10258	863682	835776	0	0	676498
2	64	C-SHEL	ludcmp	14894047	1510859	10922	1000927	957860	146	140	509932
2	64	C-SHEL	mvt	161122	19958	585	19682	19530	26	26	276
2	64	PRL	2mm	12862372	882552	5259	879500	871183	1	1	3052
2	64	PRL	3mm	20162743	1342126	7653	1336557	1251357	0	0	5569
2	64	PRL	adi	46885656	2699338	1778681	1686059	1208885	5	3	1013279
2	64	PRL	atax	19655	9966	368	9966	9966	163	28	0
2	64	PRL	bicg	62850	9805	157	9805	9805	2	2	0
2	64	PRL	cholesky	78810	632702	5462	632632	627626	33	30	70
2	64	PRL	correlation	13706030	941344	35053	489579	62158	23	21	451765
2	64	PRL	covariance	13689956	949625	35024	471770	62162	3	2	477855
2	64	PRL	deriche	3666142	1301944	554518	1114220	750406	16	13	187724
2	64	PRL	doitgen	4507451	7326	7300	7326	7326	4	3	0
2	64	PRL	durbin	3	71	0	0	0	14	13	0
2	64	PRL	fdtd-2d	18720203	2105871	901265	1689196	947448	0	0	416675
2	64	PRL	floyd-warshall	7784253	7712990	7564630	7686020	4744790	2	2	26970
2	64	PRL	gemm	111184	572062	3962	572060	571824	1	1	2
2	64	PRL	gemver	219954	29871	10299	29315	26419	32	27	556
2	64	PRL	gesummv	26573	7479	107	7479	7479	15	1	0
2	64	PRL	gram-schmidt	28482072	413698	386066	355623	322833	2	2	58075
2	64	PRL	heat-3d	2207366	1499750	729726	1492567	1357488	13	9	7183
2	64	PRL	jacobi-1d	19019	98	0	0	0	206	2	0
2	64	PRL	jacobi-2d	823284	1508606	774630	1457242	1083287	104	96	51364
2	64	PRL	lu	14769297	1467237	10246	1019496	944032	1	1	447741

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	64	PRL	ludcmp	14928986	1475125	10601	1029283	951330	54	54	445842
2	64	PRL	mvt	161427	19652	541	19652	19652	0	0	0
2	64	PRL	nussinov	16832672	1625665	8720	1205565	1160801	4	4	420100
2	64	PRL	seidel-2d	1017957	977077	970444	977077	977077	106	106	0
2	64	PRL	symm	11665176	646909	312352	542943	477520	31	18	103966
2	64	PRL	syr2k	10741636	929746	11489	580584	518127	3	3	349162
2	64	PRL	syrk	3892195	330323	3100	269862	253475	0	0	60461
2	64	PRL	trisolv	683	4776	21	4776	4776	28	25	0
2	64	PRL	trmm	7845655	298213	3069	252945	235206	0	0	45268
2	64	SHEL	2mm	12896885	848038	5258	835312	731967	2	2	12726
2	64	SHEL	3mm	20192471	1312399	7612	1284858	876915	1	1	27541
2	64	SHEL	adi	47066764	2518530	1696135	1772373	1285495	106	5	746157
2	64	SHEL	correlation	13693506	953869	35062	477192	60212	40	39	476677
2	64	SHEL	covariance	13669037	970546	35022	459256	61680	1	1	511290
2	64	SHEL	deriche	3792122	1175968	459601	1152230	593095	20	16	23738
2	64	SHEL	fdtd-2d	18811573	2028709	904120	1958963	1133220	8	7	69746
2	64	SHEL	gemver	219318	30506	10424	28755	21126	34	32	1751
2	64	SHEL	heat-3d	2191803	1490614	728797	1490462	1481271	10	10	152
2	64	SHEL	jacobi-2d	862341	1469550	772265	1462958	960488	91	0	6592
2	64	SHEL	lu	14720406	1516129	10257	933935	891209	0	0	582194
2	64	SHEL	ludcmp	14876903	1528003	10939	942591	897365	145	141	585412
2	64	SHEL	mvt	161398	19682	563	19682	19682	26	26	0
2	128	CLAM	2mm	12791457	953467	5221	808891	650205	1	1	144576
2	128	CLAM	3mm	20032072	1472797	7731	1197949	951043	0	0	274848
2	128	CLAM	adi	46870738	2714256	1786487	1681669	1194255	105	3	1032587
2	128	CLAM	atax	19831	9790	196	9790	9790	74	3	0
2	128	CLAM	bicg	62576	10079	261	10079	10079	2	2	0
2	128	CLAM	cholesky	93614	617898	5468	591068	294695	33	30	26830
2	128	CLAM	correlation	13640774	1006600	35051	459465	64092	39	38	547135
2	128	CLAM	covariance	13639710	999871	35016	457048	63634	3	2	542823
2	128	CLAM	deriche	3384160	1583926	750799	506025	258175	16	13	1077901
2	128	CLAM	doitgen	4507301	7476	7382	7476	7476	4	3	0
2	128	CLAM	durbin	3	71	0	0	0	14	13	0
2	128	CLAM	fdtd-2d	18741112	2084962	898645	1695186	985052	0	0	389776
2	128	CLAM	floyd-warshall	7790915	7706328	7557311	7692926	6082402	2	2	13402
2	128	CLAM	gemm	111243	572003	4483	568778	388372	1	1	3225
2	128	CLAM	gemver	219161	30664	10306	27833	21100	189	81	2831
2	128	CLAM	gesummv	26432	7620	112	7620	7620	2	1	0
2	128	CLAM	gram-schmidt	28475481	420289	388086	352071	305588	2	2	68218

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	CLAM	heat-3d	2189939	1517177	729857	1480342	1154459	20	9	36835
2	128	CLAM	jacobi-1d	19019	98	0	0	0	108	4	0
2	128	CLAM	jacobi-2d	823977	1507913	774589	1460106	1097052	201	94	47807
2	128	CLAM	lu	14684374	1552160	10254	764254	723866	1	1	787906
2	128	CLAM	ludcmp	14845998	1558113	10798	779507	738926	695	683	778606
2	128	CLAM	mvt	161033	20046	586	19663	19429	25	25	383
2	128	CLAM	nussinov	16773869	1684468	8720	1171461	1102114	37	34	513007
2	128	CLAM	seidel-2d	1015201	979833	972632	974040	505769	106	106	5793
2	128	CLAM	symm	11579518	732567	345489	438782	347588	31	18	293785
2	128	CLAM	syr2k	10531075	1140307	18152	503514	473220	3	3	636793
2	128	CLAM	syrk	3869443	353075	4438	236503	215807	0	0	116572
2	128	CLAM	trisolv	683	4776	21	4776	4776	3	2	0
2	128	CLAM	trmm	7831410	312458	3068	230889	208489	0	0	81569
2	128	C-SHEL	2mm	12896731	848192	5250	835308	722333	2	2	12884
2	128	C-SHEL	3mm	20194944	1309926	7681	1287915	952663	1	1	22011
2	128	C-SHEL	adi	47222741	2362553	1633908	1863325	1677169	205	204	499228
2	128	C-SHEL	correlation	13693246	954129	35068	477779	61751	25	24	476350
2	128	C-SHEL	covariance	13673375	966208	35027	459583	62279	20	19	506625
2	128	C-SHEL	deriche	3728522	1239568	492293	1231150	908955	20	16	8418
2	128	C-SHEL	fdtd-2d	18812330	2027952	903423	1981162	1435289	208	106	46790
2	128	C-SHEL	gemver	218826	30998	10602	28273	19310	83	82	2725
2	128	C-SHEL	heat-3d	2169798	1512619	729866	1483362	1209256	110	110	29257
2	128	C-SHEL	jacobi-2d	825427	1506464	774455	1461694	1115836	205	96	44770
2	128	C-SHEL	lu	14690914	1545621	10259	854969	822925	0	0	690652
2	128	C-SHEL	ludcmp	14872639	1532267	11115	917150	881452	397	395	615117
2	128	C-SHEL	mvt	160742	20338	597	19571	14596	104	0	767
2	128	PRL	2mm	12862448	882476	5208	879582	871919	1	1	2894
2	128	PRL	3mm	20160002	1344867	7699	1331333	1148876	0	0	13534
2	128	PRL	adi	46882514	2702480	1780343	1687631	1209619	105	3	1014849
2	128	PRL	atax	19834	9787	184	9787	9787	74	3	0
2	128	PRL	bicg	62502	10153	349	10153	10153	2	2	0
2	128	PRL	cholesky	79845	631667	5466	631469	615540	33	30	198
2	128	PRL	correlation	13790644	856730	35076	584410	68915	39	38	272320
2	128	PRL	covariance	13752385	887196	34870	543086	67555	3	1	344110
2	128	PRL	deriche	3681596	1286490	546940	1098731	734748	16	13	187759
2	128	PRL	doitgen	4507400	7377	7313	7377	7377	4	3	0
2	128	PRL	durbin	3	71	0	0	0	14	13	0
2	128	PRL	fdtd-2d	18745667	2080407	898645	1703562	1014635	0	0	376845
2	128	PRL	floyd-warshall	7790915	7706328	7557311	7692926	6082402	2	2	13402

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	128	PRL	gemm	111895	571351	4486	571351	571351	1	1	0
2	128	PRL	gemver	219587	30238	10305	28802	21525	189	81	1436
2	128	PRL	gesummv	26414	7638	108	7638	7638	2	1	0
2	128	PRL	gram-schmidt	28482906	412864	385898	356624	326195	2	2	56240
2	128	PRL	heat-3d	2195226	1511890	729829	1485351	1208695	15	9	26539
2	128	PRL	jacobi-1d	19019	98	0	0	0	108	4	0
2	128	PRL	jacobi-2d	824733	1507157	774552	1462404	1115738	201	100	44753
2	128	PRL	lu	14721812	1514722	10255	933930	897952	1	1	580792
2	128	PRL	ludcmp	14885932	1518179	10677	956963	921333	695	625	561216
2	128	PRL	mvt	152798	28281	518	28281	28281	25	25	0
2	128	PRL	nussinov	16820382	1637955	8720	1199113	1152953	37	34	438842
2	128	PRL	seidel-2d	1017123	977911	971918	976539	772072	106	106	1372
2	128	PRL	symm	11669618	642467	309736	544935	474511	31	18	97532
2	128	PRL	syr2k	10814953	856429	9143	631309	516864	3	3	225120
2	128	PRL	syrk	3890785	331733	3325	269412	252671	0	0	62321
2	128	PRL	trisolv	683	4776	21	4776	4776	3	2	0
2	128	PRL	trmm	7846494	297374	3068	250044	231931	0	0	47330
2	128	SHEL	2mm	12896731	848192	5250	835308	722333	2	2	12884
2	128	SHEL	3mm	20194944	1309926	7681	1287915	952663	1	1	22011
2	128	SHEL	adi	47077196	2508098	1691016	1776281	1332944	205	204	731817
2	128	SHEL	correlation	13693002	954373	35068	477586	60353	25	24	476787
2	128	SHEL	covariance	13670609	968974	35030	459190	62233	20	19	509784
2	128	SHEL	deriche	3793041	1175049	458859	1153400	591208	20	16	21649
2	128	SHEL	fdtd-2d	18813919	2026363	904041	1962883	1172796	208	106	63480
2	128	SHEL	gemver	219002	30822	10562	28736	21666	83	81	2086
2	128	SHEL	heat-3d	2191221	1491196	728884	1490782	1475200	110	49	414
2	128	SHEL	jacobi-2d	862337	1469554	772247	1462981	944460	197	97	6573
2	128	SHEL	lu	14713767	1522768	10258	921950	881437	0	0	600818
2	128	SHEL	ludcmp	14858497	1546409	11125	915067	877725	402	397	631342
2	128	SHEL	mvt	160848	20232	597	19839	19773	104	0	393
2	256	CLAM	2mm	12788689	956235	5340	804647	646896	1	1	151588
2	256	CLAM	3mm	20030300	1474569	7913	1195614	950080	0	0	278955
2	256	CLAM	adi	46894436	2690558	1775945	1699948	1212264	5	3	990610
2	256	CLAM	atax	19588	10033	161	10033	10033	101	28	0
2	256	CLAM	bicg	62546	10109	283	10109	10109	2	2	0
2	256	CLAM	cholesky	94056	617456	5467	590792	289592	33	30	26664
2	256	CLAM	correlation	13645013	1002361	34933	459549	64412	279	276	542812
2	256	CLAM	covariance	13639367	1000214	35016	456868	63538	3	2	543346
2	256	CLAM	deriche	3382937	1585149	749294	511713	261100	16	13	1073436
2	256	CLAM	doitgen	4507353	7424	7368	7424	7424	4	3	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	CLAM	durbin	3	71	0	0	0	14	13	0
2	256	CLAM	fdtd-2d	18727854	2098220	899361	1663393	802757	0	0	434827
2	256	CLAM	floyd-warshall	7789723	7707520	7551006	7682723	4993196	2	2	24797
2	256	CLAM	gemm	111252	571994	4482	568601	367737	1	1	3393
2	256	CLAM	gemver	218038	31787	10549	27531	23027	316	109	4256
2	256	CLAM	gesummv	26154	7898	482	7898	7898	15	1	0
2	256	CLAM	gram-schmidt	28489582	406188	383326	359093	335961	2	2	47095
2	256	CLAM	heat-3d	2195408	1511708	729874	1484491	1163777	18	9	27217
2	256	CLAM	jacobi-1d	19019	98	0	0	0	108	4	0
2	256	CLAM	jacobi-2d	823109	1508781	774599	1456981	1091727	296	102	51800
2	256	CLAM	lu	14722713	1513821	10244	823289	725325	1	1	690532
2	256	CLAM	ludcmp	14832628	1571483	10839	761281	718104	366	289	810202
2	256	CLAM	mvt	160977	20102	595	19709	19427	125	26	393
2	256	CLAM	nussinov	16763957	1694380	8721	1163482	997582	37	34	530898
2	256	CLAM	seidel-2d	1017248	977786	970783	976927	903569	206	206	859
2	256	CLAM	symm	11562040	750045	352974	422765	345732	31	18	327280
2	256	CLAM	syr2k	10534141	1137241	18235	507824	478362	3	3	629417
2	256	CLAM	syrk	3868669	353849	4833	237188	215005	0	0	116661
2	256	CLAM	trisolv	683	4776	21	4776	4776	28	25	0
2	256	CLAM	trmm	7830251	313617	3070	230522	206278	0	0	83095
2	256	C-SHEL	2mm	12894479	850444	5302	832760	676792	2	2	17684
2	256	C-SHEL	3mm	20191016	1313854	7728	1285095	882481	1	1	28759
2	256	C-SHEL	adi	47190950	2394344	1650311	1841520	1630202	206	5	552824
2	256	C-SHEL	correlation	13693933	953442	35054	477838	63462	40	39	475604
2	256	C-SHEL	covariance	13671872	967711	35028	459793	63076	20	19	507918
2	256	C-SHEL	deriche	3795118	1172972	457685	1159187	775130	20	16	13785
2	256	C-SHEL	fdtd-2d	18821506	2018776	901725	1971164	1549440	108	107	47612
2	256	C-SHEL	gemver	218292	31532	10408	27273	22802	318	112	4259
2	256	C-SHEL	heat-3d	2172132	1510285	729860	1482843	1204543	10	10	27442
2	256	C-SHEL	jacobi-2d	824125	1507766	774587	1458247	1098463	400	200	49519
2	256	C-SHEL	lu	14698806	1537729	10259	914374	887736	0	0	623355
2	256	C-SHEL	ludcmp	14865848	1539058	11050	941796	897632	156	156	597262
2	256	C-SHEL	mvt	161040	20040	587	19677	19433	26	26	363
2	256	PRL	2mm	12860974	883950	5309	877366	860755	1	1	6584
2	256	PRL	3mm	20157386	1347483	7884	1336842	1193642	0	0	10641
2	256	PRL	adi	46931051	2653943	1758676	1713887	1264162	5	3	940056
2	256	PRL	atax	19587	10034	160	10034	10034	101	28	0
2	256	PRL	bicg	62548	10107	282	10107	10107	2	2	0
2	256	PRL	cholesky	81419	630093	5465	629620	594546	33	30	473

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	256	PRL	correlation	13875142	772232	35045	763806	182789	279	274	8426
2	256	PRL	covariance	13879791	759790	35024	744106	142053	3	3	15684
2	256	PRL	deriche	3692613	1275473	541571	1087845	723876	16	12	187628
2	256	PRL	doitgen	4507429	7348	7312	7348	7348	4	3	0
2	256	PRL	durbin	3	71	0	0	0	14	13	0
2	256	PRL	fdtd-2d	18729351	2096723	899192	1669948	909608	0	0	426775
2	256	PRL	floyd-warshall	7797865	7699378	7547051	7697581	7432895	2	2	1797
2	256	PRL	gemm	112008	571238	4497	571078	561785	1	1	160
2	256	PRL	gemver	218449	31376	10308	27638	23204	319	110	3738
2	256	PRL	gesummv	26149	7903	480	7903	7903	15	1	0
2	256	PRL	gram-schmidt	28494993	400777	381780	361959	347617	2	2	38818
2	256	PRL	heat-3d	2203172	1503944	729774	1490719	1285320	20	9	13225
2	256	PRL	jacobi-1d	19019	98	0	0	0	108	4	0
2	256	PRL	jacobi-2d	823519	1508371	774599	1458317	1099147	295	102	50054
2	256	PRL	lu	14767118	1469416	10245	1019352	917178	1	1	450064
2	256	PRL	ludcmp	14864869	1539242	10742	914452	871847	366	299	624790
2	256	PRL	mvt	153787	27292	551	27292	27292	90	26	0
2	256	PRL	nussinov	16833377	1624960	8721	1204991	1160594	37	34	419969
2	256	PRL	seidel-2d	1017946	977088	970502	977088	976923	206	206	0
2	256	PRL	symm	11654302	657783	315792	529012	434757	31	18	128771
2	256	PRL	syr2k	10731076	940306	11957	583859	512861	3	3	356447
2	256	PRL	syrk	3889670	332848	3693	270191	253200	0	0	62657
2	256	PRL	trisolv	684	4775	20	4775	4775	28	25	0
2	256	PRL	trmm	7845829	298039	3077	250583	230368	0	0	47456
2	256	SHEL	2mm	12894479	850444	5302	832760	676792	2	2	17684
2	256	SHEL	3mm	20191016	1313854	7728	1285095	882481	1	1	28759
2	256	SHEL	adi	47140065	2445229	1668354	1797310	1325404	206	5	647919
2	256	SHEL	correlation	13694267	953108	35054	477632	63187	40	39	475476
2	256	SHEL	covariance	13669448	970135	35029	459804	61582	20	19	510331
2	256	SHEL	deriche	3795074	1173016	457651	1159750	803239	20	16	13266
2	256	SHEL	fdtd-2d	18811657	2028625	904316	1957634	1132472	108	107	70991
2	256	SHEL	gemver	218268	31556	10409	27291	22758	316	111	4265
2	256	SHEL	heat-3d	2191610	1490807	728949	1490276	1472596	10	10	531
2	256	SHEL	jacobi-2d	862745	1469146	772097	1464886	1118060	400	188	4260
2	256	SHEL	lu	14681454	1555081	10259	856517	825557	0	0	698564
2	256	SHEL	ludcmp	14863774	1541132	11006	919227	878295	154	154	621905
2	256	SHEL	mvt	161398	19682	563	19682	19682	26	26	0
2	512	CLAM	2mm	12789229	955695	5438	807434	645464	1	1	148261
2	512	CLAM	3mm	20034121	1470748	8640	1215212	954430	2971	2139	255536

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	CLAM	adi	46890736	2694258	1778127	1697816	1221465	105	3	996442
2	512	CLAM	atax	19210	10411	275	10411	10411	100	28	0
2	512	CLAM	bicg	61798	10857	1088	10857	10857	80	3	0
2	512	CLAM	cholesky	93912	617600	5467	591359	297487	33	30	26241
2	512	CLAM	correlation	13641070	1006304	35013	461647	65721	279	276	544657
2	512	CLAM	covariance	13640145	999436	34903	457688	64160	3	2	541748
2	512	CLAM	deriche	3389084	1579002	746461	517083	258231	16	13	1061919
2	512	CLAM	doitgen	4507017	7760	7528	7760	7760	4	3	0
2	512	CLAM	durbin	3	71	0	0	0	14	13	0
2	512	CLAM	fdtd-2d	18721908	2104166	901115	1692255	1070610	102	102	411911
2	512	CLAM	floyd-warshall	7785868	7711375	7555414	7678755	4445311	2	2	32620
2	512	CLAM	gemm	110901	572345	4349	570582	521616	1	1	1763
2	512	CLAM	gemver	218907	30918	10449	30256	28284	607	448	662
2	512	CLAM	gesummv	26191	7861	430	7861	7861	15	1	0
2	512	CLAM	gram-schmidt	28445331	450439	401114	332009	151839	242	242	118430
2	512	CLAM	heat-3d	2190548	1516568	729748	1483435	1131177	9	8	33133
2	512	CLAM	jacobi-1d	19019	98	0	0	0	412	4	0
2	512	CLAM	jacobi-2d	823815	1508075	774575	1458749	1092298	401	198	49326
2	512	CLAM	lu	14721424	1515110	10255	933686	898486	1	1	581424
2	512	CLAM	ludcmp	14883615	1520496	10732	966538	926689	1195	1181	553958
2	512	CLAM	mvt	160596	20483	595	14289	10354	128	26	6194
2	512	CLAM	nussinov	16772677	1685660	8720	1173052	1113817	37	34	512608
2	512	CLAM	seidel-2d	1017598	977436	971201	977436	977436	306	206	0
2	512	CLAM	symm	11558006	754079	353917	413850	350325	31	18	340229
2	512	CLAM	syr2k	10525372	1146010	18219	511900	473256	3	3	634110
2	512	CLAM	syrk	3870790	351728	4235	242515	220131	0	0	109213
2	512	CLAM	trisolv	683	4776	21	4776	4776	28	25	0
2	512	CLAM	trmm	7823740	320128	3101	229229	217924	0	0	90899
2	512	C-SHEL	2mm	12896894	848029	5435	836300	730564	2	2	11729
2	512	C-SHEL	3mm	20190547	1314323	7817	1284403	845034	1	1	29920
2	512	C-SHEL	adi	47217963	2367331	1640997	1829960	1626420	505	204	537371
2	512	C-SHEL	correlation	13693428	953947	35116	478085	61621	1959	1955	475862
2	512	C-SHEL	covariance	13677623	961960	35029	460390	63738	20	19	501570
2	512	C-SHEL	deriche	3733367	1234723	490539	1218139	831297	20	16	16584
2	512	C-SHEL	fdtd-2d	18828161	2012121	900602	1972389	1565228	108	107	39732
2	512	C-SHEL	gemver	218551	31273	10312	27469	21526	291	87	3804
2	512	C-SHEL	heat-3d	2170982	1511435	729798	1484313	1216826	10	10	27122
2	512	C-SHEL	jacobi-2d	831170	1500721	774219	1459201	1090458	300	198	41520
2	512	C-SHEL	lu	14678077	1558458	10258	848896	825300	0	0	709562
2	512	C-SHEL	ludcmp	14853187	1551719	11129	951025	910664	299	298	600694

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	C-SHEL	mvt	161424	19656	522	19656	19656	26	26	0
2	512	PRL	2mm	12862650	882274	5377	881976	881299	1	1	298
2	512	PRL	3mm	20158840	1346029	8550	1342003	1283207	3035	2139	4026
2	512	PRL	adi	46952939	2632055	1748700	1717315	1319733	105	3	914740
2	512	PRL	atax	19210	10411	275	10411	10411	100	28	0
2	512	PRL	bicg	61798	10857	1088	10857	10857	80	3	0
2	512	PRL	cholesky	73675	637837	5448	637837	637837	33	30	0
2	512	PRL	correlation	13815534	831840	35134	823346	575717	279	275	8494
2	512	PRL	covariance	13834947	804634	34865	802177	241752	3	1	2457
2	512	PRL	deriche	3658771	1309315	558526	1121602	757809	16	12	187713
2	512	PRL	doitgen	4507154	7623	7400	7623	7623	4	3	0
2	512	PRL	durbin	3	71	0	0	0	14	13	0
2	512	PRL	fdtd-2d	18741268	2084806	898556	1708592	1336923	102	102	376214
2	512	PRL	floyd-warshall	7796254	7700989	7550066	7696933	7136978	2	2	4056
2	512	PRL	gemm	110776	572470	4429	572470	572470	1	1	0
2	512	PRL	gemver	219259	30566	10367	30269	29185	612	456	297
2	512	PRL	gesummv	26180	7872	431	7872	7872	15	1	0
2	512	PRL	gram-schmidt	28480421	415349	393155	363093	279965	242	242	52256
2	512	PRL	heat-3d	2204843	1502273	729583	1497405	1389042	9	8	4868
2	512	PRL	jacobi-1d	19019	98	0	0	0	412	4	0
2	512	PRL	jacobi-2d	824384	1507506	774567	1464586	1107890	401	198	42920
2	512	PRL	lu	14737710	1498824	10253	974180	942358	1	1	524644
2	512	PRL	ludcmp	14887553	1516558	10725	982471	943669	1194	1180	534087
2	512	PRL	mvt	160793	20286	592	19879	17380	129	26	407
2	512	PRL	nussinov	16823850	1634487	8721	1203336	1157344	37	34	431151
2	512	PRL	seidel-2d	1017722	977312	971297	977312	977312	306	206	0
2	512	PRL	symm	11631113	680972	326505	510387	431574	31	18	170585
2	512	PRL	syr2k	10781690	889692	10425	614568	501186	3	3	275124
2	512	PRL	syrk	3892968	329550	3232	271638	253686	0	0	57912
2	512	PRL	trisolv	684	4775	20	4775	4775	28	25	0
2	512	PRL	trmm	7834837	309031	3105	245550	238620	0	0	63481
2	512	SHEL	2mm	12897481	847442	5439	837222	764599	2	2	10220
2	512	SHEL	3mm	20190547	1314323	7817	1284403	845034	1	1	29920
2	512	SHEL	adi	47136662	2448632	1669413	1794227	1320569	505	204	654405
2	512	SHEL	correlation	13693541	953834	35109	477577	60736	1959	1956	476257
2	512	SHEL	covariance	13677993	961590	35029	460830	64162	20	19	500760
2	512	SHEL	deriche	3791597	1176493	460979	1152686	636546	20	16	23807
2	512	SHEL	fdtd-2d	18814591	2025691	903958	1962163	1196438	108	107	63528
2	512	SHEL	gemver	219214	30610	10309	28615	21758	294	87	1995
2	512	SHEL	heat-3d	2189056	1493361	729382	1490997	1444249	10	10	2364

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	512	SHEL	jacobi-2d	862371	1469520	772224	1463397	978965	308	191	6123
2	512	SHEL	lu	14708499	1528036	10259	913087	874556	0	0	614949
2	512	SHEL	ludcmp	14831297	1573609	11171	874950	829020	300	299	698659
2	512	SHEL	mvt	161406	19674	513	19674	19674	26	26	0
2	1024	CLAM	2mm	12784587	960337	6214	808871	651255	1038	3	151466
2	1024	CLAM	3mm	20035495	1469374	8003	1219326	946108	0	0	250048
2	1024	CLAM	adi	46950437	2634557	1753166	1729475	1270695	105	3	905082
2	1024	CLAM	atax	17463	12158	1498	12158	12158	460	89	0
2	1024	CLAM	bicg	61515	11140	1334	11140	11140	80	3	0
2	1024	CLAM	cholesky	93317	618195	5468	592774	301973	418	388	25421
2	1024	CLAM	correlation	13639602	1007772	36078	463060	64000	2614	2146	544712
2	1024	CLAM	covariance	13646303	993278	35021	457694	63951	3	2	535584
2	1024	CLAM	deriche	3354337	1613749	771024	450772	261017	16	13	1162977
2	1024	CLAM	doitgen	4506369	8408	7578	8408	8408	1032	3	0
2	1024	CLAM	durbin	3	71	0	0	0	14	13	0
2	1024	CLAM	fdtd-2d	18729948	2096126	898797	1681871	998029	102	102	414255
2	1024	CLAM	floyd-warshall	7787962	7709281	7551188	7683007	4869572	2	2	26274
2	1024	CLAM	gemm	109818	573428	5222	570290	395993	1	1	3138
2	1024	CLAM	gemver	218892	30933	10294	30778	30130	312	111	155
2	1024	CLAM	gesummv	25358	8694	182	8694	8694	1206	1097	0
2	1024	CLAM	gram-schmidt	28454392	441378	396750	348107	288201	242	242	93271
2	1024	CLAM	heat-3d	2186202	1520914	730085	1484567	1148553	25	9	36347
2	1024	CLAM	jacobi-1d	19019	98	0	0	0	412	4	0
2	1024	CLAM	jacobi-2d	823216	1508674	774644	1459291	1096921	401	200	49383
2	1024	CLAM	lu	14768907	1467627	10239	1013512	902795	1	1	454115
2	1024	CLAM	ludcmp	14886448	1517663	11071	978586	932695	1603	1584	539077
2	1024	CLAM	mvt	160526	20553	595	18362	11603	127	26	2191
2	1024	CLAM	nussinov	16773705	1684632	8721	1174767	1120686	37	34	509865
2	1024	CLAM	seidel-2d	1017510	977524	971593	977524	977524	306	206	0
2	1024	CLAM	symm	11518864	793221	366952	360437	343203	31	18	432784
2	1024	CLAM	syr2k	10642023	1029359	15087	536530	465542	3	3	492829
2	1024	CLAM	syrk	3869496	353022	4958	244128	220347	0	0	108894
2	1024	CLAM	trisolv	683	4776	21	4776	4776	28	25	0
2	1024	CLAM	trmm	7824043	319825	3096	227867	212922	0	0	91958
2	1024	C-SHEL	2mm	12889635	855288	5338	828760	595852	2	2	26528
2	1024	C-SHEL	3mm	20194543	1310327	8880	1293126	1035681	1390	1	17201
2	1024	C-SHEL	adi	47189313	2395981	1651837	1852821	1614787	605	304	543160
2	1024	C-SHEL	correlation	13676022	971353	36085	469044	65299	2696	2375	502309
2	1024	C-SHEL	covariance	13670459	969124	35027	459923	63942	20	19	509201

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	C-SHEL	deriche	3792191	1175899	461200	1174005	1110746	20	16	1894
2	1024	C-SHEL	fdtd-2d	18824248	2016034	902064	1973837	1473130	308	206	42197
2	1024	C-SHEL	gemver	218288	31536	10424	30391	22287	616	494	1145
2	1024	C-SHEL	heat-3d	2159284	1523133	729793	1476717	1114630	110	62	46416
2	1024	C-SHEL	jacobi-2d	831117	1500774	774205	1459729	1087412	399	196	41045
2	1024	C-SHEL	lu	14761978	1474557	10251	1017234	928335	399	399	457323
2	1024	C-SHEL	ludcmp	14930299	1474607	11197	1055772	1014897	1203	1169	418835
2	1024	C-SHEL	mvt	161295	19785	586	19785	19783	131	27	0
2	1024	PRL	2mm	12859475	885449	6202	884978	884325	1038	3	471
2	1024	PRL	3mm	20155089	1349780	7962	1345957	1286492	0	0	3823
2	1024	PRL	adi	47030719	2554275	1716651	1757268	1373431	105	3	797007
2	1024	PRL	atax	17461	12160	1497	12160	12160	460	89	0
2	1024	PRL	bicg	61515	11140	1334	11140	11140	80	3	0
2	1024	PRL	cholesky	73055	638457	5440	638457	638457	418	377	0
2	1024	PRL	correlation	13845801	801573	36090	741728	104393	2606	2168	59845
2	1024	PRL	covariance	13858545	781036	35024	678157	89762	3	2	102879
2	1024	PRL	deriche	3690876	1277210	542993	1089457	725470	16	12	187753
2	1024	PRL	doitgen	4506477	8300	7498	8300	8300	1032	3	0
2	1024	PRL	durbin	3	71	0	0	0	14	13	0
2	1024	PRL	fdtd-2d	18734655	2091419	898653	1696900	1070013	102	102	394519
2	1024	PRL	floyd-warshall	7796915	7700328	7546728	7698630	7437566	2	2	1698
2	1024	PRL	gemm	110333	572913	5264	572648	559953	1	1	265
2	1024	PRL	gemver	218769	31056	10241	31056	31056	319	110	0
2	1024	PRL	gesummv	25332	8720	196	8720	8720	1206	1108	0
2	1024	PRL	gram-schmidt	28471404	424366	392069	355600	315604	242	242	68766
2	1024	PRL	heat-3d	2189412	1517704	729853	1488071	1184798	23	9	29633
2	1024	PRL	jacobi-1d	19019	98	0	0	0	412	4	0
2	1024	PRL	jacobi-2d	824699	1507191	774575	1462206	1098716	401	196	44985
2	1024	PRL	lu	14787934	1448600	10235	1058264	986521	1	1	390336
2	1024	PRL	ludcmp	14895601	1508510	11069	998408	953971	1604	1585	510102
2	1024	PRL	mvt	160969	20110	588	19866	19824	128	26	244
2	1024	PRL	nussinov	16835384	1622953	8721	1211610	1167061	37	34	411343
2	1024	PRL	seidel-2d	1017979	977055	971538	977055	977055	306	206	0
2	1024	PRL	symm	11618314	693771	323888	457356	385493	31	18	236415
2	1024	PRL	syr2k	10846364	825018	7990	650643	535570	3	3	174375
2	1024	PRL	syrk	3891481	331037	3861	275060	256650	0	0	55977
2	1024	PRL	trisolv	684	4775	20	4775	4775	28	25	0
2	1024	PRL	trmm	7842202	301666	3092	251679	241657	0	0	49987
2	1024	SHEL	2mm	12889635	855288	5338	828760	595852	2	2	26528
2	1024	SHEL	3mm	20194543	1310327	8880	1293126	1035681	1390	1	17201

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
2	1024	SHEL	adi	47082576	2502718	1690449	1800949	1368163	605	304	701769
2	1024	SHEL	correlation	13675928	971447	36162	469108	63936	2696	2532	502339
2	1024	SHEL	covariance	13670293	969290	35029	459859	64034	20	19	509431
2	1024	SHEL	deriche	3790852	1177238	460756	1157716	840851	20	16	19522
2	1024	SHEL	fdtd-2d	18810692	2029590	905542	1951046	1159009	308	206	78544
2	1024	SHEL	gemver	218288	31536	10424	30391	22287	616	494	1145
2	1024	SHEL	heat-3d	2186592	1495825	729876	1487571	1213943	110	78	8254
2	1024	SHEL	jacobi-2d	861400	1470491	772103	1462333	819846	400	186	8158
2	1024	SHEL	lu	14750057	1486478	10256	996839	902981	399	399	489639
2	1024	SHEL	ludcmp	14848844	1556062	11367	922915	893555	1206	1189	633147
2	1024	SHEL	mvt	161332	19748	567	19748	19748	131	27	0
3	64	CLAM	2mm	12787869	957055	5265	802865	642239	1	1	154190
3	64	CLAM	3mm	20034833	1470036	7610	1200817	950932	0	0	269219
3	64	CLAM	adi	46869995	2714999	1786429	1685159	1192802	4	3	1029840
3	64	CLAM	atax	19791	9830	223	9830	9830	33	28	0
3	64	CLAM	bicg	62729	9926	236	9926	9926	2	2	0
3	64	CLAM	cholesky	94003	617509	5468	592019	302572	32	29	25490
3	64	CLAM	correlation	13642283	1005091	34976	459603	64078	23	22	545488
3	64	CLAM	covariance	13640031	999550	34941	456732	63790	18	17	542818
3	64	CLAM	deriche	3384541	1583545	750298	506942	258262	15	12	1076603
3	64	CLAM	doitgen	4507381	7396	7356	7396	7396	3	3	0
3	64	CLAM	durbin	3	71	0	0	0	18	17	0
3	64	CLAM	fdtd-2d	18719725	2106349	901431	1687736	947719	0	0	418613
3	64	CLAM	floyd-warshall	7785890	7711353	7563294	7687649	5080841	2	2	23704
3	64	CLAM	gemm	110553	572693	3988	567404	385343	1	1	5289
3	64	CLAM	gemver	216424	33401	10321	24297	22482	55	54	9104
3	64	CLAM	gesummv	26512	7540	181	7540	7540	30	17	0
3	64	CLAM	gram-schmidt	28473479	422291	388866	351091	300104	2	2	71200
3	64	CLAM	heat-3d	2191399	1515717	729868	1481982	1168643	6	6	33735
3	64	CLAM	jacobi-1d	19019	98	0	0	0	106	2	0
3	64	CLAM	jacobi-2d	824478	1507412	774542	1457061	1077323	0	0	50351
3	64	CLAM	lu	14714860	1521674	10249	809200	728765	2	2	712474
3	64	CLAM	ludcmp	14861319	1542792	10660	802205	742916	14	8	740587
3	64	CLAM	mvt	161002	20077	591	19667	19586	126	26	410
3	64	CLAM	nussinov	16787827	1670510	8721	1181613	1127426	41	38	488897
3	64	CLAM	seidel-2d	1016739	978295	971983	976414	779612	106	106	1881
3	64	CLAM	symm	11580495	731590	344791	438303	344546	1	1	293287
3	64	CLAM	syr2k	10526329	1145053	18170	504308	472054	3	3	640745
3	64	CLAM	syrk	3874545	347973	3961	243039	225488	1	1	104934
3	64	CLAM	trisolv	674	4785	22	4785	4785	27	25	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	CLAM	trmm	7831278	312590	3077	230814	209216	0	0	81776
3	64	C-SHEL	2mm	12894658	850265	5159	832487	705136	2	2	17778
3	64	C-SHEL	3mm	20192068	1312802	7654	1284697	869739	1	1	28105
3	64	C-SHEL	adi	47214477	2370817	1637655	1855907	1656211	5	5	514910
3	64	C-SHEL	correlation	13693557	953818	35049	477987	63029	24	23	475831
3	64	C-SHEL	covariance	13678891	960692	35027	460122	62482	4	3	500570
3	64	C-SHEL	deriche	3769756	1198334	471106	1192691	944222	15	13	5643
3	64	C-SHEL	fdtd-2d	18793485	2046797	903479	2001408	1467519	6	6	45389
3	64	C-SHEL	gemver	215879	33945	10608	24498	21659	80	80	9447
3	64	C-SHEL	heat-3d	2171190	1511227	729811	1484818	1191669	7	7	26409
3	64	C-SHEL	jacobi-2d	830404	1501487	774168	1462115	1101808	102	98	39372
3	64	C-SHEL	lu	14710984	1525551	10259	935708	887381	3	3	589843
3	64	C-SHEL	ludcmp	14884509	1520397	11027	966041	901625	164	164	554356
3	64	C-SHEL	mvt	161033	20047	589	19696	19496	0	0	351
3	64	PRL	2mm	12862727	882197	5246	879365	871703	1	1	2832
3	64	PRL	3mm	20159101	1345768	7587	1339683	1251113	0	0	6085
3	64	PRL	adi	46884361	2700633	1779515	1689461	1209492	4	3	1011172
3	64	PRL	atax	19789	9832	220	9832	9832	33	28	0
3	64	PRL	bicg	62729	9926	236	9926	9926	2	2	0
3	64	PRL	cholesky	79272	632240	5463	632098	619909	32	29	142
3	64	PRL	correlation	13869996	777378	35049	694609	91689	23	21	82769
3	64	PRL	covariance	13857011	782570	35024	675078	85412	18	17	107492
3	64	PRL	deriche	3666245	1301841	554574	1114111	750358	15	12	187730
3	64	PRL	doitgen	4507447	7330	7302	7330	7330	3	3	0
3	64	PRL	durbin	3	71	0	0	0	18	17	0
3	64	PRL	fdtd-2d	18720618	2105456	900943	1691014	991870	0	0	414442
3	64	PRL	floyd-warshall	7785890	7711353	7563294	7687649	5080841	2	2	23704
3	64	PRL	gemm	111422	571824	3924	570732	540457	1	1	1092
3	64	PRL	gemver	216459	33366	10319	24630	23108	55	54	8736
3	64	PRL	gesummv	26490	7562	193	7562	7562	30	17	0
3	64	PRL	gram-schmidt	28486612	409158	384582	357800	333142	2	2	51358
3	64	PRL	heat-3d	2195743	1511373	729783	1485884	1216615	6	6	25489
3	64	PRL	jacobi-1d	19019	98	0	0	0	106	2	0
3	64	PRL	jacobi-2d	825296	1506594	774556	1461313	1096336	0	0	45281
3	64	PRL	lu	14756701	1479833	10243	995590	915807	2	2	484243
3	64	PRL	ludcmp	14926633	1477478	10538	1032849	989489	26	19	444629
3	64	PRL	mvt	157917	23162	528	23162	23162	99	25	0
3	64	PRL	nussinov	16849539	1608798	8721	1221231	1172550	41	38	387567
3	64	PRL	seidel-2d	1017605	977429	971805	977334	959884	106	106	95

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	64	PRL	symm	11662358	649727	313274	539698	465595	1	1	110029
3	64	PRL	syr2k	10799177	872205	9563	623547	522857	3	3	248658
3	64	PRL	syrk	3891760	330758	3163	270697	253580	1	1	60061
3	64	PRL	trisolv	675	4784	21	4784	4784	27	25	0
3	64	PRL	trmm	7845872	297996	3076	253087	235394	0	0	44909
3	64	SHEL	2mm	12894658	850265	5159	832487	705136	2	2	17778
3	64	SHEL	3mm	20192068	1312802	7654	1284697	869739	1	1	28105
3	64	SHEL	adi	47093836	2491458	1685448	1782202	1306586	5	5	709256
3	64	SHEL	correlation	13693613	953762	35050	477417	61511	24	23	476345
3	64	SHEL	covariance	13676168	963415	35028	460038	62411	4	3	503377
3	64	SHEL	deriche	3794568	1173522	457627	1158477	736735	15	13	15045
3	64	SHEL	fdtd-2d	18812608	2027674	904402	1957984	1143339	6	6	69690
3	64	SHEL	gemver	215889	33935	10541	24785	23150	80	79	9150
3	64	SHEL	heat-3d	2191797	1490620	728848	1490504	1486097	7	7	116
3	64	SHEL	jacobi-2d	862060	1469831	772390	1462977	955929	102	98	6854
3	64	SHEL	lu	14707959	1528576	10258	907377	860707	3	3	621199
3	64	SHEL	ludcmp	14866714	1538192	11000	922796	867551	164	164	615396
3	64	SHEL	mvt	161408	19672	563	19672	19672	0	0	0
3	128	CLAM	2mm	12788431	956493	5301	804511	646812	1	1	151982
3	128	CLAM	3mm	20034786	1470083	7758	1200212	950414	0	0	269871
3	128	CLAM	adi	46878483	2706511	1782108	1688302	1203580	104	3	1018209
3	128	CLAM	atax	19691	9930	202	9930	9930	33	28	0
3	128	CLAM	bicg	62753	9902	225	9902	9902	125	31	0
3	128	CLAM	cholesky	93267	618245	5468	591203	295491	5	5	27042
3	128	CLAM	correlation	13644047	1003327	34962	460069	64272	24	23	543258
3	128	CLAM	covariance	13638271	1001310	35016	454805	60511	18	17	546505
3	128	CLAM	deriche	3385529	1582557	749258	508858	258343	15	12	1073699
3	128	CLAM	doitgen	4507368	7409	7352	7409	7409	3	3	0
3	128	CLAM	durbin	3	71	0	0	0	18	17	0
3	128	CLAM	fdtd-2d	18718820	2107254	901917	1686344	933757	0	0	420910
3	128	CLAM	floyd-warshall	7788992	7708251	7551397	7682076	4908558	2	2	26175
3	128	CLAM	gemm	111159	572087	4504	568627	385734	1	1	3460
3	128	CLAM	gemver	218722	31103	10409	27861	21295	624	221	3242
3	128	CLAM	gesummv	26415	7637	178	7637	7637	17	17	0
3	128	CLAM	gram-schmidt	28473265	422505	390200	349551	240685	2	2	72954
3	128	CLAM	heat-3d	2196406	1510710	729822	1482346	1175119	44	8	28364
3	128	CLAM	jacobi-1d	19019	98	0	0	0	103	2	0
3	128	CLAM	jacobi-2d	824703	1507187	774556	1458608	1081023	0	0	48579
3	128	CLAM	lu	14733374	1503160	10234	850667	809337	2	2	652493

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	CLAM	ludcmp	14837158	1566953	10793	802883	756010	139	129	764070
3	128	CLAM	mvt	161078	20001	594	19682	19545	126	26	319
3	128	CLAM	nussinov	16784067	1674270	8720	1179724	1126513	41	38	494546
3	128	CLAM	seidel-2d	1016443	978591	972090	975989	719910	206	106	2602
3	128	CLAM	symm	11581361	730724	346479	446715	364362	1	1	284009
3	128	CLAM	syr2k	10531486	1139896	18027	503086	473509	3	3	636810
3	128	CLAM	syrk	3871665	350853	4361	245586	221277	1	1	105267
3	128	CLAM	trisolv	632	4827	20	4827	4827	56	50	0
3	128	CLAM	trmm	7830674	313194	3065	231084	209875	0	0	82110
3	128	C-SHEL	2mm	12893699	851224	5258	831703	660424	2	2	19521
3	128	C-SHEL	3mm	20189372	1315498	7753	1282681	819958	1	1	32817
3	128	C-SHEL	adi	47228680	2356614	1635023	1857191	1653597	304	204	499423
3	128	C-SHEL	correlation	13694008	953367	35064	477569	61600	37	37	475798
3	128	C-SHEL	covariance	13651159	988424	35027	457819	62484	4	3	530605
3	128	C-SHEL	deriche	3725850	1242240	493282	1236705	997102	18	15	5535
3	128	C-SHEL	fdtd-2d	18811014	2029268	901934	1995606	1560452	308	200	33662
3	128	C-SHEL	gemver	218741	31083	10617	29251	21904	262	56	1832
3	128	C-SHEL	heat-3d	2167159	1515258	729828	1480926	1146570	10	10	34332
3	128	C-SHEL	jacobi-2d	826977	1504914	774443	1459020	1075559	300	99	45894
3	128	C-SHEL	lu	14705451	1531084	10259	882997	849614	3	3	648087
3	128	C-SHEL	ludcmp	14845949	1558957	11238	941468	906625	311	282	617489
3	128	C-SHEL	mvt	161088	19992	587	19677	19622	26	26	315
3	128	PRL	2mm	12861959	882965	5293	878455	866486	1	1	4510
3	128	PRL	3mm	20158471	1346398	7734	1335701	1192730	0	0	10697
3	128	PRL	adi	46899659	2685335	1772473	1695057	1229280	104	3	990278
3	128	PRL	atax	19641	9980	175	9980	9980	33	28	0
3	128	PRL	bicg	62741	9914	237	9914	9914	125	31	0
3	128	PRL	cholesky	80807	630705	5467	630147	592480	5	5	558
3	128	PRL	correlation	13765646	881728	35052	556078	64598	24	22	325650
3	128	PRL	covariance	13738841	900740	35024	526414	63468	18	17	374326
3	128	PRL	deriche	3679543	1288543	547716	1100777	736958	15	12	187766
3	128	PRL	doitgen	4507416	7361	7312	7361	7361	3	3	0
3	128	PRL	durbin	3	71	0	0	0	18	17	0
3	128	PRL	fdtd-2d	18721399	2104675	900670	1694308	1022961	0	0	410367
3	128	PRL	floyd-warshall	7797934	7699309	7547014	7697607	7462428	2	2	1702
3	128	PRL	gemm	112013	571233	4478	571232	570866	1	1	1
3	128	PRL	gemver	219344	30481	10406	29088	22146	628	229	1393
3	128	PRL	gesummv	26391	7661	190	7661	7661	17	17	0
3	128	PRL	gram-schmidt	28483953	411817	386749	356224	273785	2	2	55593

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	128	PRL	heat-3d	2204197	1502919	729736	1489924	1306010	27	8	12995
3	128	PRL	jacobi-1d	19019	98	0	0	0	103	2	0
3	128	PRL	jacobi-2d	825017	1506873	774561	1459995	1089180	0	0	46878
3	128	PRL	lu	14786425	1450109	10234	1070464	1037708	2	2	379645
3	128	PRL	ludcmp	14907682	1496429	10599	995374	952086	139	134	501055
3	128	PRL	mvt	149471	31608	554	31608	31608	92	26	0
3	128	PRL	nussinov	16833855	1624482	8720	1211824	1166275	41	38	412658
3	128	PRL	seidel-2d	1017735	977299	971570	977299	977299	206	106	0
3	128	PRL	symm	11664970	647115	312044	542057	470018	1	1	105058
3	128	PRL	syr2k	10748559	922823	11330	586394	511549	3	3	336429
3	128	PRL	syrk	3891901	330617	3202	270656	253843	1	1	59961
3	128	PRL	trisolv	633	4826	19	4826	4826	56	50	0
3	128	PRL	trmm	7844534	299334	3067	251253	233205	0	0	48081
3	128	SHEL	2mm	12895360	849563	5267	833514	696175	2	2	16049
3	128	SHEL	3mm	20189372	1315498	7753	1282681	819958	1	1	32817
3	128	SHEL	adi	47133213	2452081	1671580	1799032	1334289	304	204	653049
3	128	SHEL	correlation	13682211	965164	35060	463814	59973	37	37	501350
3	128	SHEL	covariance	13646796	992787	35025	457223	62476	4	3	535564
3	128	SHEL	deriche	3794831	1173259	457626	1159492	763232	18	15	13767
3	128	SHEL	fdtd-2d	18810497	2029785	904782	1956011	1115377	308	181	73774
3	128	SHEL	gemver	218882	30942	10529	29511	20565	258	55	1431
3	128	SHEL	heat-3d	2189625	1492792	729627	1489053	1342969	10	10	3739
3	128	SHEL	jacobi-2d	864661	1467230	772202	1464738	1097671	295	91	2492
3	128	SHEL	lu	14713506	1523029	10257	923135	883633	3	3	599894
3	128	SHEL	ludcmp	14847196	1557710	11233	887066	848584	312	290	670644
3	128	SHEL	mvt	161400	19680	563	19680	19680	26	26	0
3	256	CLAM	2mm	12794659	950265	5277	812418	660032	1	1	137847
3	256	CLAM	3mm	20034232	1470637	7802	1196176	948943	0	0	274461
3	256	CLAM	adi	46904446	2680548	1771875	1707061	1213632	104	3	973487
3	256	CLAM	atax	19753	9868	249	9868	9868	33	28	0
3	256	CLAM	bicg	62408	10247	408	10247	10247	125	31	0
3	256	CLAM	cholesky	93792	617720	5468	590957	296436	32	29	26763
3	256	CLAM	correlation	13642368	1005006	34936	460230	64765	264	260	544776
3	256	CLAM	covariance	13640087	999494	35016	457064	62935	18	17	542430
3	256	CLAM	deriche	3380677	1587409	753765	500007	258330	15	12	1087402
3	256	CLAM	doitgen	4507376	7401	7377	7401	7401	3	3	0
3	256	CLAM	durbin	3	71	0	0	0	18	17	0
3	256	CLAM	fdtd-2d	18717063	2109011	902284	1683693	897288	0	0	425318
3	256	CLAM	floyd-warshall	7796671	7700572	7549562	7697176	7208577	2	2	3396

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	CLAM	gemm	111171	572075	4029	568792	458615	1	1	3283
3	256	CLAM	gemver	218766	31059	10349	29700	21049	294	111	1359
3	256	CLAM	gesummv	26485	7567	196	7567	7567	30	17	0
3	256	CLAM	gram-schmidt	28488422	407348	383872	358441	331542	2	2	48907
3	256	CLAM	heat-3d	2200341	1506775	729838	1487088	1233132	38	8	19687
3	256	CLAM	jacobi-1d	19019	98	0	0	0	207	2	0
3	256	CLAM	jacobi-2d	824400	1507490	774605	1457397	1075510	301	99	50093
3	256	CLAM	lu	14720545	1515989	10246	849394	761760	2	2	666595
3	256	CLAM	ludcmp	14856178	1547933	10765	810741	763962	310	241	737192
3	256	CLAM	mvt	161275	19804	590	19701	19684	128	26	103
3	256	CLAM	nussinov	16791232	1667105	8721	1185151	1132382	41	38	481954
3	256	CLAM	seidel-2d	1017681	977353	970897	976807	921967	202	7	546
3	256	CLAM	symm	11592346	719739	341264	458228	371326	1	1	261511
3	256	CLAM	syr2k	10630200	1041182	15113	533053	468025	3	3	508129
3	256	CLAM	syrk	3873344	349174	4748	245555	226455	1	1	103619
3	256	CLAM	trisolv	674	4785	21	4785	4785	56	50	0
3	256	CLAM	trmm	7825984	317884	3085	229993	215182	0	0	87891
3	256	C-SHEL	2mm	12895253	849670	5317	834354	673537	2	2	15316
3	256	C-SHEL	3mm	20192016	1312854	7735	1286119	888828	1	1	26735
3	256	C-SHEL	adi	47238843	2346451	1632846	1843400	1638033	504	204	503051
3	256	C-SHEL	correlation	13693087	954288	35065	477827	60986	40	40	476461
3	256	C-SHEL	covariance	13661823	977760	35025	458703	62370	4	3	519057
3	256	C-SHEL	deriche	3708432	1259658	502364	1246292	888589	18	15	13366
3	256	C-SHEL	fdtd-2d	18807121	2033161	903991	1982081	1418824	306	205	51080
3	256	C-SHEL	gemver	218580	31244	10695	30455	29335	633	486	789
3	256	C-SHEL	heat-3d	2164004	1518413	729772	1480353	1125993	110	57	38060
3	256	C-SHEL	jacobi-2d	830611	1501280	774101	1462166	1100381	400	199	39114
3	256	C-SHEL	lu	14689017	1547518	10259	927518	895570	3	3	620000
3	256	C-SHEL	ludcmp	14883524	1521382	10906	978638	941610	639	548	542744
3	256	C-SHEL	mvt	161414	19666	543	19666	19666	131	27	0
3	256	PRL	2mm	12863128	881796	5258	881770	881724	1	1	26
3	256	PRL	3mm	20159409	1345460	7776	1339088	1245999	0	0	6372
3	256	PRL	adi	46940871	2644123	1754411	1719709	1277437	104	3	924414
3	256	PRL	atax	19751	9870	250	9870	9870	33	28	0
3	256	PRL	bicg	62408	10247	408	10247	10247	125	31	0
3	256	PRL	cholesky	82014	629498	5465	628748	579264	32	29	750
3	256	PRL	correlation	13825638	821736	35049	627301	73076	264	261	194435
3	256	PRL	covariance	13752892	886689	34892	542758	67304	18	16	343931
3	256	PRL	deriche	3682239	1285847	546896	1097880	734012	15	9	187967
3	256	PRL	doitgen	4507424	7353	7333	7353	7353	3	3	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	256	PRL	durbin	3	71	0	0	0	18	17	0
3	256	PRL	fdtd-2d	18720485	2105589	900957	1692927	994552	0	0	412662
3	256	PRL	floyd-warshall	7796671	7700572	7549562	7697176	7208577	2	2	3396
3	256	PRL	gemm	111312	571934	4029	571694	564838	1	1	240
3	256	PRL	gemver	219744	30081	10292	30060	29909	319	111	21
3	256	PRL	gesummv	26466	7586	185	7586	7586	30	17	0
3	256	PRL	gram-schmidt	28512931	382839	375154	370734	366589	2	2	12105
3	256	PRL	heat-3d	2206836	1500280	729727	1493512	1368642	20	8	6768
3	256	PRL	jacobi-1d	19019	98	0	0	0	207	2	0
3	256	PRL	jacobi-2d	824997	1506893	774587	1460144	1090096	301	95	46749
3	256	PRL	lu	14779837	1456697	10240	1035128	941001	2	2	421569
3	256	PRL	ludcmp	14893488	1510623	10653	970669	928678	310	243	539954
3	256	PRL	mvt	160470	20609	523	20609	20609	108	25	0
3	256	PRL	nussinov	16840425	1617912	8721	1216594	1172509	41	38	401318
3	256	PRL	seidel-2d	1018161	976873	970601	976873	976873	201	7	0
3	256	PRL	symm	11666249	645836	311495	544665	477487	1	1	101171
3	256	PRL	syr2k	10794854	876528	10049	614565	528154	3	3	261963
3	256	PRL	syrk	3890740	331778	3889	271758	254620	1	1	60020
3	256	PRL	trisolv	675	4784	20	4784	4784	56	50	0
3	256	PRL	trmm	7840847	303021	3086	250541	240150	0	0	52480
3	256	SHEL	2mm	12896745	848178	5312	835572	713812	2	2	12606
3	256	SHEL	3mm	20190657	1314213	7735	1284764	857007	1	1	29449
3	256	SHEL	adi	47146239	2439055	1665503	1800165	1330671	504	204	638890
3	256	SHEL	correlation	13679270	968105	35063	464104	61077	40	40	504001
3	256	SHEL	covariance	13661997	977586	35026	458423	59436	4	3	519163
3	256	SHEL	deriche	3792242	1175848	460187	1152379	590798	18	15	23469
3	256	SHEL	fdtd-2d	18810121	2030161	904545	1957021	1113100	306	205	73140
3	256	SHEL	gemver	218388	31436	10601	30500	21065	621	509	936
3	256	SHEL	heat-3d	2189957	1492460	729810	1489398	1337953	110	61	3062
3	256	SHEL	jacobi-2d	864317	1467574	772264	1464793	1053537	400	191	2781
3	256	SHEL	lu	14700836	1535699	10259	892920	844903	3	3	642779
3	256	SHEL	ludcmp	14868698	1536208	10895	928462	879786	638	549	607746
3	256	SHEL	mvt	161411	19669	545	19669	19669	131	27	0
3	512	CLAM	2mm	12788578	956346	5340	806740	644524	1	1	149606
3	512	CLAM	3mm	20036733	1468136	7790	1192540	945705	0	0	275596
3	512	CLAM	adi	46898989	2686005	1774222	1709479	1211514	104	3	976526
3	512	CLAM	atax	18149	11472	1282	11472	11472	33	28	0
3	512	CLAM	bicg	61949	10706	408	10706	10706	125	31	0
3	512	CLAM	cholesky	93539	617973	5468	591423	291364	32	29	26550

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	CLAM	correlation	13643823	1003551	34915	461721	64873	24	23	541830
3	512	CLAM	covariance	13638979	1000602	34910	456874	63859	18	17	543728
3	512	CLAM	deriche	3382029	1586057	749882	510999	261207	15	12	1075058
3	512	CLAM	doitgen	4506975	7802	7461	7802	7802	3	3	0
3	512	CLAM	durbin	3	71	0	0	0	18	17	0
3	512	CLAM	fdtd-2d	18721649	2104425	901429	1690404	1052868	102	102	414021
3	512	CLAM	floyd-warshall	7788231	7709012	7552081	7681366	4715386	2	2	27646
3	512	CLAM	gemm	111222	572024	4487	568787	385624	1	1	3237
3	512	CLAM	gemver	218791	31034	10434	30403	23691	200	109	631
3	512	CLAM	gesummv	26122	7930	540	7930	7930	30	17	0
3	512	CLAM	gram-schmidt	28468345	427425	389785	352508	304375	2	2	74917
3	512	CLAM	heat-3d	2196335	1510781	729836	1485887	1185535	32	8	24894
3	512	CLAM	jacobi-1d	19019	98	0	0	0	1134	7	0
3	512	CLAM	jacobi-2d	823237	1508653	774640	1460280	1084018	301	96	48373
3	512	CLAM	lu	14725893	1510641	10243	831895	740437	2	2	678746
3	512	CLAM	ludcmp	14855748	1548363	10829	792170	744161	1194	1175	756193
3	512	CLAM	mvt	161399	19680	565	19680	19680	130	26	0
3	512	CLAM	nussinov	16826878	1631459	8720	1212161	1154882	41	38	419298
3	512	CLAM	seidel-2d	1017285	977749	971289	976635	863236	306	107	1114
3	512	CLAM	symm	11522225	789860	364855	356952	341372	1	1	432908
3	512	CLAM	syr2k	10641511	1029871	14887	535116	466027	3	3	494755
3	512	CLAM	syrk	3872146	350372	5235	247599	226788	1	1	102773
3	512	CLAM	trisolv	633	4826	19	4826	4826	159	136	0
3	512	CLAM	trmm	7832261	311607	3141	232841	211708	675	0	78766
3	512	C-SHEL	2mm	12897562	847361	5324	836734	749311	2	2	10627
3	512	C-SHEL	3mm	20192450	1312420	7853	1287175	910598	1	1	25245
3	512	C-SHEL	adi	47226799	2358495	1637025	1834698	1624374	604	304	523797
3	512	C-SHEL	correlation	13691585	955790	35919	479773	63479	279	276	476017
3	512	C-SHEL	covariance	13670384	969199	35028	459277	62097	4	3	509922
3	512	C-SHEL	deriche	3742361	1225729	488053	1203519	780617	18	15	22210
3	512	C-SHEL	fdtd-2d	18798566	2041716	904858	1982393	1351062	308	206	59323
3	512	C-SHEL	gemver	218500	31324	10649	30506	29416	692	391	818
3	512	C-SHEL	heat-3d	2172171	1510246	729810	1487920	1227148	110	110	22326
3	512	C-SHEL	jacobi-2d	833991	1497900	773978	1465170	1117120	296	100	32730
3	512	C-SHEL	lu	14698065	1538470	10259	939441	907418	3	3	599029
3	512	C-SHEL	ludcmp	14890929	1513977	11101	1009286	965551	725	688	504691
3	512	C-SHEL	mvt	161401	19679	525	19679	19679	131	27	0
3	512	PRL	2mm	12862518	882406	5326	880836	876421	1	1	1570
3	512	PRL	3mm	20158236	1346633	7764	1333633	1156702	0	0	13000

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	PRL	adi	46928143	2656851	1759620	1719664	1257661	104	3	937187
3	512	PRL	atax	18151	11470	1281	11470	11470	33	28	0
3	512	PRL	bicg	61949	10706	408	10706	10706	125	31	0
3	512	PRL	cholesky	71570	639942	5436	639942	639942	32	29	0
3	512	PRL	correlation	13715592	931782	34918	544421	67915	24	23	387361
3	512	PRL	covariance	13721134	918447	34885	552214	67660	18	17	366233
3	512	PRL	deriche	3702374	1265712	536222	1077996	714196	15	10	187716
3	512	PRL	doitgen	4507062	7715	7392	7715	7715	3	3	0
3	512	PRL	durbin	3	71	0	0	0	18	17	0
3	512	PRL	fdtd-2d	18724250	2101824	900769	1695594	1123519	102	102	406230
3	512	PRL	floyd-warshall	7797718	7699525	7547447	7697475	7384510	2	2	2050
3	512	PRL	gemm	111975	571271	4482	571271	571271	1	1	0
3	512	PRL	gemver	219073	30752	10383	30752	30752	216	111	0
3	512	PRL	gesummv	26080	7972	569	7972	7972	30	17	0
3	512	PRL	gram-schmidt	28487220	408550	384443	361832	342179	2	2	46718
3	512	PRL	heat-3d	2204271	1502845	729743	1493852	1333550	20	8	8993
3	512	PRL	jacobi-1d	19019	98	0	0	0	1134	7	0
3	512	PRL	jacobi-2d	824546	1507344	774584	1464015	1104754	301	99	43329
3	512	PRL	lu	14778512	1458022	10244	1032416	944707	2	2	425606
3	512	PRL	ludcmp	14927321	1476790	10622	1027971	952375	1193	1184	448819
3	512	PRL	mvt	147961	33118	517	33118	33118	90	25	0
3	512	PRL	nussinov	16886474	1571863	8721	1254246	1210944	41	38	317617
3	512	PRL	seidel-2d	1017931	977103	971012	977103	977103	306	107	0
3	512	PRL	symm	11619185	692900	324027	458058	380464	1	1	234842
3	512	PRL	syr2k	10764339	907043	10792	606169	512384	3	3	300874
3	512	PRL	syrk	3890370	332148	4445	278684	257050	1	1	53464
3	512	PRL	trisolv	633	4826	19	4826	4826	159	136	0
3	512	PRL	trmm	7843480	300388	3143	249474	231298	675	0	50914
3	512	SHEL	2mm	12897562	847361	5324	836734	749311	2	2	10627
3	512	SHEL	3mm	20192450	1312420	7853	1287175	910598	1	1	25245
3	512	SHEL	adi	47136761	2448533	1669354	1801461	1343619	604	304	647072
3	512	SHEL	correlation	13690161	957214	36022	479946	62398	279	276	477268
3	512	SHEL	covariance	13669433	970150	35026	459382	62353	4	3	510768
3	512	SHEL	deriche	3788016	1180074	464702	1147999	535680	18	15	32075
3	512	SHEL	fdtd-2d	18816870	2023412	903965	1963760	1236645	308	206	59652
3	512	SHEL	gemver	218233	31591	10573	30438	20892	667	421	1153
3	512	SHEL	heat-3d	2186856	1495561	729561	1492563	1394172	110	100	2998
3	512	SHEL	jacobi-2d	864468	1467423	772155	1465014	1128580	290	99	2409
3	512	SHEL	lu	14724891	1511644	10258	953661	898483	3	3	557983
3	512	SHEL	ludcmp	14866921	1537985	11157	943656	887723	726	697	594329

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	512	SHEL	mvt	161401	19679	525	19679	19679	131	27	0
3	1024	CLAM	2mm	12790685	954239	5414	811757	655684	1	1	142482
3	1024	CLAM	3mm	20031466	1473403	8708	1205753	951612	857	0	267650
3	1024	CLAM	adi	46863992	2721002	1793520	1709512	1171192	104	3	1011490
3	1024	CLAM	atax	19204	10417	255	10417	10417	334	173	0
3	1024	CLAM	bicg	62046	10609	780	10609	10609	125	30	0
3	1024	CLAM	cholesky	91576	619936	5468	592791	296405	32	29	27145
3	1024	CLAM	correlation	13641658	1005716	34978	462994	66730	1432	261	542722
3	1024	CLAM	covariance	13654655	984926	34886	459037	63998	18	17	525889
3	1024	CLAM	deriche	3360395	1607691	768465	456743	258282	15	12	1150948
3	1024	CLAM	doitgen	4507405	7372	7328	7372	7372	3	3	0
3	1024	CLAM	durbin	3	71	0	0	0	18	17	0
3	1024	CLAM	fdtd-2d	18734477	2091597	900189	1682015	820091	0	0	409582
3	1024	CLAM	floyd-warshall	7731204	7766039	7637903	7595194	2310781	2	2	170845
3	1024	CLAM	gemm	108996	574250	5516	572640	483812	1	1	1610
3	1024	CLAM	gemver	211464	38361	10295	24160	23809	311	110	14201
3	1024	CLAM	gesummv	25612	8440	601	8440	8440	30	17	0
3	1024	CLAM	gram-schmidt	28478466	417304	388463	356272	304145	827	475	61032
3	1024	CLAM	heat-3d	2188592	1518524	729906	1485570	1129866	42	8	32954
3	1024	CLAM	jacobi-1d	19019	98	0	0	0	307	2	0
3	1024	CLAM	jacobi-2d	822629	1509261	774625	1458565	1087417	301	96	50696
3	1024	CLAM	lu	14724302	1512232	10254	968411	925435	2	2	543821
3	1024	CLAM	ludcmp	14918421	1485690	10763	1021363	920177	1111	1031	464327
3	1024	CLAM	mvt	161420	19659	536	19659	19659	25	25	0
3	1024	CLAM	nussinov	16798738	1659599	8721	1194065	1137689	41	38	465534
3	1024	CLAM	seidel-2d	1017505	977529	971350	977516	974314	306	107	13
3	1024	CLAM	symm	11574337	737748	344930	419288	341669	1	1	318460
3	1024	CLAM	syr2k	10546878	1124504	18121	507515	474961	3	3	616989
3	1024	CLAM	syrk	3872218	350300	4734	250244	214882	1	1	100056
3	1024	CLAM	trisolv	633	4826	19	4826	4826	159	136	0
3	1024	CLAM	trmm	7834399	309469	3138	239488	215887	675	0	69981
3	1024	C-SHEL	2mm	12894283	850640	5602	837180	717909	2	2	13460
3	1024	C-SHEL	3mm	20190691	1314179	7869	1288155	933554	1	1	26024
3	1024	C-SHEL	adi	47309644	2275650	1607669	1863131	1658389	604	304	412519
3	1024	C-SHEL	correlation	13693353	954022	35098	480254	65927	5160	2913	473768
3	1024	C-SHEL	covariance	13672804	966779	35027	461023	62374	4	3	505756
3	1024	C-SHEL	deriche	3654069	1314021	528762	1304880	962534	18	14	9141
3	1024	C-SHEL	fdtd-2d	18826233	2014049	900899	1981636	1520784	408	306	32413
3	1024	C-SHEL	gemver	209474	40350	10554	26163	25674	646	498	14187
3	1024	C-SHEL	heat-3d	2181358	1501059	729852	1490755	1241031	110	110	10304

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	C-SHEL	jacobi-2d	825846	1506045	774284	1465951	1128122	400	201	40094
3	1024	C-SHEL	lu	14715506	1521029	10258	965764	924817	3	3	555265
3	1024	C-SHEL	ludcmp	14855586	1549320	11205	925323	887834	1595	1560	623997
3	1024	C-SHEL	mvt	161376	19704	517	19704	19704	131	27	0
3	1024	PRL	2mm	12861342	883582	5352	882943	881585	1	1	639
3	1024	PRL	3mm	20150042	1354827	8686	1333872	1080114	906	0	20955
3	1024	PRL	adi	46900811	2684183	1775439	1720618	1216372	104	3	963565
3	1024	PRL	atax	19220	10401	255	10401	10401	334	173	0
3	1024	PRL	bicg	62046	10609	780	10609	10609	125	30	0
3	1024	PRL	cholesky	78091	633421	5468	632983	597522	32	29	438
3	1024	PRL	correlation	13788773	858601	35071	636805	73078	1432	260	221796
3	1024	PRL	covariance	13776959	862622	34889	570534	71723	18	17	292088
3	1024	PRL	deriche	3681130	1286956	547424	1099201	735282	15	10	187755
3	1024	PRL	doitgen	4507432	7345	7304	7345	7345	3	3	0
3	1024	PRL	durbin	3	71	0	0	0	18	17	0
3	1024	PRL	fdtd-2d	18740966	2085108	898940	1687587	1043936	0	0	397521
3	1024	PRL	floyd-warshall	7787949	7709294	7613606	7686229	5800007	2	2	23065
3	1024	PRL	gemm	109217	574029	5501	574021	573814	1	1	8
3	1024	PRL	gemver	214794	35031	10294	29199	26315	311	111	5832
3	1024	PRL	gesummv	25122	8930	612	8930	8930	30	17	0
3	1024	PRL	gram-schmidt	28497761	398009	382466	365078	340798	845	463	32931
3	1024	PRL	heat-3d	2196359	1510757	729808	1493279	1247737	27	8	17478
3	1024	PRL	jacobi-1d	19019	98	0	0	0	307	2	0
3	1024	PRL	jacobi-2d	824053	1507837	774601	1465363	1121628	301	99	42474
3	1024	PRL	lu	14733668	1502866	10253	987274	949356	2	2	515592
3	1024	PRL	ludcmp	14923087	1481024	10734	1033994	939243	1111	1033	447030
3	1024	PRL	mvt	156011	25068	490	25068	25068	25	24	0
3	1024	PRL	nussinov	16840407	1617930	8721	1217838	1169749	41	38	400092
3	1024	PRL	seidel-2d	1018202	976832	971030	976832	976832	306	107	0
3	1024	PRL	symm	11644146	667939	315076	494887	415673	1	1	173052
3	1024	PRL	syr2k	10778329	893053	11034	603934	498599	3	3	289119
3	1024	PRL	syrk	3888790	333728	3783	273675	255495	1	1	60053
3	1024	PRL	trisolv	633	4826	19	4826	4826	159	136	0
3	1024	PRL	trmm	7847570	296298	3139	256967	236040	675	0	39331
3	1024	SHEL	2mm	12894283	850640	5602	837180	717909	2	2	13460
3	1024	SHEL	3mm	20189968	1314902	7876	1287427	926508	1	1	27475
3	1024	SHEL	adi	47221077	2364217	1636220	1834305	1374028	604	304	529912
3	1024	SHEL	correlation	13692150	955225	35088	480158	66289	5169	2919	475067
3	1024	SHEL	covariance	13670708	968875	35031	461153	62522	4	3	507722

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
3	1024	SHEL	deriche	3789328	1178762	460392	1148944	538415	18	15	29818
3	1024	SHEL	fdtd-2d	18812870	2027412	904304	1961812	1176359	408	306	65600
3	1024	SHEL	gemver	208963	40861	10700	26497	25874	626	510	14364
3	1024	SHEL	heat-3d	2185729	1496688	729886	1489348	1140103	110	92	7340
3	1024	SHEL	jacobi-2d	857048	1474843	772546	1469000	1254081	400	197	5843
3	1024	SHEL	lu	14688801	1547734	10259	929659	895649	3	3	618075
3	1024	SHEL	ludcmp	14850680	1554226	11220	924319	887278	1594	1559	629907
3	1024	SHEL	mvt	161376	19704	517	19704	19704	131	27	0
4	64	CLAM	2mm	12791463	953461	5271	807656	647834	1	1	145805
4	64	CLAM	3mm	20033543	1471326	7757	1197040	950044	0	0	274286
4	64	CLAM	adi	46866684	2718310	1788257	1684920	1187154	4	3	1033390
4	64	CLAM	atax	19803	9818	199	9818	9818	33	28	0
4	64	CLAM	bicg	62848	9807	175	9807	9807	80	3	0
4	64	CLAM	cholesky	93929	617583	5468	591842	301693	5	5	25741
4	64	CLAM	correlation	13640845	1006529	35039	459732	64068	8	7	546797
4	64	CLAM	covariance	13638935	1000646	35020	456735	62430	18	17	543911
4	64	CLAM	deriche	3380766	1587320	753765	499918	258241	14	11	1087402
4	64	CLAM	doitgen	4507409	7368	7353	7368	7368	3	3	0
4	64	CLAM	durbin	3	71	0	0	0	16	15	0
4	64	CLAM	fdtd-2d	18741625	2084449	898549	1695580	983714	0	0	388869
4	64	CLAM	floyd-warshall	7784544	7712699	7564607	7686547	4910837	2	2	26152
4	64	CLAM	gemm	110518	572728	3995	567630	392618	1	1	5098
4	64	CLAM	gemver	219335	30490	10295	28160	21358	138	28	2330
4	64	CLAM	gesummv	26526	7526	139	7526	7526	30	17	0
4	64	CLAM	gram-schmidt	28474709	421061	388370	352041	303410	2	2	69020
4	64	CLAM	heat-3d	2197644	1509472	729846	1483613	1181254	6	6	25859
4	64	CLAM	jacobi-1d	19019	98	0	0	0	3	2	0
4	64	CLAM	jacobi-2d	824201	1507689	774566	1457549	1078957	99	2	50140
4	64	CLAM	lu	14696360	1540174	10255	785466	734833	2	2	754708
4	64	CLAM	ludcmp	14855343	1548768	10750	792837	744983	36	30	755931
4	64	CLAM	mvt	161092	19987	586	19668	19477	25	25	319
4	64	CLAM	nussinov	16779816	1678521	8721	1176075	1122157	41	38	502446
4	64	CLAM	seidel-2d	1016443	978591	972090	975989	719910	206	107	2602
4	64	CLAM	symm	11577681	734404	347935	444059	364683	1	1	290345
4	64	CLAM	syr2k	10533708	1137674	17633	504932	476147	3	3	632742
4	64	CLAM	syrk	3880732	341786	4013	249898	226799	1	1	91888
4	64	CLAM	trisolv	673	4786	43	4786	4786	2	2	0
4	64	CLAM	trmm	7830852	313016	3072	232384	210809	0	0	80632
4	64	C-SHEL	2mm	12894936	849987	5195	833172	684929	2	2	16815
4	64	C-SHEL	3mm	20196281	1308589	7656	1288667	994137	1	1	19922

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	C-SHEL	adi	47204917	2380377	1638464	1857684	1647650	105	105	522693
4	64	C-SHEL	correlation	13694331	953044	35066	477545	61706	24	23	475499
4	64	C-SHEL	covariance	13667812	971771	35029	459028	62248	4	3	512743
4	64	C-SHEL	deriche	3772629	1195461	469742	1192160	1046057	18	15	3301
4	64	C-SHEL	fdtd-2d	18807527	2032755	902572	1996381	1545924	6	6	36374
4	64	C-SHEL	gemver	219687	30137	10468	29387	26128	34	29	750
4	64	C-SHEL	heat-3d	2166646	1515771	729891	1482483	1169449	10	10	33288
4	64	C-SHEL	jacobi-2d	827469	1504422	774412	1460683	1095385	0	0	43739
4	64	C-SHEL	lu	14700840	1535695	10259	870814	842914	3	3	664881
4	64	C-SHEL	ludcmp	14867526	1537380	11072	902449	861998	126	126	634931
4	64	C-SHEL	mvt	161117	19963	580	19642	19600	0	0	321
4	64	PRL	2mm	12861958	882966	5258	878566	865370	1	1	4400
4	64	PRL	3mm	20160587	1344282	7716	1334921	1208783	0	0	9361
4	64	PRL	adi	46895745	2689249	1775483	1695248	1218396	4	3	994001
4	64	PRL	atax	19804	9817	197	9817	9817	33	28	0
4	64	PRL	bicg	62798	9857	192	9857	9857	80	3	0
4	64	PRL	cholesky	76719	634793	5455	634793	634793	5	5	0
4	64	PRL	correlation	13704339	943035	35056	488508	61202	8	6	454527
4	64	PRL	covariance	13689621	949960	35025	472031	62102	18	17	477929
4	64	PRL	deriche	3670187	1297899	552771	1110114	746240	14	11	187785
4	64	PRL	doitgen	4507450	7327	7313	7327	7327	3	3	0
4	64	PRL	durbin	3	71	0	0	0	16	15	0
4	64	PRL	fdtd-2d	18743238	2082836	898553	1699121	998713	0	0	383715
4	64	PRL	floyd-warshall	7784544	7712699	7564607	7686547	4910837	2	2	26152
4	64	PRL	gemm	111232	572014	3918	572008	571600	1	1	6
4	64	PRL	gemver	220040	29785	10293	29532	25191	137	29	253
4	64	PRL	gesummv	26501	7551	150	7551	7551	30	17	0
4	64	PRL	gram-schmidt	28485141	410629	385029	357362	330684	2	2	53267
4	64	PRL	heat-3d	2203067	1504049	729788	1488356	1268496	6	6	15693
4	64	PRL	jacobi-1d	19019	98	0	0	0	3	2	0
4	64	PRL	jacobi-2d	824599	1507291	774525	1458808	1080119	98	3	48483
4	64	PRL	lu	14748317	1488217	10253	983221	944342	2	2	504996
4	64	PRL	ludcmp	14907666	1496445	10619	999209	958910	48	44	497236
4	64	PRL	mvt	161412	19667	508	19667	19667	25	25	0
4	64	PRL	nussinov	16829166	1629171	8720	1205186	1159181	41	38	423985
4	64	PRL	seidel-2d	1017253	977781	971890	976657	810544	206	107	1124
4	64	PRL	symm	11665610	646475	312142	543695	477320	1	1	102780
4	64	PRL	syr2k	10748368	923014	11295	584804	513942	3	3	338210
4	64	PRL	syrk	3891924	330594	3138	269964	253628	1	1	60630
4	64	PRL	trisolv	688	4771	23	4771	4771	2	2	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	64	PRL	trmm	7846569	297299	3071	253498	235711	0	0	43801
4	64	SHEL	2mm	12894936	849987	5195	833172	684929	2	2	16815
4	64	SHEL	3mm	20194996	1309874	7656	1287374	955247	1	1	22500
4	64	SHEL	adi	47067243	2518051	1696686	1778104	1310568	105	105	739947
4	64	SHEL	correlation	13693478	953897	35065	477352	60649	24	23	476545
4	64	SHEL	covariance	13664833	974750	35027	459222	62450	4	3	515528
4	64	SHEL	deriche	3794733	1173357	457913	1161360	856246	18	15	11997
4	64	SHEL	fdtd-2d	18810693	2029589	904458	1958917	1131863	6	6	70672
4	64	SHEL	gemver	219383	30441	10446	28866	20872	34	29	1575
4	64	SHEL	heat-3d	2191703	1490714	729018	1490468	1479844	10	10	246
4	64	SHEL	jacobi-2d	862307	1469584	772288	1463131	972474	0	0	6453
4	64	SHEL	lu	14717926	1518609	10259	929452	891100	3	3	589157
4	64	SHEL	ludcmp	14868015	1536891	10990	923270	878020	126	126	613621
4	64	SHEL	mvt	161401	19679	577	19674	19670	0	0	5
4	128	CLAM	2mm	12789614	955310	5304	804730	639895	1	1	150580
4	128	CLAM	3mm	20037654	1467215	7736	1202855	949370	0	0	264360
4	128	CLAM	adi	46870208	2714786	1785464	1680328	1198055	4	3	1034458
4	128	CLAM	atax	19815	9806	187	9806	9806	33	28	0
4	128	CLAM	bicg	62530	10125	468	10125	10125	2	2	0
4	128	CLAM	cholesky	94532	616980	5468	590580	294884	32	29	26400
4	128	CLAM	correlation	13641608	1005766	35036	459711	64328	24	23	546055
4	128	CLAM	covariance	13639388	1000193	35018	456622	62859	3	2	543571
4	128	CLAM	deriche	3387044	1581042	748148	512583	258351	15	12	1068459
4	128	CLAM	doitgen	4507402	7375	7360	7375	7375	3	3	0
4	128	CLAM	durbin	3	71	0	0	0	16	15	0
4	128	CLAM	fdtd-2d	18731443	2094631	901591	1673002	665379	0	0	421629
4	128	CLAM	floyd-warshall	7784590	7712653	7555970	7677507	4256519	2	2	35146
4	128	CLAM	gemm	109675	573571	4060	566644	325319	1	1	6927
4	128	CLAM	gemver	218989	30836	10502	28509	21634	83	82	2327
4	128	CLAM	gesummv	26441	7611	173	7611	7611	14	1	0
4	128	CLAM	gram-schmidt	28484309	411461	384891	356294	320058	2	2	55167
4	128	CLAM	heat-3d	2186657	1520459	729949	1475835	1140504	52	8	44624
4	128	CLAM	jacobi-1d	19019	98	0	0	0	106	2	0
4	128	CLAM	jacobi-2d	824834	1507056	774572	1458537	1078877	97	1	48519
4	128	CLAM	lu	14696872	1539662	10253	788865	739086	2	2	750797
4	128	CLAM	ludcmp	14842018	1562093	10799	773037	730735	676	667	789056
4	128	CLAM	mvt	160723	20356	594	11783	10146	129	26	8573
4	128	CLAM	nussinov	16775932	1682405	8720	1173262	1110393	41	38	509143
4	128	CLAM	seidel-2d	1016528	978506	972727	977069	806688	105	7	1437

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	CLAM	symm	11582094	729991	345912	448929	365873	1	1	281062
4	128	CLAM	syr2k	10553182	1118200	17511	507957	468864	3	3	610243
4	128	CLAM	syrk	3872067	350451	4257	240947	221012	1	1	109504
4	128	CLAM	trisolv	673	4786	43	4786	4786	31	27	0
4	128	CLAM	trmm	7829550	314318	3073	230757	208492	0	0	83561
4	128	C-SHEL	2mm	12894400	850523	5282	832859	694938	2	2	17664
4	128	C-SHEL	3mm	20193101	1311769	7782	1286805	912217	1	1	24964
4	128	C-SHEL	adi	47195309	2389985	1649618	1827081	1624519	205	105	562904
4	128	C-SHEL	correlation	13693281	954094	35066	476926	60896	40	39	477168
4	128	C-SHEL	covariance	13676398	963185	35026	459753	62339	4	3	503432
4	128	C-SHEL	deriche	3730602	1237488	491777	1228767	918066	18	15	8721
4	128	C-SHEL	fdtd-2d	18797163	2043119	903366	1998833	1483545	106	106	44286
4	128	C-SHEL	gemver	219332	30492	10601	29825	29062	56	55	667
4	128	C-SHEL	heat-3d	2166246	1516171	729873	1481917	1163459	10	10	34254
4	128	C-SHEL	jacobi-2d	825512	1506379	774489	1459173	1077595	300	195	47206
4	128	C-SHEL	lu	14695015	1541520	10259	862737	833101	3	3	678783
4	128	C-SHEL	ludcmp	14856248	1548658	11126	923331	895502	251	251	625327
4	128	C-SHEL	mvt	161134	19946	586	19672	19529	26	26	274
4	128	PRL	2mm	12861613	883311	5284	878242	862170	1	1	5069
4	128	PRL	3mm	20160711	1344158	7712	1337322	1238481	0	0	6836
4	128	PRL	adi	46907617	2677377	1767496	1692969	1241605	4	3	984408
4	128	PRL	atax	19806	9815	186	9815	9815	33	28	0
4	128	PRL	bicg	62542	10113	408	10113	10113	2	2	0
4	128	PRL	cholesky	79539	631973	5463	631765	617301	32	29	208
4	128	PRL	correlation	13778400	868974	35051	570909	66984	24	22	298065
4	128	PRL	covariance	13763532	876049	34895	556283	68552	3	1	319766
4	128	PRL	deriche	3671892	1296194	550393	1086631	699839	15	12	209563
4	128	PRL	doitgen	4507450	7327	7313	7327	7327	3	3	0
4	128	PRL	durbin	3	71	0	0	0	16	15	0
4	128	PRL	fdtd-2d	18732562	2093512	901282	1675315	692450	0	0	418197
4	128	PRL	floyd-warshall	7796246	7700997	7550073	7696781	7125604	2	2	4216
4	128	PRL	gemm	110600	572646	4029	572629	572329	1	1	17
4	128	PRL	gemver	219612	30213	10499	29814	26914	83	82	399
4	128	PRL	gesummv	26210	7842	396	7842	7842	14	1	0
4	128	PRL	gram-schmidt	28488622	407148	383794	358541	332860	2	2	48607
4	128	PRL	heat-3d	2189081	1518035	729893	1478504	1165529	33	7	39531
4	128	PRL	jacobi-1d	19019	98	0	0	0	106	2	0
4	128	PRL	jacobi-2d	826118	1505772	774498	1462355	1103231	96	1	43417
4	128	PRL	lu	14747274	1489260	10253	981515	941897	2	2	507745

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	128	PRL	ludcmp	14894495	1509616	10643	970873	930829	688	609	538743
4	128	PRL	mvt	154398	26681	572	26681	26681	87	26	0
4	128	PRL	nussinov	16836136	1622201	8721	1207207	1163647	41	38	414994
4	128	PRL	seidel-2d	1017140	977894	972629	977894	977894	104	7	0
4	128	PRL	symm	11668496	643589	310281	545495	471157	1	1	98094
4	128	PRL	syr2k	10795876	875506	9887	618174	522299	3	3	257332
4	128	PRL	syrk	3891091	331427	3327	270012	253576	1	1	61415
4	128	PRL	trisolv	691	4768	21	4768	4768	31	27	0
4	128	PRL	trmm	7843976	299892	3073	249524	230940	0	0	50368
4	128	SHEL	2mm	12894400	850523	5282	832859	694938	2	2	17664
4	128	SHEL	3mm	20193101	1311769	7782	1286805	912217	1	1	24964
4	128	SHEL	adi	47108807	2476487	1679946	1790219	1335349	205	105	686268
4	128	SHEL	correlation	13694207	953168	35068	476367	58670	40	39	476801
4	128	SHEL	covariance	13674515	965068	35028	459801	62669	4	3	505267
4	128	SHEL	deriche	3791984	1176106	460533	1156404	642080	18	15	19702
4	128	SHEL	fdtd-2d	18811585	2028697	904288	1959066	1118446	106	106	69631
4	128	SHEL	gemver	218880	30944	10488	29915	20453	56	55	1029
4	128	SHEL	heat-3d	2191655	1490762	728841	1490568	1481918	10	10	194
4	128	SHEL	jacobi-2d	864265	1467626	772176	1464630	1037378	309	187	2996
4	128	SHEL	lu	14709468	1527067	10257	914381	877615	3	3	612686
4	128	SHEL	ludcmp	14846676	1558230	11139	886679	854936	257	241	671551
4	128	SHEL	mvt	161403	19677	563	19677	19677	26	26	0
4	256	CLAM	2mm	12786406	958518	5258	802738	648063	1	1	155780
4	256	CLAM	3mm	20040381	1464488	7855	1205256	948887	0	0	259232
4	256	CLAM	adi	46885487	2699507	1781496	1701470	1206855	4	3	998037
4	256	CLAM	atax	19275	10346	292	10346	10346	98	30	0
4	256	CLAM	bicg	62065	10590	591	10590	10590	80	5	0
4	256	CLAM	cholesky	93093	618419	5468	590451	291573	32	29	27968
4	256	CLAM	correlation	13641716	1005658	35044	459982	61813	24	23	545676
4	256	CLAM	covariance	13640646	998935	34886	456781	63691	18	17	542154
4	256	CLAM	deriche	3381871	1586215	752676	502341	258320	15	12	1083874
4	256	CLAM	doitgen	4507331	7446	7415	7446	7446	3	3	0
4	256	CLAM	durbin	3	71	0	0	0	16	15	0
4	256	CLAM	fdtd-2d	18733776	2092298	900459	1660265	507875	102	102	432033
4	256	CLAM	floyd-warshall	7789496	7707747	7551123	7682845	4969438	2	2	24902
4	256	CLAM	gemm	110798	572448	4260	568851	446297	1	1	3597
4	256	CLAM	gemver	217819	32006	10420	27135	23153	314	111	4871
4	256	CLAM	gesummv	26467	7585	111	7585	7585	30	17	0
4	256	CLAM	gram-schmidt	28478926	416844	387213	354815	316697	242	242	62029

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	CLAM	heat-3d	2195736	1511380	729827	1482606	1188510	41	8	28774
4	256	CLAM	jacobi-1d	19019	98	0	0	0	204	2	0
4	256	CLAM	jacobi-2d	823909	1507981	774657	1455959	1066744	204	96	52022
4	256	CLAM	lu	14720744	1515790	10247	821841	731060	2	2	693949
4	256	CLAM	ludcmp	14835287	1568824	10886	763194	724781	530	525	805630
4	256	CLAM	mvt	160890	20189	586	18068	12224	25	25	2121
4	256	CLAM	nussinov	16765767	1692570	8720	1166159	1051007	41	38	526411
4	256	CLAM	seidel-2d	1016374	978660	971267	975066	648254	205	7	3594
4	256	CLAM	symm	11565133	746952	352790	430350	359407	1	1	316602
4	256	CLAM	syr2k	10552216	1119166	17558	507498	468902	3	3	611668
4	256	CLAM	syrk	3872379	350139	4569	242340	222780	1	1	107799
4	256	CLAM	trisolv	674	4785	42	4785	4785	56	50	0
4	256	CLAM	trmm	7832473	311395	3084	231704	208124	0	0	79691
4	256	C-SHEL	2mm	12892927	851996	5248	831964	679598	2	2	20032
4	256	C-SHEL	3mm	20190376	1314494	7881	1284538	847457	1	1	29956
4	256	C-SHEL	adi	47210568	2374726	1638436	1859860	1655557	205	105	514866
4	256	C-SHEL	correlation	13693864	953511	35056	477700	64136	279	276	475811
4	256	C-SHEL	covariance	13675651	963932	35027	459735	62684	4	3	504197
4	256	C-SHEL	deriche	3709397	1258693	500903	1248956	909843	18	15	9737
4	256	C-SHEL	fdtd-2d	18816430	2023852	899037	1999025	1607923	108	31	24827
4	256	C-SHEL	gemver	217550	32274	10468	27521	23528	210	109	4753
4	256	C-SHEL	heat-3d	2163271	1519146	729766	1480090	1131595	110	24	39056
4	256	C-SHEL	jacobi-2d	828203	1503688	774225	1460711	1099387	296	100	42977
4	256	C-SHEL	lu	14694006	1542529	10259	861444	833801	3	3	681085
4	256	C-SHEL	ludcmp	14936982	1467924	10994	1065380	1032152	261	261	402544
4	256	C-SHEL	mvt	161420	19660	534	19660	19660	131	27	0
4	256	PRL	2mm	12860540	884384	5239	877128	859495	1	1	7256
4	256	PRL	3mm	20163933	1340936	7832	1338552	1304086	0	0	2384
4	256	PRL	adi	46913063	2671931	1768621	1710623	1245922	4	3	961308
4	256	PRL	atax	19278	10343	288	10343	10343	98	30	0
4	256	PRL	bicg	62065	10590	591	10590	10590	80	5	0
4	256	PRL	cholesky	79903	631609	5467	631245	606054	32	29	364
4	256	PRL	correlation	13879565	767809	35045	756177	173023	24	22	11632
4	256	PRL	covariance	13560519	1079062	34853	723174	78182	18	17	355888
4	256	PRL	deriche	3700478	1267608	537211	1079794	715692	15	10	187814
4	256	PRL	doitgen	4507382	7395	7368	7395	7395	3	3	0
4	256	PRL	durbin	3	71	0	0	0	16	15	0
4	256	PRL	fdtd-2d	18735335	2090739	900267	1663748	579375	102	102	426991
4	256	PRL	floyd-warshall	7797460	7699783	7547337	7697384	7365231	2	2	2399

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	256	PRL	gemm	111221	572025	4218	571163	546229	1	1	862
4	256	PRL	gemver	217934	31891	10417	27558	23542	316	111	4333
4	256	PRL	gesummv	26444	7608	139	7608	7608	30	17	0
4	256	PRL	gram-schmidt	28500983	394787	379769	365862	358774	242	242	28925
4	256	PRL	heat-3d	2201097	1506019	729815	1486929	1258553	34	8	19090
4	256	PRL	jacobi-1d	19019	98	0	0	0	204	2	0
4	256	PRL	jacobi-2d	825434	1506456	774614	1461497	1098242	203	97	44959
4	256	PRL	lu	14774711	1461823	10242	1041908	959716	2	2	419915
4	256	PRL	ludcmp	14868990	1535121	10700	921073	884609	542	537	614048
4	256	PRL	mvt	155295	25784	524	25784	25784	25	25	0
4	256	PRL	nussinov	16815443	1642894	8721	1197807	1150943	41	38	445087
4	256	PRL	seidel-2d	1017628	977406	970887	976618	896816	205	7	788
4	256	PRL	symm	11641664	670421	322601	524545	449283	1	1	145876
4	256	PRL	syr2k	10743897	927485	11804	584005	511243	3	3	343480
4	256	PRL	syrk	3887859	334659	3651	267405	250412	1	1	67254
4	256	PRL	trisolv	633	4826	19	4826	4826	56	50	0
4	256	PRL	trmm	7846904	296964	3084	254282	234199	0	0	42682
4	256	SHEL	2mm	12892927	851996	5248	831964	679598	2	2	20032
4	256	SHEL	3mm	20190376	1314494	7881	1284538	847457	1	1	29956
4	256	SHEL	adi	47104265	2481029	1681684	1791743	1322982	205	105	689286
4	256	SHEL	correlation	13693743	953632	35055	477940	62850	279	276	475692
4	256	SHEL	covariance	13674625	964958	35027	459793	60222	4	3	505165
4	256	SHEL	deriche	3794016	1174074	458278	1155833	660107	18	15	18241
4	256	SHEL	fdtd-2d	18812006	2028276	905045	1955953	1138023	108	77	72323
4	256	SHEL	gemver	217529	32295	10418	27499	23585	211	110	4796
4	256	SHEL	heat-3d	2190891	1491526	729583	1489903	1406079	110	13	1623
4	256	SHEL	jacobi-2d	863997	1467894	771682	1464546	993564	298	92	3348
4	256	SHEL	lu	14687693	1548842	10259	869663	841398	3	3	679179
4	256	SHEL	ludcmp	14849255	1555651	11193	891665	853262	262	257	663986
4	256	SHEL	mvt	161418	19662	535	19662	19662	131	27	0
4	512	CLAM	2mm	12793709	951215	5497	811872	654020	1	1	139343
4	512	CLAM	3mm	20025004	1479865	7771	1194276	953445	0	0	285589
4	512	CLAM	adi	46858230	2726764	1796970	1701730	1159993	104	3	1025034
4	512	CLAM	atax	19607	10014	280	10014	10014	71	6	0
4	512	CLAM	bicg	61633	11022	1227	11022	11022	80	5	0
4	512	CLAM	cholesky	89761	621751	5468	597564	312785	5	5	24187
4	512	CLAM	correlation	13640567	1006807	35072	457578	61037	24	23	549229
4	512	CLAM	covariance	13639372	1000209	35021	457161	63500	18	17	543048
4	512	CLAM	deriche	3377760	1590326	753593	503747	261198	15	12	1086579
4	512	CLAM	doitgen	4507019	7758	7542	7758	7758	3	3	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	CLAM	durbin	3	71	0	0	0	16	15	0
4	512	CLAM	fdtd-2d	18727612	2098462	898774	1675115	898537	0	0	423347
4	512	CLAM	floyd-warshall	7793920	7703323	7553524	7695591	6644030	2	2	7732
4	512	CLAM	gemm	110346	572900	4726	567742	304535	1	1	5158
4	512	CLAM	gemver	219142	30683	10425	29636	24979	712	138	1047
4	512	CLAM	gesummv	25166	8886	410	8886	8886	30	17	0
4	512	CLAM	gram-schmidt	28465253	430517	390929	349376	293513	242	242	81141
4	512	CLAM	heat-3d	2199015	1508101	729838	1486231	1236601	29	7	21870
4	512	CLAM	jacobi-1d	19019	98	0	0	0	307	2	0
4	512	CLAM	jacobi-2d	825113	1506777	774553	1460313	1087036	301	99	46464
4	512	CLAM	lu	14687303	1549231	10254	809276	769064	2	2	739955
4	512	CLAM	ludcmp	14910308	1493803	10548	1014306	928694	1206	1124	479497
4	512	CLAM	mvt	161261	19818	590	19715	19698	128	26	103
4	512	CLAM	nussinov	16783278	1675059	8720	1180110	1127299	41	38	494949
4	512	CLAM	seidel-2d	1015108	979926	973229	975181	595802	306	107	4745
4	512	CLAM	symm	11596579	715506	340582	469181	384552	1	1	246325
4	512	CLAM	syr2k	10498891	1172491	18701	500837	452849	3	3	671654
4	512	CLAM	syrk	3876802	345716	4258	251501	228372	1	1	94215
4	512	CLAM	trisolv	643	4816	26	4816	4816	56	50	0
4	512	CLAM	trmm	7822570	321298	3080	232281	221516	0	0	89017
4	512	C-SHEL	2mm	12892276	852647	5435	831506	612809	2	2	21141
4	512	C-SHEL	3mm	20191418	1313452	8668	1290238	949268	875	2	23214
4	512	C-SHEL	adi	47198953	2386341	1645043	1854523	1617717	404	204	531818
4	512	C-SHEL	correlation	13694412	952963	35112	479191	64851	279	276	473772
4	512	C-SHEL	covariance	13669700	969883	35024	460229	63282	4	3	509654
4	512	C-SHEL	deriche	3770132	1197958	470712	1191051	931400	18	15	6907
4	512	C-SHEL	fdtd-2d	18820414	2019868	902685	1967869	1514098	108	107	51999
4	512	C-SHEL	gemver	217091	32733	10608	29480	22531	292	86	3253
4	512	C-SHEL	heat-3d	2167291	1515126	729898	1482755	1156637	110	110	32371
4	512	C-SHEL	jacobi-2d	824806	1507085	774486	1459326	1103408	400	198	47759
4	512	C-SHEL	lu	14723520	1513015	10258	939362	904209	3	3	573653
4	512	C-SHEL	ludcmp	14850755	1554151	11145	941119	897202	395	394	613032
4	512	C-SHEL	mvt	161388	19692	520	19692	19692	131	27	0
4	512	PRL	2mm	12862803	882121	5437	881022	878749	1	1	1099
4	512	PRL	3mm	20147487	1357382	7753	1331876	1061408	0	0	25506
4	512	PRL	adi	46934089	2650905	1760126	1725364	1251894	104	3	925541
4	512	PRL	atax	19309	10312	310	10312	10312	71	6	0
4	512	PRL	bicg	61633	11022	1227	11022	11022	80	5	0
4	512	PRL	cholesky	70781	640731	5452	640731	640731	5	5	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	512	PRL	correlation	13560097	1087277	34894	828013	115933	24	23	259264
4	512	PRL	covariance	13847551	792030	35021	781634	157939	18	18	10396
4	512	PRL	deriche	3678398	1289688	548228	1101949	737975	15	10	187739
4	512	PRL	doitgen	4507098	7679	7462	7679	7679	3	3	0
4	512	PRL	durbin	3	71	0	0	0	16	15	0
4	512	PRL	fdtd-2d	18731501	2094573	898728	1684381	916958	0	0	410192
4	512	PRL	floyd-warshall	7793920	7703323	7553524	7695591	6644030	2	2	7732
4	512	PRL	gemm	111676	571570	4761	571519	567003	1	1	51
4	512	PRL	gemver	219577	30248	10298	29833	27039	717	138	415
4	512	PRL	gesummv	24955	9097	616	9097	9097	30	17	0
4	512	PRL	gram-schmidt	28484636	411134	385569	359086	334406	242	242	52048
4	512	PRL	heat-3d	2200446	1506670	729817	1487849	1262770	23	7	18821
4	512	PRL	jacobi-1d	19019	98	0	0	0	307	2	0
4	512	PRL	jacobi-2d	826253	1505637	774482	1463946	1112959	301	93	41691
4	512	PRL	lu	14732201	1504333	10254	961111	928974	2	2	543222
4	512	PRL	ludcmp	14921769	1482342	10529	1045257	962296	1207	1125	437085
4	512	PRL	mvt	161411	19668	517	19668	19668	130	26	0
4	512	PRL	nussinov	16832303	1626034	8720	1211068	1166562	41	38	414966
4	512	PRL	seidel-2d	1017237	977797	972468	977797	977797	306	107	0
4	512	PRL	symm	11658130	653955	314679	537916	459828	1	1	116039
4	512	PRL	syr2k	10782905	888477	10262	609797	491649	3	3	278680
4	512	PRL	syrk	3893308	329210	3452	276189	260084	1	1	53021
4	512	PRL	trisolv	633	4826	19	4826	4826	56	50	0
4	512	PRL	trmm	7837772	306096	3081	250580	244563	0	0	55516
4	512	SHEL	2mm	12892276	852647	5435	831506	612809	2	2	21141
4	512	SHEL	3mm	20191418	1313452	8668	1290238	949268	875	2	23214
4	512	SHEL	adi	47133736	2451558	1671025	1806954	1359761	404	204	644604
4	512	SHEL	correlation	13693039	954336	35105	478945	64905	279	276	475391
4	512	SHEL	covariance	13669386	970197	35026	460151	63543	4	3	510046
4	512	SHEL	deriche	3792426	1175664	458845	1154594	664022	18	15	21070
4	512	SHEL	fdtd-2d	18812947	2027335	904411	1959384	1125994	108	107	67951
4	512	SHEL	gemver	217270	32554	10601	29956	23801	290	86	2598
4	512	SHEL	heat-3d	2190845	1491572	728809	1491400	1481688	110	40	172
4	512	SHEL	jacobi-2d	862500	1469391	772265	1464469	1152767	400	191	4922
4	512	SHEL	lu	14712574	1523961	10258	930452	892337	3	3	593509
4	512	SHEL	ludcmp	14834365	1570541	11194	881157	834052	396	395	689384
4	512	SHEL	mvt	161388	19692	520	19692	19692	131	27	0
4	1024	CLAM	2mm	12794773	950151	5986	815850	668329	1414	2	134301
4	1024	CLAM	3mm	20022351	1482518	9646	1198205	954556	2267	2	284313

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	CLAM	adi	47064865	2520129	1700065	1762821	1514533	104	3	757308
4	1024	CLAM	atax	19419	10202	287	10202	10202	379	202	0
4	1024	CLAM	bicg	61560	11095	865	11095	11095	80	5	0
4	1024	CLAM	cholesky	93036	618476	5467	594552	311320	32	29	23924
4	1024	CLAM	correlation	13643319	1004055	35140	462152	63043	1126	23	541903
4	1024	CLAM	covariance	13646088	993493	35021	458394	63863	18	17	535099
4	1024	CLAM	deriche	3355386	1612700	772123	444099	258266	15	12	1168601
4	1024	CLAM	doitgen	4505069	9708	8560	9708	9708	2006	937	0
4	1024	CLAM	durbin	3	71	0	0	0	16	15	0
4	1024	CLAM	fdtd-2d	18739340	2086734	898834	1675949	1039736	102	102	410785
4	1024	CLAM	floyd-warshall	7784668	7712575	7556021	7677357	4274954	2	2	35218
4	1024	CLAM	gemm	110334	572912	4458	567309	287702	1	1	5603
4	1024	CLAM	gemver	219039	30786	10414	30592	29720	632	534	194
4	1024	CLAM	gesummv	25332	8720	541	8720	8720	30	17	0
4	1024	CLAM	gram-schmidt	28468597	427173	389210	350763	275769	1954	1924	76410
4	1024	CLAM	heat-3d	2197506	1509610	729664	1489115	1242424	32	8	20495
4	1024	CLAM	jacobi-1d	19019	98	0	0	0	3450	17	0
4	1024	CLAM	jacobi-2d	824268	1507622	774570	1461116	1093046	301	98	46506
4	1024	CLAM	lu	14732062	1504472	10254	973871	927920	2	2	530601
4	1024	CLAM	ludcmp	14884001	1520110	11025	967997	928946	1507	1489	552113
4	1024	CLAM	mvt	161424	19655	529	19655	19655	109	0	0
4	1024	CLAM	nussinov	16762390	1695947	8720	1160685	971775	41	38	535262
4	1024	CLAM	seidel-2d	1017315	977719	972381	977719	977719	306	107	0
4	1024	CLAM	symm	11526944	785141	365241	373510	348014	1	1	411631
4	1024	CLAM	syr2k	10544175	1127207	19163	511147	472926	3	3	616060
4	1024	CLAM	syrk	3868374	354144	6656	246813	221196	1	1	107331
4	1024	CLAM	trisolv	633	4826	19	4826	4826	56	50	0
4	1024	CLAM	trmm	7825561	318307	3076	229988	215235	0	0	88319
4	1024	C-SHEL	2mm	12898092	846831	5819	842194	816797	1665	3	4637
4	1024	C-SHEL	3mm	20190089	1314781	8169	1287694	902840	1	1	27087
4	1024	C-SHEL	adi	47295797	2289497	1612801	1858491	1647713	604	304	431006
4	1024	C-SHEL	correlation	13691095	956280	35992	480957	66926	2701	1969	475323
4	1024	C-SHEL	covariance	13673008	966575	35027	459627	63332	4	3	506948
4	1024	C-SHEL	deriche	3676607	1291483	520296	1271560	823670	18	15	19923
4	1024	C-SHEL	fdtd-2d	18801402	2038880	903539	1995039	1556736	208	207	43841
4	1024	C-SHEL	gemver	217388	32436	10734	30151	21648	617	496	2285
4	1024	C-SHEL	heat-3d	2177341	1505076	729744	1494572	1321466	110	110	10504
4	1024	C-SHEL	jacobi-2d	831137	1500754	774060	1463019	1110436	400	198	37735
4	1024	C-SHEL	lu	14692996	1543539	10259	925004	895206	3	3	618535
4	1024	C-SHEL	ludcmp	14913774	1491132	11351	1025426	935203	1054	1004	465706

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	C-SHEL	mvt	161356	19724	514	19724	19724	132	26	0
4	1024	PRL	2mm	12861950	882974	5654	882941	882878	1681	2	33
4	1024	PRL	3mm	20151343	1353526	9655	1336225	1116387	2289	2	17301
4	1024	PRL	adi	47099450	2485544	1686489	1778194	1548866	104	3	707350
4	1024	PRL	atax	19201	10420	282	10420	10420	381	198	0
4	1024	PRL	bicg	61560	11095	865	11095	11095	80	5	0
4	1024	PRL	cholesky	74342	637170	5440	637170	637170	32	29	0
4	1024	PRL	correlation	13878699	768675	35170	726924	114770	1095	23	41751
4	1024	PRL	covariance	13839546	800035	35021	715042	93388	18	17	84993
4	1024	PRL	deriche	3717328	1250758	528274	1043386	370227	15	10	207372
4	1024	PRL	doitgen	4504917	9860	8616	9860	9860	2006	1057	0
4	1024	PRL	durbin	3	71	0	0	0	16	15	0
4	1024	PRL	fdtd-2d	18740278	2085796	898765	1688625	1045296	102	102	397171
4	1024	PRL	floyd-warshall	7796588	7700655	7549898	7696962	7188556	2	2	3693
4	1024	PRL	gemm	111789	571457	4458	571183	555505	1	1	274
4	1024	PRL	gemver	219079	30746	10340	30746	30746	639	519	0
4	1024	PRL	gesummv	25218	8834	641	8834	8834	30	17	0
4	1024	PRL	gram-schmidt	28488691	407079	383273	360890	328972	1954	1923	46189
4	1024	PRL	heat-3d	2206964	1500152	721275	1500152	1500152	43	8	0
4	1024	PRL	jacobi-1d	19019	98	0	0	0	3450	17	0
4	1024	PRL	jacobi-2d	825454	1506436	774471	1465034	1115768	301	90	41402
4	1024	PRL	lu	14742072	1494462	10255	995122	951416	2	2	499340
4	1024	PRL	ludcmp	14892802	1511309	11002	989027	952159	1510	1492	522282
4	1024	PRL	mvt	161438	19641	505	19641	19641	106	1	0
4	1024	PRL	nussinov	16817110	1641227	8721	1194905	1149124	41	38	446322
4	1024	PRL	seidel-2d	1017353	977681	974864	977681	977681	207	107	0
4	1024	PRL	symm	11595631	716454	338231	455537	379469	1	1	260917
4	1024	PRL	syr2k	10826595	844787	9636	640652	524815	3	3	204135
4	1024	PRL	syrk	3890189	332329	5827	278910	259486	1	1	53419
4	1024	PRL	trisolv	633	4826	19	4826	4826	56	50	0
4	1024	PRL	trmm	7840203	303665	3075	251094	240970	0	0	52571
4	1024	SHEL	2mm	12898092	846831	5819	842194	816797	1665	3	4637
4	1024	SHEL	3mm	20190223	1314647	8175	1287890	897141	1	1	26757
4	1024	SHEL	adi	47205963	2379331	1644522	1827152	1366901	604	304	552179
4	1024	SHEL	correlation	13690528	956847	36086	480958	64886	2613	2151	475889
4	1024	SHEL	covariance	13672337	967246	35027	459365	63414	4	3	507881
4	1024	SHEL	deriche	3789435	1178655	463453	1150397	568794	18	15	28258
4	1024	SHEL	fdtd-2d	18813186	2027096	905238	1958114	1145068	208	207	68982
4	1024	SHEL	gemver	217507	32317	10733	30307	21867	618	497	2010
4	1024	SHEL	heat-3d	2189439	1492978	727112	1492978	1492978	110	15	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
4	1024	SHEL	jacobi-2d	860270	1471621	772131	1465419	966431	400	189	6202
4	1024	SHEL	lu	14700876	1535659	10258	913963	873073	3	3	621696
4	1024	SHEL	ludcmp	14905665	1499241	11392	1018802	931640	1055	1004	480439
4	1024	SHEL	mvt	161355	19725	515	19725	19725	132	26	0
5	64	CLAM	2mm	12787126	957798	5154	802693	645276	1	1	155105
5	64	CLAM	3mm	20030398	1474471	7636	1193778	950288	0	0	280693
5	64	CLAM	adi	46875322	2709672	1783548	1686996	1197822	105	3	1022676
5	64	CLAM	atax	19719	9902	251	9902	9902	70	3	0
5	64	CLAM	bicg	62689	9966	199	9966	9966	46	27	0
5	64	CLAM	cholesky	94168	617344	5468	591979	300841	33	30	25365
5	64	CLAM	correlation	13641603	1005771	35036	459674	63989	38	37	546097
5	64	CLAM	covariance	13640161	999420	35017	456992	63292	3	2	542428
5	64	CLAM	deriche	3387436	1580650	747694	513143	258174	16	13	1067507
5	64	CLAM	doitgen	4507324	7453	7392	7453	7453	4	3	0
5	64	CLAM	durbin	3	71	0	0	0	42	41	0
5	64	CLAM	fdtd-2d	18719865	2106209	901392	1688101	947949	102	102	418108
5	64	CLAM	floyd-warshall	7725723	7771520	7642301	7586626	2189921	2	2	184894
5	64	CLAM	gemm	110497	572749	4014	567718	411189	1	1	5031
5	64	CLAM	gemver	218823	31002	10540	28008	21409	109	108	2994
5	64	CLAM	gesummv	26529	7523	166	7523	7523	2	1	0
5	64	CLAM	gram-schmidt	28475165	420605	388153	351985	304697	2	2	68620
5	64	CLAM	heat-3d	2197062	1510054	729853	1482844	1172799	9	8	27210
5	64	CLAM	jacobi-1d	19019	98	0	0	0	309	4	0
5	64	CLAM	jacobi-2d	824549	1507341	774498	1457223	1073952	96	1	50118
5	64	CLAM	lu	14698847	1537687	10254	783546	732101	1	1	754141
5	64	CLAM	ludcmp	14844455	1559656	10762	776712	730054	44	41	782944
5	64	CLAM	mvt	161017	20062	584	19675	19410	25	25	387
5	64	CLAM	nussinov	16768889	1689448	8720	1166222	1060552	4	4	523226
5	64	CLAM	seidel-2d	1017444	977590	970746	976910	914600	6	6	680
5	64	CLAM	symm	11585477	726608	344644	452477	369845	1	1	274131
5	64	CLAM	syr2k	10529791	1141591	18005	504627	472672	3	3	636964
5	64	CLAM	syrk	3869310	353208	4428	235030	213609	0	0	118178
5	64	CLAM	trisolv	633	4826	19	4826	4826	3	2	0
5	64	CLAM	trmm	7832331	311537	3071	232298	210569	0	0	79239
5	64	C-SHEL	2mm	12894802	850121	5234	832968	696747	2	2	17153
5	64	C-SHEL	3mm	20193155	1311715	7587	1286245	916263	1	1	25470
5	64	C-SHEL	adi	47211769	2373525	1635529	1859042	1662399	106	105	514483
5	64	C-SHEL	correlation	13694481	952894	35049	477450	62554	40	39	475444
5	64	C-SHEL	covariance	13673195	966388	35030	459877	62502	20	19	506511

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	C-SHEL	deriche	3780935	1187155	465511	1179263	841270	20	16	7892
5	64	C-SHEL	fdtd-2d	18816990	2023292	902887	1966686	1540360	8	7	56606
5	64	C-SHEL	gemver	219391	30433	10590	29459	25325	109	108	974
5	64	C-SHEL	heat-3d	2170540	1511877	729792	1484130	1185586	10	10	27747
5	64	C-SHEL	jacobi-2d	824992	1506899	774474	1460431	1108609	204	196	46468
5	64	C-SHEL	lu	14711135	1525400	10259	893070	855351	0	0	632330
5	64	C-SHEL	ludcmp	14905506	1499400	10924	1002798	969440	71	71	496602
5	64	C-SHEL	mvt	161065	20015	586	19679	19646	26	26	336
5	64	PRL	2mm	12862408	882516	5135	879136	870170	1	1	3380
5	64	PRL	3mm	20158054	1346815	7613	1335743	1185051	0	0	11072
5	64	PRL	adi	46893026	2691968	1775554	1693388	1222541	105	3	998580
5	64	PRL	atax	19714	9907	252	9907	9907	70	3	0
5	64	PRL	bicg	62635	10020	261	10020	10020	46	27	0
5	64	PRL	cholesky	81407	630105	5466	629587	592926	33	30	518
5	64	PRL	correlation	13844154	803220	35040	652870	75908	38	36	150350
5	64	PRL	covariance	13830785	808796	35024	636517	76820	3	2	172279
5	64	PRL	deriche	3660397	1307689	557385	1120062	756265	16	13	187627
5	64	PRL	doitgen	4507406	7371	7312	7371	7371	4	3	0
5	64	PRL	durbin	3	71	0	0	0	42	41	0
5	64	PRL	fdtd-2d	18721644	2104430	900638	1692628	1009674	102	102	411802
5	64	PRL	floyd-warshall	7776621	7720622	7623735	7672861	4725817	2	2	47761
5	64	PRL	gemm	111344	571902	3981	571087	552494	1	1	815
5	64	PRL	gemver	219814	30011	10416	29501	22637	109	108	510
5	64	PRL	gesummv	26472	7580	216	7580	7580	2	1	0
5	64	PRL	gram-schmidt	28487559	408211	384193	358760	336072	2	2	49451
5	64	PRL	heat-3d	2204097	1503019	729805	1489549	1287773	9	8	13470
5	64	PRL	jacobi-1d	19019	98	0	0	0	309	4	0
5	64	PRL	jacobi-2d	825869	1506021	774532	1462599	1105014	99	1	43422
5	64	PRL	lu	14748582	1487952	10252	980125	933810	1	1	507827
5	64	PRL	ludcmp	14909760	1494351	10533	992927	941584	45	43	501424
5	64	PRL	mvt	161128	19951	500	19951	19951	25	24	0
5	64	PRL	nussinov	16821659	1636678	8720	1200094	1154347	4	4	436584
5	64	PRL	seidel-2d	1018086	976948	970542	976948	976948	6	6	0
5	64	PRL	symm	11665628	646457	312011	543802	481315	1	1	102655
5	64	PRL	syr2k	10807364	864018	9265	624900	521304	3	3	239118
5	64	PRL	syrk	3892227	330291	3243	270905	253624	0	0	59386
5	64	PRL	trisolv	633	4826	19	4826	4826	3	2	0
5	64	PRL	trmm	7846250	297618	3073	253498	235387	0	0	44120
5	64	SHEL	2mm	12893580	851343	5233	831737	689503	2	2	19606
5	64	SHEL	3mm	20193155	1311715	7587	1286245	916263	1	1	25470

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	64	SHEL	adi	47072202	2513092	1694458	1781075	1290543	106	105	732017
5	64	SHEL	correlation	13693499	953876	35048	477072	59245	40	39	476804
5	64	SHEL	covariance	13671605	967978	35028	459397	62540	20	19	508581
5	64	SHEL	deriche	3794783	1173307	457750	1157156	694793	20	16	16151
5	64	SHEL	fdtd-2d	18809684	2030598	904559	1955201	1082066	8	7	75397
5	64	SHEL	gemver	219244	30580	10498	29065	20786	109	108	1515
5	64	SHEL	heat-3d	2191417	1491000	728390	1490905	1486005	10	10	95
5	64	SHEL	jacobi-2d	862310	1469581	772237	1463029	956685	211	189	6552
5	64	SHEL	lu	14699653	1536882	10259	892482	848052	0	0	644400
5	64	SHEL	ludcmp	14867371	1537535	10960	922903	872846	72	72	614632
5	64	SHEL	mvt	161402	19678	563	19678	19678	26	26	0
5	128	CLAM	2mm	12787086	957838	5277	803472	647993	1	1	154366
5	128	CLAM	3mm	20030158	1474711	7770	1197993	951439	0	0	276718
5	128	CLAM	adi	46875074	2709920	1784657	1687871	1196291	5	3	1022049
5	128	CLAM	atax	19712	9909	157	9909	9909	99	28	0
5	128	CLAM	bicg	62724	9931	226	9931	9931	46	27	0
5	128	CLAM	cholesky	93854	617658	5468	590986	291121	33	30	26672
5	128	CLAM	correlation	13641302	1006072	35044	458646	62291	39	38	547426
5	128	CLAM	covariance	13640721	998860	35020	456934	63816	0	0	541926
5	128	CLAM	deriche	3387515	1580571	747782	512661	258168	16	13	1067910
5	128	CLAM	doitgen	4507403	7374	7359	7374	7374	4	3	0
5	128	CLAM	durbin	3	71	0	0	0	42	41	0
5	128	CLAM	fdtd-2d	18733156	2092918	898561	1687713	963243	102	102	405205
5	128	CLAM	floyd-warshall	7789316	7707927	7551377	7682624	5004566	2	2	25303
5	128	CLAM	gemm	111225	572021	4493	568649	368693	1	1	3372
5	128	CLAM	gemver	219113	30712	10330	28683	20142	183	81	2029
5	128	CLAM	gesummv	26381	7671	107	7671	7671	15	1	0
5	128	CLAM	gram-schmidt	28478666	417104	386987	353581	313314	2	2	63523
5	128	CLAM	heat-3d	2200570	1506546	729827	1486353	1222338	9	8	20193
5	128	CLAM	jacobi-1d	19019	98	0	0	0	307	2	0
5	128	CLAM	jacobi-2d	824300	1507590	774614	1457336	1072465	201	100	50254
5	128	CLAM	lu	14672702	1563832	10255	749001	700290	1	1	814831
5	128	CLAM	ludcmp	14853278	1550833	10776	786145	740941	125	125	764688
5	128	CLAM	mvt	161007	20072	594	19690	19453	125	26	382
5	128	CLAM	nussinov	16778219	1680118	8721	1175084	1121345	37	34	505034
5	128	CLAM	seidel-2d	1016545	978489	972042	976199	769877	306	206	2290
5	128	CLAM	symm	11579325	732760	347396	447730	371552	1	1	285030
5	128	CLAM	syr2k	10527748	1143634	18146	503759	473039	3	3	639875
5	128	CLAM	syrk	3870294	352224	4596	243059	218577	0	0	109165
5	128	CLAM	trisolv	650	4809	20	4809	4809	124	20	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	CLAM	trmm	7831271	312597	3066	233893	212555	0	0	78704
5	128	C-SHEL	2mm	12893487	851436	5227	831825	687898	2	2	19611
5	128	C-SHEL	3mm	20196342	1308528	7630	1289993	1014487	1	1	18535
5	128	C-SHEL	adi	47185723	2399571	1650516	1843967	1628778	205	104	555604
5	128	C-SHEL	correlation	13694403	952972	35064	478082	63102	279	275	474890
5	128	C-SHEL	covariance	13672828	966755	35026	459580	62201	17	17	507175
5	128	C-SHEL	deriche	3794119	1173971	459626	1160668	784595	20	16	13303
5	128	C-SHEL	fdtd-2d	18796760	2043522	903475	1999314	1478012	108	107	44208
5	128	C-SHEL	gemver	219018	30806	10437	29359	22243	186	84	1447
5	128	C-SHEL	heat-3d	2167663	1514754	729832	1481116	1154564	10	10	33638
5	128	C-SHEL	jacobi-2d	823465	1508426	774656	1455513	1081646	201	100	52913
5	128	C-SHEL	lu	14703964	1532571	10259	874327	843246	0	0	658244
5	128	C-SHEL	ludcmp	14850914	1553992	11145	870067	839980	58	58	683925
5	128	C-SHEL	mvt	161197	19883	584	19661	19427	0	0	222
5	128	PRL	2mm	12860757	884167	5264	877606	861486	1	1	6561
5	128	PRL	3mm	20155685	1349184	7747	1334674	1138593	0	0	14510
5	128	PRL	adi	46895386	2689608	1776148	1695969	1217465	5	3	993639
5	128	PRL	atax	19712	9909	157	9909	9909	99	28	0
5	128	PRL	bicg	62733	9922	217	9922	9922	46	27	0
5	128	PRL	cholesky	81679	629833	5466	629073	583813	33	30	760
5	128	PRL	correlation	13877704	769670	35064	717523	99741	39	37	52147
5	128	PRL	covariance	13875317	764264	35024	704350	95588	0	0	59914
5	128	PRL	deriche	3666723	1301363	554009	1113472	749616	16	13	187891
5	128	PRL	doitgen	4507467	7310	7296	7310	7310	4	3	0
5	128	PRL	durbin	3	71	0	0	0	42	41	0
5	128	PRL	fdtd-2d	18735860	2090214	898561	1693533	980245	102	102	396681
5	128	PRL	floyd-warshall	7797669	7699574	7547195	7697400	7366194	2	2	2174
5	128	PRL	gemm	111799	571447	4530	570539	519013	1	1	908
5	128	PRL	gemver	219688	30137	10324	29648	28265	185	82	489
5	128	PRL	gesummv	26363	7689	112	7689	7689	15	1	0
5	128	PRL	gram-schmidt	28489218	406552	383708	359566	339699	2	2	46986
5	128	PRL	heat-3d	2210551	1496565	728596	1495876	1474832	9	8	689
5	128	PRL	jacobi-1d	19019	98	0	0	0	307	2	0
5	128	PRL	jacobi-2d	824893	1506997	774623	1460210	1087986	201	97	46787
5	128	PRL	lu	14768411	1468123	10244	1010105	920140	1	1	458018
5	128	PRL	ludcmp	14904848	1499263	10602	989734	949546	138	138	509529
5	128	PRL	mvt	152914	28165	546	28165	28165	95	25	0
5	128	PRL	nussinov	16831838	1626499	8721	1205979	1157987	37	34	420520
5	128	PRL	seidel-2d	1017677	977357	971566	977263	958699	306	206	94

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	128	PRL	symm	11666591	645494	311272	544899	476476	1	1	100595
5	128	PRL	syr2k	10773035	898347	10912	597590	510920	3	3	300757
5	128	PRL	syrk	3890873	331645	3521	270581	254073	0	0	61064
5	128	PRL	trisolv	649	4810	20	4810	4810	124	20	0
5	128	PRL	trmm	7847261	296607	3069	250532	232232	0	0	46075
5	128	SHEL	2mm	12894477	850446	5221	832843	718932	2	2	17603
5	128	SHEL	3mm	20195581	1309289	7631	1288977	984848	1	1	20312
5	128	SHEL	adi	47132727	2452567	1670266	1794476	1324403	205	104	658091
5	128	SHEL	correlation	13693543	953832	35070	477271	59158	279	276	476561
5	128	SHEL	covariance	13671689	967894	35027	459538	62456	17	17	508356
5	128	SHEL	deriche	3793457	1174633	459897	1160110	775077	20	16	14523
5	128	SHEL	fdtd-2d	18812530	2027752	904679	1959903	1168891	108	107	67849
5	128	SHEL	gemver	218821	31003	10368	28878	21833	183	84	2125
5	128	SHEL	heat-3d	2190843	1491574	729469	1490115	1423578	10	10	1459
5	128	SHEL	jacobi-2d	861961	1469930	772358	1463248	967426	199	96	6682
5	128	SHEL	lu	14697812	1538723	10259	889370	848722	0	0	649353
5	128	SHEL	ludcmp	14896526	1508380	10931	976513	901460	72	72	531867
5	128	SHEL	mvt	161422	19658	563	19658	19658	0	0	0
5	256	CLAM	2mm	12789301	955623	5279	805735	644092	1	1	149888
5	256	CLAM	3mm	20034696	1470173	7818	1199818	949956	0	0	270355
5	256	CLAM	adi	46862067	2722927	1790240	1684097	1184186	105	3	1038830
5	256	CLAM	atax	19198	10423	256	10423	10423	33	28	0
5	256	CLAM	bicg	62358	10297	412	10297	10297	46	27	0
5	256	CLAM	cholesky	93648	617864	5468	589898	290061	33	30	27966
5	256	CLAM	correlation	13643032	1004342	34939	460146	64392	279	276	544196
5	256	CLAM	covariance	13600078	1039503	34992	453351	60472	3	2	586152
5	256	CLAM	deriche	3394501	1573585	741447	529069	258253	15	12	1044516
5	256	CLAM	doitgen	4507202	7575	7418	7575	7575	4	3	0
5	256	CLAM	durbin	3	71	0	0	0	42	41	0
5	256	CLAM	fdtd-2d	18725349	2100725	900050	1652351	597283	102	102	448374
5	256	CLAM	floyd-warshall	7788573	7708670	7560341	7690149	5502095	2	2	18521
5	256	CLAM	gemm	110582	572664	4445	568673	421544	1	1	3991
5	256	CLAM	gemver	212559	37266	10343	22903	22359	309	111	14363
5	256	CLAM	gesummv	26056	7996	611	7996	7996	2	1	0
5	256	CLAM	gram-schmidt	28479468	416302	386644	355010	316993	2	2	61292
5	256	CLAM	heat-3d	2197257	1509859	729824	1483971	1187373	9	8	25888
5	256	CLAM	jacobi-1d	19019	98	0	0	0	312	4	0
5	256	CLAM	jacobi-2d	824361	1507529	774579	1457555	1076363	301	199	49974
5	256	CLAM	lu	14733428	1503106	10236	841059	779579	1	1	662047

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	CLAM	ludcmp	14821197	1582914	10974	750567	711070	709	696	832347
5	256	CLAM	mvt	160990	20089	596	19686	19538	125	26	403
5	256	CLAM	nussinov	16773117	1685220	8720	1171691	1110008	37	34	513529
5	256	CLAM	seidel-2d	1016064	978970	972988	976821	719191	206	106	2149
5	256	CLAM	symm	11575793	736292	347878	441308	366437	1	1	294984
5	256	CLAM	syr2k	10544309	1127073	17590	508276	469749	3	3	618797
5	256	CLAM	syrk	3870492	352026	4327	237798	217509	0	0	114228
5	256	CLAM	trisolv	665	4794	20	4794	4794	124	20	0
5	256	CLAM	trmm	7826593	317275	3077	228824	213850	0	0	88451
5	256	C-SHEL	2mm	12895726	849197	5333	834618	738242	2	2	14579
5	256	C-SHEL	3mm	20193602	1311268	7695	1286065	907156	1	1	25203
5	256	C-SHEL	adi	47218855	2366439	1634379	1860983	1663711	206	5	505456
5	256	C-SHEL	correlation	13691494	955881	36022	479516	63098	279	274	476365
5	256	C-SHEL	covariance	13673487	966096	35029	459086	60835	20	19	507010
5	256	C-SHEL	deriche	3758730	1209360	477949	1192844	798158	19	15	16516
5	256	C-SHEL	fdtd-2d	18803406	2036876	904076	1982320	1539404	8	7	54556
5	256	C-SHEL	gemver	212092	37732	10435	23397	22806	620	516	14335
5	256	C-SHEL	heat-3d	2170040	1512377	729868	1484357	1180490	10	10	28020
5	256	C-SHEL	jacobi-2d	824836	1507055	774499	1460664	1106545	100	1	46391
5	256	C-SHEL	lu	14679562	1556973	10259	874755	834044	0	0	682218
5	256	C-SHEL	ludcmp	14851167	1553739	11197	926046	899720	406	404	627693
5	256	C-SHEL	mvt	161037	20043	587	19701	19606	26	26	342
5	256	PRL	2mm	12862612	882312	5269	880455	875025	1	1	1857
5	256	PRL	3mm	20158218	1346651	7798	1337128	1196468	0	0	9523
5	256	PRL	adi	46908005	2676989	1769085	1699772	1247530	105	3	977217
5	256	PRL	atax	19198	10423	256	10423	10423	33	28	0
5	256	PRL	bicg	62358	10297	412	10297	10297	46	27	0
5	256	PRL	cholesky	80313	631199	5468	630910	607569	33	30	289
5	256	PRL	correlation	13884038	763336	35077	747870	140057	279	275	15466
5	256	PRL	covariance	13539939	1099642	34848	694414	68489	3	2	405228
5	256	PRL	deriche	3682066	1286020	546488	1098154	734310	15	11	187866
5	256	PRL	doitgen	4507277	7500	7348	7500	7500	4	3	0
5	256	PRL	durbin	3	71	0	0	0	42	41	0
5	256	PRL	fdtd-2d	18727984	2098090	899454	1668114	881776	102	102	429976
5	256	PRL	floyd-warshall	7788573	7708670	7560341	7690149	5502095	2	2	18521
5	256	PRL	gemm	111224	572022	4340	571832	568008	1	1	190
5	256	PRL	gemver	217422	32403	10326	28193	23140	314	111	4210
5	256	PRL	gesummv	26042	8010	614	8010	8010	2	1	0
5	256	PRL	gram-schmidt	28501720	394050	379378	366554	360039	2	2	27496

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	256	PRL	heat-3d	2206799	1500317	729754	1493255	1364809	9	8	7062
5	256	PRL	jacobi-1d	19019	98	0	0	0	312	4	0
5	256	PRL	jacobi-2d	825601	1506289	774488	1462978	1104841	301	198	43311
5	256	PRL	lu	14771716	1464818	10232	1027632	947366	1	1	437186
5	256	PRL	ludcmp	14855134	1548977	10875	896035	855339	721	638	652942
5	256	PRL	mvt	155635	25444	554	25444	25444	91	26	0
5	256	PRL	nussinov	16817535	1640802	8721	1199440	1153055	37	34	441362
5	256	PRL	seidel-2d	1016838	978196	972908	977998	947117	108	106	198
5	256	PRL	symm	11669993	642092	310253	546680	482687	1	1	95412
5	256	PRL	syr2k	10868805	802577	7095	657082	532228	3	3	145495
5	256	PRL	syrk	3891667	330851	3146	269475	252926	0	0	61376
5	256	PRL	trisolv	665	4794	20	4794	4794	124	20	0
5	256	PRL	trmm	7840778	303090	3079	248266	237285	0	0	54824
5	256	SHEL	2mm	12895726	849197	5333	834618	738242	2	2	14579
5	256	SHEL	3mm	20193209	1311661	7694	1285605	905259	1	1	26056
5	256	SHEL	adi	47126132	2459162	1674158	1801032	1361778	206	5	658130
5	256	SHEL	correlation	13691524	955851	36174	479607	61485	279	276	476244
5	256	SHEL	covariance	13672384	967199	35029	459581	59644	20	19	507618
5	256	SHEL	deriche	3792480	1175610	459995	1152773	619440	19	15	22837
5	256	SHEL	fdtd-2d	18810298	2029984	905077	1954952	1118517	8	7	75032
5	256	SHEL	gemver	211875	37949	10438	23405	22775	624	480	14544
5	256	SHEL	heat-3d	2191333	1491084	728907	1490973	1479964	10	10	111
5	256	SHEL	jacobi-2d	862123	1469768	772348	1464207	1127214	93	1	5561
5	256	SHEL	lu	14709410	1527125	10259	913004	872519	0	0	614121
5	256	SHEL	ludcmp	14922143	1482763	11002	1023750	886553	405	394	459013
5	256	SHEL	mvt	161385	19695	577	19695	19695	26	26	0
5	512	CLAM	2mm	12786057	958867	5542	804622	648939	1	1	154245
5	512	CLAM	3mm	20028623	1476246	8639	1207271	955799	858	0	268975
5	512	CLAM	adi	46912822	2672172	1768118	1708440	1249014	105	3	963732
5	512	CLAM	atax	18909	10712	712	10712	10712	390	110	0
5	512	CLAM	bicg	61757	10898	1115	10898	10898	1	1	0
5	512	CLAM	cholesky	92830	618682	5468	593077	302617	33	30	25605
5	512	CLAM	correlation	13642989	1004385	34966	461054	64798	279	276	543331
5	512	CLAM	covariance	13638194	1001387	35020	454241	60435	3	2	547146
5	512	CLAM	deriche	3375031	1593055	772969	491956	258870	16	13	1101099
5	512	CLAM	doitgen	4507287	7490	7376	7490	7490	4	3	0
5	512	CLAM	durbin	3	71	0	0	0	42	41	0
5	512	CLAM	fdtd-2d	18739602	2086472	898777	1691433	959339	102	102	395039
5	512	CLAM	floyd-warshall	7788742	7708501	7560350	7690631	5566194	2	2	17870

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	CLAM	gemm	111298	571948	4512	568787	383187	1	1	3161
5	512	CLAM	gemver	219112	30713	10446	30322	29678	634	533	391
5	512	CLAM	gesummv	24873	9179	706	9179	9179	1207	1086	0
5	512	CLAM	gram-schmidt	28463415	432355	392588	350162	296005	242	242	82193
5	512	CLAM	heat-3d	2204066	1503050	729742	1491229	1299925	15	9	11821
5	512	CLAM	jacobi-1d	19019	98	0	0	0	1036	9	0
5	512	CLAM	jacobi-2d	822613	1509277	774652	1457057	1065608	204	196	52220
5	512	CLAM	lu	14732004	1504530	10241	841243	806355	1	1	663287
5	512	CLAM	ludcmp	14887321	1516790	10815	855845	813793	804	725	660945
5	512	CLAM	mvt	160576	20503	589	16184	10627	25	25	4319
5	512	CLAM	nussinov	16780867	1677470	8721	1180601	1126299	37	34	496869
5	512	CLAM	seidel-2d	1017412	977622	971666	977622	977622	2706	2606	0
5	512	CLAM	symm	11570016	742069	350695	440736	370192	1	1	301333
5	512	CLAM	syr2k	10550288	1121094	17844	516584	468126	3	3	604510
5	512	CLAM	syrk	3872375	350143	4184	242256	221357	0	0	107887
5	512	CLAM	trisolv	633	4826	19	4826	4826	124	20	0
5	512	CLAM	trmm	7831539	312329	3136	233809	206477	675	0	78520
5	512	C-SHEL	2mm	12890319	854604	5444	832722	671710	2	2	21882
5	512	C-SHEL	3mm	20193995	1310875	7824	1291205	989815	1	1	19670
5	512	C-SHEL	adi	47171574	2413720	1658953	1839295	1605552	506	205	574425
5	512	C-SHEL	correlation	13706441	940934	35065	491500	62203	1720	1719	449434
5	512	C-SHEL	covariance	13654490	985093	35028	459144	63266	20	19	525949
5	512	C-SHEL	deriche	3598052	1370038	554700	1361546	1034783	20	15	8492
5	512	C-SHEL	fdtd-2d	18817748	2022534	902792	1970044	1502765	307	205	52490
5	512	C-SHEL	gemver	216941	32883	10631	31579	25101	651	476	1304
5	512	C-SHEL	heat-3d	2179710	1502707	729794	1491470	1291685	110	110	11237
5	512	C-SHEL	jacobi-2d	831192	1500699	774046	1462486	1117245	100	100	38213
5	512	C-SHEL	lu	14684598	1551937	10258	900091	865738	399	399	651846
5	512	C-SHEL	ludcmp	14846415	1558491	11256	909267	862777	1500	1459	649224
5	512	C-SHEL	mvt	161245	19835	592	19710	19670	129	27	125
5	512	PRL	2mm	12861800	883124	5465	881825	878921	1	1	1299
5	512	PRL	3mm	20159193	1345676	8626	1341056	1274027	883	0	4620
5	512	PRL	adi	46937738	2647256	1756226	1714678	1285696	105	3	932578
5	512	PRL	atax	18909	10712	711	10712	10712	390	110	0
5	512	PRL	bicg	61757	10898	1115	10898	10898	1	1	0
5	512	PRL	cholesky	75650	635862	5455	635862	635862	33	30	0
5	512	PRL	correlation	13874912	772462	35044	766336	197518	279	275	6126
5	512	PRL	covariance	13846423	793158	35021	736351	101596	3	2	56807
5	512	PRL	deriche	3451757	1516329	700703	1225624	885065	16	11	290705
5	512	PRL	doitgen	4507371	7406	7313	7406	7406	4	3	0

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	512	PRL	durbin	3	71	0	0	0	42	41	0
5	512	PRL	fdtd-2d	18744760	2081314	898731	1702532	1009013	102	102	378782
5	512	PRL	floyd-warshall	7788742	7708501	7560350	7690631	5566194	2	2	17870
5	512	PRL	gemm	111855	571391	4522	571373	570223	1	1	18
5	512	PRL	gemver	219363	30462	10407	30462	30462	638	533	0
5	512	PRL	gesummv	24881	9171	706	9171	9171	1207	1066	0
5	512	PRL	gram-schmidt	28485528	410242	386095	359744	333183	242	242	50498
5	512	PRL	heat-3d	2211537	1495579	722859	1495579	1495579	10	9	0
5	512	PRL	jacobi-1d	19019	98	0	0	0	1036	9	0
5	512	PRL	jacobi-2d	825631	1506259	774359	1468123	1133189	206	194	38136
5	512	PRL	lu	14765271	1471263	10238	1007013	971060	1	1	464250
5	512	PRL	ludcmp	14927698	1476413	10700	1032524	993878	804	728	443889
5	512	PRL	mvt	160599	20480	590	18149	11259	25	25	2331
5	512	PRL	nussinov	16844057	1614280	8721	1217972	1174531	37	34	396308
5	512	PRL	seidel-2d	1017429	977605	971905	977605	977605	2706	2606	0
5	512	PRL	symm	11655380	656705	315841	535661	465073	1	1	121044
5	512	PRL	syr2k	10776459	894923	10673	620407	520991	3	3	274516
5	512	PRL	syrk	3892339	330179	3251	272814	255755	0	0	57365
5	512	PRL	trisolv	633	4826	19	4826	4826	124	20	0
5	512	PRL	trmm	7848393	295475	3139	255772	231449	675	0	39703
5	512	SHEL	2mm	12891292	853631	5447	833515	681680	2	2	20116
5	512	SHEL	3mm	20193995	1310875	7824	1291205	989815	1	1	19670
5	512	SHEL	adi	47084429	2500865	1692127	1788185	1300231	506	205	712680
5	512	SHEL	correlation	13705847	941528	35069	490007	58586	1720	1720	451521
5	512	SHEL	covariance	13638516	1001067	35027	457763	63486	20	19	543304
5	512	SHEL	deriche	3793695	1174395	458237	1156323	655102	20	16	18072
5	512	SHEL	fdtd-2d	18811113	2029169	905031	1955598	1111527	307	205	73571
5	512	SHEL	gemver	216995	32829	10632	31611	25043	652	478	1218
5	512	SHEL	heat-3d	2189786	1492631	727893	1492631	1492631	110	45	0
5	512	SHEL	jacobi-2d	862919	1468972	772257	1465499	1234801	107	93	3473
5	512	SHEL	lu	14727953	1508582	10251	936735	837955	399	399	571847
5	512	SHEL	ludcmp	14838346	1566560	11265	885061	854319	1501	1463	681499
5	512	SHEL	mvt	161398	19682	519	19682	19682	131	27	0
5	1024	CLAM	2mm	12790457	954467	5425	811890	665261	1	1	142577
5	1024	CLAM	3mm	20022779	1482090	9037	1199001	956180	3656	2365	283089
5	1024	CLAM	adi	46923670	2661324	1764431	1718616	1265150	105	3	942708
5	1024	CLAM	atax	19267	10354	298	10354	10354	325	178	0
5	1024	CLAM	bicg	61586	11069	863	11069	11069	46	27	0
5	1024	CLAM	cholesky	89057	622455	5468	598442	317985	33	30	24013

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	CLAM	correlation	13658708	988666	35067	462999	65260	279	276	525667
5	1024	CLAM	covariance	13639295	1000286	34965	457841	64113	3	2	542445
5	1024	CLAM	deriche	3369967	1598119	761849	476705	258152	16	13	1121414
5	1024	CLAM	doitgen	4506622	8155	7532	8155	8155	1032	3	0
5	1024	CLAM	durbin	3	71	0	0	0	42	41	0
5	1024	CLAM	fdtd-2d	18730219	2095855	901618	1672792	665839	102	102	423063
5	1024	CLAM	floyd-warshall	7794611	7702632	7552691	7696027	6873375	2	2	6605
5	1024	CLAM	gemm	110573	572673	4516	567661	314234	1	1	5012
5	1024	CLAM	gemver	218098	31727	10427	31483	30700	633	526	244
5	1024	CLAM	gesummv	26233	7819	356	7819	7819	15	1	0
5	1024	CLAM	gram-schmidt	28489113	406657	383785	359082	326416	836	460	47575
5	1024	CLAM	heat-3d	2198449	1508667	729648	1491597	1241656	21	9	17070
5	1024	CLAM	jacobi-1d	19019	98	0	0	0	1134	7	0
5	1024	CLAM	jacobi-2d	825436	1506454	774472	1464986	1106407	302	198	41468
5	1024	CLAM	lu	14723367	1513167	10250	855480	810644	1	1	657687
5	1024	CLAM	ludcmp	14888567	1515544	10745	873197	830192	1469	1449	642347
5	1024	CLAM	mvt	161153	19926	589	19745	19678	128	26	181
5	1024	CLAM	nussinov	16780441	1677896	8723	1190542	1136611	37	34	487354
5	1024	CLAM	seidel-2d	1017110	977924	971984	977636	926251	306	206	288
5	1024	CLAM	symm	11581410	730675	340305	416886	339306	1	1	313789
5	1024	CLAM	syr2k	10637289	1034093	15460	540315	468546	3	3	493778
5	1024	CLAM	syrk	3870438	352080	5410	250966	227182	0	0	101114
5	1024	CLAM	trisolv	633	4826	19	4826	4826	124	20	0
5	1024	CLAM	trmm	7832873	310995	3075	236819	210395	0	0	74176
5	1024	C-SHEL	2mm	12897205	847718	5822	839311	789991	2	2	8407
5	1024	C-SHEL	3mm	20194449	1310421	7913	1294305	1053319	1	1	16116
5	1024	C-SHEL	adi	47227683	2357611	1637145	1841629	1625864	605	304	515982
5	1024	C-SHEL	correlation	13680195	967180	35071	465506	65085	279	276	501674
5	1024	C-SHEL	covariance	13633007	1006576	35027	458937	66036	3947	3898	547639
5	1024	C-SHEL	deriche	3767612	1200478	471862	1196570	1017747	20	16	3908
5	1024	C-SHEL	fdtd-2d	18802265	2038017	903399	1993900	1616574	308	206	44117
5	1024	C-SHEL	gemver	215622	34202	10401	28504	20691	640	444	5698
5	1024	C-SHEL	heat-3d	2174777	1507640	729759	1496592	1322603	110	110	11048
5	1024	C-SHEL	jacobi-2d	827272	1504619	774329	1460823	1101752	400	201	43796
5	1024	C-SHEL	lu	14713327	1523208	10259	982244	933492	0	0	540964
5	1024	C-SHEL	ludcmp	14937688	1467218	10955	1064062	1028360	2003	1936	403156
5	1024	C-SHEL	mvt	161241	19839	589	19826	19813	130	27	13
5	1024	PRL	2mm	12861609	883315	5408	883222	883107	1	1	93
5	1024	PRL	3mm	20151941	1352928	8948	1331211	1086523	3653	2365	21717

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	PRL	adi	46986091	2598903	1735056	1738940	1372258	105	3	859963
5	1024	PRL	atax	19267	10354	298	10354	10354	325	178	0
5	1024	PRL	bicg	61586	11069	863	11069	11069	46	27	0
5	1024	PRL	cholesky	71560	639952	5461	639920	637213	33	30	32
5	1024	PRL	correlation	13811440	835934	35008	828249	495282	279	266	7685
5	1024	PRL	covariance	13847088	792493	35021	788046	352745	3	2	4447
5	1024	PRL	deriche	3697256	1270830	538860	1083160	719217	16	12	187670
5	1024	PRL	doitgen	4506696	8081	7471	8081	8081	1032	3	0
5	1024	PRL	durbin	3	71	0	0	0	42	41	0
5	1024	PRL	fdtd-2d	18735207	2090867	899847	1683567	864935	102	102	407300
5	1024	PRL	floyd-warshall	7794611	7702632	7552691	7696027	6873375	2	2	6605
5	1024	PRL	gemm	111874	571372	4496	571372	571372	1	1	0
5	1024	PRL	gemver	217692	32133	10386	32133	32133	654	457	0
5	1024	PRL	gesummv	26220	7832	384	7832	7832	15	1	0
5	1024	PRL	gram-schmidt	28504202	391568	378979	366405	354851	849	425	25163
5	1024	PRL	heat-3d	2204531	1502585	726465	1502585	1502585	10	9	0
5	1024	PRL	jacobi-1d	19019	98	0	0	0	1134	7	0
5	1024	PRL	jacobi-2d	833083	1498807	773691	1488546	1350413	308	192	10261
5	1024	PRL	lu	14753290	1483244	10249	1016402	973842	1	1	466842
5	1024	PRL	ludcmp	14917636	1486475	10627	1024535	983359	1466	1441	461940
5	1024	PRL	mvt	161384	19695	527	19695	19695	130	26	0
5	1024	PRL	nussinov	16825424	1632913	8722	1218285	1171610	37	34	414628
5	1024	PRL	seidel-2d	1017231	977803	974481	977803	977803	306	206	0
5	1024	PRL	symm	11669785	642300	310015	549849	487492	1	1	92451
5	1024	PRL	syr2k	10761019	910363	11716	595152	514761	3	3	315211
5	1024	PRL	syrk	3889397	333121	4540	277948	259666	0	0	55173
5	1024	PRL	trisolv	633	4826	19	4826	4826	124	20	0
5	1024	PRL	trmm	7846008	297860	3070	256629	232552	0	0	41231
5	1024	SHEL	2mm	12897205	847718	5822	839311	789991	2	2	8407
5	1024	SHEL	3mm	20194027	1310843	7917	1293665	1033070	1	1	17178
5	1024	SHEL	adi	47105011	2480283	1681363	1800721	1380134	605	304	679562
5	1024	SHEL	correlation	13691783	955592	35064	478545	64299	279	275	477047
5	1024	SHEL	covariance	13632518	1007065	35027	458947	65855	3949	3897	548118
5	1024	SHEL	deriche	3795754	1172336	457562	1162424	860180	20	16	9912
5	1024	SHEL	fdtd-2d	18818580	2021702	903807	1971603	1361466	308	206	50099
5	1024	SHEL	gemver	215622	34202	10401	28504	20691	640	444	5698
5	1024	SHEL	heat-3d	2187327	1495090	728078	1495090	1495090	110	20	0
5	1024	SHEL	jacobi-2d	860805	1471086	772550	1466692	1251341	400	196	4394
5	1024	SHEL	lu	14686553	1549982	10259	899161	850777	0	0	650821
5	1024	SHEL	ludcmp	14925854	1479052	11009	1044461	918337	2001	1909	434591

seed	rate	policy	benchmark	hits	misses	write-backs	expired-leases	multi-expired	default-renewals	default-misses	random-evicts
5	1024	SHEL	mvt	161278	19802	582	19802	19802	131	27	0

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