Sun Microsystems
Sun Fire X4200 M2

SPECint\textsubscript{2006} = 36.3
SPECint\textsubscript{rate_base2006} = 32.3

**CPU\textsubscript{2006} license:** 6
**Test date:** Apr-2007
**Test sponsor:** Sun Microsystems
**Hardware Availability:** Oct-2006
**Tested by:** Sun Microsystems
**Software Availability:** Aug-2006

<table>
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<tr>
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<td>471.omnetpp</td>
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<td>473.astar</td>
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</tr>
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</table>

**SPECint\textsubscript{rate_base2006} = 32.3**

**SPECint\textsubscript{2006} = 36.3**

**Hardware**
- **CPU Name:** AMD Opteron 2210
- **CPU Characteristics:**
  - CPU MHz: 1800
  - FPU: Integrated
  - CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
  - CPU(s) orderable: 1.2 chips
  - Primary Cache: 64 KB I + 64 KB D on chip per core
  - Secondary Cache: 1 MB I+D on chip per core
  - L3 Cache: None
  - Other Cache: None
  - Memory: 16 GB (8x2GB, DDR2-667 CL5 ECC Reg Dual Rank)
  - Disk Subsystem: SAS, 72 GB, 10K RPM
  - Other Hardware: None

**Software**
- **Operating System:** RedHat Enterprise Linux
- **Compiler:** QLogic PathScale Compiler Suite, Release 2.5
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Multi-user, run level 3
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** MicroQuill's SmartHeap 8.0 32-bit Library for Linux
![SPEC CINT2006 Result](image)

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### Results Table

<table>
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<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Peak Seconds</th>
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<td>40.2</td>
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</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### General Notes

- **taskset utility used to bind CPU(s) to processes**
- **Default BIOS settings were used.**

This result was measured on the Sun Fire X4100 M2  
Sun Fire X4100 M2 and Sun Fire X4200 M2 are electronically equivalent.

### Base Compiler Invocation

**C benchmarks:** **pathcc**

**C++ benchmarks:** **pathCC**

### Base Portability Flags

- **400.perlbench:** `-DSPEC_CPU_LP64` `-DSPEC_CPU_LINUX_X64`
- **401.bzip2:** `-DSPEC_CPU_LP64`
- **403.gcc:** `-DSPEC_CPU_LP64`
- **429.mcf:** `-DSPEC_CPU_LP64`
- **445.gobmk:** `-DSPEC_CPU_LP64`
- **456.hmmer:** `-DSPEC_CPU_LP64`
- **458.sjeng:** `-DSPEC_CPU_LP64`

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**Base Portability Flags (Continued)**

```
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```

**Base Optimization Flags**

C benchmarks:
- -Ofast

C++ benchmarks:
- -Ofast -m32 -L/data1/SmartHeap_8smp/lib -lsmartheap_smp

**Base Other Flags**

C benchmarks:
- -IPA:max_jobs=4

C++ benchmarks:
- -IPA:max_jobs=4

**Peak Compiler Invocation**

C benchmarks:
pathcc

C++ benchmarks:
pathCC

**Peak Portability Flags**

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```
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Peak Optimization Flags

C benchmarks:

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
401.bzip2: -O3 -LNO:ou_prod_max=10 -OPT:Ofast -OPT:alias=disjoint
403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3
          -OPT:Ofast
429.mcf: -m32 -O2 -ipa -L/datal/SmartHeap_8smp/lib -lsmartheap_smp
445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
          -OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off
          -WOPT:retype_expr=on
456.hmmer: -O2 -OPT:alias=disjoint -WOPT:aggstr=0 -CG:cflow=0
458.sjeng: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
          -IPA:plimit=50000 -IPA:pu_reorder=2
462.libquantum: -O3 -ipa -CG:local_fwd_sched=on -IPA:space=1000
464.h264ref: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
          -IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -Ofast -IPA:pu_reorder=2 -CG:gcm=off -m32
          -L/datal/SmartHeap_8smp/lib -lsmartheap_smp
473.astar: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
          -m32 -L/datal/SmartHeap_8smp/lib -lsmartheap_smp
483.xalancbmk: -Ofast -m32 -OPT:unroll_times_max=8
          -L/datal/SmartHeap_8smp/lib -lsmartheap_smp

Peak Other Flags

C benchmarks:
-IPA:max_jobs=4

C++ benchmarks:
-IPA:max_jobs=4

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.27.html
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You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.27.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.