# SPEC® CINT2006 Result



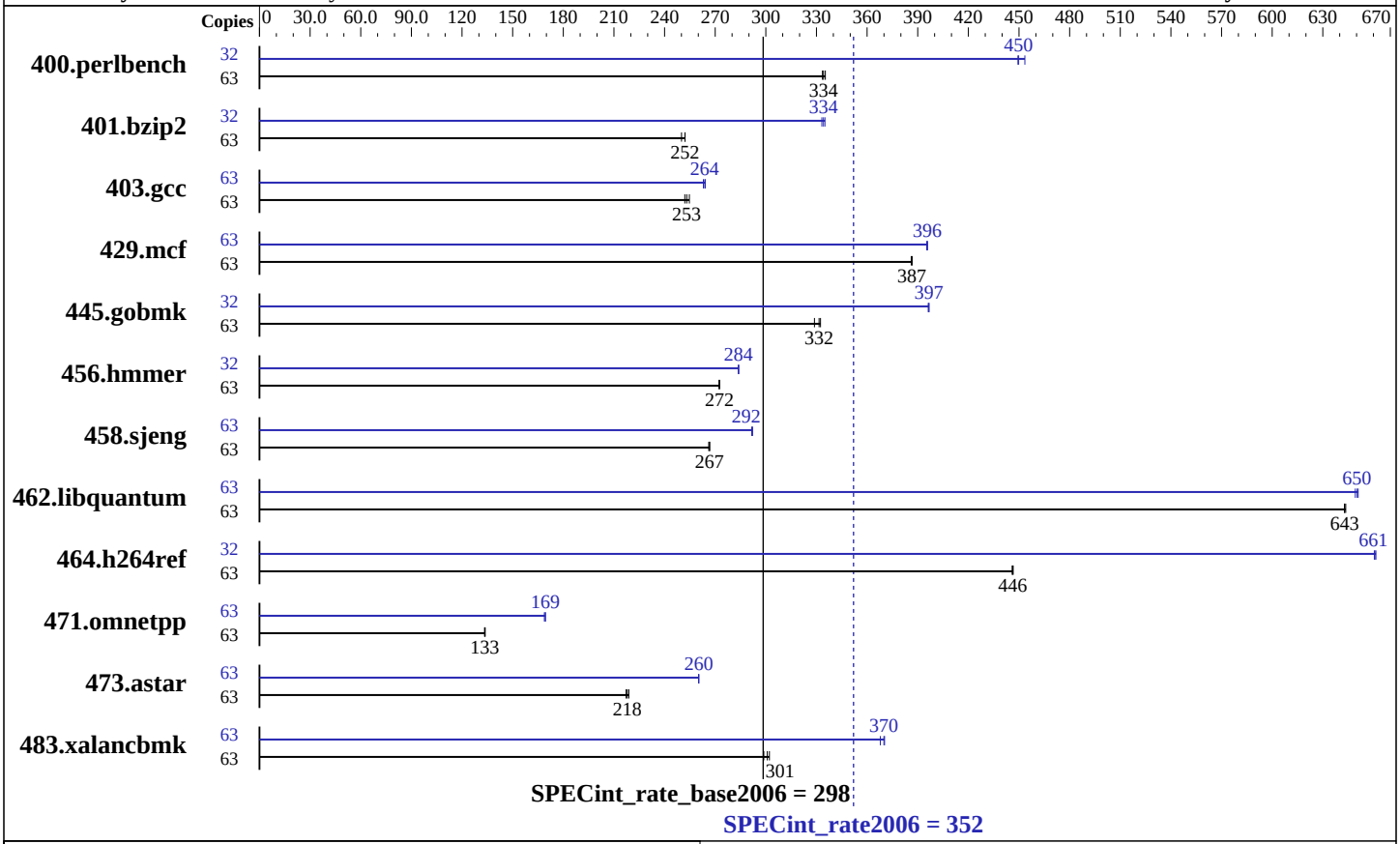
## Sun Microsystems
## Sun SPARC Enterprise M8000

SPECint®_rate2006 = 352

SPECint_rate_base2006 = 298

**CPU2006 license:** 6
**Test sponsor:** Sun Microsystems
**Tested by:** Sun Microsystems

**Test date:** Apr-2007
**Hardware Availability:** Apr-2007
**Software Availability:** Jul-2007




## Hardware

| | |
|---|---|
| CPU Name: | SPARC64 VI |
| CPU Characteristics: | |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 32 cores, 16 chips, 2 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 to 4 CMUs; each CMU contains 2 or 4 chips |
| Primary Cache: | 128 KB I + 128 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 256 GB (128 x 2 GB) |
| Disk Subsystem: | 400 GB RAID 0 created by Solaris Volume Manager with 12x 36GB 15,000 RPM Seagate ST336754FC FC-AL disks |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Solaris 10 7/07 (build s10s_u4wos_03) |
| Compiler: | Sun Studio 12 (build 44.0) |
| Auto Parallel: | No |
| File System: | ufs |
| System State: | Default |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32-bit |
| Other Software: | None |

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 63 | **1842** | **334** | 1845 | 334 | 1836 | 335 | 32 | 689 | 453 | 696 | 449 | **695** | **450** |
| 401.bzip2 | 63 | 2411 | 252 | **2412** | **252** | 2431 | 250 | 32 | 927 | 333 | **924** | **334** | 922 | 335 |
| 403.gcc | 63 | 2012 | 252 | **2003** | **253** | 1991 | 255 | 63 | 1928 | 263 | 1920 | 264 | **1922** | **264** |
| 429.mcf | 63 | 1488 | 386 | 1486 | 387 | **1486** | **387** | 63 | 1452 | 396 | **1452** | **396** | 1453 | 395 |
| 445.gobmk | 63 | **1993** | **332** | 1988 | 332 | 2010 | 329 | 32 | 847 | 396 | **846** | **397** | 846 | 397 |
| 456.hmmer | 63 | 2157 | 273 | 2159 | 272 | **2157** | **272** | 32 | 1052 | 284 | **1052** | **284** | 1052 | 284 |
| 458.sjeng | 63 | 2864 | 266 | **2859** | **267** | 2858 | 267 | 63 | 2610 | 292 | **2611** | **292** | 2614 | 292 |
| 462.libquantum | 63 | **2030** | **643** | 2028 | 644 | 2031 | 643 | 63 | 2005 | 651 | **2007** | **650** | 2011 | 649 |
| 464.h264ref | 63 | 3122 | 447 | **3124** | **446** | 3126 | 446 | 32 | **1072** | **661** | 1071 | 661 | 1072 | 661 |
| 471.omnetpp | 63 | **2949** | **133** | 2952 | 133 | 2944 | 134 | 63 | 2333 | 169 | **2325** | **169** | 2325 | 169 |
| 473.astar | 63 | 2036 | 217 | **2029** | **218** | 2021 | 219 | 63 | **1699** | **260** | 1700 | 260 | 1699 | 260 |
| 483.xalancbmk | 63 | 1455 | 299 | 1439 | 302 | **1445** | **301** | 63 | 1174 | 370 | 1182 | 368 | **1175** | **370** |

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

## Operating System Notes

```
Processes were bound to cores using "submit" and "pbind".

These shell commands request use of local 4MB pages:
      export LD_PRELOAD=madv.so.1:mpss.so.1
      export MPSSHEAP=4MB
      export MPSSSTACK=4MB
      export MADV=access_lwp
'access_lwp' means that the next light weight
process to touch the specified address range
will access it the most heavily.

ulimit -s 131072 was used to limit the space
consumed by the stack (and therefore make more
space available to the heap).

 /etc/system parameters
   autoup=300
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   bufhwm=3000
      Memory byte limit for caching I/O buffers
   segmap_percent=1
      Set maximum percent memory for file system cache
   tune_t_fsflushr=3
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.
```

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## Operating System Notes (Continued)

```
The "webconsole" service was turned off using
    svcadm disable webconsole
```

## Platform Notes

```
"CMU" = CPU/Memory Unit; each holds 2 or 4 CPU chips.

Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result was measured using a Sun SPARC Enterprise
M8000 Server.  Note that the Fujitsu SPARC Enterprise
M8000 and Sun SPARC Enterprise M8000 are electrically
equivalent.
```

## Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

## Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

## Base Optimization Flags

C benchmarks:
-fast -fma=fused -xcache=128/64/2:6144/256/12 -xipo=2 -xpagesize=4M
-xprefetch_level=2 -lbsdmalloc

C++ benchmarks:
-xdepend -library=stlport4 -fast -fma=fused
-xcache=128/64/2:6144/256/12 -xipo=2 -xpagesize=4M -xprefetch_level=2
-lbsdmalloc

## Base Other Flags

C benchmarks:
`-xjobs=16 -V -#`

C++ benchmarks:
`-xjobs=16 -verbose=diags,version`

## Peak Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_SOLARIS_SPARC`
403.gcc: `-DSPEC_CPU_SOLARIS`
462.libquantum: `-DSPEC_CPU_SOLARIS`
483.xalancbmk: `-DSPEC_CPU_SOLARIS`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`
`-xcache=128/64/2:6144/256/12 -xpagesize=4M`
`-xalias_level=std -Xc -xipo=2 -xrestrict -fma=fused`
`-xprefetch=latx:5 -lfast`

401.bzip2: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`
`-xcache=128/64/2:6144/256/12 -xpagesize=4M`
`-xalias_level=strong -fma=fused -xprefetch=latx:5`

403.gcc: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`
`-xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2`
`-xalias_level=std -xprefetch_level=2 -xarch=v8plusb`
`-fma=fused -ll2amm`

429.mcf: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2`
`-xprefetch_level=2 -xrestrict -xalias_level=std`
`-W2,-Apf:llist=3 -W2,-Apf:noinnerllist -xprefetch=latx:5`

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## Peak Optimization Flags (Continued)

429.mcf (continued):
-lfast

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M
-xalias_level=std -xrestrict -fma=fused

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2
-fma=fused

458.sjeng: Same as 456.hmmer

462.libquantum: -fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2
-xprefetch_level=2 -fma=fused -xprefetch=latx:3
-lbsdmalloc

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2
-xalias_level=std -xarch=v8plusb -ll2amm

C++ benchmarks:

471.omnetpp: -xdepend -library=stlport4
-xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M
-xalias_level=compatible -xipo=2 -xprefetch_level=2
-Qoption cg -Qlp-av=0 -fma=fused -lfast

473.astar: -xdepend -library=stlport4 -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M
-xalias_level=compatible -xipo=2 -xprefetch_level=2
-fma=fused -xprefetch=latx:5 -lfast

483.xalancbmk: -xdepend -library=stlport4
-xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast
-xcache=128/64/2:6144/256/12 -xpagesize=4M
-xalias_level=compatible -xipo=2 -xprefetch_level=2
-fma=fused -xprefetch=latx:5 -lfast

## Peak Other Flags

C benchmarks:
```
-xjobs=16 -V -#
```

C++ benchmarks:
```
-xjobs=16 -verbose=diags,version
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.xml



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

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