# SPEC® CINT2006 Result



## Fujitsu

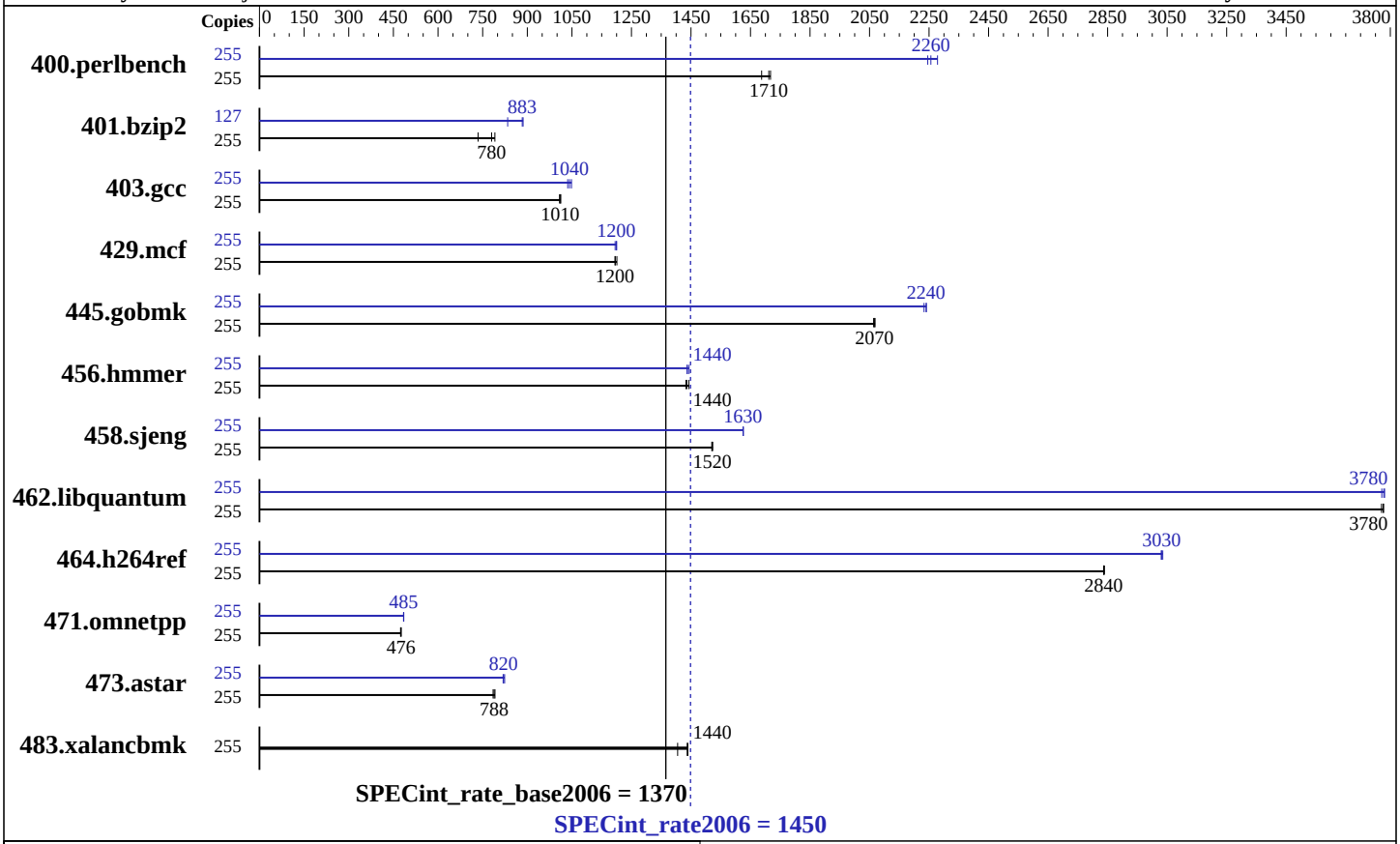
## Fujitsu SPARC Enterprise M9000

SPECint®_rate2006 = 1450

SPECint_rate_base2006 = 1370

**CPU2006 license:** 19
**Test sponsor:** Fujitsu
**Tested by:** Fujitsu

**Test date:** Aug-2009
**Hardware Availability:** Nov-2009
**Software Availability:** Jun-2009




### Hardware

| | |
|---|---|
| CPU Name: | SPARC64 VII |
| CPU Characteristics: | |
| CPU MHz: | 2880 |
| FPU: | Integrated |
| CPU(s) enabled: | 128 cores, 32 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 to 8 CMUs; each CMU contains 2 or 4 CPU chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 704 GB (160 x 2 GB + 96 x 4 GB), 8-way interleaved |
| Disk Subsystem: | 1 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)<br>1700 GB RAID 0 Solaris Volume<br>12 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)<br>Stripe interlace 2048 Kbytes |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Solaris 10 5/09 with patches 119963-13, 120753-06, 118683-03 |
| Compiler: | Sun Studio 12 Update 1 |
| 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 | 255 | 1476 | 1690 | **1456** | **1710** | 1451 | 1720 | 255 | 1109 | 2250 | **1104** | **2260** | 1093 | 2280 |
| 401.bzip2 | 255 | 3350 | 735 | 3111 | 791 | **3155** | **780** | 127 | 1469 | 834 | 1383 | 886 | **1388** | **883** |
| 403.gcc | 255 | 2036 | 1010 | **2030** | **1010** | 2028 | 1010 | 255 | **1970** | **1040** | 1982 | 1040 | 1958 | 1050 |
| 429.mcf | 255 | 1936 | 1200 | 1946 | 1190 | **1946** | **1200** | 255 | 1938 | 1200 | **1939** | **1200** | 1946 | 1200 |
| 445.gobmk | 255 | 1296 | 2060 | 1293 | 2070 | **1295** | **2070** | 255 | 1198 | 2230 | 1194 | 2240 | **1194** | **2240** |
| 456.hmmer | 255 | 1660 | 1430 | 1649 | 1440 | **1657** | **1440** | 255 | **1655** | **1440** | 1656 | 1440 | 1648 | 1440 |
| 458.sjeng | 255 | 2030 | 1520 | 2026 | 1520 | **2029** | **1520** | 255 | 1899 | 1630 | **1898** | **1630** | 1898 | 1630 |
| 462.libquantum | 255 | **1399** | **3780** | 1399 | 3780 | 1401 | 3770 | 255 | 1401 | 3770 | 1397 | 3780 | **1398** | **3780** |
| 464.h264ref | 255 | 1989 | 2840 | **1989** | **2840** | 1987 | 2840 | 255 | 1862 | 3030 | **1862** | **3030** | 1859 | 3040 |
| 471.omnetpp | 255 | **3350** | **476** | 3361 | 474 | 3348 | 476 | 255 | **3289** | **485** | 3293 | 484 | 3287 | 485 |
| 473.astar | 255 | 2262 | 791 | 2280 | 785 | **2271** | **788** | 255 | 2186 | 819 | 2173 | 824 | **2182** | **820** |
| 483.xalancbmk | 255 | 1252 | 1410 | **1224** | **1440** | 1222 | 1440 | 255 | 1252 | 1410 | **1224** | **1440** | 1222 | 1440 |

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

## Compiler Invocation Notes

```
Sun Studio compiler patches are available at
   http://developers.sun.com/sunstudio/downloads/patches/ss12u1_patches.jsp
```

## Submit Notes

```
The config file option 'submit' was used.  Processes were assigned to
specific processors using 'pbind' commands.  The list of processors to use
was provided in the 'BIND' variable, to generate the pbind commands.
(For details, please see the config file.)
```

## Operating System Notes

```
Shell Environments:

    ulimit -s 131072 was used to limit the space consumed
    by the stack.(making more space available for the heap)

System Tunables:
(/etc/system parameters)

    autoup=300
       Causes pages older than the listed number of seconds to
       be written by fsflush.
    bufhwm=40000000
       Memory byte limit for caching I/O buffers.
    lpg_alloc_prefer=1
```

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## Operating System Notes (Continued)

```
        Set lgroup page allocation to strongly prefer local pages.

Other System Settings:

    The webconsole service was turned off using svcadm disable webconsole.

 The SPEC toolset was bound to processors 1-511 using processor sets:
       psrset -c 1-255
       psrset -e 1 ksh
```

## Platform Notes

```
 Memory is 8-way interleaved by filling each CMU's slots with the same
 capacity DIMMs.

 This result is measured on a Fujitsu SPARC Enterprise M9000 Server.
 Note that the Fujitsu SPARC Enterprise M9000 and Sun SPARC Enterprise
 M9000 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 -xipo=2 -xpagesize=4M -xprefetch_level=1 -xalias_level=std -ll2amm`

C++ benchmarks:
`-xdepend -library=stlport4 -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=1 -xalias_level=compatible -ll2amm -lfast`

## 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 -xpagesize=4M -xalias_level=std -xrestrict -lfast -ll2amm`

401.bzip2: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -fma=fused -xalias_level=strong`

403.gcc: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=std -ll2amm`

429.mcf: `-fast -xipo=2 -xpagesize=4M -xprefetch=no -xalias_level=std -fma=fused -lfast`

445.gobmk: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=std -xrestrict -ll2amm`

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## Peak Optimization Flags (Continued)

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2

462.libquantum: -fast -xpagesize=4M -xipo=2 -xprefetch_level=1

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xalias_level=std -xprefetch=no -ll2amm

C++ benchmarks:

471.omnetpp: -xdepend -library=stlport4
-xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -ll2amm

473.astar: -xdepend -library=stlport4
-xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -xprefetch=latx:3 -lfast -ll2amm

483.xalancbmk: basepeak = yes

## 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-Studio12-12u1-and-gccfss4.2.r4.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.xml

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

Tested with SPEC CPU2006 v1.1.
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