



SPEC[®] CINT2006 Result

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Fujitsu Limited

SPECint[®]2006 = 11.3

Fujitsu SPARC Enterprise M8000

SPECint_base2006 = 9.71

CPU2006 license: 19

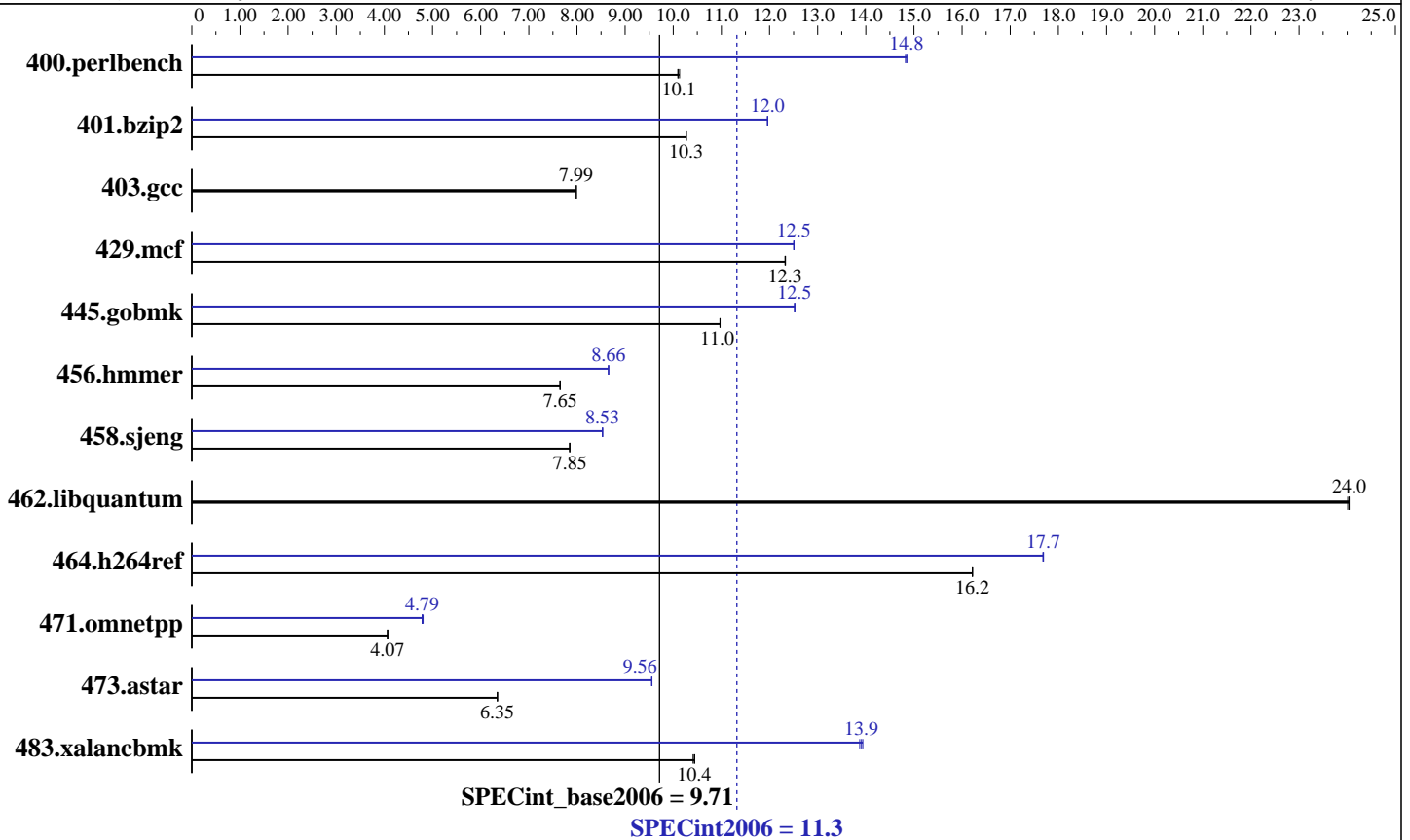
Test date: Mar-2007

Test sponsor: Fujitsu Limited

Hardware Availability: Apr-2007

Tested by: Fujitsu Limited

Software Availability: May-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: 64 GB (64 x 1 GB, see notes for details)
 Disk Subsystem: 73 GB 10,000 RPM Fujitsu MAY2073RC SAS
 Other Hardware: None

Software

Operating System: Solaris 10 11/06
 Compiler: Sun Studio 12 (Early Access)
 Auto Parallel: No
 File System: ufs
 System State: Default
 Base Pointers: 32-bit
 Peak Pointers: 32-bit
 Other Software: None



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 964 | 10.1 | 967 | 10.1 | <u>967</u> | <u>10.1</u> | <u>658</u> | <u>14.8</u> | 658 | 14.9 | 659 | 14.8 |
| 401.bzip2 | 940 | 10.3 | 940 | 10.3 | <u>940</u> | <u>10.3</u> | 807 | 12.0 | 807 | 12.0 | <u>807</u> | <u>12.0</u> |
| 403.gcc | <u>1008</u> | <u>7.99</u> | 1010 | 7.97 | 1008 | 7.99 | <u>1008</u> | <u>7.99</u> | 1010 | 7.97 | 1008 | 7.99 |
| 429.mcf | 740 | 12.3 | <u>740</u> | <u>12.3</u> | 740 | 12.3 | <u>729</u> | <u>12.5</u> | <u>729</u> | <u>12.5</u> | 730 | 12.5 |
| 445.gobmk | 956 | 11.0 | 956 | 11.0 | <u>956</u> | <u>11.0</u> | 838 | 12.5 | 838 | 12.5 | <u>838</u> | <u>12.5</u> |
| 456.hammer | 1220 | 7.65 | <u>1220</u> | <u>7.65</u> | 1220 | 7.65 | <u>1078</u> | <u>8.66</u> | <u>1078</u> | <u>8.66</u> | <u>1078</u> | <u>8.66</u> |
| 458.sjeng | 1542 | 7.85 | <u>1541</u> | <u>7.85</u> | 1541 | 7.85 | <u>1418</u> | <u>8.53</u> | 1418 | 8.53 | 1418 | 8.53 |
| 462.libquantum | 863 | 24.0 | <u>862</u> | <u>24.0</u> | 862 | 24.0 | 863 | 24.0 | <u>862</u> | <u>24.0</u> | 862 | 24.0 |
| 464.h264ref | 1365 | 16.2 | <u>1365</u> | <u>16.2</u> | 1364 | 16.2 | 1251 | 17.7 | <u>1251</u> | <u>17.7</u> | 1252 | 17.7 |
| 471.omnetpp | 1538 | 4.06 | <u>1536</u> | <u>4.07</u> | 1536 | 4.07 | 1307 | 4.78 | 1301 | 4.80 | <u>1306</u> | <u>4.79</u> |
| 473.astar | <u>1106</u> | <u>6.35</u> | 1106 | 6.35 | 1106 | 6.35 | <u>735</u> | <u>9.55</u> | <u>735</u> | <u>9.56</u> | 734 | 9.56 |
| 483.xalancbmk | <u>661</u> | <u>10.4</u> | 660 | 10.4 | 663 | 10.4 | <u>495</u> | <u>13.9</u> | <u>497</u> | <u>13.9</u> | <u>496</u> | <u>13.9</u> |

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

Operating System Notes

Shell Environment:

```
Stack size set to unlimited via "ulimit -s unlimited"
MPSSHEAP=4MB
MPSSSTACK=4MB
MADV=access_lwp
LD_PRELOAD=mpss.so.1:adv.so.1
```

The run was bound to processor #27 using the "psrset" command

```
psrset -c processor id...: creates a set
psrset -e set_id command: runs command on a set
```

System Tunables:

```
(/etc/system parameters)
maxphys=4194304
  Defines the maximum size of I/O requests, in bytes.
maxpgio=1024
  Defines the maximum number of page I/O requests that can
  be queued by the paging system.
tune_t_fsflushr=1
  Controls how many seconds elapse between runs of the
  page flush daemon, fsflush.
autoup=60
  Causes pages older than the listed number of seconds to
  be written by fsflush.
bufhwm=3000
  Memory byte limit for caching I/O buffers
```

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Operating System Notes (Continued)

segmap_percent=1

Set maximum percent memory for file system cache

Platform Notes

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

Memory was 8-way interleaved by filling same capacity DIMMs in every other slot.

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

Base Compiler Invocation

C benchmarks:

/opt/SUNWspr012_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWspr012_EA070303/bin/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 -xipo=2 -xtarget=sparc64vi -xcache=128/64/2:6144/256/12

-xarch=sparcfmaf -fma=fused -Wc,-fma=fused -xprefetch_level=2

C++ benchmarks:

-library=stlport4 -fast -xipo=2 -xtarget=sparc64vi

-xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused

-Qoption cg -fma=fused -xprefetch_level=2



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Peak Compiler Invocation

C benchmarks:

/opt/SUNWsp12_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWsp12_EA070303/bin/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 -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xprefetch_level=2 -xalias_level=std -xrestrict -lfast

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xalias_level=strong

403.gcc: basepeak = yes

429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xprefetch_level=3 -W2,-Apf:l1list=3 -W2,-Apf:noinnerl1list

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xalias_level=std

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| | | |
|--------------------------------|--------------------|------|
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Peak Optimization Flags (Continued)

458.sjeng: Same as 445.gobmk

462.libquantum: basepeak = yes

464.h264ref: Same as 456.hmmer

C++ benchmarks:

```
471.omnetpp: -library=stlport4 -xprofile=collect:./feedback(pass 1)
            -xprofile=use:./feedback(pass 2) -fast -xipo=2
            -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
            -xarch=sparcfmaf -fma=fused -Qoption cg -fma=fused
```

```
473.astar: -library=stlport4 -xprofile=collect:./feedback(pass 1)
           -xprofile=use:./feedback(pass 2) -fast -xipo=2
           -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
           -xarch=sparcfmaf -fma=fused -Qoption cg -fma=fused
           -xalias_level=compatible -lfast
```

```
483.xalancbmk: -library=stlport4 -xprofile=collect:./feedback(pass 1)
              -xprofile=use:./feedback(pass 2) -fast -xipo=2
              -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
              -xarch=sparcfmaf -fma=fused -Qoption cg -fma=fused -lfast
```

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>

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For other inquiries, please contact webmaster@spec.org.

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