



SPEC® CINT2006 Result

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Sun Microsystems

SPECint®_rate2006 = 81.6

Sun SPARC Enterprise M4000

SPECint_rate_base2006 = 68.6

CPU2006 license: 6

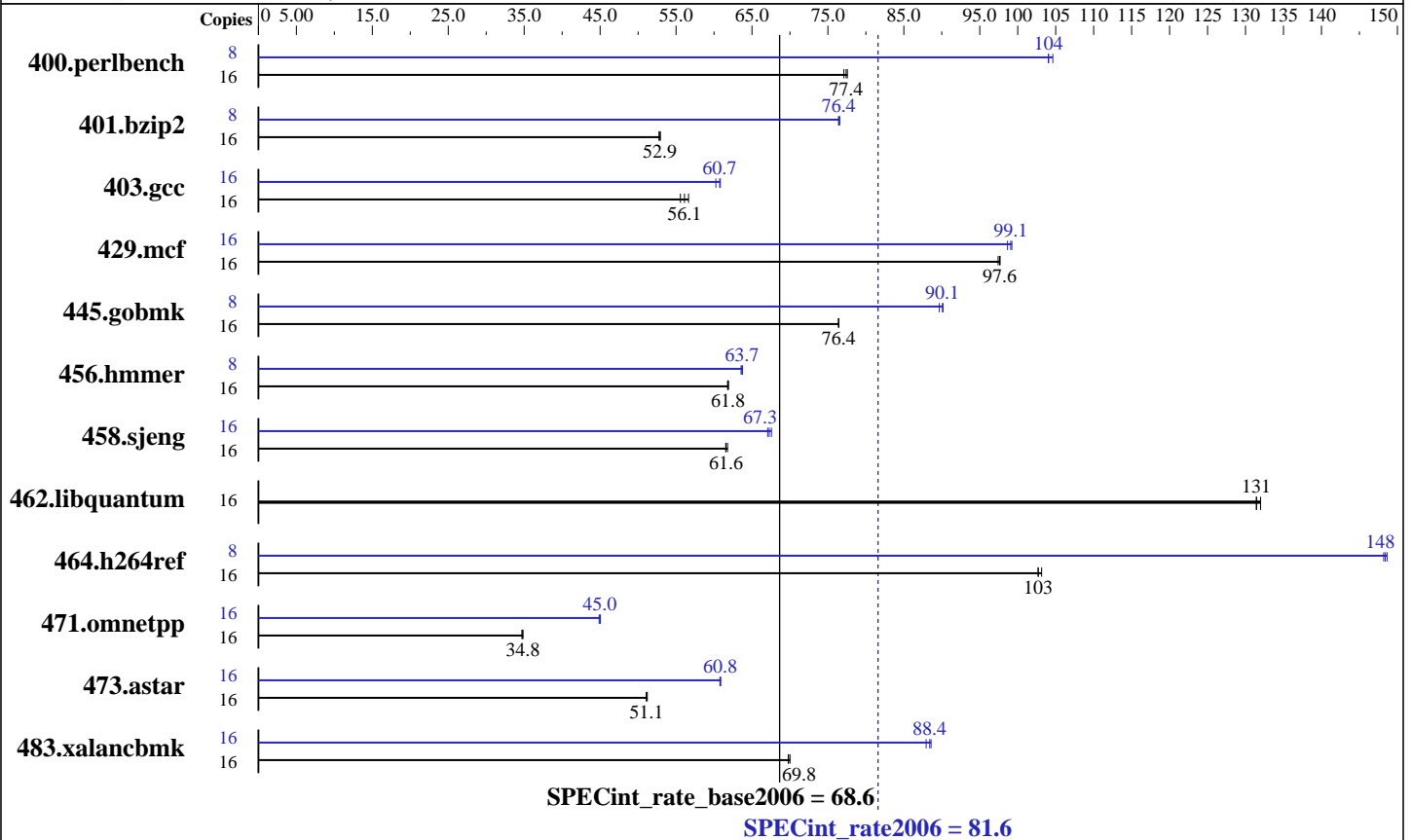
Test date: Apr-2007

Test sponsor: Sun Microsystems

Hardware Availability: Apr-2007

Tested by: Sun Microsystems

Software Availability: Jul-2007



Hardware

CPU Name: SPARC64 VI
 CPU Characteristics:
 CPU MHz: 2150
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 1 or 2 CPUM; each CPUM contains 2 CPU chips
 Primary Cache: 128 KB I + 128 KB D on chip per core
 Secondary Cache: 5 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 64 GB (32 x 2 GB)
 Disk Subsystem: 73 GB SEAGATE ST973401L 10K RPM Ultra320 SCSI
 Other Hardware: None

Software

Operating System: Solaris 10 7/07 (build s10s_u4wos_04)
 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



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<u>2020</u>	<u>77.4</u>	2027	77.1	2015	77.6	8	747	105	751	104	<u>751</u>	<u>104</u>
401.bzip2	16	2927	52.7	<u>2920</u>	<u>52.9</u>	2917	52.9	8	1010	76.4	1008	76.6	<u>1010</u>	<u>76.4</u>
403.gcc	16	<u>2296</u>	<u>56.1</u>	2317	55.6	2274	56.6	16	<u>2120</u>	<u>60.7</u>	2117	60.8	2138	60.3
429.mcf	16	1494	97.7	1498	97.4	<u>1495</u>	<u>97.6</u>	16	1479	98.7	<u>1473</u>	<u>99.1</u>	1471	99.2
445.gobmk	16	<u>2197</u>	<u>76.4</u>	2196	76.4	2197	76.4	8	936	89.7	931	90.2	<u>932</u>	<u>90.1</u>
456.hammer	16	2416	61.8	<u>2414</u>	<u>61.8</u>	2411	61.9	8	1171	63.8	1174	63.6	<u>1172</u>	<u>63.7</u>
458.sjeng	16	3134	61.8	3146	61.5	<u>3144</u>	<u>61.6</u>	16	2886	67.1	2865	67.6	<u>2878</u>	<u>67.3</u>
462.libquantum	16	2522	131	2512	132	<u>2522</u>	<u>131</u>	16	2522	131	2512	132	<u>2522</u>	<u>131</u>
464.h264ref	16	3433	103	<u>3448</u>	<u>103</u>	3448	103	8	1191	149	1195	148	<u>1193</u>	<u>148</u>
471.omnetpp	16	<u>2872</u>	<u>34.8</u>	2871	34.8	2882	34.7	16	2229	44.9	2220	45.0	<u>2225</u>	<u>45.0</u>
473.astar	16	2193	51.2	<u>2198</u>	<u>51.1</u>	2199	51.1	16	1845	60.9	1848	60.8	<u>1846</u>	<u>60.8</u>
483.xalancbmk	16	1577	70.0	<u>1581</u>	<u>69.8</u>	1582	69.8	16	<u>1249</u>	<u>88.4</u>	1246	88.6	1255	87.9

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 4MB pages:

```
export LD_PRELOAD=mpss.so.1
export MPSSHEAP=4MB
export MPSSSTACK=4MB
```

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

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

Platform Notes

"CPUM" = CPU Module; each module holds two 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 M4000 Server. Note that the Fujitsu SPARC Enterprise M4000 and Sun SPARC Enterprise M4000 are electrically equivalent.



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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=128/64/2:5120/256/10 -xipo=2 -xpagesize=4M
-xprefetch_level=2 -lbsdmalloc

C++ benchmarks:

-xdepend -library=stlport4 -fast -fma=fused
-xcache=128/64/2:5120/256/10 -xipo=2 -xpagesize=4M -xprefetch_level=2
-lbsdmalloc

Base Other Flags

C benchmarks:

-xjobs=8 -V -#

C++ benchmarks:

-xjobs=8 -verbose=diags,version

Peak Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC



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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=128/64/2:5120/256/10 -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=128/64/2:5120/256/10 -xpagesize=4M
 -xalias_level=strong -fma=fused -xprefetch=latx:5

403.gcc: -xprofile=collect:./feedback(pass 1)
 -xprofile=use:./feedback(pass 2) -fast
 -xcache=128/64/2:5120/256/10 -xpagesize=4M -xipo=2
 -xalias_level=std -xprefetch_level=2 -xarch=v8plusb
 -fma=fused -l12amm

429.mcf: -fast -xcache=128/64/2:5120/256/10 -xpagesize=4M -xipo=2
 -xprefetch_level=2 -xrestrict -xalias_level=std
 -W2,-Apf:l1list=3 -W2,-Apf:nominnerl1list -xprefetch=latx:5
 -lfast

445.gobmk: -xprofile=collect:./feedback(pass 1)
 -xprofile=use:./feedback(pass 2) -fast
 -xcache=128/64/2:5120/256/10 -xpagesize=4M
 -xalias_level=std -xrestrict -fma=fused

456.hmmer: -xprofile=collect:./feedback(pass 1)
 -xprofile=use:./feedback(pass 2) -fast
 -xcache=128/64/2:5120/256/10 -xpagesize=4M -xipo=2
 -fma=fused

458.sjeng: Same as 456.hmmer

462.libquantum: basepeak = yes

464.h264ref: -xprofile=collect:./feedback(pass 1)
 -xprofile=use:./feedback(pass 2) -fast
 -xcache=128/64/2:5120/256/10 -xpagesize=4M -xipo=2
 -xalias_level=std -xarch=v8plusb -l12amm

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Peak Optimization Flags (Continued)

C++ benchmarks:

```
471.omnetpp: -xdepend -library=stlport4
             -xprofile=collect:./feedback(pass 1)
             -xprofile=use:./feedback(pass 2) -fast
             -xcache=128/64/2:5120/256/10 -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=128/64/2:5120/256/10 -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=128/64/2:5120/256/10 -xpagesize=4M
               -xalias_level=compatible -xipo=2 -xprefetch_level=2
               -fma=fused -xprefetch=latx:5 -lfast
```

Peak Other Flags

C benchmarks:

-xjobs=8 -V -#

C++ benchmarks:

-xjobs=8 -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>



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