



# SPEC<sup>®</sup> CINT2006 Result

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## Sun Microsystems

## SPECint<sup>®</sup>\_rate2006 = 158

## Sun SPARC Enterprise M5000

## SPECint\_rate\_base2006 = 134

CPU2006 license: 6

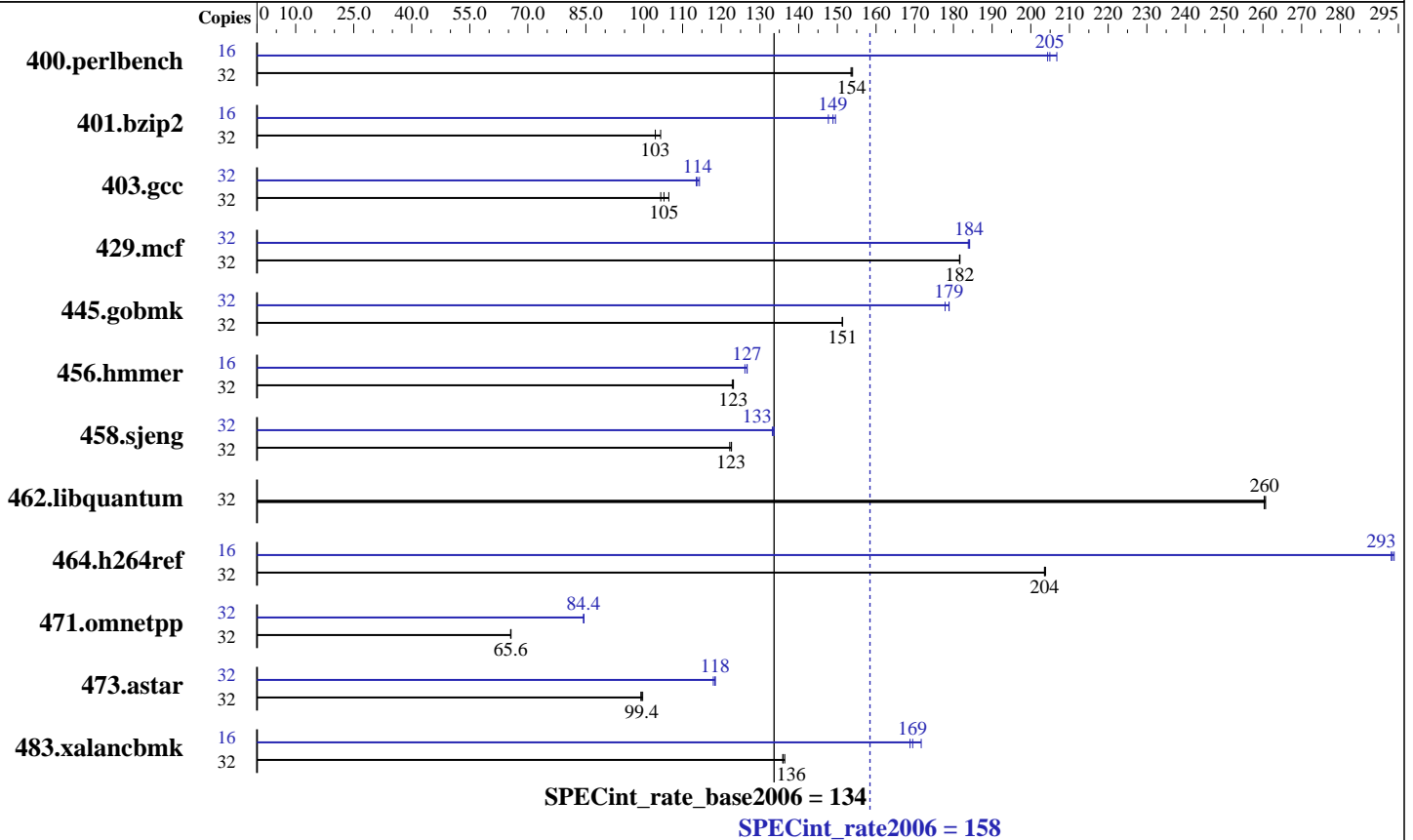
Test date: Apr-2007

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: 16 cores, 8 chips, 2 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 to 4 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: 128 GB (64 x 2 GB)  
 Disk Subsystem: 73 GB FUJITSU MAY2073RC 10K RPM SAS  
 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	32	2036	154	<b>2034</b>	<b>154</b>	2031	154	16	756	207	<b>763</b>	<b>205</b>	765	204
401.bzip2	32	2960	104	<b>3000</b>	<b>103</b>	3000	103	16	1046	148	<b>1037</b>	<b>149</b>	1033	150
403.gcc	32	2420	106	<b>2449</b>	<b>105</b>	2469	104	32	<b>2262</b>	<b>114</b>	2252	114	2269	114
429.mcf	32	1606	182	1607	182	<b>1607</b>	<b>182</b>	32	1587	184	<b>1586</b>	<b>184</b>	1584	184
445.gobmk	32	<b>2218</b>	<b>151</b>	2220	151	2218	151	32	1876	179	1887	178	<b>1877</b>	<b>179</b>
456.hammer	32	2431	123	<b>2425</b>	<b>123</b>	2424	123	16	1178	127	<b>1179</b>	<b>127</b>	1184	126
458.sjeng	32	3169	122	<b>3159</b>	<b>123</b>	3157	123	32	2907	133	<b>2903</b>	<b>133</b>	2897	134
462.libquantum	32	2547	260	2543	261	<b>2546</b>	<b>260</b>	32	2547	260	2543	261	<b>2546</b>	<b>260</b>
464.h264ref	32	<b>3479</b>	<b>204</b>	3479	204	3475	204	16	<b>1207</b>	<b>293</b>	1205	294	1208	293
471.omnetpp	32	<b>3049</b>	<b>65.6</b>	3051	65.6	3046	65.7	32	<b>2369</b>	<b>84.4</b>	2367	84.5	2370	84.4
473.aster	32	<b>2259</b>	<b>99.4</b>	2253	99.7	2264	99.2	32	1905	118	1896	118	<b>1898</b>	<b>118</b>
483.xalancbmk	32	1625	136	<b>1623</b>	<b>136</b>	1619	136	16	643	172	654	169	<b>651</b>	<b>169</b>

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 M5000 Server. Note that the Fujitsu SPARC Enterprise M5000 and Sun SPARC Enterprise M5000 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=12 -V -#

C++ benchmarks:

-xjobs=12 -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=12 -V -#
```

C++ benchmarks:

```
-xjobs=12 -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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