SPEC® CINT2006 Result

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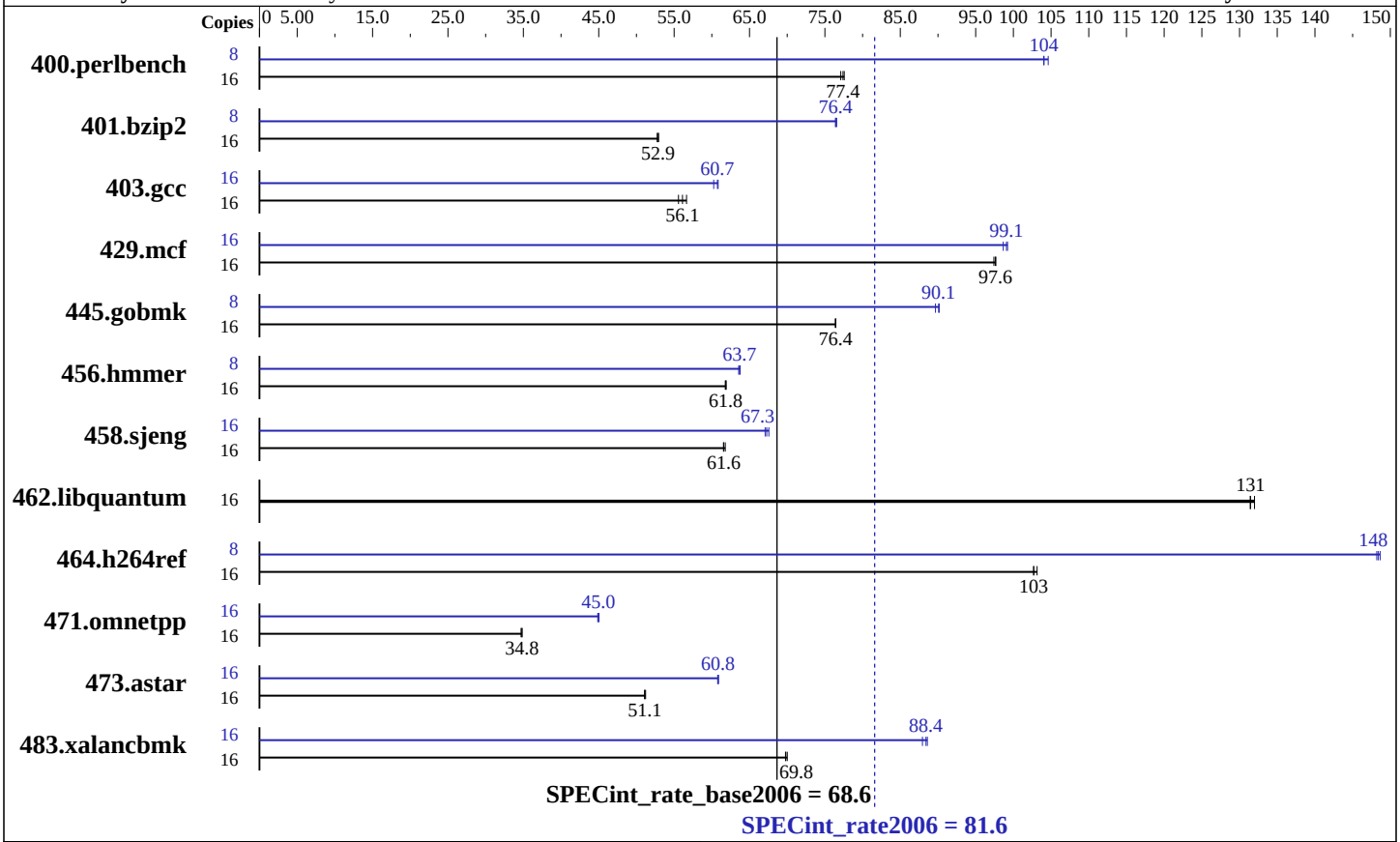
Sun Microsystems
Sun SPARC Enterprise M4000

SPECint®_rate2006 = 81.6

SPECint_rate_base2006 = 68.6

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

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

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 -ll2amm

429.mcf: -fast -xcache=128/64/2:5120/256/10 -xpagesize=4M -xipo=2
-xprefetch_level=2 -xrestrict -xalias_level=std
-W2,-Apf:llist=3 -W2,-Apf:noinnerllist -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 -ll2amm

Continued on next page

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

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