SPEC® CINT2006 Result

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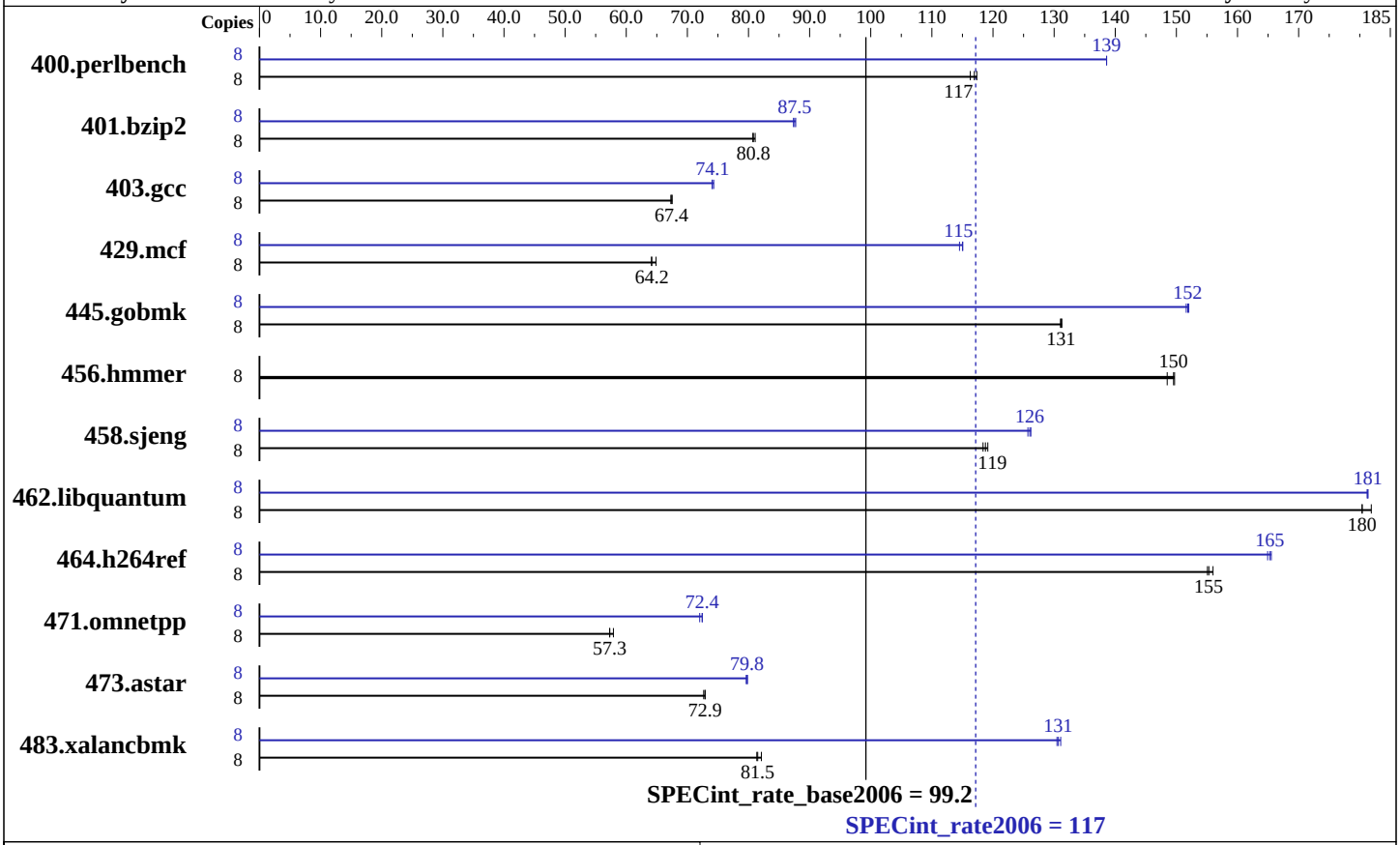
Sun Microsystems
Sun Fire X4440

SPECint®_rate2006 = 117

SPECint_rate_base2006 = 99.2

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Jan-2008
Hardware Availability: Apr-2008
Software Availability: May-2008



Hardware

CPU Name:	AMD Opteron 8224 SE
CPU Characteristics:	
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	4-8 (order by number of chips)
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	128 GB (32 x 4GB, DDR2-667 CL5 ECC Registered SDRAM)
Disk Subsystem:	SAS, 72 GB,10 K RPM
Other Hardware:	None

Software

Operating System:	Solaris 10 5/08
Compiler:	Sun Studio 12 (see patch information below)
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 7.4 32-bit Library for Solaris

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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	8	666	117	**668**	**117**	672	116	8	564	139	**564**	**139**	564	139
401.bzip2	8	952	81.1	**955**	**80.8**	956	80.7	8	884	87.4	**882**	**87.5**	880	87.7
403.gcc	8	**955**	**67.4**	957	67.3	954	67.5	8	867	74.3	870	74.0	**869**	**74.1**
429.mcf	8	**1137**	**64.2**	1138	64.1	1125	64.9	8	**634**	**115**	637	115	634	115
445.gobmk	8	639	131	**640**	**131**	640	131	8	554	152	552	152	**553**	**152**
456.hmmer	8	503	148	499	150	**499**	**150**	8	503	148	499	150	**499**	**150**
458.sjeng	8	**815**	**119**	818	118	812	119	8	770	126	**768**	**126**	767	126
462.libquantum	8	919	180	**919**	**180**	911	182	8	915	181	**914**	**181**	914	181
464.h264ref	8	**1140**	**155**	1142	155	1135	156	8	1073	165	**1071**	**165**	1070	166
471.omnetpp	8	**873**	**57.3**	873	57.3	864	57.9	8	694	72.0	690	72.4	**690**	**72.4**
473.astar	8	770	72.9	**770**	**72.9**	773	72.7	8	705	79.6	703	79.8	**704**	**79.8**
483.xalancbmk	8	**677**	**81.5**	678	81.4	672	82.1	8	421	131	**422**	**131**	423	130

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/ss12_patches.jsp
The tested configuration included patch 124868-01, 127002-01, 124864-01
```

Operating System Notes

```
Processes were bound to cores using "submit" and "pbind".
'ulimit -s unlimited' used to set environment stack size
```

Platform Notes

```
Default BIOS settings were used.
```

Base Compiler Invocation

C benchmarks:

```
cc
```

C++ benchmarks:

```
CC
```

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS

Base Optimization Flags

C benchmarks:
-fast -xipo=2 -xarch=sse2a -m64

C++ benchmarks:
-fast -xipo=2 -xarch=sse2a -m64 -library=stlport4

Base Other Flags

C benchmarks:
-V

C++ benchmarks:
-verbose=version

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_X64
403.gcc: -DSPEC_CPU_SOLARIS

Continued on next page

Peak Portability Flags (Continued)

456.hmmer: -DSPEC_CPU_LP64
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
-xalias_level=std -xvector=simd -lbsdmalloc
-L/export/home/SmartHeap_7.4/lib -lsmartheap

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -xarch=sse2
-m64 -xalias_level=strong -xpagesize=2m

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xalias_level=std -xprefetch_level=2

429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xarch=sse2a -xalias_level=strict -xprefetch=no%auto
-lbsdmalloc

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xarch=sse2a -m64
-xrestrict -xalias_level=strong -xdepend -xpagesize=2m
-lmvec

456.hmmer: basepeak = yes

458.sjeng: -fast -xarch=sse2a -m64 -xipo=2 -xprefetch=auto
-xprefetch_level=3 -xpagesize=2m -lmvec

462.libquantum: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xarch=sse2a -m64 -xunroll=8

464.h264ref: -fast -xarch=sse2a -m64 -xipo=2 -xvector -xunroll=8
-xalias_level=strong -xrestrict -xpagesize=2m -lmvec

C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xprefetch_level=3 -xarch=sse2a -Qoption ube -fsimple=3
-L/export/home/SmartHeap_7.4/lib -lsmartheap

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Peak Optimization Flags (Continued)

471.omnetpp (continued):
-library=stlport4

473.astar: -fast -xipo=2 -L/export/home/SmartHeap_7.4/lib -lsmartheap
-library=stlport4

483.xalancbmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xarch=sse2a -xpagesize_stack=2m
-L/export/home/SmartHeap_7.4/lib -lsmartheap
-library=stlport4

Peak Other Flags

C benchmarks:
-V

C++ benchmarks:
-verbose=version

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.xml

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

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