



SPEC® CINT2006 Result

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Sun Microsystems Sun Ultra 40 M2

SPECint®_rate2006 = 48.8

SPECint_rate_base2006 = 41.9

CPU2006 license: 6

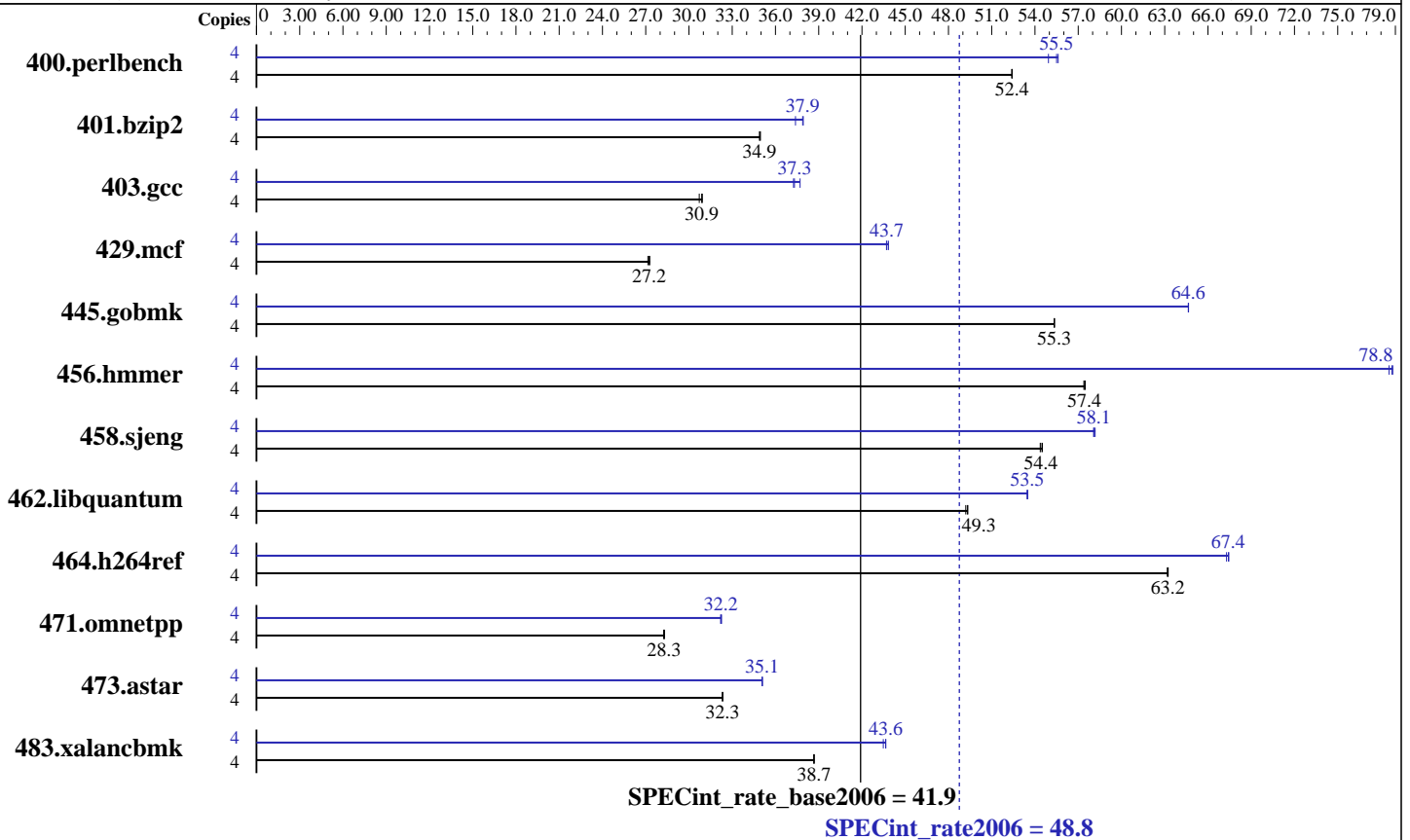
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Nov-2006

Hardware Availability: Nov-2006

Software Availability: Jul-2006



Hardware

CPU Name: AMD Opteron 2220 SE
 CPU Characteristics: 2800
 CPU MHz: Integrated
 FPU: 4 cores, 2 chips, 2 cores/chip
 CPU(s) enabled: 1,2 chips
 CPU(s) orderable: 64 KB I + 64 KB D on chip per core
 Primary Cache: 1 MB I+D on chip per core
 Secondary Cache: None
 L3 Cache: None
 Other Cache: None
 Memory: 16 GB (8x2GB, DDR2-667 CL5 ECC REG, Dual Rank)
 Disk Subsystem: SATA, 160 GB, 7200 RPM
 Other Hardware: None

Software

Operating System: Solaris 10 6/06
 Compiler: Sun Studio 11 with Patches
 Auto Parallel: No
 File System: ufs
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: 32/64-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	4	746	52.4	746	52.4	746	52.4	4	703	55.6	711	54.9	704	55.5
401.bzip2	4	1104	35.0	1106	34.9	1106	34.9	4	1032	37.4	1019	37.9	1018	37.9
403.gcc	4	1041	30.9	1048	30.7	1043	30.9	4	854	37.7	863	37.3	864	37.3
429.mcf	4	1340	27.2	1337	27.3	1344	27.2	4	832	43.8	835	43.7	834	43.7
445.gobmk	4	758	55.3	758	55.3	758	55.4	4	649	64.6	649	64.7	649	64.6
456.hammer	4	649	57.5	650	57.4	650	57.4	4	474	78.8	475	78.6	473	78.8
458.sjeng	4	889	54.4	890	54.4	888	54.5	4	832	58.2	833	58.1	833	58.1
462.libquantum	4	1680	49.3	1681	49.3	1685	49.2	4	1550	53.5	1550	53.5	1549	53.5
464.h264ref	4	1401	63.2	1400	63.2	1400	63.2	4	1316	67.3	1313	67.4	1312	67.4
471.omnetpp	4	884	28.3	883	28.3	885	28.2	4	775	32.3	776	32.2	776	32.2
473.astar	4	868	32.3	869	32.3	869	32.3	4	801	35.1	800	35.1	801	35.1
483.xalancbmk	4	714	38.7	713	38.7	714	38.7	4	635	43.5	632	43.6	632	43.7

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".

```
ulimit -s 131072 (shell): increases stack
```

The following patches were applied to Sun Studio 11 compiler:

```
120759-07 : x86/x64
121016-03 : x86 C
121020-03 : x86 F90
121018-03 : x86 C++
```

Platform Notes

Default BIOS settings was used.

Base Compiler Invocation

C benchmarks:
cc

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Base Compiler Invocation (Continued)

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=amd64a
C++ benchmarks:
-fast -xipo=2 -xarch=amd64a -library=stlport4

Base Other Flags

C benchmarks:
-V
C++ benchmarks:
-verbose=version

Peak Compiler Invocation

C benchmarks:
cc
C++ benchmarks:
CC



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS_X64
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Peak Optimization Flags

C benchmarks:

400.perlbench: -fast -xarch=amd64a -xvector=simd -lbsdmalloc
-Wu,-fsimple=3

401.bzip2: ONESTEP -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=2m
-xipo=2 -xalias_level=strong -xarch=sse2a
-M /usr/lib/ld/map.bssalign -Wu,-fsimple=3

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xbuiltin=%none -xpagesize=2m -lmvec

429.mcf: -fast -xpagesize=2m -xalias_level=std
-M /usr/lib/ld/map.bssalign -lmvec

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xarch=amd64a
-xrestrict -xalias_level=strong -xdepend -xpagesize=2m
-lmvec

456.hmmr: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xarch=amd64a
-Wd,-iropt-prof

458.sjeng: -fast -xarch=amd64a -xipo=2 -xprefetch=auto
-xprefetch_level=3 -xpagesize=2m -lmvec

462.libquantum: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xarch=amd64a
-xipo=2 -xunroll=8

464.h264ref: -fast -xarch=amd64a -xipo=2 -xvector -xunroll=8
-xalias_level=strong -xrestrict -xpagesize=2m -lmvec

C++ benchmarks:

471.omnetpp: -fast -xipo=2 -xprefetch_level=3 -xpagesize=2m
-xarch=sse2a -Qoption ube -fsimple=3 -library=stlport4

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Peak Optimization Flags (Continued)

```
473.astar: -fast -xrestrict -xarch=amd64a -xipo=2 -xprefetch_level=3
          -xpagesize=2m -library=stlport4

483.xalancbmk: -xprofile=collect:./feedback(pass 1)
              -xprofile=use:./feedback(pass 2) -fast -xipo=2
              -xarch=sse2a -xpagesize=2m -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.20090715.01.html>

You can also download the XML flags source by saving the following link:
<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.20090715.01.xml>

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

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:08:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 November 2006.