



SPEC® CINT2006 Result

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Fujitsu SPARC Enterprise M4000

SPECint®_rate2006 = 179

SPECint_rate_base2006 = 158

CPU2006 license: 19

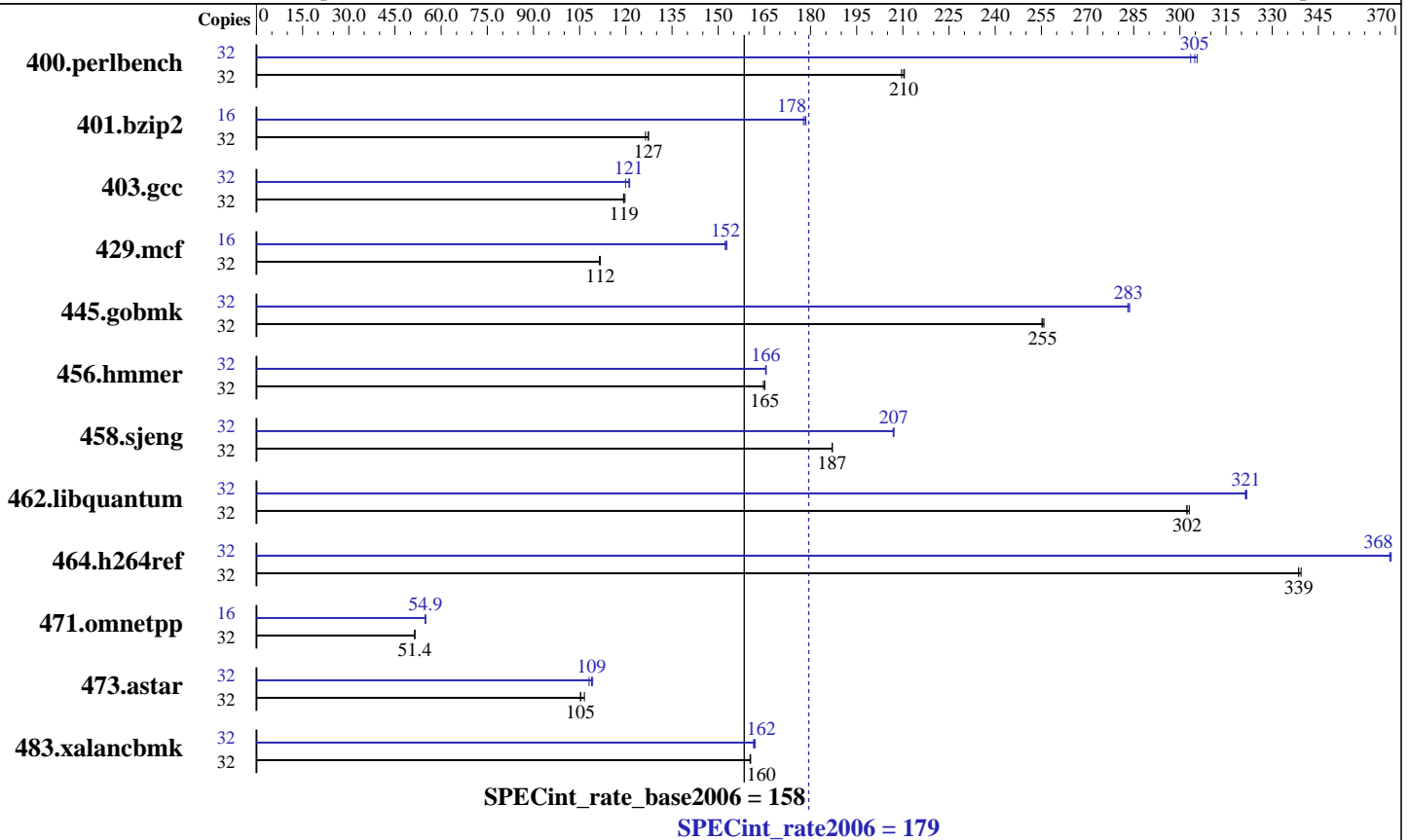
Test sponsor: Fujitsu

Tested by: Oracle Corporation

Test date: Nov-2010

Hardware Availability: Dec-2010

Software Availability: Sep-2010



Hardware

CPU Name: SPARC64 VII+
 CPU Characteristics: 2660
 CPU MHz: Integrated
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 to 2 CPUMs; each CPUM contains 2 CPU chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 11 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 64 GB (32 x 2 GB, 8-way interleaved)
 Disk Subsystem: 201 GB on 6 x 72 GB 15K RPM FC disks organized as 3 x 2-way ZFS mirrors with gzip compression
 Other Hardware: None

Software

Operating System: Oracle Solaris 10 9/10
 Compiler: Oracle Solaris Studio 12.2
 Auto Parallel: No
 File System: zfs with gzip compression
 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	1492	210	1485	211	1487	210	32	1023	306	1026	305	1030	303
401.bzip2	32	2426	127	2443	126	2425	127	16	865	178	869	178	866	178
403.gcc	32	2152	120	2158	119	2160	119	32	2125	121	2148	120	2129	121
429.mcf	32	2614	112	2614	112	2619	111	16	958	152	955	153	958	152
445.gobmk	32	1315	255	1312	256	1314	255	32	1183	284	1185	283	1186	283
456.hammer	32	1813	165	1808	165	1807	165	32	1805	165	1804	166	1803	166
458.sjeng	32	2070	187	2070	187	2070	187	32	1870	207	1872	207	1870	207
462.libquantum	32	2194	302	2188	303	2193	302	32	2061	322	2063	321	2064	321
464.h264ref	32	2087	339	2091	339	2092	339	32	1921	369	1923	368	1922	368
471.omnetpp	32	3887	51.5	3890	51.4	3890	51.4	16	1821	54.9	1823	54.8	1821	54.9
473.astar	32	2109	107	2134	105	2133	105	32	2063	109	2079	108	2057	109
483.xalancbmk	32	1377	160	1376	160	1376	161	32	1367	162	1366	162	1363	162

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Invocation Notes

Oracle Solaris Studio 12.2 is distributed with mandatory OS patches
118683-05 119963-20 120753-08
Oracle Solaris Studio 12.2 and patches are available at
<http://oracle.com/goto/solarisstudio>

Submit Notes

Processes were assigned to specific processors using 'pbind' commands. The config file option 'submit' was used, along with a list of processors in the 'BIND' variable, to generate the pbind commands. (For details, please see the config file.)

Operating System Notes

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

```
/etc/system parameters
autoup=600
```

Causes pages older than the listed number of seconds to be written by fsflush.

```
tune_t_fsflushr=10
```

Controls how many seconds elapse between runs of the page flush daemon, fsflush.

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Operating System Notes (Continued)

```
zfs:zfs_arc_max=0x0x1C0000000
zfs:zfs_arc_min=0x10000000
Limits the consumption of memory by the zfs file system
cache to 256 MB to 7 GB . (The arc_max sets the maximum
cache size; arc_min sets the minimum.)
The "webconsole" service was turned off using
svcadm disable webconsole
The system had 32 GB of swap space.
```

Platform Notes

Memory is 8-way interleaved by filling all slots with the same capacity DIMMs.

This result is measured on a SPARC Enterprise M4000 server from Oracle. The SPARC Enterprise M4000 server from Oracle and from Fujitsu 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 -xipo=2 -xpagesize=4M -xalias_level=std -l12amm

C++ benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xalias_level=compatible
-xdepend -library=stlport4 -lfast



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Base Other Flags

C benchmarks:
-xjobs=32 -V -#
C++ benchmarks:
-xjobs=32 -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 -xpagesize=4M
-M /usr/lib/ld/map.bssalign -fma=fused -xipo=1
-xalias_level=std -xrestrict -Xc -xO4 -xprefetch=latx:0.5
-lfast
401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xalias_level=strong -xchip=generic
403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xalias_level=std -xprefetch=no
-xarch=sparcfmaf -ll2amm
429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xprefetch_auto_type=indirect_array_access
-xchip=generic -xlinkopt -W2,-Apf:l1list=3
-W2,-Apf:noninnerl1list -lfast

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Peak Optimization Flags (Continued)

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xalias_level=std -xrestrict -xlinkopt
-xprefetch=no%auto -xunroll=6 -lfast -ll2amm

456.hmmr: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xO4 -xlinkopt -xprefetch=no%auto
-ll2amm

462.libquantum: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=no
-lbsdmalloc

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xarch=sparcfmaf -xalias_level=std -xprefetch=no
-ll2amm

C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -xdepend -library=stlport4
-fma=fused -xipo=2 -Qoption cg -Qlp-av=0 -xO4 -lfast

473.astar: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -xdepend -library=stlport4
-M /usr/lib/ld/map.bssalign -fma=fused -xipo=2
-xprefetch=no%auto -lfast -lbsdmalloc

483.xalancbmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -xdepend -library=stlport4
-fma=fused -xipo=2 -xprefetch=no -xO4 -lfast

Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

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Peak Other Flags (Continued)

C++ benchmarks:
-xjobs=32 -verbose=diags,version

The flags file that was used to format this result can be browsed at
<http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.html>

You can also download the XML flags source by saving the following link:
<http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.xml>

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

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