



SPEC® CINT2006 Result

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Fujitsu SPARC Enterprise M9000

SPECint®_rate2006 = 3150

SPECint_rate_base2006 = 2850

CPU2006 license: 19

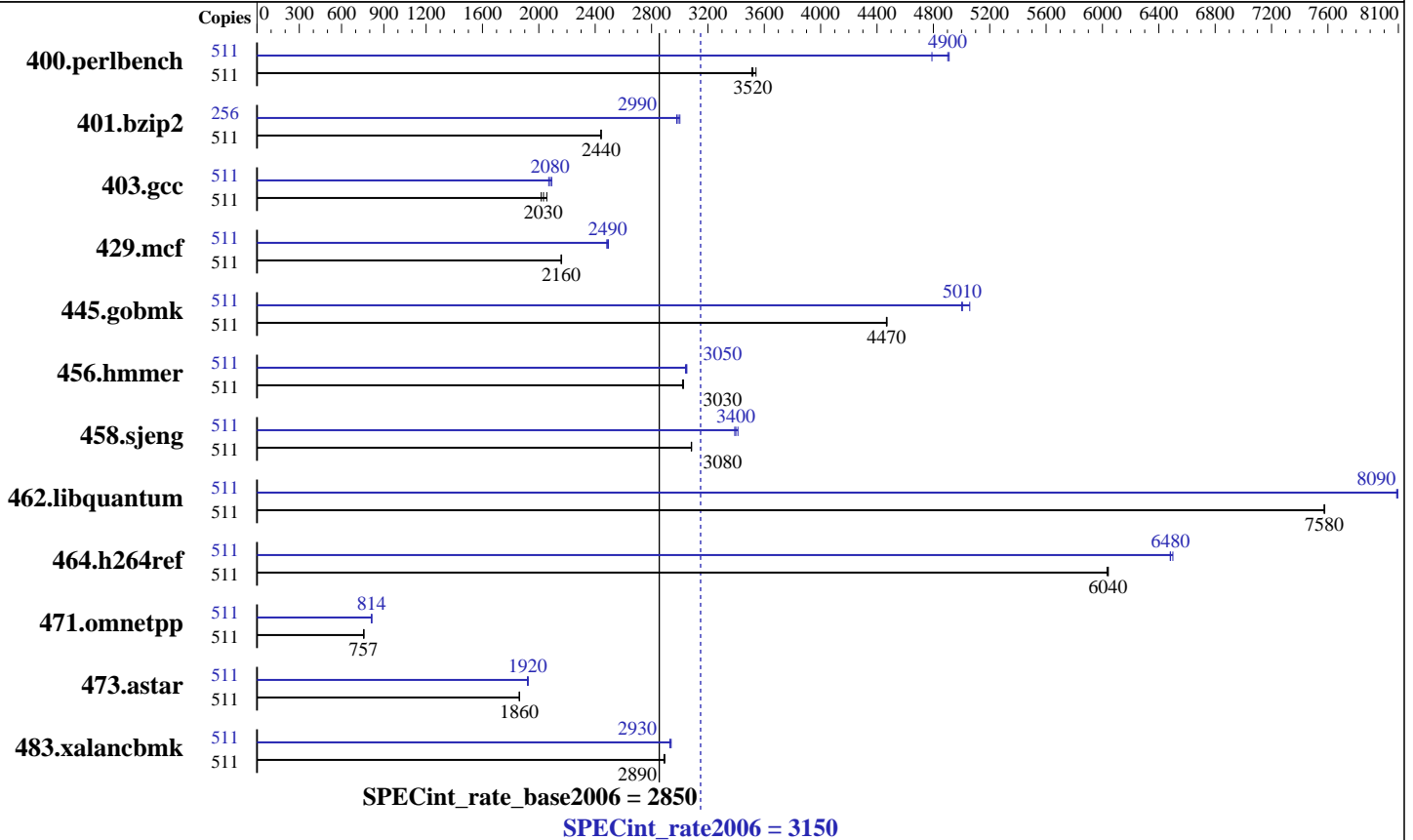
Test sponsor: Fujitsu

Tested by: Oracle Corporation

Test date: Nov-2010

Hardware Availability: Dec-2010

Software Availability: Sep-2010



Hardware

CPU Name: SPARC64 VII+
 CPU Characteristics:
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 256 cores, 64 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 to 16 CMUs; each CMU contains 2 or 4 CPU chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 2 TB (512 x 4 GB, 8-way interleaved)
 Disk Subsystem: 602 GB on 24 x 73 GB 10K RPM SAS disks, arranged as 8 x 3-way mirrors
 Other Hardware: None

Software

Operating System: Oracle Solaris 10 9/10
 Compiler: Oracle Solaris Studio 12.2
 Auto Parallel: No
 File System: zfs
 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	511	1419	3520	1422	3510	1410	3540	511	1018	4900	1042	4790	1016	4910
401.bzip2	511	2019	2440	2018	2440	2021	2440	256	823	3000	826	2990	829	2980
403.gcc	511	2040	2020	2000	2060	2023	2030	511	1967	2090	1976	2080	1987	2070
429.mcf	511	2158	2160	2159	2160	2156	2160	511	1869	2490	1877	2480	1873	2490
445.gobmk	511	1200	4470	1199	4470	1200	4470	511	1071	5010	1060	5060	1072	5000
456.hammer	511	1576	3030	1579	3020	1576	3030	511	1568	3040	1563	3050	1564	3050
458.sjeng	511	2006	3080	2006	3080	2005	3080	511	1824	3390	1812	3410	1819	3400
462.libquantum	511	1398	7580	1397	7580	1398	7570	511	1308	8090	1308	8090	1309	8090
464.h264ref	511	1875	6030	1872	6040	1872	6040	511	1745	6480	1740	6500	1744	6480
471.omnetpp	511	4221	757	4222	756	4204	760	511	3926	814	3925	814	3925	814
473.astar	511	1927	1860	1928	1860	1925	1860	511	1869	1920	1867	1920	1864	1920
483.xalancbmk	511	1218	2890	1221	2890	1220	2890	511	1200	2940	1204	2930	1202	2930

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)

lpg_alloc_prefer=1
Indicates that extra effort should be taken to ensure that pages are created in the nearby lgroup (NUMA location).
kernel_cage_enable=0
Allows the kernel to use memory in any locality group. In particular, allows ZFS file caches to be located on any memory board.
zfs:zfs_arc_min=0x10000000
zfs:zfs_arc_max=0x10000000000
Limits the consumption of memory by the zfs file system cache to 1 TB. (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 137 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 M9000 server from Oracle. The SPARC Enterprise M9000 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

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Base Optimization Flags (Continued)

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

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

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Peak Optimization Flags (Continued)

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 -l12amm

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:noinnerl1list -lfast

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 -l12amm

456.hmmer: -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
-l12amm

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
-l12amm

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
-xprefetch_level=2 -xprefetch=latx:1.5 -l12amm

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



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Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

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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