



SPEC® CINT2006 Result

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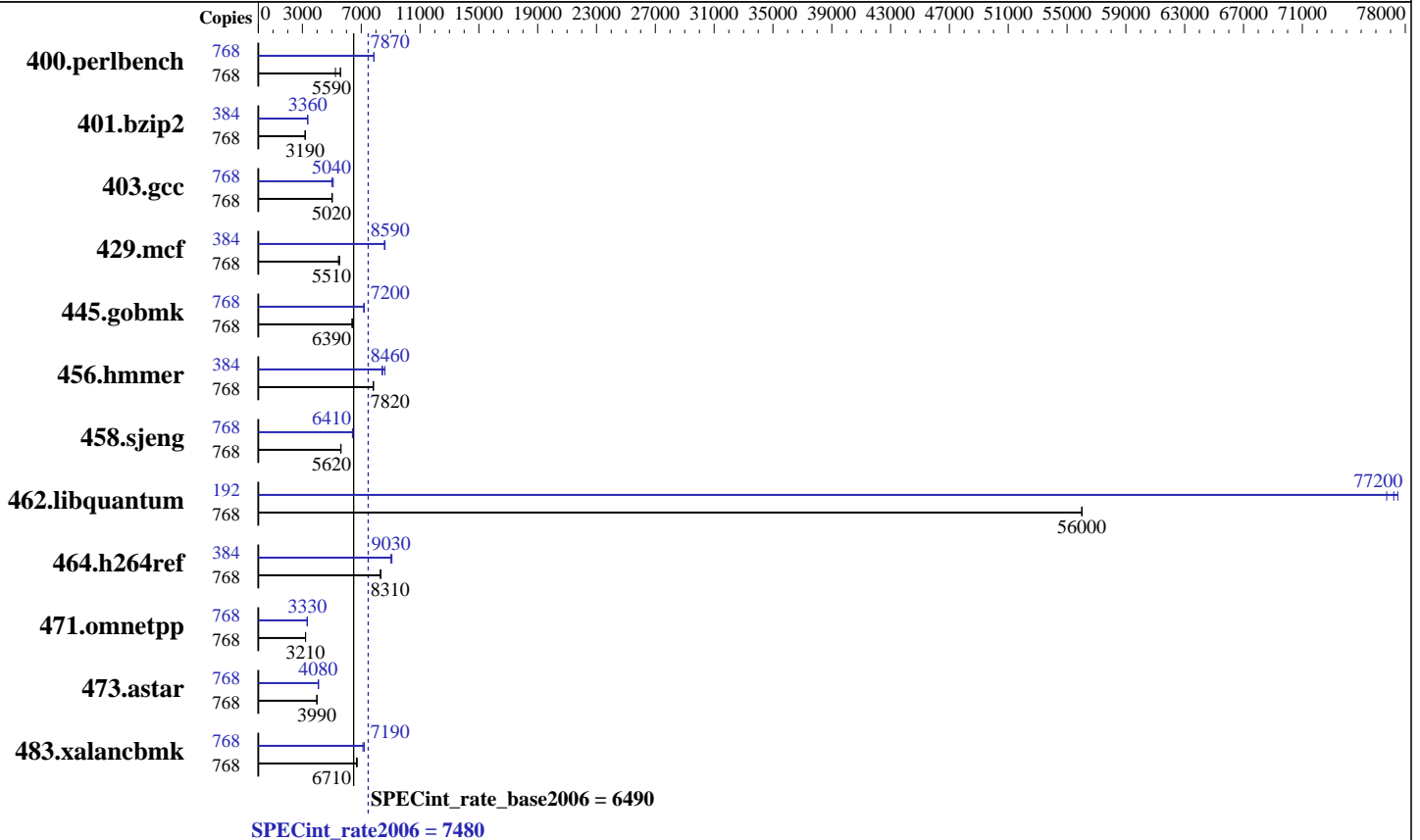
Fujitsu
Fujitsu SPARC M12-2S

SPECint®_rate2006 = 7480

SPECint_rate_base2006 = 6490

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Mar-2017
Hardware Availability: Apr-2017
Software Availability: Jul-2017



Hardware

CPU Name: SPARC64 XII
 CPU Characteristics: High Speed Mode up to 4.35 GHz
 CPU MHz: 4250
 FPU: Integrated
 CPU(s) enabled: 96 cores, 8 chips, 12 cores/chip, 8 threads/core
 CPU(s) orderable: 1 to 16 BBs; each BB contains 1 or 2 CPU chips; the number of orderable total cores is 2, 3, 4, .. 384
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 32 MB I+D on chip per chip
 Other Cache: None
 Memory: 4 TB (128 x 32 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: 1 x 600 GB 10K RPM SAS (for system disk)
 Other Hardware: None

Software

Operating System: Oracle Solaris 11.3 (with June 2017 SRU)
 Compiler: C/C++: Version 12.6 of Oracle Developer Studio
 Auto Parallel: No
 File System: tmpfs
 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	768	1430	5250	1342	5590	<u>1343</u>	<u>5590</u>	768	953	7880	955	7860	<u>953</u>	<u>7870</u>
401.bzip2	768	2314	3200	2327	3190	<u>2325</u>	<u>3190</u>	384	1103	3360	1104	3360	<u>1104</u>	<u>3360</u>
403.gcc	768	1229	5030	<u>1231</u>	<u>5020</u>	1234	5010	768	1213	5100	<u>1228</u>	<u>5040</u>	1234	5010
429.mcf	768	<u>1270</u>	<u>5510</u>	1269	5520	1285	5450	384	<u>408</u>	<u>8590</u>	408	8590	406	8620
445.gobmk	768	<u>1261</u>	<u>6390</u>	1263	6380	1259	6400	768	<u>1120</u>	<u>7200</u>	1119	7200	1123	7170
456.hammer	768	915	7830	<u>916</u>	<u>7820</u>	916	7820	384	426	8410	<u>424</u>	<u>8460</u>	416	8610
458.sjeng	768	1657	5610	<u>1654</u>	<u>5620</u>	1653	5620	768	1452	6400	<u>1449</u>	<u>6410</u>	1445	6430
462.libquantum	768	284	56000	<u>284</u>	<u>56000</u>	284	56000	192	51.3	77500	<u>51.5</u>	<u>77200</u>	51.8	76700
464.h264ref	768	2042	8320	<u>2044</u>	<u>8310</u>	2045	8310	384	<u>941</u>	<u>9030</u>	941	9030	935	9090
471.omnetpp	768	1494	3210	1494	3210	<u>1494</u>	<u>3210</u>	768	1444	3330	1440	3330	<u>1440</u>	<u>3330</u>
473.astar	768	1353	3990	<u>1351</u>	<u>3990</u>	1350	3990	768	<u>1320</u>	<u>4080</u>	1315	4100	1322	4080
483.xalancbmk	768	789	6710	<u>789</u>	<u>6710</u>	793	6680	768	736	7200	744	7120	<u>737</u>	<u>7190</u>

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

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

Shell Environments:

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

The "Logical Domains Manager" service was turned off using the command "svcadm disable ldmd".

System Tunables:

(/etc/system parameters)

autoup = 86400

Causes pages older than the listed number of seconds to be written by fsflush.
doiflush = 0

Controls whether file system metadata syncs will be executed during fsflush invocations.
dopageflush = 0

Controls whether memory is examined for modified pages during fsflush invocations.
zfs:zfs_arc_max=1073741824

Determines the maximum size of the ZFS Adaptive Replacement Cache (ARC).



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Platform Notes

Firmware Settings:
(XSCF operations)

Set High Speed Mode via XSCF command "sethsmode -s on".

Sysinfo program /export/cpu2006/config/sysinfo
Revision 6993 of 2015-11-06 (c9426fd40261140bb4c02f7d35768596)
running on H2S-257-D0 Mon Mar 13 06:46:31 2017

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /usr/sbin/psrinfo
SPARC64-XII (chipid 0, clock 4250 MHz)
SPARC64-XII (chipid 1, clock 4250 MHz)
SPARC64-XII (chipid 2, clock 4250 MHz)
SPARC64-XII (chipid 3, clock 4250 MHz)
SPARC64-XII (chipid 4, clock 4250 MHz)
SPARC64-XII (chipid 5, clock 4250 MHz)
SPARC64-XII (chipid 6, clock 4250 MHz)
SPARC64-XII (chipid 7, clock 4250 MHz)
8 chips
768 threads
4250 MHz
```

From kstat: 96 cores

From prtconf: 4187136 Megabytes

```
/etc/release:
Oracle Solaris 11.3 SPARC
uname -a:
SunOS H2S-257-D0 5.11 11.3 sun4v sparc sun4v
```

SPEC is set to: /export/cpu2006

```
disk: df -h /export/cpu2006
Filesystem      Size  Used  Available Capacity  Mounted on
rpool/export    547G  27G   242G      11%   /export
```

(End of data from sysinfo program)

General Notes

The Building Block (BB) is just a Fujitsu SPARC M12-2S that is the basic unit to be expanded as if stacking up children's blocks.

File System:

tmpfs: output_root was used to put run directories in /tmp/cpu2006
zfs: operating system

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General Notes (Continued)

SPEC CPU2006 benchmark:
Updated with runspec --update

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:
-std=c99 -m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=std

C++ benchmarks:
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=compatible
-library=stlport4 -lfast

Base Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

Peak Compiler Invocation

C benchmarks:
cc

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Peak Compiler Invocation (Continued)

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: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xtarget=sparc64xplus -xipo=1
-xalias_level=std -xrestrict -xprefetch=no%auto -xO4
-Wc,-Qiselect-funcalign=4 -xthroughput=no -lfast

401.bzip2: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xalias_level=strong -xprefetch=no%auto
-Wc,-Qiselect-funcalign=4 -Wc,-Qicache-chbab=1
-xinline_param=max_inst_hard:1000,max_inst_soft:500,max_growth:60
-lfast

403.gcc: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xO4 -xipo=2 -xprefetch=no%auto
-Wc,-Qiselect-funcalign=64
-xcache=32/128/4/4:256/128/8/4:8192/128/16/24
-xalias_level=layout

429.mcf: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xipo=2 -xalias_level=std -xprefetch=latx:0.2
-W2,-Asac -Wc,-Qiselect-funcalign=64

445.gobmk: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xO4 -xalias_level=std -xrestrict

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Peak Optimization Flags (Continued)

445.gobmk (continued):

-xprefetch=no%auto -Wc,-Qiselect-funcalign=64
-Wc,-Qgsched-T=4

456.hmmer: -std=c99 -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xipo=1 -xunroll=8 -Wc,-Qms_pipe-pref
-Wc,-Qiselect-funcalign=4
-xcache=32/128/4/4:256/128/8/4:8192/128/16/48

458.sjeng: -std=c99 -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xO4 -xipo=2 -xalias_level=std -xunroll=4
-Wc,-Qiselect-funcalign=4 -W2,-Afully_unroll:always=on
-xprefetch=latx:0.6 -xcheck=%none

462.libquantum: -std=c99 -m32 -fast -xtarget=sparc64xii -xpagesize=256M

-xsegment_align=256M -xthroughput -m64
-xtarget=sparc64xplus -xipo=2
-xcache=32/128/4/4:256/128/8/4:8192/128/16/24
-xinline_param=level:1 -Wc,-Qiselect-funcalign=4
-xalias_level=layout -xprefetch=latx:0.2

464.h264ref: -std=c99 -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xtarget=sparc64xplus -xipo=1
-Wc,-Qiselect-funcalign=4 -xthroughput=no
-xalias_level=layout -xprefetch=latx:0.2 -xcheck=%none

C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xipo=1 -xalias_level=compatible -xunroll=2
-xprefetch_level=3 -W2,-Asac -xthroughput=no -lfast

473.astar: -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M
-xthroughput -xtarget=sparc64xplus -xalias_level=compatible
-xipo=2 -xunroll=6 -xrestrict=%source
-Wc,-Qiselect-funcalign=64 -Wc,-Qgsched-T=4
-xprefetch=latx:0.3 -lfast

483.xalancbmk: -xprofile=collect:./feedback(pass 1)

-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=256M -xsegment_align=256M

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Peak Optimization Flags (Continued)

483.xalanbmk (continued):

```
-xthroughput -xipo=2 -xalias_level=compatible -xdepend
-xprefetch_level=3 -xprefetch=latx:0.4 -library=stlport4
-W2,-Asac -Wc,-Qiselect-funcalign=64 -features=no%except
-lfast
```

Peak Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.html>
<http://www.spec.org/cpu2006/flags/Fujitsu-M12-2S.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.xml>
<http://www.spec.org/cpu2006/flags/Fujitsu-M12-2S.xml>

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