



SPEC® CINT2006 Result

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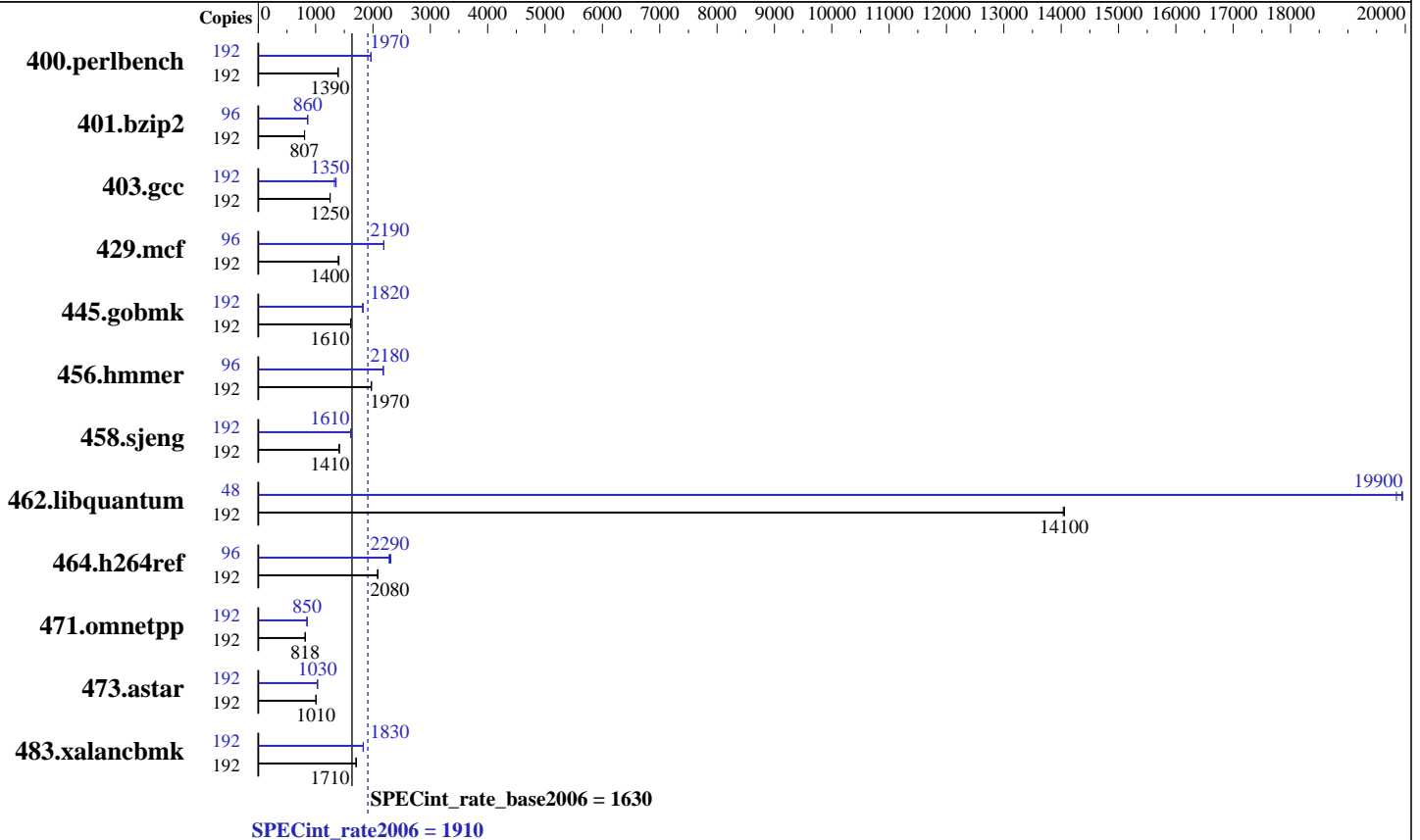
Fujitsu Fujitsu SPARC M12-2S

SPECint®_rate2006 = 1910

SPECint_rate_base2006 = 1630

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: 24 cores, 2 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: 1 TB (32 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	192	1349	1390	1346	1390	<u>1348</u>	<u>1390</u>	192	954	1970	<u>954</u>	<u>1970</u>	955	1960
401.bzip2	192	2300	806	2296	807	<u>2297</u>	<u>807</u>	96	<u>1077</u>	<u>860</u>	1076	861	1077	860
403.gcc	192	1235	1250	1235	1250	<u>1235</u>	<u>1250</u>	192	<u>1143</u>	<u>1350</u>	1139	1360	1164	1330
429.mcf	192	<u>1251</u>	<u>1400</u>	1245	1410	1255	1400	96	400	2190	<u>400</u>	<u>2190</u>	400	2190
445.gobmk	192	1252	1610	1250	1610	<u>1250</u>	<u>1610</u>	192	<u>1105</u>	<u>1820</u>	1107	1820	1104	1830
456.hammer	192	908	1970	<u>909</u>	<u>1970</u>	909	1970	96	411	2180	<u>411</u>	<u>2180</u>	411	2180
458.sjeng	192	1646	1410	1643	1410	<u>1646</u>	<u>1410</u>	192	<u>1439</u>	<u>1610</u>	1436	1620	1440	1610
462.libquantum	192	283	14000	283	14100	<u>283</u>	<u>14100</u>	48	<u>49.9</u>	<u>19900</u>	49.8	20000	50.1	19800
464.h264ref	192	2040	2080	2041	2080	<u>2040</u>	<u>2080</u>	96	931	2280	919	2310	<u>926</u>	<u>2290</u>
471.omnetpp	192	1466	818	1466	818	<u>1466</u>	<u>818</u>	192	<u>1412</u>	<u>850</u>	1412	850	1411	850
473.astar	192	1338	1010	<u>1339</u>	<u>1010</u>	1340	1010	192	<u>1306</u>	<u>1030</u>	1305	1030	1307	1030
483.xalancbmk	192	777	1710	<u>776</u>	<u>1710</u>	776	1710	192	<u>724</u>	<u>1830</u>	723	1830	724	1830

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 Wed Mar 1 19:02:16 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)
  2 chips
  192 threads
  4250 MHz
```

From kstat: 24 cores

From prtconf: 1046016 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  25G   244G      10%    /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

SPEC CPU2006 benchmark:
Updated with runspec --update



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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

C++ benchmarks:
CC



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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
-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

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Peak Optimization Flags (Continued)

456.hmmmer (continued):

-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
-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



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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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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