SPEC® CINT2006 Result

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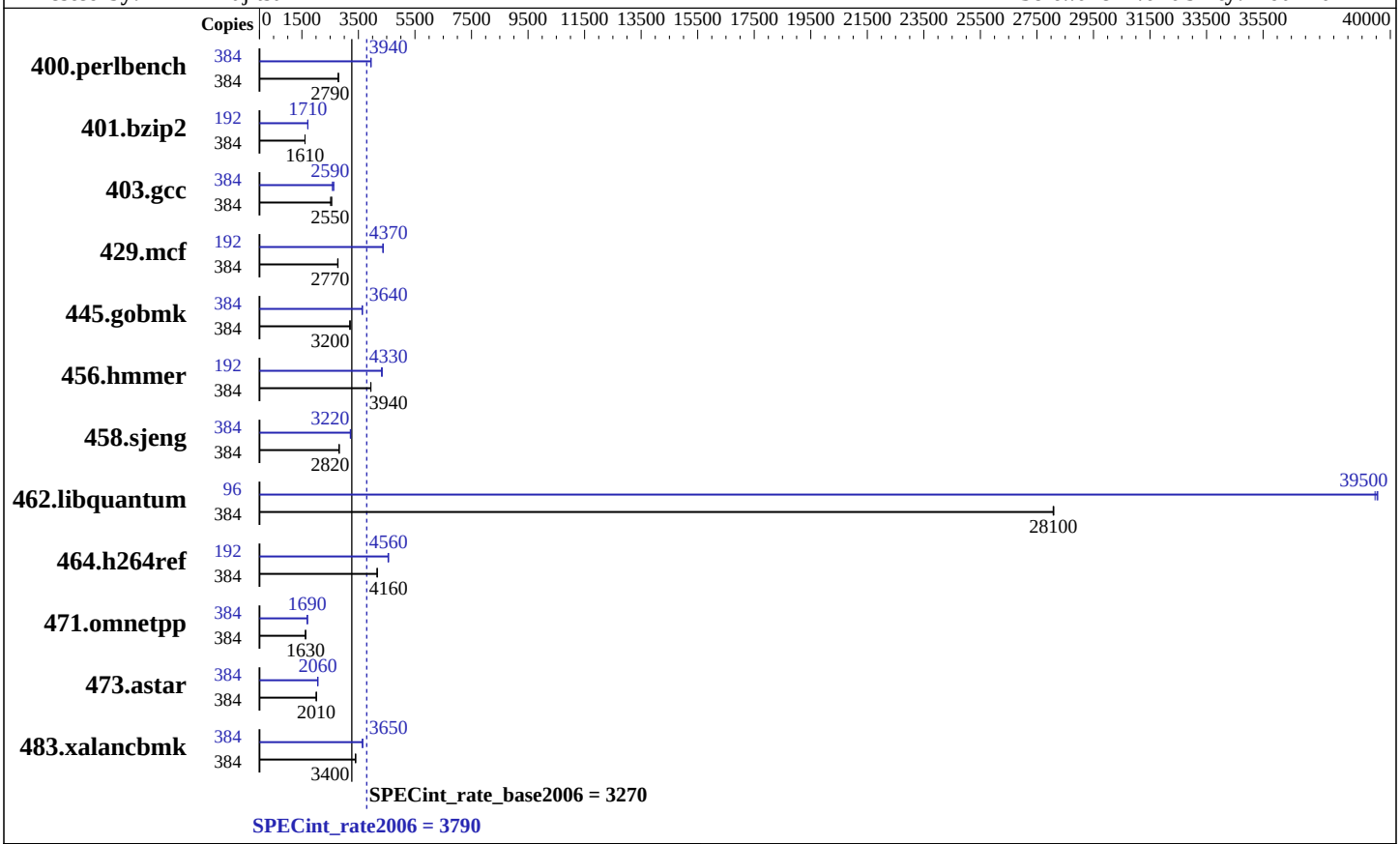
Fujitsu
Fujitsu SPARC M12-2S

SPECint®_rate2006 = 3790

SPECint_rate_base2006 = 3270

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:	48 cores, 4 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:	2 TB (64 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	384	1346	2790	**1344**	**2790**	1344	2790	384	953	3940	**951**	**3940**	951	3950
401.bzip2	384	2302	1610	2300	1610	**2300**	**1610**	192	1084	1710	1082	1710	**1084**	**1710**
403.gcc	384	1212	2550	**1213**	**2550**	1229	2510	384	1196	2580	1175	2630	**1194**	**2590**
429.mcf	384	1260	2780	1265	2770	**1264**	**2770**	192	400	4380	**401**	**4370**	401	4370
445.gobmk	384	**1258**	**3200**	1261	3190	1255	3210	384	1108	3640	**1107**	**3640**	1107	3640
456.hmmer	384	909	3940	**910**	**3940**	910	3940	192	413	4340	**413**	**4330**	415	4320
458.sjeng	384	**1649**	**2820**	1652	2810	1647	2820	384	**1444**	**3220**	1446	3210	1439	3230
462.libquantum	384	**283**	**28100**	283	28100	283	28100	96	**50.3**	**39500**	50.4	39500	50.3	39600
464.h264ref	384	2040	4170	**2040**	**4160**	2042	4160	192	930	4570	**933**	**4560**	934	4550
471.omnetpp	384	1473	1630	1473	1630	**1473**	**1630**	384	1418	1690	**1417**	**1690**	1417	1690
473.astar	384	**1341**	**2010**	1341	2010	1341	2010	384	1307	2060	**1307**	**2060**	1307	2060
483.xalancbmk	384	**780**	**3400**	780	3400	779	3400	384	727	3640	727	3650	**727**	**3650**

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).
```

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-254-D0 Tue Mar 21 07:02:25 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)
    4 chips
    384 threads
    4250 MHz

 From kstat:       48 cores

 From prtconf: 2093056 Megabytes

 /etc/release:
      Oracle Solaris 11.3 SPARC
 uname -a:
    SunOS H2S-254-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    44G       218G    17%    /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
```

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

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

Continued on next page

Peak Optimization Flags (Continued)

456.hmmer (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

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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