SPEC® CINT2006 Result

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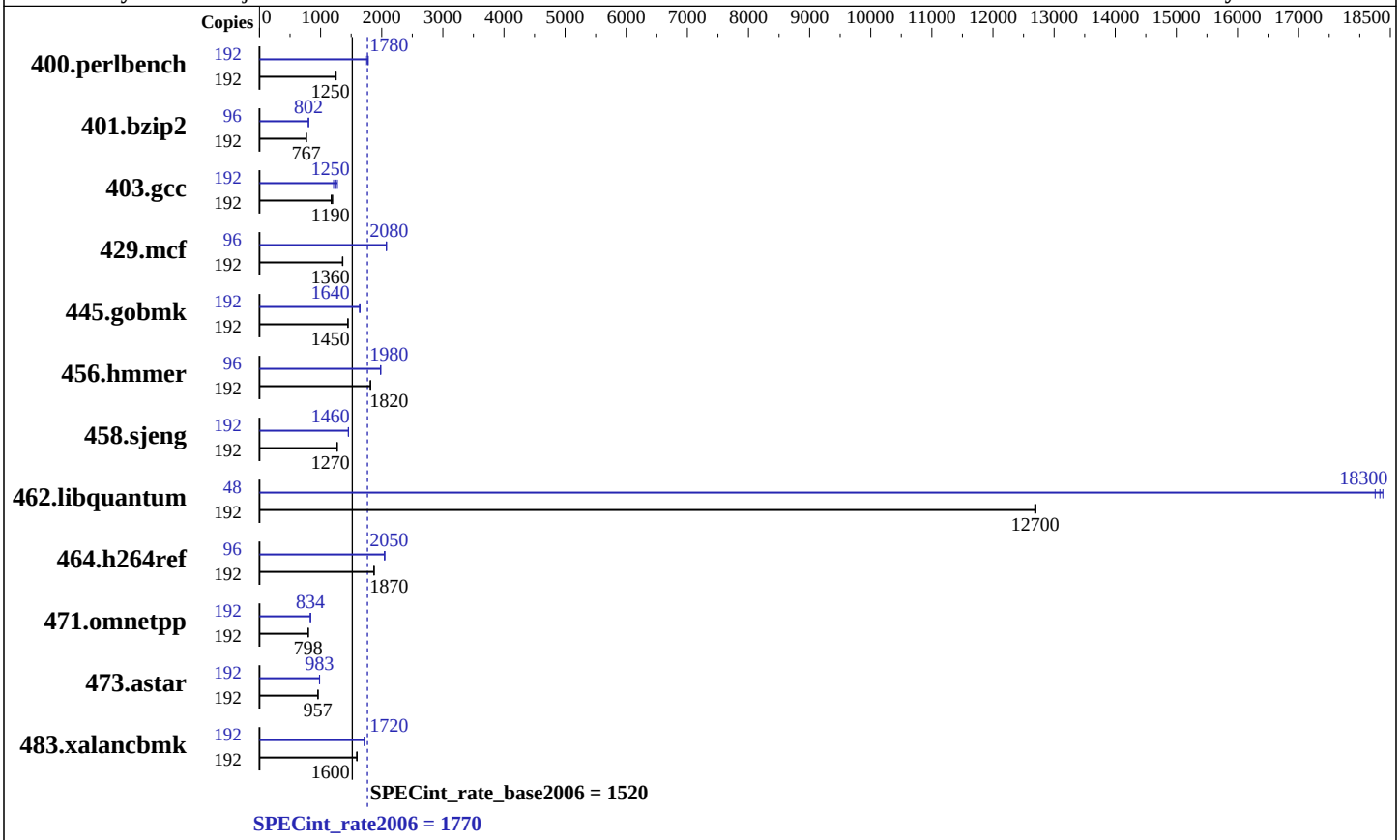
Fujitsu
Fujitsu SPARC M12-2

SPECint®_rate2006 = 1770

SPECint_rate_base2006 = 1520

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:	
CPU MHz:	3900
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 8 threads/core
CPU(s) orderable:	1 or 2 CPU chips; the number of orderable total cores is 2, 3, 4, .. 24
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	1502	1250	**1497**	**1250**	1496	1250	192	1055	1780	1070	1750	**1056**	**1780**
401.bzip2	192	2423	765	**2417**	**767**	2416	767	96	**1156**	**802**	1156	802	1155	802
403.gcc	192	**1303**	**1190**	1291	1200	1318	1170	192	1275	1210	1212	1270	**1237**	**1250**
429.mcf	192	**1287**	**1360**	1290	1360	1283	1360	96	421	2080	**422**	**2080**	422	2080
445.gobmk	192	1393	1450	**1392**	**1450**	1390	1450	192	1229	1640	**1228**	**1640**	1226	1640
456.hmmer	192	987	1810	**987**	**1820**	987	1820	96	**452**	**1980**	452	1980	452	1980
458.sjeng	192	1827	1270	1829	1270	**1827**	**1270**	192	1598	1450	**1596**	**1460**	1594	1460
462.libquantum	192	314	12700	313	12700	**313**	**12700**	48	54.1	18400	**54.3**	**18300**	54.5	18300
464.h264ref	192	2266	1880	2269	1870	**2266**	**1870**	96	**1038**	**2050**	1038	2050	1036	2050
471.omnetpp	192	1504	798	1504	798	**1504**	**798**	192	**1439**	**834**	1438	834	1440	834
473.astar	192	1408	957	1408	957	**1408**	**957**	192	**1372**	**983**	1373	981	1370	984
483.xalancbmk	192	832	1590	830	1600	**830**	**1600**	192	772	1720	771	1720	**771**	**1720**

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

```
Sysinfo program /export/cpu2006/config/sysinfo
Revision 6993 of 2015-11-06 (975e92c7086bc383773e22882bdda8dd)
running on H2S-210-D0 Fri Mar  3 16:59:12 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 3900 MHz)
   SPARC64-XII (chipid 1, clock 3900 MHz)
   2 chips
   192 threads
   3900 MHz

From kstat:       24 cores

From prtconf: 1046016 Megabytes

/etc/release:
     Oracle Solaris 11.3 SPARC
uname -a:
   SunOS H2S-210-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   2.6G       401G     1%    /export

(End of data from sysinfo program)
```

General Notes

```
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`
`-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`

Continued on next page

Peak Optimization Flags (Continued)

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-M12-2.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-M12-2.xml

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

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