SPEC® CINT2006 Result

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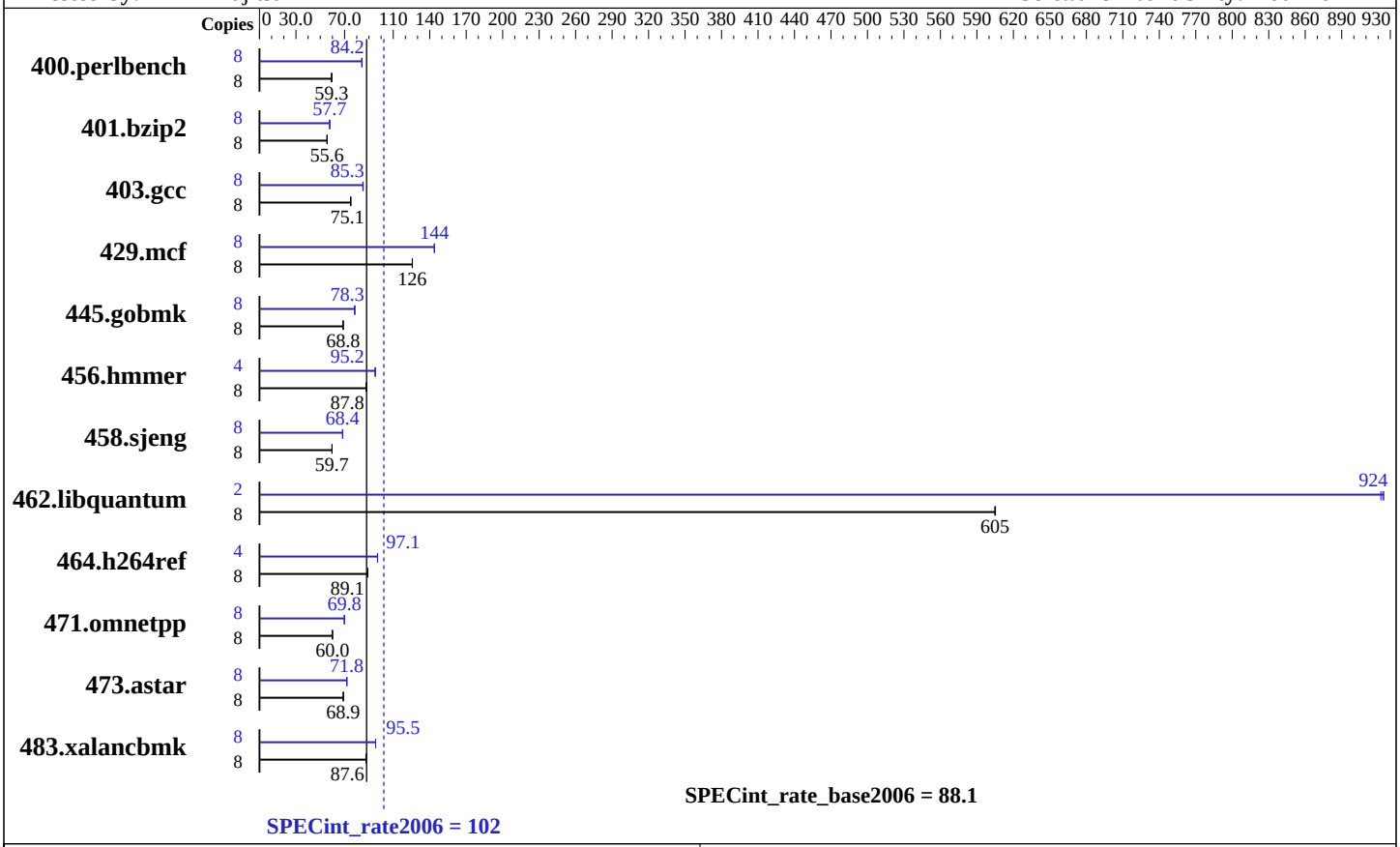
Fujitsu
Fujitsu SPARC M12-2S

SPECint®_rate2006 = 102

SPECint_rate_base2006 = 88.1

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:	1 core, 1 chip, 1 core/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:	512 GB (16 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	8	1320	59.2	1314	59.5	**1317**	**59.3**	8	929	84.2	927	84.3	**928**	**84.2**
401.bzip2	8	**1388**	**55.6**	1389	55.6	1388	55.6	8	1339	57.7	**1337**	**57.7**	1337	57.8
403.gcc	8	859	74.9	**858**	**75.1**	857	75.1	8	758	85.0	755	85.3	**755**	**85.3**
429.mcf	8	580	126	581	126	**580**	**126**	8	508	144	**507**	**144**	507	144
445.gobmk	8	1218	68.9	1221	68.7	**1219**	**68.8**	8	1070	78.4	1071	78.3	**1071**	**78.3**
456.hmmer	8	**851**	**87.8**	851	87.7	850	87.8	4	392	95.3	393	95.1	**392**	**95.2**
458.sjeng	8	**1621**	**59.7**	1625	59.6	1621	59.7	8	**1416**	**68.4**	1417	68.3	1413	68.5
462.libquantum	8	274	605	**274**	**605**	274	605	2	**44.9**	**924**	44.9	922	44.8	925
464.h264ref	8	1986	89.1	**1986**	**89.1**	1987	89.1	4	**912**	**97.1**	911	97.2	912	97.0
471.omnetpp	8	833	60.1	**833**	**60.0**	833	60.0	8	716	69.8	716	69.8	**716**	**69.8**
473.astar	8	**815**	**68.9**	814	69.0	815	68.9	8	782	71.8	**782**	**71.8**	781	71.9
483.xalancbmk	8	631	87.5	**630**	**87.6**	630	87.6	8	578	95.5	578	95.5	**578**	**95.5**

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".

   Set 1 core per chip via "setcod -p 0 -s cpu 1".

 Sysinfo program /export/cpu2006/config/sysinfo
 Revision 6993 of 2015-11-06 (5bc7c140478f0d042f37127effc8c1a9)
 running on H2S-256-D0 Wed Mar  1 18:55:47 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)
    1 chips
    8 threads
    4250 MHz

 From kstat:        1 cores

 From prtconf: 521728 Megabytes

 /etc/release:
      Oracle Solaris 11.3 SPARC
 uname -a:
    SunOS H2S-256-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   5.6G       269G     3%    /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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