SPEC® CINT2006 Result

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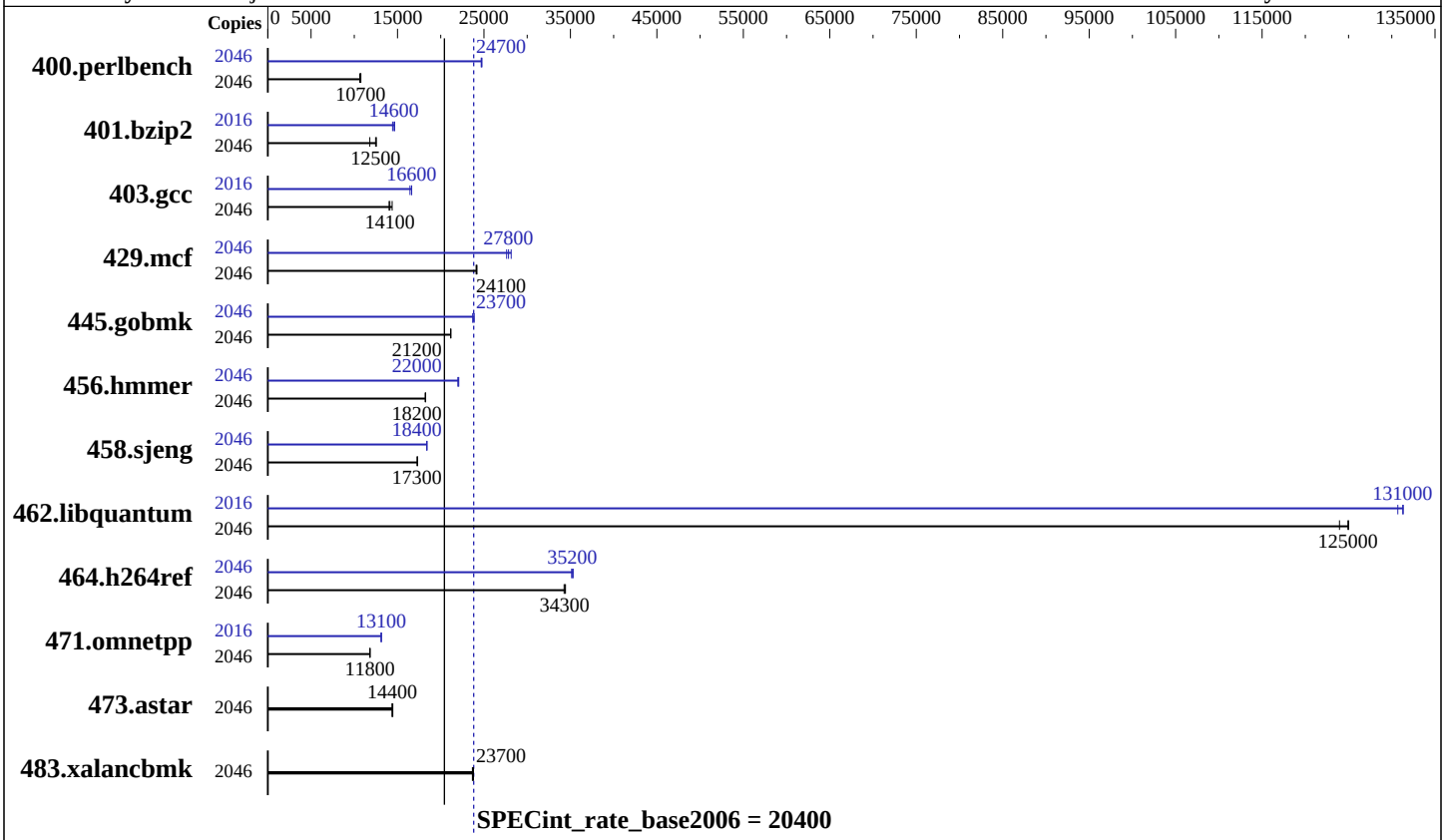
Fujitsu
Fujitsu SPARC M10-4S

SPECint®_rate2006 = 23800

SPECint_rate_base2006 = 20400

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

Test date: Jan-2013
Hardware Availability: Mar-2013
Software Availability: Mar-2013



Hardware

CPU Name:	SPARC64 X
CPU Characteristics:	
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	1024 cores, 64 chips, 16 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 BBs; each BB contains 2 or 4 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	24 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	8320 GB (520 x 16 GB) chip#0: 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9) chip#1-#63: 8064 GB (504 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1600 MHz)
Disk Subsystem:	1 x 600 GB SAS, 10025 RPM Toshiba MBF2600RC
Other Hardware:	None

Software

Operating System:	Oracle Solaris 11.1
Compiler:	C/C++: Version 12.3 of Oracle Solaris Studio, 1/13 Platform Specific Enhancement
Auto Parallel:	No
File System:	zfs and 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	2046	1880	10600	**1860**	**10700**	1857	10800	2046	**808**	**24700**	807	24800	810	24700
401.bzip2	2046	1673	11800	**1584**	**12500**	1572	12600	2016	**1333**	**14600**	1326	14700	1348	14400
403.gcc	2046	**1167**	**14100**	1145	14400	1174	14000	2016	987	16400	**976**	**16600**	975	16600
429.mcf	2046	771	24200	**773**	**24100**	775	24100	2046	663	28100	**670**	**27800**	676	27600
445.gobmk	2046	1014	21200	**1014**	**21200**	1015	21100	2046	899	23900	905	23700	**904**	**23700**
456.hmmer	2046	1046	18300	**1046**	**18200**	1049	18200	2046	**867**	**22000**	864	22100	868	22000
458.sjeng	2046	1433	17300	**1432**	**17300**	1431	17300	2046	**1346**	**18400**	1347	18400	1346	18400
462.libquantum	2046	339	125000	**339**	**125000**	342	124000	2016	318	131000	320	131000	**318**	**131000**
464.h264ref	2046	1315	34400	**1318**	**34300**	1321	34300	2046	1289	35100	1282	35300	**1285**	**35200**
471.omnetpp	2046	1082	11800	**1082**	**11800**	1083	11800	2016	**960**	**13100**	959	13100	962	13100
473.astar	2046	994	14500	**998**	**14400**	999	14400	2046	994	14500	**998**	**14400**	999	14400
483.xalancbmk	2046	593	23800	597	23700	**596**	**23700**	2046	593	23800	597	23700	**596**	**23700**

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 "webconsole" service was turned off using svcadm disable webconsole.

System Tunables:
(/etc/system parameters)
   lpg_alloc_prefer=1
     Indicates that extra effort should be taken to ensure that pages are
     created in the nearby lgroup (NUMA location).
```

Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on 4S-405-D0 Mon Jan 14 03:29:06 2013
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
```

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Platform Notes (Continued)

```
From /usr/sbin/psrinfo
   SPARC64-X (chipid 0, clock 3000 MHz)
   SPARC64-X (chipid 1, clock 3000 MHz)
   SPARC64-X (chipid 10, clock 3000 MHz)
   SPARC64-X (chipid 11, clock 3000 MHz)
   SPARC64-X (chipid 12, clock 3000 MHz)
   SPARC64-X (chipid 13, clock 3000 MHz)
   SPARC64-X (chipid 14, clock 3000 MHz)
   SPARC64-X (chipid 15, clock 3000 MHz)
   SPARC64-X (chipid 16, clock 3000 MHz)
   SPARC64-X (chipid 17, clock 3000 MHz)
   SPARC64-X (chipid 18, clock 3000 MHz)
   SPARC64-X (chipid 19, clock 3000 MHz)
   SPARC64-X (chipid 2, clock 3000 MHz)
   SPARC64-X (chipid 20, clock 3000 MHz)
   SPARC64-X (chipid 21, clock 3000 MHz)
   SPARC64-X (chipid 22, clock 3000 MHz)
   SPARC64-X (chipid 23, clock 3000 MHz)
   SPARC64-X (chipid 24, clock 3000 MHz)
   SPARC64-X (chipid 25, clock 3000 MHz)
   SPARC64-X (chipid 26, clock 3000 MHz)
   SPARC64-X (chipid 27, clock 3000 MHz)
   SPARC64-X (chipid 28, clock 3000 MHz)
   SPARC64-X (chipid 29, clock 3000 MHz)
   SPARC64-X (chipid 3, clock 3000 MHz)
   SPARC64-X (chipid 30, clock 3000 MHz)
   SPARC64-X (chipid 31, clock 3000 MHz)
   SPARC64-X (chipid 32, clock 3000 MHz)
   SPARC64-X (chipid 33, clock 3000 MHz)
   SPARC64-X (chipid 34, clock 3000 MHz)
   SPARC64-X (chipid 35, clock 3000 MHz)
   SPARC64-X (chipid 36, clock 3000 MHz)
   SPARC64-X (chipid 37, clock 3000 MHz)
   SPARC64-X (chipid 38, clock 3000 MHz)
   SPARC64-X (chipid 39, clock 3000 MHz)
   SPARC64-X (chipid 4, clock 3000 MHz)
   SPARC64-X (chipid 40, clock 3000 MHz)
   SPARC64-X (chipid 41, clock 3000 MHz)
   SPARC64-X (chipid 42, clock 3000 MHz)
   SPARC64-X (chipid 43, clock 3000 MHz)
   SPARC64-X (chipid 44, clock 3000 MHz)
   SPARC64-X (chipid 45, clock 3000 MHz)
   SPARC64-X (chipid 46, clock 3000 MHz)
   SPARC64-X (chipid 47, clock 3000 MHz)
   SPARC64-X (chipid 48, clock 3000 MHz)
   SPARC64-X (chipid 49, clock 3000 MHz)
   SPARC64-X (chipid 5, clock 3000 MHz)
   SPARC64-X (chipid 50, clock 3000 MHz)
   SPARC64-X (chipid 51, clock 3000 MHz)
   SPARC64-X (chipid 52, clock 3000 MHz)
   SPARC64-X (chipid 53, clock 3000 MHz)
   SPARC64-X (chipid 54, clock 3000 MHz)
```

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Platform Notes (Continued)

```
      SPARC64-X (chipid 55, clock 3000 MHz)
      SPARC64-X (chipid 56, clock 3000 MHz)
      SPARC64-X (chipid 57, clock 3000 MHz)
      SPARC64-X (chipid 58, clock 3000 MHz)
      SPARC64-X (chipid 59, clock 3000 MHz)
      SPARC64-X (chipid 6, clock 3000 MHz)
      SPARC64-X (chipid 60, clock 3000 MHz)
      SPARC64-X (chipid 61, clock 3000 MHz)
      SPARC64-X (chipid 62, clock 3000 MHz)
      SPARC64-X (chipid 63, clock 3000 MHz)
      SPARC64-X (chipid 7, clock 3000 MHz)
      SPARC64-X (chipid 8, clock 3000 MHz)
      SPARC64-X (chipid 9, clock 3000 MHz)
      64 chips
      2048 threads
      3000 MHz
   From kstat:     1024 cores
   From prtconf: 8498688 Megabytes
   /etc/release:
        Oracle Solaris 11.1 SPARC
   uname -a:
      SunOS 4S-405-D0 5.11 11.1 sun4v sparc sun4v
   disk: df -h  $SPEC
   Filesystem             Size   Used  Available Capacity  Mounted on
   rpool/export           547G   7.9G       460G     2%    /export
   (End of data from sysinfo program)
```

General Notes

```
output_root was used to put run directories in /tmp/cpu2006 (tmpfs).
```

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:
```
-fast -xtarget=sparc64x -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=std -M /usr/lib/ld/map.bssalign
```

C++ benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=compatible -library=stlport4 -lfast
-M /usr/lib/ld/map.bssalign
```

Base Other Flags

C benchmarks:
```
-xjobs=16
```

C++ benchmarks:
```
-xjobs=16
```

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: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xtarget=sparc64x`
`-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1`
`-xalias_level=std -xrestrict -xprefetch=no%auto -xO4`
`-lfast`

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Peak Optimization Flags (Continued)

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=strong
-xprefetch=latx:0.2 -W2,-Ainline:rs=1000
-W2,-Ainline:cs=500 -W2,-Ainline:inc=60 -lfast

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xipo=2 -xprefetch_level=2
-xprefetch=latx:0.2

429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=std
-xprefetch_level=1 -xprefetch=latx:0.2

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=std -xrestrict
-xprefetch=latx:0.2

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=std

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=std
-xprefetch=no%auto

462.libquantum: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=std -xprefetch_level=2 -xprefetch=latx:0.2
-M /usr/lib/ld/map.bssalign

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1
-xalias_level=any -xprefetch=no%auto

C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=compatible
-xunroll=2 -xchip=generic -library=stlport4 -lfast

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:
`-xjobs=16`

C++ benchmarks:
`-xjobs=16`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.xml`

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