SPEC® CINT2006 Result

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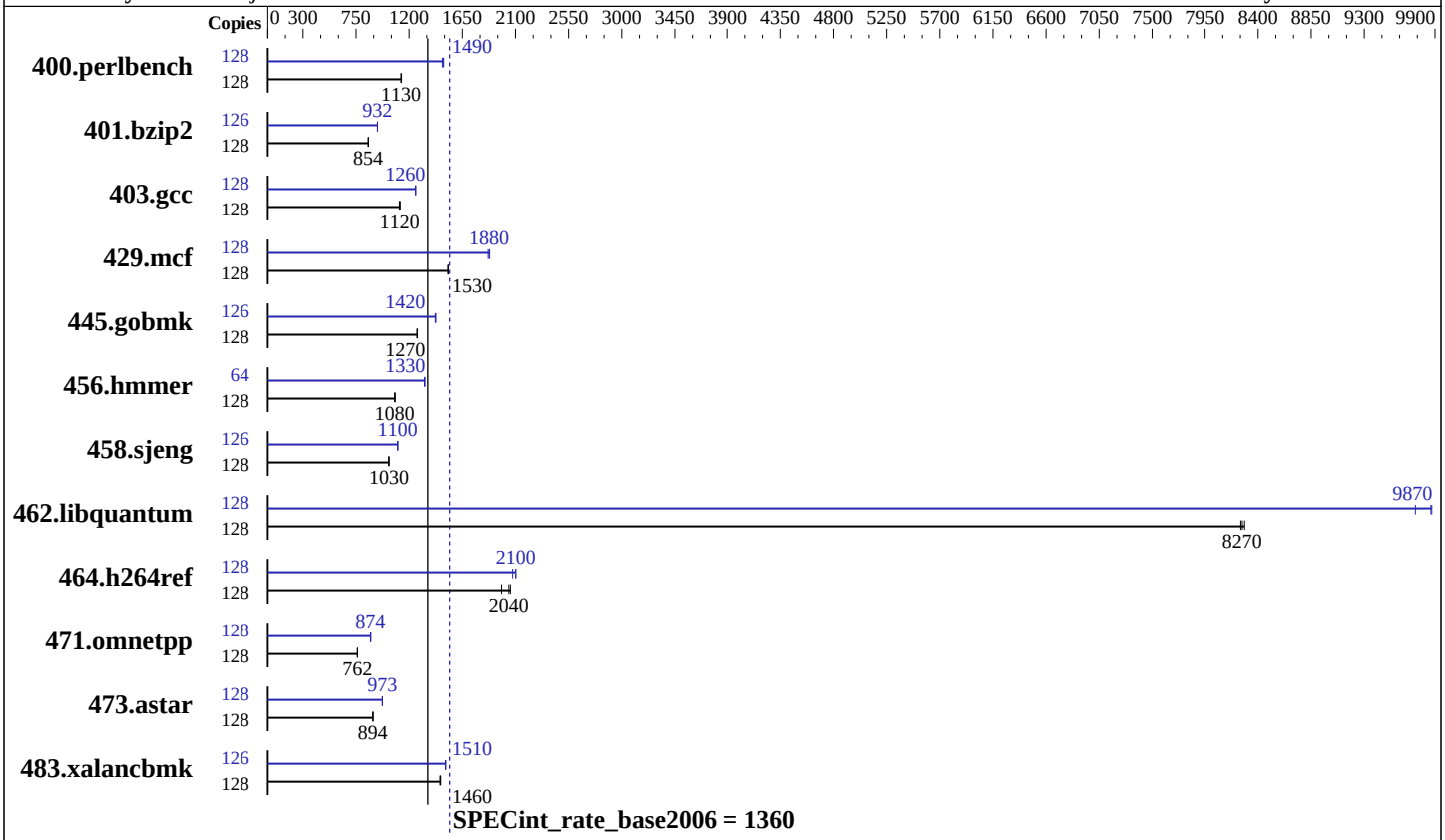
Fujitsu
Fujitsu SPARC M10-4

SPECint®_rate2006 = 1540

SPECint_rate_base2006 = 1360

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

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



Hardware

CPU Name:	SPARC64 X
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	64 cores, 4 chips, 16 cores/chip, 2 threads/core
CPU(s) orderable:	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:	512 GB (32 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:	Solaris 11.1.6.4.0
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	128	1101	1140	**1103**	**1130**	1105	1130	128	**840**	**1490**	844	1480	838	1490
401.bzip2	128	1446	854	**1446**	**854**	1446	854	126	1306	931	1304	932	**1304**	**932**
403.gcc	128	**919**	**1120**	917	1120	922	1120	128	**821**	**1260**	820	1260	821	1250
429.mcf	128	763	1530	762	1530	**762**	**1530**	128	621	1880	625	1870	**622**	**1880**
445.gobmk	128	1056	1270	**1058**	**1270**	1059	1270	126	**928**	**1420**	930	1420	927	1430
456.hmmer	128	1107	1080	**1106**	**1080**	1104	1080	64	448	1330	**448**	**1330**	449	1330
458.sjeng	128	1504	1030	**1505**	**1030**	1508	1030	126	1381	1100	1382	1100	**1381**	**1100**
462.libquantum	128	320	8290	**321**	**8270**	321	8250	128	272	9730	**269**	**9870**	269	9870
464.h264ref	128	1377	2060	**1386**	**2040**	1429	1980	128	1365	2080	**1347**	**2100**	1347	2100
471.omnetpp	128	1049	763	**1050**	**762**	1051	761	128	917	872	**915**	**874**	914	875
473.astar	128	**1006**	**894**	1006	893	1006	894	128	**923**	**973**	923	973	922	974
483.xalancbmk	128	602	1470	604	1460	**604**	**1460**	126	576	1510	**576**	**1510**	576	1510

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-LGA05-D0 Fri Apr 26 14:02:47 2013

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
      http://www.spec.org/cpu2006/Docs/config.html#sysinfo

    From /usr/sbin/psrinfo
       SPARC64-X (chipid 0, clock 2800 MHz)
       SPARC64-X (chipid 1, clock 2800 MHz)
       SPARC64-X (chipid 2, clock 2800 MHz)
       SPARC64-X (chipid 3, clock 2800 MHz)
       4 chips
       128 threads
       2800 MHz

    From kstat:       64 cores

    From prtconf: 522496 Megabytes

    /etc/release:
         Oracle Solaris 11.1 SPARC
    uname -a:
       SunOS 4S-LGA05-D0 5.11 11.1 sun4v sparc sun4v

    disk: df -h  $SPEC
    Filesystem             Size   Used  Available Capacity  Mounted on
    rpool/export           547G   7.5G       465G     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`
`-xcache=32/128/4/1:768/128/24/1 -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_auto_type=indirect_array_access

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
-xprefetch_auto_type=indirect_array_access

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
-xcache=32/128/4/1:768/128/24/1

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 -Wc,-Qlu-en=1-t=4

462.libquantum: -fast -xtarget=T5 -xpagesize=256M -xarch=sparcvis2
-xcache=32/128/4/1:768/128/24/1 -xipo=2 -xalias_level=std
-xprefetch_level=2 -Wc,-Qlu-en=1-t=4
-Wc,-Qiselect-funcalign=64
-M /export/cpu2006-v1.2/mapfiles/map.256M.align -lbsdmalloc
-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
-xcache=32/128/4/1:768/128/24/1

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 -xprefetch_level=3

Continued on next page

Peak Optimization Flags (Continued)

471.omnetpp (continued):
-library=stlport4 -lfast

473.astar: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=0 -xalias_level=compatible
-xunroll=6 -xprefetch=latx:0.8
-xprefetch_auto_type=indirect_array_access -library=stlport4
-lfast

483.xalancbmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=T5
-xpagesize=256M -xarch=sparcvis2
-xcache=32/128/4/1:768/128/24/1 -xalias_level=compatible
-xdepend -xipo=2 -library=stlport4 -lfast

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.20130522.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.20130522.xml

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