SPEC® CINT2006 Result

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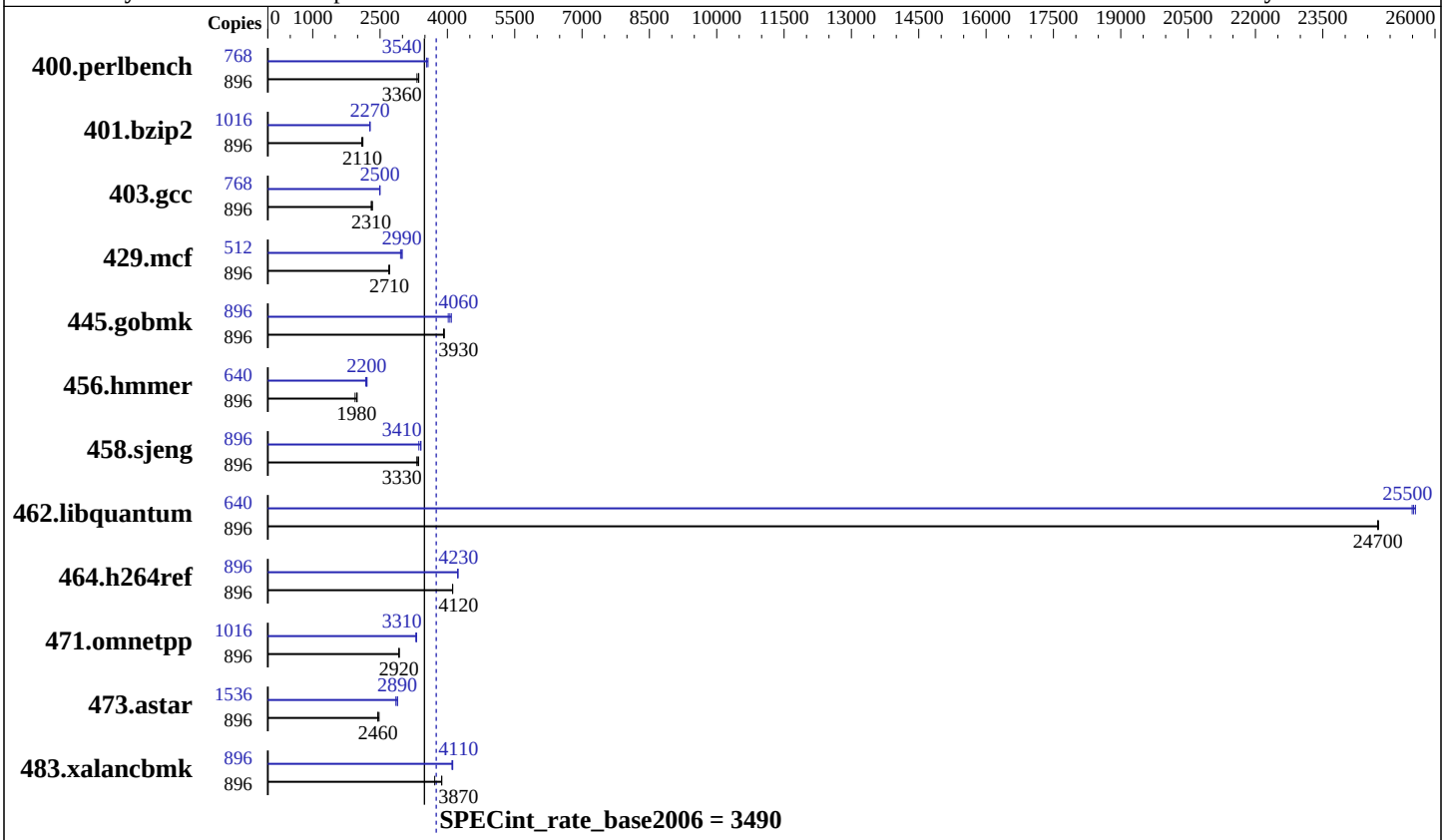
Oracle Corporation
SPARC T5-8

SPECint®_rate2006 = 3750

SPECint_rate_base2006 = 3490

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

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



Hardware

CPU Name:	SPARC T5
CPU Characteristics:	
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	128 cores, 8 chips, 16 cores/chip, 8 threads/core
CPU(s) orderable:	8 chips
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	128 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	4 TB (128 x 32 GB), 4-way interleaved
Disk Subsystem:	2 TB on 8x 600 GB 10K RPM SAS disks, arranged as 4x 2-way mirrors
Other Hardware:	None

Software

Operating System:	Oracle Solaris 11.1, SRU 4.6
Compiler:	C/C++: Version 12.3 of Oracle Solaris Studio, 1/13 Platform Specific Enhancement
Auto Parallel:	No
File System:	zfs with gzip compression
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	896	2634	3320	2604	3360	**2607**	**3360**	768	2122	3540	**2118**	**3540**	2102	3570
401.bzip2	896	**4101**	**2110**	4083	2120	4133	2090	1016	4305	2280	4315	2270	**4310**	**2270**
403.gcc	896	3127	2310	**3125**	**2310**	3094	2330	768	2482	2490	**2477**	**2500**	2474	2500
429.mcf	896	3014	2710	**3019**	**2710**	3031	2700	512	**1562**	**2990**	1579	2960	1561	2990
445.gobmk	896	**2393**	**3930**	2401	3910	2393	3930	896	2299	4090	**2317**	**4060**	2339	4020
456.hmmer	896	4299	1940	**4212**	**1980**	4206	1990	640	2739	2180	2702	2210	**2709**	**2200**
458.sjeng	896	**3258**	**3330**	3262	3320	3227	3360	896	3180	3410	3222	3360	**3182**	**3410**
462.libquantum	896	750	24700	**751**	**24700**	751	24700	640	520	25500	**520**	**25500**	519	25600
464.h264ref	896	**4817**	**4120**	4815	4120	4818	4120	896	4685	4230	**4685**	**4230**	4684	4230
471.omnetpp	896	1914	2930	**1917**	**2920**	1917	2920	1016	**1918**	**3310**	1925	3300	1916	3310
473.astar	896	**2561**	**2460**	2568	2450	2538	2480	1536	3780	2850	3734	2890	**3736**	**2890**
483.xalancbmk	896	1663	3720	**1596**	**3870**	1596	3870	896	1507	4100	1501	4120	**1503**	**4110**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
Processes were bound to cores using "submit" and "pbind".  The config
file option 'submit' was used in order to accomplish this.
```

Operating System Notes

```
ulimit -s 131072 was used to limit the space
consumed by the stack

/etc/system parameters
   autoup=600
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   tune_t_fsflushr=10
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.
   lpg_alloc_prefer=1
       Indicates that extra effort should be taken to ensure
       that pages are created in the nearby lgroup (NUMA location).
   tsb_rss_factor=128
       Suggests that the the size of the TSB (Translation
       Storage Buffer) may be increased if it is more than
       25% (128/512) full.  Doing so may reduce TSB traps,
       at the cost of additional kernel memory.
   zfs:zfs_arc_min =  1073741824
   zfs:zfs_arc_max =  0x10000000000
       Limits the consumption of memory by the zfs file system
```

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Operating System Notes (Continued)

```
        cache to the range 1 GB to 1 TB.
    plat_disable_mempm=1
        Do not attempt to allocate kernel memory in a power-aware fashion

poweradm set administrative-authority=none
     Disables Solaris power management

A swapfile of 4 TB was connected via Fibre Channel
on a Sun Storage 2540-M2 with 12x SAS 600 GB
disks, Raid-5
```

Platform Notes

```
Power policy set to 'disabled' at ILOM Power Managment menu
Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ 5569a0425e2ad530534e4c79a46e4d28
running on bur407-139.us.oracle.com Fri Mar 22 11:22:47 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

From /usr/sbin/psrinfo
   SPARC-T5 (chipid 0, clock 3600 MHz)
   SPARC-T5 (chipid 1, clock 3600 MHz)
   SPARC-T5 (chipid 2, clock 3600 MHz)
   SPARC-T5 (chipid 3, clock 3600 MHz)
   SPARC-T5 (chipid 4, clock 3600 MHz)
   SPARC-T5 (chipid 5, clock 3600 MHz)
   SPARC-T5 (chipid 6, clock 3600 MHz)
   SPARC-T5 (chipid 7, clock 3600 MHz)
   8 chips
   1024 threads
   3600 MHz

From kstat:      128 cores

From prtconf: 4 Terabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS bur407-139.us.oracle.com 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export/cpu2006    98G   973M        86G     2%    /cpu2006

(End of data from sysinfo program)
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

(*) Indicates a compiler flag that was found in a non-compiler variable.

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:
-g -fast -xipo=2 -xpagesize=256M -xprefetch=no%auto
-xalias_level=std -M map.64K.align -lfast

C++ benchmarks:
-g -fast -xipo=2 -xpagesize=256M -xprefetch=no%auto -xdepend
-xalias_level=compatible -library=stlport4 -M map.256M.align -lfast

Base Other Flags

C benchmarks:
-xjobs=32 -V -#

C++ benchmarks:
-xjobs=32 -verbose=diags,version

Peak Compiler Invocation

C benchmarks (except as noted below):
cc

401.bzip2: cc

403.gcc: cc

Continued on next page

Peak Compiler Invocation (Continued)

464.h264ref: cc

C++ benchmarks:
CC

(*) Indicates a compiler flag that was found in a non-compiler variable.

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: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=256M
-M map.256M.align -xipo=2 -xalias_level=std -xrestrict
-xprefetch=no%auto -Wc,-Qiselect-funcalign=64 -lfast

401.bzip2: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-M map.4M.align -xalias_level=strong -xprefetch=no%auto

403.gcc: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-M map.4M.align -xalias_level=std -xprefetch_level=2

429.mcf: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=256M
-M map.256M.align -xipo=2 -xprefetch=no%auto
-Wc,-Qiselect-funcalign=64

445.gobmk: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=256M
-M map.256M.align -xalias_level=std -xrestrict
-xprefetch=no%auto

456.hmmer: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=256M
-M map.256M.align -xipo=2 -Wc,-xthroughput
-W2,-xthroughput=yes -W2,-Rloop_dist
-Wc,-Qpeep-Ex1:minmax_use_cmov=2

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Peak Optimization Flags (Continued)

458.sjeng: `-g -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=256M -M map.256M.align -xipo=2 -xprefetch=no%auto -Wc,-xthroughput -W2,-xthroughput=yes`

462.libquantum: `-g -fast -xpagesize=256M -M map.256M.align -xipo=2 -xalias_level=std -xprefetch_level=2 -Wc,-Qlu-en=1-t=4 -Wc,-Qiselect-funcalign=64 -lbsdmalloc`

464.h264ref: `-g -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M map.64K.align -xipo=2 -xalias_level=std`

C++ benchmarks:

471.omnetpp: `-g -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=256M -xalias_level=compatible -M map.256M.align -xipo=2 -xprefetch_level=2 -library=stdcxx4 -lfast`

473.astar: `-g -fast -xpagesize=256M -xalias_level=compatible -M map.256M.align -xipo=2 -Wc,-xthroughput -W2,-xthroughput=yes -library=stdcxx4 -lfast`

483.xalancbmk: `-g -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=256M -xalias_level=compatible -xdepend -M map.256M.align -xipo=2 -library=stlport4 -lfast`

Peak Other Flags

C benchmarks:
`-xjobs=32 -V -#`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC.html
http://www.spec.org/cpu2006/flags/Oracle-Tseries.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC.xml
http://www.spec.org/cpu2006/flags/Oracle-Tseries.xml

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