SPEC® CINT2006 Result

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Oracle Corporation

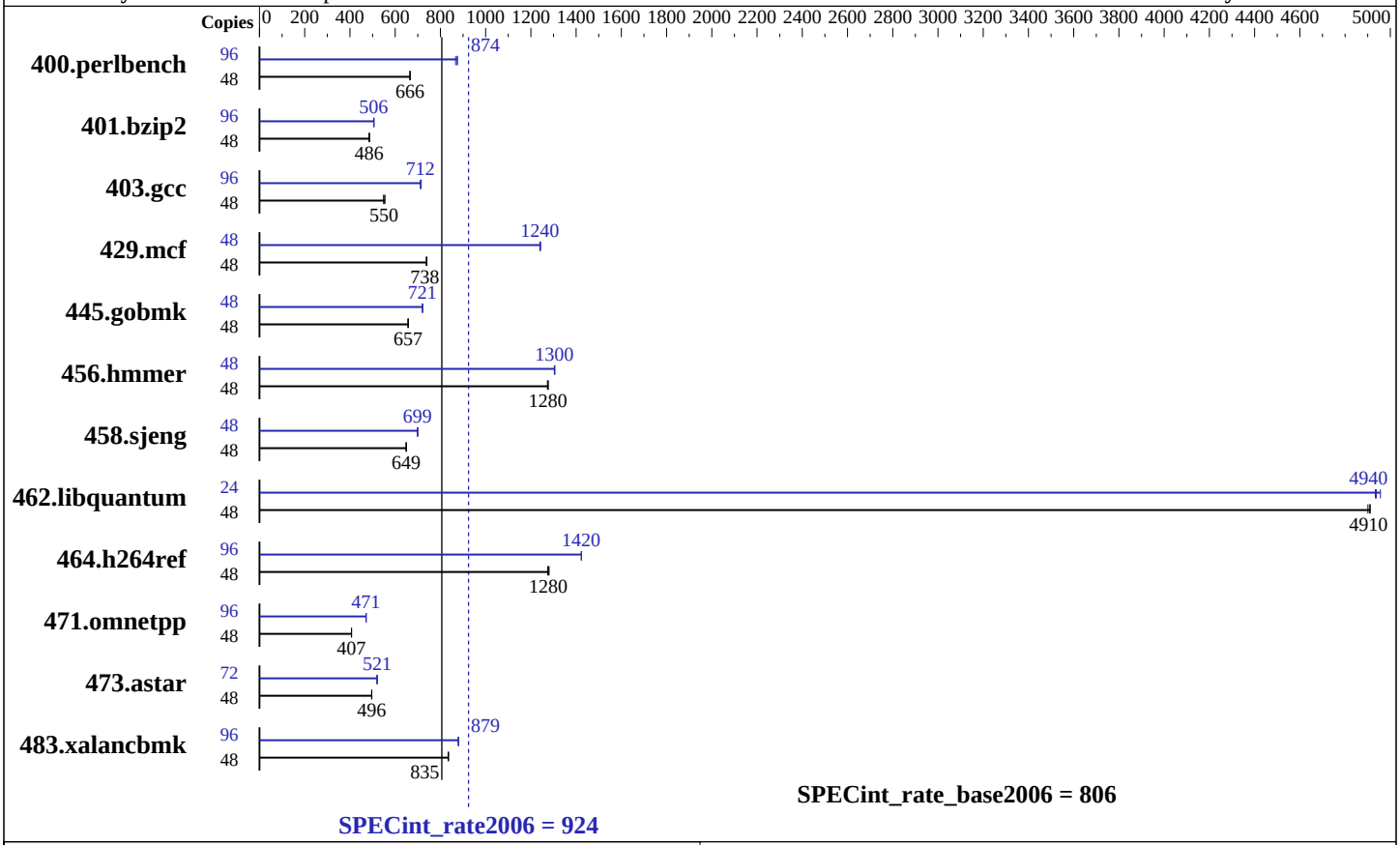
Sun Fire X4-2L (Intel Xeon E5-2697 v2 2.7GHz)

SPECint®_rate2006 = 924

SPECint_rate_base2006 = 806

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

Test date: Aug-2013
Hardware Availability: Sep-2013
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E5-2697 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 600 GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Solaris 11.1 (SRU 11)
Compiler:	C/C++: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set (tested with nightly build 20130822)
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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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	48	704	666	**704**	**666**	705	665	96	1072	875	**1073**	**874**	1082	867
401.bzip2	48	955	485	953	486	**954**	**486**	96	1828	507	**1832**	**506**	1835	505
403.gcc	48	703	549	**703**	**550**	696	555	96	1081	715	**1085**	**712**	1085	712
429.mcf	48	**593**	**738**	591	740	593	738	48	352	1240	**353**	**1240**	353	1240
445.gobmk	48	**766**	**657**	765	658	767	657	48	**699**	**721**	698	721	699	720
456.hmmer	48	**351**	**1280**	351	1280	352	1270	48	343	1310	344	1300	**343**	**1300**
458.sjeng	48	**895**	**649**	896	649	894	649	48	829	700	832	698	**831**	**699**
462.libquantum	48	203	4900	**203**	**4910**	203	4910	24	100	4960	**101**	**4940**	101	4930
464.h264ref	48	830	1280	**832**	**1280**	833	1270	96	1493	1420	1493	1420	**1493**	**1420**
471.omnetpp	48	**737**	**407**	737	407	737	407	96	**1273**	**471**	1273	471	1272	472
473.astar	48	679	496	678	497	**679**	**496**	72	974	519	970	521	**970**	**521**
483.xalancbmk	48	397	834	**396**	**835**	396	836	96	753	879	**753**	**879**	753	880

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

Submit Notes

```
The config file option 'submit' was used to bind processes to CPU threads with pbind(1)
```

Operating System Notes

```
ulimit -s unlimited  (shell): increases stack

/etc/system parameters
   autoup=1000
   tune_t_fsflushr=10
   zfs:zfs_arc_max=0x10000000
   zfs:zfs_arc_min=0x04001000
   lpg_alloc_prefer=1

gzip compression set using "zfs set compression=gzip <zfs-filesystem>"
```

Platform Notes

```
Default BIOS Settings were used.
Sysinfo program /export/home/cpu2006v1.2/Docs/sysinfo
: 6775  2011-08-16 #f7622badcf24e01c368b1db4377c
running on x4-2l-001 Fri Aug 30 20:02:49 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
```

Continued on next page

Platform Notes (Continued)

```
From /usr/sbin/psrinfo -pv
 Intel(r) Xeon(r) CPU E5-2697 v2 @ 2.70GHz
 x86 (GenuineIntel 306E4 family 6 model 62 step 4 clock 2693 MHz)

/usr/sbin/psrinfo -p:   2 chips
/usr/sbin/psrinfo -pv | grep "core has" | wc -l:  24 cores
/usr/sbin/psrinfo | wc -l: 48 threads

/usr/sbin/prtconf | grep "Memory size:": 262087 Megabytes

/etc/release:
                              Oracle Solaris 11.1 X86
uname -a:
SunOS x4-2l-001 5.11 11.1 i86pc i386 i86pc

disk: df -h
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export/home      547G   4.8G       468G     2%    /export/home

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "1"
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_X64 -DSPEC_CPU_LP64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_SOLARIS -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_SOLARIS -DSPEC_CPU_LP64
464.h264ref: -DSPEC_CPU_LP64

Continued on next page

Base Portability Flags (Continued)

483.xalancbmk: -DSPEC_CPU_SOLARIS

Base Optimization Flags

C benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xaddr32 -xpagesize=2M

C++ benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m32 -xpagesize=2M
-xalias_level=compatible -library=stlport4 -lfast

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_X64 -DSPEC_CPU_LP64
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 -xtarget=nehalem
-xprefetch=no%auto -xipo=1 -m64 -xpagesize=2M
-xalias_level=std -lbsdmalloc

401.bzip2: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=2M -xalias_level=strong

403.gcc: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m32 -xpagesize=2M -xalias_level=std
-W2,-Abuiltin_opt:calloc_no_support=on

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Peak Optimization Flags (Continued)

429.mcf: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m32 -xpagesize_heap=2M -xpagesize_stack=4k
-xalias_level=std -W2,-Asac

445.gobmk: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xtarget=sandybridge -m64 -xpagesize=2M -xrestrict
-xalias_level=strong

456.hmmer: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=4k -xalias_level=strong

458.sjeng: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=std

462.libquantum: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M
-xalias_level=std

464.h264ref: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m32 -xpagesize=2M -xalias_level=strong

C++ benchmarks:

471.omnetpp: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m32 -xpagesize=2M -xalias_level=compatible
-library=stlport4
-L/export/home/SmartHeap_9/lib/ -R/export/home/SmartHeap_9/lib/ -lsmartheap

473.astar: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-xrestrict -library=stlport4 -lfast

483.xalancbmk: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m32 -xpagesize=2M -xunroll=8 -library=stlport4
-lfast

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.xml

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