



# SPEC® CINT2006 Result

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## Oracle Corporation

SPECint®\_rate2006 = 924

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

SPECint\_rate\_base2006 = 806

CPU2006 license: 6

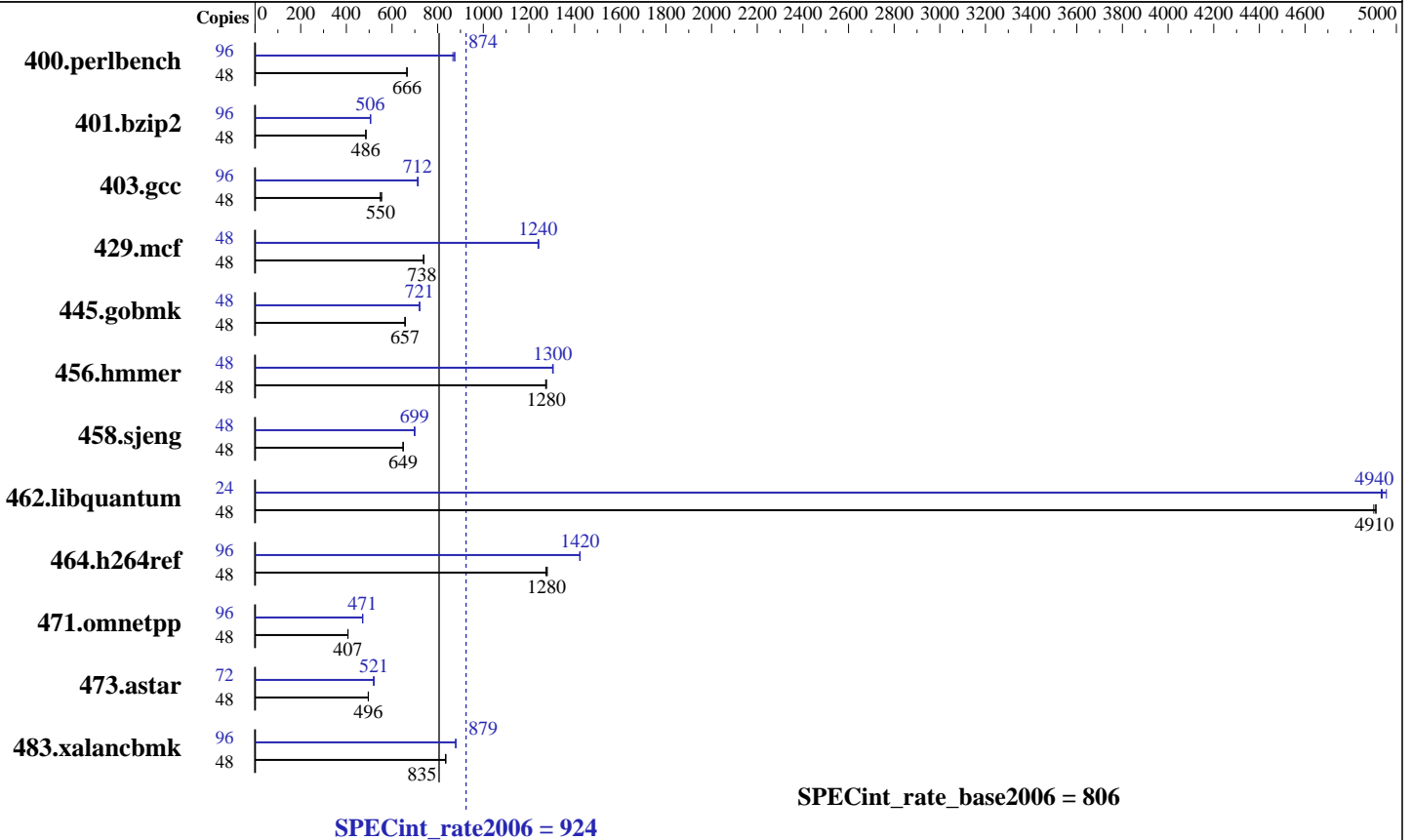
Test date: Aug-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

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

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## 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

```

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## 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.hmmcr: -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-Solaris-Studio12.3-x86_64.20130924.html)

[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.20120425.html](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.html)



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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-Solaris-Studio12.3-x86_64.20130924.xml)

[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.20120425.xml](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.xml)

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