



# SPEC® CINT2006 Result

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## Oracle Corporation

SPECint®\_rate2006 = 924

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECint\_rate\_base2006 = 806

CPU2006 license: 6

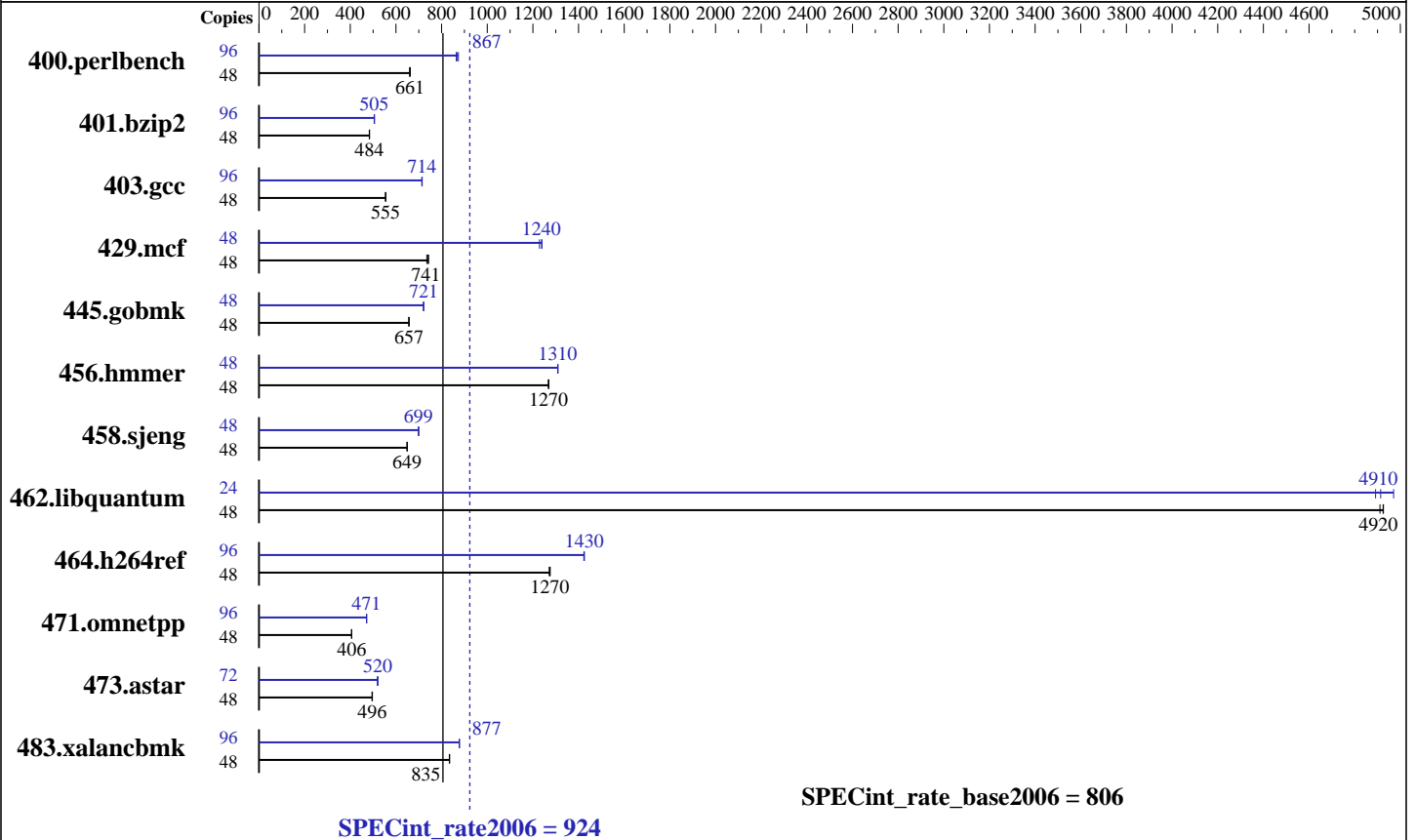
Test date: Sep-2013

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 300 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     | 711               | 660                | <b><u>709</u></b> | <b><u>661</u></b>  | 708               | 663               | 96     | <b><u>1081</u></b> | <b><u>867</u></b>  | 1074               | 874                | 1085              | 864                |
| 401.bzip2      | 48     | 959               | 483                | <b><u>958</u></b> | <b><u>484</u></b>  | 956               | 485               | 96     | 1831               | 506                | <b><u>1833</u></b> | <b><u>505</u></b>  | 1836              | 505                |
| 403.gcc        | 48     | 698               | 554                | <b><u>696</u></b> | <b><u>555</u></b>  | 695               | 556               | 96     | <b><u>1082</u></b> | <b><u>714</u></b>  | 1083               | 714                | 1081              | 715                |
| 429.mcf        | 48     | <b><u>591</u></b> | <b><u>741</u></b>  | 589               | 743                | 595               | 735               | 48     | 356                | 1230               | <b><u>354</u></b>  | <b><u>1240</u></b> | 353               | 1240               |
| 445.gobmk      | 48     | 767               | 657                | 766               | 657                | <b><u>767</u></b> | <b><u>657</u></b> | 48     | 698                | 722                | <b><u>698</u></b>  | <b><u>721</u></b>  | 699               | 721                |
| 456.hammer     | 48     | 353               | 1270               | <b><u>353</u></b> | <b><u>1270</u></b> | 353               | 1270              | 48     | 342                | 1310               | 342                | 1310               | <b><u>342</u></b> | <b><u>1310</u></b> |
| 458.sjeng      | 48     | <b><u>895</u></b> | <b><u>649</u></b>  | 895               | 649                | 895               | 649               | 48     | 831                | 699                | 830                | 699                | <b><u>831</u></b> | <b><u>699</u></b>  |
| 462.libquantum | 48     | <b><u>202</u></b> | <b><u>4920</u></b> | 202               | 4930               | 203               | 4910              | 24     | <b><u>101</u></b>  | <b><u>4910</u></b> | 100                | 4970               | 102               | 4890               |
| 464.h264ref    | 48     | 833               | 1280               | <b><u>833</u></b> | <b><u>1270</u></b> | 836               | 1270              | 96     | 1491               | 1430               | <b><u>1491</u></b> | <b><u>1430</u></b> | 1493              | 1420               |
| 471.omnetpp    | 48     | <b><u>739</u></b> | <b><u>406</u></b>  | 739               | 406                | 739               | 406               | 96     | 1274               | 471                | <b><u>1274</u></b> | <b><u>471</u></b>  | 1271              | 472                |
| 473.astar      | 48     | 678               | 497                | 680               | 495                | <b><u>679</u></b> | <b><u>496</u></b> | 72     | <b><u>972</u></b>  | <b><u>520</u></b>  | 971                | 521                | 974               | 519                |
| 483.xalancbmk  | 48     | 397               | 834                | <b><u>397</u></b> | <b><u>835</u></b>  | 397               | 835               | 96     | <b><u>755</u></b>  | <b><u>877</u></b>  | 755                | 877                | 754               | 878                |

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 bur408-94 Sun Sep 1 14:42:53 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 bur408-94 5.11 11.1 i86pc i386 i86pc

disk: df -h
Filesystem      Size  Used  Available Capacity  Mounted on
rpool/export/home 274G  18G    179G      10%  /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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[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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Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 16:00:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 24 September 2013.