



# SPEC® CINT2006 Result

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## Oracle Corporation

SPECint®\_rate2006 = 702

Sun Server X3-2 (Intel Xeon E5-2690 2.9GHz)

SPECint\_rate\_base2006 = 628

CPU2006 license: 6

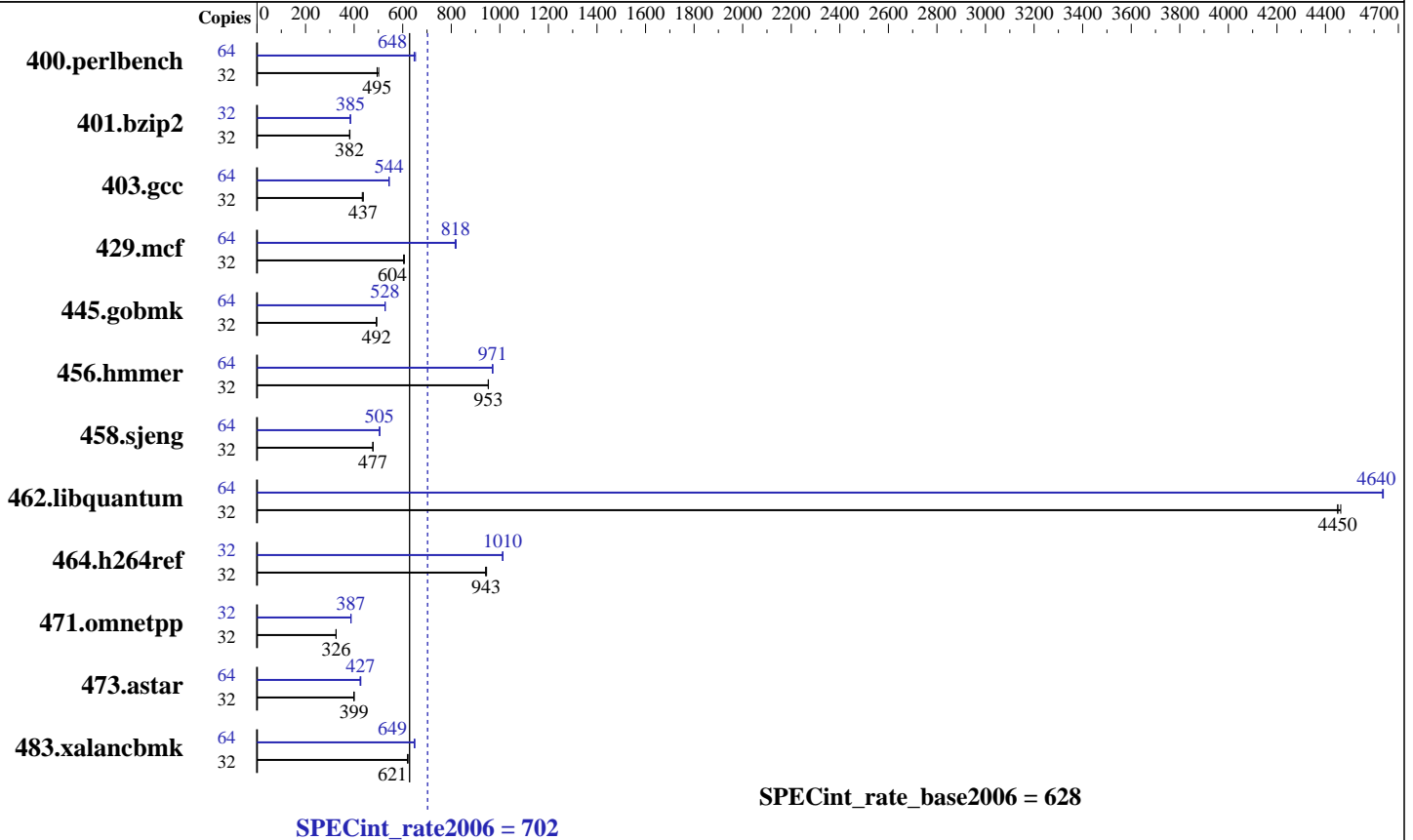
Test date: Mar-2012

Test sponsor: Oracle Corporation

Hardware Availability: Apr-2012

Tested by: Oracle Corporation

Software Availability: Jun-2012



### Hardware

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 or 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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 3 x 300 GB 10K RPM SAS  
 Other Hardware: None

### Software

Operating System: Oracle Solaris 11 11/11 (SRU 02)  
 Compiler: C/C++: Version 12.3 of Oracle Solaris Studio (patch update 1, tested with nightly build 20120313)  
 Auto Parallel: No  
 File System: zfs (with raidz)  
 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	32	624	501	<b>632</b>	<b>495</b>	632	495	64	958	653	966	647	<b>965</b>	<b>648</b>		
401.bzip2	32	807	383	810	381	<b>809</b>	<b>382</b>	32	<b>802</b>	<b>385</b>	801	385	804	384		
403.gcc	32	<b>589</b>	<b>437</b>	589	437	594	433	64	949	543	<b>947</b>	<b>544</b>	946	544		
429.mcf	32	483	604	481	607	<b>483</b>	<b>604</b>	64	<b>714</b>	<b>818</b>	715	816	712	820		
445.gobmk	32	682	492	<b>682</b>	<b>492</b>	683	492	64	1272	528	1273	527	<b>1273</b>	<b>528</b>		
456.hammer	32	314	952	313	953	<b>313</b>	<b>953</b>	64	<b>615</b>	<b>971</b>	616	969	615	971		
458.sjeng	32	811	477	810	478	<b>811</b>	<b>477</b>	64	1535	504	<b>1534</b>	<b>505</b>	1532	505		
462.libquantum	32	<b>149</b>	<b>4450</b>	149	4460	149	4450	64	<b>286</b>	<b>4640</b>	286	4640	286	4640		
464.h264ref	32	749	945	<b>751</b>	<b>943</b>	752	942	32	701	1010	699	1010	<b>700</b>	<b>1010</b>		
471.omnetpp	32	<b>614</b>	<b>326</b>	614	326	614	326	32	<b>517</b>	<b>387</b>	517	387	517	387		
473.astar	32	563	399	562	399	<b>563</b>	<b>399</b>	64	1059	424	1052	427	<b>1053</b>	<b>427</b>		
483.xalancbmk	32	356	620	356	621	<b>356</b>	<b>621</b>	64	680	649	682	648	<b>680</b>	<b>649</b>		

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 10000 (shell): increases stack

```

/etc/system parameters
  autoup=1000
  zfs:zfs_arc_max=0x400000000
  zfs:zfs_arc_min=0x400000000
  ncsiz=0x10000
  lpg_alloc_prefer=1

```

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

## Platform Notes

Default BIOS Settings were used, except:  
Energy Performance set to Performance

Oracle's Sun Server X3-2 was formerly known as the Sun Fire X4170 M3

Single processor configuration of this system is available as of Sep-2012

```

Sysinfo program /benchpool/data1/cpu2006v1.2/Docs/sysinfo
: 6775 2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur407-122 Fri Mar 30 15:47:43 2012

```

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## Platform Notes (Continued)

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 -pv
Intel(r) Xeon(r) CPU E5-2690 0 @ 2.90GHz
x86 (GenuineIntel 206D7 family 6 model 45 step 7 clock 2893 MHz)
```

```
/usr/sbin/psrinfo -p: 2 chips
/usr/sbin/psrinfo -pv | grep "core has" | wc -l: 16 cores
/usr/sbin/psrinfo | wc -l: 32 threads
```

```
/usr/sbin/prtconf | grep "Memory size:": 131062 Megabytes
```

```
/etc/release:
Oracle Solaris 11 11/11 X86
```

```
uname -a:
SunOS bur407-122 5.11 11.0 i86pc i386 i86pc
```

```
disk: df -h
Filesystem      Size  Used  Available Capacity  Mounted on
benchpool/data1 545G  12G   533G      3%    /benchpool/data1
```

(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
```

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## Base Portability Flags (Continued)

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  
 483.xalancbmk: -DSPEC\_CPU\_SOLARIS

## Base Optimization Flags

C benchmarks:

-g -fast -xipo=2 -m64 -xaddr32 -xpagesize=2M -xalias\_level=std

C++ benchmarks:

-fast -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 -xprefetch=no%auto  
 -xtarget=nehalem -xipo=1 -m64 -xpagesize=2M  
 -xalias\_level=std -lbsdmalloc

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## Peak Optimization Flags (Continued)

401.bzip2: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64  
-xpagesize=2M -xalias\_level=strong

403.gcc: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m32  
-xpagesize=2M -xalias\_level=std  
-W2,-Abuiltin\_opt:calloc\_no\_support=on

429.mcf: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m32  
-xpagesize\_heap=2M -xpagesize\_stack=4k -xalias\_level=std

445.gobmk: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -m64 -xpagesize=2M  
-xrestrict -xalias\_level=strong

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

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

462.libquantum: -g -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M  
-xalias\_level=std -xunroll=8

464.h264ref: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m32  
-xpagesize=2M -xalias\_level=strong

### C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2  
-xpagesize=2M -xalias\_level=compatible -library=stlport4  
-L/export\_compress/home/gnana/cpu2006v1.2/SmartHeap\_9/lib/ -R/export\_compress/home/gnana/cpu2006v1.2/SmartHeap\_9/lib/ -lsmar

473.astar: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64  
-xpagesize=2M -xalias\_level=compatible -xrestrict  
-library=stlport4 -lfast

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



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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.html](http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.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)

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.xml](http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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