# SPEC® CINT2006 Result

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## Oracle Corporation

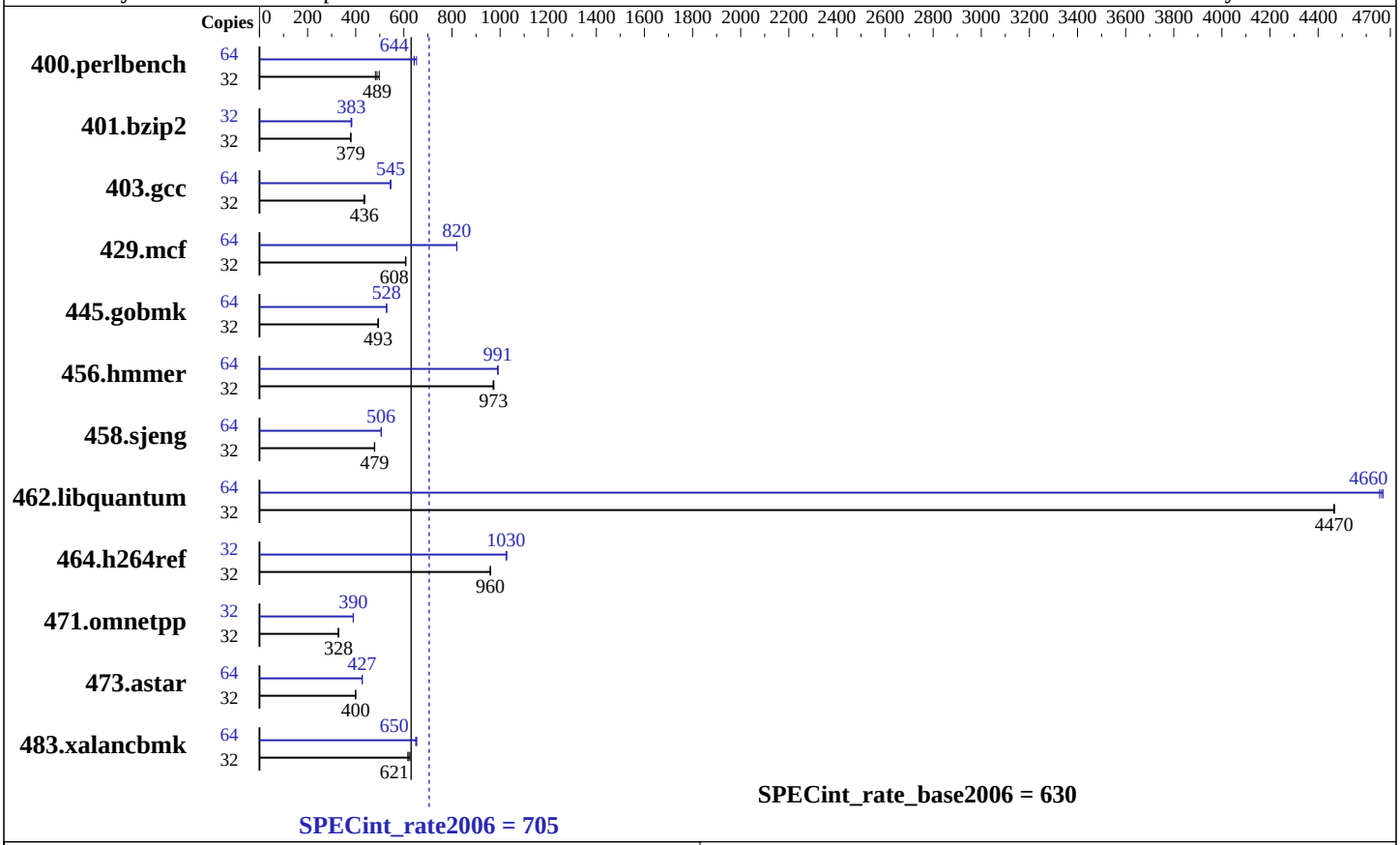
Sun Fire X4270 M3 (Intel Xeon E5-2690 2.9GHz)

SPECint®_rate2006 = 705

SPECint_rate_base2006 = 630

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

**Test date:** Apr-2012
**Hardware Availability:** Apr-2012
**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: | 1 x 600 GB 10K RPM SAS |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Oracle Solaris 11 11/11 (SRU 03) |
| Compiler: | C/C++: Version 12.3 of Oracle Solaris Studio (patch update 1, tested with nightly build 20120313) |
| 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 | 32 | 649 | 482 | 628 | 498 | **640** | **489** | 64 | 973 | 642 | 958 | 653 | **972** | **644** |
| 401.bzip2 | 32 | **815** | **379** | 812 | 380 | 816 | 379 | 32 | **807** | **383** | 805 | 383 | 812 | 380 |
| 403.gcc | 32 | 594 | 434 | 589 | 437 | **591** | **436** | 64 | **945** | **545** | 944 | 546 | 946 | 544 |
| 429.mcf | 32 | 480 | 609 | **480** | **608** | 481 | 607 | 64 | **711** | **820** | 712 | 819 | 711 | 821 |
| 445.gobmk | 32 | **680** | **493** | 680 | 493 | 681 | 493 | 64 | **1271** | **528** | 1272 | 528 | 1270 | 529 |
| 456.hmmer | 32 | 306 | 974 | 308 | 971 | **307** | **973** | 64 | 602 | 991 | **603** | **991** | 603 | 990 |
| 458.sjeng | 32 | 808 | 479 | **809** | **479** | 811 | 478 | 64 | 1531 | 506 | **1530** | **506** | 1530 | 506 |
| 462.libquantum | 32 | **148** | **4470** | 148 | 4460 | 148 | 4470 | 64 | 285 | 4660 | 284 | 4670 | **284** | **4660** |
| 464.h264ref | 32 | 738 | 960 | **738** | **960** | 738 | 959 | 32 | 689 | 1030 | **690** | **1030** | 691 | 1030 |
| 471.omnetpp | 32 | 610 | 328 | 610 | 328 | **610** | **328** | 32 | **513** | **390** | 512 | 390 | 513 | 390 |
| 473.astar | 32 | 563 | 399 | 562 | 400 | **562** | **400** | 64 | 1053 | 427 | 1051 | 427 | **1052** | **427** |
| 483.xalancbmk | 32 | 358 | 616 | 353 | 626 | **355** | **621** | 64 | 675 | 654 | 679 | 650 | **679** | **650** |

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
   ncsize=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 Fire X4270 M3 is now known as the Sun Server X3-2L.

Sysinfo program /export/home/gnana/cpu2006v1.2/Docs/sysinfo
: 6775  2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur398-107 Thu Apr  5 13:43:53 2012

This section contains SUT (System Under Test) info as seen by
```

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## Platform Notes (Continued)

```
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 2900 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 bur398-107 5.11 11.0 i86pc i386 i86pc

disk: df -h
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export/home      547G   3.4G        94G     4%    /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

Continued on next page

## Base Portability Flags (Continued)

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

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

Continued on next page

# Peak Optimization Flags (Continued)

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/home/gnana/cpu2006v1.2/SmartHeap_9/lib/ -R/export/home/gnana/cpu2006v1.2/SmartHeap_9/lib/ -lsma

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

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-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-platform-x86_64.CPUv1.2-RevA.20120425.xml


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