



# SPEC® CINT2006 Result

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## Oracle Corporation

**SPECint®2006 = 58.5**

Sun Fire X4170 M3 (Intel Xeon E5-2690 2.9GHz)

**SPECint\_base2006 = 54.3**

CPU2006 license: 6

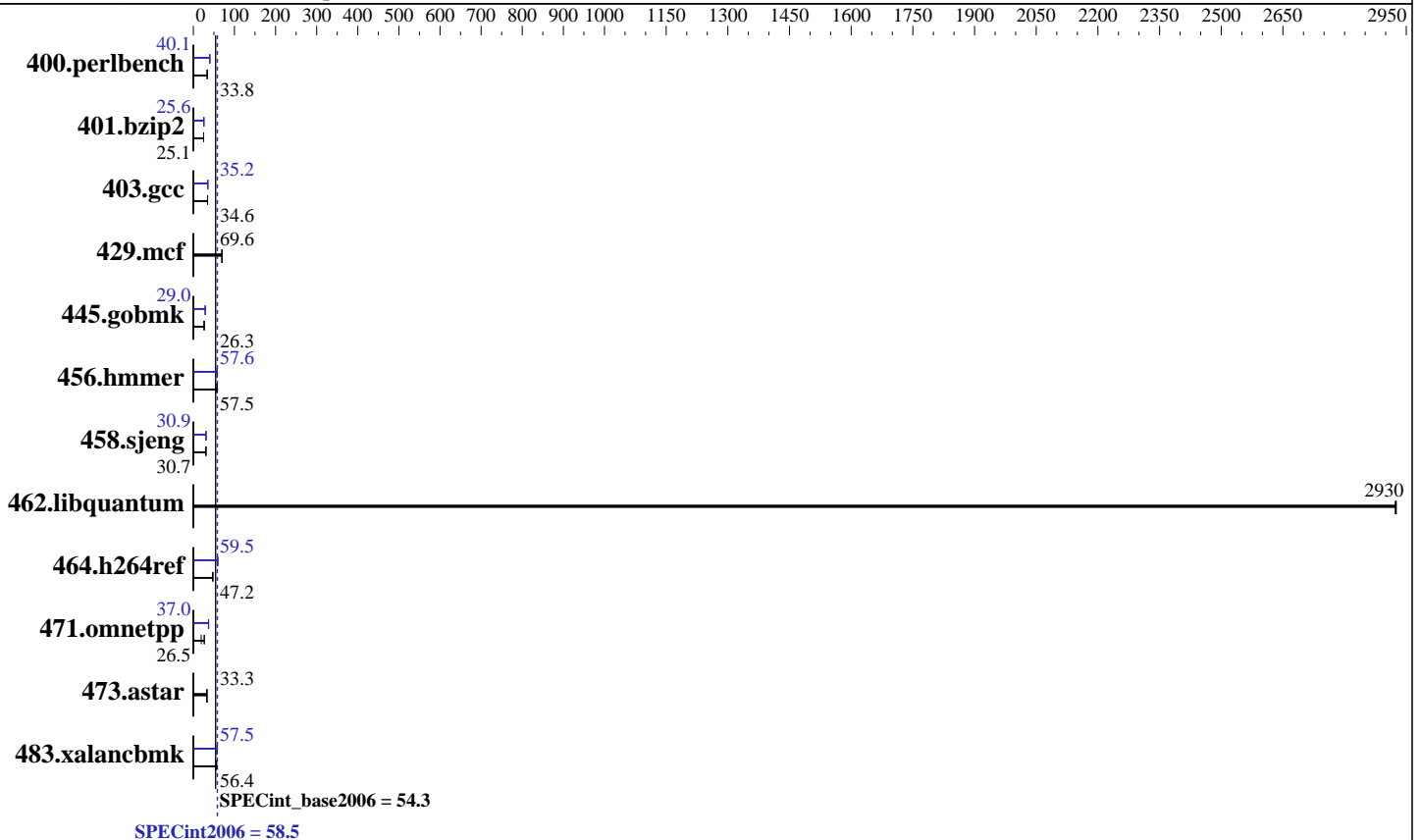
Test date: Feb-2012

Test sponsor: Oracle Corporation

Hardware Availability: Apr-2012

Tested by: Oracle Corporation

Software Availability: Oct-2011



### 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: 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: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 GB 10K RPM SAS  
 Other Hardware: None

### Software

Operating System: Oracle Linux Server release 6.1  
 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<u>289</u>	<u>33.8</u>	290	33.7	289	33.8	245	40.0	<u>243</u>	<u>40.1</u>	243	40.2
401.bzip2	385	25.0	<u>385</u>	<u>25.1</u>	384	25.1	377	25.6	376	25.7	<u>377</u>	<u>25.6</u>
403.gcc	<u>232</u>	<u>34.6</u>	232	34.7	232	34.6	<u>229</u>	<u>35.2</u>	228	35.2	229	35.2
429.mcf	131	69.5	131	69.6	<u>131</u>	<u>69.6</u>	131	69.5	131	69.6	<u>131</u>	<u>69.6</u>
445.gobmk	<u>398</u>	<u>26.3</u>	399	26.3	397	26.4	<u>362</u>	<u>29.0</u>	362	29.0	363	28.9
456.hammer	162	57.6	<u>162</u>	<u>57.5</u>	162	57.5	<u>162</u>	<u>57.6</u>	162	57.6	162	57.6
458.sjeng	395	30.7	<u>395</u>	<u>30.7</u>	395	30.7	<u>392</u>	<u>30.9</u>	391	30.9	392	30.9
462.libquantum	7.09	2920	<u>7.08</u>	<u>2930</u>	7.08	2930	7.09	2920	<u>7.08</u>	<u>2930</u>	7.08	2930
464.h264ref	464	47.7	470	47.0	<u>469</u>	<u>47.2</u>	372	59.5	375	59.0	<u>372</u>	<u>59.5</u>
471.omnetpp	233	26.8	<u>235</u>	<u>26.5</u>	326	19.2	<u>169</u>	<u>37.0</u>	170	36.7	167	37.4
473.astar	215	32.7	<u>211</u>	<u>33.3</u>	210	33.4	215	32.7	<u>211</u>	<u>33.3</u>	210	33.4
483.xalancbmk	123	56.3	122	56.8	<u>122</u>	<u>56.4</u>	121	57.2	120	57.7	<u>120</u>	<u>57.5</u>

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

Default BIOS Settings were used.

Oracle's Sun Fire X4170 M3 is now known as the Sun Server X3-2.

Sysinfo program /home/cpu2006v1.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on bur407-120 Fri Feb 3 15:02:42 2012

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 /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
 2 "physical id"s (chips)
 32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
```

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## Platform Notes (Continued)

cache size : 20480 KB

From /proc/meminfo

MemTotal: 264670732 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

Oracle Linux Server release 6.1

From /etc/\*release\* /etc/\*version\*

oracle-release: Oracle Linux Server release 6.1

redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)

system-release: Oracle Linux Server release 6.1

system-release-cpe: cpe:/o:oracle:oracle\_linux:6server:ga:server

uname -a:

Linux bur407-120 2.6.32-131.0.15.el6.x86\_64 #1 SMP Fri May 20 15:04:03 EDT

2011 x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 5 Feb 3 14:01

SPEC is set to: /home/cpu2006v1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/mapper/vg\_bur407120-lv\_home

ext4 95G 36G 54G 40% /home

Additional information from dmidecode:

Memory:

16x Samsung M393B2G70BH0-YK0 16 GB 1600 MHz 1 rank

(End of data from sysinfo program)

dmidecode interpretation of 1 rank for 16x Samsung M393B2G70BH0-YK0 is wrong

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/home/cpu2006v1.2/libs/32:/home/cpu2006v1.2/libs/64"

OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

memory using RHEL5.5

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled



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## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -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\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 471.omnetpp: -DSPEC\_CPU\_LP64  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs  
-L/smartheap -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

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## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

473.astar: `icpc -m64`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-DSPEC_CPU_LP64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch  
-ansi-alias`

401.bzip2: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch  
-ansi-alias`

403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias`

456.hmmer: `-xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias`

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## Peak Optimization Flags (Continued)

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>  
[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.html](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.html)

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>  
[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.xml](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.xml)

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