



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 49.8

PowerEdge R820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECint\_base2006 = 46.1

CPU2006 license: 55

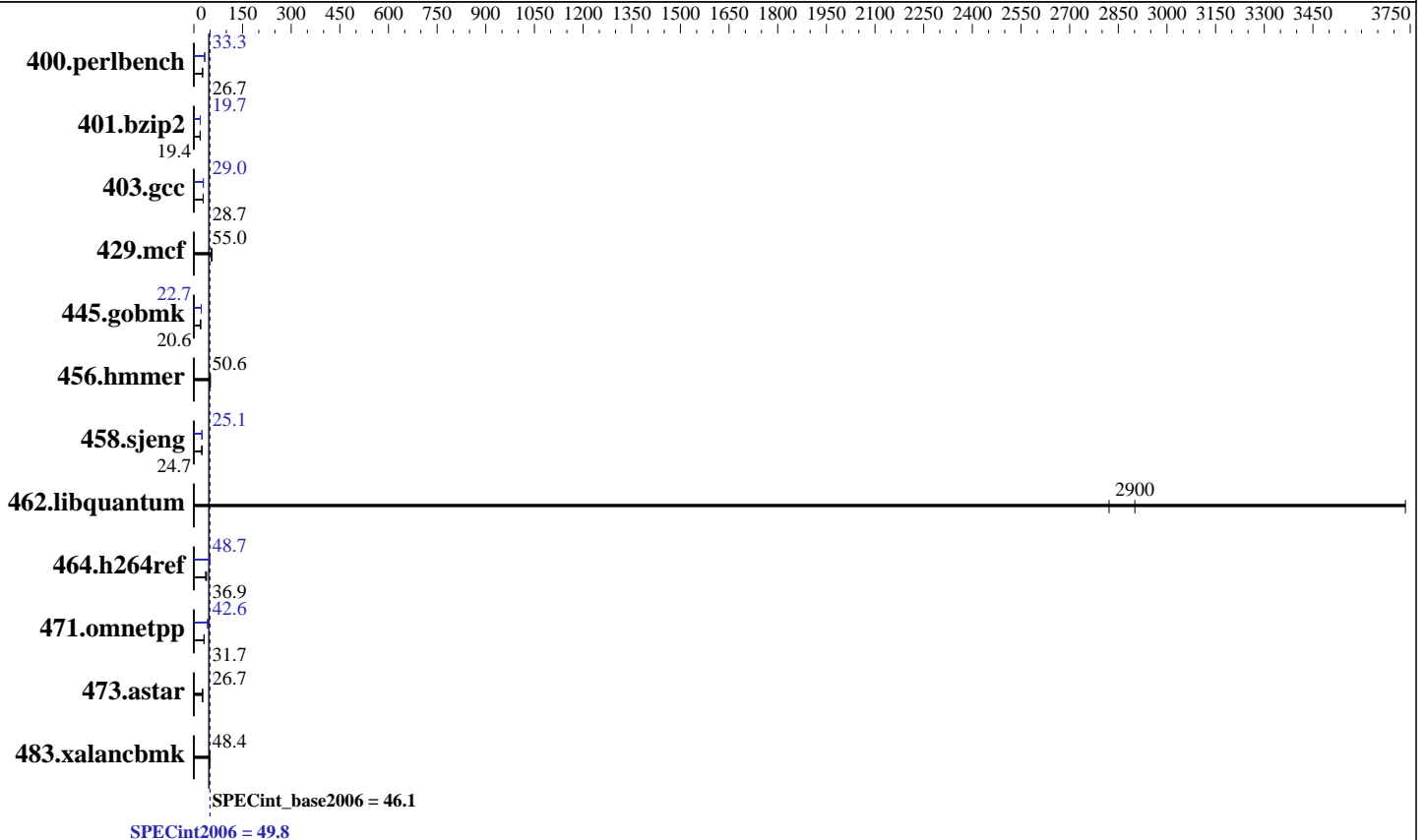
Test date: Oct-2013

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Aug-2013



## Hardware

CPU Name: Intel Xeon E5-4657L v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip  
 CPU(s) orderable: 2,4 chip  
 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: 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 300 GB 15000 RPM SAS  
 Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 2.6.32-358.11.1.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 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 V10.0



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>367</u></b>	<b><u>26.7</u></b>	367	26.7	368	26.6	294	33.2	292	33.5	<b><u>293</u></b>	<b><u>33.3</u></b>
401.bzip2	496	19.5	496	19.4	<b><u>496</u></b>	<b><u>19.4</u></b>	491	19.6	491	19.7	<b><u>491</u></b>	<b><u>19.7</u></b>
403.gcc	<b><u>280</u></b>	<b><u>28.7</u></b>	280	28.7	281	28.7	278	29.0	277	29.0	<b><u>277</u></b>	<b><u>29.0</u></b>
429.mcf	<b><u>166</u></b>	<b><u>55.0</u></b>	166	55.0	167	54.5	<b><u>166</u></b>	<b><u>55.0</u></b>	166	55.0	167	54.5
445.gobmk	514	20.4	<b><u>508</u></b>	<b><u>20.6</u></b>	503	20.9	<b><u>462</u></b>	<b><u>22.7</u></b>	461	22.7	462	22.7
456.hammer	186	50.3	<b><u>184</u></b>	<b><u>50.6</u></b>	184	50.6	186	50.3	<b><u>184</u></b>	<b><u>50.6</u></b>	184	50.6
458.sjeng	490	24.7	490	24.7	<b><u>490</u></b>	<b><u>24.7</u></b>	<b><u>483</u></b>	<b><u>25.1</u></b>	482	25.1	483	25.1
462.libquantum	<b><u>7.14</u></b>	<b><u>2900</u></b>	7.34	2820	5.55	3740	<b><u>7.14</u></b>	<b><u>2900</u></b>	7.34	2820	5.55	3740
464.h264ref	607	36.5	<b><u>600</u></b>	<b><u>36.9</u></b>	562	39.4	<b><u>455</u></b>	<b><u>48.7</u></b>	455	48.7	455	48.7
471.omnetpp	200	31.2	<b><u>197</u></b>	<b><u>31.7</u></b>	197	31.7	146	42.8	147	42.4	<b><u>147</u></b>	<b><u>42.6</u></b>
473.astar	263	26.6	262	26.8	<b><u>263</u></b>	<b><u>26.7</u></b>	263	26.6	262	26.8	<b><u>263</u></b>	<b><u>26.7</u></b>
483.xalancbmk	<b><u>143</u></b>	<b><u>48.4</u></b>	143	48.4	143	48.4	<b><u>143</u></b>	<b><u>48.4</u></b>	143	48.4	143	48.4

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

BIOS settings:  
 Virtualization Technology disabled  
 Execute Disable disabled  
 Logical Processor disabled  
 System Profile set to Performance  
 Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818  
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
 running on localhost.localdomain Thu Oct 10 16:51:22 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>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-4657L v2 @ 2.40GHz
 4 "physical id"s (chips)
48 "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 : 12
siblings : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
```

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## Platform Notes (Continued)

```

physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

```

From /proc/meminfo

```

MemTotal:      529224800 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.4 (Santiago)

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

```

redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

uname -a:

```

Linux localhost.localdomain 2.6.32-358.11.1.el6.x86_64 #1 SMP Wed May 15
10:48:38 EDT 2013 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 5 Oct 10 16:09 last=5

SPEC is set to: /root/cpu2006-1.2

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2       ext4      176G  9.7G  157G   6% /

```

Additional information from dmidecode:

```

BIOS Dell Inc. 2.0.17 10/01/2013
Memory:
32x 00AD00B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz 2 rank

```

(End of data from sysinfo program)

## General Notes

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

```

LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "48"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

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

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches



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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:

-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -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 -m64`

471.omnetpp: `icpc -m32`

## 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_LP64 -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xSSE4.2(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: `-xSSE4.2(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: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias`

456.hmmer: `basepeak = yes`

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## Peak Optimization Flags (Continued)

458.sjeng: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## 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-ic14.0-official-linux64.20140128.html>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 23:15:24 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 22 April 2014.