



# SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 65.6

PowerEdge R930 (Intel Xeon E7-8891 v3, 2.80 GHz)

SPECint\_base2006 = 63.8

CPU2006 license: 55

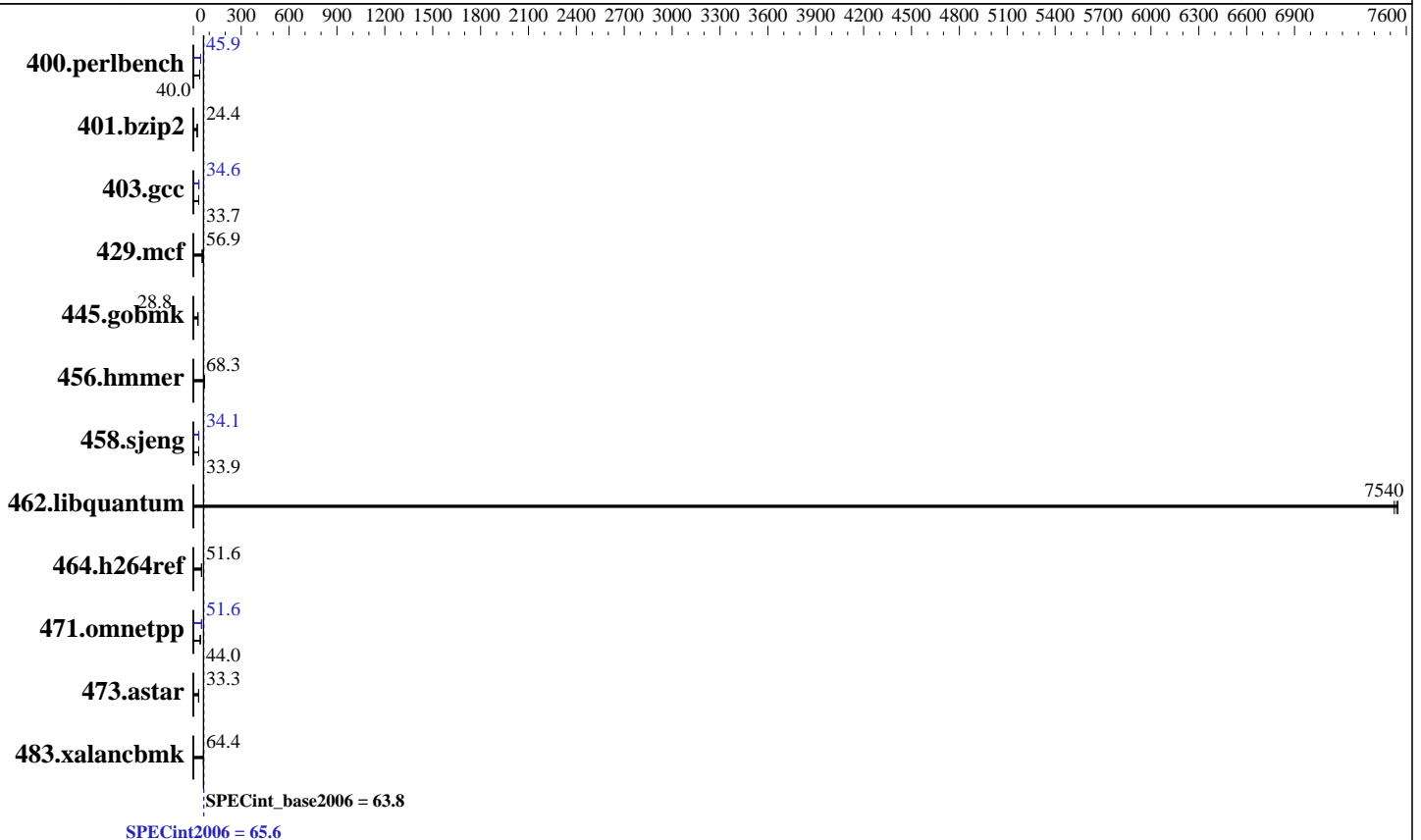
Test date: Apr-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Mar-2015



## Hardware

CPU Name: Intel Xeon E7-8891 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core  
 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: 45 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)  
 Disk Subsystem: 1 x 200 GB SATA SSD  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 12  
 3.12.28-4-default  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (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	247	39.6	<b><u>244</u></b>	<b><u>40.0</u></b>	244	40.0	<b><u>213</u></b>	<b><u>45.9</u></b>	212	46.0	213	45.9
401.bzip2	396	24.4	<b><u>396</u></b>	<b><u>24.4</u></b>	398	24.3	396	24.4	<b><u>396</u></b>	<b><u>24.4</u></b>	398	24.3
403.gcc	239	33.7	239	33.6	<b><u>239</u></b>	<b><u>33.7</u></b>	232	34.6	<b><u>233</u></b>	<b><u>34.6</u></b>	236	34.1
429.mcf	166	54.8	160	57.2	<b><u>160</u></b>	<b><u>56.9</u></b>	166	54.8	160	57.2	<b><u>160</u></b>	<b><u>56.9</u></b>
445.gobmk	<b><u>364</u></b>	<b><u>28.8</u></b>	363	28.9	364	28.8	<b><u>364</u></b>	<b><u>28.8</u></b>	363	28.9	364	28.8
456.hammer	137	67.9	137	68.3	<b><u>137</u></b>	<b><u>68.3</u></b>	137	67.9	137	68.3	<b><u>137</u></b>	<b><u>68.3</u></b>
458.sjeng	358	33.8	357	33.9	<b><u>357</u></b>	<b><u>33.9</u></b>	355	34.1	<b><u>355</u></b>	<b><u>34.1</u></b>	355	34.1
462.libquantum	2.75	7550	<b><u>2.75</u></b>	<b><u>7540</u></b>	2.75	7520	2.75	7550	<b><u>2.75</u></b>	<b><u>7540</u></b>	2.75	7520
464.h264ref	<b><u>429</u></b>	<b><u>51.6</u></b>	430	51.5	428	51.7	<b><u>429</u></b>	<b><u>51.6</u></b>	430	51.5	428	51.7
471.omnetpp	139	44.9	146	42.9	<b><u>142</u></b>	<b><u>44.0</u></b>	121	51.8	<b><u>121</u></b>	<b><u>51.6</u></b>	122	51.0
473.astar	211	33.2	<b><u>211</u></b>	<b><u>33.3</u></b>	209	33.6	211	33.2	<b><u>211</u></b>	<b><u>33.3</u></b>	209	33.6
483.xalancbmk	106	64.9	109	63.2	<b><u>107</u></b>	<b><u>64.4</u></b>	106	64.9	109	63.2	<b><u>107</u></b>	<b><u>64.4</u></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.

## Operating System Notes

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

## Platform Notes

BIOS Settings:  
 Virtualization Technology disabled  
 System Profile set to Custom  
 CPU Power Management set to Maximum Performance  
 Memory Frequency set to Maximum Performance  
 Turbo Boost enabled  
 Energy Efficient Turbo disabled  
 C1E disabled  
 C States disabled  
 Collaborative CPU Performance Control disabled  
 Memory Patrol Scrub disabled  
 Memory Refresh Rate set to 1x  
 Uncore Frequency set to Maximum  
 Energy Efficient Policy set to Performance  
 Monitor/MWait enabled

Sysinfo program  
 /root/Desktop/Performance/ic15.0\_Aug29\_2014/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 # \$ e3fbb8667b5a285932ceab81e28219e1  
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## Platform Notes (Continued)

running on linux-6qvx Mon Apr 6 00:24:08 2015

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 E7-8891 v3 @ 2.80GHz
 4 "physical id"s (chips)
 80 "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 : 10
  siblings  : 20
 physical 0: cores 0 1 2 4 6 8 17 19 20 23
 physical 1: cores 0 1 2 4 6 8 17 19 20 23
 physical 2: cores 0 1 2 4 6 8 17 19 20 23
 physical 3: cores 0 1 2 4 6 8 17 19 20 23
 cache size : 46080 KB

```

From /proc/meminfo

```

MemTotal:      529204240 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/usr/bin/lsb\_release -d

SUSE Linux Enterprise Server 12

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

```

SuSE-release:
 SUSE Linux Enterprise Server 12 (x86_64)
 VERSION = 12
 PATCHLEVEL = 0
 # This file is deprecated and will be removed in a future service pack or
 release.
 # Please check /etc/os-release for details about this release.
os-release:
 NAME="SLES"
 VERSION="12"
 VERSION_ID="12"
 PRETTY_NAME="SUSE Linux Enterprise Server 12"
 ID="sles"
 ANSI_COLOR="0;32"
 CPE_NAME="cpe:/o:suse:sles:12"

```

uname -a:

```

Linux linux-6qvx 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Apr 5 14:05 last=5

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## Platform Notes (Continued)

SPEC is set to: /root/Desktop/Performance/ic15.0\_Aug29\_2014

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	181G	9.5G	171G	6%	/

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Dell Inc. 1.0.1 [MRC\_096] 03/27/2015

Memory:

32x 00AD00B300AD Not Specified 16 GB 2 rank 2133 MHz, configured at 1600 MHz  
64x Not Specified Not Specified

(End of data from sysinfo program)

## General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/root/Desktop/Performance/ic15.0\_Aug29\_2014/libs/32:/root/Desktop/Performance/ic15.0\_Aug29\_2014/libs/64:/root/Desktop/Performance/ic15.0\_Aug29\_2014/sh"

OMP\_NUM\_THREADS = "40"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

## 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

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## Base Portability Flags (Continued)

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -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

400.perlbench: icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
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

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## Peak Portability Flags (Continued)

458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(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: basepeak = yes

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(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: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(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



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## 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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.20150421.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.20150421.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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