



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint<sup>®</sup>2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

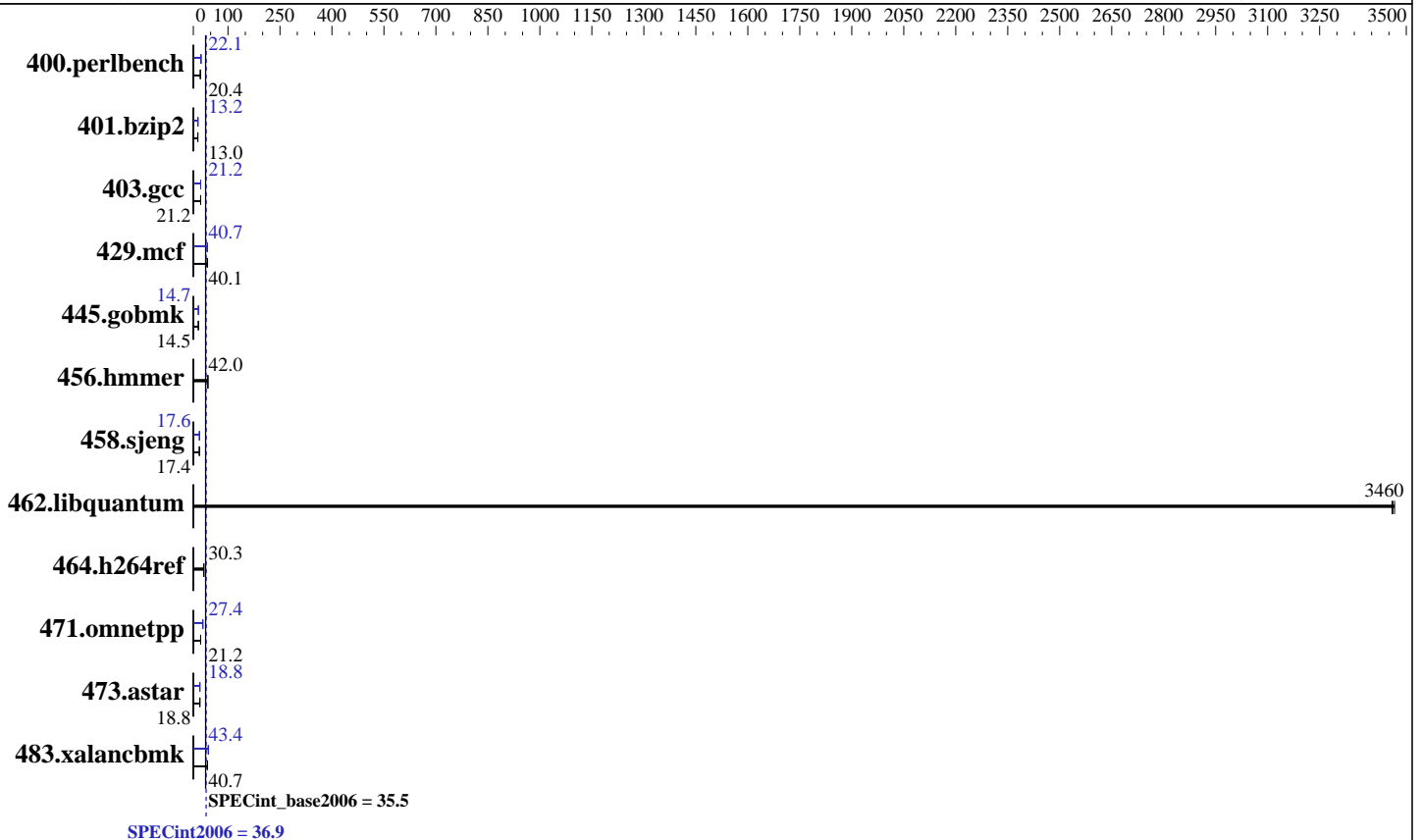
Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015



## Hardware

CPU Name: Intel Xeon E5-2609 v4  
 CPU Characteristics: 1700  
 CPU MHz: 1700  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
 CPU(s) orderable: 1,2 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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)  
 Disk Subsystem: 1 x 250 GB 7200 RPM SATA HDD  
 Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)  
 3.10.0-327.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.

Test date: Jul-2016  
Hardware Availability: Jun-2016  
Software Availability: Nov-2015

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	478	20.4	480	20.4	<b>479</b>	<b>20.4</b>	442	22.1	440	22.2	<b>442</b>	<b>22.1</b>
401.bzip2	743	13.0	<b>745</b>	<b>13.0</b>	747	12.9	730	13.2	<b>729</b>	<b>13.2</b>	728	13.3
403.gcc	380	21.2	<b>380</b>	<b>21.2</b>	381	21.1	379	21.2	<b>379</b>	<b>21.2</b>	379	21.2
429.mcf	222	41.2	228	40.0	<b>228</b>	<b>40.1</b>	227	40.1	223	40.8	<b>224</b>	<b>40.7</b>
445.gobmk	<b>722</b>	<b>14.5</b>	722	14.5	721	14.5	<b>715</b>	<b>14.7</b>	714	14.7	715	14.7
456.hammer	<b>222</b>	<b>42.0</b>	222	42.0	222	42.0	<b>222</b>	<b>42.0</b>	222	42.0	222	42.0
458.sjeng	694	17.4	694	17.4	<b>694</b>	<b>17.4</b>	686	17.6	686	17.6	<b>686</b>	<b>17.6</b>
462.libquantum	5.98	3470	5.99	3460	<b>5.99</b>	<b>3460</b>	5.98	3470	5.99	3460	<b>5.99</b>	<b>3460</b>
464.h264ref	733	30.2	730	30.3	<b>730</b>	<b>30.3</b>	733	30.2	730	30.3	<b>730</b>	<b>30.3</b>
471.omnetpp	295	21.2	296	21.1	<b>295</b>	<b>21.2</b>	<b>228</b>	<b>27.4</b>	230	27.2	226	27.6
473.astar	<b>373</b>	<b>18.8</b>	373	18.8	373	18.8	372	18.9	373	18.8	<b>373</b>	<b>18.8</b>
483.xalancbmk	169	40.7	<b>169</b>	<b>40.7</b>	169	40.8	159	43.3	<b>159</b>	<b>43.4</b>	159	43.4

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:  
 Snoop Mode set to Home Snoop  
 Virtualization Technology disabled  
 System Profile set to custom  
 CPU Power Management set to Maximum Performance  
 C States set to Autonomous  
 C1E disabled  
 Energy Efficient Turbo disabled  
 Uncore Frequency set to Dynamic  
 Energy Efficiency Policy set to Performance  
 Memory Patrol Scrub disabled  
 Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on localhost.localdomain Sun Jul 10 01:35:23 2016

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>

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

## Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2609 v4@ 1.70GHz
 2 "physical id"s (chips)
 16 "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  : 8
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

```

From /proc/meminfo
MemTotal:      528280400 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jul 10 01:34

```

SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        xfs   230G  8.2G  221G   4% /

```

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. 2.2.1 06/07/2016

Memory:  
16x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz, configured at 1866 MHz

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

## Platform Notes (Continued)

8x 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/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"

OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

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  
 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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

## Base Optimization Flags (Continued)

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/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

445.gobmk: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -DSPEC\_CPU\_LP64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

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: -D\_FILE\_OFFSET\_BITS=64

473.astar: -DSPEC\_CPU\_LP64

483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch  
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div  
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias

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

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 36.9

PowerEdge M630 (Intel Xeon E5-2609 v4, 1.70 GHz)

SPECint\_base2006 = 35.5

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

## 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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Wed Aug 24 13:13:59 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 23 August 2016.