



# SPEC<sup>®</sup> CINT2006 Result

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Dell Inc.

SPECint<sup>®</sup>\_rate2006 = 1110

PowerEdge M630 (Intel Xeon E5-2695 v3, 2.30 GHz)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 55

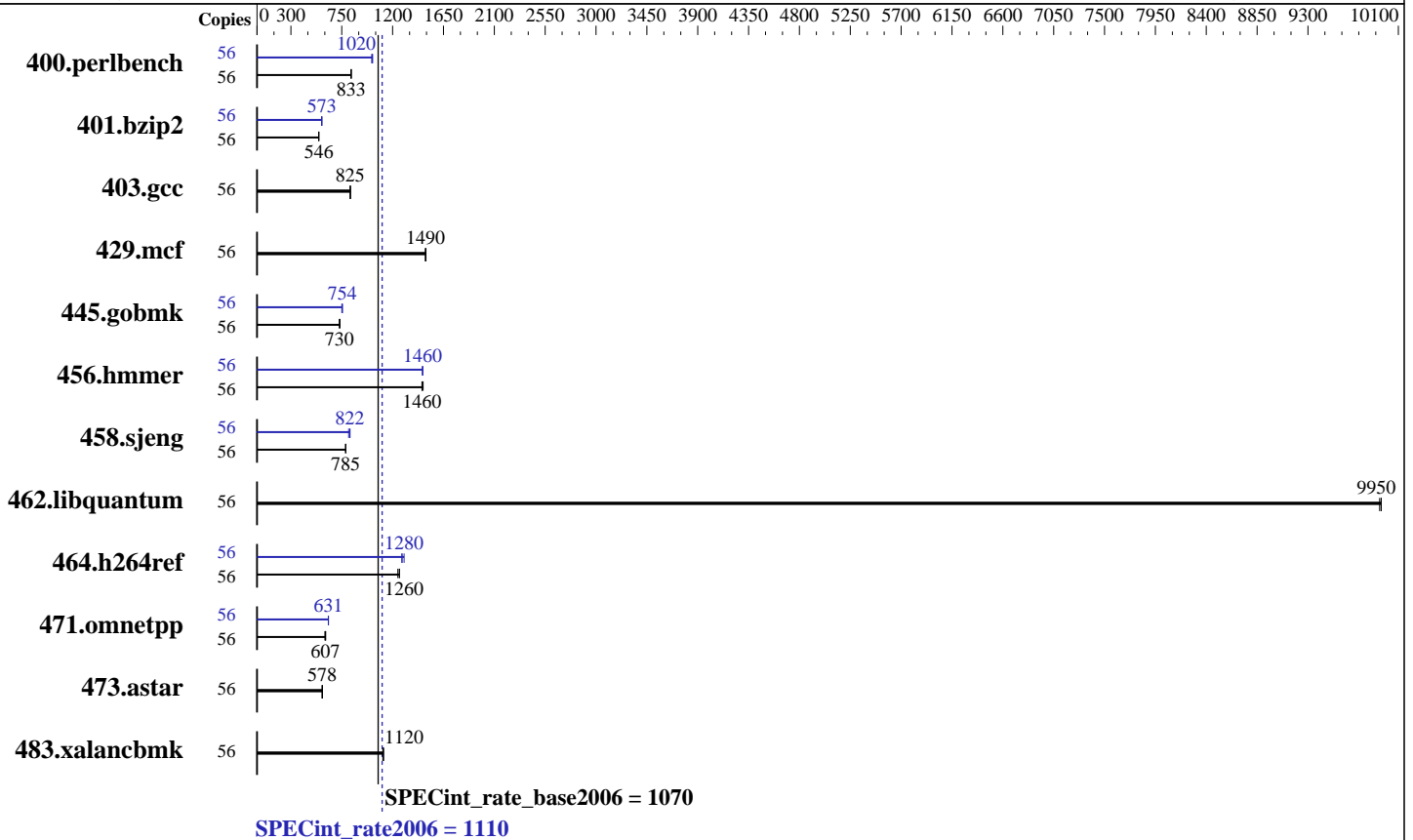
Test date: Oct-2014

Test sponsor: Dell Inc.

Hardware Availability: Dec-2014

Tested by: Dell Inc.

Software Availability: Jan-2014



## Hardware

CPU Name: Intel Xeon E5-2695 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core  
 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: 35 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x 800 GB SAS SSD  
 Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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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	56	<b><u>657</u></b>	<b><u>833</u></b>	657	833	656	833	56	539	1020	535	1020	<b><u>537</u></b>	<b><u>1020</u></b>
401.bzip2	56	<b><u>989</u></b>	<b><u>546</u></b>	987	547	990	546	56	944	573	<b><u>943</u></b>	<b><u>573</u></b>	942	574
403.gcc	56	<b><u>546</u></b>	<b><u>825</u></b>	545	827	547	824	56	<b><u>546</u></b>	<b><u>825</u></b>	545	827	547	824
429.mcf	56	<b><u>342</u></b>	<b><u>1490</u></b>	342	1500	343	1490	56	<b><u>342</u></b>	<b><u>1490</u></b>	342	1500	343	1490
445.gobmk	56	800	734	805	729	<b><u>805</u></b>	<b><u>730</u></b>	56	783	751	<b><u>779</u></b>	<b><u>754</u></b>	777	756
456.hammer	56	355	1470	<b><u>358</u></b>	<b><u>1460</u></b>	358	1460	56	356	1470	357	1460	<b><u>357</u></b>	<b><u>1460</u></b>
458.sjeng	56	864	784	<b><u>864</u></b>	<b><u>785</u></b>	863	785	56	<b><u>825</u></b>	<b><u>822</u></b>	836	811	823	823
462.libquantum	56	<b><u>117</u></b>	<b><u>9950</u></b>	117	9930	117	9950	56	<b><u>117</u></b>	<b><u>9950</u></b>	117	9930	117	9950
464.h264ref	56	983	1260	994	1250	<b><u>984</u></b>	<b><u>1260</u></b>	56	952	1300	967	1280	<b><u>965</u></b>	<b><u>1280</u></b>
471.omnetpp	56	577	607	<b><u>577</u></b>	<b><u>607</u></b>	583	601	56	<b><u>554</u></b>	<b><u>631</u></b>	553	633	555	631
473.astar	56	683	576	679	579	<b><u>680</u></b>	<b><u>578</u></b>	56	683	576	679	579	<b><u>680</u></b>	<b><u>578</u></b>
483.xalancbmk	56	347	1110	345	1120	<b><u>346</u></b>	<b><u>1120</u></b>	56	347	1110	345	1120	<b><u>346</u></b>	<b><u>1120</u></b>

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

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

## Platform Notes

BIOS settings:  
Snoop Mode set to Cluster on Die  
Virtualization Technology disabled  
Execute Disable disabled  
System Profile set to Custom  
Memory Patrol Scrub set to Disabled  
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on localhost.localdomain Wed Oct 22 21:13:49 2014

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 E5-2695 v3 @ 2.30GHz  
2 "physical id"s (chips)

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## Platform Notes (Continued)

56 "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 : 14
siblings  : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 17920 KB
```

From /proc/meminfo

```
MemTotal:      264437004 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.5 (Santiago)

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

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Oct 22 20:27

SPEC is set to: /root/cpu2006-1.2

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  730G   58G  636G   9% /
```

Additional information from dmidecode:

BIOS Dell Inc. 1.0.1 10/15/2014

Memory:

```
8x 000000000000 Not Specified 2133 MHz 1 rank
16x 002C00B3002C 36ASF2G72PZ-2G1A1 16 GB 2133 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"

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:

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## General Notes (Continued)

```
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

## Base Compiler Invocation

C benchmarks:  
icc -m32

C++ benchmarks:  
icpc -m32

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3

C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

400.perlbench: icc -m64

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## Peak Compiler Invocation (Continued)

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:

`icpc -m32`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`

401.bzip2: `-DSPEC_CPU_LP64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LINUX`

483.xalancbmk: `-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)  
-auto-ilp32`

401.bzip2: `-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 -auto-ilp32 -ansi-alias`

403.gcc: `basepeak = yes`

429.mcf: `basepeak = yes`

445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3`

456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

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 -auto-ilp32`

462.libquantum: `basepeak = yes`

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## Peak Optimization Flags (Continued)

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -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-revC.html>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.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-revC.xml>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.xml>

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

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