



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®\_rate2006 = 423

PowerEdge R530 (Intel Xeon E5-2623 v3, 3.00 GHz)

SPECint\_rate\_base2006 = 410

CPU2006 license: 55

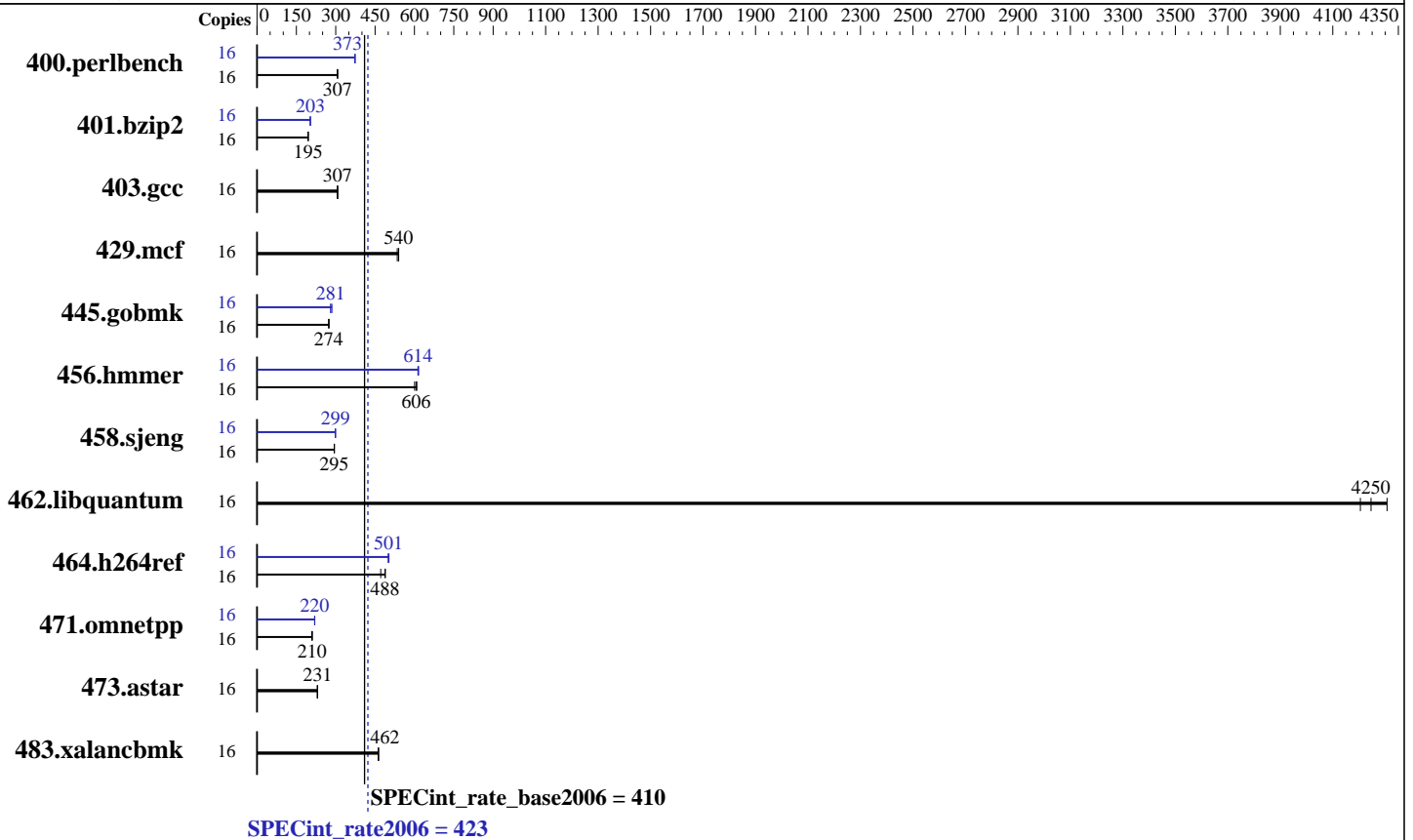
Test date: Oct-2014

Test sponsor: Dell Inc.

Hardware Availability: Dec-2014

Tested by: Dell Inc.

Software Availability: Jan-2014



## Hardware

CPU Name: Intel Xeon E5-2623 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
 Disk Subsystem: 1 x 600 GB 10000 RPM SAS  
 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	16	509	307	510	307	<u>510</u>	<u>307</u>	16	418	374	419	373	<u>419</u>	<u>373</u>
401.bzip2	16	<u>791</u>	<u>195</u>	791	195	794	195	16	759	203	<u>760</u>	<u>203</u>	760	203
403.gcc	16	<u>420</u>	<u>307</u>	418	308	421	306	16	<u>420</u>	<u>307</u>	418	308	421	306
429.mcf	16	273	535	<u>270</u>	<u>540</u>	270	540	16	273	535	<u>270</u>	<u>540</u>	270	540
445.gobmk	16	614	273	<u>613</u>	<u>274</u>	612	274	16	598	281	588	286	<u>597</u>	<u>281</u>
456.hammer	16	245	609	249	601	<u>246</u>	<u>606</u>	16	<u>243</u>	<u>614</u>	243	613	242	616
458.sjeng	16	657	294	<u>657</u>	<u>295</u>	657	295	16	<u>648</u>	<u>299</u>	648	299	648	299
462.libquantum	16	77.0	4310	78.8	4210	<u>78.1</u>	<u>4250</u>	16	77.0	4310	78.8	4210	<u>78.1</u>	<u>4250</u>
464.h264ref	16	<u>726</u>	<u>488</u>	751	472	724	489	16	<u>706</u>	<u>501</u>	708	500	704	503
471.omnetpp	16	479	209	<u>476</u>	<u>210</u>	475	211	16	454	220	456	219	<u>454</u>	<u>220</u>
473.astar	16	490	229	<u>486</u>	<u>231</u>	486	231	16	490	229	<u>486</u>	<u>231</u>	486	231
483.xalancbmk	16	<u>239</u>	<u>462</u>	239	462	238	464	16	<u>239</u>	<u>462</u>	239	462	238	464

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 Thu Oct 16 09:53:12 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 E5-2623 v3 @ 3.00GHz  
 2 "physical id"s (chips)

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## Platform Notes (Continued)

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 : 4
siblings  : 8
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB
```

```
From /proc/meminfo
MemTotal:      132054904 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 16 09:41
```

```
SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  546G   12G  507G   3% /
```

```
Additional information from dmidecode:
BIOS Dell Inc. 1.0.0 10/15/2014
Memory:
4x 000000000000 Not Specified 1867 MHz 1 rank
4x 002C00B3002C 36ASF2G72PZ-2G1A2 16 GB 1867 MHz 2 rank
4x 00CE00B300CE M393A2G40DB0-CPB 16 GB 1867 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

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## General Notes (Continued)

Filesystem page cache cleared with:  
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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