



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®\_rate2006 = 1840

PowerEdge R920 (Intel Xeon E7-4860 v2, 2.60 GHz)

SPECint\_rate\_base2006 = 1780

CPU2006 license: 55

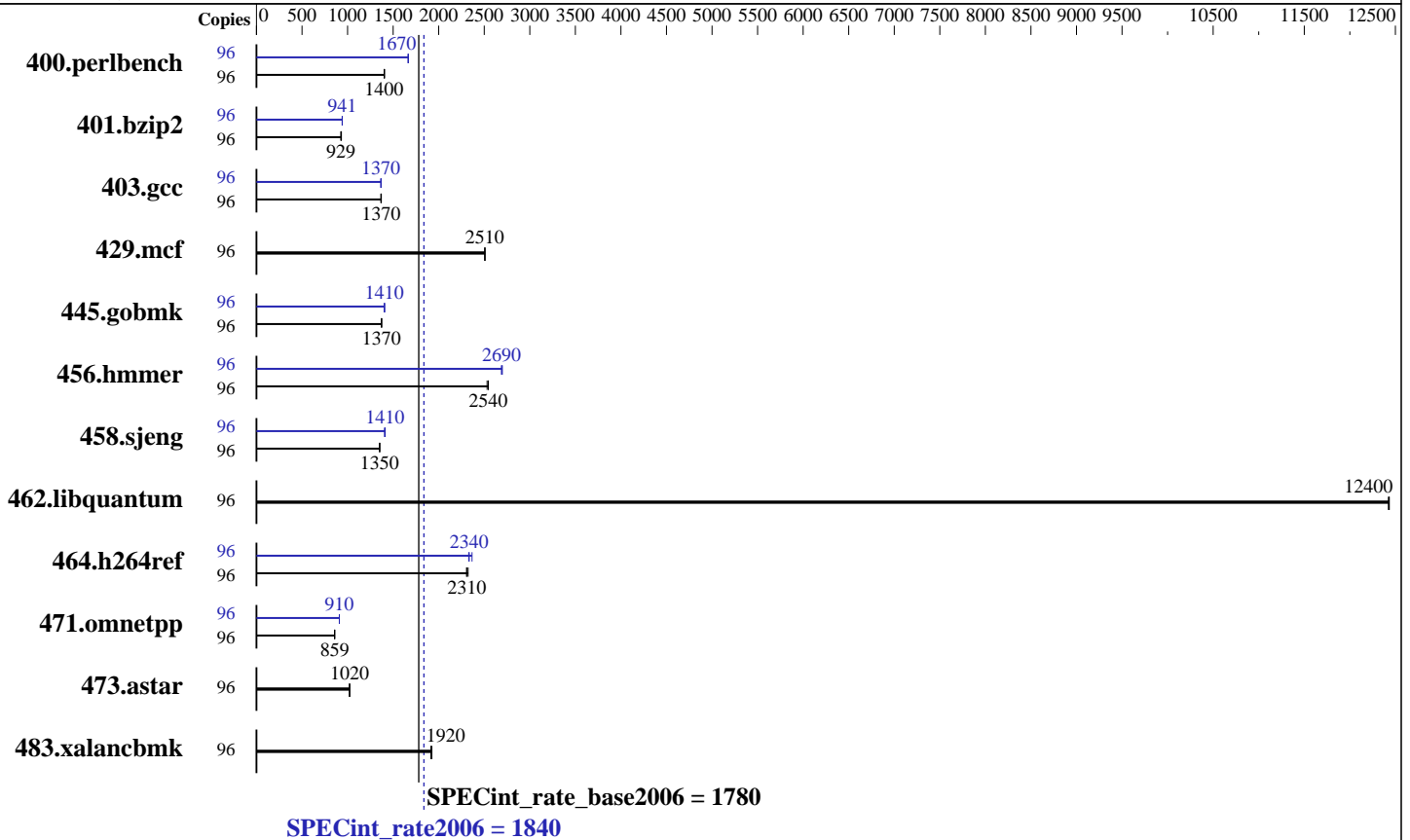
Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014



## Hardware

CPU Name: Intel Xeon E7-4860 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 400 GB SAS6 SSD  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) 3.0.76-0.11-default  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext2  
 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	96	<b>669</b>	<b>1400</b>	669	1400	667	1410	96	563	1670	563	1670	<b>563</b>	<b>1670</b>
401.bzip2	96	1000	926	<b>998</b>	<b>929</b>	994	932	96	983	943	<b>984</b>	<b>941</b>	985	940
403.gcc	96	566	1370	564	1370	<b>565</b>	<b>1370</b>	96	565	1370	566	1360	<b>565</b>	<b>1370</b>
429.mcf	96	349	2510	<b>349</b>	<b>2510</b>	349	2510	96	349	2510	<b>349</b>	<b>2510</b>	349	2510
445.gobmk	96	734	1370	733	1370	<b>733</b>	<b>1370</b>	96	<b>716</b>	<b>1410</b>	716	1410	719	1400
456.hammer	96	354	2530	352	2550	<b>352</b>	<b>2540</b>	96	332	2700	333	2690	<b>333</b>	<b>2690</b>
458.sjeng	96	858	1350	<b>860</b>	<b>1350</b>	860	1350	96	822	1410	<b>823</b>	<b>1410</b>	827	1410
462.libquantum	96	160	12400	160	12400	<b>160</b>	<b>12400</b>	96	160	12400	160	12400	<b>160</b>	<b>12400</b>
464.h264ref	96	921	2310	915	2320	<b>920</b>	<b>2310</b>	96	912	2330	898	2370	<b>910</b>	<b>2340</b>
471.omnetpp	96	700	857	698	859	<b>699</b>	<b>859</b>	96	660	909	<b>660</b>	<b>910</b>	659	910
473.astar	96	<b>659</b>	<b>1020</b>	659	1020	661	1020	96	<b>659</b>	<b>1020</b>	659	1020	661	1020
483.xalancbmk	96	344	1930	<b>346</b>	<b>1920</b>	346	1920	96	344	1930	<b>346</b>	<b>1920</b>	346	1920

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:  
 Virtualization Technology disabled  
 Execute Disable disabled  
 System Profile set to Custom  
 Memory Patrol Scrub set to disabled  
 Sysinfo program  
 /root/Desktop/Performance/ic14.0\_Oct17\_2013/config/sysinfo.rev6818  
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
 running on slesperf3 Wed Feb 19 22:38:03 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 E7-4860 v2 @ 2.60GHz  
 4 "physical id"s (chips)

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## Platform Notes (Continued)

96 "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  : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
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:      1058789108 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

/usr/bin/lsb\_release -d

```
SUSE Linux Enterprise Server 11 (x86_64)
```

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

```
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3
```

uname -a:

```
Linux slesperf3 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
(ccab990) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Feb 19 14:35 last=S

SPEC is set to: /root/Desktop/Performance/ic14.0\_Oct17\_2013

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext2  365G  239G  125G  66% /
```

Additional information from dmidecode:

BIOS Dell Inc. 1.0.4 01/27/2014

Memory:

```
31x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
19x 00CE00B300CE M393B2G70CB0-YK0 16 GB 1333 MHz
8x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
6x 00CE04B300CE M393B2G70CB0-YK0 16 GB 1333 MHz
```

(End of data from sysinfo program)

## General Notes

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

```
LD_LIBRARY_PATH = */root/Desktop/Performance/ic14.0_Oct17_2013/libs/32:/root/Desktop/Performance/ic14.0_Oct17_2013/libs/64:/root/Desktop/Performance/ic14.0_Oct17_2013/sh*
```

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## General Notes (Continued)

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/transparent\_hugepage/enabled  
 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:  
 -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:  
 -xSSE4.2 -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

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## Peak Compiler Invocation (Continued)

400.perlbench: icc -m64

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: -xSSE4.2(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: -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 -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

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## Peak Optimization Flags (Continued)

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)  
-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-linux64.20140128.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).

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