



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

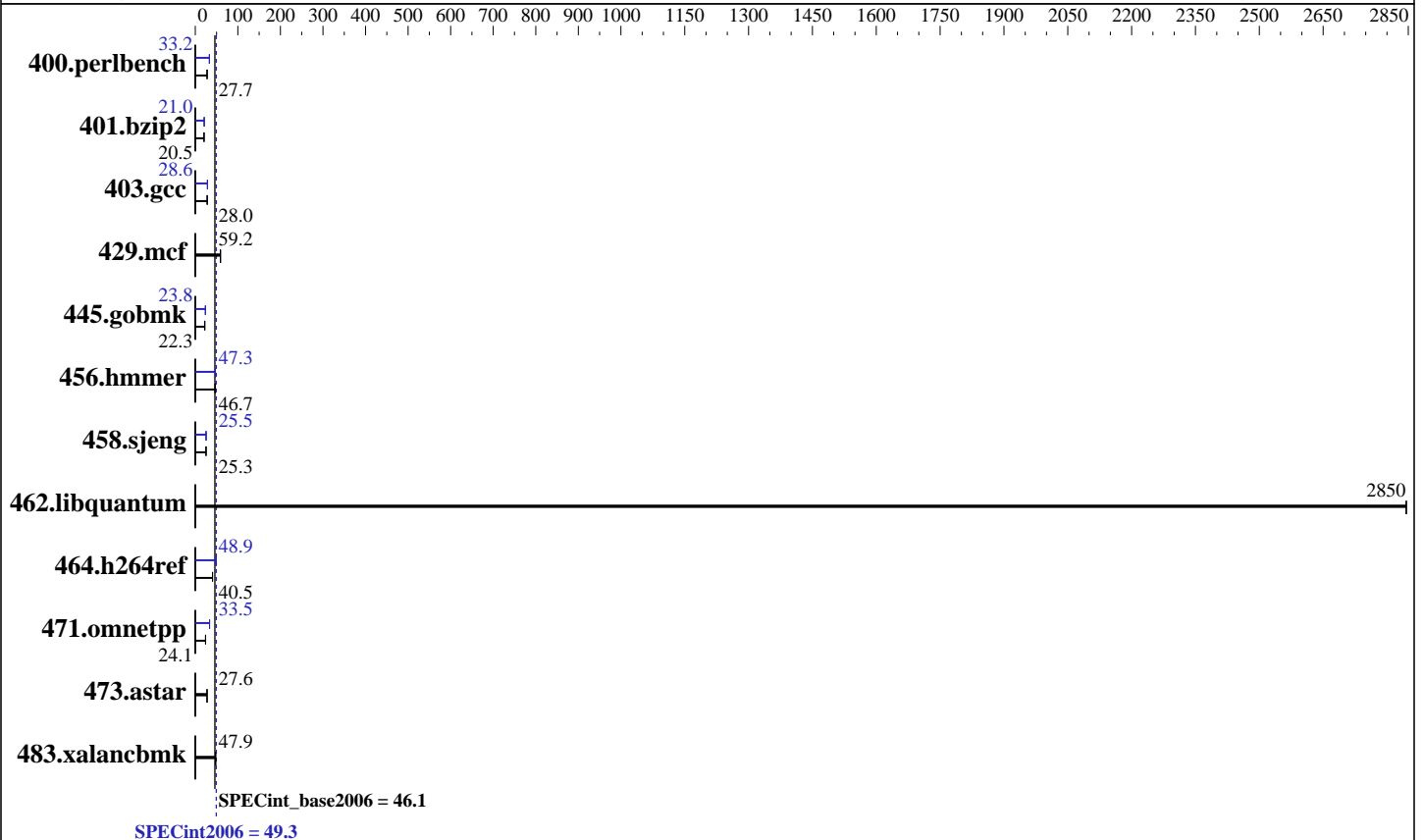
Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 2 x 300 GB 15000 RPM SAS, RAID 1
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default
 Compiler: C/C++; Version 12.1.0.225 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (add definition here)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V9.01



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 351 | 27.8 | <u>352</u> | <u>27.7</u> | 353 | 27.7 | <u>294</u> | <u>33.2</u> | 294 | 33.2 | 295 | 33.1 |
| 401.bzip2 | <u>470</u> | <u>20.5</u> | 470 | 20.5 | 470 | 20.5 | 461 | 20.9 | 460 | 21.0 | <u>460</u> | <u>21.0</u> |
| 403.gcc | 287 | 28.0 | 288 | 27.9 | <u>288</u> | <u>28.0</u> | <u>282</u> | <u>28.6</u> | 282 | 28.6 | 282 | 28.6 |
| 429.mcf | 154 | 59.2 | <u>154</u> | <u>59.2</u> | 154 | 59.1 | 154 | 59.2 | <u>154</u> | <u>59.2</u> | 154 | 59.1 |
| 445.gobmk | 470 | 22.3 | <u>470</u> | <u>22.3</u> | 476 | 22.0 | 441 | 23.8 | 441 | 23.8 | <u>441</u> | <u>23.8</u> |
| 456.hammer | 200 | 46.7 | <u>200</u> | <u>46.7</u> | 199 | 47.0 | 197 | 47.3 | 198 | 47.0 | <u>197</u> | <u>47.3</u> |
| 458.sjeng | 478 | 25.3 | <u>478</u> | <u>25.3</u> | 483 | 25.0 | 482 | 25.1 | <u>475</u> | <u>25.5</u> | 475 | 25.5 |
| 462.libquantum | 7.28 | 2850 | 7.28 | 2850 | <u>7.28</u> | <u>2850</u> | 7.28 | 2850 | 7.28 | 2850 | <u>7.28</u> | <u>2850</u> |
| 464.h264ref | <u>547</u> | <u>40.5</u> | 547 | 40.4 | 545 | 40.6 | 462 | 47.9 | 452 | 49.0 | <u>452</u> | <u>48.9</u> |
| 471.omnetpp | 257 | 24.3 | <u>259</u> | <u>24.1</u> | 261 | 23.9 | 186 | 33.6 | <u>186</u> | <u>33.5</u> | 186 | 33.5 |
| 473.astar | 254 | 27.6 | 254 | 27.7 | <u>254</u> | <u>27.6</u> | 254 | 27.6 | 254 | 27.7 | <u>254</u> | <u>27.6</u> |
| 483.xalancbmk | 145 | 47.6 | 144 | 47.9 | <u>144</u> | <u>47.9</u> | 145 | 47.6 | 144 | 47.9 | <u>144</u> | <u>47.9</u> |

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

Operating System Notes

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

Platform Notes

```

CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on Slice Thu Mar 15 16:11:52 2012

```

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 E5-2470 0 @ 2.30GHz
 2 "physical id"s (chips)
 32 "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 : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

```

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

Platform Notes (Continued)

cache size : 20480 KB

From /proc/meminfo

MemTotal: 49381468 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 = 2

uname -a:

Linux Slice 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddfaf)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 15 16:09 last=S

SPEC is set to: /root/CPU2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdal ext3 266G 7.4G 245G 3% /

Additional information from dmidecode:

(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"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

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

The Dell PowerEdge R420 and the Bull NovaScale R430 F3 models are electronically equivalent. The results have been measured on a Dell PowerEdge R420 model



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

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:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m64`

471.omnetpp: `icpc -m32`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-DSPEC_CPU_LP64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX(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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch
-ansi-alias`

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

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias`

456.hmmer: `-xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias`

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 49.3

PowerEdge R420 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_base2006 = 46.1

CPU2006 license: 55

Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

Peak Optimization Flags (Continued)

458.sjeng: -xAVX(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: -xAVX(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: -xAVX(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/smartheap -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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.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.

Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 05:29:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 5 June 2012.