



SPEC® CINT2006 Result

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Dell Inc.

PowerEdge R920 (Intel Xeon E7-2850 v2, 2.30 GHz)

SPECint®2006 = 45.9

SPECint_base2006 = 42.5

CPU2006 license: 55

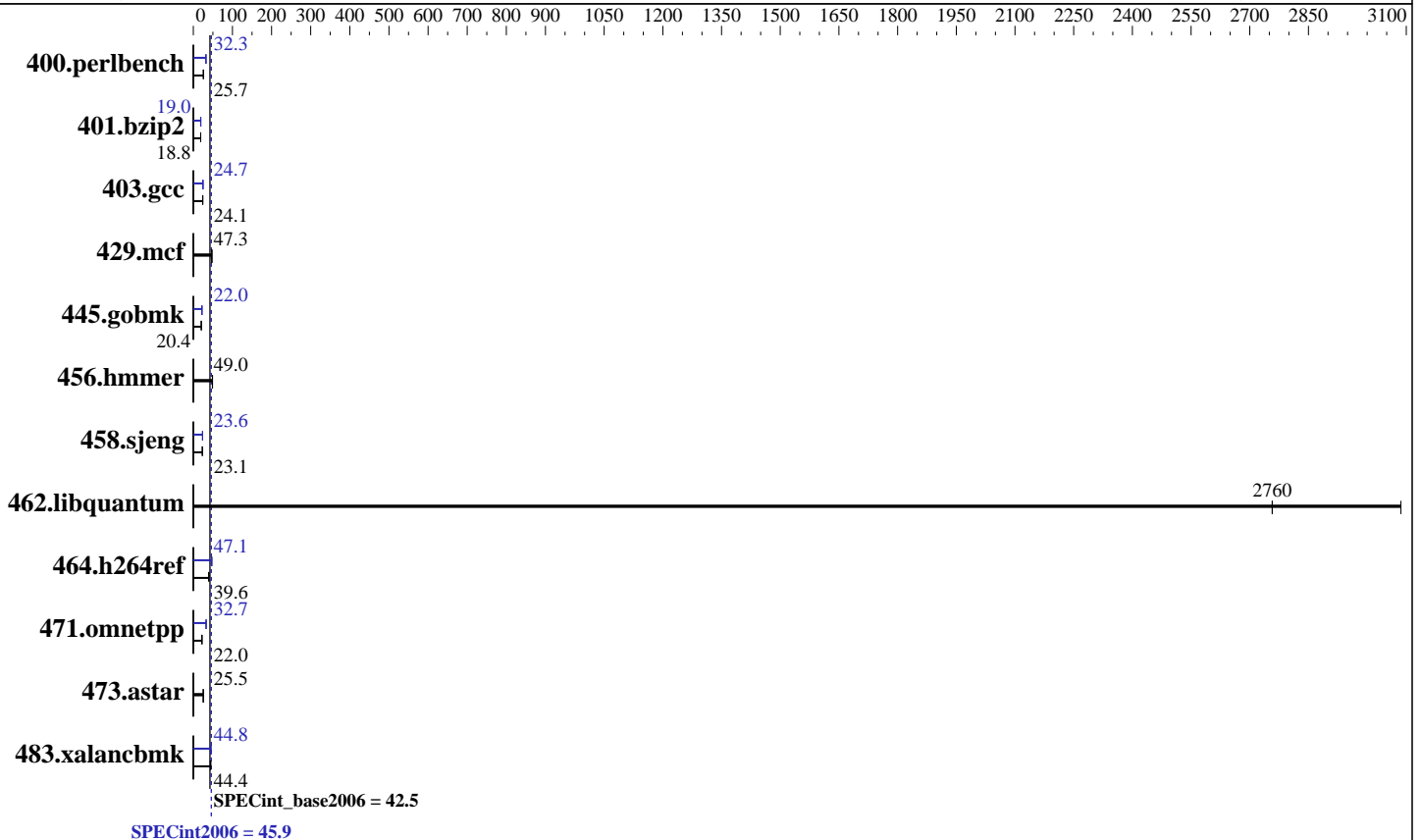
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Sep-2014

Hardware Availability: Mar-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-2850 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
 CPU(s) orderable: 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: 24 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x 300 GB 15000 RPM SAS
 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: Yes
 File System: ext2
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	379	25.8	380	25.7	<u>379</u>	<u>25.7</u>	302	32.3	<u>302</u>	<u>32.3</u>	303	32.3
401.bzip2	512	18.9	512	18.8	<u>512</u>	<u>18.8</u>	<u>507</u>	<u>19.0</u>	507	19.0	507	19.0
403.gcc	336	24.0	<u>334</u>	<u>24.1</u>	333	24.2	<u>326</u>	<u>24.7</u>	326	24.7	327	24.6
429.mcf	192	47.4	<u>193</u>	<u>47.3</u>	193	47.2	192	47.4	<u>193</u>	<u>47.3</u>	193	47.2
445.gobmk	514	20.4	515	20.4	<u>514</u>	<u>20.4</u>	476	22.0	<u>476</u>	<u>22.0</u>	476	22.0
456.hammer	<u>190</u>	<u>49.0</u>	190	49.0	192	48.6	<u>190</u>	<u>49.0</u>	190	49.0	192	48.6
458.sjeng	523	23.1	<u>524</u>	<u>23.1</u>	524	23.1	513	23.6	513	23.6	<u>513</u>	<u>23.6</u>
462.libquantum	<u>7.51</u>	<u>2760</u>	7.51	2760	6.71	3090	<u>7.51</u>	<u>2760</u>	7.51	2760	6.71	3090
464.h264ref	556	39.8	<u>558</u>	<u>39.6</u>	560	39.5	469	47.1	470	47.1	<u>470</u>	<u>47.1</u>
471.omnetpp	284	22.0	<u>284</u>	<u>22.0</u>	284	22.0	191	32.8	<u>191</u>	<u>32.7</u>	191	32.6
473.astar	<u>275</u>	<u>25.5</u>	276	25.4	275	25.5	<u>275</u>	<u>25.5</u>	276	25.4	275	25.5
483.xalancbmk	<u>155</u>	<u>44.4</u>	155	44.6	159	43.5	<u>154</u>	<u>44.8</u>	153	45.0	154	44.8

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

BIOS settings:
 Virtualization Technology disabled
 Logical Processor disabled
 Execute Disable disabled
 System Profile set to Performance
 Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191
 running on R920-SL11SP3 Fri Sep 5 09:55:02 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 E7-2850 v2 @ 2.30GHz
 2 "physical id"s (chips)
 24 "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 : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
```

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Platform Notes (Continued)

physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 24576 KB

```
From /proc/meminfo
MemTotal:      529357260 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 R920-SL11SP3 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 Sep 5 09:50 last=S
```

```
SPEC is set to: /root/CPU2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext2  266G   14G  252G   6% /
```

```
Additional information from dmidecode:
BIOS Dell Inc. 1.2.2 05/05/2014
Memory:
32x 00AD04B300AD HMT42GR7AFR4A-PB 16 GB 1066 MHz
```

(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 = "24"

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>



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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:
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xSSE4.2 -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

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

473.astar: `icpc -m64`

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_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)
-opt-prefetch -ansi-alias`

401.bzip2: `-xSSE4.2(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: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias`

456.hmmer: `basepeak = yes`

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Peak Optimization Flags (Continued)

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

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

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-revD.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-revD.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.

Report generated on Wed Oct 8 19:41:46 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 8 October 2014.