



SPEC® CINT2006 Result

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Dell Inc.

PowerEdge R820 (Intel Xeon E5-4627 v2, 3.30 GHz)

SPECint®_rate2006 = 1290

SPECint_rate_base2006 = 1240

CPU2006 license: 55

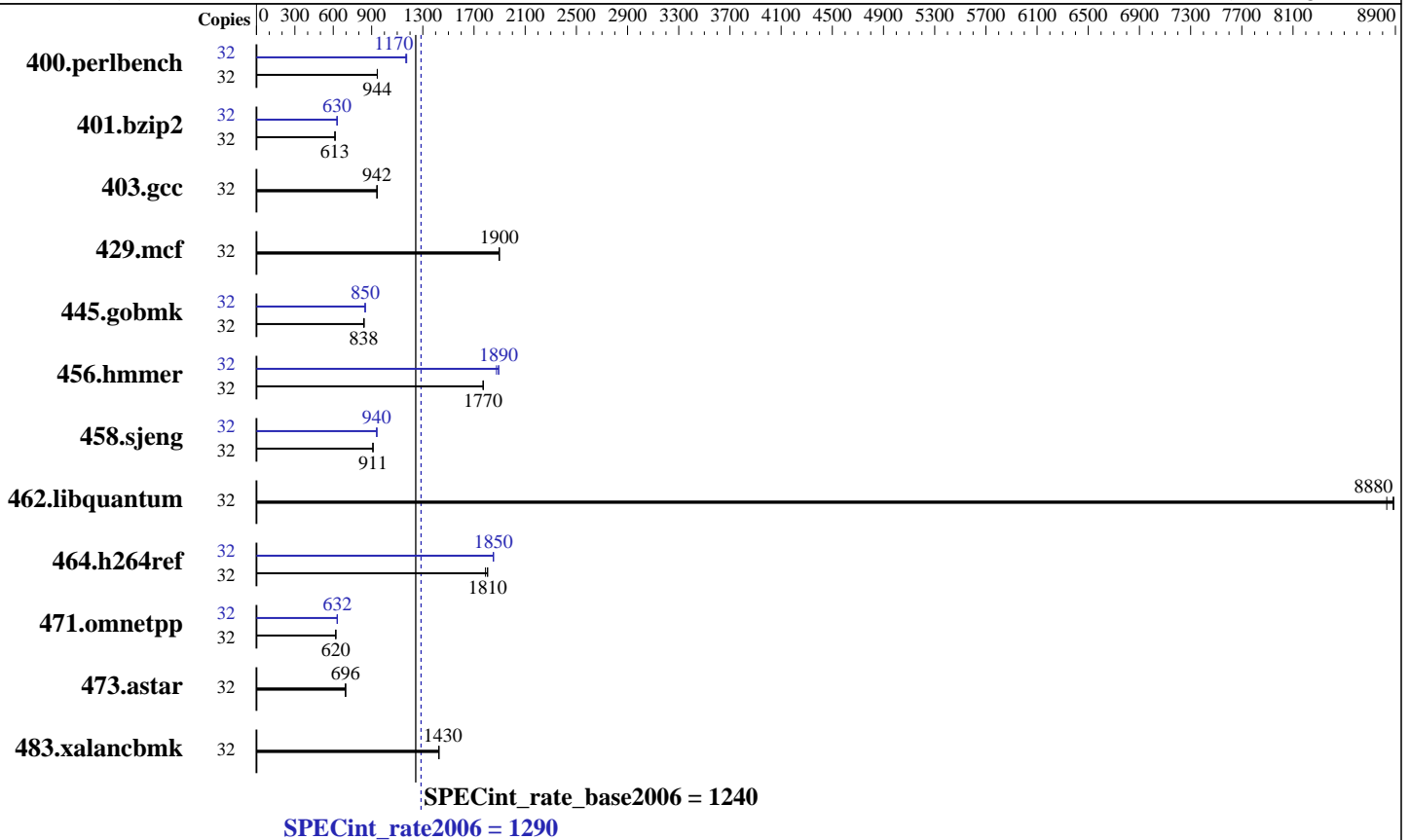
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Oct-2013

Hardware Availability: Mar-2014

Software Availability: Aug-2013



Hardware

CPU Name: Intel Xeon E5-4627 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
 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: 16 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 200 GB SAS 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	32	331	945	<u>331</u>	<u>944</u>	331	944	32	266	1170	268	1170	<u>267</u>	<u>1170</u>
401.bzip2	32	502	615	504	613	<u>503</u>	<u>613</u>	32	490	630	<u>490</u>	<u>630</u>	490	630
403.gcc	32	273	944	<u>274</u>	<u>942</u>	274	941	32	273	944	<u>274</u>	<u>942</u>	274	941
429.mcf	32	154	1900	154	1900	<u>154</u>	<u>1900</u>	32	154	1900	154	1900	<u>154</u>	<u>1900</u>
445.gobmk	32	398	842	401	838	<u>401</u>	<u>838</u>	32	395	850	396	849	<u>395</u>	<u>850</u>
456.hammer	32	168	1770	<u>169</u>	<u>1770</u>	169	1770	32	158	1890	<u>158</u>	<u>1890</u>	159	1880
458.sjeng	32	<u>425</u>	<u>911</u>	425	911	425	910	32	412	940	412	940	<u>412</u>	<u>940</u>
462.libquantum	32	<u>74.6</u>	<u>8880</u>	75.1	8830	74.6	8890	32	<u>74.6</u>	<u>8880</u>	75.1	8830	74.6	8890
464.h264ref	32	<u>392</u>	<u>1810</u>	396	1790	392	1810	32	382	1850	<u>382</u>	<u>1850</u>	383	1850
471.omnetpp	32	<u>323</u>	<u>620</u>	323	620	323	619	32	317	630	316	632	<u>317</u>	<u>632</u>
473.astar	32	322	697	<u>323</u>	<u>696</u>	323	695	32	322	697	<u>323</u>	<u>696</u>	323	695
483.xalancbmk	32	155	1430	155	1420	<u>155</u>	<u>1430</u>	32	155	1430	155	1420	<u>155</u>	<u>1430</u>

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 Performance
Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on linux Thu Oct 17 12:20:17 2013

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 E5-4627 v2 @ 3.30GHz
4 "physical id"s (chips)
32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 8
siblings  : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
physical 2: cores 0 1 2 3 4 5 6 7
physical 3: cores 0 1 2 3 4 5 6 7
cache size : 16384 KB
```

```
From /proc/meminfo
MemTotal:      529392212 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 linux 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 Oct 17 12:16 last=S
```

```
SPEC is set to: /root/cpu2006.1.2.ic13
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext2  175G   12G  163G   7% /
```

```
Additional information from dmidecode:
BIOS Dell Inc. 2.0.17 10/01/2013
Memory:
32x 00AD00B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz
```

(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.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/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/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:
-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

400.perlbench: icc -m64

401.bzip2: icc -m64

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Peak Compiler Invocation (Continued)

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: `basepeak = yes`

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`

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`

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Peak Optimization Flags (Continued)

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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