## Dell Inc.

PowerEdge R630(Intel Xeon E5-2670 v3, 2.30 GHz)

| SPECint®_rate2006 = | 999 |
| SPECint_rate_base2006 = | 968 |

### CPU2006 license:
55

### Test sponsor:
Dell Inc.

### Tested by:
Dell Inc.

### Test date:
Jun-2014

### Hardware Availability:
Sep-2014

### Software Availability:
Sep-2014

### 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

### Hardware

<table>
<thead>
<tr>
<th>Product</th>
<th>Value</th>
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<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2670 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.10 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>2300</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>24 cores, 2 chips, 12 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>30 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 1000 GB 7200 RPM SATA</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
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### SPECint Rate Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECint_rate2006</th>
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<tbody>
<tr>
<td>perlbench</td>
<td>48</td>
<td>924</td>
</tr>
<tr>
<td>bzip2</td>
<td>48</td>
<td>744</td>
</tr>
<tr>
<td>gcc</td>
<td>48</td>
<td>505</td>
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<tr>
<td>mcf</td>
<td>48</td>
<td>744</td>
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<tr>
<td>gobmk</td>
<td>48</td>
<td>666</td>
</tr>
<tr>
<td>hmer</td>
<td>48</td>
<td>1350</td>
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<tr>
<td>sjeng</td>
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<td>712</td>
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<tr>
<td>libquantum</td>
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<td>691</td>
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<tr>
<td>h264ref</td>
<td>48</td>
<td>1150</td>
</tr>
<tr>
<td>omnetpp</td>
<td>48</td>
<td>1120</td>
</tr>
<tr>
<td>ashar</td>
<td>48</td>
<td>568</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>48</td>
<td>1050</td>
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<td>xalancbmk</td>
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### SPECint Rate Base Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint_rate_base2006</th>
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<tbody>
<tr>
<td>perlbench</td>
<td>930</td>
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<tr>
<td>bzip2</td>
<td>600</td>
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<tr>
<td>gcc</td>
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<td>mcf</td>
<td>500</td>
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<td>gobmk</td>
<td>1300</td>
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<tr>
<td>hmer</td>
<td>1300</td>
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<tr>
<td>sjeng</td>
<td>1350</td>
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<td>libquantum</td>
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<td>h264ref</td>
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<td>omnetpp</td>
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<td>ashar</td>
<td>568</td>
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Dell Inc.
PowerEdge R630(Intel Xeon E5-2670 v3, 2.30 GHz)

SPECint_rate2006 = 999
SPECint_rate_base2006 = 968

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Results Table

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<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>624</td>
<td>751</td>
<td>630</td>
<td>744</td>
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<td>401.bzip2</td>
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<td>960</td>
<td>482</td>
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<td>482</td>
<td>962</td>
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<tr>
<td>403.gcc</td>
<td>48</td>
<td>520</td>
<td>744</td>
<td>520</td>
<td>744</td>
<td>521</td>
<td>742</td>
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<tr>
<td>429.mcf</td>
<td>48</td>
<td>326</td>
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<td>322</td>
<td>1360</td>
<td>323</td>
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<td>445.gobmk</td>
<td>48</td>
<td>775</td>
<td>649</td>
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<td>650</td>
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<td>649</td>
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<tr>
<td>456.hmmer</td>
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<td>331</td>
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<td>458.sgjeng</td>
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<td>841</td>
<td>691</td>
<td>842</td>
<td>690</td>
<td>840</td>
<td>691</td>
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<tr>
<td>462.libquantum</td>
<td>48</td>
<td>108</td>
<td>9250</td>
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<td>9200</td>
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<td>952</td>
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<td>951</td>
<td>1120</td>
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<td>471.omnetpp</td>
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<td>548</td>
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<td>543</td>
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<tr>
<td>473.astar</td>
<td>48</td>
<td>648</td>
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<td>642</td>
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<td>314</td>
<td>1050</td>
<td>315</td>
<td>1050</td>
<td>315</td>
<td>1050</td>
</tr>
</tbody>
</table>

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 Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Thu Jun 19 10:59:48 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 E5-2670 v3 @ 2.30GHz
  2 "physical id"s (chips)
  48 "processors"

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Platform Notes (Continued)
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

From /proc/meminfo
MemTotal: 264440604 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 Jun 19 10:46 last=S

SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext2 726G 9.9G 715G 2% /

Additional information from dmidecode:
BIOS Dell Inc. 0.3.24 06/12/2014
Memory:
16x 002C00B3002C 36ASF2G72PZ-2G1A1 16 GB 2133 MHz
8x Not Specified Not Specified

(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/transparent_hugepage/enabled
Filesystem page cache cleared with:
Continued on next page
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General Notes (Continued)

echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numacll 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

Continued on next page
SPEC CINT2006 Result

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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.mcfs: 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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SPEC CINT2006 Result

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</table>

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.xalanchbk: 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/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/Dell-Platform-Settings-V1.2-revD.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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