SPEC® CINT2006 Result

Dell Inc.

PowerEdge R430 (Intel Xeon E5-2690 v3, 2.60 GHz)

SPECint®_rate2006 = 1090
SPECint_rate_base2006 = 1060

CPU2006 license: 55
Test date: Nov-2014
Test sponsor: Dell Inc.
Hardware Availability: Dec-2014
Tested by: Dell Inc.
Software Availability: Jan-2014

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64</td>
<td>CPU Name: Intel Xeon E5-2690 v3</td>
</tr>
<tr>
<td>Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>Auto Parallel: No</td>
<td>CPU MHz: 2600</td>
</tr>
<tr>
<td>File System: ext4</td>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>Base Pointers: 32-bit</td>
<td>CPU(s) orderable: 1,2 chip</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.0</td>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td>L3 Cache: 30 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)</td>
<td>Other Cache: None</td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 300 GB 10000 RPM SAS</td>
<td></td>
</tr>
</tbody>
</table>
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**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>48</td>
<td>554</td>
<td>846</td>
<td>554</td>
<td>846</td>
<td>553</td>
<td>848</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>48</td>
<td>861</td>
<td>538</td>
<td>861</td>
<td>538</td>
<td>829</td>
<td>559</td>
</tr>
<tr>
<td>403.gcc</td>
<td>48</td>
<td>482</td>
<td>1400</td>
<td>314</td>
<td>1400</td>
<td>314</td>
<td>1390</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>48</td>
<td>678</td>
<td>742</td>
<td>678</td>
<td>743</td>
<td>679</td>
<td>742</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>48</td>
<td>100</td>
<td>9920</td>
<td>100</td>
<td>9900</td>
<td>100</td>
<td>9930</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>48</td>
<td>729</td>
<td>796</td>
<td>729</td>
<td>797</td>
<td>728</td>
<td>797</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>48</td>
<td>827</td>
<td>1280</td>
<td>829</td>
<td>1280</td>
<td>841</td>
<td>1260</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>48</td>
<td>559</td>
<td>536</td>
<td>564</td>
<td>532</td>
<td>557</td>
<td>538</td>
</tr>
<tr>
<td>473.astar</td>
<td>48</td>
<td>580</td>
<td>581</td>
<td>585</td>
<td>576</td>
<td>584</td>
<td>577</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>48</td>
<td>297</td>
<td>1120</td>
<td>296</td>
<td>1120</td>
<td>296</td>
<td>1120</td>
</tr>
</tbody>
</table>

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

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**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.

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**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 Custom
Memory Patrol Scrub set to Disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Fri Nov  7 09:46:47 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 E5-2690 v3 @ 2.60GHz
  2 "physical id"s (chips)

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### General Notes

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

```
LD_LIBRARY_PATH = "/root/cpu2006-1.2/lib/32:/root/cpu2006-1.2/lib/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/redhat_transparent_hugepage/enable
```

Filesystem page cache cleared with:
```
```

### Platform Notes (Continued)

48 "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
cache size : 15360 KB
```

From /proc/meminfo
```
MemTotal: 132054288 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

uname -a:
```
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Nov 7 09:45
```
```
```
```
```
```
```
```
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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: 
    -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

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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.mcf: 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

Continued on next page
Peak Optimization Flags (Continued)

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(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/Dell-Platform-Settings-V1.2-revE.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-revE.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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