**SPEC® CINT2006 Result**

**Dell Inc.**

PowerEdge R630 (Intel Xeon E5-2667 v4, 3.20 GHz)

<table>
<thead>
<tr>
<th>Software Availability: Mar-2016</th>
<th>Test date: Mar-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

**SPECint®2006 = 72.2**

**SPECint_base2006 = 68.7**

---

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Tested by:** Dell Inc.

---

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2667 v4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>16 cores, 2 chips, 8 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>25 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 480 GB SATA SSD</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

---

**Software**

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>

---

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/
SPEC CINT2006 Result

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SPECint_base2006 = 68.7

CPU2006 license: 55
Test sponsor: Dell Inc.
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</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>230</td>
<td>42.4</td>
<td>231</td>
<td>42.2</td>
<td>231</td>
<td>42.3</td>
<td>211</td>
<td>46.2</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>372</td>
<td>26.0</td>
<td>368</td>
<td>26.2</td>
<td>370</td>
<td>26.1</td>
<td>365</td>
<td>26.5</td>
</tr>
<tr>
<td>403.mcf</td>
<td>212</td>
<td>38.0</td>
<td>208</td>
<td>38.7</td>
<td>210</td>
<td>38.4</td>
<td>212</td>
<td>38.0</td>
</tr>
<tr>
<td>429.mcf</td>
<td>134</td>
<td>67.9</td>
<td>135</td>
<td>67.6</td>
<td>133</td>
<td>68.5</td>
<td>132</td>
<td>69.3</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>336</td>
<td>31.3</td>
<td>336</td>
<td>31.1</td>
<td>335</td>
<td>31.3</td>
<td>336</td>
<td>31.3</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>106</td>
<td>88.2</td>
<td>106</td>
<td>88.1</td>
<td>106</td>
<td>88.0</td>
<td>106</td>
<td>88.2</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>341</td>
<td>35.5</td>
<td>340</td>
<td>35.6</td>
<td>340</td>
<td>35.6</td>
<td>337</td>
<td>35.9</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.51</td>
<td>5900</td>
<td>3.53</td>
<td>5870</td>
<td>3.44</td>
<td>6020</td>
<td>3.51</td>
<td>5900</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>360</td>
<td>61.4</td>
<td>360</td>
<td>61.5</td>
<td>361</td>
<td>61.4</td>
<td>360</td>
<td>61.4</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>170</td>
<td>36.7</td>
<td>168</td>
<td>37.2</td>
<td>170</td>
<td>36.7</td>
<td>119</td>
<td>52.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>185</td>
<td>37.9</td>
<td>184</td>
<td>38.1</td>
<td>184</td>
<td>38.1</td>
<td>185</td>
<td>37.9</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>90.7</td>
<td>76.1</td>
<td>89.5</td>
<td>77.1</td>
<td>89.5</td>
<td>77.1</td>
<td>80.5</td>
<td>85.7</td>
</tr>
</tbody>
</table>

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

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

Platform Notes

BIOS settings:
Snoop Mode set to Opportunistic Snoop Broadcast
Virtualization Technology disabled
CPU Power Management set to Maximum Performance
Memory Patrol Scrub disabled
C states set to Autonomous
Energy Efficient Policy set to Performance
Energy Efficient Turbo disabled
C1E disabled
Uncore Frequency set to Dynamic
Logical Processor enabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab81e28219e1
running on linux-m662 Thu Mar 17 16:12:30 2016

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

Continued on next page
Dell Inc.

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CPU2006 license: 55
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Software Availability: Mar-2016

Platform Notes (Continued)

From /proc/cpuinfo
    model name : Intel(R) Xeon(R) CPU E5-2667 v4@ 3.20GHz
    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 2 3 4 8 10 11 12
    physical 1: cores 0 2 3 4 8 10 11 12
    cache size : 25600 KB

From /proc/meminfo
    MemTotal: 529333472 kB
    HugePages_Total: 0
    Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
    SuSE-release:
        SUSE Linux Enterprise Server 12 (x86_64)
        VERSION = 12
        PATCHLEVEL = 1
        # This file is deprecated and will be removed in a future service pack or
        release.
        # Please check /etc/os-release for details about this release.
    os-release:
        NAME="SLES"
        VERSION="12-SP1"
        VERSION_ID="12.1"
        PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
    Linux linux-m662 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
    (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 17 16:04

SPEC is set to: /root/cpu2006-1.2
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sda2 xfs 439G 7.4G 432G 2% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to
Continued on next page
SPEC CINT2006 Result

Dell Inc.
PowerEdge R630 (Intel Xeon E5-2667 v4, 3.20 GHz)  

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Platform Notes (Continued)

hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Dell Inc. 2.0.1 02/12/2016
Memory:
16x 00AD063200AD HMA84GR7MFR4N-UH 32 GB 2 rank 2400 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:
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 = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

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
SPEC CINT2006 Result

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Software Availability: Mar-2016

### Base Optimization Flags

**C benchmarks:**
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

**C++ benchmarks:**
-xCORE-AVX2 -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
```
400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

**C++ benchmarks (except as noted below):**
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```
473.astar: icpc -m64

### Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
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: -D_FILE_OFFSET_BITS=64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
Dell Inc.

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Software Availability: Mar-2016

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: basepeak = yes
429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: basepeak = yes
456.hmmer: basepeak = yes
458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2)
-opt-ra-region-strategy=block
-ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

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Dell Inc.

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Software Availability: Mar-2016

Peak Other Flags (Continued)

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-ic16.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml