## SPEC® CINT2006 Result

### Dell Inc.

**PowerEdge R640 (Intel Xeon Bronze 3106, 1.70 GHz)**

**SPEClnt_rate2006 = Not Run**

**SPECint_rate_base2006 = 433**

<table>
<thead>
<tr>
<th>CPU2006 license</th>
<th>Test date:</th>
<th>Dell Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Jul-2017</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test sponsor</th>
<th>Test date:</th>
<th>Hardware Availability:</th>
<th>Dell Inc.</th>
</tr>
</thead>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Compiler</th>
<th>Auto Parallel</th>
<th>File System</th>
<th>System State</th>
<th>Base Pointers</th>
<th>Peak Pointers</th>
<th>Other Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
<td>No</td>
<td>xfs</td>
<td>Run level 3 (multi-user)</td>
<td>32-bit</td>
<td>32/64-bit</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name</th>
<th>CPU Characteristics</th>
<th>CPU MHZ</th>
<th>FPU</th>
<th>CPU(s) enabled</th>
<th>Primary Cache</th>
<th>Secondary Cache</th>
<th>L3 Cache</th>
<th>Other Cache</th>
<th>Memory</th>
<th>Disk Subsystem</th>
<th>Other Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Xeon Bronze 3106</td>
<td>Integrated</td>
<td>1700</td>
<td></td>
<td>16 cores, 2 chips, 8 cores/chip</td>
<td>32 KB I + 32 KB D on chip per core</td>
<td>1 MB I+D on chip per core</td>
<td>11 MB I+D on chip per chip</td>
<td>None</td>
<td>384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2133 MT/s)</td>
<td>1 x 960 GB SATA SSD</td>
<td>None</td>
</tr>
</tbody>
</table>

### Benchmarks

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECint_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>16</td>
<td>317</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>16</td>
<td>187</td>
</tr>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
<td>16</td>
<td>636</td>
</tr>
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<td>271</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>16</td>
<td>4210</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>16</td>
<td>541</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>16</td>
<td>242</td>
</tr>
<tr>
<td>473.astar</td>
<td>16</td>
<td>243</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>16</td>
<td>611</td>
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**SPECint_rate_base2006 = 433**
SPEC CINT2006 Result

Dell Inc.

PowerEdge R640 (Intel Xeon Bronze 3106, 1.70 GHz)

SPECint_rate2006 = Not Run

SPECint_rate_base2006 = 433

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Jul-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
<td>400.perlbench</td>
<td>16</td>
<td>492</td>
<td>318</td>
<td>493</td>
<td>317</td>
<td>497</td>
<td>314</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>16</td>
<td>827</td>
<td>187</td>
<td>825</td>
<td>187</td>
<td>826</td>
<td>187</td>
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<tr>
<td>403.gcc</td>
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<td>388</td>
<td>332</td>
<td>389</td>
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<td>662</td>
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<td>270</td>
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<td>16</td>
<td>78.8</td>
<td>4210</td>
<td>78.8</td>
<td>4210</td>
<td>78.9</td>
<td>4200</td>
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<td>464.h264ref</td>
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<td>541</td>
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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
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to autonomous
C1E disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub disabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-bo7a Wed Jul 5 15:53:10 2017

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Continued on next page
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Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

- model name : Intel(R) Xeon(R) Bronze 3106 CPU @ 1.70GHz
- 2 "physical id"s (chips)
- 16 "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 : 8
  - physical 0: cores 0 1 2 3 4 5 6 7
  - physical 1: cores 0 1 2 3 4 5 6 7
- cache size : 11264 KB

From /proc/meminfo

- MemTotal: 395511412 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

- SUSE Linux Enterprise Server 12 SP2

From /etc/*release*/etc/*version*

- SuSE-release:
  - SuSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 2
  - # 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-SP2"
  - VERSION_ID="12.2"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

- Linux linux-bo7a 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
  (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 5 15:48

SPEC is set to: /root/cpu2006-1.2_ic17u3

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 892G 27G 866G 3% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
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**Platform Notes (Continued)**

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

**BIOS Dell Inc. 1.0.5 06/19/2017**

**Memory:**

24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2133 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_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled by default

Filesystem page cache cleared with:

```
sync; echo 3 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
umactl --interleave=all runspec <etc>
```

---

**Base Compiler Invocation**

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

---

**Base Portability Flags**

```
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
443.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
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Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.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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