# SPEC® CINT2006 Result

## Dell Inc.

PowerEdge T640 (Intel Xeon Silver 4114, 2.20 GHz)

### SPECint®_rate2006 = Not Run

| SPECint_rate_base2006 = 891 |

<table>
<thead>
<tr>
<th>CPU2006 license: 55</th>
<th>Test date: Sep-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Sep-2017</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Nov-2016</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>CPU Characteristics: Intel Xeon Silver 4114</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU MHZ:</td>
<td>2200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>20 cores, 2 chips, 10 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chips</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>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>13.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>960 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 SP2 4.4.21-69-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</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-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>

### SPECint Rate Base 2006

| SPECint_rate_base2006 = 891 |

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECint Rate Base 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>1300</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>1700</td>
</tr>
<tr>
<td>403.gcc</td>
<td>2100</td>
</tr>
<tr>
<td>429.mcf</td>
<td>2500</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>2900</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>3300</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>3700</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>4100</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>4500</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>4900</td>
</tr>
<tr>
<td>473.astar</td>
<td>5300</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>5700</td>
</tr>
</tbody>
</table>

Software Availability: Nov-2016
Dell Inc.
PowerEdge T640 (Intel Xeon Silver 4114, 2.20 GHz)

SPEC CINT2006 Result

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 891

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

Test date: Sep-2017
Hardware Availability: Sep-2017
Software Availability: Nov-2016

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></td>
<td>Base</td>
<td></td>
<td></td>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>perlbench</td>
<td>40</td>
<td>599</td>
<td>652</td>
<td>596</td>
<td>656</td>
<td>596</td>
<td>656</td>
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<tr>
<td>bzip2</td>
<td>40</td>
<td>980</td>
<td>394</td>
<td>990</td>
<td>390</td>
<td>988</td>
<td>391</td>
</tr>
<tr>
<td>gcc</td>
<td>40</td>
<td>484</td>
<td>665</td>
<td>485</td>
<td>664</td>
<td>485</td>
<td>664</td>
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<tr>
<td>mcf</td>
<td>40</td>
<td>282</td>
<td>1290</td>
<td>282</td>
<td>1290</td>
<td>282</td>
<td>1290</td>
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<tr>
<td>gobmk</td>
<td>40</td>
<td>746</td>
<td>563</td>
<td>746</td>
<td>563</td>
<td>746</td>
<td>562</td>
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<tr>
<td>hammer</td>
<td>40</td>
<td>283</td>
<td>1320</td>
<td>284</td>
<td>1310</td>
<td>280</td>
<td>1330</td>
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<tr>
<td>sjeng</td>
<td>40</td>
<td>803</td>
<td>603</td>
<td>803</td>
<td>603</td>
<td>805</td>
<td>602</td>
</tr>
<tr>
<td>libquantum</td>
<td>40</td>
<td>90.4</td>
<td>9160</td>
<td>90.5</td>
<td>9160</td>
<td>90.5</td>
<td>9160</td>
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<tr>
<td>h264ref</td>
<td>40</td>
<td>865</td>
<td>1030</td>
<td>863</td>
<td>1030</td>
<td>863</td>
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<tr>
<td>omnetpp</td>
<td>40</td>
<td>531</td>
<td>471</td>
<td>531</td>
<td>470</td>
<td>531</td>
<td>471</td>
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<tr>
<td>astar</td>
<td>40</td>
<td>536</td>
<td>174</td>
<td>519</td>
<td>171</td>
<td>538</td>
<td>172</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>40</td>
<td>249</td>
<td>1110</td>
<td>251</td>
<td>1100</td>
<td>250</td>
<td>1100</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:
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
Logical Processor enabled
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 (b5e8d4b4eb51ed28d7f8696cbe290c1)
running on linux-8jkl Tue Sep 19 10:27:13 2017

This section contains SUT (System Under Test) info as seen by
Dell Inc.  

PowerEdge T640 (Intel Xeon Silver 4114, 2.20 GHz)  

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**Platform Notes (Continued)**

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) Silver 4114 CPU @ 2.20GHz  
2 "physical id"s (chips)  
40 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The  
following excerpts from /proc/cpuinfo might not be reliable. Use with  
cautions.)  
cpu cores : 10  
siblings : 20  
physical 0: cores 0 1 2 3 4 8 9 10 11 12  
physical 1: cores 0 1 2 3 4 8 9 10 11 12  
cache size : 14080 KB

From /proc/meminfo

MemTotal: 394864936 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:

(9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 19 05:40

SPEC is set to: /root/cpu2006-1.2_ic17u3  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 xfs 889G 9.1G 880G 2% /

Additional information from dmidecode:

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Continued on next page
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CPU2006 license: 55
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Platform Notes (Continued)

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

BIOS Dell Inc. 1.0.0 08/09/2017
Memory:
8x 002C00B3002C 18ASF2G72PD2-2G6D1 16 GB 2 rank 2666 MHz, configured at 2400 MHz
4x 002C0632002C 18ASF2G72PD2-2G6D1 16 GB 2 rank 2666 MHz, configured at 2400 MHz
12x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2400 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:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
runspec command invoked through numactl i.e.:
numactl --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
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
Dell Inc.  

PowerEdge T640 (Intel Xeon Silver 4114, 2.20 GHz)  

SPECint_rate2006 =  Not Run  
SPECint_rate_base2006 =  891

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

Test date:  Sep-2017  
Hardware Availability:  Sep-2017  
Software Availability:  Nov-2016

Base Portability Flags (Continued)

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

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html

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 other inquiries, please contact webmaster@spec.org.

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