## SPEC® CINT2006 Result

**Dell Inc.**

PowerEdge C6420 (Intel Xeon Silver 4108, 1.80 GHz)

<table>
<thead>
<tr>
<th>CPU2006 license: 55</th>
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<tbody>
<tr>
<td>Test sponsor: Dell Inc.</td>
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<td>Test date: Jun-2017</td>
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<tr>
<td>Hardware Availability: Jul-2017</td>
</tr>
<tr>
<td>Software Availability: Apr-2017</td>
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</tbody>
</table>

### SPECint_rate2006 = 662

| SPECint_rate_base2006 = 629 |

### Hardware

| CPU Name: Intel Xeon Silver 4108 |
| CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz |
| CPU MHz: 1800 |
| FPU: Integrated |
| CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: 1.2 chip |
| Primary Cache: 32 KB I + 32 KB D on chip per core |
| Secondary Cache: 1 MB I+D on chip per core |
| L3 Cache: 11 MB I+D on chip per chip |
| Other Cache: None |
| Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R, running at 2400 MT/s) |
| Disk Subsystem: 1 x 960 GB SATA SSD |
| Other Hardware: None |

### Software

| Operating System: SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default |
| Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux |
| Auto Parallel: Yes |
| File System: ext4 |
| System State: Run level 3 (multi-user) |
| Base Pointers: 32-bit |
| Peak Pointers: 32/64-bit |
| Other Software: Microquill SmartHeap V10.2 |
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Results Table 

<table>
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<th>Benchmark</th>
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<th>Ratio</th>
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</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 (b5e8d4b4eb51ed28d7f98696cbe290c1) 
running on linux-38mh Thu Jun 22 05:11:02 2017 

This section contains SUT (System Under Test) info as seen by
**SPEC CINT2006 Result**

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PowerEdge C6420 (Intel Xeon Silver 4108, 1.80 GHz)

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**SPECint_rate2006** = 662  
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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 4108 CPU @ 1.80GHz  
- 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 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: 196687624 kB  
- HugePages_Total: 0  
- Hugepagesize: 2048 kB

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 Jun 22 05:01

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

Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sda2  ext4  915G  8.4G  906G  1% /

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 C6420 (Intel Xeon Silver 4108, 1.80 GHz)

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Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Apr-2017

Platform Notes (Continued)

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

BIOS Dell Inc. 1.1.1 06/05/2017
Memory:
12x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz, configured at 2400 MHz
4x 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_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
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.hmmer: -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
Dell Inc. PowerEdge C6420 (Intel Xeon Silver 4108, 1.80 GHz)

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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

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
  400.perlbench: icc -m64
  401.bzip2: icc -m64
  456.hmmer: icc -m64
  458.sjeng: icc -m64

C++ benchmarks:
  icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
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

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**Peak Portability Flags (Continued)**

483.xalancbmk: \(-D\_FILE\_OFFSET\_BITS=64\) \(-D\_SPEC\_CPU\_ LINUX\)

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**Peak Optimization Flags**

C benchmarks:

- 400.perlbench: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)  -auto-ilp32  -qopt-mem-layout-trans=3

- 401.bzip2: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)  -qopt-prefetch  -auto-ilp32
  -qopt-mem-layout-trans=3

- 403.gcc: 
  -xCORE-AVX2  -ipo  -O3  -no-prec-div
  -qopt-mem-layout-trans=3

- 429.mcf: basepeak = yes

- 445.gobmk: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)  -qopt-mem-layout-trans=3

- 456.hmmer: 
  -xCORE-AVX2  -ipo  -O3  -no-prec-div  -unroll2  -auto-ilp32
  -qopt-mem-layout-trans=3

- 458.sjeng: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)  -unroll4  -auto-ilp32
  -qopt-mem-layout-trans=3

- 462.libquantum: basepeak = yes

- 464.h264ref: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)  -unroll2  -qopt-mem-layout-trans=3

C++ benchmarks:

- 471.omnetpp: 
  -prof-gen(pass 1)  -prof-use(pass 2)  -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1)  -ipo(pass 2)  -O3(pass 2)
  -no-prec-div(pass 2)
  -qopt-ra-region-strategy=block
  -qopt-mem-layout-trans=3  -Wl,-z,muldefs
  -L/sh10.2  -lsmartheap

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Peak Optimization Flags (Continued)

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/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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