## Dell Inc.

**PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)**

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>64.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>61.5</td>
</tr>
</tbody>
</table>

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

### Hardware

- **CPU Name:** Intel Xeon Gold 5115
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz
- **CPU MHz:** 2400
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1.2 chip
- **Primary Cache:** 32 KB L1 + 32 KB D on chip per core
- **Secondary Cache:** 1 MB I+D on chip per core
- **L3 Cache:** 13.75 MB I+D on chip per core
- **Other Cache:** None
- **Memory:** 384 GB (12 x 32 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:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V10.2

---

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Dell Inc.
PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)

spec

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.
PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)

SPECint2006 = 64.3
SPECint_base2006 = 61.5

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

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

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>243</td>
<td>40.2</td>
<td>241</td>
<td>40.5</td>
<td>243</td>
<td>40.2</td>
<td>212</td>
<td>46.1</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>390</td>
<td>24.8</td>
<td>391</td>
<td>24.7</td>
<td>390</td>
<td>24.7</td>
<td>386</td>
<td>25.0</td>
</tr>
<tr>
<td>403.gcc</td>
<td>269</td>
<td>29.9</td>
<td>270</td>
<td>29.8</td>
<td>270</td>
<td>29.8</td>
<td>272</td>
<td>29.6</td>
</tr>
<tr>
<td>429.mcf</td>
<td>368</td>
<td>68.5</td>
<td>132</td>
<td>68.9</td>
<td>135</td>
<td>67.4</td>
<td>135</td>
<td>67.5</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>133</td>
<td>368</td>
<td>28.5</td>
<td>369</td>
<td>28.5</td>
<td>362</td>
<td>29.0</td>
<td>361</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>111</td>
<td>84.3</td>
<td>111</td>
<td>84.3</td>
<td>111</td>
<td>84.2</td>
<td>111</td>
<td>84.3</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>378</td>
<td>32.0</td>
<td>379</td>
<td>32.0</td>
<td>378</td>
<td>32.0</td>
<td>372</td>
<td>32.6</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.83</td>
<td>5400</td>
<td>3.75</td>
<td>5520</td>
<td>3.74</td>
<td>5550</td>
<td>3.83</td>
<td>5400</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>367</td>
<td>60.2</td>
<td>368</td>
<td>60.2</td>
<td>367</td>
<td>60.3</td>
<td>367</td>
<td>60.2</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>246</td>
<td>25.4</td>
<td>246</td>
<td>25.4</td>
<td>247</td>
<td>25.3</td>
<td>191</td>
<td>32.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>121</td>
<td>33.1</td>
<td>212</td>
<td>33.1</td>
<td>212</td>
<td>33.1</td>
<td>213</td>
<td>32.9</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>102</td>
<td>67.5</td>
<td>102</td>
<td>67.6</td>
<td>105</td>
<td>66.0</td>
<td>92.1</td>
<td>74.9</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:
Sub NUMA Cluster disabled
Virtualization Technology disabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E disabled
Energy Efficient Turbo 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-fx60 Tue Jun 27 16:37:41 2017
Continued on next page
SPEC CINT2006 Result

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)

SPECint2006 = 64.3
SPECint_base2006 = 61.5

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

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

Platform Notes (Continued)

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) Gold 5115 CPU @ 2.40GHz
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 caution.)
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: 394868380 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:
Linux linux-fx60 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 Jun 27 02:51

SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 909G 8.8G 900G 1% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
SPEC CINT2006 Result

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz) SPECint2006 = 64.3
SPECint_base2006 = 61.5

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

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. 1.1.1 06/05/2017
Memory:
2x 002C00B3002C 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz, configured at 2400 MHz
10x 002C0632002C 36ASF4G72PZ-2G6D1 32 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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006-1.2_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"
OMP_NUM_THREADS = "20"

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

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

Continued on next page
SPEC CINT2006 Result

Dell Inc. PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)

SPECint2006 = 64.3
SPECint_base2006 = 61.5

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

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

Base Portability Flags (Continued)

471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

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

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -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_2017/linux/lib/ia32
  445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks (except as noted below):
  icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

  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: -D_FILE_OFFSET_BITS=64

Continued on next page
Dell Inc. 

PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz) 

SPECint2006 = 64.3 

SPECint_base2006 = 61.5

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

Peak Portability Flags (Continued)

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

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) -qopt-prefetch

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 -auto-ilp32 -qopt-prefetch

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc 
-qopt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel 
-qopt-prefetch -auto-p32

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)

456.hmmer: basepeak = yes

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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 
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

Continued on next page
Dell Inc. PowerEdge C6420 (Intel Xeon Gold 5115, 2.40 GHz)

SPECint2006 = 64.3
SPECint_base2006 = 61.5

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

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

Peak Optimization Flags (Continued)

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

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

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 8 August 2017.