### SPECint2006 Result

**Dell Inc.**

PowerEdge FC640 (Intel Xeon Gold 5115, 2.40 GHz)  

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint2006</th>
<th>SPECint_base2006</th>
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<tbody>
<tr>
<td>perlbench</td>
<td>40.8</td>
<td>39.3</td>
</tr>
<tr>
<td>bzip2</td>
<td>24.9</td>
<td>23.2</td>
</tr>
<tr>
<td>gcc</td>
<td>30.5</td>
<td>28.7</td>
</tr>
<tr>
<td>mcf</td>
<td>71.6</td>
<td>68.8</td>
</tr>
<tr>
<td>gobmk</td>
<td>29.2</td>
<td>27.8</td>
</tr>
<tr>
<td>hmer</td>
<td>32.6</td>
<td>31.0</td>
</tr>
<tr>
<td>sjeng</td>
<td>32.0</td>
<td>30.5</td>
</tr>
<tr>
<td>libquantum</td>
<td>40.8</td>
<td>39.3</td>
</tr>
<tr>
<td>h264ref</td>
<td>60.5</td>
<td>58.8</td>
</tr>
<tr>
<td>omnetpp</td>
<td>33.1</td>
<td>31.3</td>
</tr>
<tr>
<td>astar</td>
<td>33.5</td>
<td>31.9</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>71.7</td>
<td>69.1</td>
</tr>
</tbody>
</table>

**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 I + 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 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  

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

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Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 5115, 2.40 GHz)

CPU2006 license: 55
Test sponsor: Dell Inc.
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SPECint2006 = 65.2
SPECint_base2006 = 62.6

Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</tr>
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<tr>
<td>400.perlbench</td>
<td>240</td>
<td>40.7</td>
<td>239</td>
<td>40.8</td>
<td>240</td>
<td>40.8</td>
<td>213</td>
<td>46.0</td>
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<tr>
<td>401.bzip2</td>
<td>386</td>
<td>25.0</td>
<td>387</td>
<td>24.9</td>
<td>388</td>
<td>24.9</td>
<td>386</td>
<td>25.0</td>
</tr>
<tr>
<td>403.gcc</td>
<td>264</td>
<td>30.5</td>
<td>264</td>
<td>30.5</td>
<td>264</td>
<td>30.4</td>
<td>264</td>
<td>30.5</td>
</tr>
<tr>
<td>429.mcf</td>
<td>366</td>
<td>28.7</td>
<td>366</td>
<td>28.7</td>
<td>366</td>
<td>28.7</td>
<td>359</td>
<td>29.2</td>
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<tr>
<td>456.hmmer</td>
<td>378</td>
<td>32.0</td>
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<td>32.0</td>
<td>378</td>
<td>32.0</td>
<td>370</td>
<td>32.7</td>
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<tr>
<td>462.libquantum</td>
<td>3.67</td>
<td>5650</td>
<td>3.76</td>
<td>5520</td>
<td>3.65</td>
<td>5680</td>
<td>3.67</td>
<td>5650</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>366</td>
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<td>242</td>
<td>25.9</td>
<td>242</td>
<td>25.8</td>
<td>241</td>
<td>26.0</td>
<td>188</td>
<td>33.3</td>
</tr>
<tr>
<td>473.astar</td>
<td>210</td>
<td>33.4</td>
<td>209</td>
<td>33.7</td>
<td>210</td>
<td>33.5</td>
<td>210</td>
<td>33.4</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>96.2</td>
<td>71.2</td>
<td>96.2</td>
<td>71.8</td>
<td>96.2</td>
<td>71.7</td>
<td>89.9</td>
<td>76.8</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-u8yg Fri Sep 15 05:56:24 2017

Continued on next page
# SPEC CINT2006 Result

## Dell Inc.

**PowerEdge FC640 (Intel Xeon Gold 5115, 2.40 GHz)**

<table>
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**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Test date:** Sep-2017  
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**Hardware Availability:** Sep-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:       196687636 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-u8yg 4.4.16-56-default #1 SMP Mon Aug 8 14:24:26 UTC 2016
    (5b281a8) x86_64 x86_64 x86_64 GNU/Linux
```

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

```
Filesystem     Type Size Used Avail Use% Mounted on
/dev/sda1      btrfs 921G 17G 901G 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*
Dell Inc. PowerEdge FC640 (Intel Xeon Gold 5115, 2.40 GHz)

**SPECint2006 = 65.2**

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---

**Platform Notes (Continued)**

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 08/10/2017**

**Memory:**

12x 00AD00B300AD HMA82GR7AFR8N-VK 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:

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

471.omnetpp: -DSPEC_CPU_LP64

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
### SPEC CINT2006 Result

**Dell Inc.**  
PowerEdge FC640 (Intel Xeon Gold 5115, 2.40 GHz)

| SPECint2006 | 65.2 |
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### 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

- **456.hmmer:** -DSPEC_CPU_LP64  -DSPEC_CPU_LINUX

- **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
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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) -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: basepeak = yes
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)

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

473.astar: basepeak = yes
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
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