## SPEC® CFP2006 Result

**Dell Inc.**

**PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)**

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 146</td>
<td>= 138</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Gold 6152</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2100</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>44 cores, 2 chips, 22 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</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>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.16-56-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>btrfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

---

### Test Details

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Test sponsor</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by</td>
<td>Dell Inc.</td>
</tr>
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<td>Test date</td>
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<td>Hardware Availability</td>
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<td>Software Availability</td>
<td>Nov-2016</td>
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### Benchmarks

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>52.8</td>
</tr>
<tr>
<td>416.gamess</td>
<td>49.3</td>
</tr>
<tr>
<td>433.milc</td>
<td>80.8</td>
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<tr>
<td>434.zeusmp</td>
<td>271</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>46.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>1140</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>466</td>
</tr>
<tr>
<td>444.namd</td>
<td>36.3</td>
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<tr>
<td>447.dealII</td>
<td>72.9</td>
</tr>
<tr>
<td>450.soplex</td>
<td>54.5</td>
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<tr>
<td>453.povray</td>
<td>80.5</td>
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<tr>
<td>454.calculix</td>
<td>71.3</td>
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<tr>
<td>459.GemsFDTD</td>
<td>318</td>
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<tr>
<td>465.tonto</td>
<td>68.7</td>
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<td>470.lbm</td>
<td>46.3</td>
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<tr>
<td>481.wrf</td>
<td>137</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>65.4</td>
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</tbody>
</table>

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### Notes

Continued on next page
Dell Inc.  
PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)  

**SPEC CFP2006 Result**

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

**L3 Cache:** 30.25 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)  
**Disk Subsystem:** 1 x 960 GB SATA SSD  
**Other Hardware:** None  

**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** None  

**Results Table**

<table>
<thead>
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<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td></td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

**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

Continued on next page
## Dell Inc.

**PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)**

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

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td>138</td>
</tr>
</tbody>
</table>

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

**Platform Notes (Continued)**

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 Thu Sep 14 05:42:19 2017  

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

From `/proc/cpuinfo`

- **model name**: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz  
- **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`: 22  
  - `siblings`: 44  
- **cache size**: 30976 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"

```bash
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
```

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SPEC CFP2006 Result

Dell Inc.  
PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)  

SPECfp2006 = 146  
SPECfp_base2006 = 138

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

Platform Notes (Continued)

run-level 3 Sep 14 01:18

SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 btrfs 921G 19G 899G 3% /

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
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
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,compact,1,0"
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 = "44"

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

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64
**SPEC CFP2006 Result**

**Dell Inc.**

PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)

**SPECfp2006 =** 146

**SPECfp_base2006 =** 138

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

### Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

### Base Optimization Flags

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

C++ benchmarks:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`

Fortran benchmarks:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

Benchmarks using both Fortran and C:
- `xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

### Peak Compiler Invocation

C benchmarks:
- `icc -m64`

C++ benchmarks:
- `icpc -m64`

Fortran benchmarks:
- `ifort -m64`

Benchmarks using both Fortran and C:
- `icc -m64 ifort -m64`
Dell Inc.  PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)

SPECfp2006 = 146  
SPECfp_base2006 = 138

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

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -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) -fno-alias -auto-ilk32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -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 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -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 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -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 -inline-level=0 -goct-prefetch -parallel

465.tonto: -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) -inline-calloc -goct-malloc-options=3  
-auto -unroll4

Continued on next page
Dell Inc.  
PowerEdge FC640 (Intel Xeon Gold 6152, 2.10 GHz)  
SPECfp2006 = 146  
SPECfp_base2006 = 138

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

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

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32
481.wrf: basepeak = yes

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

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