### SPEC® CFP2006 Result

**Dell Inc.**

PowerEdge R940  
(Intel Xeon Gold 6148, 2.40 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>149</strong></td>
<td><strong>141</strong></td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55  
**Test date:** Oct-2017

**Test sponsor:** Dell Inc.  
**Hardware Availability:** Sep-2017

**Tested by:** Dell Inc.  
**Software Availability:** Apr-2017

### Hardware

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>1370</td>
</tr>
<tr>
<td>416.gamess</td>
<td>386</td>
</tr>
<tr>
<td>433.milc</td>
<td>181</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>47.9</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>47.9</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>36.5</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>55.6</td>
</tr>
<tr>
<td>444.namd</td>
<td>71.3</td>
</tr>
<tr>
<td>447.dealII</td>
<td>71.8</td>
</tr>
<tr>
<td>450.soplex</td>
<td>78.7</td>
</tr>
<tr>
<td>453.povray</td>
<td>69.7</td>
</tr>
<tr>
<td>454.calculix</td>
<td>77.1</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>71.9</td>
</tr>
<tr>
<td>465.tonto</td>
<td>170</td>
</tr>
<tr>
<td>470.lbm</td>
<td>146</td>
</tr>
<tr>
<td>481.wrf</td>
<td>134</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>67.9</td>
</tr>
</tbody>
</table>

**SPECfp_base2006 = 141**

**SPECfp2006 = 149**

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 (x86_64) 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; 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>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

Continued on next page
# SPEC CFP2006 Result

## Dell Inc.

**PowerEdge R940**  
(Intel Xeon Gold 6148, 2.40 GHz)

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

**L3 Cache:** 27.5 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)  
**Disk Subsystem:** 1 x 900 GB 15K RPM SAS12  
**Other Hardware:** None  

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

## SPECfp2006 = 149  
SPECfp_base2006 = 141

### 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>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>7.44</td>
<td>1830</td>
<td>7.53</td>
<td>1810</td>
<td>7.41</td>
<td>1830</td>
<td>7.44</td>
<td>1830</td>
<td>7.44</td>
<td>1830</td>
<td>7.43</td>
<td>1830</td>
</tr>
<tr>
<td>416.gamess</td>
<td>404</td>
<td>48.4</td>
<td>405</td>
<td>48.3</td>
<td>406</td>
<td>48.3</td>
<td>379</td>
<td>51.7</td>
<td>379</td>
<td>51.7</td>
<td>378</td>
<td>51.7</td>
</tr>
<tr>
<td>433.milc</td>
<td>127</td>
<td>72.1</td>
<td>122</td>
<td>75.3</td>
<td>123</td>
<td>74.5</td>
<td>127</td>
<td>72.1</td>
<td>122</td>
<td>75.3</td>
<td>123</td>
<td>74.5</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>51.2</td>
<td>178</td>
<td>50.3</td>
<td>181</td>
<td>47.0</td>
<td>194</td>
<td>51.2</td>
<td>178</td>
<td>50.3</td>
<td>181</td>
<td>47.0</td>
<td>194</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>449</td>
<td>7.4</td>
<td>149</td>
<td>47.9</td>
<td>150</td>
<td>47.7</td>
<td>149</td>
<td>47.9</td>
<td>150</td>
<td>47.7</td>
<td>150</td>
<td>47.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>8.80</td>
<td>1360</td>
<td>8.73</td>
<td>1370</td>
<td>8.63</td>
<td>1390</td>
<td>8.80</td>
<td>1360</td>
<td>8.73</td>
<td>1370</td>
<td>8.63</td>
<td>1390</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>24.3</td>
<td>386</td>
<td>24.4</td>
<td>386</td>
<td>24.3</td>
<td>386</td>
<td>24.3</td>
<td>386</td>
<td>24.3</td>
<td>386</td>
<td>24.3</td>
<td>386</td>
</tr>
<tr>
<td>444.namd</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>220</td>
<td>36.5</td>
<td>220</td>
<td>36.5</td>
<td>220</td>
<td>36.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>160</td>
<td>71.3</td>
<td>159</td>
<td>71.9</td>
<td>160</td>
<td>71.3</td>
<td>160</td>
<td>71.3</td>
<td>159</td>
<td>71.9</td>
<td>160</td>
<td>71.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>161</td>
<td>51.8</td>
<td>164</td>
<td>50.9</td>
<td>160</td>
<td>52.1</td>
<td>161</td>
<td>51.8</td>
<td>164</td>
<td>50.9</td>
<td>160</td>
<td>52.1</td>
</tr>
<tr>
<td>453.povray</td>
<td>76.4</td>
<td>69.7</td>
<td>76.6</td>
<td>69.5</td>
<td>76.3</td>
<td>69.7</td>
<td>67.7</td>
<td>78.6</td>
<td>67.5</td>
<td>78.8</td>
<td>67.6</td>
<td>78.7</td>
</tr>
<tr>
<td>454.calculix</td>
<td>115</td>
<td>71.9</td>
<td>115</td>
<td>71.9</td>
<td>115</td>
<td>71.9</td>
<td>107</td>
<td>77.1</td>
<td>107</td>
<td>76.8</td>
<td>107</td>
<td>77.3</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>71.7</td>
<td>148</td>
<td>73.0</td>
<td>145</td>
<td>72.7</td>
<td>146</td>
<td>62.3</td>
<td>170</td>
<td>62.2</td>
<td>171</td>
<td>62.7</td>
<td>169</td>
</tr>
<tr>
<td>465.tonto</td>
<td>211</td>
<td>46.6</td>
<td>224</td>
<td>44.0</td>
<td>214</td>
<td>46.0</td>
<td>144</td>
<td>68.3</td>
<td>144</td>
<td>68.4</td>
<td>144</td>
<td>68.4</td>
</tr>
<tr>
<td>470.lbm</td>
<td>4.56</td>
<td>3010</td>
<td>4.56</td>
<td>3010</td>
<td>4.59</td>
<td>2990</td>
<td>4.56</td>
<td>3010</td>
<td>4.56</td>
<td>3010</td>
<td>4.59</td>
<td>2990</td>
</tr>
<tr>
<td>481.wrf</td>
<td>82.5</td>
<td>135</td>
<td>83.5</td>
<td>134</td>
<td>83.7</td>
<td>133</td>
<td>82.5</td>
<td>135</td>
<td>83.5</td>
<td>134</td>
<td>83.7</td>
<td>133</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>287</td>
<td>67.9</td>
<td>287</td>
<td>67.9</td>
<td>286</td>
<td>68.1</td>
<td>287</td>
<td>67.9</td>
<td>287</td>
<td>67.9</td>
<td>286</td>
<td>68.1</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:
  - Logical Processor Disabled
  - Virtualization Technology Disabled
  - Sub NUMA Cluster Disabled
  - System Profile set to Custom
  - CPU Performance set to Maximum Performance
  - C1E Disabled
  - C States set to Autonomous
  - Uncore Frequency set to Dynamic
  - Memory Patrol Scrub Disabled

Continued on next page

---

Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
 SPEC CFP2006 Result

Dell Inc.
PowerEdge R940
(Intel Xeon Gold 6148, 2.40 GHz)

SPECfp2006 = 149
SPECfp_base2006 = 141

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

Platform Notes (Continued)

Energy Efficiency Policy set to Performance
CPU Interconnect Bus Link Power Management Disabled
PCI ASPM L1 Link Power Management Disabled
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-ehog Tue Oct 17 08:21:03 2017

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
hp://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
  4 "physical id"s (chips)
  80 "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 : 20
  siblings : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 2: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 3: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  cache size : 28160 KB

From /proc/meminfo
MemTotal: 791225344 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-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
    # 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:

Continued on next page
Dell Inc.  
PowerEdge R940  
(Intel Xeon Gold 6148, 2.40 GHz)  

SPECfp2006 = 149  
SPECfp_base2006 = 141  

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

Test date: Oct-2017  
Hardware Availability: Sep-2017  
Software Availability: Apr-2017  

Platform Notes (Continued)  

(9464f67) x86_64 x86_64 x86_64 GNU/Linux  

run-level 3 Oct 17 03:55  

SPEC is set to: /home/cpu2006  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda4 xfs 796G 17G 779G 3% /home  

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. 1.1.7 08/10/2017  
Memory: 48x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz  

(End of data from sysinfo program)  

General Notes  

Environment variables set by runspec before the start of the run:  
KMP_AFFINITY = "granularity=fine,compact"  
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"  
OMP_NUM_THREADS = "80"  

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.2  
Transparent Huge Pages disabled with:  
echo never > /sys/kernel/mm/transparent_hugepage/enabled  
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
Dell Inc.
PowerEdge R940
(Intel Xeon Gold 6148, 2.40 GHz)

SPECfp2006 = 149
SPECfp_base2006 = 141

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

Test date: Oct-2017
Hardware Availability: Sep-2017
Software Availability: Apr-2017

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
SPEC CFP2006 Result

Dell Inc.
PowerEdge R940
(Intel Xeon Gold 6148, 2.40 GHz)

SPECfp2006 = 149
SPECfp_base2006 = 141

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

Test date: Oct-2017
Hardware Availability: Sep-2017
Software Availability: Apr-2017

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-ilp32

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 -qopt-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 -qopt-malloc-options=3
-auto -unroll4
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