# SPEC® CFP2006 Result

**Dell Inc.**

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>49.4</td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>46.7</td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>69.7</td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>172</td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>58.8</td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>655</td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>297</td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>35.3</td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>68.3</td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>41.1</td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>78.2</td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>68.4</td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>65.3</td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>61.9</td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>55.9</td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>84.2</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>77.6</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Gold 5122
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz
- **CPU MHz:** 3600
- **FPU:** Integrated
- **CPU(s) enabled:** 8 cores, 2 chips, 4 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

**Software**

- **Operating System:** SUSE Linux Enterprise Server 12 SP2 4.4.16-56-default
- **Compiler:** C/C++: Version 17.0.1.132 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.1.132 of Intel Fortran Compiler for Linux
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
## SPEC CFP2006 Result

### Dell Inc.

**PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)**

| Benchmark  | CPU2006 license: 55 | Test date: Jan-2098 | Test sponsor: Dell Inc. | Software Availability: Jul-2017 | Tested by: Dell Inc. | Hardware Availability: Jul-2017 | L3 Cache: 16.5 MB I+D on chip per chip | Other Cache: None | Memory: 384 GB (12 x 32 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 |
|------------|---------------------|----------------------|-------------------------|-------------------------------|----------------------|-------------------------|--------------------------------|----------------|----------------------------------------|----------------------------------------|----------------|--------------------------|------------------|-----------------|------------------------|
| SPECfp2006 | 105                 |                      |                         |                               |                      |                         |                                |                 |                                |                          |                |                          |                  |                |                        |
| SPECfp_base2006 | 102               |                      |                         |                               |                      |                         |                                |                 |                                |                          |                |                          |                  |                |                        |

### 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>27.6</td>
<td>492</td>
<td>27.7</td>
<td>491</td>
<td>28.2</td>
<td>482</td>
<td>27.6</td>
<td>492</td>
<td>27.7</td>
<td>491</td>
<td>28.2</td>
<td>482</td>
</tr>
<tr>
<td>416.gamess</td>
<td>418</td>
<td>46.8</td>
<td>419</td>
<td>46.7</td>
<td>419</td>
<td>46.7</td>
<td>395</td>
<td>49.6</td>
<td>396</td>
<td>49.4</td>
<td>397</td>
<td>49.3</td>
</tr>
<tr>
<td>433.milc</td>
<td>126</td>
<td>72.7</td>
<td>132</td>
<td>69.7</td>
<td>133</td>
<td>68.9</td>
<td>126</td>
<td>72.7</td>
<td>132</td>
<td>69.7</td>
<td>133</td>
<td>68.9</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>53.4</td>
<td>170</td>
<td>52.9</td>
<td>172</td>
<td>52.6</td>
<td>173</td>
<td>53.4</td>
<td>170</td>
<td>52.9</td>
<td>172</td>
<td>52.6</td>
<td>173</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>122</td>
<td>58.8</td>
<td>122</td>
<td>58.7</td>
<td>121</td>
<td>58.8</td>
<td>122</td>
<td>58.8</td>
<td>122</td>
<td>58.8</td>
<td>121</td>
<td>58.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>18.2</td>
<td>655</td>
<td>18.5</td>
<td>647</td>
<td>18.0</td>
<td>664</td>
<td>18.2</td>
<td>655</td>
<td>18.5</td>
<td>647</td>
<td>18.0</td>
<td>664</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>31.6</td>
<td>297</td>
<td>31.1</td>
<td>302</td>
<td>32.3</td>
<td>291</td>
<td>31.6</td>
<td>297</td>
<td>31.1</td>
<td>302</td>
<td>32.3</td>
<td>291</td>
</tr>
<tr>
<td>444.namd</td>
<td>227</td>
<td>35.3</td>
<td>227</td>
<td>35.3</td>
<td>227</td>
<td>35.3</td>
<td>214</td>
<td>37.5</td>
<td>214</td>
<td>37.5</td>
<td>214</td>
<td>37.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>168</td>
<td>68.2</td>
<td>167</td>
<td>68.3</td>
<td>167</td>
<td>68.6</td>
<td>168</td>
<td>68.2</td>
<td>167</td>
<td>68.3</td>
<td>167</td>
<td>68.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>201</td>
<td>41.5</td>
<td>203</td>
<td>41.1</td>
<td>206</td>
<td>40.5</td>
<td>201</td>
<td>41.5</td>
<td>203</td>
<td>41.1</td>
<td>206</td>
<td>40.5</td>
</tr>
<tr>
<td>453.povray</td>
<td>77.8</td>
<td>68.4</td>
<td>77.6</td>
<td>68.6</td>
<td>79.0</td>
<td>67.3</td>
<td>68.0</td>
<td>78.2</td>
<td>69.0</td>
<td>77.1</td>
<td>67.4</td>
<td>78.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>128</td>
<td>64.6</td>
<td>126</td>
<td>65.3</td>
<td>126</td>
<td>65.5</td>
<td>125</td>
<td>66.0</td>
<td>126</td>
<td>65.7</td>
<td>125</td>
<td>66.0</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>67.2</td>
<td>158</td>
<td>66.2</td>
<td>160</td>
<td>70.6</td>
<td>150</td>
<td>54.7</td>
<td>194</td>
<td>54.7</td>
<td>194</td>
<td>54.8</td>
<td>194</td>
</tr>
<tr>
<td>465.tonto</td>
<td>176</td>
<td>55.9</td>
<td>176</td>
<td>56.0</td>
<td>202</td>
<td>48.8</td>
<td>159</td>
<td>61.8</td>
<td>159</td>
<td>62.0</td>
<td>159</td>
<td>61.9</td>
</tr>
<tr>
<td>470.lbm</td>
<td>82.6</td>
<td>166</td>
<td>81.9</td>
<td>168</td>
<td>79.1</td>
<td>174</td>
<td>82.6</td>
<td>166</td>
<td>81.9</td>
<td>168</td>
<td>79.1</td>
<td>174</td>
</tr>
<tr>
<td>481.wrf</td>
<td>133</td>
<td>83.7</td>
<td>133</td>
<td>84.2</td>
<td>132</td>
<td>84.6</td>
<td>133</td>
<td>83.7</td>
<td>133</td>
<td>84.2</td>
<td>132</td>
<td>84.6</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>251</td>
<td>77.6</td>
<td>251</td>
<td>77.5</td>
<td>251</td>
<td>77.7</td>
<td>251</td>
<td>77.6</td>
<td>251</td>
<td>77.5</td>
<td>251</td>
<td>77.7</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
SPEC CFP2006 Result

Dell Inc.
PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp2006 = 105
SPECfp_base2006 = 102

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

Test date: Jan-2098
Hardware Availability: Jul-2017
Software Availability: Jul-2017

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/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
runtime on linux-mlw4 Tue Jan 14 04:53:03 2098

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 5122 CPU @ 3.60GHz
  2 "physical id"s (chips)
  16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
  cpu cores : 4
  siblings : 8
  physical 0: cores 2 3 4 10
  physical 1: cores 1 5 9 13
  cache size : 16896 KB

From /proc/meminfo
MemTotal:       394868184 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-mlw4 4.4.16-56-default #1 SMP Mon Aug 8 14:24:26 UTC 2016
(5b281a8) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 8 22:10

Continued on next page
Dell Inc.  
PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)  

SPEC CFP2006 Result  

SPECfp2006 = 105  
SPECfp_base2006 = 102

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

Test date: Jan-2098  
Hardware Availability: Jul-2017  
Software Availability: Jul-2017

Platform Notes (Continued)

SPEC is set to: /root/cpu2006-1.2  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 xfs 929G 12G 917G 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 determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Dell Inc. 0.4.1 02/07/2017  
Memory:  
4x 002C00B3002C 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz  
8x 00AD063200AD HMA84GR7AFR4N-VK 32 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/lib/ia32:/root/cpu2006-1.2/lib/intel64:/root/cpu2006-1.2/sh10.2"  
OMP_NUM_THREADS = "8"

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.

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 C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp2006 = 105
SPECfp_base2006 = 102

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

Test date: Jan-2098
Hardware Availability: Jul-2017
Software Availability: Jul-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-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX512 -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
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-AVX512(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-AVX512(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-AVX512(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-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll2 -inline-level=0 -gopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -inline-calloc -gopt-malloc-options=3
   -auto -unroll4

Continued on next page
SPEC CFP2006 Result

Dell Inc. PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp2006 = 105
SPECfp_base2006 = 102

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

Test date: Jan-2098
Hardware Availability: Jul-2017
Software Availability: Jul-2017

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX512 -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
http://www.spec.org/cpu2006/flags/Dell-Platform-Flags-PowerEdge14G-revB.xml

SPEC and SPECfp 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.