## Dell Inc.

**PowerEdge FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)**

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>108</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>104</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2670 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.10 GHz
- **CPU MHz:** 2300
- **FPU:** Integrated
- **CPU(s) enabled:** 24 cores, 2 chips, 12 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:** 256 KB I+D on chip per core

### Software

- **Operating System:** SUSE Linux Enterprise Server 12 3.12.28-4-default
- **Compiler:**
  - C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
  - Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
SPEC CFP2006 Result

Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)

**SPECfp2006 =** 108

**SPECfp_base2006 =** 104

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test date:** Jan-2015

**Hardware Availability:** Apr-2015

**Software Availability:** Apr-2015

**L3 Cache:** 30 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)

**Disk Subsystem:** 1 x 200 GB SSD SATA

**Other Hardware:** None

**Base Pointers:** 64-bit

**Peak Pointers:** 32/64-bit

**Other Software:** None

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>25.5</td>
<td>533</td>
<td>26.2</td>
<td>519</td>
<td>26.6</td>
<td>511</td>
<td>25.5</td>
<td>533</td>
<td>26.2</td>
<td>519</td>
<td>26.6</td>
<td>511</td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>599</td>
<td>32.7</td>
<td>599</td>
<td>32.7</td>
<td>604</td>
<td>32.4</td>
<td>522</td>
<td>37.5</td>
<td>521</td>
<td>37.6</td>
<td>519</td>
<td>37.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>139</td>
<td>66.2</td>
<td>140</td>
<td>65.8</td>
<td>142</td>
<td>64.7</td>
<td>139</td>
<td>66.2</td>
<td>140</td>
<td>65.8</td>
<td>142</td>
<td>64.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>44.8</td>
<td>203</td>
<td>44.9</td>
<td>203</td>
<td>45.3</td>
<td>201</td>
<td>44.8</td>
<td>203</td>
<td>44.9</td>
<td>203</td>
<td>45.3</td>
<td>201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>180</td>
<td>39.7</td>
<td>182</td>
<td>39.2</td>
<td>180</td>
<td>39.7</td>
<td>180</td>
<td>39.7</td>
<td>180</td>
<td>39.7</td>
<td>180</td>
<td>39.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>13.5</td>
<td>882</td>
<td>13.1</td>
<td>910</td>
<td>13.4</td>
<td>893</td>
<td>13.5</td>
<td>882</td>
<td>13.1</td>
<td>910</td>
<td>13.4</td>
<td>893</td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>24.8</td>
<td>379</td>
<td>24.9</td>
<td>378</td>
<td>25.4</td>
<td>371</td>
<td>24.8</td>
<td>379</td>
<td>24.9</td>
<td>378</td>
<td>25.4</td>
<td>371</td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>307</td>
<td>26.1</td>
<td>307</td>
<td>26.1</td>
<td>306</td>
<td>26.2</td>
<td>297</td>
<td>27.0</td>
<td>299</td>
<td>26.8</td>
<td>298</td>
<td>26.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>228</td>
<td>50.1</td>
<td>231</td>
<td>49.5</td>
<td>229</td>
<td>49.9</td>
<td>228</td>
<td>50.1</td>
<td>231</td>
<td>49.5</td>
<td>229</td>
<td>49.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>199</td>
<td>42.0</td>
<td>199</td>
<td>41.8</td>
<td>202</td>
<td>41.3</td>
<td>199</td>
<td>42.0</td>
<td>199</td>
<td>41.8</td>
<td>202</td>
<td>41.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>108</td>
<td>49.3</td>
<td>108</td>
<td>49.2</td>
<td>107</td>
<td>49.5</td>
<td>96.3</td>
<td>55.2</td>
<td>96.2</td>
<td>55.3</td>
<td>96.2</td>
<td>55.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>171</td>
<td>48.1</td>
<td>171</td>
<td>48.2</td>
<td>171</td>
<td>48.2</td>
<td>160</td>
<td>51.5</td>
<td>162</td>
<td>50.9</td>
<td>160</td>
<td>51.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>46.7</td>
<td>227</td>
<td>46.7</td>
<td>227</td>
<td>47.6</td>
<td>223</td>
<td>38.4</td>
<td>276</td>
<td>38.3</td>
<td>277</td>
<td>38.4</td>
<td>276</td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>267</td>
<td>36.8</td>
<td>268</td>
<td>36.8</td>
<td>271</td>
<td>36.4</td>
<td>213</td>
<td>46.1</td>
<td>214</td>
<td>45.9</td>
<td>214</td>
<td>45.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>18.9</td>
<td>727</td>
<td>18.9</td>
<td>728</td>
<td>19.5</td>
<td>704</td>
<td>18.9</td>
<td>727</td>
<td>18.9</td>
<td>728</td>
<td>19.5</td>
<td>704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>99.2</td>
<td>113</td>
<td>99.5</td>
<td>112</td>
<td>100</td>
<td>111</td>
<td>99.2</td>
<td>113</td>
<td>99.5</td>
<td>112</td>
<td>100</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>285</td>
<td>68.5</td>
<td>286</td>
<td>68.2</td>
<td>284</td>
<td>68.6</td>
<td>285</td>
<td>68.5</td>
<td>286</td>
<td>68.2</td>
<td>284</td>
<td>68.6</td>
<td></td>
<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:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
System Profile set to Custom
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on linux-kygk Sat Jan 17 19:41:11 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Continued on next page
Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)

SPECfp2006 = 108
SPECfp_base2006 = 104

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

Test date: Jan-2015
Hardware Availability: Apr-2015
Software Availability: Apr-2015

Platform Notes (Continued)

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

From /proc/cpuinfo

- model name: Intel(R) Xeon(R) CPU E5-2670 v3 @ 2.30GHz
- 2 "physical id"s (chips)
- 48 "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 : 12
- siblings : 24
- physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
- physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
- cache size : 30720 KB

From /proc/meminfo

- MemTotal: 132186916 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*

SuSE-release:
- SUSE Linux Enterprise Server 12 (x86_64)
- VERSION = 12
- PATCHLEVEL = 0
- # 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"
- VERSION_ID="12"
- PRETTY_NAME="SUSE Linux Enterprise Server 12"
- ID="sles"
- ANSI_COLOR="0;32"
- CPE_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux linux-kygk 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 17 13:54

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 176G 11G 165G 6% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)

SPECfp2006 = 108
SPECfp_base2006 = 104

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Jan-2015
Hardware Availability: Apr-2015
Software Availability: Apr-2015

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. 0.4.0 01/08/2015
Memory:
4x 002C00B3002C 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz
4x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 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,1,0"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

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

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

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)

SPECfp2006 = 108
SPECfp_base2006 = 104

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

Test date: Jan-2015
Hardware Availability: Apr-2015
Software Availability: Apr-2015

Base Portability Flags (Continued)

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 -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

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 FC430 (Intel Xeon E5-2670 v3, 2.30 GHz)  SPECfp2006 =  108

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

SPECfp_base2006 =  104

Test date: Jan-2015
Hardware Availability: Apr-2015
Software Availability: Apr-2015

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll14
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

Continued on next page
Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.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.
Originally published on 16 April 2015.