Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)

**SPECfp\textsuperscript{®}2006 = 99.3**

**SPECfp\textsubscript{base}2006 = 94.2**

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp\textsuperscript{®}2006</th>
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<td>232</td>
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<tr>
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<td>482.sphinx3</td>
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</tr>
</tbody>
</table>

**SPECfp\textsubscript{base}2006 = 94.2**

**SPECfp\textsuperscript{®}2006 = 99.3**

**Hardware**

- **CPU Name:** Intel Xeon E5-2620 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz
- **CPU MHz:** 2400
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 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)

Continued on next page
Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPEC CFP2006 Result

SPECfp2006 = 99.3
SPECfp_base2006 = 94.2

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
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>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td><strong>280</strong></td>
<td><strong>69.6</strong></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 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceb81e28219e1
running on linux-8qjr Wed Jan 28 14:43:35 2015

This section contains SUT (System Under Test) info as seen by
Dell Inc. PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)  

SPECfp2006 = 99.3  
SPECfp_base2006 = 94.2

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

Platform Notes (Continued)

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) CPU E5-2620 v3 @ 2.40GHz
  2 "physical id"s (chips)
  24 "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 : 6
  siblings : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
  cache size : 15360 KB

From /proc/meminfo
  MemTotal:       132187004 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-8qjr 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 28 08:54

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:

Continued on next page
Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)

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Software Availability: Apr-2015

Platform Notes (Continued)

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. 0.4.0 01/08/2015
Memory: 8x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 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 = "12"

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
## SPEC CFP2006 Result

### Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
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### CPU2006 license: 55

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### Test date: Jan-2015

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<tr>
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</tr>
</tbody>
</table>

### Base Portability Flags (Continued)

- 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 -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 E5-2620 v3, 2.40 GHz)

**SPECf2006 =** 99.3  
**SPECfp_base2006 =** 94.2

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

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### Peak Portability Flags

Same as Base Portability Flags

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### Peak Optimization Flags

#### C benchmarks:

- 433.milc: `–xCORE-AVX2(pass 2) –prof-gen(pass 1) –ipo(pass 2)  
  –O3(pass 2) –no-prec-div(pass 2) –prof-use(pass 2)  
  –auto-ilp32 –ansi-alias`

- 470.lbm: `basepeak = yes`

  –parallel`

#### C++ benchmarks:

- 444.namd: `–xCORE-AVX2(pass 2) –prof-gen(pass 1) –ipo(pass 2)  
  –O3(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)  
  –O3(pass 2) –no-prec-div(pass 2) –prof-use(pass 2) –unroll4  
  –ansi-alias`

#### Fortran benchmarks:

- 410.bwaves: `basepeak = yes`

- 416.gamess: `–xCORE-AVX2(pass 2) –prof-gen(pass 1) –ipo(pass 2)  
  –O3(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)  
  –O3(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)  
  –O3(pass 2) –no-prec-div(pass 2) –prof-use(pass 2)  
  –inline-calloc –opt-malloc-options=3 –auto –unroll4`

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Continued on next page
Dell Inc.
PowerEdge FC430 (Intel Xeon E5-2620 v3, 2.40 GHz)

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

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 -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

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

Tested with SPEC CPU2006 v1.2.
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