Dell Inc. PowerEdge FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>101</th>
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<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>94.6</td>
</tr>
</tbody>
</table>

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

| Tested by: Dell Inc. | Software Availability: Jun-2015 |

| Test date: Jan-2015 | Hardware Availability: Jun-2015 |

| SPECfp_base2006 | 94.6 |
| SPECfp2006 = 101 |

- **CPU Name:** Intel Xeon E5-4667 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz
- **CPU MHz:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 64 cores, 4 chips, 16 cores/chip, 2 threads/core
- **CPU(s) orderable:** 4 chip
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

| Operating System: SUSE Linux Enterprise Server 12 3.12.28-4-default |
|----------------------|------------------------|
| Compiler:            | C/C++: Version 15.0.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.0.090 of Intel Fortran Studio XE for Linux |
| Auto Parallel:       | Yes                    |
| File System:         | ext4                   |
| System State:        | Run level 3 (multi-user) |

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)

SPECfp2006 = 101
SPECfp_base2006 = 94.6

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
L3 Cache: 40 MB I+D on chip per chip
Base Pointers: 64-bit
Other Cache: None
Peak Pointers: 32/64-bit
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)
Other Software: None
Disk Subsystem: 1 x 400 GB 7200 RPM SATA
Hardware Availability: Jun-2015
Other Hardware: None
Software Availability: Jun-2015

Test date: Jan-2015
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Base Pointers: 64-bit
Peak Pointers: 32/64-bit

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 Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-3aq4 Fri Jan 30 04:53:36 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

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>
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</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>13.9</td>
<td>979</td>
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<tr>
<td>416.gamess</td>
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<td>667</td>
<td>29.4</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>669</td>
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<td>444.namd</td>
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<td>47.3</td>
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<td>453.povray</td>
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<td>48.0</td>
<td>108</td>
<td>49.1</td>
<td>109</td>
<td>48.8</td>
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<td>40.9</td>
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<tr>
<td>459.GemsFDTD</td>
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<td>60.1</td>
<td>177</td>
<td>57.6</td>
<td>184</td>
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<tr>
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<td>30.0</td>
<td>332</td>
<td>29.7</td>
<td>330</td>
<td>29.8</td>
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<tr>
<td>470.lbm</td>
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<td>481.wrf</td>
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<tr>
<td>482.sphinx3</td>
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<td>54.9</td>
<td>357</td>
<td>54.5</td>
<td>357</td>
<td>54.5</td>
</tr>
</tbody>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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

Dell Inc.
PowerEdge FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)

SPECfp2006 = 101
SPECfp_base2006 = 94.6

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

Platform Notes (Continued)

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

From /proc/cpuinfo
- model name: Intel(R) Xeon(R) CPU E5-4667 v3 @ 2.00GHz
- 4 "physical id"s (chips)
- 128 "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: 16
  - siblings: 32
  - physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  - physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  - physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  - physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
- cache size: 40960 KB

From /proc/meminfo
- MemTotal: 529334376 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*
- SuSE-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-3aq4 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 29 22:28 last=5

SPEC is set to: /root/cpu2006-1.2
- Filesystem Type Size Used Avail Use% Mounted on
- /dev/sda2 ext4 267G 13G 253G 5% /

Continued on next page
Dell Inc.  
PowerEdge FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)  

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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:  
3x 00AD063200AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz  
29x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz  
16x 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/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"  
OMP_NUM_THREADS = "64"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16 GB 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

Continued on next page
**SPEC CFP2006 Result**

**Dell Inc.**

PowerEdge FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)  

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**SPECfp2006 = 101**  
**SPECfp_base2006 = 94.6**

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**Base Portability Flags (Continued)**

- 435.gromacs: -DSPEC_CPU_LP64 -nofor_main
- 436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
- 437.leslie3d: -DSPEC_CPU_LP64
- 444.namd: -DSPEC_CPU_LP64 -nofor_main
- 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
- 463.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 FC830 (Intel Xeon E5-4667 v3, 2.00 GHz)

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SPECfp_base2006 = 94.6

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

Test date: Jan-2015
Hardware Availability: Jun-2015
Software Availability: Jun-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)
           -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) -unroll14
             -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.GemsFD1D: -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

Benchmarks using both Fortran and C:
Continued on next page
SPEC CFP2006 Result

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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

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-revE.20150421.xml

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For other inquiries, please contact webmaster@spec.org.

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