Dell Inc.

PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

<table>
<thead>
<tr>
<th>Application</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
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<tr>
<td>410.bwaves</td>
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<td>416.games</td>
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<td>482.sphinx3</td>
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<td>124</td>
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</table>

SPECfp_base2006 = 96.8
SPECfp2006 = 99.1

### Hardware

- **CPU Name:** Intel Xeon E3-1280 v5
- **CPU Characteristics:** Intel Turbo Boost Technology up to 4.00 GHz
- **CPU MHz:** 3700
- **FPU:** Integrated
- **CPU(s) enabled:** 4 cores, 1 chip, 4 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1 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 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 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 R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

| SPECfp2006 = | 99.1 |
| SPECfp_base2006 = | 96.8 |

### CPU2006 license: 55
- Test date:
- Test sponsor: Dell Inc.
- Tested by: Dell Inc.

### Dell Inc.

| L3 Cache: | 8 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 64 GB (4 x 16 GB 2Rx8 PC4-2133P-U) |
| Disk Subsystem: | 1 x 500 GB 7200 RPM 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>
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</tr>
</tbody>
</table>

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

### Platform Notes

**BIOS settings:**
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-a54a Fri Oct  2 22:27:27 2015

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
Continued on next page
Dell Inc.  
PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)  

\[ \text{SPECfp2006} = 99.1 \]
\[ \text{SPECfp\_base2006} = 96.8 \]

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test date: Oct-2015  
Hardware Availability: Nov-2015  
Software Availability: Sep-2015

Platform Notes (Continued)

From /proc/cpuinfo

- model name: Intel(R) Xeon(R) CPU E3-1280 v5 @ 3.70GHz
- 1 "physical id"s (chips)
- 8 "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: 4
  - siblings: 8
  - physical 0: cores 0 1 2 3
- cache size: 8192 KB

From /proc/meminfo

- MemTotal: 66066084 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-a54a 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 Oct 2 18:21

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 451G 11G 439G 3% /

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...
Dell Inc.  

PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)  

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**Hardware Availability:** Nov-2015  
**Software Availability:** Sep-2015  
**Test date:** Oct-2015  
**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  

---

**Platform Notes (Continued)**  

hardware, firmware, and the "DMTF SMBIOS" standard.  

BIOS Dell Inc. 0.3.16 09/09/2015  
Memory:  
1x 00AD00000000 HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz  
2x 00AD0000020B HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz  
1x 00AD00000800 HMA82GU7MFR8N-TF 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:  
\[ \text{KMP AFFINITY} = "granularity=fine,compact,1,0" \]  
\[ \text{LD_LIBRARY_PATH} = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh" \]  
\[ \text{OMP NUM THREADS} = "4" \]  

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1  
Transparent Huge Pages enabled with:  
\[ \text{echo always > /sys/kernel/mm/transparent_hugepage/enabled} \]  

---

**Base Compiler Invocation**  

C benchmarks:  
\[ \text{icc} \quad -m64 \]  

C++ benchmarks:  
\[ \text{icpc} \quad -m64 \]  

Fortran benchmarks:  
\[ \text{ifort} \quad -m64 \]  

Benchmarks using both Fortran and C:  
\[ \text{icc} \quad -m64 \text{ ifort} \quad -m64 \]  

---

**Base Portability Flags**  

410.bwaves: \(-\text{DSPEC\_CPU\_LP64}\)  
416.gamess: \(-\text{DSPEC\_CPU\_LP64}\)  
433.milc: \(-\text{DSPEC\_CPU\_LP64}\)  
434.zesmp: \(-\text{DSPEC\_CPU\_LP64}\)  
435.gromacs: \(-\text{DSPEC\_CPU\_LP64} \quad \text{-nofor\_main}\)  
436.cactusADM: \(-\text{DSPEC\_CPU\_LP64} \quad \text{-nofor\_main}\)  
437.leslie3d: \(-\text{DSPEC\_CPU\_LP64}\)  
444.namd: \(-\text{DSPEC\_CPU\_LP64}\)
SPEC CFP2006 Result

Dell Inc.

PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

| SPECfp2006 = | 99.1 |
| SPECfp_base2006 = | 96.8 |

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

Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags
Dell Inc.
PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

**SPECfp2006 = 99.1**  
**SPECfp_base2006 = 96.8**

**CPU2006 license:** 55  
**Test date:** Oct-2015  
**Test sponsor:** Dell Inc.  
**Hardware Availability:** Nov-2015  
**Tested by:** Dell Inc.  
**Software Availability:** Sep-2015

### 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:threadsafe(pass 1)  
           -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
           -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias  
           -auto-ilp32  

447.dealII: basepeak = yes  
450.soplex: basepeak = yes  
453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
            -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
            -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4  
            -ansi-alias

**Fortran benchmarks:**

410.bwaves: basepeak = yes  
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
            -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
            -par-num-threads=1(pass 1) -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:threadsafe(pass 1)  
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
              -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
              -inline-level=0 -opt-prefetch -parallel  

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
          -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
          -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc  
          -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

Continued on next page
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PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)  

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| Test sponsor:     | Dell Inc. |
| Tested by:        | Dell Inc. |
| Test date:        | Oct-2015 |
| Hardware Availability: | Nov-2015 |
| Software Availability: | Sep-2015 |

Peak Optimization Flags (Continued)

435. gromacs: basepeak = yes

436. cactusADM: basepeak = yes

454. calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-llp32 -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-ic16.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.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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