## SPEC® CFP2006 Result

### Dell Inc.

PowerEdge R230 (Intel Xeon E3-1240L v5, 2.10 GHz)

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

<table>
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</tr>
<tr>
<td>482.sphinx3</td>
<td>75.0</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E3-1240L v5  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz  
- **CPU MHz:** 2100  
- **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  
- **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

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Standard Performance Evaluation Corporation  
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**SPECfp_base2006 =** 79.3

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- **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**

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<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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**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 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceb8a8e28219e1 running on linux-qjz4 Wed Sep 30 14:49:29 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 E3-1240L v5, 2.10 GHz) SPECfp2006 = 81.4
SPECfp_base2006 = 79.3

CPU2006 license: 55
Test sponsor: Dell Inc.
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Test date: Sep-2015
Hardware Availability: Nov-2015
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Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E3-1240L v5 @ 2.10GHz
  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-qjz4 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 Sep 30 09:52

SPEC is set to: /root/cpu2006-1.2
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 ext4 451G 13G 438G 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
Continued on next page
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**Tested by:** Dell Inc.

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## Platform Notes (Continued)

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

BIOS Dell Inc. 0.3.16 09/09/2015

Memory:
- 1x 002C00000000 18ASF2G72AZ-2G3A1 16 GB 2 rank 2133 MHz
- 2x 002C0000020B 18ASF2G72AZ-2G3A1 16 GB 2 rank 2133 MHz
- 1x 002C00000800 18ASF2G72AZ-2G3A1 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** = "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:

```bash
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`
- `444.namd: -DSPEC_CPU_LP64`

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Dell Inc.  

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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.
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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:

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

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