**SPEC® CFP2006 Result**

**Dell Inc.**

PowerEdge R230 (Intel Xeon E3-1220 v5, 3.00 GHz)  

<table>
<thead>
<tr>
<th>Test date:</th>
<th>Sep-2015</th>
</tr>
</thead>
<tbody>
<tr>
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### SPECfp®2006 = 92.0

### SPECfp_base2006 = 90.0

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<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
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<tr>
<td>410.bwaves</td>
<td>139</td>
</tr>
<tr>
<td>416.gamess</td>
<td>105</td>
</tr>
<tr>
<td>433.milc</td>
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<tr>
<td>436.cactusADM</td>
<td>107</td>
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**SPECfp_base2006 = 90.0**

**SPECfp®2006 = 92.0**

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### Hardware

- **CPU Name:** Intel Xeon E3-1220 v5  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz  
- **CPU MHz:** 3000  
- **FPU:** Integrated  
- **CPU(s) enabled:** 4 cores, 1 chip, 4 cores/chip  
- **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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# SPEC CFP2006 Result

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PowerEdge R230 (Intel Xeon E3-1220 v5, 3.00 GHz)

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**SPECfp_base2006 =** 90.0

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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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>91.9</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:**
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 Thu Sep 17 15:16:19 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
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Dell Inc.  
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CPU2006 license: 55  
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Tested by: Dell Inc.  

Test date: Sep-2015  
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Software Availability: Sep-2015  

Platform Notes (Continued)

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1220 v5 @ 3.00GHz
  1 "physical id"s (chips)
  4 "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 : 4
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 5 Sep 17 10:31

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
Continued on next page
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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 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:
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:
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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### Base Portability Flags (Continued)
- 447.dealII: --DSPEC_CPU_LP64  
- 450.soplex: --DSPEC_CPU_LP64  
- 453.povray: --DSPEC_CPU_LP64  
- 454.calculix: --DSPEC_CPU_LP64  
- 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
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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-llp32
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
Dell Inc.

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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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