Dell Inc.

PowerEdge R220 (Intel Xeon E3-1230 v3, 3.30 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006 =</th>
<th>74.3</th>
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<td>72.9</td>
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CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Mar-2014
Hardware Availability: Mar-2014
Software Availability: Feb-2014

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<th>Result</th>
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<tr>
<td>482.sphinx3</td>
<td>50.6</td>
</tr>
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SPECfp_base2006 = 72.9

Hardware

CPU Name: Intel Xeon E3-1230 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3300
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 11 (x86_64) 3.0.76-0.11-default
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext2
System State: Run level 3 (multi-user)
## Dell Inc.

**PowerEdge R220 (Intel Xeon E3-1230 v3, 3.30 GHz)**

- **CPU2006 license:** 59
- **Test sponsor:** Dell Inc.
- **Tested by:** Dell Inc.
- **L3 Cache:** 8 MB I+D on chip per chip
- **Memory:** 32 GB (4 x 8 GB 2Rx8 PC3L-12800E-11, ECC)
- **Disk Subsystem:** 2 x 300 GB 10000 RPM SAS
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</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

- Virtualization Technology disabled
- Execute Disable disabled
- System Profile set to Performance
- Logical Processor disabled
- Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
- $Rev: 6818 $ $Date:: 2012-07-17 $ $e86d102572650a6e4d596a3cee98f191 running on linux Mon Mar 10 10:20:55 2014

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
Dell Inc.

PowerEdge R220 (Intel Xeon E3-1230 v3, 3.30 GHz)

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

SPECfp2006 = 74.3
SPECfp_base2006 = 72.9

Test date: Mar-2014
Hardware Availability: Mar-2014
Software Availability: Feb-2014

Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E3-1230 v3 @ 3.30GHz
  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:       32809896 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
  SuSE-release:
    SUSE Linux Enterprise Server 11 (x86_64)
    VERSION = 11
    PATCHLEVEL = 3

uname -a:
  Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 10 10:19 last=S

SPEC is set to: /root/cpu2006-1.2
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2     ext2  542G  7.8G  533G   2% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.0.2 03/02/2014
  Memory:
    4x Samsung M391B1G73BH0-YK0 8 GB 1600 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
  OMP_NUM_THREADS = "4"

Continued on next page
Dell Inc.  
PowerEdge R220 (Intel Xeon E3-1230 v3, 3.30 GHz)  

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General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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
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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
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 -03 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Continued on next page
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### Base Optimization Flags (Continued)

- C++ benchmarks:  
  ```
  -xCORE-AVX2  
  -ipo  
  -O3  
  -no-prec-div  
  -opt-prefetch  
  -ansi-alias
  ```
- Fortran benchmarks:  
  ```
  -xCORE-AVX2  
  -ipo  
  -no-prec-div  
  -parallel  
  -opt-prefetch
  ```
- Benchmarks using both Fortran and C:  
  ```
  -xCORE-AVX2  
  -ipo  
  -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

### 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
  ```
  ```
  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
  ```

Continued on next page
Peak Optimization Flags (Continued)

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -03(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)
            -03(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: basepeak = yes
465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -03(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:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -03 -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.xml
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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.