**SPEC® CFP2006 Result**

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECfp®_rate2006 = NC</th>
<th>SPECfp_rate_base2006 = NC</th>
</tr>
</thead>
</table>

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

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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E7-4830 v2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.70 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>40 cores, 4 chips, 10 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 400 GB SAS6 SSD</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext2</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>None</td>
</tr>
</tbody>
</table>

Non-Compliant
Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>465.tonto</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>470.llvm</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>482.specrand</td>
<td>80</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.
SPEC CFP2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)  

SPECf_rate2006 = NC  
SPECf_rate_base2006 = NC

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test date: Feb-2014  
Hardware Availability: Mar-2014  
Software Availability: Mar-2014

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

Operating System Notes

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

Platform Notes

BIOS settings:  
Virtualization Technology disabled  
Execute Disable disabled  
System Profile set to Custom  
Memory Patrol Scrub set to disabled  
Sysinfo program 
/root/Desktop/Performance/ic14.0_Oct17_2013/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 $ e86d102572650a6e4d596a3cee98f191
running on slesperfl Sat Feb 15 11:31:49 2014

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

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) CPU E7-4830 v2 @ 2.20GHz  
4 "physical id"s (chips)  
80 "processors"  
core_siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)  
cpus : 10  
siblings : 20  
physical 0: cores 0 1 2 3 4 8 9 10 11 12  
physical 1: cores 0 1 2 3 4 8 9 10 11 12  
physical 2: cores 0 1 2 3 4 8 9 10 11 12  
physical 3: cores 0 1 2 3 4 8 9 10 11 12  
cache size : 20480 KB

From /proc/meminfo  
MemTotal: 1058789108 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

Platform Notes (Continued)

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

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

uname -a:
  Linux slesperf1 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 Feb 15 11:14 last=S

SPEC is set to: /root/Desktop/Performance/ic14.0_Oct17_2013
  Filesystem   Type   Size  Used Avail Use% Mounted on
  /dev/sda2    ext2    365G   31G  333G   9% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.4 01/27/2014
  Memory:
    22x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
    10x 00CE00B300CE M393B2G70CB0-YK0 16 GB 1333 MHz
    22x 00CE04B300CE M393B2G70CB0-YK0 16 GB 1333 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

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
  Filesystem page cache cleared with:

Continued on next page
Dell Inc.
PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

**Base Compiler Invocation**

- C benchmarks: `icc -m64`
- C++ benchmarks: `icpc -m64`
- Fortran benchmarks: `ifort -m64`

Benchmarks using both Fortran and:

- `icc -m64 ifort -m64`

**Base Portability Flags**

- 410.bwaves: `-DSPEC_CPU_LP64`
- 416.gamess: `-DSPEC_CPU_LP64`
- 432.milc: `-DSPEC_CPU_LP64`
- 434.zeusmp: `-DSPEC_CPU_LP64`
- 435.gromacs: `-DSPEC_CPU_LP64`
- 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`
- 459.GemsFDTD: `-DSPEC_CPU_LP64`
- 465.tonto: `-DSPEC_CPU_LP64`

Continued on next page
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

**Peak Compiler Invocation**

C benchmarks:
- icc  -m64

C++ benchmarks:
- icpc  -m64

Fortran benchmarks:
- ifort  -m64
Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

**Peak Compiler Invocation (Continued)**

Benchmarks using both Fortran and C:

```plaintext
icc -m64 ifort -m64
```

**Peak Portability Flags**

Same as Base Portability Flags

**Peak Optimization Flags**

C benchmarks:

- `433.milc`: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -auto-ilp32`
- `470.lbm`: `basepeak = yes`
- `482.sphinx3`: `basepeak = yes`

C++ benchmarks:

- `447.dealII`: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32`
- `444.namd`: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
- `450.soplex`: `basepeak = yes`
- `453.povray`: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias`
Dell Inc.

PowerEdge R920 (Intel Xeon E7-4830 v2, 2.20 GHz)

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: basepeak = yes
416.games: -xAVX(pass 2) -prof-gem-pss -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inl-lic-calls -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch
459.GemsFDTD: basepeak = yes
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inl-lic-calls -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)

436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ip32

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
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.