### SPEC® CFP2006 Result

**Dell Inc.**

**PowerEdge R920 (Intel Xeon E7-4850 v2, 2.30 GHz)**

<table>
<thead>
<tr>
<th>SPECfp&lt;sup&gt;®&lt;/sup&gt; _rate2006</th>
<th>SPECfp_rate_base2006</th>
</tr>
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<tr>
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</table>

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Test date:** Feb-2014  
**Tested by:** Dell Inc.  
**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 E7-4850 v2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.80 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>48 cores, 4 chips, 12 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>2,4 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>24 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>
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<tr>
<td>Other Hardware:</td>
<td>None</td>
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</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 XE for Linux</td>
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<tr>
<td>Auto Parallel:</td>
<td>No</td>
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<tr>
<td>File System:</td>
<td>ext2</td>
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<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
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<tr>
<td>Base Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
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<td>Other Software:</td>
<td>None</td>
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</table>
Dell Inc.

PowerEdge R920 (Intel Xeon E7-4850 v2, 2.30 GHz)

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Test sponsor: Dell Inc.
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 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

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<th>Benchmark</th>
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</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.
Dell Inc. PowerEdge R920 (Intel Xeon E7-4850 v2, 2.30 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.

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 slesperf2 Thu Feb 13 00:26:52 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 E7-4850 v2 @ 2.30GHz
4 "physical id"s (chips)
96 "processors"
core: siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cores : 12
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13

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

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SPEC CFP2006 Result

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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 (06.04)
VERSION = 11
PATCHLEVEL = 3

uname -a:
Linux slesperf2 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
cab9900 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 13 00:16 last=S

SPEC is set to: /root/Sles10/Performance/ic14.0_Oct17_2013
Filesystem Type  Size  Used Avail Use% Mounted on
/dev/sda2   ext2  365G  190G  174G  53% /

Additional information from dmidecode:
BIOS Dell Inc. 1.4 01/27/2014
Memory:
47x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
11x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
6x 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
SPEC CFP2006 Result

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General Notes (Continued)

echo 1> /proc/sys/vm/drop_caches
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
412.soplex: -DSPEC_CPU_LP64
434.zesmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.milc: -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
463.tonto: -DSPEC_CPU_LP64

Continued on next page
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Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
\`
icc  -m64 ifort -m64
``

Peak 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
- 447.dealII: -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.sphinx3: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 482.sinhnx3: -DSPEC_CPU_LP64

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

Continued on next page
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Peak Optimization Flags (Continued)

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 2) -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

447.dealII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 2) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 1) -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) -unroll14 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
           -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

445.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) -unroll14 -auto
           -inline-calloc -opt-malloc-options=3
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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: -xAVX (pass 2) -prof-gen (pass 2) -ipo (pass 2) -O3 (pass 2)
-no-prec-div (pass 2) -opt-nom-layout-trans (pass 2)
-prof-use (pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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.

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