SPEC® CFP2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)

<table>
<thead>
<tr>
<th></th>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Jan-2014
Hardware Availability: Mar-2014
Software Availability: Oct-2013

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>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E7-4809 v2</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td></td>
</tr>
<tr>
<td>CPU MHz</td>
<td>1900</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>24 cores, 4 chips, 6 cores/chip</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>12 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 (58 x 16 GB 2Rx4 PC3L-12800R-11 + 6 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 400 GB SAS SSD</td>
</tr>
<tr>
<td>Other Hardware</td>
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## Software

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default</td>
</tr>
<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>
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<tr>
<td>Auto Parallel</td>
<td>Yes</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 5 (multi-user + display manager)</td>
</tr>
<tr>
<td>Base Pointers</td>
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<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
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<td>Other Software</td>
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Non-compliant
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**Results Table**

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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**

BIOS settings:
Virtualization Technology disabled
Execute Disable disabled
Dell Inc. PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)

**SPEC CFP2006 Result**

**SPECfp2006** = NC
**SPECfp_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)**

- System Profile set to Custom
- C1E enabled
- C States enabled
- Memory Patrol Scrub set to disabled

Sysinfo program
/root/Desktop/Performance/1214.0_Oct11_2013/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on slesperf2 Wed Jan 15 07:01:46 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 E7-4809 v2 @ 1.90GHz
- 4 "physical id" (chips)
- 24 "processors"
- cores, siblings: Cautions: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.
  - cpu cores : 6
  - siblings : 6
    - physical 0: cores 0 1 2 3 4 5
    - physical 1: cores 0 1 2 3 4 5
    - physical 2: cores 0 1 2 3 4 5
    - physical 3: cores 0 1 2 3 4 5
  - cache size : 12288 KB

From /proc/meminfo
- MemTotal: 1058789108 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)
SPECFP2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)

SPECfp2006 = NC
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Platform Notes (Continued)

VERSION = 11
PATCHLEVEL = 3

uname -a:
Linux slesperf2 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 5 Jan 14 20:51 : st=S

SPEC is set to: /root/Desktop/Performance/ic14.0_Oct17_2013

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext2 365G 191G 173G 53% /

Additional information from dmidecode:
BIOS Dell Inc. 1.0.0 12/16/2013
Memory:
  41x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
  6x 00CE00B300CE M393B2G70CB0-CMA 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)

Regarding the sysinfo display about the memory installed, although the information is accurate, two different types of DIMMs were used in the configuration and it may not be easy to immediately tell the difference. The following has been provided to help make the situation more clear.

DIMMs with "M393B2G70BH0-YK0" in the name are 16 GB PC3L-12800R-11 DIMMs
DIMMs with "M393B2G70CB0-CMA" in the name are 16 GB PC3-14900R-13 DIMMs

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Continued on next page
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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 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.lm3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
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

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz) SPECfp2006 = NC
SPECfp_base2006 = NC

CPU2006 license: 55
Test sponsor: Dell Inc.
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Test date: Jan-2014
Hardware Availability: Mar-2014
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Base Portability Flags (Continued)
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:
-xSSE4.2 -ipo -03 -no-prec-div -parallel -opt-prefetch -ansi-alias
C++ benchmarks:
-xSSE4.2 -ipo -03 -no-prec-div -opt-prefetch -ansi-alias
Fortran benchmarks:
-xSSE4.2 -ipo -03 -no-prec-div -parallel -opt-prefetch
Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -03 -no-prec-div -parallel -opt-prefetch -ansi-alias

Peak Compiler Invocation
icc -m64
C++ benchmarks:
icp -m64
Fortran benchmarks:
ifort -m64
Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Non-Compliant
Dell Inc.  

PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)  

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<thead>
<tr>
<th>SPECfp2006</th>
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**Peak Portability Flags**  
Same as Base Portability Flags

**Peak Optimization Flags**

- **C benchmarks:**
  - 433.milc: basepeak = yes
  - 470.lbm: basepeak = yes
  - 482.sphinx3: basepeak = yes

- **C++ benchmarks:**
  - 444.namd: -xSSE4.2(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
  - 447.dealII: basepeak = yes
  - 450.soplex: basepeak = yes
  - 453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll14 -ansi-alias

- **Fortran benchmarks:**
  - 410.bwaves: basepeak = yes
  - 416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll12 -inline-level=0 -scalar-rep-
  - 434.zeusmp: basepeak = yes

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Non-Compliant
Dell Inc.  
PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)  

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**Peak Optimization Flags (Continued)**

437.leslie3d: basepeak = yes

459.GemsFDTD: -xsse4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -o3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 1) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xsse4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -o3(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: -xsse4.2 -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-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.

Tested with SPEC CPU2006 v1.2.  
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