Huawei RH5885H v3 (Intel Xeon E7-4809 v2)

<table>
<thead>
<tr>
<th>SPECfp®2006 =  NC</th>
</tr>
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<tbody>
<tr>
<td>SPECfp_base2006 = NC</td>
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</tbody>
</table>

**Huawei**

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: May-2014
Hardware Availability: Feb-2014
Software Availability: Nov-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 Huawei or Intel.

Non-Compliant

<table>
<thead>
<tr>
<th>SPEC CPU2006 submissions:</th>
</tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>416.gamess</td>
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<tr>
<td>433.milc</td>
</tr>
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<td>434.zeusmp</td>
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<td>459.GemsFDTD</td>
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<td>481.wrf</td>
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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
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</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Operating System:</td>
</tr>
<tr>
<td></td>
<td>Red Hat Enterprise Linux Server release 6.5 (Santiago)</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Compiler:</td>
</tr>
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<td>C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;</td>
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<tr>
<td>CPU MHz:</td>
<td>Fortran:</td>
</tr>
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<tr>
<td>FPU:</td>
<td>Auto Parallel:</td>
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<td>CPU(s) enabled:</td>
<td>File System:</td>
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<td>ext4</td>
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<tr>
<td>Primary Cache:</td>
<td>System State:</td>
</tr>
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<td>Run level 3 (multi-user)</td>
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<tr>
<td>Secondary Cache:</td>
<td>Case Pointers:</td>
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<tr>
<td>Other Cache:</td>
<td>Other Software:</td>
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<tr>
<td></td>
<td>None</td>
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</tbody>
</table>

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Hardware Availability: Feb-2014
Software Availability: Nov-2013
Test date: May-2014

CPU Name: Intel Xeon E7-4809 v2
CPU MHz: 1900
FPU: Integrated
CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
CPU(s) orderable: 2, 4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC3-12800R-9, ECC)
Disk Subsystem: 2 x 300 GB SAS, 10K RPM
Other Hardware: None

Software
- Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
- Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
  Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
- Auto Parallel: Yes
- File System: ext4
- System State: Run level 3 (multi-user)
- Case Pointers: 64-bit
- Peak Pointers: 32/64-bit
- Other Software: None

Non-Compliant
Huawei RH5885H v3 (Intel Xeon E7-4809 v2)

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

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 Huawei or Intel.

Results Table:

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</tr>
</tbody>
</table>

Operating System Notes

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

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set Intel Hyper Threading to disabled

Continued on next page
Huawei

Huawei RH5885H v3 (Intel Xeon E7-4809 v2)

SPECfp2006 = NC
SPECfp_base2006 = NC

CPU2006 license: 3175
Test date: May-2014
Test sponsor: Huawei
Test date: May-2014
Tested by: Huawei
Software Availability: Nov-2013
Hardware Availability: Feb-2014

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Platform Notes (Continued)

Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf7b032aa42f583f96b07f99d3
running on memtest Sun May 11 11:04:43 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"s (chips)
  24 "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 : 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:       529110268 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
uname -a:
Linux memtest 2.6.32-431.e16.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 11 11:02

Continued on next page
SPEC CFP2006 Result

Huawei

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Platform Notes (Continued)

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 259G 76G 171G 31% /

Additional information from dmidecode:
Memory:
32x Samsung M393B2G70BH0-CK0 16 GB 1600 MHz 2 rank

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 512 GB and the dmidecode description should have two lines reading as:
32x Samsung M393B2G70BH0-CK0 16 GB 1600 MHz 2 rank

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "24"

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:
icc -m64  
C++ benchmarks:  
icpp -m64  
Fortran benchmarks:  
ifort -m64

Continued on next page
SPEC CFP2006 Result

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Base Compiler Invocation (Continued)

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
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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Continued on next page
SPEC CFP2006 Result

Huawei

Huawei RH5885H v3 (Intel Xeon E7-4809 v2)

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -static -parallel -tt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc   -m64
C++ benchmarks:
icpc  -m64
Fortran benchmarks:
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) -prof-use(pass 2) -static -auto-ilp32
   -ansi-alias

470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
SPEC CFP2006 Result

Huawei

Huawei RH5885H v3 (Intel Xeon E7-4809 v2)

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CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: May-2014  
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Peak Optimization Flags (Continued)

C++ benchmarks:

- 444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias
- -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: basepeak = yes
- 453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

- 410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
- -static
- 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 -static
- 434.zeusmp: basepeak = yes
- 437.espresso: basepeak = yes
- 459.GemsFD: -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 -opt-prefetch -parallel
- 465.tonto: -xAVX(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

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 Huawei or Intel.

Peak Optimization Flags (Continued)

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml