Huawei

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

| SPECfp®_rate2006 = NC | SPECfp_rate_base2006 = NC |

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: Feb-2016  
Hardware Availability: Mar-2016  
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Copies

| 410.bwaves  | 416.gamess  | 433.milc  | 434.zeusmp  | 435.gromacs  |
| 436.cactusADM  | 437.leslie3d  | 444.namd  | 447.dealII  | 450.soplex  |
| 453.povray  | 454.calculix  | 459.GemsFDTD  | 465.tonto  |
| 466.lbm  | 481.wrf  | 482.sphinx3  |
**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon E5-2690 v4</td>
<td><strong>Operating System:</strong> Red Hat Enterprise Linux Server release 7.0 (el7)</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 3.50 GHz</td>
<td><strong>Compiler:</strong> C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 2600</td>
<td><strong>Auto Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>FPU:</strong> Integrated</td>
<td><strong>File System:</strong> xfs</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 28 cores, 2 chips, 14 cores/chip, 2 threads/core</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong> 1.2 chip</td>
<td><strong>Base Pointers:</strong> 32/64-bit</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 32 KB I + 32 KB D on chip per core</td>
<td><strong>Peer Pointers:</strong> 32/64-bit</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong> 256 KB I+D on chip per core</td>
<td><strong>Other Software:</strong> None</td>
</tr>
<tr>
<td><strong>L3 Cache:</strong> 35 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td><strong>Other Cache:</strong> None</td>
<td></td>
</tr>
<tr>
<td><strong>Memory:</strong> 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
<td></td>
</tr>
<tr>
<td><strong>Disk Subsystem:</strong> 1 x 600GB SAS, 10000 RPM</td>
<td></td>
</tr>
<tr>
<td><strong>Other Hardware:</strong> None</td>
<td></td>
</tr>
</tbody>
</table>

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Huawei RH2288H V3 (Intel Xeon E5-2690 v4) SPEC CFP2006 Result

**Huawei**

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---

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
</tr>
<tr>
<td>410.bwaves</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>465.tonto</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>470.lbm</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>56</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.

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"
Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

<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: 3175
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Platform Notes

BIOS configuration:
- Set Power Efficiency Mode to Performance
- Set Snoop Mode to COD mode
- Set Patrol Scrub to Disable

Sysinfo program /spec/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Oct 31 03:46:22 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 E5-2690 v4@ 2.60GHz
  2 "physical id"s (chips)
  56 "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 : 7
  - siblings : 14
  - physical 0: cores : 1 2 3 4 5 6 8 9 10 11 12 13 14
  - physical 1: cores : 2 3 4 5 6 8 9 10 11 12 13 14
  - cache size : 17920 KB

From /proc/meminfo
- MemTotal: 65566032 kB
- HugePages_Total: 0
- HugePages_Free: 0
- HugePages_Size: 2048 kB

From /etc/*release* /etc/*version*
- NAME="Red Hat Enterprise Linux Server"
- VERSION="7.0 (Maipo)"
- ID="rhel"
- ID_LIKE="fedora"
- VERSION_ID="7.0"
- PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
- ANSI_COLOR="0;31"
- CPE_NAME=cpe:/o:redhat:enterprise_linux:7.0:GA:server
- redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
- system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
- system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

Non-compliant
SPEC CFP2006 Result

Huawei

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

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Platform Notes (Continued)

uname -a:
    Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Wed May 5 11:16:57
    EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 30 07:04

SPEC is set to: /spec/spec16
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      xfs   549G   57G  492G  11% /

Additional information from dmidecode:
Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

    BIOS Insyde Corp. 7.11 02/14/2016

    Memory:
    8x NO DIMM NO DIMM   3 rank
    8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
    8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
    LD_LIBRARY_PATH = "/spec/spec16/libs/32:/spec/spec16/libs/64:/spec/spec16/sh"

    Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
    RedHat EL 7.1
    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/transparent_hugepage/enabled
    Filesystem page cache cleared with:
    echo 1 > /proc/sys/vm/drop_caches
    runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>
**Huawei RH2288H V3 (Intel Xeon E5-2690 v4)**

**CPU2006 license:** 3175

**Test date:** Feb-2016

**Hardware Availability:** Mar-2016

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**Software Availability:** Mar-2016

**Tested by:** Huawei

---

**Base Compiler Invocation**

<table>
<thead>
<tr>
<th>C benchmarks</th>
<th>C++ benchmarks</th>
<th>Fortran benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>icc -m64</td>
<td>icpc -m64</td>
<td>ifort -m64</td>
</tr>
</tbody>
</table>

**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.qshnmx3: -DSPEC_CPU_LP64

**Non-Compliant**

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### Base Optimization Flags (Continued)

C++ benchmarks:
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -co-p32
- -ansi-alias
- -opt-mem-layout-trans=3

Fortran benchmarks:
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch

Benchmarks using both Fortran and C:
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -auto-p32
- -ansi-alias
- -opt-mem-layout-trans=3

### Peak Compiler Invocation

C benchmarks:
- icc -m64

C++ benchmarks (except as noted below):
- icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:
- ifort -m64

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

### Peak Portability Flags

210.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
430.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64

Continued on next page
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Peak Portability Flags (Continued)

450.soplex: -D_FILE_OFFSET_BITS=64
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

Peak Optimization Flags

C benchmarks:

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

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
         -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
         -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -fno-alias -auto-ilp32
447.dealII: basepeak = yes

Fortran benchmarks:

Continued on next page
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Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-
434.zeugmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes
465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32
436.cactusADM: basepeak = yes
437.calculix: basepeak = yes
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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml
Huawei
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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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