Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

<table>
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<th>SPECfp_rate2006 =</th>
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<tbody>
<tr>
<td>SPECfp_rate_base2006 =</td>
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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 <a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU rule 1.3.2</a> and the SPEC Open Systems Group policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">general availability</a>.

<table>
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<td>436.cactusADM</td>
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<td>437.leslie3d</td>
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<td>459.GemsFDTD</td>
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<td>478.lbm</td>
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<td>481.wrf</td>
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## SPEC CFP2006 Result

**Huawei**

Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

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

**CPU Name:** Intel Xeon E5-2699 v4

**CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz

**CPU MHz:** 2200

**FPU:** Integrated

**CPU(s) enabled:** 44 cores, 2 chips, 22 cores/chip, 2 threads/core

**CPU(s) orderable:** 1, 2 chip

**Primary Cache:** 32 KB I + 32 KB D on chip per core

**Secondary Cache:** 256 KB I+D on chip per core

**L3 Cache:** 55 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)

**Disk Subsystem:** 1 x 500 GB SATA, 7200 RPM

**Other Hardware:** None

**Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64

**Compiler:**
- 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

**Auto Parallel:** No

**File System:** xfs

**System State:** Run level 3 (multi-user)

**Base Pointers:** 32/64-bit

**Peak Pointers:** 32/64-bit

**Other Software:** None

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](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on [general availability](https://www.spec.org/osg/policy.html#AppendixC).
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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"

---

**Results Table**

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**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"
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.
SPEC CFP2006 Result

Huawei

Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

**SPEC Cpu2006 rate** = \text{NC}

**SPEC Cpu2006 rate base** = \text{NC}

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

**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 memory was not available as required by the SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Platform Notes (Continued)

```
uname -a:
    Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Feb 15 02:07

SPEC is set to: /spec16
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sda2 xfs 449G 162G 288G 36% /

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. 8.08 01/29/2016
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 = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using 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.:
tnumactl --interleave=all runspec <etc>
```
SPEC CFP2006 Result

Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
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Test date: Feb-2016
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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
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
447.dealII: -DSPEC_CPU_LP64 -nofor_main
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64 -nofor_main
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

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

Continued on next page
Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

$\text{Base Optimization Flags (Continued)}$

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

$\text{Peak Compiler Invocation}$

C benchmarks:
icc   -m64

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

450.soplex: icpc   -D SPEC_CPU_LP64 -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

$\text{Peak Portability Flags}$

410.bwaves: -DSPEC_CPU_LP64
416.taraxx: -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

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Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

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

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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: basepeak = yes
447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: basepeak = yes
459.GemsFDTD: basepeak = yes

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gmesh: basepeak = yes
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes
Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

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Peak Optimization Flags (Continued)

465.tonto: basepeak = yes

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.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

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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.
Originally published on 7 April 2016.