Huawei RH2288H v2

<table>
<thead>
<tr>
<th>SPECfp²⁰⁰⁶ = 83.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base²⁰⁰⁶ = 77.6</td>
</tr>
</tbody>
</table>

CPU2006 license: 3175

Test date: Apr-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013

---

### Hardware

- **CPU Name:** Intel Xeon E5-2650 v2
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.40 GHz
- **CPU MHz:** 2600
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 2 chips, 8 cores/chip
- **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

---

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
- **Compiler:** 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
- **Auto Parallel:** Yes
- **File System:** ext4

---

### SPEC2006 Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp²⁰⁰⁶</th>
<th>SPECfp_base²⁰⁰⁶</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td></td>
<td></td>
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<tr>
<td>416.gamess</td>
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<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
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<td>37.4</td>
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<tr>
<td>436.cactusADM</td>
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<td>277</td>
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<tr>
<td>437.leslie3d</td>
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<td>140</td>
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<tr>
<td>444.namd</td>
<td>24.2</td>
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<tr>
<td>447.dealII</td>
<td>54.4</td>
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<td>450.soplex</td>
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<td>453.povray</td>
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<td>459.GemsFDTD</td>
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<td>121</td>
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<tr>
<td>465.tonto</td>
<td>46.7</td>
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<td>482.sphinx3</td>
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---

**Continued on next page**
SPEC CFP2006 Result

Huawei RH2288H v2

SPECfp2006 = 83.4
SPECfp_base20006 = 77.6

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

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 500 GB SATA, 7200RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on huawei Fri Apr 4 14:31:04 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 E5-2650 v2 @ 2.60GHz
Continued on next page

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
Huawei
Huawei RH2288H v2

SPECfp2006 = 83.4
SPECfp_base2006 = 77.6

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

Platform Notes (Continued)

2 "physical id"s (chips)
16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 132103760 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/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 huawei 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
x86_64 x86_64 GNU/Linux

run-level 3 Apr 4 08:46

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 193G 114G 70G 63% /

Additional information from dmidecode:
BIOS Insyde Corp. RMIBV372 12/21/2013
Memory:
16x NO DIMM NO DIMM
2x Samsung M393B2G70DB0-CMA 16 GB 1866 MHz 2 rank
6x Samsung M393B2G70QH0-CMA 16 GB 1866 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "16"

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

Continued on next page
**SPEC CFP2006 Result**

**Huawei**

**Huawei RH2288H v2**

SPECfp2006 = 83.4

SPECfp_base2006 = 77.6

<table>
<thead>
<tr>
<th>CPU2006 license: 3175</th>
<th>Test date: Apr-2014</th>
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</tr>
</tbody>
</table>

**General Notes (Continued)**

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

The Huawei RH2288H v2 and Huawei RH2288 v2 and the Huawei RH1288 v2 models are electronically equivalent, and the results have been measured on a Huawei RH2288H v2 model.

**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

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
SPEC CFP2006 Result

Huawei
Huawei RH2288H v2

SPECfp2006 = 83.4
SPECfp_base2006 = 77.6

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

Base Optimization Flags

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

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

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

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

Peak Compiler Invocation

C benchmarks:
icc   -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc   -m64 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) -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

Continued on next page
Huawei
Huawei RH2288H v2

SPECfp2006 = 83.4
SPECfp_base2006 = 77.6

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

Peak Optimization Flags (Continued)

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(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) -03(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: -xAVX -ipo -03 -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

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/Huawei-Platform-Settings-V1.0-IVB-RevG.xml
Huawei
Huawei RH2288H v2

SPECfp2006 = 83.4
SPECfp_base2006 = 77.6

CPU2006 license: 3175
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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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