Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

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<tr>
<th>SPECfp®_rate2006</th>
<th>SPECfp_rate_base2006</th>
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</thead>
<tbody>
<tr>
<td>686</td>
<td>667</td>
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</table>

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

### Hardware

- **CPU Name:** Intel Xeon E5-2650 v3  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz  
- **CPU MHz:** 2300  
- **FPU:** Integrated  
- **CPU(s) enabled:** 20 cores, 2 chips, 10 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  

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 6.5 (Santiago)  
- **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:** No  
- **File System:** ext4

---

**Copies**

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<tr>
<th>Benchmark</th>
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<th>SPECfp_rate2006</th>
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</tbody>
</table>

**Continued on next page**
Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

**SPEC CFP2006 Result**

**Huawei**

**SPECfp_rate2006 = 686**

**SPECfp_rate_base2006 = 667**

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<tr>
<th>CPU2006 license: 3175</th>
<th>Test date: Aug-2014</th>
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<tr>
<td>Test sponsor: Huawei</td>
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</tr>
<tr>
<td>Tested by: Huawei</td>
<td>Software Availability: Nov-2013</td>
</tr>
</tbody>
</table>

- **L3 Cache:** 25 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- **Disk Subsystem:** 1 x 300 GB SAS, 10K RPM
- **Other Hardware:** None
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None

### Results Table

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</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"

### Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to COD

Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2650 v3) SPECfp_rate2006 = 686
SPECfp_rate_base2006 = 667

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

Spec CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Huawei

Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

SPECfp_rate2006 = 686
SPECfp_rate_base2006 = 667

Platform Notes (Continued)

Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on huawei Sun Aug 31 12:35:08 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 v3 @ 2.30GHz
  2 "physical id"s (chips)
  40 "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 : 10
siblings : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 12800 KB

From /proc/meminfo
MemTotal: 264299332 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 Aug 29 17:35

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 266G 79G 174G 32% /

Additional information from dmidecode:
BIOS Insyde Corp. 8.09 07/14/2014
Memory:
  88x NO DIMM NO DIMM     3 rank
  88x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
  88x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Huawei
Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

SPEC fp_rate2006 = 686
SPEC fp_rate_base2006 = 667

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

Test date: Aug-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

Platform Notes (Continued)
(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"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_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>

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

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Huawei
Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

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Test sponsor: Huawei
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Test date: Aug-2014
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Base Portability Flags (Continued)

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

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-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

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64

Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

SPECfp_rate2006 = 686
SPECfp_rate_base2006 = 667

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

Peak Portability Flags (Continued)

- 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
- 453.povray: -DSPEC_CPU_LP64 -nofor_main
- 454.calculix: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 459.GemsFDTD: -DSPEC_CPU_LP64
- 463.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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2)
  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
  -auto-ilp32

- 470.lbm: basepeak = yes

- 482.sphinx3: basepeak = yes

C++ benchmarks:

- 444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2)
  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
  -auto-ilp32

- 447.dealII: basepeak = yes

- 450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2)
  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
  -opt-malloc-options=3

- 453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2)
  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
  -ansi-alias

Fortran benchmarks:

Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2650 v3)

SPECfp_rate2006 = 686
SPECfp_rate_base2006 = 667

CPU2006 license: 3175
Tested by: Huawei

Test date: Aug-2014
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Test sponsor: Huawei
Software Availability: Nov-2013

Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -03(pass 2) -no-prec-div(pass 2) -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(pass 1) -ipo(pass 2)
    -03(pass 2) -no-prec-div(pass 2)
    -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
    -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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