**Huawei RH2288 V3 (Intel Xeon E5-2695 v3)**

- **SPECfp®2006 =** 104
- **SPECfp_base2006 =** 99.0

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Dec-2014  
**Hardware Availability:** Sep-2014  
**Software Availability:** Jun-2014

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### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2695 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>2300</td>
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<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>28 cores, 2 chips, 14 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB L1 + 32 KB D on chip per core</td>
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<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
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</tbody>
</table>

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### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Version/Details</th>
</tr>
</thead>
</table>
| Operating System | Red Hat Enterprise Linux Server release 7.0  
(Maipo) |
| 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    | xfs |

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**SPECfp®2006 =** 104

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**SPECfp_base2006 =** 99.0

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Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

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<tr>
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<th>Ratio</th>
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<th>Ratio</th>
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<th>Ratio</th>
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<td>62.6</td>
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</tbody>
</table>

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

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 ES
Set Hyper-Threading to Disabled
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec14/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d10257650a6e4d596a3cee98f191
running on localhost.localdomain Wed Dec 24 16:36:40 2014

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Platform Notes (Continued)

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 E5-2695 v3 @ 2.30GHz
- 2 "physical id"s (chips)
- 28 "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: 14
  - siblings: 14
  - physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  - physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
- cache size: 35840 KB

From /proc/meminfo

- MemTotal: 263720104 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

- os-release:
  - 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

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 Dec 24 08:32

SPEC is set to: /spec14

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 xfs 98G 17G 81G 18% /

Additional information from dmidecode:

- BIOS Insyde Corp. 1.16 09/02/2014
- Memory:
  - 8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
  - 8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

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Huawei RH2288 V3 (Intel Xeon E5-2695 v3) SPECfp2006 = 104
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CPU2006 license: 3175
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Tested by: Huawei
Software Availability: Jun-2014
Test date: Dec-2014

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 = "/spec14/libs/32:/spec14/libs/64:/spec14/sh"
OMP_NUM_THREADS = "28"

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
- 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
470.lbm: -DSPEC_CPU_LP64

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Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

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Base Portability Flags (Continued)

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 -parallel -opt-prefetch -ansi-alias

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

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -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:

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Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

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

SPECfp2006 = 104
SPECfp_base2006 = 99.0

Peak Optimization Flags (Continued)

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -03(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:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -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: basepeak = yes
459.GemsFDTD: -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 -opt-prefetch -parallel

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -03 -no-prec-div -auto-ilp32 -ansi-alias

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Huawei

Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

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<thead>
<tr>
<th>SPECfp2006</th>
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<td>SPECfp_base2006</td>
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Peak Optimization Flags (Continued)

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
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.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-HASWELL-V1.2.xml

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For other inquiries, please contact webmaster@spec.org.

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