**Huawei**

Huawei RH5885H V3 (Intel Xeon E7-8890 v4)

<table>
<thead>
<tr>
<th>SPECfp&lt;sup&gt;®&lt;/sup&gt; <em>rate2006</em> = Not Run</th>
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<tbody>
<tr>
<td>SPECfp&lt;sup&gt;®&lt;/sup&gt; <em>rate_base2006</em> = 1240</td>
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<table>
<thead>
<tr>
<th>Test date: May-2016</th>
<th>Hardware Availability: Jun-2016</th>
</tr>
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<tbody>
<tr>
<td>Tested by: Huawei</td>
<td>Software Availability: Oct-2015</td>
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<tr>
<th>Program</th>
<th>Copies</th>
<th>SPECfp&lt;sup&gt;®&lt;/sup&gt; Rate</th>
<th>Hardware</th>
<th>Software</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>96</td>
<td>849</td>
<td>48 cores, 2 chips, 24 cores/chip, 2 threads/core</td>
<td>Red Hat Enterprise Linux Server release 7.2 (Maipo)</td>
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<tr>
<td>416.gamess</td>
<td>96</td>
<td>1740</td>
<td>Integrated</td>
<td>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>
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<tr>
<td>433.milc</td>
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<td>tmpfs</td>
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<tr>
<td>435.gromacs</td>
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<td>2040</td>
<td>32 KB I + 32 KB D on chip per core</td>
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<tr>
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<td>24 cores/chip, 2 threads/core</td>
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<td>437.leslie3d</td>
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<td>48 cores, 2 chips</td>
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<tr>
<td>444.namd</td>
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<td>447.dealII</td>
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<td>2 chips/chip, 2 threads/core</td>
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<td>2 chips/chip, 2 threads/core</td>
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<td>32 cores/chip, 2 threads/core</td>
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<tr>
<td>482.sphinx3</td>
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<td>1140</td>
<td>128 KB I + 128 KB D on chip per core</td>
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</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E7-8890 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.40 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 48 cores, 2 chips, 24 cores/chip, 2 threads/core
- **CPU(s) orderable:** 2,4 chips
- **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 7.2 (Maipo)
- **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:** tmpfs

Continued on next page
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Huawei RH5885H V3 (Intel Xeon E7-8890 v4)

SPEC CFP2006 Result

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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 2 x 600GB SAS, 10K RPM
Other Hardware: None

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1240

Results Table

<table>
<thead>
<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Submit Notes

The numacli mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numacli 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"
Turbo mode set with:
cpupower -c all frequency-set -g performance
Tmpfs filesystem can be set with:
mkdir /home/shm
mount -t tmpfs -o size=300g,rw tmpfs /home/shm
Process tuning setting:
Huawei

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SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1240

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Oct-2015

Operating System Notes (Continued)

- echo 50000 > /proc/sys/kernel/sched_cfs_bandwidth_slice_us
- echo 240000000 > /proc/sys/kernel/sched_latency_ns
- echo 5000000 > /proc/sys/kernel/sched_migration_cost_ns
- echo 100000000 > /proc/sys/kernel/sched_min_granularity_ns
- echo 150000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set C-State to C0/C1
Sysinfo program /home/spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri May 13 03:50:01 2016

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 E7-8890 v4 @ 2.20GHz
- 2 "physical id"s (chips)
- 96 "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 : 24
  - siblings : 48
  - physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  - physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
- cache size : 30720 KB

From /proc/meminfo
- MemTotal: 264031868 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
- os-release:
  - NAME="Red Hat Enterprise Linux Server"
  - VERSION="7.2 (Maipo)"
  - ID=rhel
  - ID_LIKE="fedora"
  - VERSION_ID="7.2"
  - PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
  - ANSI_COLOR="0;31"
  - CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"

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Huawei

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SPEC CFP2006 Result

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

Platform Notes (Continued)

redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

uname -a:
    Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
    EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 12 21:04

SPEC is set to: /home/spec
Files
system Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 1.1T 49G 1013G 5% /home

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 American Megatrends Inc. 5.11 02/05/2016
Memory:
80x NO DIMM NO DIMM
16x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 256 GB and the dmidecode description should have two lines reading as:
80x NO DIMM NO DIMM
16x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/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.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
    icc  -m64
Huawei RH5885H V3 (Intel Xeon E7-8890 v4)

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Test date: May-2016
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Base Compiler Invocation (Continued)

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.game5s: -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.leshe3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
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

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
## SPEC CFP2006 Result

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The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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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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