Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = 1130</th>
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<tbody>
<tr>
<td>SPECint_rate_base2006 = 1100</td>
</tr>
</tbody>
</table>

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

CPU Name: Intel Xeon E5-2695 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 MB I+D on chip per chip
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Hardware

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
Auto Parallel: No
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
SPEC CINT2006 Result

Huawei

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
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<td>635</td>
<td>861</td>
<td>637</td>
<td>859</td>
<td>636</td>
<td>860</td>
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<tr>
<td>401.bzip2</td>
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<td>961</td>
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<td>962</td>
<td>562</td>
<td>924</td>
<td>585</td>
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<tr>
<td>403.gcc</td>
<td>56</td>
<td>540</td>
<td>835</td>
<td>535</td>
<td>842</td>
<td>534</td>
<td>844</td>
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<tr>
<td>429.mcf</td>
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<td>338</td>
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<td>337</td>
<td>1510</td>
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<td>445.gobmk</td>
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<td>758</td>
<td>776</td>
<td>757</td>
<td>779</td>
<td>754</td>
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<tr>
<td>456.hmmer</td>
<td>56</td>
<td>358</td>
<td>1460</td>
<td>351</td>
<td>1490</td>
<td>349</td>
<td>1500</td>
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<tr>
<td>458.sjeng</td>
<td>56</td>
<td>836</td>
<td>811</td>
<td>837</td>
<td>809</td>
<td>838</td>
<td>808</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>56</td>
<td>115</td>
<td>10100</td>
<td>115</td>
<td>10100</td>
<td>116</td>
<td>10000</td>
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<tr>
<td>464.h264ref</td>
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<td>1320</td>
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<td>1340</td>
<td>949</td>
<td>1310</td>
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<tr>
<td>471.omnetpp</td>
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<td>567</td>
<td>618</td>
<td>571</td>
<td>613</td>
<td>564</td>
<td>620</td>
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<td>473.astar</td>
<td>56</td>
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<td>591</td>
<td>667</td>
<td>589</td>
<td>664</td>
<td>592</td>
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<tr>
<td>483.xalancbmk</td>
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<td>343</td>
<td>1130</td>
<td>343</td>
<td>1130</td>
<td>342</td>
<td>1130</td>
</tr>
</tbody>
</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
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 Tue Sep  9 23:22:36 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 E5-2695 v3 @ 2.30GHz
  2 "physical id"s (chips)
  56 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
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Software Availability: Nov-2013

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 14
  siblings : 28
  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 : 17920 KB

From /proc/meminfo
  MemTotal:       264271704 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 Sep 9 10:49

SPEC is set to: /spec

Filesystem     Type      Size  Used  Avail  Use%  Mounted on
/dev/sda1      ext4     438G  124G  292G   30%  /

Additional information from dmidecode:
  BIOS Insyde Corp. 1.16 09/02/2014
  Memory:
    8x NO DIMM NO DIMM     3 rank
    8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
    8x Samsung M393A2G40DB0-CPB 16 GB 2133 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"

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

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General Notes (Continued)
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
  icc -m32

C++ benchmarks:
  icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

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

C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
  -opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m32

400.perlbench: icc -m64
401.bzip2: icc -m64

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Huawei

Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

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Peak Compiler Invocation (Continued)

- 456.hmmer: icc -m64
- 458.sjeng: icc -m64

C++ benchmarks:
- icpc -m32

---

Peak Portability Flags

- 400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
- 401.bzip2: -DSPEC_CPU_LP64
- 456.hmmer: -DSPEC_CPU_LP64
- 458.sjeng: -DSPEC_CPU_LP64
- 462.libquantum: -DSPEC_CPU_LINUX
- 483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

- 400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
  -auto-ilp32

- 401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
  -opt-prefetch -auto-ilp32 -ansi-alias

- 403.gcc: basepeak = yes
- 429.mcf: basepeak = yes

- 445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
  -ansi-alias -opt-mem-layout-trans=3

- 456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

- 458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
  -unroll4 -auto-ilp32

- 462.libquantum: basepeak = yes

- 464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
  -unroll2 -ansi-alias

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### Peak Optimization Flags (Continued)

**C++ benchmarks:**

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

### Peak Other Flags

**C benchmarks:**

403.gcc: -Dalloca=_alloca

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

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

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