Huawei RH2288 V3 (Intel Xeon E5-2670 v3)

**SPECint\_rate2006 = 977**

| SPECint\_rate_base2006 = 945 |

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Xeon E5-2670 v3</td>
<td>Compiler: C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>CPU MHZ: 2300</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: ext4</td>
</tr>
<tr>
<td>CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable: 1,2 chip</td>
<td>Base Pointers: 32-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Other Software: Microquill SmartHeap V10.0</td>
</tr>
<tr>
<td>L3 Cache: 30 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 256 GB SATA, SSD</td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td></td>
</tr>
</tbody>
</table>
**Huawei**

Huawei RH2288 V3 (Intel Xeon E5-2670 v3)

<table>
<thead>
<tr>
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<td>SPECint_rate_base2006 = 945</td>
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</table>

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

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>48</td>
<td>644</td>
<td>728</td>
<td>643</td>
<td>729</td>
<td>638</td>
<td>736</td>
<td>977</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>48</td>
<td>987</td>
<td>469</td>
<td>988</td>
<td>469</td>
<td>987</td>
<td>469</td>
<td>945</td>
<td></td>
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<tr>
<td>403.mcf</td>
<td>48</td>
<td>340</td>
<td>1290</td>
<td>337</td>
<td>1300</td>
<td>338</td>
<td>1300</td>
<td>977</td>
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<tr>
<td>429.gobmk</td>
<td>48</td>
<td>783</td>
<td>643</td>
<td>783</td>
<td>643</td>
<td>783</td>
<td>643</td>
<td>977</td>
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<td></td>
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<tr>
<td>456.hmmer</td>
<td>48</td>
<td>328</td>
<td>1360</td>
<td>326</td>
<td>1370</td>
<td>326</td>
<td>1370</td>
<td>945</td>
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<tr>
<td>458.sjeng</td>
<td>48</td>
<td>852</td>
<td>682</td>
<td>851</td>
<td>683</td>
<td>850</td>
<td>683</td>
<td>945</td>
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<td></td>
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</tr>
<tr>
<td>462.libquantum</td>
<td>48</td>
<td>106</td>
<td>9410</td>
<td>106</td>
<td>9410</td>
<td>106</td>
<td>9410</td>
<td>945</td>
<td></td>
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</tr>
<tr>
<td>464.h264ref</td>
<td>48</td>
<td>956</td>
<td>1110</td>
<td>959</td>
<td>1110</td>
<td>961</td>
<td>1110</td>
<td>945</td>
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<tr>
<td>471.omnetpp</td>
<td>48</td>
<td>574</td>
<td>523</td>
<td>575</td>
<td>522</td>
<td>571</td>
<td>525</td>
<td>945</td>
<td></td>
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<tr>
<td>473.astar</td>
<td>48</td>
<td>660</td>
<td>510</td>
<td>655</td>
<td>514</td>
<td>652</td>
<td>517</td>
<td>945</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>483.xalancbmk</td>
<td>48</td>
<td>344</td>
<td>963</td>
<td>345</td>
<td>961</td>
<td>343</td>
<td>964</td>
<td>945</td>
<td></td>
<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 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 xjt Tue Aug 26 02:33:19 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 E5-2670 v3 @ 2.30GHz
  2 "physical id"s (chips)
  48 "processors"
  cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
Huawei

Huawei RH2288 V3 (Intel Xeon E5-2670 v3)

**SPEC CINT2006 Result**

| SPECint_rate2006 | 977 |
| SPECint_rate_base2006 | 945 |

**CPU2006 license**: 3175

**Test sponsor**: Huawei

**Test date**: Aug-2014

**Hardware Availability**: Sep-2014

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**Software Availability**: Nov-2013

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**Platform Notes (Continued)**

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

- cpu cores : 12
- siblings : 24
- physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
- physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
- cache size : 30720 KB

From /proc/meminfo
- MemTotal: 264298932 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 xjt 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 25 14:27

SPEC is set to: /spec

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 222G 65G 145G 31% /

Additional information from dmidecode:
- BIOS Insyde Corp. 8.09 07/14/2014
- 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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Huawei RH2288 V3 (Intel Xeon E5-2670 v3)

**SPECint_rate2006 = 977**  
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**Tested by:** Huawei

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

**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  
-optim-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-optim-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 E5-2670 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: -xCORE-AVX2 -ipo -O3 -no-prec-div
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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Huawei RH2288 V3 (Intel Xeon E5-2670 v3)

SPECint\textsubscript{rate}2006 = 977
SPECint\textsubscript{rate\_base}2006 = 945

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

**Peak Optimization Flags (Continued)**

C++ benchmarks:

- 471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- -O3(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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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