## Huawei

Huawei RH2288 V2 (Intel Xeon E5-2630 V2)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>49.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>46.4</td>
</tr>
</tbody>
</table>

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

### Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E5-2630 v2</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.10 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>15 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 300 GB SAS, 10K RPM</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System:</td>
<td>Red Hat Enterprise Linux Server release 6.5 (Santiago)</td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++, Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V9.01</td>
</tr>
</tbody>
</table>
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SPECint2006 = 49.7
SPECint_base2006 = 46.4

CPU2006 license: 3175
Test sponsor: Huawei
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>346</td>
<td>28.2</td>
<td>346</td>
<td>28.3</td>
<td>346</td>
<td>28.3</td>
<td>279</td>
<td>35.0</td>
<td>279</td>
<td>35.0</td>
</tr>
<tr>
<td>403.gcc</td>
<td>267</td>
<td>30.2</td>
<td>267</td>
<td>30.1</td>
<td>266</td>
<td>30.3</td>
<td>264</td>
<td>30.5</td>
<td>264</td>
<td>30.5</td>
</tr>
<tr>
<td>429.mcf</td>
<td>150</td>
<td>61.0</td>
<td>150</td>
<td>61.0</td>
<td>148</td>
<td>61.4</td>
<td>150</td>
<td>61.0</td>
<td>150</td>
<td>61.0</td>
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<tr>
<td>445.gobmk</td>
<td>465</td>
<td>22.6</td>
<td>465</td>
<td>22.5</td>
<td>465</td>
<td>22.6</td>
<td>428</td>
<td>24.5</td>
<td>428</td>
<td>24.5</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>175</td>
<td>53.4</td>
<td>175</td>
<td>53.4</td>
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<td>53.4</td>
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<td>175</td>
<td>53.4</td>
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<tr>
<td>458.sjeng</td>
<td>460</td>
<td>26.3</td>
<td>460</td>
<td>26.3</td>
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<td>26.3</td>
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<td>26.3</td>
<td>460</td>
<td>26.3</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>9.50</td>
<td>2180</td>
<td>9.50</td>
<td>2180</td>
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<td>2180</td>
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</tr>
<tr>
<td>464.h264ref</td>
<td>503</td>
<td>44.0</td>
<td>505</td>
<td>43.8</td>
<td>501</td>
<td>44.2</td>
<td>426</td>
<td>52.0</td>
<td>425</td>
<td>51.2</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>265</td>
<td>23.6</td>
<td>292</td>
<td>21.4</td>
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<td>21.3</td>
<td>219</td>
<td>28.5</td>
<td>220</td>
<td>28.5</td>
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<tr>
<td>473.astar</td>
<td>246</td>
<td>28.6</td>
<td>246</td>
<td>28.6</td>
<td>246</td>
<td>28.6</td>
<td>246</td>
<td>28.6</td>
<td>246</td>
<td>28.6</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>144</td>
<td>48.0</td>
<td>144</td>
<td>47.8</td>
<td>144</td>
<td>47.8</td>
<td>137</td>
<td>50.2</td>
<td>137</td>
<td>50.3</td>
</tr>
</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

Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost Tue Apr 8 12:02:16 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 E5-2630 v2 @ 2.60GHz
  2 "physical id"s (chips)
  12 "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 : 6
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

From /proc/meminfo
MemTotal: 264478184 kB

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---

### Platform Notes (Continued)

- `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 localhost 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 Apr 7 12:42
```

```
SPEC is set to: /spec
```

```
Filesystem     Type  Size  Used  Avail  Use%  Mounted on
/dev/sda2      ext4  272G  6.7G  251G   3%  /
```

Additional information from `dmidecode`:

- `Memory`:
  - 13x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
  - 3x Samsung M393B2G70DB0-CMA 16 GB 1867 MHz 2 rank

(End of data from `sysinfo` program)

---

### General Notes

Environment variables set by runspec before the start of the run:

- `KMP_AFFINITY = "granularity=fine,compact,0,1"
- `LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
- `OMP_NUM_THREADS = "12"

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1

Transparent Huge Pages enabled with:

- `echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled`

The Huawei RH2288H v2 and Huawei RH2288 v2 and the Huawei RH1288 v2 models are electronically equivalent.

The results have been measured on a Huawei RH2288H v2 model

---

### Base Compiler Invocation

C benchmarks:

- `icc -m64`

---

Continued on next page
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**Base Compiler Invocation (Continued)**

C++ benchmarks:
icpc -m64

---

**Base Portability Flags**

| C++ benchmarks | 400.perlbench: icpc -m64

---

**Base Optimization Flags**

C benchmarks:

- -xSSE4.2
- -ipo
- -O3
- -no-prec-div
- -parallel
- -opt-prefetch
- -auto-p32

C++ benchmarks:

- -xSSE4.2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -auto-p32
- -Wl,-zmuldefs
- -L/smartheap
- -ismartheap64

---

**Base Other Flags**

C benchmarks:

403.gcc: -Dalloca=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):

- icc -m64

| icc -m32 |

- 400.perlbench: icc -m32

- 445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
ica pc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32  
401.bzip2: -DSPEC_CPU_LP64  
403.gcc: -DSPEC_CPU_LP64  
429.mcf: -DSPEC_CPU_LP64  
456.hmmer: -DSPEC_CPU_LP64  
458.sjeng: -DSPEC_CPU_LP64  
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX  
473.astar: -DSPEC_CPU_LP64  
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -ansi-alias

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias

456.hmmer: basepeak = yes

458.sjeng: basepeak = yes

462.libquantum: -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-auto-p32

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Peak Optimization Flags (Continued)

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unnroll -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalanchmk: -xSSE4.2 -ipo -03 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Other Flags

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.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.

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