## SPECint®2006 Result

**Huawei**

Huawei RH2288A V2 (Intel Xeon E5-2650 v2)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>56.7</th>
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<tbody>
<tr>
<td>SPECint_base2006</td>
<td>52.4</td>
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**CPU2006 license:** 3175  
**Test date:** Aug-2014  
**Hardware Availability:** Sep-2013

**Test sponsor:** Huawei  
**Test date:** Aug-2014  
**Software Availability:** Nov-2013

**Tested by:** Huawei  
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### Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Xeon E5-2650 v2</th>
</tr>
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<tbody>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz</td>
</tr>
<tr>
<td>CPU MHz: 2600</td>
</tr>
<tr>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache: 20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache: None</td>
</tr>
<tr>
<td>Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 500 GB SATA, 7200 RPM</td>
</tr>
<tr>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)</th>
</tr>
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<tbody>
<tr>
<td>Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel: Yes</td>
</tr>
<tr>
<td>File System: ext4</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V9.01</td>
</tr>
</tbody>
</table>
Huawei
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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</tr>
</thead>
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<tr>
<td>400.perlbench</td>
<td>316</td>
<td>30.9</td>
<td>315</td>
<td>31.0</td>
<td>315</td>
<td>31.0</td>
<td>254</td>
<td>38.4</td>
<td>255</td>
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<tr>
<td>401.bzip2</td>
<td>416</td>
<td>23.2</td>
<td>415</td>
<td>23.2</td>
<td>416</td>
<td>23.2</td>
<td>408</td>
<td>23.7</td>
<td>408</td>
<td>23.7</td>
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<tr>
<td>403.mcf</td>
<td>240</td>
<td>33.5</td>
<td>240</td>
<td>33.5</td>
<td>240</td>
<td>33.5</td>
<td>237</td>
<td>33.9</td>
<td>238</td>
<td>33.8</td>
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<tr>
<td>429.gcc</td>
<td>135</td>
<td>67.5</td>
<td>138</td>
<td>66.3</td>
<td>137</td>
<td>66.4</td>
<td>135</td>
<td>67.5</td>
<td>138</td>
<td>66.3</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>435</td>
<td>24.1</td>
<td>434</td>
<td>24.2</td>
<td>434</td>
<td>24.2</td>
<td>387</td>
<td>27.1</td>
<td>387</td>
<td>27.1</td>
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<tr>
<td>456.hmmer</td>
<td>162</td>
<td>57.5</td>
<td>162</td>
<td>57.6</td>
<td>162</td>
<td>57.6</td>
<td>158</td>
<td>59.0</td>
<td>160</td>
<td>58.2</td>
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<tr>
<td>458.sjeng</td>
<td>419</td>
<td>28.9</td>
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<td>28.9</td>
<td>419</td>
<td>28.9</td>
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<td>28.9</td>
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<tr>
<td>462.libquantum</td>
<td>6.69</td>
<td>3100</td>
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<td>464.hmmer</td>
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<td>45.2</td>
<td>486</td>
<td>45.6</td>
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<td>45.5</td>
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<td>56.6</td>
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<td>57.1</td>
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<tr>
<td>471.omnetpp</td>
<td>219</td>
<td>28.5</td>
<td>218</td>
<td>28.6</td>
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<td>28.5</td>
<td>217</td>
<td>39.9</td>
<td>165</td>
<td>38.0</td>
</tr>
<tr>
<td>473.astar</td>
<td>222</td>
<td>31.6</td>
<td>222</td>
<td>31.6</td>
<td>222</td>
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<td>222</td>
<td>31.6</td>
<td>222</td>
<td>31.6</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>131</td>
<td>52.8</td>
<td>133</td>
<td>51.7</td>
<td>131</td>
<td>52.8</td>
<td>125</td>
<td>55.3</td>
<td>125</td>
<td>55.3</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

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Hyper-Threading to Disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf4f032aaa42e583f96b07f99d3
running on localhost Thu Aug 21 03:37:23 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 E5-2650 v2 @ 2.60GHz
  2 "physical id"s (chips)
    16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

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Platform Notes (Continued)

cache size : 20480 KB

From /proc/meminfo
MemTotal: 132103760 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 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 Aug 21 00:49

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 439G 59G 358G 15% /

Additional information from dmidecode:
Memory:
8x Samsung M393B2G70QH0-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 = "16"

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 RH2288A V2 and Huawei RH1288A V2
are electronically equivalent.
The results have been measured on a Huawei RH2288A V2 model
This benchmark result is intended to provide perspective on
past performance using the historical software described on this result page
The system as described on this result page was formerly
generally available. At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the
Continued on next page
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General Notes (Continued)
This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

Base Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Base Portability Flags

| 400.perlbench: | -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64 |
| 401.bzip2: | -DSPEC_CPU_LP64 |
| 403.gcc: | -DSPEC_CPU_LP64 |
| 429.mcf: | -DSPEC_CPU_LP64 |
| 445.gobmk: | -DSPEC_CPU_LP64 |
| 456.hmmer: | -DSPEC_CPU_LP64 |
| 458.sjeng: | -DSPEC_CPU_LP64 |
| 462.libquantum: | -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX |
| 464.h264ref: | -DSPEC_CPU_LP64 |
| 471.omnetpp: | -DSPEC_CPU_LP64 |
| 473.astar: | -DSPEC_CPU_LP64 |
| 483.xalancbmk: | -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX |

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,-z,muldefs -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca
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Peak Compiler Invocation

C benchmarks (except as noted below):
  icc  -m64
  400.perlbench: icc  -m32
  445.gobmk: icc  -m32
  464.h264ref: icc  -m32

C++ benchmarks (except as noted below):
  icpc  -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-ilkp32
    -opt-prefetch  -ansi-alias
  403.gcc: -xAVX  -ipo  -o3  -no-prec-div  -inline-calloc
    -opt-malloc-options=3  -auto-ilkp32
  429.mcf: basepeak = yes
  445.gobmk: -xSSE4.2(pass 2)  -prof-gen(pass 1)  -prof-use(pass 2)
    -ansi-alias

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SPEC CINT2006 Result

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Peak Optimization Flags (Continued)

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-an si-alias

458.sjeng: basepeak = yes

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block
-ansi-alias

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

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-ic12.1-official-linux64.20111122.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.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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