Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

**SPECint\(_{\text{rate2006}}\) = 1180**

**SPECint\(_{\text{rate\_base2006}}\) = 1140**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
<td>CPU Name: Intel Xeon E5-2695 v3</td>
</tr>
<tr>
<td>Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>Auto Parallel: No</td>
<td>CPU MHz: 2300</td>
</tr>
<tr>
<td>File System: ext4</td>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>Base Pointers: 32-bit</td>
<td>CPU(s) orderable: 1.2 chip</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.0</td>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>Hardware Availability: Sep-2014</td>
<td>L3 Cache: 35 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Software Availability: Sep-2014</td>
<td>Other Cache: None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>SPECint(_{\text{rate_base2006}}) = 1140</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU MHz:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>FPU:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Primary Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>L3 Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Other Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Memory:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Other Hardware:</td>
<td><strong>Huawei</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>SPECint(_{\text{rate2006}}) = 1180</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU MHz:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>FPU:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Primary Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>L3 Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Other Cache:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Memory:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td><strong>Huawei</strong></td>
</tr>
<tr>
<td>Other Hardware:</td>
<td><strong>Huawei</strong></td>
</tr>
</tbody>
</table>
**Huawei**

Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

**SPECint_rate2006 = 1180**

**SPECint_rate_base2006 = 1140**

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

---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</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>56</td>
<td>620</td>
<td>883</td>
<td>621</td>
<td>882</td>
<td>619</td>
<td>884</td>
<td>56</td>
<td>491</td>
<td>1110</td>
<td>494</td>
<td>1110</td>
<td>493</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>56</td>
<td>918</td>
<td>589</td>
<td>919</td>
<td>588</td>
<td>919</td>
<td>588</td>
<td>56</td>
<td>882</td>
<td>613</td>
<td>879</td>
<td>615</td>
<td>876</td>
</tr>
<tr>
<td>403.gcc</td>
<td>56</td>
<td>504</td>
<td>895</td>
<td>507</td>
<td>890</td>
<td>506</td>
<td>890</td>
<td>56</td>
<td>507</td>
<td>889</td>
<td>503</td>
<td>896</td>
<td>505</td>
</tr>
<tr>
<td>429.mcf</td>
<td>56</td>
<td>330</td>
<td>1550</td>
<td>330</td>
<td>1550</td>
<td>329</td>
<td>1550</td>
<td>56</td>
<td>330</td>
<td>1550</td>
<td>330</td>
<td>1550</td>
<td>330</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>56</td>
<td>764</td>
<td>769</td>
<td>764</td>
<td>769</td>
<td>756</td>
<td>756</td>
<td>56</td>
<td>755</td>
<td>778</td>
<td>754</td>
<td>779</td>
<td>754</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>56</td>
<td>324</td>
<td>1610</td>
<td>325</td>
<td>1610</td>
<td>325</td>
<td>1610</td>
<td>56</td>
<td>304</td>
<td>1720</td>
<td>304</td>
<td>1720</td>
<td>303</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>56</td>
<td>786</td>
<td>862</td>
<td>785</td>
<td>863</td>
<td><strong>786</strong></td>
<td><strong>862</strong></td>
<td>56</td>
<td>753</td>
<td><strong>900</strong></td>
<td><strong>753</strong></td>
<td><strong>900</strong></td>
<td>752</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>56</td>
<td>111</td>
<td>10500</td>
<td>111</td>
<td>10500</td>
<td><strong>111</strong></td>
<td><strong>10500</strong></td>
<td>56</td>
<td>111</td>
<td>10500</td>
<td>111</td>
<td>10500</td>
<td>111</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>56</td>
<td>908</td>
<td>1360</td>
<td>939</td>
<td>1320</td>
<td>904</td>
<td>1370</td>
<td>56</td>
<td><strong>904</strong></td>
<td><strong>1370</strong></td>
<td>893</td>
<td>1390</td>
<td>907</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>56</td>
<td>562</td>
<td>623</td>
<td>564</td>
<td>620</td>
<td><strong>563</strong></td>
<td><strong>621</strong></td>
<td>56</td>
<td>553</td>
<td>633</td>
<td>550</td>
<td>636</td>
<td>551</td>
</tr>
<tr>
<td>473.astar</td>
<td>56</td>
<td>626</td>
<td>627</td>
<td>625</td>
<td>629</td>
<td>631</td>
<td>623</td>
<td>56</td>
<td><strong>626</strong></td>
<td><strong>627</strong></td>
<td>625</td>
<td>629</td>
<td>631</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>56</td>
<td>330</td>
<td>1170</td>
<td>329</td>
<td>1170</td>
<td><strong>329</strong></td>
<td><strong>1170</strong></td>
<td>56</td>
<td>330</td>
<td>1170</td>
<td>329</td>
<td>1170</td>
<td>329</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 performance  
Set Snoop Mode to COD  
Sysinfo program /spec15/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Thu Feb 5 17:24:37 2015

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 following excerpts from /proc/cpuinfo might not be reliable. Use with Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

**SPECint_rate2006 = 1180**

**SPECint_rate_base2006 = 1140**

**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Test date:** Feb-2015

**Tested by:** Huawei

**Hardware Availability:** Sep-2014

**Software Availability:** Sep-2014

---

**Platform Notes (Continued)**

```
cpu cores : 7
siblings : 14
  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:       | 263574228 kB |
| HugePages_Total: | 0            |
| Hugepagesize:   | 2048 kB      |

From `/etc/*release* /etc/*version*`

```
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

```
uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Feb 5 17:20
```

**SPEC is set to:** /spec15

```
Filesystem          Type     Size  Used Avail Use% Mounted on
/dev/mapper/rhel-root  ext4  241G  118G  111G  52% /
```

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 SMI BIOS" standard.
```

**BIOS Insyde Corp. 1.20 10/25/2014**

**Memory:**

8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

**SPECint_rate2006 = 1180**
**SPECint_rate_base2006 = 1140**

**General Notes**

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
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 -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

C++ benchmarks:
```
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

**Base Portability Flags**

400.perlbmk: -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
```
Huawei
Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

SPECint_rate2006 = 1180
SPECint_rate_base2006 = 1140

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Peak Compiler Invocation

C benchmarks (except as noted below):
   icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
   icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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

Continued on next page
**Huawei**

**Huawei RH2288 V3 (Intel Xeon E5-2695 v3)**

| SPECint_rate2006 | 1180 |
| SPECint_rate_base2006 | 1140 |

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

**Peak Optimization Flags (Continued)**

```plaintext
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

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**

```plaintext
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-ic15.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html)

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

- [http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml)
- [http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml)

---

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.  
Report generated on Fri Feb 27 17:42:01 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 February 2015.