**Huawei**

Huawei RH2288 V3 (Intel Xeon E5-2623 v3)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
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<tr>
<td>SPECint_rate_base2006</td>
<td>406</td>
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</table>

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

| SPECint\_rate2006 | 420 |

| SPECint\_rate\_base2006 | 406 |

**CPU Name:** Intel Xeon E5-2623 v3  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz  
**CPU MHz:** 3000  
**FPU:** Integrated  
**CPU(s) enabled:** 8 cores, 2 chips, 4 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:** 10 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R , running at 1867 MHz)  
**Disk Subsystem:** 1 x 300 GB SAS, 10K RPM  
**Other Hardware:** None

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)  
  3.10.0-123.el7.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
### 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>
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<tbody>
<tr>
<td></td>
<td>Base</td>
<td></td>
<td>Peak</td>
<td></td>
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<tr>
<td>400.perlbench</td>
<td>16</td>
<td>504</td>
<td>310</td>
<td>509</td>
<td>307</td>
<td>505</td>
<td>310</td>
<td>16</td>
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<td>401.bzip2</td>
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<td>809</td>
<td>191</td>
<td>806</td>
<td>192</td>
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<td>773</td>
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<td>403.gcc</td>
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<td>274</td>
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<td>277</td>
<td>527</td>
<td>273</td>
<td>534</td>
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<td>274</td>
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<td>277</td>
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<td>429.mcf</td>
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<td>618</td>
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<td>618</td>
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<td>618</td>
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<td>16</td>
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<td>445.gobmk</td>
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<td>595</td>
<td>246</td>
<td>606</td>
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<td>606</td>
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<td>243</td>
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<td>244</td>
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<td>456.hmmer</td>
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<td>674</td>
<td>287</td>
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<td>654</td>
<td>296</td>
<td>655</td>
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<tr>
<td>458.sjeng</td>
<td>16</td>
<td>78.5</td>
<td>4220</td>
<td>77.9</td>
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<td>462.libquantum</td>
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<td>734</td>
<td>483</td>
<td>742</td>
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<td>464.h264ref</td>
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<td>478</td>
<td>209</td>
<td>479</td>
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<td>220</td>
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<tr>
<td>471.omnetpp</td>
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<td>492</td>
<td>228</td>
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<td>228</td>
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<td>489</td>
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<tr>
<td>483.xalancbmk</td>
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<td>456</td>
<td>241</td>
<td>457</td>
<td>242</td>
<td>457</td>
<td>16</td>
<td>242</td>
<td>456</td>
<td>241</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 localhost.localdomain Fri May 15 14:20:30 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 E5-2623 v3 @ 3.00GHz
  2 "physical id"s (chips)
  16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 4
  siblings : 8
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
  cache size : 10240 KB

From /proc/meminfo
  MemTotal:       263721488 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
  os-release:
    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 May 15 04:48

SPEC is set to: /spec
  Filesystem     Type    Size  Used Avail Use% Mounted on
  /dev/sda2      ext4   259G   26G  221G  11% /

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 1867 MHz 1 rank
    8x Samsung M393A2G40DB0-CPB 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:
  LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"

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### General Notes (Continued)

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
```
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
```

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**Peak Compiler Invocation**

C benchmarks (except as noted below):

- icc -m32 400.perlbench: icc -m64 401.bzip2: icc -m64 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

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**SPECint_rate2006 = 420**

**SPECint_rate_base2006 = 406**

**Peak Optimization Flags (Continued)**

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.xalanbmk: 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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