Huawei RH2288 V3 (Intel Xeon E5-2637 v3)

SPECint®2006 = 64.3
SPECint_base2006 = 61.7

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

CPU Name: Intel Xeon E5-2637 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3500
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Hardware

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: C++ Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

Software

Huawei RH2288 V3 (Intel Xeon E5-2637 v3)
Huawei

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---

**Results Table**

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<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
<td>400.perlbench</td>
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<td>43.2</td>
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<td>42.8</td>
<td>229</td>
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<td>49.3</td>
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<td>401.bzip2</td>
<td>363</td>
<td>26.6</td>
<td>364</td>
<td>26.5</td>
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<td>26.5</td>
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<td>26.8</td>
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<td>26.9</td>
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<tr>
<td>403.mcf</td>
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<td>36.1</td>
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<td>456.hmmer</td>
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<tr>
<td>462.libquantum</td>
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<td>464.h264ref</td>
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<tr>
<td>471.omnetpp</td>
<td>242</td>
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<td>199</td>
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<tr>
<td>483.xalancbmk</td>
<td>99.8</td>
<td>69.1</td>
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<td>69.0</td>
<td>100</td>
<td>69.0</td>
<td>100</td>
<td>69.0</td>
</tr>
</tbody>
</table>

---

**Submit Notes**

The config file option 'submit' was used.

---

**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 ES mode
Set Patrol Scrub to Disable
Set Intel Hyper-Threading to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Thu Aug 6 10:40:25 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 E5-2637 v3 @ 3.50GHz
  2 "physical id"s (chips)
  8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2637 v3)

**Huawei**

**Huawei**

**Huawei RH2288 V3 (Intel Xeon E5-2637 v3)**

**SPECint2006 =** 64.3

**SPECint_base2006 =** 61.7

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

---

**Platform Notes (Continued)**

```plaintext
cpu cores : 4  
siblings : 4  
physical 0: cores 0 1 4 5  
physical 1: cores 0 1 4 5  
cache size : 15360 KB

From /proc/meminfo  
MemTotal: 263580304 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 Aug 6 05:44

SPEC is set to: /spec15  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda1 ext4 443G 89G 332G 22% /

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 SMBIOS" standard.

BIOS Insyde Corp. 1.52 06/27/2015  
Memory:  
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz  
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
```
## SPEC CINT2006 Result

### Huawei

**Huawei RH2288 V3 (Intel Xeon E5-2637 v3)**

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### General Notes

Environment variables set by runspec before the start of the run:
- `KMP_AFFINITY = "granularity=fine,compact,1,0"
- `LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
- `OMP_NUM_THREADS = "8"

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`
- `runcspec command invoked through numactl i.e.: numactl --interleave=all runspec <etc>`

### 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:**  
  - `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`
- **C++ benchmarks:**  
  - `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32`
  - `-Wl,-z,muldefs -L/sh -lsmartheap64`
Huawei RH2288 V3 (Intel Xeon E5-2637 v3)

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---

### Base Other Flags

**C benchmarks:**

403.gcc: `-Dalloca=_alloca`

---

### Peak Compiler Invocation

**C benchmarks (except as noted below):**

```
icc -m64
```

- `400.perlbench`: `icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32`
- `445.gobmk`: `icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32`

**C++ benchmarks (except as noted below):**

```
icpc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
```

- `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`
- `464.h264ref`: `-DSPEC_CPU_LP64`
- `473.astar`: `-DSPEC_CPU_LP64`
- `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) -opt-prefetch -ansi-alias`

- `401.bzip2`: `-xCORE-AVX2(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`

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Continued on next page
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---

### Peak Optimization Flags (Continued)

- 403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32`
- 429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`
- 445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias`
- 456.hmmer: basepeak = yes
- 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`
- 462.libquantum: basepeak = yes
- 464.h264ref: basepeak = yes

#### 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) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap`
- 473.astar: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64`
- 483.xalancbmk: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/sh -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-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)
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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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