Huawei RH1288 V3 (Intel Xeon E5-2640 v3)

**SPECint\_rate2006** = 732
**SPECint\_rate\_base2006** = 702

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3175</th>
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<tbody>
<tr>
<td>Test date:</td>
<td>Jan-2015</td>
</tr>
<tr>
<td>Test sponsor:</td>
<td>Huawei</td>
</tr>
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<td>Tested by:</td>
<td>Huawei</td>
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<tr>
<td>Hardware Availability:</td>
<td>Sep-2014</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Jun-2014</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2640 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.40 GHz
- **CPU MHz:** 2600
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 2 chips, 8 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:** 20 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
- **Disk Subsystem:** 1 x 500 GB SATA, 7200 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 15.0.0.090 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
Huawei RH1288 V3 (Intel Xeon E5-2640 v3)

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

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**Results Table**

<table>
<thead>
<tr>
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<th>Ratio</th>
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<td>292</td>
<td>756</td>
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</tr>
</tbody>
</table>

**Results**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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**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 ES
- Set Patrol Scrub to Disable

Baseboard Management Controller used to adjust the fan speed to 100%

Sysinfo program /spec15/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Jan 7 06:59:10 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

```plaintext
model name : Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz
2 "physical id"s (chips)
32 "processors"
```

---

Continued on next page
Huawei RH1288 V3 (Intel Xeon E5-2640 v3)

SPEC CINT2006 Result

Huawei

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

---

**SPECint_rate2006 = 732**  
**SPECint_rate_base2006 = 702**

---

**Platform Notes (Continued)**

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```plaintext
cpu cores : 8  
siblings : 16  
physical 0: cores 0 1 2 3 4 5 6 7  
physical 1: cores 0 1 2 3 4 5 6 7  
cache size : 20480 KB
```

From /proc/meminfo

```plaintext
MemTotal:       263719632 kB  
HugePages_Total:       0  
Hugepagesize:       2048 kB
```

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

```plaintext
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 Jan 7 06:58

SPEC is set to: /spec15

```

Additional information from dmidecode:

```plaintext
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. 1.18 09/17/2014
Memory:
4x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
4x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1867 MHz
4x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
4x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 MHz

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

**Huawei**

Huawei RH1288 V3 (Intel Xeon E5-2640 v3)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
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**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Jan-2015  
**Hardware Availability:** Sep-2014  
**Software Availability:** Jun-2014

### 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.:

```
umactl --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.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
```
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

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Huawei

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CPU2006 license: 3175
Test sponsor: Huawei
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Test date: Jan-2015
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Software Availability: Jun-2014

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.xalancbmk: 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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.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/Huawei-Platform-Settings-HASWELL-V1.2.xml

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