# Huawei

**Huawei 5288 V3 (Intel Xeon E5-2658 v3)**

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>970</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>936</td>
</tr>
</tbody>
</table>

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

## Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2658 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 2.90 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2200</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>24 cores, 2 chips, 12 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>30 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 500 GB SATA, 7200 RPM</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
</tbody>
</table>

## Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>ext4</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>
SPEC CINT2006 Result

Huawei
Huawei 5288 V3 (Intel Xeon E5-2658 v3)

SPECint_rate2006 = 970
SPECint_rate_base2006 = 936

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>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
<td></td>
<td></td>
<td>Peak</td>
<td></td>
<td></td>
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<tr>
<td>400.perlbench</td>
<td>48</td>
<td>691</td>
<td>679</td>
<td>692</td>
<td>678</td>
<td>694</td>
<td>676</td>
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<td>546</td>
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<td>401.bzip2</td>
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<td>993</td>
<td>466</td>
<td>994</td>
<td>466</td>
<td>995</td>
<td>465</td>
<td>48</td>
<td>950</td>
<td>488</td>
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<td>487</td>
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<td>403.gcc</td>
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<td>524</td>
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<td>521</td>
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<td>48</td>
<td>524</td>
<td>737</td>
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<td>521</td>
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<td>429.mcf</td>
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<td>335</td>
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<td>1310</td>
<td>335</td>
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<td>1310</td>
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<td>458.sjeng</td>
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<td>462.libquantum</td>
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<td>464.h264ref</td>
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<td>949</td>
<td>1120</td>
<td>1005</td>
<td>1060</td>
<td>1007</td>
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<td>1120</td>
<td>935</td>
<td>1140</td>
<td>987</td>
<td>1080</td>
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<tr>
<td>471.omnetpp</td>
<td>48</td>
<td>558</td>
<td>538</td>
<td>561</td>
<td>535</td>
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<td>557</td>
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<td>560</td>
</tr>
<tr>
<td>473.astar</td>
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<td>650</td>
<td>519</td>
<td>644</td>
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<td>647</td>
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<tr>
<td>483.xalancbmk</td>
<td>48</td>
<td>329</td>
<td>1010</td>
<td>328</td>
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<td>329</td>
<td>1010</td>
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<td>1010</td>
<td>328</td>
<td>1010</td>
<td>329</td>
<td>1010</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 mode
Set Patrol Scrub to Disable
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sat Jul 25 05:24:58 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 E5-2658 v3 @ 2.20GHz
  2 "physical id"s (chips)
  48 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
Huawei 5288 V3 (Intel Xeon E5-2658 v3)  

SPECint_rate2006 = 970  
SPECint_rate_base2006 = 936  

CPU2006 license: 3175  
Test sponsor: Huawei  
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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

  cpu cores : 6
  siblings : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  cache size : 15360 KB

From /proc/meminfo

  MemTotal:       263575160 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 Jul 25 05:18

SPEC is set to: /spec

  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda1      ext4  385G   68G  298G  19% /

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. 1.36 04/09/2015
  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)
## Huawei

### Huawei 5288 V3 (Intel Xeon E5-2658 v3)

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### General Notes

Environment variables set by runspec before the start of the run:

- `LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/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.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`
Huawei

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Peak Compiler Invocation

C benchmarks (except as noted below):

```shell
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

400.perlbench: icc -m64
401.bzip2: icc -m64
458.sjeng: icc -m64
```

C++ benchmarks:

```shell
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Peak Portability Flags

```shell
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

```shell
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: basepeak = yes
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: 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 -auto-ilp32
```
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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-V1.4.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-V1.4.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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