Huawei

Huawei XH628 V3 (Intel Xeon E5-2637 v3)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>106</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>102</td>
</tr>
</tbody>
</table>

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

| SPECfp2006 = 106 |
| SPECfp_base2006 = 102 |

**SPECfp**

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>106</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>102</td>
</tr>
</tbody>
</table>

**Hardware**

- **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

**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;
  Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** ext4

Continued on next page
## SPEC CFP2006 Result

### Huawei

Huawei XH628 V3 (Intel Xeon E5-2637 v3)

| SPECfp2006 = | 106 |
| SPECfp_base2006 = | 102 |

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

| 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 |

**System State:** Run level 3 (multi-user)

- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>31.1</td>
<td>436</td>
<td>30.8</td>
<td>441</td>
<td>31.0</td>
<td>439</td>
<td>31.1</td>
<td>436</td>
<td>30.8</td>
<td>441</td>
</tr>
<tr>
<td>416.gamess</td>
<td>468</td>
<td>41.9</td>
<td>470</td>
<td>41.7</td>
<td>468</td>
<td>41.8</td>
<td>423</td>
<td>46.3</td>
<td>424</td>
<td>46.1</td>
</tr>
<tr>
<td>433.milc</td>
<td>126</td>
<td>72.9</td>
<td>126</td>
<td>72.7</td>
<td>126</td>
<td>72.7</td>
<td>125</td>
<td>73.4</td>
<td>125</td>
<td>73.5</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>50.2</td>
<td>181</td>
<td>50.2</td>
<td>181</td>
<td>50.2</td>
<td>181</td>
<td>50.2</td>
<td>181</td>
<td>50.2</td>
<td>181</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>142</td>
<td>50.2</td>
<td>141</td>
<td>50.7</td>
<td>141</td>
<td>50.5</td>
<td>142</td>
<td>50.2</td>
<td>141</td>
<td>50.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>22.3</td>
<td>535</td>
<td>22.4</td>
<td>534</td>
<td>22.5</td>
<td>532</td>
<td>22.3</td>
<td>535</td>
<td>22.4</td>
<td>534</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>38.9</td>
<td>242</td>
<td>38.5</td>
<td>244</td>
<td>38.9</td>
<td>242</td>
<td>38.9</td>
<td>242</td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>257</td>
<td>59.9</td>
<td>257</td>
<td>59.2</td>
<td>257</td>
<td>59.2</td>
<td>250</td>
<td>59.6</td>
<td>250</td>
<td>59.2</td>
</tr>
<tr>
<td>447.dealII</td>
<td>191</td>
<td>59.9</td>
<td>191</td>
<td>59.9</td>
<td>191</td>
<td>59.9</td>
<td>191</td>
<td>59.9</td>
<td>191</td>
<td>59.9</td>
</tr>
<tr>
<td>450.soplex</td>
<td>201</td>
<td>41.5</td>
<td>202</td>
<td>41.3</td>
<td>202</td>
<td>41.3</td>
<td>201</td>
<td>41.5</td>
<td>199</td>
<td>41.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>87.1</td>
<td>51.1</td>
<td>87.4</td>
<td>60.8</td>
<td>86.5</td>
<td>61.5</td>
<td>77.6</td>
<td>68.6</td>
<td>77.6</td>
<td>68.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>140</td>
<td>58.9</td>
<td>140</td>
<td>58.9</td>
<td>140</td>
<td>58.9</td>
<td>130</td>
<td>63.3</td>
<td>130</td>
<td>63.3</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>59.4</td>
<td>179</td>
<td>58.5</td>
<td>181</td>
<td>59.7</td>
<td>178</td>
<td>53.8</td>
<td>197</td>
<td>54.2</td>
<td>196</td>
</tr>
<tr>
<td>465.tonto</td>
<td>205</td>
<td>48.0</td>
<td>205</td>
<td>48.0</td>
<td>206</td>
<td>47.8</td>
<td>173</td>
<td>57.0</td>
<td>172</td>
<td>57.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>314</td>
<td>438</td>
<td>31.9</td>
<td>431</td>
<td>31.3</td>
<td>439</td>
<td>314</td>
<td>438</td>
<td>31.9</td>
<td>431</td>
</tr>
<tr>
<td>481.wrf</td>
<td>115</td>
<td>97.5</td>
<td>115</td>
<td>95.8</td>
<td>115</td>
<td>97.0</td>
<td>115</td>
<td>97.5</td>
<td>115</td>
<td>95.8</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>222</td>
<td>87.7</td>
<td>221</td>
<td>88.3</td>
<td>222</td>
<td>87.6</td>
<td>222</td>
<td>88.0</td>
<td>222</td>
<td>87.7</td>
</tr>
</tbody>
</table>

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

### 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 HS mode
- Set Intel Hyper-threading Technology to Disable

**Sysinfo program:** /spec15/config/sysinfo.rev6914

```
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sat Mar 28 05:33:04 2015
```

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2637 v3)

SPECf2006 = 106
SPECfp_base2006 = 102

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

Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
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: 263722416 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /proc/meminfo

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 Mar 28 05:28

SPEC is set to: /spec15

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 458G 39G 397G 9% /

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. 1.17 09/03/2014

Memory:

Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2637 v3)

SPECfp2006 = 106
SPECfp_base2006 = 102

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

Platform Notes (Continued)

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)

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
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
The Huawei XH622 V3 and Huawei XH628 V3 are electronically equivalent.
The results have been measured on a Huawei XH628 V3 model.

Base Compiler Invocation

C benchmarks:
  icc  -m64

C++ benchmarks:
  icpc  -m64

Fortran benchmarks:
  ifort  -m64

Benchmarks using both Fortran and C:
  icc  -m64 ifort  -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
  433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64
  444.namd: -DSPEC_CPU_LP64
Huawei
Huawei XH628 V3 (Intel Xeon E5-2637 v3)

SPECfp2006 = 106
SPECfp_base2006 = 102

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

Base Portability Flags (Continued)

447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags
**Huawei**

**Huawei XH628 V3 (Intel Xeon E5-2637 v3)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>C benchmarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>433.milc</td>
<td>-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)</td>
</tr>
<tr>
<td></td>
<td>-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)</td>
</tr>
<tr>
<td></td>
<td>-auto-ilp32 -ansi-alias</td>
</tr>
<tr>
<td>470.lbm: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3:</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C++ benchmarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>444.namd:</td>
</tr>
<tr>
<td>447.dealII:</td>
</tr>
<tr>
<td>450.soplex:</td>
</tr>
<tr>
<td>453.povray:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran benchmarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves:</td>
</tr>
<tr>
<td>416.gamess:</td>
</tr>
<tr>
<td>434.zeusmp:</td>
</tr>
<tr>
<td>437.leslie3d:</td>
</tr>
<tr>
<td>459.GemsFDTD:</td>
</tr>
<tr>
<td>465.tonto:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Continued on next page
Huawei
Huawei XH628 V3 (Intel Xeon E5-2637 v3)

SPECfp2006 = 106
SPECfp_base2006 = 102

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

Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes

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

SPEC and SPECfp 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.
Originally published on 21 April 2015.