| Test sponsor: | Huawei | Hardware Availability: | Sep-2014 |
| Test date:   | Jun-2015 |
| Tested by:   | Huawei |
| SPECfp®2006 = | 106 |
| SPECfp_base2006 = | 101 |

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2695 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2300</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>28 cores, 2 chips, 14 cores/chip</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>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.0 (Maipo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</td>
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</table>

---

**SPECf2006 = 106**

**SPECfp_base2006 = 101**

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**Huawei XH628 V3 (Intel Xeon E5-2695 v3)**

SPECf2006 = 106

SPECfp_base2006 = 101
Huawei

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
L3 Cache: 35 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>Seconds</th>
<th>Ratio</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>410.bwaves</td>
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<td>431</td>
<td>25.9</td>
<td>524</td>
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<td>416.gamess</td>
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<td>578</td>
<td>33.9</td>
<td>580</td>
<td>33.7</td>
<td>502</td>
<td>39.0</td>
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<td>433.milc</td>
<td>133</td>
<td>69.3</td>
<td>133</td>
<td>69.3</td>
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<td>69.5</td>
<td>131</td>
<td>70.2</td>
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<tr>
<td>434.zeusmp</td>
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<td>44.9</td>
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<td>45.2</td>
<td>201</td>
<td>45.0</td>
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<tr>
<td>435.gromacs</td>
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<td>38.7</td>
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<td>436.cactusADM</td>
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<td>17.3</td>
<td>692</td>
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<td>444.namd</td>
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<td>447.dealII</td>
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<td>52.6</td>
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<td>450.soplex</td>
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<td>43.9</td>
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<td>44.1</td>
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<td>453.povray</td>
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<td>51.1</td>
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<td>50.8</td>
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<td>454.calculix</td>
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<td>48.7</td>
<td>155</td>
<td>53.4</td>
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<tr>
<td>459.GemsFDTD</td>
<td>47.6</td>
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<td>47.0</td>
<td>226</td>
<td>48.0</td>
<td>221</td>
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<td>465.tonto</td>
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<td>36.4</td>
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<td>46.9</td>
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<tr>
<td>470.lbm</td>
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<td>688</td>
<td>20.2</td>
<td>680</td>
<td>20.1</td>
<td>683</td>
<td>20.0</td>
<td>688</td>
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<tr>
<td>481.wrf</td>
<td>133</td>
<td>83.7</td>
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<td>84.9</td>
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<td>84.5</td>
<td>133</td>
<td>83.7</td>
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<tr>
<td>482.sphinx3</td>
<td>287</td>
<td>68.0</td>
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<td>67.8</td>
<td>289</td>
<td>67.5</td>
<td>287</td>
<td>68.0</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 Patrol Scrub to Disable
Set Intel HT Technology to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Jun 30 15:23:29 2015

This section contains SUT (System Under Test) info as seen by
Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Huawei

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

SPECfp2006 = 106
SPECfp_base2006 = 101

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

Test date: Jun-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

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 E5-2695 v3 @ 2.30GHz
  2 "physical id"s (chips)
  28 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores: 14
  siblings: 14
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size: 35840 KB

From /proc/meminfo
MemTotal: 263577980 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="7.0.0"
  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 Jun 30 15:14

SPEC is set to: /spec15
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 448G 159G 266G 38% /

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. 1.26 12/22/2014
Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

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

Test date: Jun-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

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)

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 = "28"

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 and Huawei XH620 V3 are electronically equivalent.
The results have been measured on a Huawei XH620 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
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64
Huawei

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

SPECfp2006 = 106
SPECfp_base2006 = 101

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

Test date: Jun-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Base Portability Flags (Continued)

444.namd: -DSPEC_CPU_LP64
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
Huawei

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

SPECfp2006 = 106
SPECfp_base2006 = 101

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -inline-calloc -opt-malloc-options=3 -auto -unroll4

Continued on next page
**Huawei**

Huawei XH628 V3 (Intel Xeon E5-2695 v3)

| SPECfp2006 = | 106 |
| SPECfp_base2006 = | 101 |

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

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### Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

- **435.gromacs**: basepeak = yes
- **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:
- [Intel-ic15.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html)
- [Huawei-Platform-Settings-HASWELL-V1.4.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:
- [Intel-ic15.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml)
- [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 other inquiries, please contact webmaster@spec.org.

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