## Huawei

**Huawei XH622 V3 (Intel Xeon E5-2630 v4)**

### SPECfp®2006

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>41.3</td>
</tr>
<tr>
<td>416.gamess</td>
<td>34.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>66.5</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>187</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>42.6</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>715</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>317</td>
</tr>
<tr>
<td>444.namd</td>
<td>27.2</td>
</tr>
<tr>
<td>447.dealII</td>
<td>59.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>43.6</td>
</tr>
<tr>
<td>453.povray</td>
<td>51.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>56.6</td>
</tr>
<tr>
<td>459.GemsFD</td>
<td>51.2</td>
</tr>
<tr>
<td>465.tonto</td>
<td>53.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>39.0</td>
</tr>
<tr>
<td>481.wrf</td>
<td>83.9</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>69.2</td>
</tr>
</tbody>
</table>

### SPECfp_base2006

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>41.3</td>
</tr>
<tr>
<td>416.gamess</td>
<td>34.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>66.5</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>187</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>42.6</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>715</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>317</td>
</tr>
<tr>
<td>444.namd</td>
<td>27.2</td>
</tr>
<tr>
<td>447.dealII</td>
<td>59.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>43.6</td>
</tr>
<tr>
<td>453.povray</td>
<td>51.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>56.6</td>
</tr>
<tr>
<td>459.GemsFD</td>
<td>51.2</td>
</tr>
<tr>
<td>465.tonto</td>
<td>53.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>39.0</td>
</tr>
<tr>
<td>481.wrf</td>
<td>83.9</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>69.2</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2630 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.10 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 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:** SUSE Linux Enterprise Server 12 SP1
  3.12.49-11-default
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
  Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
Huawei XH622 V3 (Intel Xeon E5-2630 v4)

**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Test date:** Oct-2016

**Hardware Availability:** Mar-2016

**Tested by:** Huawei

**Software Availability:** Mar-2016

**L3 Cache:** 25 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 1000 GB SATA, 7200 RPM

**Other Hardware:** None

**Base Pointers:** 32/64-bit

**Peak Pointers:** 32/64-bit

**Other Software:** None

---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwaves</td>
<td>30.9</td>
<td>440</td>
<td>30.3</td>
<td>448</td>
<td>30.9</td>
<td>435</td>
<td>30.9</td>
<td>440</td>
<td>30.9</td>
<td>439</td>
</tr>
<tr>
<td>gamess</td>
<td>563</td>
<td>34.8</td>
<td>563</td>
<td>34.8</td>
<td>565</td>
<td>34.6</td>
<td>474</td>
<td>41.3</td>
<td>474</td>
<td>41.3</td>
</tr>
<tr>
<td>milec</td>
<td>138</td>
<td>66.5</td>
<td>138</td>
<td>66.5</td>
<td>138</td>
<td>66.7</td>
<td>138</td>
<td>66.4</td>
<td>138</td>
<td>66.5</td>
</tr>
<tr>
<td>zeusmp</td>
<td>48.4</td>
<td>188</td>
<td>48.6</td>
<td>187</td>
<td>48.8</td>
<td>187</td>
<td>48.4</td>
<td>188</td>
<td>48.6</td>
<td>187</td>
</tr>
<tr>
<td>gromacs</td>
<td>168</td>
<td>42.6</td>
<td>168</td>
<td>42.6</td>
<td>172</td>
<td>41.5</td>
<td>168</td>
<td>42.6</td>
<td>168</td>
<td>42.6</td>
</tr>
<tr>
<td>cactusADM</td>
<td>16.6</td>
<td>720</td>
<td>17.0</td>
<td>703</td>
<td>16.7</td>
<td>715</td>
<td>16.6</td>
<td>720</td>
<td>17.0</td>
<td>703</td>
</tr>
<tr>
<td>leslie3d</td>
<td>29.5</td>
<td>311</td>
<td>29.7</td>
<td>317</td>
<td>29.7</td>
<td>316</td>
<td>29.5</td>
<td>319</td>
<td>29.7</td>
<td>317</td>
</tr>
<tr>
<td>namd</td>
<td>294</td>
<td>273</td>
<td>295</td>
<td>272</td>
<td>295</td>
<td>272</td>
<td>285</td>
<td>281</td>
<td>286</td>
<td>281</td>
</tr>
<tr>
<td>dealII</td>
<td>192</td>
<td>59.6</td>
<td>193</td>
<td>59.4</td>
<td>192</td>
<td>59.7</td>
<td>192</td>
<td>59.6</td>
<td>193</td>
<td>59.4</td>
</tr>
<tr>
<td>soplex</td>
<td>193</td>
<td>43.3</td>
<td>191</td>
<td>43.6</td>
<td>189</td>
<td>44.0</td>
<td>193</td>
<td>43.3</td>
<td>191</td>
<td>43.6</td>
</tr>
<tr>
<td>povray</td>
<td>97.4</td>
<td>54.6</td>
<td>97.7</td>
<td>54.5</td>
<td>96.8</td>
<td>55.0</td>
<td>85.7</td>
<td>62.1</td>
<td>86.1</td>
<td>61.8</td>
</tr>
<tr>
<td>calculix</td>
<td>161</td>
<td>51.2</td>
<td>161</td>
<td>51.2</td>
<td>161</td>
<td>51.3</td>
<td>146</td>
<td>56.6</td>
<td>146</td>
<td>56.6</td>
</tr>
<tr>
<td>GemsFDTD</td>
<td>49.1</td>
<td>216</td>
<td>50.2</td>
<td>211</td>
<td>49.8</td>
<td>213</td>
<td>43.4</td>
<td>245</td>
<td>43.5</td>
<td>244</td>
</tr>
<tr>
<td>tonto</td>
<td>252</td>
<td>39.0</td>
<td>253</td>
<td>38.9</td>
<td>252</td>
<td>39.0</td>
<td>185</td>
<td>53.1</td>
<td>186</td>
<td>53.0</td>
</tr>
<tr>
<td>lbm</td>
<td>22.8</td>
<td>603</td>
<td>23.1</td>
<td>595</td>
<td>23.5</td>
<td>584</td>
<td>22.8</td>
<td>603</td>
<td>23.1</td>
<td>595</td>
</tr>
<tr>
<td>wrf</td>
<td>134</td>
<td>83.6</td>
<td>132</td>
<td>84.4</td>
<td>133</td>
<td>83.9</td>
<td>134</td>
<td>83.6</td>
<td>132</td>
<td>84.4</td>
</tr>
<tr>
<td>sphinx3</td>
<td>282</td>
<td>69.2</td>
<td>281</td>
<td>69.3</td>
<td>282</td>
<td>69.2</td>
<td>282</td>
<td>69.2</td>
<td>281</td>
<td>69.3</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 Hyper-Threading to Disable

Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab81e28219e1
running on linux-jorn Mon Oct 31 23:40:02 2016

This section contains SUT (System Under Test) info as seen by
Continued on next page
Huawei
Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp2006 = 106
SPECfp_base2006 = 100

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

Test date: Oct-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

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 E5-2630 v4 @ 2.20GHz
  2 "physical id"s (chips)
  20 "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 : 10
  siblings : 10
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 25600 KB

From /proc/meminfo
MemTotal: 264063872 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
  SuSE-release:
  NAME="SLES"
  VERSION="12-SP1"
  VERSION_ID="12.1"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 31 08:13

SPEC is set to: /spec16
  Filesystem Type  Size Used Avail Use% Mounted on
  /dev/sda3  ext4  884G  84G  799G  10% /

Additional information from dmidecode:

Continued on next page
Huawei
Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp2006 = 106
SPECfp_base2006 = 100

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

Platform Notes (Continued)
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. 3.31 08/22/2016
Memory:
16x 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 = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
OMP_NUM_THREADS = "20"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
umactl --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

Continued on next page
Huawei

Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp2006 = 106
SPECfp_base2006 = 100

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

Test date: Oct-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

Base Portability Flags (Continued)

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
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
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
SPEC CFP2006 Result

Huawei

Huawei XH622 V3 (Intel Xeon E5-2630 v4)

SPECfp2006 = 106
SPECfp_base2006 = 100

CPU2006 license: 3175
Test date: Oct-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
Tested by: Huawei
Software Availability: Mar-2016

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.mlmc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inplace-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

Continued on next page
## Huawei

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>106</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>100</td>
</tr>
</tbody>
</table>

Huawei XH622 V3 (Intel Xeon E5-2630 v4)

- **CPU2006 license:** 3175
- **Test sponsor:** Huawei
- **Tested by:** Huawei
- **Test date:** Oct-2016
- **Hardware Availability:** Mar-2016
- **Software Availability:** Mar-2016

### Peak Optimization Flags (Continued)

465.tonto (continued):
- `opt-malloc-options=3 -auto -unroll4`

### 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-ic16.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html)
- [Huawei-Platform-Settings-BDW-V1.0.html](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.html)

You can also download the XML flags sources by saving the following links:

- [Intel-ic16.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml)
- [Huawei-Platform-Settings-BDW-V1.0.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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.
Report generated on Tue Nov 15 16:08:44 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 November 2016.