### Huawei XH620 V3 (Intel Xeon E5-2637 v4)

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

<table>
<thead>
<tr>
<th>Application</th>
<th>SPECint2006</th>
<th>SPECint_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>40.1</td>
<td>37.3</td>
</tr>
<tr>
<td>bzip2</td>
<td>26.8</td>
<td>25.7</td>
</tr>
<tr>
<td>gcc</td>
<td>37.2</td>
<td>36.2</td>
</tr>
<tr>
<td>mcf</td>
<td>30.2</td>
<td>29.1</td>
</tr>
<tr>
<td>gobmk</td>
<td>33.4</td>
<td>32.5</td>
</tr>
<tr>
<td>hmmer</td>
<td>36.6</td>
<td>35.5</td>
</tr>
<tr>
<td>sjeng</td>
<td>36.2</td>
<td>35.1</td>
</tr>
<tr>
<td>libquantum</td>
<td>37.0</td>
<td>35.9</td>
</tr>
<tr>
<td>h264ref</td>
<td>36.7</td>
<td>35.6</td>
</tr>
<tr>
<td>omnetpp</td>
<td>38.0</td>
<td>37.1</td>
</tr>
<tr>
<td>astar</td>
<td>38.1</td>
<td>37.0</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>37.2</td>
<td>36.1</td>
</tr>
</tbody>
</table>

**Hardware**
- **CPU Name:** Intel Xeon E5-2637 v4  
- **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  
- **L3 Cache:** 15 MB I+D on chip per chip  
- **Other Cache:** None  
- **Memory:** 256 GB (16 x 16 GB 2Rx8 PC4-2400T-R)  
- **Disk Subsystem:** 1 x 2000 GB SATA, 7200RPM  
- **Other Hardware:** None

**Software**
- **Operating System:** SUSE Linux Enterprise Server 12 SP1 (x86_64)  
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux  
- **Auto Parallel:** Yes  
- **File System:** ext4  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 32/64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other Software:** Microquill SmartHeap V10.2
## 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>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>226</td>
<td>43.3</td>
<td>226</td>
<td>43.2</td>
<td>225</td>
<td>43.5</td>
<td>206</td>
<td>47.4</td>
<td>207</td>
<td>47.3</td>
<td>207</td>
<td>47.3</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>360</td>
<td>26.8</td>
<td>362</td>
<td>26.7</td>
<td>360</td>
<td>26.8</td>
<td>354</td>
<td>27.2</td>
<td>355</td>
<td>27.2</td>
<td>355</td>
<td>27.2</td>
</tr>
<tr>
<td>403.gcc</td>
<td>211</td>
<td>38.2</td>
<td>211</td>
<td>38.2</td>
<td>211</td>
<td>38.2</td>
<td>211</td>
<td>38.2</td>
<td>211</td>
<td>38.2</td>
<td>211</td>
<td>38.2</td>
</tr>
<tr>
<td>429.mcf</td>
<td>131</td>
<td>69.6</td>
<td>131</td>
<td>69.5</td>
<td>129</td>
<td>70.6</td>
<td>130</td>
<td>70.2</td>
<td>130</td>
<td>69.9</td>
<td>129</td>
<td>70.6</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>336</td>
<td>31.3</td>
<td>336</td>
<td>31.2</td>
<td>336</td>
<td>31.2</td>
<td>336</td>
<td>31.3</td>
<td>336</td>
<td>31.2</td>
<td>336</td>
<td>31.2</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>102</td>
<td>91.2</td>
<td>103</td>
<td>91.0</td>
<td>102</td>
<td>91.1</td>
<td>102</td>
<td>91.2</td>
<td>103</td>
<td>91.0</td>
<td>102</td>
<td>91.1</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>334</td>
<td>36.3</td>
<td>334</td>
<td>36.2</td>
<td>334</td>
<td>36.2</td>
<td>331</td>
<td>36.6</td>
<td>330</td>
<td>36.6</td>
<td>331</td>
<td>36.6</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>5.63</td>
<td>3680</td>
<td>5.56</td>
<td>3730</td>
<td>5.57</td>
<td>3720</td>
<td>5.63</td>
<td>3680</td>
<td>5.56</td>
<td>3730</td>
<td>5.57</td>
<td>3720</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>353</td>
<td>62.7</td>
<td>352</td>
<td>62.8</td>
<td>352</td>
<td>62.9</td>
<td>353</td>
<td>62.7</td>
<td>352</td>
<td>62.8</td>
<td>352</td>
<td>62.9</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>241</td>
<td>26.0</td>
<td>238</td>
<td>26.3</td>
<td>227</td>
<td>27.5</td>
<td>171</td>
<td>36.5</td>
<td>170</td>
<td>36.7</td>
<td>170</td>
<td>36.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>184</td>
<td>38.1</td>
<td>184</td>
<td>38.2</td>
<td>185</td>
<td>38.0</td>
<td>185</td>
<td>38.0</td>
<td>184</td>
<td>38.2</td>
<td>185</td>
<td>38.0</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>89.3</td>
<td>77.2</td>
<td>89.4</td>
<td>77.2</td>
<td>89.5</td>
<td>77.1</td>
<td>81.0</td>
<td>85.2</td>
<td>80.8</td>
<td>85.4</td>
<td>80.6</td>
<td>85.6</td>
</tr>
</tbody>
</table>

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

## Submit Notes

The config file option 'submit' was used.

## 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 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-29n0 Wed Nov 2 09:18:27 2016

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 E5-2637 v4 @ 3.50GHz
- 2 "physical id"s (chips)
- 8 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with
Continued on next page
Huawei

Huawei XH620 V3 (Intel Xeon E5-2637 v4)

SPECint2006 = 68.1
SPECint_base2006 = 65.0

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

Test date: Nov-2016
Hardware Availability: Mar-2016
Software Availability: Dec-2015

Platform Notes (Continued)

cautions)
cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 15360 KB

From /proc/meminfo
MemTotal: 264274024 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
os-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:
Linux linux-29n0 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 1 23:48

SPEC is set to: /spec16
Filesyste Type Size Used Avail Use% Mounted on
/dev/sdal ext4 1.8T 8.1G 1.8T 1% /

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 SMBOIS" standard.

BIOS Insyde Corp. 3.31 08/22/2016
Memory:
16x Micron 18ASF2G72PDZ-2G3B1 16 GB 2 rank 2400 MHz

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

**Huawei**

**Huawei XH620 V3 (Intel Xeon E5-2637 v4)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint2006 =</td>
<td>68.1</td>
</tr>
<tr>
<td>SPECint_base2006 =</td>
<td>65.0</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175  
**Test date:** Nov-2016  
**Test sponsor:** Huawei  
**Tested by:** Huawei

---

### 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 = "8"

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
Runcspec 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`

---

### Base Portability Flags

**C benchmarks:**
- `-DSPEC_CPU_LP64`
- `-DSPEC_CPU_LINUX_X64`
- `401.bzip2: -DSPEC_CPU_LP64`
- `403.gcc: -DSPEC_CPU_LP64`
- `429.mcf: -DSPEC_CPU_LP64`
- `445.gobmk: -DSPEC_CPU_LP64`
- `456.hmmer: -DSPEC_CPU_LP64`
- `458.sjeng: -DSPEC_CPU_LP64`
- `462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
- `464.h264ref: -DSPEC_CPU_LP64`
- `471.omnetpp: -DSPEC_CPU_LP64`
- `473.astar: -DSPEC_CPU_LP64`
- `483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

---

### Base Optimization Flags

**C benchmarks:**
- `-xCORE-AVX2`
- `-ipo`
- `-O3`
- `-no-prec-div`
- `-parallel`
- `-opt-prefetch`
- `-auto-p32`

**C++ benchmarks:**
- `-xCORE-AVX2`
- `-ipo`
- `-O3`
- `-no-prec-div`
- `-opt-prefetch`
- `-auto-p32`
- `-Wl,-z,muldefs`
- `-L/sh`
- `-lsmartheap64`
**SPEC CINT2006 Result**

**Huawei**

Huawei XH620 V3 (Intel Xeon E5-2637 v4)

---

**SPECint2006 = 68.1**

**SPECint_base2006 = 65.0**

---

**Base Other Flags**

C benchmarks:

403.gcc: -Dalloca=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):

```plaintext
icc  -m64
```

400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

```plaintext
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

473.astar: icpc -m64

---

**Peak Portability Flags**

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

429.mcf: -DSPEC_CPU_LP64

445.gobmk: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

464.h264ref: -DSPEC_CPU_LP64

471.omnetpp: -D_FILE_OFFSET_BITS=64

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

---

**Peak Optimization Flags**

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1

-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)

-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch

-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1

-ipo(pass 2) -O3(pass 2) -no-prec-div

-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

-opt-prefetch -ansi-alias

---

Continued on next page
Huawei
Huawei XH620 V3 (Intel Xeon E5-2637 v4)

SPECint2006 = 68.1
SPECint_base2006 = 65.0

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

Test date: Nov-2016
Hardware Availability: Mar-2016
Software Availability: Dec-2015

Peak Optimization Flags (Continued)

403.gcc: basepeak = yes

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
 -opt-prefetch -auto-p32

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -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) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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)
 -opt-ra-region-strategy=block -ansi-alias
 -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
 -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
 -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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-ic16.0-official-linux64.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:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml
Huawei

Huawei XH620 V3 (Intel Xeon E5-2637 v4)

SPECint2006 = 68.1
SPECint_base2006 = 65.0

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Nov-2016
Tested by: Huawei
Hardware Availability: Mar-2016
Software Availability: Dec-2015

SPEC and SPECint 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 13 December 2016.