Huawei

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

**SPECint®2006 =** 73.4

**SPECint_base2006 =** 71.6

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SpecInt®2006</th>
<th>SpecInt_base2006</th>
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<td>59.6</td>
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<tr>
<td>401.bzip2</td>
<td>25.3</td>
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<td>403.gcc</td>
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<tr>
<td>429.mcf</td>
<td>30.7</td>
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<tr>
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</tr>
<tr>
<td>483.xalancbmk</td>
<td>66.7</td>
<td>62.0</td>
</tr>
</tbody>
</table>

**SPECint®2006 =** 73.4

**Hardware**

- **CPU Name:** Intel Xeon E5-2699 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 44 cores, 2 chips, 22 cores/chip
- **CPU(s) orderable:** 44 cores, 2 chips, 22 cores/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:** 55 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)
- **Disk Subsystem:** 1 x 1000 GB SATA, 7200 RPM
- **Other Hardware:** None

**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
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V10.2
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Huawei XH628 V3 (Intel Xeon E5-2699 v4)  

**SPECint2006** = 73.4  
**SPECint_base2006** = 71.6

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

---

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>79.6</td>
<td>86.7</td>
<td>79.6</td>
<td>86.7</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-6392 Tue Nov 8 08:35:42 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 E5-2699 v4 @ 2.20GHz
- 2 "physical id"s (chips)
- 44 "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 XH628 V3 (Intel Xeon E5-2699 v4)

SPECint2006 = \(73.4\)
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Platform Notes (Continued)

caution.)
cpu cores : 22
siblings : 22
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
cache size : 56320 KB

From /proc/meminfo
MemTotal:       528844588 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:
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:
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 8 08:34 last=5

SPEC is set to: /spec16
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/md126p2   xfs   455G   23G  432G   5% /

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. 3.31 08/22/2016
Memory:

Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

| SPECint2006 | 73.4 |
| SPECint_base2006 | 71.6 |

CPU2006 license: 3175
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 = "44"

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

Base Portability Flags

400.perlbench: -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

Platform Notes (Continued)

16x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz

(End of data from sysinfo program)
Huawei

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

| Test date: | Nov-2016 |
| Hardware Availability: | Apr-2016 |
| Software Availability: | Dec-2015 |

### 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`

### Base Other Flags

C benchmarks:
- `403.gcc`: `-Dalloca=_alloca`

### Peak Compiler Invocation

C benchmarks (except as noted below):
- `icc` -m64

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

C++ benchmarks (except as noted below):
- `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`
# SPEC CINT2006 Result

**Huawei**

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

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

## Peak Optimization Flags

### C benchmarks:

- **400.perlbench:** `-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-prefetch -ansi-alias`

- **401.bzip2:** `-xCORE-AVX2 (pass 2) -prof-gen:threadsafe (pass 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`

- **403.gcc:** `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc`
  - `-opt-malloc-options=3 -auto-ilp32`

- **429.mcf:** basepeak = yes

- **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) -unroll14`

- **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:** basepeak = yes

- **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`
Huawei

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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

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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