Huawei

**Huawei XH628 V3 (Intel Xeon E5-2620 v4)**

**SPECint²006** = NC

**SPECint_base²006** = NC

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3175</th>
</tr>
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<tbody>
<tr>
<td>Test sponsor:</td>
<td>Huawei</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Huawei</td>
</tr>
<tr>
<td>Test date:</td>
<td>Feb-2016</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Mar-2016</td>
</tr>
<tr>
<td>Software Availability</td>
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</table>

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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong></td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong></td>
<td>3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td>Intel Turbo Boost Technology up to 3.00 GHz</td>
</tr>
<tr>
<td><strong>CPU:</strong></td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong></td>
<td>16 cores, 2 chips, 8 cores/chip</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong></td>
<td>xfs</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong></td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>L3 Cache:</strong></td>
<td>16 cores, 2 chips, 8 cores/chip</td>
</tr>
<tr>
<td><strong>Other Cache:</strong></td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Memory:</strong></td>
<td>Auto Parallel:</td>
</tr>
<tr>
<td><strong>Disk Subsystem:</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td>File System:</td>
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<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td>xfs</td>
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<tr>
<td><strong>Primary Cache:</strong></td>
<td>System State:</td>
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<tr>
<td><strong>Secondary Cache:</strong></td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>L3 Cache:</strong></td>
<td>Base Pointers:</td>
</tr>
<tr>
<td><strong>Other Cache:</strong></td>
<td>32/64-bit</td>
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<tr>
<td><strong>Memory:</strong></td>
<td>Peak Pointers:</td>
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<td><strong>Disk Subsystem:</strong></td>
<td>32/64-bit</td>
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SPEC CINT2006 Result

Huawei

Huawei XH628 V3(Intel Xeon E5-2620 v4)

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SPECint2006 = NC
SPECint_base2006 = NC

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

Other Hardware: 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>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>401.bzip2</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>403.gcc</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>429.mcf</td>
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<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>445.gobmk</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<td>NC</td>
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<tr>
<td>456.hmmer</td>
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<td>NC</td>
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<td>458.sjeng</td>
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<tr>
<td>462.libquantum</td>
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<tr>
<td>471.omnetpp</td>
<td>NC</td>
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<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>473.astar</td>
<td>NC</td>
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<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
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<tr>
<td>483.xalancbmk</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</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 localhost.localdomain Wed Feb 24 03:18:22 2016

Non-Compliant
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by <a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU rule 1.3.2</a> and the SPEC Open Systems Group policy on <a href="https://www.spec.org/osg/policy.html#AppendixC"">general availability</a>.
Huawei

Huawei XH628 V3(Intel Xeon E5-2620 v4)

SPECint2006 = NC
SPECint_base2006 = NC

CPU2006 license: 3175
Test date: Feb-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
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Software Availability: Mar-2016

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Platform Notes (Continued)

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 E5-2620 v4 @ 2.10GHz
- 2 "physical id"s (chips)
- 16 "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 : 8
  - siblings : 8
  - physical 0: cores 0 2 3 4 5 6
  - physical 1: cores 0 2 3 4 5 6
- cache size : 20480 KB

From /proc/meminfo

- MemTotal: 263571176 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"
  - PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
  - ANSI_COLOR="0;31"
- 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 -r:

- 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 Feb 23 10:41

SPEC is set to: /spec16

Filesystem Type Size Used Avail Use% Mounted on
Continued on next page
SPEC CINT2006 Result

Huawei
Huawei XH628 V3(Intel Xeon E5-2620 v4)

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Platform Notes (Continued)
/dev/sda3 xfs 443G 12G 431G 3% /
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. 7.11 02/14/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 2133 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 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 = "16"

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.:
numactl --interleave=all runspec <etc>
The Huawei XH622 V3 and Huawei XH628 V3 and Huawei XH620 V3 are electronically equivalent.
These have been measured on a Huawei XH620 V3 model

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

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### 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

### 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 benchmark:**
- 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
SPEC CINT2006 Result

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Peak Compiler Invocation (Continued)

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) -03(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) -03(pass 2) -no-prec-div -par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias
429.mcf: -xCORE-AVX2 -ipo -03 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32
445.gobmk: basepeak = yes

Continued on next page
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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

C++ benchmarks:

456.hmmer:
- basepeak = yes

458.sjeng:
- -xCORE-AVX2
- -prof-gen:threadsafe
- -ipo
- -O3
- -no-prec-div
- -par-num-threads=1
- -prof-use
- -unroll4

462.libquantum:
- basepeak = yes

464.h264ref:
- basepeak = yes

C benchmarks:

471.omnetpp:
- -xCORE-AVX2
- -prof-gen:threadsafe
- -ipo
- -O3
- -no-prec-div
- -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
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<th>SPECint_base2006</th>
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CPU2006 license: 3175
Test sponsor: Huawei
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Test date: Feb-2016
Hardware Availability: Mar-2016
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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