Huawei XH628 V3 (Intel Xeon E5-2698 v4)

| SPECint_rate2006 = | NC |
| SPECint_rate_base2006 = | NC |

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

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 [SPEC CPU rule 1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on [general availability](https://www.spec.org/osg/policy.html#AppendixC).

### Hardware

- **CPU Name:** Intel Xeon E5-2698 v4  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz  
- **CPU MHz:** 2200  
- **FPU:** Integrated  
- **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:** 50 MB I+D on chip per chip  
- **Memory:** None  
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
- **Disk Subsystem:** 1 x 500GB SATA, 10000 RPM  
- **Other Hardware:** None

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)  
  3.10.0-123.el7.x86_64  
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux  
- **Auto Parallel:** No  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 32-bit  
- **Peak Pointers:** 32/64-bit  
- **Other Software:** Microquill SmartHeap V10.2
---

**SPEC CINT2006 Result**

**Huawei**

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---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tr>
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<td>NC</td>
<td>NC</td>
<td>NC</td>
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<td>NC</td>
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<td>NC</td>
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<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 numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details please see the config file.

---

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"

---

**Platform Notes**

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to COD mode
Set Patrol Scrub to Disable
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Jan 1 11:33:13 2014

This section contains SUT (System Under Test) info as seen by

Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2698 v4)

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CPU2006 license: 3175

Test date: Mar-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

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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 E5-2698 v4 @ 2.20GHz

2 "physical id"s (chips)

80 "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 : 20
physical 0: cores 0 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

cache size : 25600 KB

From /proc/meminfo

MemTotal: 263563248 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"

cpe: cpe:/o:redhat:enterprise_linux:7.0:GA:server"

system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)

system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname:

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 Dec 31 23:18

SPEC is set to: /spec16

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 449G 146G 304G 33% /

Continued on next page
Huawei

Huawei XH628 V3 (Intel Xeon E5-2698 v4)

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Test sponsor: Huawei
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Test date: Mar-2016
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Platform Notes (Continued)

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. 3.09 02/17/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 6.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runcmd command is linked through numactl i.e.:
n numa 1 --interleave=all runcmd <etc>
The Huawei XH620 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 -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
Huawei XH628 V3 (Intel Xeon E5-2698 v4)

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

**Test sponsor:** Huawei
**Hardware Availability:** Mar-2016
**Software Availability:** Mar-2016

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### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX=IA32</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
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<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

### Base Optimization Flags

**C benchmarks:**
- `xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`  
  - `opt-mem-layout-trans=3`

**C++ benchmarks:**
- `xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`  
  - `opt-mem-layout-trans=3 -W1,-z,muldefs -L/sh -lsmartheap`

### Base Other Flags

**C benchmarks:**
- `-Dalloca=_alloca`

### Peak Compiler Invocation

**C benchmarks (except as noted below):**
- `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`
- `icc -m64`

400.perlbench: `icc -m64`
Huawei XH628 V3 (Intel Xeon E5-2698 v4)

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

Test date: Mar-2016
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Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

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) -auto-ilp32

401.bzip2: -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 -auto-ilp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

Continued on next page
SPEC CINT2006 Result

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<thead>
<tr>
<th>Huawei XH628 V3 (Intel Xeon E5-2698 v4)</th>
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Peak Optimization Flags (Continued)

```plaintext
429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2\(\text{pass 2}\) -prof-gen:threadsafe(pass 2)
            -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
            -opt-mem-layout-trans=3
456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
458.sjeng: -xCORE-AVX2\(\text{pass 2}\) -prof-gen:threadsafe(pass 1)
            -ipo\(\text{pass 2}\) -O3(pass 2) -no-prec-div\(\text{pass 2}\)
            -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
            -auto-ilp32
462.libquantum: basepeak = yes
464.h264ref: basepeak = yes
```

C++ benchmarks:

```plaintext
471.omnetpp: -xCORE-AVX2\(\text{pass 2}\) -prof-gen:threadsafe(pass 1)
            -ipo\(\text{pass 2}\) -O3\(\text{pass 2}\) -no-prec-div\(\text{pass 2}\)
            -par-num-threads=1(pass 1) -prof-use(pass 2) -ansi-alias
            -opt-mem-layout-strategy=block -Wl,-z,muldefs
            -l/sh = marcheap
473.astar: basepeak = yes
483.xalancbmk: basepeak = yes
```

Peak Other Flags

C benchmarks:

```plaintext
53.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
Huawei

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

- http://www.spec.org/cpu2006/flags/Intel-ic15.0-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.
Originally published on 19 April 2016.