Huawei XH620 V3 (Intel Xeon E5-2650L v4)

<table>
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<td></td>
</tr>
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</table>

**Hardware**

- **CPU**:
  - CPU Name: Intel Xeon E5-2650L v4
  - CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
  - CPU MHz: 1700
  - FPU: Integrated
  - CPU(s) enabled: 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: 35 MB I+D on chip per chip
  - Other Cache: None
  - Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
  - Disk Subsystem: 1 x 1000 GB SATA, 7200rpm
  - Other Hardware: None

**Software**

- **Operating System**:
  - Red Hat Enterprise Linux Server release 7.0 (Maipo)
- **Compiler**:
  - C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
- **Auto Parallel**:
  - No
- **File System**:
  - ext4
- **System State**:
  - Run level 3 (multi-user)
- **Base Pointers**:
  - 32-bit
- **Peak Pointers**:
  - 32/64-bit
- **Other Software**:
  - Microquill SmartHeap V10.2

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 and the SPEC Open Systems Group policy on general availability.
**Huawei**

Huawei XH620 V3 (Intel Xeon E5-2650L v4)

**SPECint_rate2006** = NC  
**SPECint_rate_base2006** = NC

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

**Results Table**

<table>
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</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

Baseboard Management Controller used to adjust the fan speed to 100%

Sysinfo program /spec16/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1

running on localhost.localdomain Sat Apr 2 10:29:41 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>.
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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 E5-2650L v4@ 1.70GHz
2 "physical id"s (chips)
56 "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 : 7
siblings : 14
physical 0: cores 0 2 3 4 5 6 9 10 11 12 13 14
physical 1: cores 0 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 17920 KB

From /proc/meminfo
MemTotal: 263566036 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
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:/o:redhat:enterprise_linux:7.0:GA:server
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 -a:
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 Mar 30 06:06

SPEC is set to: /spec16

Non-Compliant
# SPEC CINT2006 Result

## Huawei

### Huawei XH620 V3 (Intel Xeon E5-2650L v4)

**SPECint_rate2006 = NC**  
**SPECint_rate_base2006 = NC**

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<td>Tested by:</td>
<td>Huawei</td>
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---

### Platform Notes (Continued)

```
/dev/sda2     ext4  913G  108G  759G  13% /
```

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 02/22/2016
- 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 7.
- 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
```
- 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 -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

Huawei XH620 V3 (Intel Xeon E5-2650L v4)

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Base Portability Flags

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</tr>
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<td>-D_FILE_OFFSET_BITS=64</td>
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<td>483.xalancbmk</td>
<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 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

<table>
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<tr>
<td>403.gcc</td>
<td>-Dalloca=_alloca</td>
</tr>
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</table>

Peak Compiler Invocation

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

Continued on next page
Huawei

Huawei XH620 V3 (Intel Xeon E5-2650L v4)

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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: basepeak = yes
Huawei

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Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
             -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(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
             -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -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
              -ansi-alias

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) -ansi-alias
              -opt-mem-layout-strategy=block -Wl,-z,muldefs
              -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca
**SPEC CINT2006 Result**

**Huawei**

**Huawei XH620 V3 (Intel Xeon E5-2650L v4)**

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The flags files that were used to format this result can be browsed at:

- 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

Non-Compliant

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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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