## SPEC® CINT2006 Result

### Huawei

**Huawei XH620 V3 (Intel Xeon E5-2690 v4)**

<table>
<thead>
<tr>
<th>Test sponsor:</th>
<th>Huawei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by:</td>
<td>Huawei</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175  
**Test date:** Feb-2016  
**Hardware Availability:** Mar-2016  
**Software Availability:** Aug-2015

### 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 [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).

### 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:** 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

### Hardware

- **CPU Name:** Intel Xeon E5-2690 v4  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz  
- **CPU MHZ:** 2600  
- **FPU:** Integrated  
- **CPU(s) enabled:** 28 cores, 2 chips, 14 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:** 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 500GB SATA, 10000 RPM  
- **Other Hardware:** None

### Tests

- 400.perlbench
- 401.bzip2
- 403.gcc
- 429.mcf
- 445.gobmk
- 456.hmmer
- 458.sjeng
- 462.libquantum
- 464.h264ref
- 471.omnetpp
- 473.astar
- 483.xalancbmk
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.

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>473.astar</td>
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</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 Snooze 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 Mon Feb 22 10:56:40 2016

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page
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.

Platform Notes (Continued)

From /proc/cpuinfo

model name: Intel(R) Xeon(R) CPU E5-2690 v4 @ 2.60GHz
2 "physical id"s (chips)
28 "processors"
cores, siblings (Caution: counting these is both hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores: 14
siblings: 14
physical 0: cores 0 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 2 3 4 5 6 8 9 10 11 12 13 14
cache size: 35840 KB

From /proc/meminfo
MemTotal: 263569784 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_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)

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 Feb 22 04:59

SPEC is set to: /spec16
Test sponsor: Huawei
Hardware Availability: Mar-2016
Software Availability: Aug-2015

CPU2006 license: 3175
Test date: Feb-2016

SPECint2006 = NC
SPECint_base2006 = NC

Huawei XH620 V3 (Intel Xeon E5-2690 v4)

Tested by: Huawei

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 449G 109G 341G 25% /
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 the SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

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 = "28"

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
- 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.

The results have been measured on a Huawei XH620 V3 model.

C benchmarks:
- icc -m64

C++ benchmarks:
- icpc -m64
Huawei
Huawei XH620 V3 (Intel Xeon E5-2690 v4)

SPECint2006 = NC
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Base Portability Flags
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_Y64
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 -lh -lmarsheap64

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
Huawei

Huawei XH620 V3 (Intel Xeon E5-2690 v4)

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<tr>
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<tr>
<td>SPECint_base2006</td>
<td>NC</td>
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Peak Compiler Invocation (Continued)

473.astar: icpc -m64

Peak Portability Flags

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<tr>
<td>400.perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</td>
</tr>
<tr>
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<td>-DSPEC_CPU_LP64</td>
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<td>403.gcc</td>
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<td>483.xalancbmk</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
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Peak Optimization Flags

C benchmarks:

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<tbody>
<tr>
<td>400.perlbench</td>
<td>-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 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</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 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</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-xCORE-AVX2 -ipo -03 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>basepeak = yes</td>
</tr>
</tbody>
</table>

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Huawei

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SPECint_base2006 = NC

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Peak Optimization Flags (Continued)

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
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