Huawei

Huawei XH622 V3 (Intel Xeon E5-2695 v4)

**SPECint**<sup>®</sup>2006 = NC

**SPECint**<sub>base</sub>2006 = NC

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

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

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>perlbench</td>
<td></td>
</tr>
<tr>
<td>401</td>
<td>bzip2</td>
<td></td>
</tr>
<tr>
<td>403</td>
<td>gcc</td>
<td></td>
</tr>
<tr>
<td>429</td>
<td>mcf</td>
<td></td>
</tr>
<tr>
<td>445</td>
<td>gobmk</td>
<td></td>
</tr>
<tr>
<td>456</td>
<td>hmmer</td>
<td></td>
</tr>
<tr>
<td>458</td>
<td>sjeng</td>
<td></td>
</tr>
<tr>
<td>462</td>
<td>libquantum</td>
<td></td>
</tr>
<tr>
<td>471</td>
<td>omnetpp</td>
<td></td>
</tr>
<tr>
<td>473</td>
<td>astar</td>
<td></td>
</tr>
<tr>
<td>483</td>
<td>xalancbmk</td>
<td></td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating System:</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td></td>
<td>Compiler:</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td></td>
<td>Auto Parallel:</td>
<td>Yes</td>
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<tr>
<td></td>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td></td>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td></td>
<td>Base Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td></td>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
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<tr>
<td></td>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>
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**SPECint_base2006 = NC**

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Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Aug-2015

**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.**

The config file option 'submit' was used.

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</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>
<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.

**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 Mon Mar 7 20:38:35 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
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Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2695 v4 @ 2.10GHz
2 "physical id"s (chips)
36 "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 : 18
siblings : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 46080 KB

From /proc/meminfo
MemTotal: 263568856 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 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 7 05:14

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 449G 139G 311G 31% /

Additional information from dmidecode:
Continued on next page
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**Tested by:** Huawei

**Software Availability:** Aug-2015

**Platform Notes (Continued)**

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:

- `KMP_AFFINITY = "granularity=fine,compact,1,0"`
- `LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"`
- `OMP_NUM_THREADS = "36"`

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.

The results 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_X64
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 -I. -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:
403.sjeng -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

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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_LP64
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: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
            -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
429.mcf:  -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
            -opt-malloc-options=3 -auto-ilp32
445.gobmk: basepeak = yes

Continued on next page
SPEC CINT2006 Result

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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 1)
      -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

    493.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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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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