**SPEC® CINT2006 Result**

**Huawei**

Huawei CH222 V3 (Intel Xeon E5-2697 v4)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>SPECint_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: Feb-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).

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**Copies**

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

**Hardware**

| CPU Name: Intel Xeon E5-2697 v4  
| CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
| CPU MHz: 2300  
| FPU: Integrated  
| CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip, 2 threads/core  
| 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: 45 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 600GB SAS, 10000 RPM  
| 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: xfs  
| System State: Run level 3 (multi-user)  
| Base Pointers: 32-bit  
| Peak Pointers: 32/64-bit  
| Other Software: Microquill SmartHeap V10.2 |
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
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<th>Ratio</th>
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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 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 /spec/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1 running on localhost.localdomain Wed Nov 5 22:14:50 2014

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

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 <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 CH222 V3 (Intel Xeon E5-2697 v4)

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**SPECint_rate2006 = NC**

**SPECint_rate_base2006 = NC**

**Huawei CH222 V3 (Intel Xeon E5-2697 v4)**

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**Test sponsor:** Huawei

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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 E5-2697 v4 @ 2.30GHz
  2 "physical id"s (chips)
  72 "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 : 9
siblings : 18
 physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
 physical 1: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 23040 KB
```

From /proc/meminfo

```
MemTotal:       263564176 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_NAME="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
```

```
run-level 3 Nov 5 10:50
```

**SPEC is set to:** /spec/spec16

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>549G</td>
<td>75G</td>
<td>475G</td>
<td>14%</td>
<td>/</td>
</tr>
</tbody>
</table>

Continued on next page
Huawei

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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. 7.11 02/14/2016
Memory:
8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/spec16/libs/32:/spec/spec16/libs/64:/spec/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.:
numactl --interleave=all runspec <etc>
The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.
Results have been measured on a Huawei CH121 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
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## Peak Compiler Invocation (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Compiler Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>401.bzip2</td>
<td>icc -m64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>icc -m64</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>icc -m64</td>
</tr>
</tbody>
</table>

C++ benchmarks:

```bash
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

## Peak Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Portability Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</code></td>
</tr>
<tr>
<td>401.bzip2</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</code></td>
</tr>
<tr>
<td>403.gcc</td>
<td><code>-D_FILE_OFFSET_BITS=64</code></td>
</tr>
<tr>
<td>429.mcf</td>
<td><code>-D_FILE_OFFSET_BITS=64</code></td>
</tr>
<tr>
<td>445.gobmk</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</code></td>
</tr>
<tr>
<td>456.hmmer</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</code></td>
</tr>
<tr>
<td>458.sjeng</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</code></td>
</tr>
<tr>
<td>462.libquantum</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</code></td>
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<tr>
<td>464.h264ref</td>
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<td><code>-D_FILE_OFFSET_BITS=64</code></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td><code>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</code></td>
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## Peak Optimization Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Optimization Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td><code>-xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1</code></td>
</tr>
<tr>
<td></td>
<td><code>-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)</code></td>
</tr>
<tr>
<td></td>
<td><code>-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32</code></td>
</tr>
<tr>
<td>401.bzip2</td>
<td><code>-xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1</code></td>
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<td><code>-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)</code></td>
</tr>
<tr>
<td></td>
<td><code>-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch</code></td>
</tr>
<tr>
<td></td>
<td><code>-auto-ilp32 -ansi-alias</code></td>
</tr>
<tr>
<td>403.gcc</td>
<td><code>-xCORE-AVX2 -ipo -O3 -no-prec-div</code></td>
</tr>
</tbody>
</table>
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Peak Optimization Flags (Continued)

429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2 (pass 2) -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-optim-mem-layout-trans=3
456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll12 -auto-ilp32
458.sjeng: -xCORE-AVX2 (pass 2) -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-O3 -no-prec-div -unroll2
-auto-ilp32
462.libquantum: basepeak = yes
464.h264ref: -xCORE-AVX2 (pass 2) -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-O3 -no-prec-div -unroll2
-auto-ilp32

C++ benchmarks:
471.omnetpp: -xCORE-AVX2 (pass 2) -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-O3 -no-prec-div -unroll2
-auto-ilp32
-ansi-alias
-L/sh1s-martheap
472.astar: basepeak = yes
492.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Non-compliant
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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.

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