Huawei 5288 V3 (Intel Xeon E5-2695 v4)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = NC</th>
<th>SPECint_rate_base2006 = NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license: 3175</td>
<td>Test date: Apr-2016</td>
</tr>
<tr>
<td>Test sponsor: Huawei</td>
<td>Hardware Availability: Mar-2016</td>
</tr>
<tr>
<td>Tested by: Huawei</td>
<td>Software Availability: Aug-2015</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
</tr>
<tr>
<td>401.bzip2</td>
</tr>
<tr>
<td>403.gcc</td>
</tr>
<tr>
<td>429.mcf</td>
</tr>
<tr>
<td>445.gobmk</td>
</tr>
<tr>
<td>456.hmmer</td>
</tr>
<tr>
<td>458.sjeng</td>
</tr>
<tr>
<td>462.libquantum</td>
</tr>
<tr>
<td>464.h264ref</td>
</tr>
<tr>
<td>471.omnetpp</td>
</tr>
<tr>
<td>473.astar</td>
</tr>
<tr>
<td>483.xalancbmk</td>
</tr>
</tbody>
</table>

**Hardware**
- CPU Name: Intel Xeon E5-2695 v4
- CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
- CPU MHz: 2100
- 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 500GB SATA, 7200 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 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.

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 Thu Apr 14 18:05:28 2016

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>.

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 E5-2695 v4 @ 2.10GHz
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*

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"
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

time -t
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 Apr 14 05:48

SPEC is set to: /spec16

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 449G 137G 313G 31% /

Non-compliant
Huawei

Huawei 5288 V3 (Intel Xeon E5-2695 v4)

SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

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)

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. 3.12 03/03/2016
Memory:
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 = "/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 7.1
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
runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>

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
### SPEC CINT2006 Result

**Huawei**

Huawei 5288 V3 (Intel Xeon E5-2695 v4)

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

**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Tested by:** Huawei

**Test date:** Apr-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).

### 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>
<td>403.gcc</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>436.gobmk</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>473.astar</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<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>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>403.gcc</td>
<td>-Dalloca=_alloca</td>
</tr>
</tbody>
</table>

### Peak Compiler Invocation

C benchmarks (except as noted below):

```sh
icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

400.perlbench: `icc -m64`
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.

Peak Compiler Invocation (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Compiler Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>401.bzip2</td>
<td><code>icc -m64</code></td>
</tr>
<tr>
<td>456.hmmer</td>
<td><code>icc -m64</code></td>
</tr>
<tr>
<td>458.sjeng</td>
<td><code>icc -m64</code></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>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>
</tr>
<tr>
<td>464.h264ref</td>
<td><code>-D_FILE_OFFSET_bits=64</code></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td><code>-D_FILE_OFFSET_bits=64</code></td>
</tr>
<tr>
<td>473.astar</td>
<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>
</tr>
</tbody>
</table>

Peak Optimization Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
</table>
| 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`                                   |
Huawei

Huawei 5288 V3 (Intel Xeon E5-2695 v4)

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

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

Test date: Apr-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 <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>.

### 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)` `-unroll14` `-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)` `-unroll12` `-ansi-alias`

#### C++ benchmarks:

- **471.omnetpp**: `-xCORE-AVX2 (pass 2)` `-prof-gen:threadsafe (pass 1)` `-ipo (pass 1) -O3 (pass 2) -no-prec-div (pass 2)` `-par-num-threads=1 (pass 1)` `-prof-use (pass 2)` `-ansi-alias` `-opt-mem-region-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`
Huawei

Huawei 5288 V3 (Intel Xeon E5-2695 v4)

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

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

Test date: Apr-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 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

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 29 June 2016.