Huawei 5288 V3 (Intel Xeon E5-2609 v4)

| SPECint_rate2006 | NC |
| SPECint_rate_base2006 | NC |

---

**Copies**

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

---

**Hardware**

- **CPU Name:** Intel Xeon E5-2609 v4
- **CPU Characteristics:**
  - CPU MHz: 1700
  - FPU: Integrated
  - CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 MB I+D on chip per chip
  - Other Cache: None
  - Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)
  - Disk Subsystem: 1 x 500 GB SATA, 7200 RPM

---

**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:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V10.2

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**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.

Non-Compliant
Huawei
Huawei 5288 V3(Intel Xeon E5-2609 v4)

**SPEC CINT2006 Result**

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<th>Benchmark</th>
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<td>429.mcf</td>
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<tr>
<td>458.sjeng</td>
<td>16</td>
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<tr>
<td>462.libquantum</td>
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<td>NC</td>
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</tr>
<tr>
<td>464.h264ref</td>
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<td>NC</td>
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<tr>
<td>471.omnetpp</td>
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<tr>
<td>473.astar</td>
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<td>NC</td>
</tr>
<tr>
<td>483.xalancbmk</td>
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<td>NC</td>
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<td>NC</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 Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Mar 25 23:08:18 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 SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.**

Non-Compliant
Huawei 5288 V3 (Intel Xeon E5-2609 v4)

Huawei

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

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Platform Notes (Continued)

From /proc/cpuinfo
model name: Intel(R) Xeon(R) CPU E5-2609 v4 @ 1.70GHz
2 "physical id"s (chips)
16 "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: 8
siblings: 8
physical 0: cores 0 2 3 4 5 6 7
physical 1: cores 0 2 3 4 5 6
cache size: 20480 KB

From /proc/meminfo
MemTotal: 263571176 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

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

SPEC is set to: /spec16

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 443G 25G 418G 6% /

Continued on next page
Huawei

Huawei 5288 V3 (Intel Xeon E5-2609 v4)

SPECrate2006 = NC
SPECint_rate_base2006 = NC

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

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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. 3.09 02/22/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 1867 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1867 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 7.1
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 numacll 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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Huawei

Huawei 5288 V3(Intel Xeon E5-2609 v4)

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

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

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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>445.gobmk</td>
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</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

C benchmarks:
-Dstack=alloca -Dalloca=_alloca

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
SPEC CINT2006 Result

Huawei
Huawei 5288 V3(Intel Xeon E5-2609 v4)

<table>
<thead>
<tr>
<th>SPECint_rate2006 =</th>
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<td>SPECint_rate_base2006 =</td>
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Tested by: Huawei

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Peak Compiler Invocation (Continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Flags</th>
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<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

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<tbody>
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<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>
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<td>429.mcf</td>
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<td>445.gobmk</td>
<td><code>-D_FILE_OFFSET_BITS=64</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_LINUX</code></td>
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<tr>
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Peak Optimization Flags

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<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>
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<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>
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<td><code>-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch</code></td>
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<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>
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Non Compliant
Huawei

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CPU2006 license: 3175
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Software Availability: Mar-2016

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**Peak Optimization Flags (Continued)**

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<tr>
<th>Benchmark</th>
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<td>429.mcf</td>
<td>basepeak = yes</td>
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<tr>
<td>445.gobmk</td>
<td>-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</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-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</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>-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</td>
</tr>
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<td>C++ benchmarks:</td>
<td></td>
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<tr>
<td>471.omnetpp</td>
<td>-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-region-strategy=block -Wl,-z,muldefs -L/sh -lsmartheap</td>
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<tr>
<td>472.astar</td>
<td>basepeak = yes</td>
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**Peak Other Flags**

<table>
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<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>403.gcc</td>
<td>-Dalloca=_alloca</td>
</tr>
</tbody>
</table>
SPEC CINT2006 Result

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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 other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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