Huawei
Huawei 5288 V3 (Intel Xeon E5-2690 v4)

SPECint®2006 = NC
SPECint_base2006 = NC

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

Test date: Feb-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>.

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

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
**SPEC CINT2006 Result**

Huawei 5288 V3 (Intel Xeon E5-2690 v4)

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

BIO 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 Feb 22 06:09:20 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 CINT2006 Result

Huawei

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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 hard 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"
  - 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 Feb 22 04:59

SPEC is set to: /spec16
- Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 xfs 449G 107G 343G 24% /

Additional information from dmidecode:

Continued on next page
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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. 7.11 02/14/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 400 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 = "28"

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 broke through numactl i.e.:
umactl --interleave=all runspec <etc>

Base Compiler Invocation

icc  -m64
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

Non-Compliant
SPEC CINT2006 Result

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Base Portability Flags (Continued)

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
464.hmmer: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64

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 -L/sh -lsmartheap64

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
445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Continued on next page
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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -D_FILE_OFFSET_BITS=64
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 -ansi-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
403.gcc: basepeak = yes
429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

Continued on next page
### SPEC CINT2006 Result

**Huawei**

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<tr>
<td>SPECint_base2006</td>
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### Peak Optimization Flags (Continued)

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<td>-xCORE-AVX2 (pass 2) -prof-use (pass 2) -par-num-threads=1 (pass 1) -ansi-alias</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-xCORE-AVX2 (pass 2) -prof-use (pass 2) -ipq (pass 2) -O3 (pass 2) -no-prec-div (pass 2) -par-num-threads=1 (pass 1) -prof-use (pass 2) -unroll</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>basepeak = yes</td>
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### C++ benchmarks:

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<td>-xCORE-AVX2 (pass 2) -prof-use (pass 2) -ipq (pass 2) -O3 (pass 2) -no-prec-div (pass 2) -par-num-threads=1 (pass 1) -prof-use (pass 2) -opt-pre-fetch -ansi-alias -Wl,-zmuldefs -L/sh -lsmartheap</td>
</tr>
<tr>
<td>473.astar</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto 32 -Wl,-zmuldefs -L/sh -lsmartheap64</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-zmuldefs -L/sh -lsmartheap</td>
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### Peak Other Flags

**C benchmarks:**

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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/Intel-ic16.0-official-linux64.html)
- [HTTP://WWW.SPEC.ORG/CPU2006/FLAGS/HUAWEI-PLATFORM-SETTINGS-BDW-V1.0.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/Intel-ic16.0-official-linux64.xml)
- [HTTP://WWW.SPEC.ORG/CPU2006/FLAGS/HUAWEI-PLATFORM-SETTINGS-BDW-V1.0.XML](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml)
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