SPEC® CINT2006 Result

Huawei
Huawei XH628 V3 (Intel Xeon E5-2667 v4)

SPECint_rate2006 = NC
SPECint_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2016

Hardware
CPU Name: Intel Xeon E5-2667 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 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: 25 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 1000 GB SATA, 7200rpm
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: ext4
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 SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

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
Software
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### Results Table

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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 ES mode
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Mar 25 23:00:09 2016

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Hardware Availability: Mar-2016
Tested by: Huawei
Software Availability: Mar-2016

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Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by 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 E5-2667 v4@ 3.20GHz
  2 "physical id"s (chips)
  32 "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 : 16
physical 0: cores 0 3 4 8 10 1 12
physical 1: cores 0 3 4 8 10 1 12
cache size : 25600 KB

From /proc/meminfo
MemTotal:       263569324 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 25 05:47

SPEC is set to: /spec16
CONTINUED ON NEXT PAGE

Non-Compliant
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. The results have been measured on a Huawei XH620 V3 model, which are electronically equivalent.

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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Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX -IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=1

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:
-D_ALLOC=_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

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Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tr>
<td>400.perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
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<td>-D_FILE_OFFSET_BITS=64</td>
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<tr>
<td>445.gobmk</td>
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<td>483.xalancbmk</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
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Peak Optimization Flags

C benchmarks

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<td>400.perlbench</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) -auto-ilp32</td>
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<tr>
<td>401.bzip2</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) -opt-prefetch -auto-ilp32 -ansi-alias</td>
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<tr>
<td>403.gcc</td>
<td>basepeak = yes</td>
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NonCompliant
Huawei

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### 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` (pass 2)
- `-ipo -O3 -no-prec-div -unroll2 -auto-ilkp32`

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-ilkp32`

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 2)
- `-O3 (pass 2)`
- `-no-prec-div` (pass 2)
- `par-num-threads=1` (pass 1)
- `-prof-use` (pass 2)
- `-ansi-alias`
- `-opt-ra-region-strategy=block -Wl,-z,muldefs -L/sh -lsmartheap`

473.astar
- basepeak = yes

492.xalancbmk
- basepeak = yes

### Peak Other Flags

C benchmarks:

403.gcc
- `-Dalloca=_alloca`
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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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