Spec® CINT2006 Result
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Huawei
Huawei RH2288H V3 (Intel Xeon E5-2667 v4)

SPECint\_rate2006 = NC
SPECint\_rate\_base2006 = NC

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

- **Test date**: Mar-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 and the SPEC Open Systems Group policy on general availability.

### Copes
- 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 E5-2667 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 1 T 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++: 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

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

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</tr>
</tbody>
</table>

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
Sysinfo program /speccpu/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fb8667b5a285932ceab81e28219e1
running on localhost.localdomain Mon Mar 28 13:02:02 2016

This section contains SUT (System Under Test) info as seen by
Huawei RH2288H V3 (Intel Xeon E5-2667 v4)

**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3175</th>
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<tbody>
<tr>
<td>Test sponsor:</td>
<td>Huawei</td>
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<td>Tested by:</td>
<td>Huawei</td>
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</tr>
<tr>
<td>Software Availability</td>
<td>Mar-2016</td>
</tr>
</tbody>
</table>

**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 E5-2667 v4@ 3.20GHz
- 2 "physical id"s (chips)
- 32 "processors"
- cores, siblings (Caution: counting them 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 11 12
- physical 1: cores 0 3 4 8 10 11 12
- cache size: 25600 KB

From /proc/meminfo

- MemTotal: 263569320 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"
- 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 Mar 28 12:56

**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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Huawei RH2288H V3 (Intel Xeon E5-2667 v4)

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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 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 = "/speccpu/spec16/libs/32:/speccpu/spec16/libs/64:/speccpu/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 file 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

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**Software Availability:** Mar-2016

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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-posts=5

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

-opt-mem-layout-posts=5 -W1,-z,muldefs -L/sh -lsmartheap

---

**Base Other Flags**

C benchmarks:

-Dmalloc=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):

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

400.perlbench: `icc -m64`

---

**Non-Compliant**

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[Read more](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2)
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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

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
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 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
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

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) -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

Continued on next page
Huawei RH2288H V3 (Intel Xeon E5-2667 v4)  

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Software Availability: Mar-2016  
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 -unroll4 -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) -unroll2  
-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) -unroll2  
-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 -region-strategy=block -Wl,-z,muldefcs  
-L/sh -lsmartheap

474.astar: basepeak = yes

493.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/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