SPEC® CFP2006 Result

Huawei
Huawei RH2288 V3 (Intel Xeon E5-2650 v4)

| SPECfp®_rate2006 = NC | SPECfp_rate_base2006 = NC |

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2016
Tested by: Huawei
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 the SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

<table>
<thead>
<tr>
<th>Copies</th>
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<tbody>
<tr>
<td>410.bwaves</td>
</tr>
<tr>
<td>416.gamess</td>
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<tr>
<td>433.milc</td>
</tr>
<tr>
<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
</tr>
<tr>
<td>436.cactusADM</td>
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<tr>
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<td>454.calculix</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
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<td>492.lbm</td>
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<tr>
<td>481.wrf</td>
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<td>482.sphinx3</td>
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Hardware

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2650 v4</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 2.90 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>2200</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
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</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
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<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
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<tr>
<td>Secondary Cache</td>
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</tr>
<tr>
<td>L3 Cache</td>
<td>30 MB I+D on chip per chip</td>
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<td>Other Cache</td>
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Software

<table>
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<tr>
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<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
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<tr>
<td>Compiler</td>
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<tr>
<td>System State</td>
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<td>Base Pointers</td>
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<td>Peak Pointers</td>
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**SPEC CFP2006 Result**

**Huawei**

Huawei RH2288 V3 (Intel Xeon E5-2650 v4)  

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### Results Table

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<th>Ratio</th>
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<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>48</td>
<td>NC</td>
</tr>
</tbody>
</table>

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 numacltl 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"

---

Non-Compliant
SPEC CFP2006 Result

Huawei

Huawei RH2288 V3 (Intel Xeon E5-2650 v4)

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Platform Notes

Set Power Efficiency Mode to Performance
Set Snoop Mode to COD
Set Hyper-Threading to enabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb866 0a285b82ceab8e28219e1
running on localhost.localdomain Sat Jan 11 17:38:24 2014

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 E5-2650 v4@ 2.20GHz
  2 "physical id"s (chips)
  48 "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 : 6
siblings : 12
 physical 0: cores 1 2 3 4 5 8 9 10 11 12 13
 physical 1: cores 1 2 3 4 5 8 9 10 11 12 13
 cache size : 15360 KB

From /proc/meminfo
MemTotal:       263566960 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
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

Non-compliant
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Platform Notes (Continued)

```
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 Jan 10 20:18

SPEC is set to: /spec16
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sda2       ext4  913G   52G  815G   6% /

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. 7.11 02/14/2016
Memory:
    8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
    8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 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 numactl i.e.:
    numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
    icc   -m64

Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2650 v4)

| SPECfp_rate2006 | NC |
| SPECfp_rate_base2006 | NC |

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**Base Compiler Invocation (Continued)**

| C++ benchmarks: | icpc -m64 |
| Fortran benchmarks: | ifort -m64 |
| Benchmarks using both Fortran and C: | icc -m64 ifort -m64 |

**Base Portability Flags**


Continued on next page
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Base Optimization Flags (Continued)

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc   -m64

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

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc   -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
446.scaie: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -D_FILE_OFFSET_BITS=64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
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Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:
433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: -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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: -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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-malloc-options=3

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -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
-inline-level=0 -scalar-rep-

Continued on next page
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### Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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.

Tested with SPEC CPU2006 v1.2.  
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