Huawei
Huawei CH226 V3 (Intel Xeon E5-2680 v4)

| SPECfp®_rate2006 | NC |
| SPECfp_rate_base2006 | NC |

CPU2006 license: 3175  
Test date: Aug-2016  
Test sponsor: Huawei  
Hardware Availability: Mar-2016  
Tested by: Huawei  
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](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).

<table>
<thead>
<tr>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
</tr>
<tr>
<td>416.gamess</td>
</tr>
<tr>
<td>433.milc</td>
</tr>
<tr>
<td>434.zeusmp</td>
</tr>
<tr>
<td>435.gromacs</td>
</tr>
<tr>
<td>436.cactusADM</td>
</tr>
<tr>
<td>437.leslie3d</td>
</tr>
<tr>
<td>444.namd</td>
</tr>
<tr>
<td>447.dealII</td>
</tr>
<tr>
<td>450.soplex</td>
</tr>
<tr>
<td>453.povray</td>
</tr>
<tr>
<td>454.calculix</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
</tr>
<tr>
<td>465.tonto</td>
</tr>
<tr>
<td>4.0.lbm</td>
</tr>
<tr>
<td>481.wrf</td>
</tr>
<tr>
<td>482.sphinx3</td>
</tr>
</tbody>
</table>

Non-Compliant
Huawei CH226 V3 (Intel Xeon E5-2680 v4)

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.

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2680 v4</td>
<td>Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz</td>
<td>Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td>CPU MHz: 2400</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: xfs</td>
</tr>
<tr>
<td>CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Peek Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Other Software: None</td>
</tr>
<tr>
<td>L3 Cache: 35 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 500 GB SATA, 7200 RPM</td>
<td></td>
</tr>
</tbody>
</table>
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).

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>28</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>465.tonto</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>470.lbm</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>56</td>
<td>NC</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</td>
<td>NC</td>
<td>56</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 numacli 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"
SPEC CFP2006 Result

Huawei

Huawei CH226 V3 (Intel Xeon E5-2680 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test date: Aug-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
Tested by: Huawei
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 <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>.

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to COD mode
Set Patrol Scrub to Disable
Sysinfo program /spec16/config/sysinfo.rev14

$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb866 bca2855c2ceab81e28219e1
running on localhost.localdomain Mon Aug  1 09:42:02 2016

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 E5-2680 v4@ 2.40GHz
  2 "physical id"s (chips)
  56 "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 : 14
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 17920 KB

From /proc/meminfo
MemTotal: 63564516 kB
HugePages_Total: 0
HugePages_Free: 2048 kB

From /etc/*release* /etc/*version*
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME=cpe:/o:redhat:enterprise_linux:7.2:GA:server
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

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 the SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Platform Notes (Continued)

uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 30 15:50

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 535G 61G 475G 12% /

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. 8.08 01/29/2016
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 = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB 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>
SPEC CFP2006 Result

Huawei

Huawei CH226 V3 (Intel Xeon E5-2680 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test date: Aug-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
Tested by: Huawei
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 <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>.

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Non-compliant
SPEC CFP2006 Result

Huawei

Huawei CH226 V3 (Intel Xeon E5-2680 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

Test date: Aug-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.

Base Optimization Flags (Continued)

C++ benchmarks:
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -co-p32
- -ansi-alias
- -opt-mem-layout-trans=3

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 -I -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
416.cg: -DSPEC_CPU_LP64
434.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64

Continued on next page
Huawei

Huawei CH226 V3 (Intel Xeon E5-2680 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

Peak Portability Flags (Continued)

450.soplex: -D_FILE_OFFSET_BITS=64
453.povray: -DSPEC_CPU_LP64
454.cacculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
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-llp32
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
453.povray: -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) -unroll14 -ansi-alias

Fortran benchmarks:

Continued on next page
**Huawei**

**Huawei CH226 V3 (Intel Xeon E5-2680 v4)**

**CPU2006 license:** 3175  
**Test date:** Aug-2016  
**Test sponsor:** Huawei  
**Tested by:** Huawei  

**Hardware Availability:** Mar-2016  
**Software Availability:** Mar-2016

---

**Peak Optimization Flags (Continued)**

410.bwaves: basepeak = yes

416.gamess:  
-xCORE-AVX2(pass 2)  
-prof-gen:threadsafe(pass 1)  
-ipo(pass 2)  
-no-prec-div(pass 2)  
-par-num-threads=1(pass 1)  
-prof-use(pass 2)  
-unroll2  
-inline-level=0  
-scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto:  
-xCORE-AVX2(pass 2)  
-prof-gen:threadsafe(pass 1)  
-ipo(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:threadsafe(pass 1)  
-ipo(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-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/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/Huawei-Platform-Settings-BDW-V1.0.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml)

---

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](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on general availability [general](https://www.spec.org/osg/policy.html#AppendixC).
### SPEC CFP2006 Result

#### Huawei

<table>
<thead>
<tr>
<th>Huawei CH226 V3 (Intel Xeon E5-2680 v4)</th>
<th>SPECfp_rate2006 = NC</th>
<th>SPECfp_rate_base2006 = NC</th>
</tr>
</thead>
</table>

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Aug-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](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on general availability.

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. 
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.  
Originally published on 23 August 2016.