Huawei CH220 V3 (Intel Xeon E5-2643 v4)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
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<tbody>
<tr>
<td>NC</td>
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</table>

CPU2006 license: 3175  
Test sponsor: Huawei  
Test date: May-2016  
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>Benchmark</th>
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<tbody>
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<td>410.bwaves</td>
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<tr>
<td>416.gamess</td>
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<td>435.gromacs</td>
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<td>447.dealII</td>
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<td>450.soplex</td>
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<td>453.povray</td>
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<td>454.calculix</td>
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<td>459.GemsFDTD</td>
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<td>465.tonto</td>
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<td>481.wrf</td>
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Non-Compliant
Huawei

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Hardware

CPU Name: Intel Xeon E5-2643 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
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: 20 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, 7200 RPM
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64
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
Auto Parallel: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Non-Compliant
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Results Table

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

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to HS 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 Thu May  5 06:51:46 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 E5-2643 v4 @ 3.40GHz
2 "physical id"s (chips)
12 "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 : 6
physical 0: cores 0 2 3 6 7
physical 1: cores 0 2 3 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 263570480 kB
HugePages_Total: 0
Hugepagesize: 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)"
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)
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 May 5 06:51
SPEC is set to: /spec16

Continued on next page

Non-compliant
SPEC CFP2006 Result

Huawei
Huawei CH220 V3 (Intel Xeon E5-2643 v4)

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Platform Notes (Continued)

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      ext4  850G   53G  755G   7% /

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 if there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 3.09 02/22/2016
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:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "spec16/libs/32/:spec16/libs/64/:spec16/sh"
OMP_NUM_THREADS = "12"

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

Base Compiler Invocation

C benchmarks:
icc   -m64
C++ benchmarks:
icpc  -m64
Fortran benchmarks:
ifort -m64

Continued on next page
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Base Compiler Invocation (Continued)

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
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 -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
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Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

Same as Base Portability Flags

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) -03(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

Continued on next page
Huawei CH220 V3 (Intel Xeon E5-2643 v4)

**SPECfp2006 = NC**

**SPECfp_base2006 = NC**

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**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Tested by:** Huawei

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**Test date:** May-2016

**Hardware Availability:** Mar-2016

**Software Availability:** Mar-2016

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**Peak Optimization Flags (Continued)**

453.povray (continued):
- **ansi-alias**

Fortran benchmarks:

410.bwaves: basepeak = yes

416.game5ess: -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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

465.tonto: -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) -inline-calloc
- opt-prefetch -parallel -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

481.wrf: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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)

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You can also download the XML flags sources by saving the following links:

- http://www.spec.org/cpu2006/flags/Intel-icl6.0-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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