Huawei CH220 V3 (Intel Xeon E5-2650L v4)

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

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: May-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](https://www.spec.org/osg/policy.html#AppendixC).

<table>
<thead>
<tr>
<th>Application</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
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<tr>
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<tr>
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<td></td>
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<tr>
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<td></td>
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<tr>
<td>437.leslie3d</td>
<td></td>
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<tr>
<td>444.namd</td>
<td></td>
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<tr>
<td>447.dealII</td>
<td></td>
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<tr>
<td>450.soplex</td>
<td></td>
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<td>453.povray</td>
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<tr>
<td>454.calculix</td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td></td>
</tr>
</tbody>
</table>
Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

SPECfp2006 = NC
SPECfp_base2006 = NC

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

Test date: May-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.

Hardware

CPU Name: Intel Xeon E5-2650L v4
CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz: 1700
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 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 7.2 (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
## Huawei CH220 V3 (Intel Xeon E5-2650L v4)

**CPU2006 license:** 3175  
**Test date:** May-2016  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Hardware Availability:** Mar-2016  
**Software Availability:** Mar-2016

---

### SPECfp2006 = NC

**SPECfp_base2006 = NC**

 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.

---

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>410.bwaves</td>
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<td>NC</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

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### 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 Tue Jun 21 07:04:57 2016

Continued on next page

---

[Non-Compliant]
Huawei CH220 V3 (Intel Xeon E5-2650L v4)

Huawei

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

Test date: May-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 E5-2650L v4 @ 1.70GHz
- 2 "physical id"s (chips)
- 28 "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: 14
- physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
- physical 1: cores 0 1 3 4 5 7 8 9 10 11 12 13 14
- cache size: 35840 KB

From /proc/meminfo

- MemTotal: 263568496 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- os-release:
  - NAME="Red Hat Enterprise Linux Server"
  - VERSION="7.2 (Maipo)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="7.2"
- PRETEND 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 Jun 21 07:00

SPEC is set to: /spec16

Non-Compliant
SPEC CFP2006 Result

Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

SPECfp2006 = NC
SPECfp_base2006 = NC

CPU2006 license: 3175
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Platform Notes (Continued)

Filesystem     Type  Size  Used  Avail  Use%  Mounted on
/dev/sda2      ext4   850G  8.2G  799G   2%  /

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 = "28"

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
SPEC CFP2006 Result

Huawei

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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

```
icc   -m64 ifort -m64
```

Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>416.gamess</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>433.milc</td>
<td>-DSPEC_CPU_LP64</td>
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<tr>
<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
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<td>436.cactusADM</td>
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<tr>
<td>470.lbm</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
</tbody>
</table>

Base Optimization Flags

C benchmarks:

```
-CORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```

C++ benchmarks:

```
-CORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:

```
-CORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:

```
-CORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```
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Peak Compiler Invocation

<table>
<thead>
<tr>
<th>C benchmarks:</th>
<th>icc   -m64</th>
</tr>
</thead>
<tbody>
<tr>
<td>C++ benchmarks:</td>
<td>icpc -m64</td>
</tr>
<tr>
<td>Fortran benchmarks:</td>
<td>ifort -m64</td>
</tr>
<tr>
<td>Benchmarks using both Fortran and C:</td>
<td>icc -m64 ifort -m64</td>
</tr>
</tbody>
</table>

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

<table>
<thead>
<tr>
<th>C benchmarks:</th>
<th>433.milc: basepeak = yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>470.lbm: basepeak = yes</td>
</tr>
<tr>
<td></td>
<td>482.sphinx3: basepeak = yes</td>
</tr>
<tr>
<td></td>
<td>444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)</td>
</tr>
<tr>
<td></td>
<td>-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)</td>
</tr>
<tr>
<td></td>
<td>-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias</td>
</tr>
<tr>
<td></td>
<td>-auto-ilp32</td>
</tr>
<tr>
<td></td>
<td>447.dealII: basepeak = yes</td>
</tr>
<tr>
<td></td>
<td>450.soplex: basepeak = yes</td>
</tr>
<tr>
<td></td>
<td>453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)</td>
</tr>
<tr>
<td></td>
<td>-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)</td>
</tr>
<tr>
<td></td>
<td>-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4</td>
</tr>
</tbody>
</table>

Non-Compliant
SPEC CFP2006 Result

Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

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Peak Optimization Flags (Continued)

453.povray (continued):
   -ansi-alias

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
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
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
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
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.

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