Huawei CH220 V3 (Intel Xeon E5-2603 v4)

<table>
<thead>
<tr>
<th>SPECfp®_rate2006</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>NC</td>
</tr>
</tbody>
</table>

CPU2006 license: 3175  
Test date: Jan-2016  
Test sponsor: Huawei  
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](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on general availability [here](https://www.spec.org/osg/policy.html#AppendixC).

| Copies |  
|--------|---|
| 410.bwaves |  
| 416.gamess |  
| 433.milc |  
| 434.zeusmp |  
| 435.gromacs |  
| 436.cactusADM |  
| 437.leslie3d |  
| 444.namd |  
| 447.dealII |  
| 450.soplex |  
| 453.povray |  
| 454.calculix |  
| 459.GemsFDTD |  
| 465.tonto |  
| 478.lbm |  
| 481.wrf |  
| 482.sphinx3 |  

Non-Compliant
Huawei CH220 V3 (Intel Xeon E5-2603 v4)

| SPECfp_rate2006 = NC | SPECfp_rate_base2006 = NC |

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Test date:** Jun-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 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:</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:</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:</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU:</td>
<td>File System: ext4</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>Other Software: None</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>Other Hardware: None</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)</td>
</tr>
<tr>
<td>Memory:</td>
<td>Disk Subsystem: 1 x 1000 GB SATA, 7200rpm</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>CPU Name: Intel Xeon E5-2603 v4</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>CPU Characteristics: Integrated</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>FPU:</td>
<td>CPU(s) orderable: 2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>L3 Cache: 15 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

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 and the SPEC Open Systems Group policy on general availability.

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 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"
**Huawei CH220 V3 (Intel Xeon E5-2603 v4)**

**Huawei**

**Huawei CH220 V3 (Intel Xeon E5-2603 v4)**

**SPECfp_rate2006 = NC**

**SPECfp_rate_base2006 = NC**

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

---

**Platform Notes**

**BIOS configuration:**
- Set Power Efficiency Mode to Performance
- Set Snoop Mode to ES mode
- Set Patrol Scrub to Disable

**Sysinfo program:** /spec16/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb866  
running on localhost.localdomain Fri Jun  3 16:21:03 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 E5-2603 v4 @ 1.70GHz  
- 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 1 2 3 4 5
  - physical 1: cores 1 2 3 4 5
  - cache size : 15360 KB

From /proc/meminfo

- MemTotal: 65570480 kB
- Bcache: Total: 0
- HugePages: Total: 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)

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**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>.**
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.

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 Jun 3 06:55

SPEC is set to: /spec16

Filesystem   Type  Size  Used Avail Use% Mounted on
/dev/sda2    ext4  850G  126G  682G 16% /

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 Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 1867 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1867 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
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 Compiler Invocation (Continued)**

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
- 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
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```
Huawei CH220 V3 (Intel Xeon E5-2603 v4)

| CPU2006 license: | 3175 |
| Test sponsor:    | Huawei |
| Tested by:      | Huawei |
| SPECfp_rate2006 | NC    |
| SPECfp_rate_base2006 | NC |

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

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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:
  icpc -m64

- Fortran benchmarks:
  ifort -m64

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

Continued on next page
Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v4)

<table>
<thead>
<tr>
<th>SPEC CFP2006 Result</th>
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CPU2006 license: 3175
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Peak Optimization Flags (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>444.namd</td>
<td>-xCORE-AVX2</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 2) -opt-mem-layout-trans=3(pass 2)</td>
</tr>
<tr>
<td></td>
<td>-prof-use(pass 2) -fno-alias -auto-ilp32</td>
</tr>
</tbody>
</table>

Fortran benchmarks:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>416.gamess</td>
<td>-xCORE-AVX2</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 2) -prof-use(pass 2) -unroll2</td>
</tr>
<tr>
<td></td>
<td>-inl1-level=0 -ansi-alias</td>
</tr>
</tbody>
</table>

Non-Compliant
Huawei CH220 V3 (Intel Xeon E5-2603 v4)

| SPECfp_rate2006 | NC |
| SPECfp_rate_base2006 | NC |

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### Peak Optimization Flags (Continued)

- 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)

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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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