Huawei CH220 V3 (Intel Xeon E5-2609 v4)

**SPECint**\_rate2006 = NC
**SPECint\_rate\_base2006 = NC**

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

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**Copies**

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
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<tbody>
<tr>
<td>400. perlbench</td>
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<tr>
<td>401. bzip2</td>
<td></td>
</tr>
<tr>
<td>403. gcc</td>
<td></td>
</tr>
<tr>
<td>429. mcf</td>
<td></td>
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<tr>
<td>445. gobmk</td>
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<tr>
<td>456. hhmmer</td>
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<td>458. sjeng</td>
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<tr>
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<tr>
<td>473. astar</td>
<td></td>
</tr>
<tr>
<td>483. xalancbmk</td>
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</tbody>
</table>

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**Hardware**

<table>
<thead>
<tr>
<th>Spec</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel Xeon E5-2609 v4</td>
</tr>
<tr>
<td>CPU Characteristics</td>
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</tr>
<tr>
<td>CPU MHz</td>
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</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>16 cores, 2 chips, 8 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1,2 chip</td>
</tr>
<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>
<td>256 KB I+D on chip per core</td>
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<td>L3 Cache</td>
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<tr>
<td>Other Cache</td>
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<tr>
<td>Memory</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)</td>
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<tr>
<td>Disk Subsystem</td>
<td>1 x 1000 GB SATA, 7200 RPM</td>
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</table>

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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 7.2 (Maipo) 3.10.0-327.el7.x86_64</td>
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<tr>
<td>Compiler</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
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<tr>
<td>File System</td>
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<tr>
<td>System State</td>
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<td>Base Pointers</td>
<td>32-bit</td>
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<td>Peak Pointers</td>
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<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
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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 [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).
Huawei CH220 V3 (Intel Xeon E5-2609 v4) SPECint\_rate2006 = NC
SPECint\_rate\_base2006 = NC

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

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Other Hardware: None

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### Results Table

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</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 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"

### Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Set Hyper-Threading to disabled
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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)

running on localhost.localdomain Tue Jun 14 06:41:30 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 E5-2609 v4 @ 1.70GHz
  2 "physical id"s (chips)
  16 "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 : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal:       263569984 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)"
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)

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 13 07:56
Huawei
Huawei CH220 V3 (Intel Xeon E5-2609 v4)

SPECint_rate2006 = NC
SPECint_rate_base2006 = NC

Platform Notes (Continued)

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 850G 22G 786G 3% /

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

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.:
umactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

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SPEC CINT2006 Result

Huawei
Huawei CH220 V3 (Intel Xeon E5-2609 v4)

SPECint_rate2006 = NC
SPECint_rate_base2006 = NC

CPU2006 license: 5175
Test sponsor: Huawei
Tested by: Huawei

Test date: Jun-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

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Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX -IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -g -prec-div -opt-prefetch
-opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -g -prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
-Dget=alloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
400.perlbench: icc -m64

Continued on next page
Huawei

Huawei CH220 V3 (Intel Xeon E5-2609 v4)

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

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Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -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) -auto-ilp32

401.bzip2: -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) -opt-prefetch
#-auto-ilp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

Non-Compliant
Huawei CH220 V3 (Intel Xeon E5-2609 v4)

<table>
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<tr>
<th>SPECint_rate2006</th>
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<tr>
<td>SPECint_rate_base2006</td>
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CPU2006 license: 3175
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Tested by: Huawei
Test date: Jun-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

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### Peak Optimization Flags (Continued)

- **429.mcf**: basepeak = yes
- **445.gobmk**: -xCORE-AVX2 (pass 2) -prof-gen:threadsafe (pass 1) -prof-use (pass 2) -par-num-threads=1 (pass 1) -ansi-alias -opt-mem-layout-trans=3
- **456.hmmer**: -xCORE-AVX2 -ipo -O3 -no-prec-div unroll2 -auto-ii32
- **458.sjeng**: -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) -unroll14 -auto-ii32
- **462.libquantum**: basepeak = yes
- **464.h264ref**: -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) -unroll12 -ansi-alias

### C++ benchmarks:

- **471.omnetpp**: -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) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/shellsmartheap
- **473.astar**: basepeak = yes
- **492.vpl**: basepeak = yes

### Peak Other Flags

- **403.gcc**: -Dalloca=_alloca

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* http://www.spec.org/
**SPEC CINT2006 Result**

**Huawei**

Huawei CH220 V3 (Intel Xeon E5-2609 v4)

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**Test date:** Jan-2016  
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**Tested by:** Huawei  
**Hardware Availability:** Mar-2016  
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The flags files that were used to format this result can be browsed at:
- [Intel-ic16.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html)
- [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:
- [Intel-ic16.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml)
- [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 other inquiries, please contact webmaster@spec.org.

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