Huawei CH222 V3 (Intel Xeon E5-2623 v4)

**SPECfp®2006** = 92.7  
**SPECfp_base2006** = 88.8

**CPU2006 license:** 3175  
**Test date:** Nov-2016  
**Hardware Availability:** Mar-2016

**Test sponsor:** Huawei  
**Test date:** Nov-2016  
**Software Availability:** Dec-2015

**CPU Name:**  
Intel Xeon E5-2623 v4

**CPU Characteristics:**  
Intel Turbo Boost Technology up to 3.20 GHz

**CPU MHz:**  
2600

**FPU:**  
Integrated

**CPU(s) enabled:**  
8 cores, 2 chips, 4 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

**Software**

**Operating System:**  
SUSE Linux Enterprise Server 12 SP1 (x86_64)  
3.12.49.11-default

**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)

---

Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
## SPEC CFP2006 Result

### Huawei

Huawei CH222 V3 (Intel Xeon E5-2623 v4)

---

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**SPECfp_base2006 =** 88.8

### CPU2006 license:
3175

**Test date:** Nov-2016

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**Hardware Availability:** Mar-2016

**Tested by:** Huawei

**Software Availability:** Dec-2015

### L3 Cache:
10 MB I+D on chip per chip

**Base Pointers:** 64-bit

**Peak Pointers:** 32/64-bit

### Other Cache:
None

**Other Software:** None

### Memory:
512 GB (16 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)

### Disk Subsystem:
1 x 480 GB SATA SSD

### Other Hardware:
None

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td><strong>74.5</strong></td>
<td>263</td>
<td>74.0</td>
</tr>
</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 linux-1jfn Sat Nov 26 20:23:33 2016

Continued on next page
## Huawei CH222 V3 (Intel Xeon E5-2623 v4)

**SPECfp2006 =** 92.7  
**SPECfp_base2006 =** 88.8

<table>
<thead>
<tr>
<th><strong>CPU2006 license:</strong></th>
<th>3175</th>
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</thead>
<tbody>
<tr>
<td><strong>Test sponsor:</strong></td>
<td>Huawei</td>
</tr>
<tr>
<td><strong>Tested by:</strong></td>
<td>Huawei</td>
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<thead>
<tr>
<th><strong>Test date:</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware Availability:</strong></td>
<td>Mar-2016</td>
</tr>
<tr>
<td><strong>Software Availability:</strong></td>
<td>Dec-2015</td>
</tr>
</tbody>
</table>

### 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 E5-2623 v4 @ 2.60GHz
- 2 "physical id"s (chips)
  - 8 "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 : 4
    - siblings : 4
    - physical 0: cores 0 1 2 3
    - physical 1: cores 0 1 2 3
  - cache size : 10240 KB

**From /proc/meminfo**

- MemTotal: 529039308 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 1
  - # This file is deprecated and will be removed in a future service pack or release.
  - # Please check /etc/os-release for details about this release.

- os-release:
  - NAME="SLES"
  - VERSION="12-SP1"
  - VERSION_ID="12.1"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp1"

**uname -a:**

```
Linux linux-1jfn 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

**run-level 3 Nov 26 14:58**

**SPEC is set to:** /spec16

<table>
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<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
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<tbody>
<tr>
<td>/dev/sda1</td>
<td>ext4</td>
<td>394G</td>
<td>13G</td>
<td>381G</td>
<td>4%</td>
<td>/</td>
</tr>
</tbody>
</table>

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..."
Huawei CH222 V3 (Intel Xeon E5-2623 v4) SPECfp2006 = 92.7
SPECfp_base2006 = 88.8

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Nov-2016
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Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 3.32 09/14/2016
Memory:
16x Hynix HMA84GR7MFR4N-UH 32 GB 2 rank 2400 MHz, configured at 2133 MHz
8x NO DIMM NO DIMM

(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 = "8"

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>
The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.
The results have been measured on a Huawei CH121 V3 model

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

Continued on next page
Huawei

Huawei CH222 V3 (Intel Xeon E5-2623 v4)

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Test date: Nov-2016
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Software Availability: Dec-2015

Base Portability Flags (Continued)

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
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

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
Huawei

Huawei CH222 V3 (Intel Xeon E5-2623 v4)

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

Test date: Nov-2016
Hardware Availability: Mar-2016
Software Availability: Dec-2015

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) -O3(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) -O3(pass 2) -no-prec-div(pass 2)
    -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
    -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

Continued on next page
## SPEC CFP2006 Result

### Huawei

**Huawei CH222 V3 (Intel Xeon E5-2623 v4)**

<table>
<thead>
<tr>
<th>SPECfp2006</th>
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- **CPU2006 license:** 3175
- **Test sponsor:** Huawei
- **Tested by:** Huawei
- **Test date:** Nov-2016
- **Hardware Availability:** Mar-2016
- **Software Availability:** Dec-2015

### Peak Optimization Flags (Continued)

```plaintext
465.tonto (continued):
   -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:

- [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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