Huawei CH222 V3 (Intel Xeon E5-2643 v3)

SPECfp®2006 = 114
SPECfp_base2006 = 109

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

Test date: Jan-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

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
470.lbm
481.wrf
482.sphinx3

465

Hardware
CPU Name: Intel Xeon E5-2643 v3
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

Software
Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

Continued on next page
Huawei

Huawei CH222 V3 (Intel Xeon E5-2643 v3)

**SPEC CFP2006 Result**

<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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<tr>
<td>410.bwaves</td>
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<td>460</td>
<td>29.2</td>
<td>465</td>
<td>28.3</td>
<td>480</td>
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<tr>
<td>416.gamess</td>
<td>470</td>
<td>41.7</td>
<td>470</td>
<td>41.7</td>
<td>468</td>
<td>41.9</td>
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<tr>
<td>433.milc</td>
<td>123</td>
<td>74.5</td>
<td>123</td>
<td>74.5</td>
<td>123</td>
<td>74.9</td>
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<tr>
<td>434.zeusmp</td>
<td>43.2</td>
<td>211</td>
<td>43.2</td>
<td>211</td>
<td><strong>43.2</strong></td>
<td><strong>211</strong></td>
</tr>
<tr>
<td>435.gromacs</td>
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<td>52.1</td>
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<tr>
<td>436.cactusADM</td>
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<td>694</td>
<td><strong>17.3</strong></td>
<td><strong>689</strong></td>
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<td>437.leslie3d</td>
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<td><strong>262</strong></td>
<td>35.5</td>
<td>265</td>
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<tr>
<td>444.namd</td>
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<td>256</td>
<td>31.3</td>
<td>256</td>
<td>31.3</td>
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<td>447.dealII</td>
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<td>189</td>
<td>60.4</td>
<td>192</td>
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<td>450.soplex</td>
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<td>453.povray</td>
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<td>61.0</td>
<td><strong>86.9</strong></td>
<td><strong>61.2</strong></td>
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<tr>
<td>454.calculix</td>
<td>139</td>
<td>59.6</td>
<td>138</td>
<td>59.7</td>
<td><strong>138</strong></td>
<td><strong>59.6</strong></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td><strong>49.3</strong></td>
<td><strong>215</strong></td>
<td>48.6</td>
<td>218</td>
<td>50.4</td>
<td>211</td>
</tr>
<tr>
<td>465.tonto</td>
<td>206</td>
<td>47.9</td>
<td>207</td>
<td>47.6</td>
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<td><strong>47.8</strong></td>
</tr>
<tr>
<td>470.lbm</td>
<td><strong>237</strong></td>
<td><strong>579</strong></td>
<td>23.4</td>
<td>586</td>
<td>24.0</td>
<td>572</td>
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<td>481.wrf</td>
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<td>98.9</td>
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<td>97.6</td>
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<td><strong>98.1</strong></td>
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<tr>
<td>482.sphinx3</td>
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<td>89.2</td>
<td><strong>218</strong></td>
<td><strong>89.5</strong></td>
<td>218</td>
<td>89.6</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
- Set Hyper-Threading to Disabled
- Baseboard Management Controller used to adjust the fan speed to 100%

Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sun Jan 19 17:09:13 2014

This section contains SUT (System Under Test) info as seen by
Continued on next page
Huawei
Huawei CH222 V3 (Intel Xeon E5-2643 v3)

SPECfp2006 = 114
SPECfp_base2006 = 109

Platform Notes (Continued)

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 v3 @ 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 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
  cache size : 20480 KB

From /proc/meminfo
MemTotal: 263721948 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.0 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="7.0"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
  ANSI_COLOR="0;31"
  CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 19 04:30

SPEC is set to: /spec15
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root ext4 439G 21G 396G 5% /

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. 1.19 10/10/2014

Continued on next page
SPEC CFP2006 Result

Huawei

Huawei CH222 V3 (Intel Xeon E5-2643 v3)

SPECfp2006 = 114
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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Software Availability: Sep-2014

Platform Notes (Continued)

Memory:
8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 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 = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
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 models 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
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64

Continued on next page
Huawei

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Base Portability Flags (Continued)

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

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 E5-2643 v3)

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Tested by: Huawei

Test date: Jan-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -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(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Continued on next page
Huawei

Huawei CH222 V3 (Intel Xeon E5-2643 v3)

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SPECfp2006 = 114
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Test sponsor: Huawei
Tested by: Huawei

Peak Optimization Flags (Continued)

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml

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For other inquiries, please contact webmaster@spec.org.

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