Huawei CH222 V3 (Intel Xeon E5-2683 v3) SPECfp®2006 = 98.7
SPECfp_base2006 = 94.7

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

Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2683 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.00 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2000</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>28 cores, 2 chips, 14 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>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td>Compiler</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
</tbody>
</table>

Hardware Availability: Sep-2014
Software Availability: Sep-2014

Test date: Mar-2015
Tested by: Huawei

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

Continued on next page
SPEC CFP2006 Result

Huawei CH222 V3 (Intel Xeon E5-2683 v3)

Huawei

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

Huawei CH222 V3 (Intel Xeon E5-2683 v3)

SPECfp2006 = 98.7
SPECfp_base2006 = 94.7

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

CPU2006 license: 3175
Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Tested by: Huawei

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>416.gamest</td>
<td>617</td>
<td>31.7</td>
<td>614</td>
<td>31.9</td>
<td>612</td>
<td>32.0</td>
<td>553</td>
<td>35.4</td>
<td>553</td>
<td>35.4</td>
<td>554</td>
<td>35.3</td>
</tr>
<tr>
<td>433.milc</td>
<td>156</td>
<td>59.0</td>
<td>155</td>
<td>59.3</td>
<td>155</td>
<td>59.3</td>
<td>153</td>
<td>60.1</td>
<td>153</td>
<td>60.1</td>
<td>153</td>
<td>60.0</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>47.2</td>
<td>193</td>
<td>47.5</td>
<td>192</td>
<td>47.4</td>
<td>192</td>
<td>47.2</td>
<td>193</td>
<td>47.5</td>
<td>192</td>
<td>47.4</td>
<td>192</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>195</td>
<td>36.7</td>
<td>195</td>
<td>36.7</td>
<td>196</td>
<td>36.5</td>
<td>195</td>
<td>36.7</td>
<td>195</td>
<td>36.7</td>
<td>196</td>
<td>36.5</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>17.5</td>
<td>684</td>
<td>17.7</td>
<td>676</td>
<td>17.8</td>
<td>673</td>
<td>17.5</td>
<td>684</td>
<td>17.7</td>
<td>676</td>
<td>17.8</td>
<td>673</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>26.2</td>
<td>358</td>
<td>26.3</td>
<td>357</td>
<td>26.2</td>
<td>359</td>
<td>26.2</td>
<td>358</td>
<td>26.3</td>
<td>357</td>
<td>26.2</td>
<td>359</td>
</tr>
<tr>
<td>444.namd</td>
<td>316</td>
<td>25.4</td>
<td>316</td>
<td>25.3</td>
<td>316</td>
<td>25.4</td>
<td>308</td>
<td>26.0</td>
<td>308</td>
<td>26.1</td>
<td>308</td>
<td>26.1</td>
</tr>
<tr>
<td>447.dealII</td>
<td>243</td>
<td>47.0</td>
<td>241</td>
<td>47.4</td>
<td>245</td>
<td>46.7</td>
<td>243</td>
<td>47.0</td>
<td>241</td>
<td>47.4</td>
<td>245</td>
<td>46.7</td>
</tr>
<tr>
<td>450.soplex</td>
<td>214</td>
<td>39.0</td>
<td>214</td>
<td>39.0</td>
<td>214</td>
<td>38.9</td>
<td>214</td>
<td>39.0</td>
<td>214</td>
<td>39.0</td>
<td>214</td>
<td>38.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>116</td>
<td>45.7</td>
<td>116</td>
<td>45.8</td>
<td>116</td>
<td>45.9</td>
<td>104</td>
<td>51.2</td>
<td>104</td>
<td>51.0</td>
<td>107</td>
<td>49.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>187</td>
<td>44.2</td>
<td>188</td>
<td>44.0</td>
<td>187</td>
<td>44.1</td>
<td>172</td>
<td>48.1</td>
<td>168</td>
<td>49.2</td>
<td>172</td>
<td>48.0</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>49.6</td>
<td>214</td>
<td>49.4</td>
<td>215</td>
<td>51.9</td>
<td>205</td>
<td>42.3</td>
<td>251</td>
<td>42.4</td>
<td>251</td>
<td>42.6</td>
<td>249</td>
</tr>
<tr>
<td>465.tonto</td>
<td>287</td>
<td>34.3</td>
<td>285</td>
<td>34.5</td>
<td>287</td>
<td>34.3</td>
<td>232</td>
<td>42.4</td>
<td>232</td>
<td>42.4</td>
<td>232</td>
<td>42.5</td>
</tr>
<tr>
<td>470.lbm</td>
<td>20.7</td>
<td>662</td>
<td>20.8</td>
<td>660</td>
<td>20.3</td>
<td>676</td>
<td>20.7</td>
<td>662</td>
<td>20.8</td>
<td>660</td>
<td>20.3</td>
<td>676</td>
</tr>
<tr>
<td>481.wrf</td>
<td>139</td>
<td>80.6</td>
<td>139</td>
<td>80.1</td>
<td>140</td>
<td>80.0</td>
<td>139</td>
<td>80.6</td>
<td>139</td>
<td>80.1</td>
<td>140</td>
<td>80.0</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>305</td>
<td>63.9</td>
<td>305</td>
<td>63.9</td>
<td>303</td>
<td>64.3</td>
<td>305</td>
<td>63.9</td>
<td>305</td>
<td>63.9</td>
<td>303</td>
<td>64.3</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
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Mar 31 05:14:54 2015

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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 E5-2683 v3 @ 2.00GHz
- physical id's (chips)
- 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 2 3 4 5 6 8 9 10 11 12 13 14
- cache size : 35840 KB

From /proc/meminfo

- MemTotal: 263720096 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.e17.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Mar 31 05:08

SPEC is set to: /spec

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 440G 7.0G 433G 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, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Continued on next page
Huawei CH222 V3 (Intel Xeon E5-2683 v3) | SPECfp2006 = 98.7
| SPECfp_base2006 = 94.7

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2015
Tested by: Huawei
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

BIOS Insyde Corp. 1.19 10/10/2014
Memory:
- 8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
- 8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz
- 8x NO DIMM NO DIMM 3 rank

(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 = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "28"

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
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
434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
Huawei

Huawei CH222 V3 (Intel Xeon E5-2683 v3)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.7</td>
<td>94.7</td>
</tr>
</tbody>
</table>

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

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

Base Portability Flags (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>444.namd</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>447.dealII</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>450.soplex</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>453.povray</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>454.calculix</td>
<td>-nofor_main</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>465.tonto</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<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:
-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 E5-2683 v3)

SPECfp2006 = 98.7
SPECfp_base2006 = 94.7

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2015
Hardware Availability: Sep-2014
Tested by: Huawei
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)
-03(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)
-03(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)
-03(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)
-03(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)
-03(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Continued on next page
Huawei CH222 V3 (Intel Xeon E5-2683 v3)  

| SPECfp2006 = 98.7 |
| SPECfp_base2006 = 94.7 |

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: Mar-2015  
Hardware Availability: Sep-2014  
Software Availability: Sep-2014

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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.  
Originally published on 21 April 2015.