Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v3)

SPECfp®2006 = 57.1
SPECfp_base2006 = 55.4

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

SPECfp2006 = 57.1
SPECfp_base2006 = 55.4

Hardware

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>20.5</td>
</tr>
<tr>
<td>416.gamess</td>
<td>19.1</td>
</tr>
<tr>
<td>433.milc</td>
<td>39.9</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>39.4</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>24.0</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>378</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>145</td>
</tr>
<tr>
<td>444.namd</td>
<td>13.9</td>
</tr>
<tr>
<td>447.dealII</td>
<td>13.5</td>
</tr>
<tr>
<td>450.soplex</td>
<td>27.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>22.2</td>
</tr>
<tr>
<td>454.calculix</td>
<td>30.3</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>27.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td>27.7</td>
</tr>
<tr>
<td>470.lbm</td>
<td>146</td>
</tr>
<tr>
<td>481.wrf</td>
<td>25.7</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</th>
</tr>
</thead>
<tbody>
<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>ext4</td>
</tr>
</tbody>
</table>
SPEC CFP2006 Result

Huawei

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SPECfp2006 = 57.1

SPECfp_base2006 = 55.4

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

L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>54.1</td>
<td>53.1</td>
<td>51.9</td>
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</tr>
<tr>
<td>447.dealII</td>
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<td>419</td>
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<td>419</td>
</tr>
<tr>
<td>450.soplex</td>
<td>374</td>
<td>375</td>
<td>374</td>
<td>374</td>
</tr>
<tr>
<td>453.povray</td>
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<td>454.calculix</td>
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<td>285</td>
<td>285</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
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<td>72.5</td>
<td>72.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td>438</td>
<td>438</td>
<td>383</td>
<td>383</td>
</tr>
<tr>
<td>470.lbm</td>
<td>36.5</td>
<td>36.8</td>
<td>36.5</td>
<td>36.6</td>
</tr>
<tr>
<td>481.wrf</td>
<td>215</td>
<td>214</td>
<td>215</td>
<td>215</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>459</td>
<td>460</td>
<td>459</td>
<td>460</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
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Thu Feb 12 04:03:27 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v3)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
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<tr>
<td>SPECfp_base2006</td>
<td>55.4</td>
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</table>

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

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

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

model name: Intel(R) Xeon(R) CPU E5-2603 v3 @ 1.60GHz
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: 15360 KB

From /proc/meminfo

MemTotal: 263721952 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 Feb 11 19:06

SPEC is set to: /spec15

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 458G 38G 397G 9% /

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. 1.17 09/03/2014
Memory:
Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v3)

SPECfp2006 = 57.1
SPECfp_base2006 = 55.4

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

Platform Notes (Continued)

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1600 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1600 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>

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.games: -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

Continued on next page
Huawei

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Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags
Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v3)

| SPECfp2006 | 57.1 |
| SPECfp_base2006 | 55.4 |

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

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) -unroll14
- -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 -unroll14

Benchmarks using both Fortran and C:

- 435.gromacs: basepeak = yes

- 436.cactusADM: basepeak = yes

Continued on next page
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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

Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-llp32 -ansi-alias

481.wrf: basepeak = yes

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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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