Huawei CH226 V3 (Intel Xeon E5-2650 v3)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>102</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>98.0</td>
</tr>
</tbody>
</table>

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

**Hardware**
- CPU Name: Intel Xeon E5-2650 v3
- CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
- CPU MHz: 2300
- FPU: Integrated
- CPU(s) enabled: 20 cores, 2 chips, 10 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++: 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

**Operating Environment**
- Test date: Sep-2015
- Hardware Availability: Sep-2014
- Software Availability: Sep-2014

---

**SPECfp2006 Results**

<table>
<thead>
<tr>
<th>Test</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>36.5</td>
<td>98.0</td>
</tr>
<tr>
<td>416.gamess</td>
<td>67.3</td>
<td>98.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>66.0</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<tr>
<td>436.cactusADM</td>
<td>751</td>
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<tr>
<td>437.leslie3d</td>
<td>346</td>
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<tr>
<td>444.namd</td>
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<td>447.dealII</td>
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<td>450.soplex</td>
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<td>459.GemsFDTD</td>
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<td>465.tonto</td>
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Huawei
Huawei CH226 V3 (Intel Xeon E5-2650 v3)

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

SPECfp2006 = 102
SPECfp_base2006 = 98.0

L3 Cache: 25 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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
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<td>284</td>
<td>68.7</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 /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Sep 11 05:31:35 2015

This section contains SUT (System Under Test) info as seen by
Continued on next page
Huawei

Huawei CH226 V3 (Intel Xeon E5-2650 v3)

| SPECf2006 | 102 |
| SPECfp_base2006 | 98.0 |

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

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 E5-2650 v3 @ 2.30GHz
2 "physical id"s (chips)
20 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 10
siblings : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 263578908 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
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 Sep 11 05:24

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 443G 12G 408G 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. 1.36 04/09/2015
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SPEC CFP2006 Result

Huawei

Huawei CH226 V3 (Intel Xeon E5-2650 v3)

SPECfp2006 = 102
SPECfp_base2006 = 98.0

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

Platform Notes (Continued)

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=interleave,compact,1,0"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "10"

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.:
umactl --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.game5: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
447.dealII: -DSPEC_CPU_LP64

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SPEC CFP2006 Result

Huawei

Huawei CH226 V3 (Intel Xeon E5-2650 v3)

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Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags
Huawei

SPEC CFP2006 Result

Huawei CH226 V3 (Intel Xeon E5-2650 v3)

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SPECfp_base2006 = 98.0

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

Test date: Sep-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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilk32 -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) -unroll14
-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 -unroll14

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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Huawei CH226 V3 (Intel Xeon E5-2650 v3)  

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Software Availability: Sep-2014  

Peak Optimization Flags (Continued)

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 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 6 October 2015.