Huawei CH140 V3 (Intel Xeon E5-2658A v3)

**SPECfp®2006 = 99.2**

**SPECfp_base2006 = 95.6**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
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</thead>
<tbody>
<tr>
<td>410.bwaves</td>
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<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<td>436.cactusADM</td>
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<td>437.leslie3d</td>
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<tr>
<td>482.sphinx3</td>
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</tr>
</tbody>
</table>

Hardware

- **CPU Name:** Intel Xeon E5-2658A v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 24 cores, 2 chips, 12 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:** xfs
Huawei

Huawei CH140 V3 (Intel Xeon E5-2658A v3)

SPECfp2006 = 99.2
SPECfp_base2006 = 95.6

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

L3 Cache: 30 MB I+D on chip per chip
System State: Run level 3 (multi-user)
Other Cache: None
Base Pointers: 64-bit
Memory: 128 GB (8 x 16 GB 2R4 PC4-2133P-R)
Peak Pointers: 32/64-bit
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>292</td>
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<td>292</td>
<td>66.8</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 Intel Hyper-Threading to Disable
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Thu May 28 07:14:26 2015

This section contains SUT (System Under Test) info as seen by
Continued on next page
Huawei CH140 V3 (Intel Xeon E5-2658A v3)

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

Huawei

SPECfp2006 = 99.2
SPECfp_base2006 = 95.6

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 E5-2658A v3 @ 2.20GHz
  2 "physical id"s (chips)
  24 "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 : 12
  siblings : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  cache size : 30720 KB

From /proc/meminfo
  MemTotal:       131466136 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 May 28 07:09

SPEC is set to: /spec
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda2      xfs   127G   15G  113G  12% /

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. 1.38 04/30/2015

Continued on next page
Huawei

Huawei CH140 V3 (Intel Xeon E5-2658A v3)

SPECfp2006 = 99.2
SPECfp_base2006 = 95.6

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

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

---

Platform Notes (Continued)

Memory:
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 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 = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "24"

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unspec 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.gamess: -DSPEC_CPU_LP64
  433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  444.namd: -DSPEC_CPU_LP64 -nofor_main
  447.dealII: -DSPEC_CPU_LP64
  450.soplex: -DSPEC_CPU_LP64
  453.povray: -DSPEC_CPU_LP64

Continued on next page
Huawei
Huawei CH140 V3 (Intel Xeon E5-2658A v3)

SPECfp2006 = 99.2
SPECfp_base2006 = 95.6

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

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 CH140 V3 (Intel Xeon E5-2658A v3)

SPECfp2006 = 99.2
SPECfp_base2006 = 95.6

CPU2006 license: 3175
Test date: May-2015

Test sponsor: Huawei
Hardware Availability: Sep-2014

Tested by: Huawei
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-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) -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-callloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

Continued on next page
Huawei

Huawei CH140 V3 (Intel Xeon E5-2658A v3)

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