**SPEC® CFP2006 Result**

Huawei

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
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<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Apr-2016
Hardware Availability: Mar-2016
Software Availability: Aug-2015

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by [SPEC CPU rule 1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on [general availability](https://www.spec.org/osg/policy.html#AppendixC).

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Non-Compliant
**Huawei XH628 V3 (Intel Xeon E5-2699 v4)**

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**CPU2006 license:** 3175  
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### Hardware
- **CPU Name:** Intel Xeon E5-2699 v4  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz  
- **CPU MHz:** 2200  
- **FPU:** Integrated  
- **CPU(s) enabled:** 44 cores, 2 chips, 22 cores/chip, 2 threads/core  
- **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  
- **L3 Cache:** 55 MB I+D on chip per chip  
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
- **Disk Subsystem:** 1 x 500 GB SATA, 7200 RPM  
- **Other Hardware:** None

### Software
- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64  
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
- **Auto Parallel:** No  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 32/64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other Software:** None

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Non-Compliant
SPEC CFP2006 Result

Huawei

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

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Results Table

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Huawei

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

SPEC fp rate 2006 = NC
SPEC fp rate base 2006 = NC

CPU2006 license: 3175
Test date: Apr-2016
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Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to COD mode
Set Patrol Scrub to Disable
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb6b 3c3a2eb81e28219e1
running on localhost.localdomain Tue Apr 5 22:23:57 2016

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 E5-2699 v4 @ 2.20GHz
  2 "physical id"s (clips)
  88 "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 : 11
siblings : 22
physical 0: cores 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
cache size : 28160 KB

From /proc/meminfo
MemTotal: 263562320 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)
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Platform Notes (Continued)

Platform Notes (Continued)

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = /spec16/libs/32:/spec16/libs/64:/spec16/sh

The Huawei XH622 V3 and Huawei XH628 V3 and Huawei XH620 V3 are electronically equivalent.

The results have been measured on a Huawei XH620 V3 model.

Non-Compliant
Huawei XH628 V3 (Intel Xeon E5-2699 v4)

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---

**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`
- `444.namd` `-DSPEC_CPU_LP64` `-nofor_main`
- `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`
  - `-opt-prefetch`
  - `-auto-p32`
  - `-ansi-alias`
  - `-opt-mem-layout=trans=3`

---

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Base Optimization Flags (Continued)

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -no-cp32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks (except as noted below):
icpc  -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc  -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
411.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
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64

Continued on next page
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Peak Portability Flags (Continued)

450.soplex: -D_FILE_OFFSET_BITS=64
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

Peak Optimization Flags

C benchmarks:
433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
 -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -fno-alias -auto-1lp32
447.dealII: basepeak = yes
450.soplex: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
 -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -opt-malloc-options=3
453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
 -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

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Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll12 -inline-level=0 -scalar-rep
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes
465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll14 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:
435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32
436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/Flags/Huawei-Platform-Settings-BDW-V1.0.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/Flags/Huawei-Platform-Settings-BDW-V1.0.xml

You are not compliant.
**Huawei**

Huawei XH628 V3 (Intel Xeon E5-2699 v4)

- **SPECfp_rate2006 = NC**
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