**Huawei**

**Huawei 1288H V5 (Intel Xeon Platinum 8153)**

- **SPECfp®2006 =** 124
- **SPECfp_base2006 =** 119

**CPU2006 license:** 3175  
**Test date:** Jul-2017  
**Hardware Availability:** Sep-2017  
**Tested by:** Huawei  
**Software Availability:** Nov-2016

### Hardware

- **CPU Name:** Intel Xeon Platinum 8153  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.80 GHz  
- **CPU MHz:** 2000  
- **FPU:** Integrated  
- **CPU(s) enabled:** 32 cores, 2 chips, 16 cores/chip  
- **CPU(s) orderable:** 1.2 chip  
- **Primary Cache:** 32 KB L1 + 32 KB D on chip per core  
- **Secondary Cache:** 1 MB I+D on chip per core

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo)  
- **Compiler:** C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
- **Auto Parallel:** Yes  
- **File System:** xfs

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Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
Huawei 1288H V5 (Intel Xeon Platinum 8153)

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<td>100</td>
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<td>482.sphinx3</td>
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</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 Hyper-Threading to Disable
Sysinfo program /spec17/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Thu Jul 13 14:27:26 2017

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
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Platform Notes (Continued)

From /proc/cpuinfo

    model name : Intel(R) Xeon(R) Platinum 8153 CPU @ 2.00GHz
    2 "physical id"s (chips)
    32 "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 : 16
    siblings : 16
    physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    cache size : 22528 KB

From /proc/meminfo

    MemTotal:       790482140 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*

    os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.3 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.3"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
        redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
        system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

    uname -a:
        Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13
        EDT 2016 x86_64 x86_64 x86_64 GNU/Linux

    run-level 3 Jul 12 12:16

SPEC is set to: /spec17
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      xfs   898G 19G  880G  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. 0.19 06/22/2017
    Memory:
        24x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666 MHz

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**Platform Notes (Continued)**

(End of data from sysinfo program)

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**General Notes**

Environment variables set by runspec before the start of the run:
- KMP_AFFINITY = "granularity=fine,compact"
- LD_LIBRARY_PATH = "/spec17/libs/32:/spec17/libs/64:/spec17/sh10.2"
- OMP_NUM_THREADS = "32"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2
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.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
- 450.soplex: -DSPEC_CPU_LP64
- 453.povray: -DSPEC_CPU_LP64
- 454.calculix: -DSPEC_CPU_LP64 -nofor_main
- 459.GemsFDTD: -DSPEC_CPU_LP64
SPEC CFP2006 Result

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Base Portability Flags (Continued)

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 -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

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

Peak Optimization Flags

C benchmarks:

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SPEC CFP2006 Result

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Peak Optimization Flags (Continued)

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

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll2 -inline-level=0
-qopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -inline-callloc -qopt-malloc-options=3
-auto -unroll4

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

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Peak Optimization Flags (Continued)

```plaintext
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-ic17.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.xml

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