**Huawei**

**Huawei 2288H V5 (Intel Xeon Gold 5122)**

<table>
<thead>
<tr>
<th>Tested by:</th>
<th>Huawei</th>
<th>Test date:</th>
<th>Jun-2017</th>
</tr>
</thead>
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<td>Huawei</td>
<td>Hardware Availability:</td>
<td>Aug-2017</td>
</tr>
<tr>
<td>CPU2006 license:</td>
<td>3175</td>
<td>Software Availability:</td>
<td>Nov-2016</td>
</tr>
</tbody>
</table>

| **410.bwaves** | 52.8 |
| **416.gamess** | 50.0 |
| **433.milc** | 78.4 |
| **434.zeusmp** | 222 |
| **435.gromacs** | 69.3 |
| **436.cactusADM** | |
| **437.leslie3d** | 309 |
| **444.namd** | 36.5 |
| **447.dealII** | 71.0 |
| **450.soplex** | 47.6 |
| **453.povray** | 78.2 |
| **454.calculix** | 76.8 |
| **459.GemsFD** | |
| **465.tonto** | 69.1 |
| **470.lbm** | 62.6 |
| **481.wrf** | 100 |
| **482.sphinx3** | 92.9 |

**SPECfp®2006 =** 124

**SPECfp_base2006 =** 121

### Hardware

- **CPU Name:** Intel Xeon Gold 5122
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz
- **CPU MHz:** 3600
- **FPU:** Integrated
- **CPU(s) enabled:** 8 cores, 2 chips, 4 cores/chip
- **CPU(s) orderable:** 1.2 chip
- **Primary Cache:** 32 KB I + 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) 3.10.0-514.el7.x86_64
- **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/
## SPEC CFP2006 Result

**Huawei**

**Huawei 2288H V5 (Intel Xeon Gold 5122)**

| SPECfp2006 = | 124 |
| SPECfp_base2006 = | 121 |

### CPU2006 license: 3175

- **Test date:** Jun-2017
- **Hardware Availability:** Aug-2017

- **Test sponsor:** Huawei
- **Tested by:** Huawei

- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None

### Performance Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>410.bwaves</td>
<td>24.8</td>
<td>547</td>
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<tr>
<td>416.gamess</td>
<td>392</td>
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<td>435.gromacs</td>
<td>103</td>
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<td>436.cactusADM</td>
<td>17.0</td>
<td>703</td>
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<td>437.leslie3d</td>
<td>30.4</td>
<td>309</td>
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<td>444.namd</td>
<td>225</td>
<td>35.7</td>
</tr>
<tr>
<td>447.dealII</td>
<td>160</td>
<td>71.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>175</td>
<td>47.6</td>
</tr>
<tr>
<td>453.povray</td>
<td>76.7</td>
<td>69.4</td>
</tr>
<tr>
<td>454.calculix</td>
<td>107</td>
<td>77.2</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56.5</td>
<td>188</td>
</tr>
<tr>
<td>465.tonto</td>
<td>161</td>
<td>61.0</td>
</tr>
<tr>
<td>470.lbm</td>
<td>25.1</td>
<td>547</td>
</tr>
<tr>
<td>481.wrf</td>
<td>111</td>
<td>101</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>211</td>
<td>92.3</td>
</tr>
</tbody>
</table>

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

### Operating System Notes

- **Operating System Notes**
  - Stack size set to unlimited using "ulimit -s unlimited"

### Platform Notes

- **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 Tue Jun 13 05:48:15 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

Continued on next page
Huawei

Huawei 2288H V5 (Intel Xeon Gold 5122)

SPEC CFP2006 Result

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SPECfp2006 = 124
SPECfp_base2006 = 121

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

CPU2006 license: 3175
Test date: Jun-2017
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
2 "physical id"s (chips)
8 "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 : 4
siblings : 4
physical 0: cores 1 5 9 13
physical 1: cores 1 2 5 11
cache size : 16896 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 Jun 12 08:00

SPEC is set to: /spec17

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 898G 18G 881G 2% /

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. 0.13 04/11/2017
Memory:
24x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666 MHz
Continued on next page
Huawei
Huawei 2288H V5 (Intel Xeon Gold 5122)

SPECfp2006 = 124
SPECfp_base2006 = 121

CPU2006 license: 3175
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Tested by: Huawei

Platform Notes (Continued)
(End of data from sysinfo program)

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 = "8"

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
runcspe 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.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zesmp: -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

Continued on next page
Huawei 2288H V5 (Intel Xeon Gold 5122)  | SPECfp2006 = 124  | SPECfp_base2006 = 121

CPU2006 license: 3175  | Test date: Jun-2017
Test sponsor: Huawei  | Hardware Availability: Aug-2017
Tested by: Huawei  | Software Availability: Nov-2016

**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 -03 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
- -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch

Fortran benchmarks:
- -xCORE-AVX2 -ipo -03 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
- -xCORE-AVX2 -ipo -03 -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:

Continued on next page
Huawei

Huawei 2288H V5 (Intel Xeon Gold 5122)

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CPU2006 license: 3175
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Software Availability: Nov-2016

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: basepeak = yes

Continued on next page
## SPEC CFP2006 Result

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<td>Software Availability</td>
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</table>

**Peak Optimization Flags (Continued)**

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

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.