Huawei 1288H V5 (Intel Xeon Gold 6154)

SPECint®2006 = 80.0
SPECint_base2006 = 76.9

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

**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
- Auto Parallel: Yes
- File System: xfs
- System State: Run level 3 (multi-user)
- Base Pointers: 32/64-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V10.2

**Hardware**
- CPU Name: Intel Xeon Gold 6154
- CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
- CPU MHz: 3000
- FPU: Integrated
- CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip
- CPU(s) orderable: 1.2 chip
- Primary Cache: 32 KB L1 + 32 KB D on chip per core
- Secondary Cache: 1 MB L1+D on chip per core
- L3 Cache: 24.75 MB L1+D on chip per core
- Other Cache: None
- Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
- Disk Subsystem: 1 x 1200 GB SAS, 10000 RPM
- Other Hardware: None
SPEC CINT2006 Result

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>28.1</td>
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<td>28.2</td>
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<td>28.3</td>
<td>339</td>
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<td>78.0</td>
<td>88.5</td>
<td>77.8</td>
<td>88.7</td>
</tr>
</tbody>
</table>

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

Submit Notes

The config file option 'submit' was used.

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 Wed May 24 14:43:43 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

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Gold 6154 CPU @ 3.00GHz
2 "physical id"s (chips)
36 "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 : 18

Continued on next page
Platform Notes (Continued)

siblings : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
    
cache size : 25344 KB

From /proc/meminfo
  MemTotal:       394145204 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 May 24 14:36

SPEC is set to: /spec17
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda2      xfs   262G   87G  175G  34% /

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. 0.10 02/14/2017
Memory:
  24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

General Notes

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

Continued on next page
Huawei

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General Notes (Continued)

OMP_NUM_THREADS = "36"

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

Base Portability Flags

C benchmarks:
-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

C++ benchmarks:
-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
-auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -lsmartheap64
Huawei

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**SPEC CINT2006 Result**

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**Test date:** May-2017  
**Hardware Availability:** Aug-2017  
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### Base Other Flags

C benchmarks:

- 403.gcc: -Dalloca=_alloca

---

### Peak Compiler Invocation

C benchmarks (except as noted below):

- 445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
- 456.hmmer: -D_FILE_OFFSET_BITS=64
- 458.sjeng: -DSPEC_CPU_LP64

C++ benchmarks (except as noted below):

- 473.astar: icpc -m64

---

### Peak Portability Flags

- 400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
- 401.bzip2: -DSPEC_CPU_LP64
- 403.gcc: -DSPEC_CPU_LP64
- 429.mcf: -DSPEC_CPU_LP64
- 445.gobmk: -D_FILE_OFFSET_BITS=64
- 456.hmmer: -DSPEC_CPU_LP64
- 458.sjeng: -DSPEC_CPU_LP64
- 462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
- 464.h264ref: -DSPEC_CPU_LP64
- 471.omnetpp: -D_FILE_OFFSET_BITS=64
- 473.astar: -DSPEC_CPU_LP64
- 483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

---

### Peak Optimization Flags

C benchmarks:

- 400.perlbench: -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) -qopt-prefetch

- 401.bzip2: -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 -auto-ilp32 -qopt-prefetch

Continued on next page
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Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
         -qopt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -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)

456.hmmer: basepeak = yes

458.sjeng: -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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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) -qopt-ra-region-strategy=block
         -Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
         -Wl,-z,muldefs -L/sh10.2 -lsmartheap

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

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
# SPEC CINT2006 Result

## Huawei

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

Tested with SPEC CPU2006 v1.2.