Cisco Systems
Cisco UCS B200 M5 (Intel Xeon Gold 6148, 2.40 GHz)

SPECI\textsuperscript{nt}\textsuperscript{\textdegree}2006 = Not Run
SPECI\textsuperscript{nt\textsubscript{base}}2006 = 76.1

CPU\textsuperscript{2006} license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

CPU Name: Intel Xeon Gold 6148
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 40 cores, 2 chips, 20 cores/chip
CPU(s) orderable: 1.2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core
L3 Cache: 27.5 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 1 x 240 GB M.2 SATA SSD
Other Hardware: None

Hardware

Software
Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.el7.x86_64
Compiler: C/C++: Version 17.0.3.191 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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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CPU2006 license: 9019  
Test sponsor: Cisco Systems  
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Test date: Sep-2017  
Hardware Availability: Aug-2017  
Software Availability: Apr-2017

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>208</td>
<td>46.9</td>
<td>210</td>
<td>46.6</td>
<td>211</td>
<td>46.4</td>
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<td>401.bzip2</td>
<td>340</td>
<td>28.4</td>
<td>341</td>
<td>28.3</td>
<td>341</td>
<td>28.3</td>
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<td>403.gcc</td>
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<td>44.3</td>
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<td>44.3</td>
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<td>44.2</td>
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<td>429.mcf</td>
<td>112</td>
<td>81.5</td>
<td>113</td>
<td>80.8</td>
<td><strong>112</strong></td>
<td><strong>81.2</strong></td>
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<tr>
<td>445.gobmk</td>
<td>311</td>
<td>33.7</td>
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<td><strong>33.7</strong></td>
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<tr>
<td>456.hmmer</td>
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<td><strong>37.3</strong></td>
<td>326</td>
<td>37.1</td>
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<td>462.libquantum</td>
<td>2.99</td>
<td>6940</td>
<td>2.84</td>
<td>7290</td>
<td><strong>2.88</strong></td>
<td><strong>7190</strong></td>
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<td>464.h264ref</td>
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<td><strong>69.3</strong></td>
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<td>471.omnetpp</td>
<td>160</td>
<td>39.0</td>
<td>158</td>
<td>39.5</td>
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<td>473.astar</td>
<td>180</td>
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<td><strong>39.2</strong></td>
<td>178</td>
<td>39.4</td>
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<tr>
<td>483.xalancbmk</td>
<td><strong>81.4</strong></td>
<td><strong>84.7</strong></td>
<td>82.3</td>
<td>83.8</td>
<td>81.2</td>
<td>85.0</td>
<td></td>
<td></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 Settings:
Intel HyperThreading Technology set to Disabled
CPU performance set to Enterprise
Power Performance Tuning set to OS
SNC set to Disabled
IMC Interleaving set to Auto
Patrol Scrub set to Disabled
Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Fri Jan 1 03:33:21 2010

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 6148 CPU @ 2.40GHz
  2 "physical id"s (chips)
  40 "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 : 20
```

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Platform Notes (Continued)

siblings : 20
g physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
g physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
cache size : 28160 KB

From /proc/meminfo
MemTotal: 394670376 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 Jan 1 01:21

SPEC is set to: /home/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 224G 18G 206G 8% /home

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 Cisco Systems, Inc. B200M5.3.2.1d.5.0727171353 07/27/2017Cisco Systems,
Inc. B200M5.3.2.1d.5.0727171353 07/27/2017
Memory:
48x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)
The correct amount of Memory installed is 384 GB (24 x 16 GB)
and the dmidecode is reporting invalid number of DIMMs installed
Installed Memory:
24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz
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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 = "*/home/cpu2006-1.2/lib/ia32:/home/cpu2006-1.2/lib/intel64:/home/cpu2006-1.2/sh10.2"
OMP_NUM_THREADS = "40"

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

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
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: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -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
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Base 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-revF.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.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-revF.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.xml