Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECint®2006 = 84.2
SPECint_base2006 = 81.3

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Hardware
CPU Name: Intel Xeon Platinum 8180M
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 56 cores, 2 chips, 28 cores/chip
CPU(s) orderable: 1 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: 38.5 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

Software
Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.51.1.147.64
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
**SPEC CINT2006 Result**

Cisco Systems

Cisco UCS C240 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

<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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<th>Ratio</th>
<th>Seconds</th>
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<td>205</td>
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<td>204</td>
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<td>76.1</td>
<td>90.6</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 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)
runtime on rhe173 Sun Sep 10 05:17:27 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) Platinum 8180M CPU @ 2.50GHz
  2 "physical id"s (chips)
  56 "processors"

Continued on next page
Cisco Systems
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Platform Notes (Continued)

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 : 28
  siblings : 28
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
  25 26 27 28 29 30
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
  25 26 27 28 29 30
  cache size : 39424 KB

From /proc/meminfo
  MemTotal: 394866916 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=OpenStack
    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 rhel73 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 Sep 10 01:06

SPEC is set to: /home/cpu2006-1.2
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sdb5 xfs 169G 30G 139G 18% /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. C240M5.3.1.1d.0.0615170707 06/15/2017Cisco Systems,
  Inc. C240M5.3.1.1d.0.0615170707 06/15/2017
  Memory:
  48x 0xCE000 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
## Cisco Systems

Cisco UCS C240 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

| SPECint2006 | 84.2 |
| SPECint_base2006 | 81.3 |

- **CPU2006 license**: 9019  
- **Test date**: Sep-2017  
- **Test sponsor**: Cisco Systems  
- **Tested by**: Cisco Systems  
- **Hardware Availability**: Aug-2017  
- **Software Availability**: Apr-2017

### Platform Notes (Continued)

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

### 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 = "56"

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`

Continued on next page
SPEC CINT2006 Result

Cisco Systems
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Tested by: Cisco Systems

Test date: Sep-2017
Hardware Availability: Aug-2017
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Base Optimization Flags (Continued)

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

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m64
  400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
  445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks (except as noted below):
  icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
  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
Cisco Systems
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CPU2006 license: 9019
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Hardware Availability: Aug-2017
Software Availability: Apr-2017

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

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

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
- qopt-prefetch -auto-p32

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

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

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

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

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

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