Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)

SPECfp®2006 = 110
SPECfp_base2006 = 105

Hardware
CPU Name: Intel Xeon E5-2658 v4
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip
CPU(s) orderable: 1.2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Software
Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64)
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
SPEC CFP2006 Result

Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
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</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 Hyper-Threading Technology option set to Disabled
- CPU performance set to Enterprise
- Power Technology set to Energy Efficient
- Energy Performance BIAS setting set to Balanced Performance
- Memory RAS configuration set to Maximum Performance
- Memory Power Saving Mode set to Disabled
- QPI Snoop Mode set to Home Directory Snoop with OSB
- Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
Continued on next page
Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)

**SPEC CFP2006 Result**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license</td>
<td>9019</td>
</tr>
<tr>
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<td>Apr-2016</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Dec-2015</td>
</tr>
</tbody>
</table>

**Test date:** Aug-2016

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

---

**Platform Notes (Continued)**

running on linux-6mvl Sat Aug 6 04:12:16 2016

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) CPU E5-2658 v4@ 2.30GHz
- 24 physical id's (chips)
- 28 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: 14
  - siblings: 14
  - physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  - physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
- cache size: 35840 KB

From /proc/meminfo

- MemTotal: 264568284 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- SuSE-release:
  - NAME="SLES"
  - VERSION="12-SP1"
  - VERSION_ID="12.1"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

```
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Aug 5 05:51

SPEC is set to: /opt/cpu2006-1.2

**Filesystem** /dev/sdal:

- Type: xfs
- Size: 279G
- Used: 16G
- Avail: 263G
- Use%: 6%

Additional information from dmidecode:

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Continued on next page
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)  

SPECfp2006 = 110  
SPECfp_base2006 = 105

CPU2006 license: 9019  
Test date: Aug-2016  
Test sponsor: Cisco Systems  
Hardware Availability: Apr-2016  
Tested by: Cisco Systems  
Software Availability: Dec-2015

Platform Notes (Continued)

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. C220M4.2.0.10c.0.032320160810 03/23/2016  
Memory:  
16x 0xCE00 M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz  
8x NO DIMM NO DIMM  

(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 = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"  
OMP_NUM_THREADS = "28"  

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent_hugepage/enabled

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

Continued on next page
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)

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<tr>
<td>Tested by: Cisco Systems</td>
<td>Software Availability: Dec-2015</td>
</tr>
</tbody>
</table>

### Base Portability Flags (Continued)

- 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
- 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
- -opt-prefetch
- -ansi-alias

**C++ benchmarks:**
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -ansi-alias

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

**Benchmarks using both Fortran and C:**
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -parallel
- -opt-prefetch
- -ansi-alias

### 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
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2658 v4, 2.30 GHz)

SPECFp2006 = 110
SPECFp_base2006 = 105

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

Test date: Aug-2016
Hardware Availability: Apr-2016
Software Availability: Dec-2015

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

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

C++ benchmarks:
444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
           -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2)
           -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
           -auto-ilp32
447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
            -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2)
            -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
            -ansi-alias

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
            -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2)
            -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
            -inline-level=0 -scalar-rep-
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
              -inline-level=0 -opt-prefetch -parallel
465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
           -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2)
           -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

Continued on next page
## SPEC CFP2006 Result

### Peak Optimization Flags (Continued)

- 465.tonto (continued):
  - `-opt-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` `-ansi-alias`
  481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at


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