Cisco Systems
Cisco UCS B420 M3 (Intel Xeon E5-4610 v2, 2.30 GHz)

SPECfp®2006 = 71.2
SPECfp_base2006 = 67.0

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

Hardware

CPU Name: Intel Xeon E5-4610 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 1,2,3,4 chip
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: Red Hat Enterprise Linux Server release 6.4 (Santiago)
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE
for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

SPECfp2006 = 71.2

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info@spec.org
http://www.spec.org/
### SPEC CFP2006 Result

**Cisco Systems**

Cisco UCS B420 M3 (Intel Xeon E5-4610 v2, 2.30 GHz)

**SPECfp2006** = 71.2

**SPECfp_base2006** = 67.0

**CPU2006 license:** 9019  
**Test sponsor:** Cisco Systems  
**Tested by:** Cisco Systems  
**L3 Cache:** 16 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 256 GB (32 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz and CL11)  
**Disk Subsystem:** 1 X 300 GB 15000 RPM SAS  
**Other Hardware:** None  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** None

### 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>
<th>Seconds</th>
<th>Ratio</th>
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<td>24.9</td>
<td>546</td>
<td>25.8</td>
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<td>40.8</td>
<td>474</td>
<td>41.1</td>
<td>478</td>
<td>40.8</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

Intel HT Technology = Enabled  
CPU performance set to HPC  
Power Technology set to Custom  
CPU Power State C6 set to Disabled  
CPU Power State C1 Enhanced set to Disabled  
Memory RAS configuration set to Maximum Performance  
DRAM Clock Throttling Set to Performance  
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818  
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191

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Cisco Systems
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SPECf2006 = 71.2
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Platform Notes (Continued)

running on rhel6.4 Wed May 21 23:10:30 2014

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 E5-4610 v2 @ 2.30GHz
4 "physical id"s (chips)
64 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
physical 2: cores 0 1 2 3 4 5 6 7
physical 3: cores 0 1 2 3 4 5 6 7

From /proc/meminfo
MemTotal: 264498024 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
Linux rhel6.4 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 21 23:08

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 275G 69G 192G 27% /

Additional information from dmidecode:
BIOS Cisco Systems, Inc. B420M3.2.2.1.8.042120142113 04/21/2014
Memory:
32x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1600 MHz 2 rank
16x NO DIMM NO DIMM

(End of data from sysinfo program)
Cisco Systems
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Test date: May-2014
Tested by: Cisco Systems
Hardware Availability: Dec-2013
Software Availability: Sep-2013

General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"
OMP_NUM_THREADS = "64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec 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

Benchmark 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.reusmp: -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
 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
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Tested by: Cisco Systems

Base Optimization Flags

C benchmarks:
  -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
  -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
  -xAVX -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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
  433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32 -ansi-alias

  470.lbm: basepeak = yes

  482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

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Software Availability: Sep-2013

Peak Optimization Flags (Continued)

C++ benchmarks:
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
           -auto-ilp32
447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
           -inline-level=0 -scalar-rep-
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
            -inline-level=0 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
        -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -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
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revB.xml
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For other inquiries, please contact webmaster@spec.org.

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