Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

**SPECint\_rate2006 = 746**  
**SPECint\_rate\_base2006 = 722**

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**CPU2006 license:** 9019  
**Test sponsor:** Cisco Systems  
**Tested by:** Cisco Systems  
**Test date:** Nov-2013  
**Hardware Availability:** Sep-2013  
**Software Availability:** Sep-2013

<table>
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<tr>
<th>Software</th>
<th>Hardware</th>
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</table>
| **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  
**Auto Parallel:** No  
**File System:** ext4  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 32-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** Microquill SmartHeap V10.0 | **CPU Name:** Intel Xeon E5-2660 v2  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz  
**CPU MHZ:** 2200  
**FPU:** Integrated  
**CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip, 2 threads/core  
**CPU(s) orderable:** 1.2 chip  
**Primary Cache:** 32 KB I + 32 KB D on chip per core  
**Secondary Cache:** 256 KB I+D on chip per core  
**L3 Cache:** 25 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)  
**Disk Subsystem:** 1 X 200 GB SSD  
**Other Hardware:** None |
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Results Table

Benchmark | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
400.perlbench | 40 | 735 | 531 | 732 | 534 | 732 | 534 | 40 | 611 | 639 | 609 | 642 | 612 | 638
401.bzip2 | 40 | 987 | 391 | 989 | 390 | 988 | 391 | 40 | 970 | 398 | 970 | 398 | 967 | 399
403.gcc | 40 | 556 | 579 | 557 | 578 | 562 | 573 | 40 | 560 | 575 | 560 | 575 | 561 | 574
429.mcf | 40 | 324 | 1130 | 324 | 1130 | 324 | 1130 | 40 | 324 | 1130 | 324 | 1130 | 324 | 1130
445.gobmk | 40 | 787 | 533 | 788 | 533 | 788 | 533 | 40 | 786 | 534 | 767 | 547 | 786 | 534
456.hmmer | 40 | 385 | 970 | 385 | 969 | 385 | 968 | 40 | 350 | 1070 | 348 | 1070 | 349 | 1070
458.sjeng | 40 | 929 | 521 | 930 | 521 | 929 | 521 | 40 | 896 | 540 | 899 | 539 | 863 | 561
462.libquantum | 40 | 175 | 4730 | 175 | 4730 | 175 | 4730 | 40 | 175 | 4730 | 175 | 4730 | 175 | 4730
464.h264ref | 40 | 1001 | 884 | 998 | 887 | 999 | 886 | 40 | 989 | 895 | 988 | 896 | 988 | 896
471.omnetpp | 40 | 612 | 409 | 611 | 409 | 612 | 408 | 40 | 583 | 429 | 581 | 430 | 579 | 432
473.astar | 40 | 684 | 410 | 682 | 412 | 684 | 410 | 40 | 684 | 410 | 682 | 412 | 684 | 410
483.xalancbmk | 40 | 352 | 783 | 354 | 780 | 353 | 781 | 40 | 352 | 783 | 354 | 780 | 353 | 781

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

Submit Notes
The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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 Enabled
CPU Power State C1 Enhanced set to Disabled
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
LV DDR Mode set to Performance-mode
DRAM Refresh Rate Set to 1x
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Thu Nov 21 19:49:09 2013

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
Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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Platform Notes (Continued)

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2660 v2 @ 2.20GHz
   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 : 10
      siblings : 20
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
      cache size : 25600 KB

From /proc/meminfo
   MemTotal:       132123304 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 localhost.localdomain 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 Nov 21 18:35

SPEC is set to: /opt/cpu2006-1.2
   Filesystem   Type    Size  Used Avail Use% Mounted on
   /dev/sda1    ext4    182G  99G   74G  58% /

Additional information from dmidecode:
   BIOS Cisco Systems, Inc. C240M3.1.5.3b.0.082020130616 08/20/2013
   Memory:
      16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1866 MHz 2 rank
      8x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = ":/opt/cpu2006-1.2/lib32:/opt/cpu2006-1.2/lib64:/opt/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

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General Notes (Continued)

memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
  icc -m32
C++ benchmarks:
  icpc -m32

Base Portability Flags

  400.perlbench: -DSPEC_CPU_LINUX_IA32
  462.libquantum: -DSPEC_CPU_LINUX
  483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
C++ benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
  -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m32

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Peak Compiler Invocation (Continued)

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalanchbmk: basepeak = yes

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.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-V1.2.20130717.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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