# SPEC® CINT2006 Result
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## Cisco Systems

Cisco UCS C420 M3 (Intel Xeon E5-4650, 2.70 GHz)

SPECint®_rate2006 = 1230
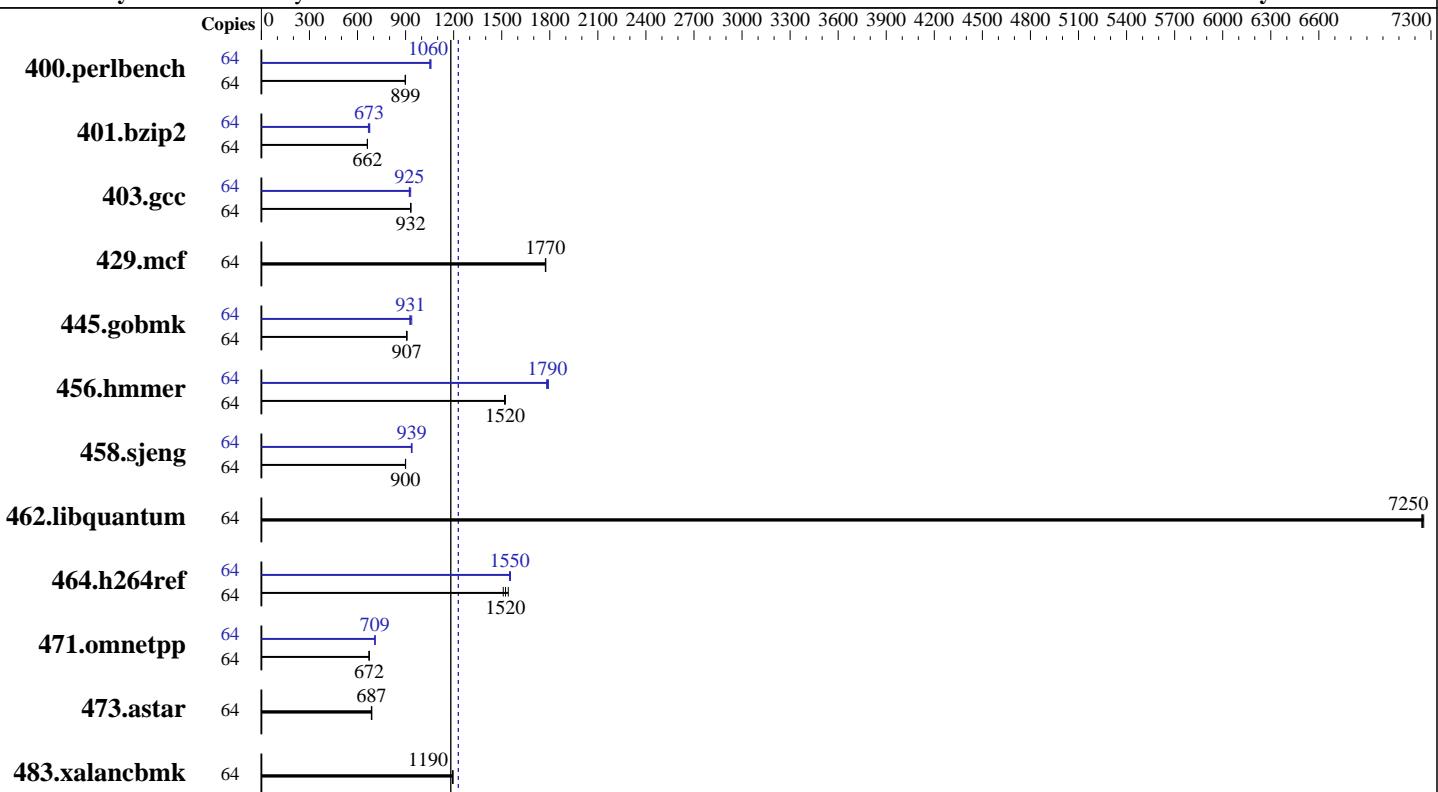
SPECint_rate_base2006 = 1180

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test date:** Jul-2012

**Hardware Availability:** Sep-2012

**Software Availability:** Feb-2012

**Copies** 0  300  600  900  1200 1500 1800 2100 2400 2700 3000 3300 3600 3900 4200 4500 4800 5100 5400 5700 6000 6300 6600  7300

| Benchmark | Copies | Peak | Base |
|-----------|--------|------|------|
| 400.perlbench | 64 | 1060 | 899 |
| 401.bzip2 | 64 | 673 | 662 |
| 403.gcc | 64 | 925 | 932 |
| 429.mcf | 64 | | 1770 |
| 445.gobmk | 64 | 931 | 907 |
| 456.hmmer | 64 | 1790 | 1520 |
| 458.sjeng | 64 | 939 | 900 |
| 462.libquantum | 64 | | 7250 |
| 464.h264ref | 64 | 1550 | 1520 |
| 471.omnetpp | 64 | 709 | 672 |
| 473.astar | 64 | | 687 |
| 483.xalancbmk | 64 | | 1190 |

SPECint_rate_base2006 = 1180

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## Hardware

**CPU Name:** Intel Xeon E5-4650

**CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz

**CPU MHz:** 2700

**FPU:** Integrated

**CPU(s) enabled:** 32 cores, 4 chips, 8 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:** 20 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)

**Disk Subsystem:** 1 X 300 Gb 15000 RPM SAS

**Other Hardware:** None

## Software

**Operating System:** Red Hat Enterprise Linux Server release 6.2 (Santiago)
2.6.32-220.el6.x86_64

**Compiler:** C/C++: Version 12.1.3.293 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 V9.01

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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 64 | 697 | 897 | **695** | **899** | 695 | 900 | 64 | **592** | **1060** | 595 | 1050 | 591 | 1060 |
| 401.bzip2 | 64 | 934 | 662 | 933 | 662 | **933** | **662** | 64 | **918** | **673** | 925 | 668 | 913 | 676 |
| 403.gcc | 64 | 552 | 934 | 553 | 931 | **553** | **932** | 64 | **557** | **925** | 558 | 923 | 553 | 932 |
| 429.mcf | 64 | **329** | **1770** | 329 | 1780 | 329 | 1770 | 64 | **329** | **1770** | 329 | 1780 | 329 | 1770 |
| 445.gobmk | 64 | 738 | 909 | 741 | 906 | **740** | **907** | 64 | 725 | 926 | 715 | 939 | **721** | **931** |
| 456.hmmer | 64 | **392** | **1520** | 392 | 1520 | 393 | 1520 | 64 | 335 | 1780 | 333 | 1790 | **334** | **1790** |
| 458.sjeng | 64 | 860 | 900 | **861** | **900** | 861 | 899 | 64 | **825** | **939** | 827 | 936 | 825 | 939 |
| 462.libquantum | 64 | 183 | 7250 | **183** | **7250** | 183 | 7240 | 64 | 183 | 7250 | **183** | **7250** | 183 | 7240 |
| 464.h264ref | 64 | **930** | **1520** | 919 | 1540 | 938 | 1510 | 64 | 914 | 1550 | 911 | 1550 | **913** | **1550** |
| 471.omnetpp | 64 | 594 | 674 | 595 | 672 | **595** | **672** | 64 | **565** | **709** | 563 | 710 | 565 | 708 |
| 473.astar | 64 | 655 | 686 | 652 | 690 | **654** | **687** | 64 | 655 | 686 | 652 | 690 | **654** | **687** |
| 483.xalancbmk | 64 | 370 | 1190 | **370** | **1190** | 369 | 1200 | 64 | 370 | 1190 | **370** | **1190** | 369 | 1200 |

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

    BIOS Configuration:
    Processor Power State C6 set to Disabled
    Processor Power State C1 Enhanced set to Disabled
    Power Technology set to Custom
    Energy Performance set to Performance
    DRAM Clock Throttling set to Performance
     Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
     $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
     running on localhost.localdomain Thu Jul 12 03:49:36 2012

     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 E5-4650 0 @ 2.70GHz
          4 "physical id"s (chips)

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## Platform Notes (Continued)

```
      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
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       264503088 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
   EST 2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 12 02:42

SPEC is set to: /opt/cpu2006-1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda1      ext4    275G  8.0G  253G   4% /

Additional information from dmidecode:
  Memory:
   32x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank

(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/libs/32:/opt/cpu2006-1.2/libs/64"
Intel HT Technology=enable
 Binaries compiled on a system with 2 X Intel Xeon E5-2690 CPU + 128 GB memory using RHEL 6.2
 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
```

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| | |
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| **Tested by:**    Cisco Systems | **Software Availability:**  Feb-2012 |

## 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/smartheap -lsmartheap

## Base Other Flags

C benchmarks:

      403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

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

   400.perlbench: icc -m64

      401.bzip2: icc -m64

    456.hmmer: icc -m64

      458.sjeng: icc -m64

C++ benchmarks:
      icpc -m32

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**Test date:** Jul-2012
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# 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

     462.libquantum: basepeak = yes

         464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                     -O3(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)
                     -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                     -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
                     -L/smartheap -lsmartheap

          473.astar: basepeak = yes
```

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# Peak Optimization Flags (Continued)

483.xalancbmk: 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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml

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

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