# SPEC® CINT2006 Result

## Cisco Systems

Cisco UCS C220 M3 (Intel Xeon E5-2667 v2, 3.30 GHz)

$SPECint®\_rate2006 = $ **806**

$SPECint\_rate\_base2006 = $ **777**

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



**Copies** — benchmark results chart:

- 400.perlbench: 32 copies = 700 (peak); 32 copies = 586 (base)
- 401.bzip2: 32 copies = 438 (peak); 32 copies = 429 (base)
- 403.gcc: 32 copies = 612 (peak); 32 copies = 611 (base)
- 429.mcf: 32 copies = 1160
- 445.gobmk: 32 copies = 588 (peak); 32 copies = 576 (base)
- 456.hmmer: 32 copies = 1200 (peak); 32 copies = 1080 (base)
- 458.sjeng: 32 copies = 592 (peak); 32 copies = 569 (base)
- 462.libquantum: 32 copies = 5160
- 464.h264ref: 32 copies = 993 (peak); 32 copies = 981 (base)
- 471.omnetpp: 32 copies = 433 (peak); 32 copies = 409 (base)
- 473.astar: 32 copies = 442
- 483.xalancbmk: 32 copies = 845

SPECint_rate_base2006 = 777

SPECint_rate2006 = 806

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2667 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 4.00 GHz |
| CPU MHz: | 3300 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 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: | 25 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC) |
| Disk Subsystem: | 1 X 300 GB 15000 RPM SAS |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.el6.x86_64 |
| 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 |

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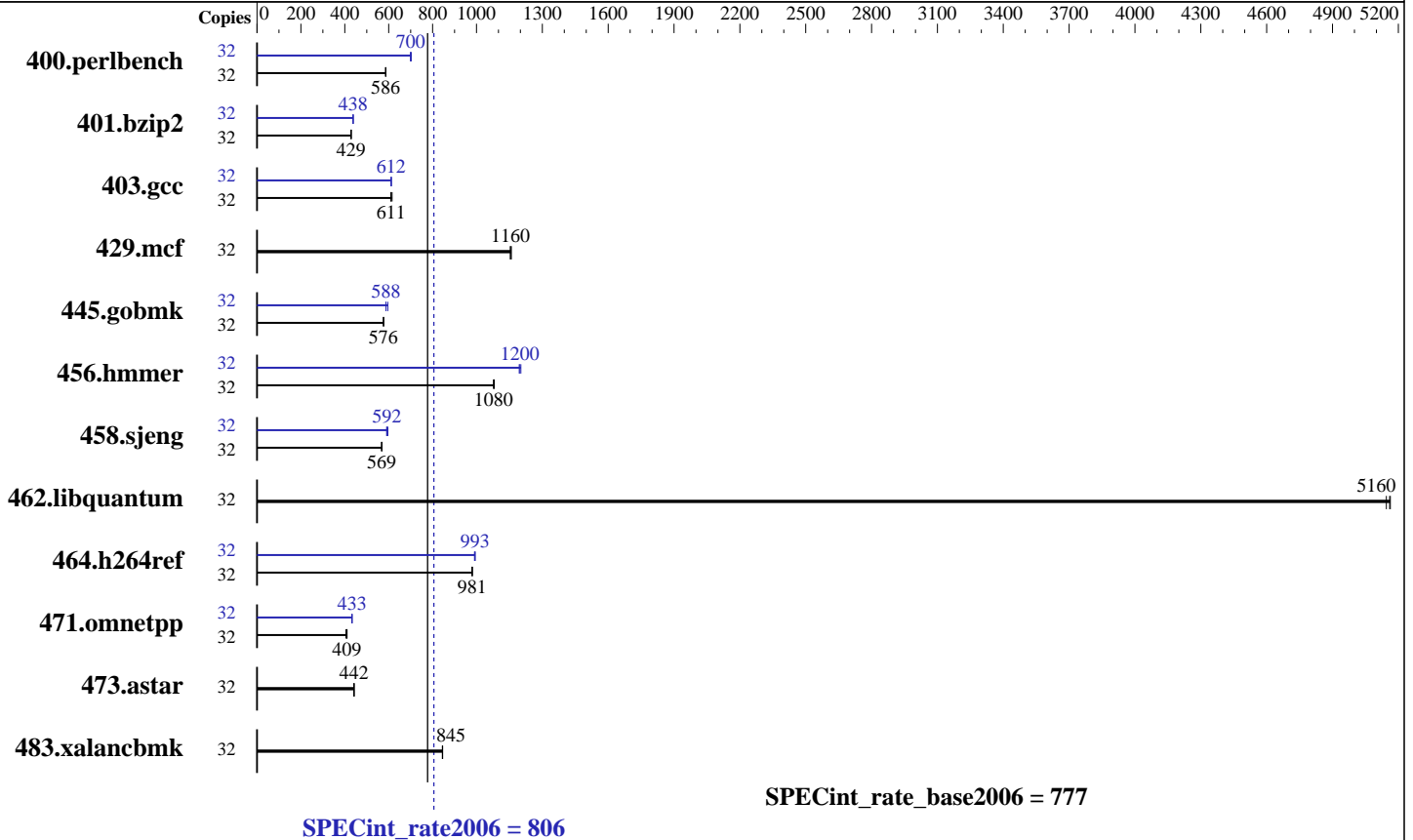
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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 32 | 533 | 587 | 534 | 586 | **533** | **586** | 32 | 447 | 699 | **447** | **700** | 445 | 703 |
| 401.bzip2 | 32 | 719 | 429 | 721 | 428 | **720** | **429** | 32 | **705** | **438** | 705 | 438 | 705 | 438 |
| 403.gcc | 32 | **422** | **611** | 419 | 615 | 422 | 610 | 32 | 421 | 612 | **421** | **612** | 422 | 611 |
| 429.mcf | 32 | 252 | 1160 | 253 | 1150 | **253** | **1160** | 32 | 252 | 1160 | 253 | 1150 | **253** | **1160** |
| 445.gobmk | 32 | 583 | 576 | **583** | **576** | 582 | 577 | 32 | 563 | 596 | **571** | **588** | 571 | 588 |
| 456.hmmer | 32 | 277 | 1080 | 276 | 1080 | **277** | **1080** | 32 | **249** | **1200** | 250 | 1190 | 248 | 1200 |
| 458.sjeng | 32 | 681 | 569 | **681** | **569** | 683 | 567 | 32 | **654** | **592** | 649 | 596 | 656 | 591 |
| 462.libquantum | 32 | 128 | 5160 | 129 | 5150 | **128** | **5160** | 32 | 128 | 5160 | 129 | 5150 | **128** | **5160** |
| 464.h264ref | 32 | 723 | 979 | 722 | 981 | **722** | **981** | 32 | **713** | **993** | 715 | 991 | 713 | 994 |
| 471.omnetpp | 32 | 494 | 405 | **489** | **409** | 488 | 410 | 32 | 461 | 433 | **462** | **433** | 462 | 433 |
| 473.astar | 32 | **508** | **442** | 509 | 441 | 507 | 443 | 32 | **508** | **442** | 509 | 441 | 507 | 443 |
| 483.xalancbmk | 32 | 261 | 846 | 261 | 845 | **261** | **845** | 32 | 261 | 846 | 261 | 845 | **261** | **845** |

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 Settings:
    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 rhel6.4-speed Thu Oct 10 03:11:07 2013

     This section contains SUT (System Under Test) info as seen by
     some common utilities.  To remove or add to this section, see:

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## Platform Notes (Continued)

```
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) CPU E5-2667 v2 @ 3.30GHz
         2 "physical id"s (chips)
         32 "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 1 2 3 4 8 9 10 11
         physical 1: cores 1 2 3 4 8 9 10 11
      cache size : 25600 KB

   From /proc/meminfo
      MemTotal:       264457864 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)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux rhel6.4-speed 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 Oct 10 03:09

   SPEC is set to: /opt/cpu2006-1.2
      Filesystem      Type     Size  Used Avail Use% Mounted on
      /dev/sdb1       ext4     275G   15G  246G   6% /

   Additional information from dmidecode:
      BIOS Cisco Systems, Inc. C220M3.1.5.2.27.071120132232 07/11/2013
      Memory:
      16x 0xAD00 HMT42GR7AFR4C-RD 16 GB 1866 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:/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)
-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/sh -lsmartheap

473.astar: basepeak = yes

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-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

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

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