SPEC® CINT2006 Result

Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint®_rate2006 =   1000

SPECint_rate_base2006 =   972

CPU2006 license: 9019	**Test date:**	Nov-2014
Test sponsor: Cisco Systems	**Hardware Availability:**	Sep-2014
Tested by: Cisco Systems	**Software Availability:**	Sep-2013

Copies 0 300 600 900 1300 1700 2100 2500 2900 3300 3700 4100 4500 4900 5300 5700 6100 6500 6900 7300 7700 8100 8500 9300

```
400.perlbench    48    916
                 48    746
401.bzip2        48    505
                 48    484
403.gcc          48    744
                 48    749
429.mcf          48    1350
445.gobmk        48    664
                 48    649
456.hmmer        48    1380
                 48    1360
458.sjeng        48    711
                 48    689
462.libquantum   48    9240
464.h264ref      48    1190
                 48    1150
471.omnetpp      48    565
                 48    546
473.astar        48    525
483.xalancbmk    48    1050
```

SPECint_rate_base2006 = 972

SPECint_rate2006 = 1000

Hardware

CPU Name:	Intel Xeon E5-2670 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
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
L3 Cache:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 300GB SAS, 15K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago)
	2.6.32-431.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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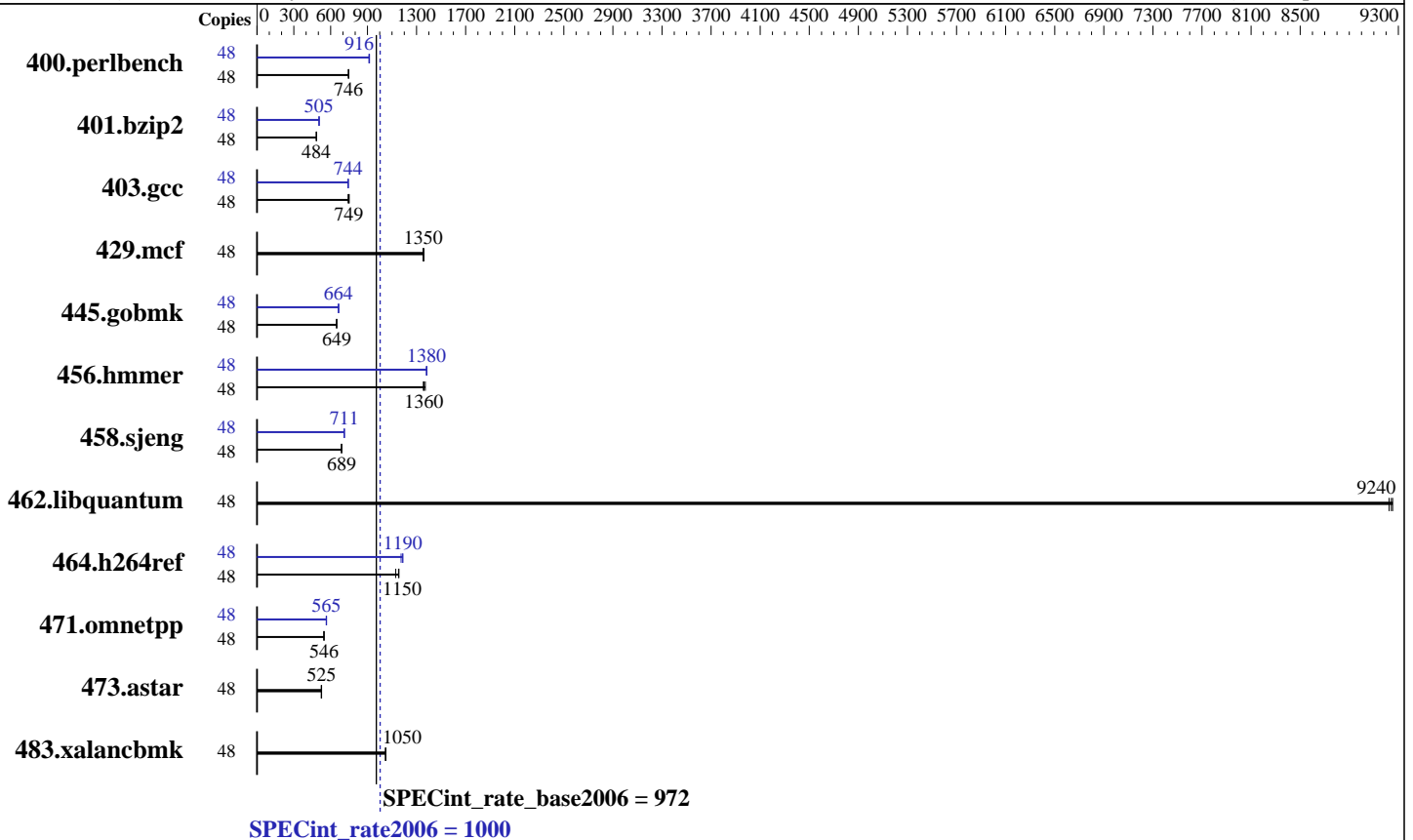**Test sponsor:** Cisco Systems
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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	629	745	**629**	**746**	628	746	48	**512**	**916**	514	912	512	917
401.bzip2	48	**957**	**484**	956	485	959	483	48	915	506	**916**	**505**	917	505
403.gcc	48	**516**	**749**	521	742	515	751	48	522	741	519	744	**519**	**744**
429.mcf	48	323	1350	**323**	**1350**	322	1360	48	323	1350	**323**	**1350**	322	1360
445.gobmk	48	775	650	**776**	**649**	776	648	48	**758**	**664**	759	663	757	665
456.hmmer	48	327	1370	330	1360	**329**	**1360**	48	325	1380	**324**	**1380**	323	1380
458.sjeng	48	**843**	**689**	843	689	842	690	48	**817**	**711**	817	711	816	712
462.libquantum	48	**108**	**9240**	108	9220	107	9250	48	**108**	**9240**	108	9220	107	9250
464.h264ref	48	918	1160	940	1130	**921**	**1150**	48	894	1190	**894**	**1190**	905	1170
471.omnetpp	48	551	544	**549**	**546**	549	547	48	532	564	**531**	**565**	529	567
473.astar	48	644	523	**641**	**525**	640	526	48	644	523	**641**	**525**	640	526
483.xalancbmk	48	**316**	**1050**	316	1050	316	1050	48	**316**	**1050**	316	1050	316	1050

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

    CPU performance set to HPC
    Power Technology set to Custom
    Processor Power State C6 set to Disabled
    Energy Performance BIAS setting set to Performance
    Memory RAS configuration set to Maximum Performance
     Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6818
     $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
     running on rhel65 Fri Nov 14 08:26:18 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 E5-2670 v3 @ 2.30GHz
          2 "physical id"s (chips)
          48 "processors"

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Platform Notes (Continued)

```
      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 : 12
         siblings  : 24
         physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
         physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
      cache size : 15360 KB

  From /proc/meminfo
     MemTotal:       264419596 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.5 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux rhel65 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
     x86_64 x86_64 GNU/Linux

  run-level 3 Nov 14 08:22

  SPEC is set to: /home/cpu2006-1.2
     Filesystem                    Type  Size  Used Avail Use% Mounted on
     /dev/mapper/vg_rhel65-lv_home ext4  221G   14G  196G   7% /home

  Additional information from dmidecode:
    BIOS Cisco Systems, Inc. C220M4.2.0.3.0.080720142114 08/07/2014
    Memory:
     16x 0xCE00 M393A2G40DB0-CPB 16 GB 2133 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 = "/home/cpu2006-1.2/libs/32:/home/cpu2006-1.2/libs/64:/home/cpu2006-1.2/sh"

 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
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
```

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General Notes (Continued)

```
  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:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
    -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xCORE-AVX2 -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
```
```
  400.perlbench: icc -m64
```
```
    401.bzip2: icc -m64
```

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Peak Compiler Invocation (Continued)

        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: `-xCORE-AVX2(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: `-xCORE-AVX2(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: `-xCORE-AVX2 -ipo -O3 -no-prec-div`

        429.mcf: `basepeak = yes`

        445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
                `-ansi-alias -opt-mem-layout-trans=3`

        456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

        458.sjeng: `-xCORE-AVX2(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: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
                `-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
                `-unroll2 -ansi-alias`

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Peak Optimization Flags (Continued)

C++ benchmarks:

> 471.omnetpp: `-xCORE-AVX2`(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-revC.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-revC.xml

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

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