



# SPEC® CINT2006 Result

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## Cisco Systems

**SPECint®2006 = 31.5**

Cisco UCS B420 M3 (Intel Xeon E5-4603, 2.00 GHz)

**SPECint\_base2006 = 29.9**

CPU2006 license: 9019

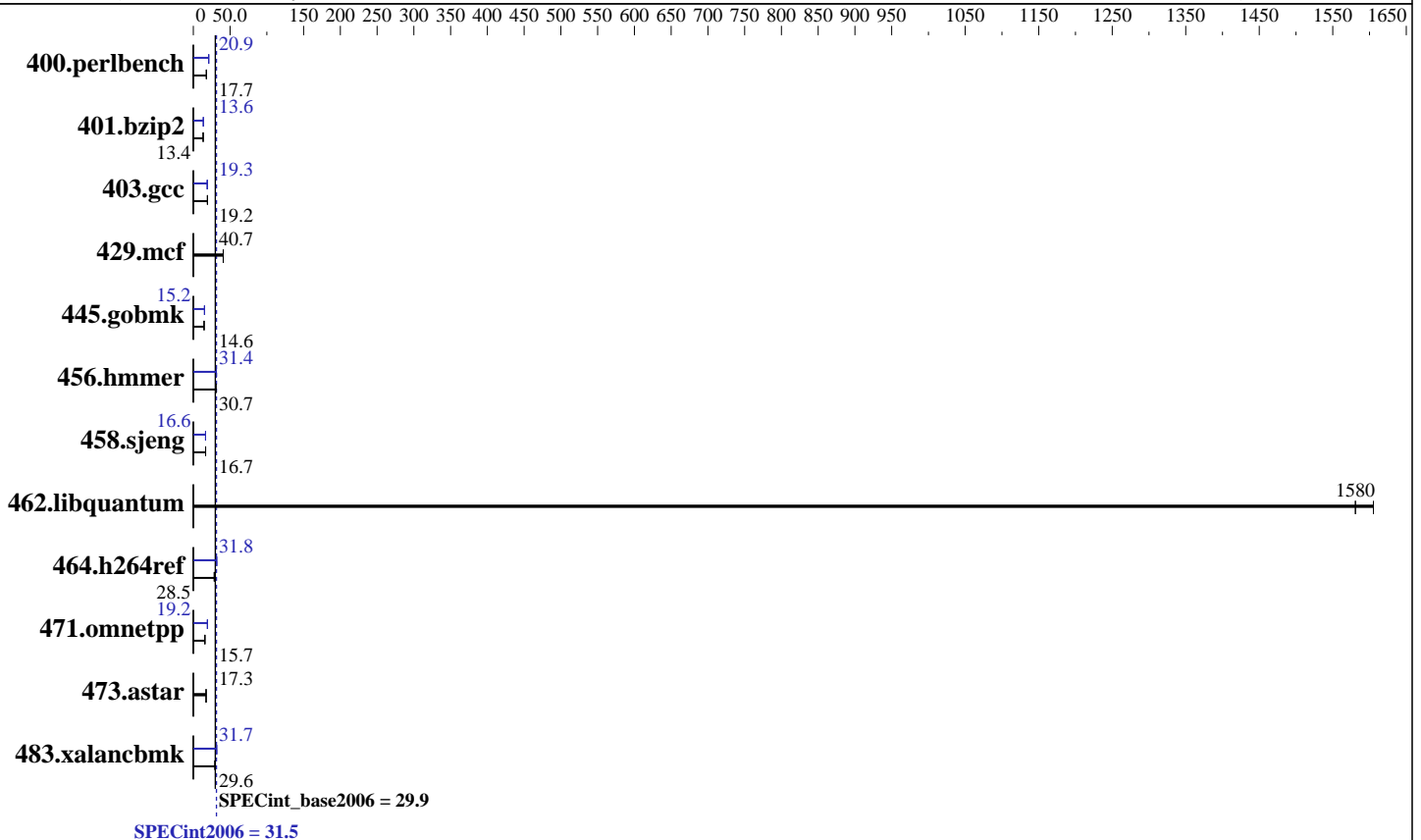
Test date: Dec-2012

Test sponsor: Cisco Systems

Hardware Availability: Sep-2012

Tested by: Cisco Systems

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-4603  
 CPU Characteristics: 2000  
 CPU MHz: Integrated  
 FPU: 16 cores, 4 chips, 4 cores/chip  
 CPU(s) enabled: 1,2,3,4 chips  
 CPU(s) orderable: 32 KB I + 32 KB D on chip per core  
 Primary Cache: 256 KB I+D on chip per core  
 Secondary Cache: 10 MB I+D on chip per chip  
 L3 Cache: None  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 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: Yes  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	548	17.8	551	17.7	<b>551</b>	<b>17.7</b>	<b>466</b>	<b>20.9</b>	467	20.9	466	20.9
401.bzip2	720	13.4	723	13.3	<b>721</b>	<b>13.4</b>	709	13.6	<b>708</b>	<b>13.6</b>	707	13.6
403.gcc	419	19.2	419	19.2	<b>419</b>	<b>19.2</b>	<b>417</b>	<b>19.3</b>	417	19.3	435	18.5
429.mcf	224	40.8	224	40.7	<b>224</b>	<b>40.7</b>	224	40.8	224	40.7	<b>224</b>	<b>40.7</b>
445.gobmk	717	14.6	<b>717</b>	<b>14.6</b>	716	14.6	<b>690</b>	<b>15.2</b>	690	15.2	691	15.2
456.hammer	304	30.7	304	30.7	<b>304</b>	<b>30.7</b>	297	31.4	<b>297</b>	<b>31.4</b>	298	31.3
458.sjeng	724	16.7	<b>724</b>	<b>16.7</b>	724	16.7	727	16.6	<b>728</b>	<b>16.6</b>	728	16.6
462.libquantum	13.1	1580	12.9	1610	<b>13.1</b>	<b>1580</b>	13.1	1580	12.9	1610	<b>13.1</b>	<b>1580</b>
464.h264ref	769	28.8	<b>778</b>	<b>28.5</b>	779	28.4	696	31.8	<b>696</b>	<b>31.8</b>	699	31.6
471.omnetpp	398	15.7	<b>397</b>	<b>15.7</b>	396	15.8	326	19.2	326	19.2	<b>326</b>	<b>19.2</b>
473.astar	<b>405</b>	<b>17.3</b>	406	17.3	402	17.5	<b>405</b>	<b>17.3</b>	406	17.3	402	17.5
483.xalancbmk	235	29.3	232	29.7	<b>233</b>	<b>29.6</b>	<b>218</b>	<b>31.7</b>	217	31.8	218	31.7

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

```
BIOS Configuration : Intel HT Technology = Disabled
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on SPEC CPU-M3 Wed Dec 5 01:54:16 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 E5-4603 0 @ 2.00GHz
4 "physical id"s (chips)
16 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
physical 2: cores 0 1 2 3
physical 3: cores 0 1 2 3
cache size : 10240 KB
```

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## Platform Notes (Continued)

```

From /proc/meminfo
MemTotal:      264507724 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 SPEC_CPU-M3 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 Dec 4 10:52

SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2        ext4      1.1T  9.6G  1.1T   1% /

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:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "16"

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

```

## Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```



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## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

```

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/smartheap -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64



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## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
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)
               -opt-prefetch -ansi-alias

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc
          -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
           -ansi-alias

456.hmmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
            -ansi-alias

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

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)
              -opt-ra-region-strategy=block -ansi-alias
              -Wl,-z,muldefs -L/smartheap -lsmartheap

```

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## Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

## 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.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.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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