



# SPEC® CINT2006 Result

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## Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-8893 v3, 3.20 GHz)

SPECint®\_rate2006 = 897

SPECint\_rate\_base2006 = 855

CPU2006 license: 9019

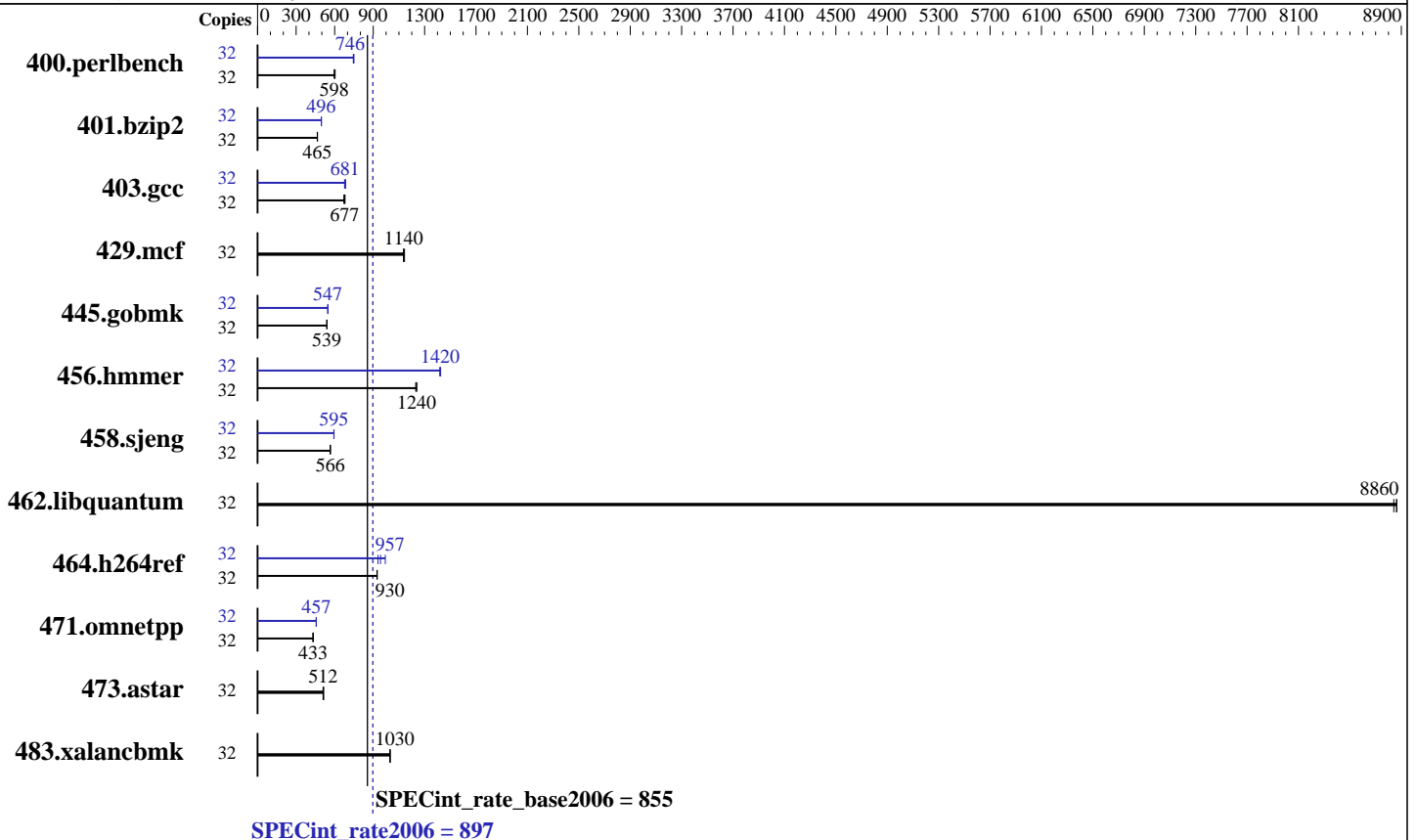
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Aug-2015

Hardware Availability: May-2015

Software Availability: Nov-2014



### Hardware

CPU Name: Intel Xeon E7-8893 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3200  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 45 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)  
 Disk Subsystem: 1 x 400 GB SSD SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 12 (x86\_64) 3.12.28-4-default  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: xfs  
 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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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	518	604	524	597	<u>523</u>	<u>598</u>	32	417	750	<u>419</u>	<u>746</u>	419	745
401.bzip2	32	662	466	664	465	<u>664</u>	<u>465</u>	32	<u>622</u>	<u>496</u>	622	497	623	496
403.gcc	32	378	681	384	672	<u>380</u>	<u>677</u>	32	376	686	<u>378</u>	<u>681</u>	381	677
429.mcf	32	255	1140	<u>257</u>	<u>1140</u>	257	1140	32	255	1140	<u>257</u>	<u>1140</u>	257	1140
445.gobmk	32	621	540	<u>622</u>	<u>539</u>	623	539	32	<u>613</u>	<u>547</u>	612	549	615	546
456.hammer	32	241	1240	243	1230	<u>241</u>	<u>1240</u>	32	210	1420	210	1420	<u>210</u>	<u>1420</u>
458.sjeng	32	<u>684</u>	<u>566</u>	685	565	683	567	32	<u>651</u>	<u>595</u>	651	595	652	594
462.libquantum	32	75.0	8840	74.8	8860	<u>74.8</u>	<u>8860</u>	32	75.0	8840	74.8	8860	<u>74.8</u>	<u>8860</u>
464.h264ref	32	<u>761</u>	<u>930</u>	761	931	762	929	32	712	994	756	937	<u>740</u>	<u>957</u>
471.omnetpp	32	464	431	462	433	<u>462</u>	<u>433</u>	32	437	457	<u>438</u>	<u>457</u>	438	456
473.astar	32	437	515	441	510	<u>439</u>	<u>512</u>	32	437	515	441	510	<u>439</u>	<u>512</u>
483.xalancbmk	32	<u>214</u>	<u>1030</u>	214	1030	214	1030	32	<u>214</u>	<u>1030</u>	214	1030	214	1030

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:  
CPU performance set to Enterprise  
Power Technology set to Performance  
Energy Performance BIAS setting set to Balanced Performance  
Memory RAS configuration set to Maximum Performance  
Memory Power Saving Mode set to Disabled  
Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on linux-kkg2 Wed Aug 26 03:20:16 2015

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 E7-8893 v3 @ 3.20GHz  
4 "physical id"s (chips)

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### Platform Notes (Continued)

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 : 4
siblings  : 8
physical 0: cores 1 5 16 20
physical 1: cores 1 5 16 20
physical 2: cores 1 5 16 20
physical 3: cores 1 5 16 20
cache size : 46080 KB
```

```
From /proc/meminfo
MemTotal:      1058672324 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 0
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
os-release:
NAME="SLES"
VERSION="12"
VERSION_ID="12"
PRETTY_NAME="SUSE Linux Enterprise Server 12"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12"
```

```
uname -a:
Linux linux-kkg2 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 26 03:19
```

```
SPEC is set to: /home/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb2       xfs   332G  117G  215G  36% /home
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

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### Platform Notes (Continued)

BIOS Cisco Systems, Inc. C460M4.2.0.5b.0.052420152246 05/24/2015

Memory:

64x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 1600 MHz  
32x NO DIMM NO DIMM 1600 MHz

(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 i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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 -L/opt/intel/composer\_xe\_2015/lib/ia32

C++ benchmarks:

icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

### 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



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## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## 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

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## Peak Optimization Flags (Continued)

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.hmmr: -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

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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.20150812.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.20150812.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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