



SPEC® CINT2006 Result

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Cisco Systems

Cisco UCS B420 M4 (Intel Xeon E5-4627 v3, 2.60 GHz)

SPECint®2006 = 60.6

SPECint_base2006 = 58.6

CPU2006 license: 9019

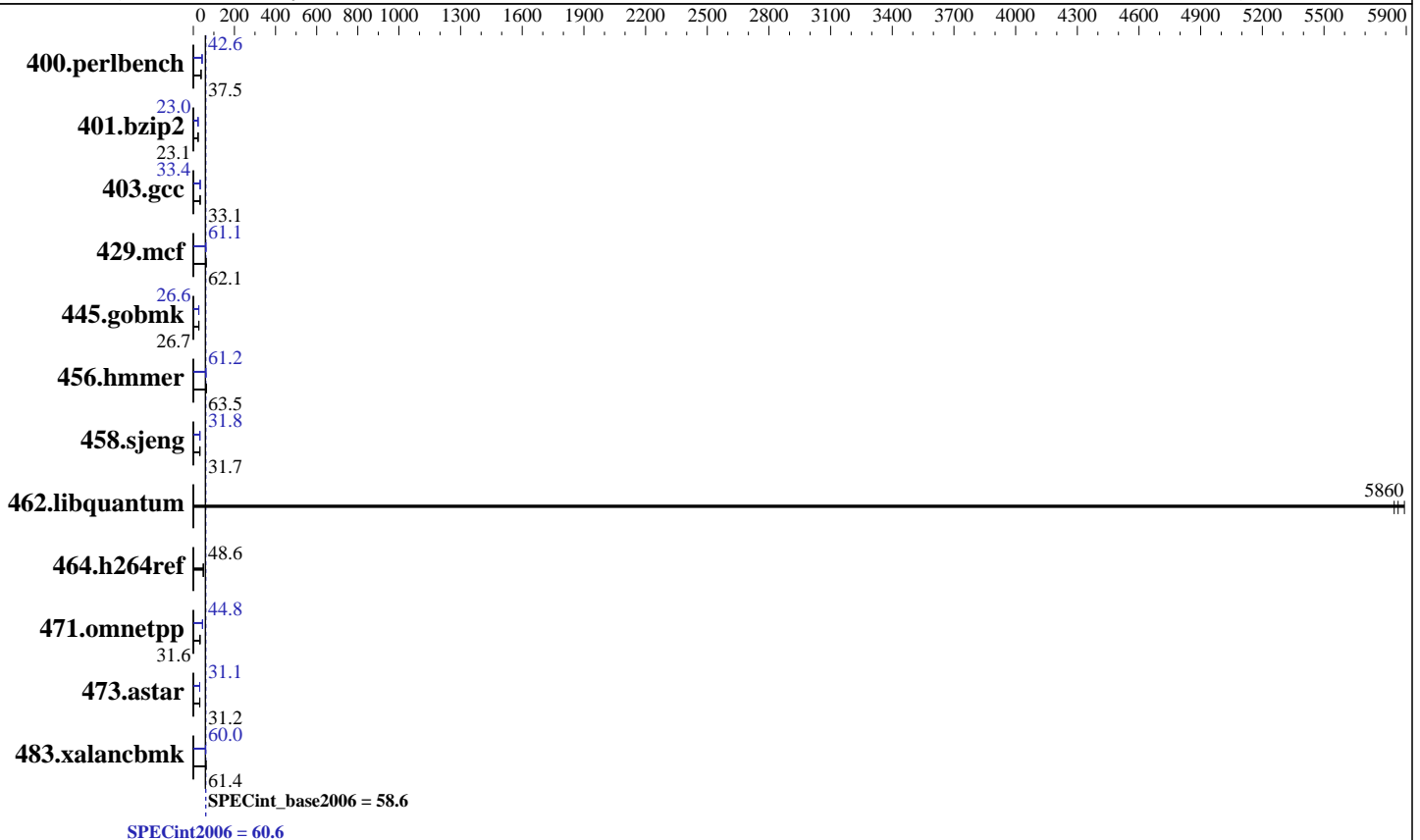
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jul-2015

Hardware Availability: Jun-2015

Software Availability: Nov-2014



Hardware

CPU Name: Intel Xeon E5-4627 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip
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: 25 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 300 GB SAS, 15K RPM
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: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	260	37.6	<u>261</u>	<u>37.5</u>	261	37.4	230	42.5	<u>229</u>	<u>42.6</u>	229	42.7
401.bzip2	419	23.1	<u>418</u>	<u>23.1</u>	417	23.1	419	23.0	<u>419</u>	<u>23.0</u>	419	23.0
403.gcc	243	33.1	244	33.0	<u>243</u>	<u>33.1</u>	241	33.4	244	33.1	<u>241</u>	<u>33.4</u>
429.mcf	150	60.6	146	62.5	<u>147</u>	<u>62.1</u>	151	60.4	<u>149</u>	<u>61.1</u>	149	61.2
445.gobmk	392	26.7	<u>393</u>	<u>26.7</u>	393	26.7	<u>395</u>	<u>26.6</u>	395	26.6	395	26.6
456.hammer	<u>147</u>	<u>63.5</u>	147	63.6	147	63.4	<u>152</u>	<u>61.2</u>	153	61.0	152	61.2
458.sjeng	381	31.7	381	31.8	<u>381</u>	<u>31.7</u>	380	31.8	<u>380</u>	<u>31.8</u>	380	31.9
462.libquantum	3.52	5890	3.55	5840	<u>3.54</u>	<u>5860</u>	3.52	5890	3.55	5840	<u>3.54</u>	<u>5860</u>
464.h264ref	456	48.6	<u>455</u>	<u>48.6</u>	452	49.0	456	48.6	<u>455</u>	<u>48.6</u>	452	49.0
471.omnetpp	200	31.3	186	33.6	<u>198</u>	<u>31.6</u>	140	44.6	139	44.9	<u>140</u>	<u>44.8</u>
473.astar	225	31.2	<u>225</u>	<u>31.2</u>	223	31.5	227	30.9	<u>226</u>	<u>31.1</u>	226	31.1
483.xalancbmk	<u>112</u>	<u>61.4</u>	112	61.4	113	61.3	116	59.5	114	60.3	<u>115</u>	<u>60.0</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Configuraton:
Hyper-Threading Technology set to Disabled
CPU performance set to Enterprise
Power Technology set to Energy-Efficient
Energy Performance BIAS setting set to Balanced Performance
Memory RAS configuration set to Maximum Performance
LV DDR Mode set to Performance-mode
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on linux-616o Sat Jul 18 16:21:28 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 E5-4627 v3 @ 2.60GHz
4 "physical id"s (chips)
40 "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 : 10
siblings  : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
physical 2: cores 0 1 2 3 4 8 9 10 11 12
physical 3: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      529335684 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

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-616o 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 Jul 18 16:18

SPEC is set to: /opt/cpu2006-1.2

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdc2       xfs   250G  11G  240G   5% /
```

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.

BIOS Cisco Systems, Inc. B420M4.2.2.5.0.043020152304 04/30/2015

Memory:

```
32x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
```

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Platform Notes (Continued)

16x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"
OMP_NUM_THREADS = "40"
```

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 -m64

C++ benchmarks:
icpc -m64

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.xalanbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```



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Base Optimization Flags

C benchmarks:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`

C++ benchmarks:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -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 -L/opt/intel/composer_xe_2015/lib/ia32`

`445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

C++ benchmarks (except as noted below):

`icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

`473.astar: icpc -m64`

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.hmmer: -DSPEC_CPU_LP64`

`458.sjeng: -DSPEC_CPU_LP64`

`462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

`464.h264ref: -DSPEC_CPU_LP64`

`473.astar: -DSPEC_CPU_LP64`

`483.xalancbmk: -DSPEC_CPU_LINUX`



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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)
 -opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
 -opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
 -opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias

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

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
 -auto-p32 -Wl,-z,muldefs -L/sh -lsmarheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
 -ansi-alias -Wl,-z,muldefs -L/sh -lsmarheap

Peak Other Flags

C benchmarks:

Continued on next page



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Peak Other Flags (Continued)

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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Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>