Cisco Systems
Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

SPECint®2006 = 55.4
SPECint_base2006 = 54.0

CPU2006 license: 9019
Test date: Jul-2015
Test sponsor: Cisco Systems
Hardware Availability: Jun-2015
Tested by: Cisco Systems
Software Availability: Nov-2014

Hardware
CPU Name: Intel Xeon E5-4669 v3
CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 72 cores, 4 chips, 18 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: 45 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
## Cisco Systems

Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

### SPEC CINT2006 Result

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>293</td>
<td>33.3</td>
<td>295</td>
<td>33.1</td>
<td>296</td>
<td>38.2</td>
<td>256</td>
<td>38.1</td>
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<tr>
<td>401.bzip2</td>
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<td>20.1</td>
<td>480</td>
<td>20.1</td>
<td>482</td>
<td>20.0</td>
<td>482</td>
<td>20.0</td>
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<tr>
<td>403.mcf</td>
<td>280</td>
<td>28.8</td>
<td>280</td>
<td>28.8</td>
<td>269</td>
<td>29.9</td>
<td>270</td>
<td>29.8</td>
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<tr>
<td>429.mcf</td>
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<td>51.8</td>
<td>172</td>
<td>53.1</td>
<td>176</td>
<td>51.8</td>
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<td>52.1</td>
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<td>24.0</td>
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<td>439</td>
<td>23.9</td>
<td>440</td>
<td>23.9</td>
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<tr>
<td>456.hmmer</td>
<td>163</td>
<td>57.2</td>
<td>163</td>
<td>57.1</td>
<td>169</td>
<td>55.2</td>
<td>169</td>
<td>55.2</td>
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<tr>
<td>458.sjeng</td>
<td>416</td>
<td>29.1</td>
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<td>29.1</td>
<td>414</td>
<td>29.2</td>
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<tr>
<td>462.libquantum</td>
<td>2.84</td>
<td>7290</td>
<td>2.82</td>
<td>7340</td>
<td>2.85</td>
<td>7260</td>
<td>2.84</td>
<td>7290</td>
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<tr>
<td>464.h264ref</td>
<td>568</td>
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<td>38.9</td>
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<td>39.0</td>
<td>566</td>
<td>39.1</td>
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<tr>
<td>471.omnetpp</td>
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<td>173</td>
<td>36.1</td>
<td>171</td>
<td>36.4</td>
<td>145</td>
<td>43.1</td>
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<tr>
<td>473.astar</td>
<td>257</td>
<td>27.3</td>
<td>257</td>
<td>27.3</td>
<td>259</td>
<td>27.1</td>
<td>258</td>
<td>27.2</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>122</td>
<td>56.5</td>
<td>126</td>
<td>54.8</td>
<td>126</td>
<td>54.6</td>
<td>126</td>
<td>54.9</td>
</tr>
</tbody>
</table>

### 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 Wed Jul 8 10:56:53 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 E5-4669 v3 @ 2.10GHz
- 4 "physical id"s (chips)
- 72 "processors"

## Results Table

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

Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

SPECint2006 = 55.4
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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 : 18
siblings : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

cache size : 46080 KB

From /proc/meminfo

MemTotal: 529331860 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

SuSE-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 8 10:54

SPEC is set to: /opt/cpu2006-1.2

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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SPEC CINT2006 Result

Cisco Systems
Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

| SPECint2006 = | 55.4 |
| SPECint_base2006 = | 54.0 |

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

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 = "72"

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/transient_hugepage/enable
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.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
Cisco Systems

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CPU2006 license: 9019
Test sponsor: Cisco Systems
Test date: Jul-2015

Tested by: Cisco Systems
Hardware Availability: Jun-2015
Software Availability: Nov-2014

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:
403gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32

C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/compiler_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
Cisco Systems
Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

SPECint2006 = 55.4
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Jul-2015
Hardware Availability: Jun-2015
Software Availability: Nov-2014

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -03 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -03 -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 -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-w1,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -03 -no-prec-div -opt-prefetch
-auto-p32 -W1,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -03 -no-prec-div -opt-prefetch
-ansi-alias -W1,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

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Cisco Systems
Cisco UCS B420 M4 (Intel Xeon E5-4669 v3, 2.10 GHz)

| SPECint2006 | 55.4 |
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CPU2006 license: 9019
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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

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.20150729.xml

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For other inquiries, please contact webmaster@spec.org.

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