Cisco Systems
Cisco UCS C240 M4 (Intel Xeon E5-2630 v3 @ 3.20GHz)

SPECint®2006 = 58.1
SPECint_base2006 = 55.8

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

Hardware
CPU Name: Intel Xeon E5-2630 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
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: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x 400GB SAS SSD
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext4
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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Seconds Ratio</th>
<th>Seconds Peak</th>
<th>Seconds Ratio</th>
<th>Seconds Base</th>
<th>Seconds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>259 37.8</td>
<td>261 37.5</td>
<td>259 37.7</td>
<td>226 43.2</td>
<td>226 43.2</td>
<td></td>
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<tr>
<td>401.bzip2</td>
<td>413 23.4</td>
<td>411 23.5</td>
<td>413 23.4</td>
<td>409 23.6</td>
<td>409 23.6</td>
<td></td>
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<tr>
<td>403.gcc</td>
<td>247 32.6</td>
<td>247 32.6</td>
<td>241 33.4</td>
<td>240 33.5</td>
<td>240 33.5</td>
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<tr>
<td>429.mcf</td>
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<td>152 59.8</td>
<td>150 60.6</td>
<td>151 60.5</td>
<td>151 60.5</td>
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<tr>
<td>445.gobmk</td>
<td>393 26.7</td>
<td>393 26.7</td>
<td>391 26.8</td>
<td>392 26.8</td>
<td>392 26.8</td>
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</tr>
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<td>458.sjeng</td>
<td>388 31.2</td>
<td>389 31.2</td>
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<td>387 31.3</td>
<td>387 31.3</td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>4.47 4630</td>
<td>4.47 4630</td>
<td>4.47 4630</td>
<td>4.47 4630</td>
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<tr>
<td>464.h264ref</td>
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<td>517 42.8</td>
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<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>238 26.3</td>
<td>240 26.1</td>
<td>239 26.2</td>
<td>239 26.2</td>
<td>240 26.2</td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>223 31.5</td>
<td>226 31.1</td>
<td>225 31.2</td>
<td>225 31.2</td>
<td>225 31.2</td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>113 61.0</td>
<td>112 61.4</td>
<td>113 61.3</td>
<td>114 60.6</td>
<td>114 60.5</td>
<td></td>
</tr>
</tbody>
</table>

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
CPU performance set to Enterprise
Power Technology set to Performance
Energy Performance BIAS setting set to Performance
Memory RAS configuration set to Maximum Performance
Intel Hyper-Threading Technology option set to Disabled
QPI Snoop Mode set to Early Snoop
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Mar  3 01:45:12 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 E5-2630 v3 @ 2.40GHz
  2 "physical id"s (chips)
  16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The continued on next page
Cisco Systems
Cisco UCS C240 M4 (Intel Xeon E5-2630 v3 @ 3.20GHz)

SPECint2006 = 58.1
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CPU2006 license: 9019
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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

From /proc/meminfo
MemTotal: 263869228 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Mar 2 19:32

SPEC is set to: /opt/cpu2006-1.2

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. C240M4.2.0.3c.0.091920142008 09/19/2014
Memory:
8x 0xAD00 HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1866 MHz
8x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1866 MHz
8x NO DIMM NO DIMM

(End of data from sysinfo program)
## Cisco Systems

Cisco UCS C240 M4 (Intel Xeon E5-2630 v3 @ 3.20GHz)

**SPECint2006** = 58.1  
**SPECint_base2006** = 55.8

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<tr>
<th>CPU2006 license:</th>
<th>9019</th>
<th>Test date:</th>
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<tr>
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<td>Software Availability:</td>
<td>Jul-2014</td>
</tr>
</tbody>
</table>

### 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/lib32:/opt/cpu2006-1.2/lib64:/opt/cpu2006-1.2/sh"
- `OMP_NUM_THREADS = "16"

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.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

### 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`
Cisco Systems
Cisco UCS C240 M4 (Intel Xeon E5-2630 v3 @ 3.20GHz)

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

Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Jul-2014

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

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

Continued on next page
Cisco Systems
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CPU2006 license: 9019  Test date: Mar-2015
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Tested by: Cisco Systems  Software Availability: Jul-2014

Peak Optimization Flags (Continued)

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 -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
           -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
                -ansi-alias -Wl,-z,muldefs -L/sh -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-ic15.0-official-linux64.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-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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