Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2690 v3 @ 2.60GHz)

SPECl rate2006 = 1120
SPECl rate_base2006 = 1080

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems
Hardware Availability: Sep-2014
Software Availability: Sep-2013

Test date: Nov-2014

Hardware

- CPU Name: Intel Xeon E5-2690 v3
- CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
- CPU MHz: 2600
- FPU: Integrated
- CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core
- 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
- L2 Cache: 30 MB I+D on chip per chip
- Other Cache: None
- Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- Disk Subsystem: 1 x 300GB SAS, 15K RPM
- Other Hardware: None

Software

- Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
- Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
- Auto Parallel: No
- File System: ext4
- System State: Run level 3 (multi-user)
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V10.0
Cisco Systems  
Cisco UCS C220 M4 (Intel Xeon E5-2690 v3 @ 2.60GHz)  

**SPEC CINT2006 Result**

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

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### Results Table

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<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>290</td>
<td>1140</td>
<td>289</td>
<td>1150</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 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

- CPU performance set to HPC
- Power Technology set to Custom
- Processor Power State C6 set to Disabled
- Energy Performance BIAS setting set to Performance
- Memory RAS configuration set to Maximum Performance

Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6818  
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191  
running on rhe165 Mon Nov 10 08:26:00 2014

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 E5-2690 v3 @ 2.60GHz
  - 2 "physical id"s (chips)
  - 48 "processors"

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Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2690 v3 @ 2.60GHz)

SPECint_rate2006 = 1120
SPECint_rate_base2006 = 1080

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

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 : 12
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 15360 KB

From /proc/meminfo
MemTotal: 264419596 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)

uname -a:
Linux rhel65 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
x86_64 x86_64 GNU/Linux

run-level 3 Nov 10 08:12

SPEC is set to: /home/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_rhel65-lv_home ext4 221G 11G 199G 5% /home

Additional information from dmidecode:
BIOS Cisco Systems, Inc. C220M4.2.0.3.0.080720142114 08/07/2014
Memory:
16x 0xCE00 M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank
8x NO DIMM NO DIMM

(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/lib32:/home/cpu2006-1.2/lib64:/home/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
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

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Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2690 v3 @ 2.60GHz)

| SPECint_rate2006 = 1120 | SPECint_rate_base2006 = 1080 |

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

General Notes (Continued)
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation
C benchmarks:
- icc -m32
C++ benchmarks:
- icpc -m32

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 -W1,-z,muldefs -L/sh -lsmartheap

Base Other Flags
C benchmarks:
- 403.gcc: -Dalloca=_alloca

Peak Compiler Invocation
C benchmarks (except as noted below):
- icc -m32
  400.perlbench: icc -m64
  401.bzip2: icc -m64

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## Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2690 v3 @ 2.60GHz)

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<td>Tested by: Cisco Systems</td>
<td>Software Availability: Sep-2013</td>
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</tbody>
</table>

### Peak Compiler Invocation (Continued)

- 456.hmmer: `icc -m64`
- 458.sjeng: `icc -m64`

### C++ benchmarks:
- `icpc -m32`

### 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`
- 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.hmmer: `-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`

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Peak Optimization Flags (Continued)

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)
-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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.xml

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

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