Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

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

Test date: May-2015
Hardware Availability: Sep-2014
Software Availability: Nov-2014

SPECint_rate2006 = 748
SPECint_rate_base2006 = 721

400.perlbench
401.bzip2
403.gcc
429.mcf
445.gobmk
456.hmmer
458.sjeng
462.libquantum
464.h264ref
471.omnetpp
473.astar
483.xalancbmk

Hardware
CPU Name: Intel Xeon E5-2660 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable: 1.2 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: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1866 MHz and CL7)
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 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 C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

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

SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

SPECint_rate2006 = 748
SPECint_rate_base2006 = 721

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>40</td>
<td>730</td>
<td>535</td>
<td>732</td>
<td>534</td>
<td>731</td>
<td>534</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>40</td>
<td>992</td>
<td>389</td>
<td>994</td>
<td>388</td>
<td>993</td>
<td>389</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>40</td>
<td>542</td>
<td>594</td>
<td>541</td>
<td>595</td>
<td>541</td>
<td>596</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>40</td>
<td>333</td>
<td>1100</td>
<td>333</td>
<td>1100</td>
<td>332</td>
<td>1100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>40</td>
<td>796</td>
<td>527</td>
<td>796</td>
<td>527</td>
<td>795</td>
<td>528</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>40</td>
<td>377</td>
<td>989</td>
<td>378</td>
<td>988</td>
<td>377</td>
<td>990</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>40</td>
<td>927</td>
<td>522</td>
<td>926</td>
<td>522</td>
<td>927</td>
<td>522</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>40</td>
<td>179</td>
<td>4640</td>
<td>179</td>
<td>4630</td>
<td>179</td>
<td>4640</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>40</td>
<td>995</td>
<td>890</td>
<td>986</td>
<td>898</td>
<td>999</td>
<td>886</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>40</td>
<td>630</td>
<td>397</td>
<td>628</td>
<td>398</td>
<td>638</td>
<td>392</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>40</td>
<td>667</td>
<td>421</td>
<td>664</td>
<td>423</td>
<td>664</td>
<td>423</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>40</td>
<td>360</td>
<td>767</td>
<td>359</td>
<td>768</td>
<td>359</td>
<td>768</td>
<td></td>
<td></td>
<td></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

BIOS Settings:
Intel HT Technology = Enabled
CPU performance set to Enterprise
Power Technology set to Custom
CPU Power State C6 set to Disabled
CPU Power State C1 Enhanced set to Disabled
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to 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-vedd Wed May 6 11:34:31 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
Continued on next page
Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

**SPECint_rate2006** = 748
**SPECint_rate_base2006** = 721

---

### Platform Notes (Continued)

From `/proc/cpuinfo`
- **model name**: Intel(R) Xeon(R) CPU E5-2660 v2 @ 2.20GHz
- **2 "physical id"s (chips)**
- **40 "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**: 10
  - **siblings**: 20
  - **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
- **cache size**: 25600 KB

From `/proc/meminfo`
- **MemTotal**: 264643808 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-vedd 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` May 6 11:28

**SPEC** is set to: `/opt/cpu2006-1.2`
- **Filesystem**
  - **Type**
  - **Size**
  - **Used**
  - **Avail**
  - **Mounted on**

出任 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.

Continued on next page
Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

SPECint_rate2006 = 748
SPECint_rate_base2006 = 721

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

Platform Notes (Continued)
BIOS Cisco Systems, Inc. C3160M3.2.0.2a.0.0.090920140606 09/09/2014
Memory:
16x 0xAD00 HMT42GR7AFR4C-RD 16 GB 2 rank 1866 MHz

(End of data from sysinfo program)

General Notes
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/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:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
C++ benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
  -Wl,-z,muldefs -L/sh -lsmartheap
Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

<table>
<thead>
<tr>
<th>CPU2006 license</th>
<th>9019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Tested by</td>
<td>Cisco Systems</td>
</tr>
</tbody>
</table>

**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>748</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>721</td>
</tr>
</tbody>
</table>

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

**Peak Compiler Invocation**

C benchmarks (except as noted below):

```bash
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:

```bash
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:

```bash
400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32
```

```bash
401.bzip2: -xSSE4.2(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
```

```bash
403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
```

Continued on next page
Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>748</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>721</td>
</tr>
</tbody>
</table>

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

Test date: May-2015
Hardware Availability: Sep-2014
Software Availability: Nov-2014

Peak Optimization Flags (Continued)

```
429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
            -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
              -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
              -unroll4 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(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

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.20150505.xml
Cisco Systems
Cisco UCS C3160 M3 (Intel Xeon E5-2660 v2, 2.20 GHz)

SPECint_rate2006 = 748
SPECint_rate_base2006 = 721

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

Test date: May-2015
Hardware Availability: Sep-2014
Software Availability: Nov-2014