SPEC® CINT2006 Result

Cisco Systems
CISCO UCS B420 M3 (Intel Xeon E5-4620 v2, 2.60 GHz)

<table>
<thead>
<tr>
<th>SPECint®_rate2006</th>
<th>1280</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>1230</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Operating System:</td>
</tr>
<tr>
<td>Intel Xeon E5-4620 v2</td>
<td>Red Hat Enterprise Linux Server release 6.4</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>(Santiago) 2.6.32-358.el6.x86_64</td>
</tr>
<tr>
<td>Intel Turbo Boost Technology up to 3.00 GHz</td>
<td>Compiler:</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>C/C++: Version 14.0.0.080 of Intel C++ Studio XE</td>
</tr>
<tr>
<td>2600</td>
<td>for Linux</td>
</tr>
<tr>
<td>FPU:</td>
<td>Auto Parallel:</td>
</tr>
<tr>
<td>Integrated</td>
<td>No</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>File System:</td>
</tr>
<tr>
<td>32 cores, 4 chips, 8 cores/chip, 2 threads/core</td>
<td>ext4</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>System State:</td>
</tr>
<tr>
<td>1,2,3,4 chip</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>Base Pointers:</td>
</tr>
<tr>
<td>32 KB I + 32 KB D on chip per core</td>
<td>32-bit</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>Peak Pointers:</td>
</tr>
<tr>
<td>256 KB I+D on chip per core</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>Other Software:</td>
</tr>
<tr>
<td>20 MB I+D on chip per chip</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
<tr>
<td>Other Cache:</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Memory:</td>
<td></td>
</tr>
<tr>
<td>256 GB (32 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz and CL11)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td></td>
</tr>
<tr>
<td>1 X 300 GB 15000 RPM SAS</td>
<td></td>
</tr>
<tr>
<td>Other Hardware:</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
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**SPEC CINT2006 Results**

**SPECint_rate2006 = 1280**
**SPECint_rate_base2006 = 1230**

<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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>64</td>
<td>560</td>
<td>1120</td>
<td>566</td>
<td>1100</td>
<td>562</td>
<td>1110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>401.bzip2</td>
<td>64</td>
<td>914</td>
<td>675</td>
<td>915</td>
<td>675</td>
<td>915</td>
<td>675</td>
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<tr>
<td>403.gcc</td>
<td>64</td>
<td>533</td>
<td>967</td>
<td>532</td>
<td>969</td>
<td>533</td>
<td>967</td>
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<td>429.mcf</td>
<td>64</td>
<td>305</td>
<td>1910</td>
<td>305</td>
<td>1920</td>
<td>305</td>
<td>1910</td>
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<tr>
<td>445.gobmk</td>
<td>64</td>
<td>716</td>
<td>938</td>
<td>715</td>
<td>939</td>
<td>715</td>
<td>939</td>
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<tr>
<td>456.hmmer</td>
<td>64</td>
<td>323</td>
<td>1850</td>
<td>323</td>
<td>1850</td>
<td>324</td>
<td>1840</td>
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<tr>
<td>458.sjeng</td>
<td>64</td>
<td>839</td>
<td>923</td>
<td>839</td>
<td>923</td>
<td>838</td>
<td>924</td>
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<tr>
<td>462.libquantum</td>
<td>64</td>
<td>163</td>
<td>8130</td>
<td>164</td>
<td>8110</td>
<td>163</td>
<td>8130</td>
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<tr>
<td>464.h264ref</td>
<td>64</td>
<td>926</td>
<td>1530</td>
<td>928</td>
<td>1530</td>
<td>922</td>
<td>1540</td>
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<tr>
<td>471.omnetpp</td>
<td>64</td>
<td>548</td>
<td>730</td>
<td>549</td>
<td>729</td>
<td>548</td>
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<tr>
<td>473.astar</td>
<td>64</td>
<td>640</td>
<td>702</td>
<td>639</td>
<td>703</td>
<td>638</td>
<td>704</td>
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<tr>
<td>483.xalancbmk</td>
<td>64</td>
<td>331</td>
<td>1330</td>
<td>330</td>
<td>1340</td>
<td>332</td>
<td>1330</td>
<td></td>
<td></td>
<td></td>
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</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**

Intel HT Technology = Enabled
CPU performance set to HPC
Power Technology set to Custom
CPU Power State C6 set to Disabled
CPU Power State C1 Enhanced set to Disabled
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818

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](http://www.spec.org/cpu2006/Docs/config.html#sysinfo)

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-4620 v2 @ 2.60GHz

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Platform Notes (Continued)

4 "physical id"s (chips)
64 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
physical 2: cores 0 1 2 3 4 5 6 7
physical 3: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 264498024 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
Linux rhel6.4 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 5 10:25

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 275G 12G 249G 5% /

Additional information from dmidecode:
BIOS Cisco Systems, Inc. B420M3.2.2.1a.0.111220131303 11/12/2013
Memory:
32x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1600 MHz 2 rank
16x 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 = "/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 i7-860 CPU + 8GB memory using RedHat EL 6.4

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

Submitted_by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Fri May  9 02:24:49 EDT 2014
Submission: cpu2006-20140509-29555.sub

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:
    -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

Base Other Flags

C benchmarks:
    403.gcc: -Dalloca=_alloca
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Peak Compiler Invocation

C benchmarks (except as noted below):
- icc -m32
  400.perlbench: icc -m64
  401.bzip2: icc -m64
  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: -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
- 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
- 403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
- 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 -O3 -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
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Peak Optimization Flags (Continued)

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)
-unroll2 -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revB.html

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-revB.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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