SPEC® CINT2006 Result

Cisco Systems
Cisco UCS B260 M4 (Intel Xeon E7-4809 v2, 1.90 GHz)

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

Hardware
CPU Name: Intel Xeon E7-4809 v2
CPU Characteristics:
CPU MHz: 1900
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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: 12 MB I+D on chip per chip
Other Cache: None

Software
Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
Compiler: C/C++: Version 14.0.0.080 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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Cisco or Intel.

Non-Compliant
Cisco Systems
Cisco UCS B260 M4 (Intel Xeon E7-4809 v2, 1.90 GHz)

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>NC</td>
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<td>462.libquantum</td>
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</tbody>
</table>

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

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/cpu2006-1.4/config/sysinfo.rev6818

Non-compliant
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Platform Notes (Continued)

$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on specompcpu Thu Apr 24 00:50:23 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 E7-4809 v2 @ 1.90GHz
2 "physical id"s (chips)
24 "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 : 6
siblings : 12
physical 0: cores 0 2 3 4 5
physical 1: cores 0 2 3 4 5
cache size : 12288 KB

From /proc/meminfo
MemTotal: 264106280 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
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 specompcpu 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 Apr 23 23:18

SPEC is set to: /opt/cpu2006-1.4

Filesystem Type Size Used Avail Use% Mounted on

Continued on next page
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<tr>
<td>/dev/sda1     ext4    275G   51G  210G  20%</td>
</tr>
</tbody>
</table>

Additional information from dmidecode:
- BIOS Cisco Systems, Inc. EXM4-1.2.2.1.12.01. 20140234 01/29/2014
- Memory:
  - 32x 8 GB
  - 32x 0xCE00 M393B1K70QB0-YK06 8 GB 1333 MHz 2 rank
  - 16x NO DIMM NO DIMM

(End of data from sysinfo program)

<table>
<thead>
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<th>General Notes</th>
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<tbody>
<tr>
<td>Environment variables set by runspec before the start of the run:</td>
</tr>
<tr>
<td>KMP_AFFINITY = &quot;granularity=fine,compact,1,0&quot;</td>
</tr>
<tr>
<td>LD_LIBRARY_PATH = &quot;/opt/cpu2006-1.4/lib/32:/opt/cpu2006-1.4/lib/64:/opt/cpu2006-1.4/sh&quot;</td>
</tr>
<tr>
<td>OMP_NUM_THREADS = &quot;24&quot;</td>
</tr>
</tbody>
</table>

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
  - numactl --interleave=all runspec <etc>

Submitted by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Mon May 5 14:01:08 EDT 2014
cpu2006-20140505-29482.sub

Submitted by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Sat May 24 09:39:27 EDT 2014
Submission: cpu2006-20140505-29482.sub

Base Compiler Invocation

<table>
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<th>C benchmarks:</th>
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<tr>
<td>icc -m64</td>
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<td>SPECint_base2006</td>
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Hardware Availability: Dec-2010
Software Availability: Sep-2013

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

<table>
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<th>Base Portability Flags</th>
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<tbody>
<tr>
<td>400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
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<td>C benchmarks:</td>
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<tr>
<td>-xSSE4.2 -ipo -03 -no-prec-div -parallel -opt-prefetch -auto-p32</td>
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<tr>
<td>C++ benchmarks:</td>
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<td>-xSSE4.2 -ipo -03 -no-prec-div -opt-prefetch -auto-p32</td>
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<tr>
<td>-Wl,-z,muldefs -L/sh -lsmartheap64</td>
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<td>C benchmarks:</td>
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<td>403.gcc: -Dalloca=_alloca</td>
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Peak Compiler Invocation

C benchmarks (except as noted below):
- icc -m64
- 400.perlbench: icc -m32
- 445.gobmk: icc -m32
- 464.h264ref: icc -m32

C++ benchmarks (except as noted below):
- icpc -m32
- 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
- 473.astar: -DSPEC_CPU_LP64
- 483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
- 400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -prof-use(pass 2) -opt-prefetch -ansi-alias
- 401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias
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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