Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-4850 v2 @ 2.30GHz)

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

SPECr int_rate2006 = NO
SPECr_int_rate_base2006 = NC

Feb-2014

Non-Compliant

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.

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 E7-4850 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 48 cores, 12 cores/chip, 2 threads/core
CPU(s) orderable: 1,2,3,4 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: 24 MB I+D on chip per chip

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: No
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit

Continued on next page
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
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</table>

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"

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Platform Notes

CPU performance set to Enterprise
Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State Cl Enhanced set to Disabled
Package C State Limit set to C0/C1 State
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
DRAM Refresh Rate Set to 1x

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Fri Feb 28 10:41:07 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 E7-4850 v2 @ 2.30GHz
4 "physical id" (chips)
96 "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 : 24
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
          1: cores 0 1 2 3 4 5 8 9 10 11 12 13
          2: cores 0 1 2 3 4 5 8 9 10 11 12 13
          3: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 24576 KB

From /proc/meminfo
MemTotal:  529137472 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

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

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Platform Notes (Continued)

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 localhost.localdomain 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 Feb 28 09:34

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 549G 30G 492G 6% /

Additional information from dmidecode:
- BIOS Cisco Systems, Inc. C460M4.1.5.5.14.020320142203 02/03/2014
- Memory:
  - 64x 8 GB
  - 64x 0xCE00 M393B1K70QB0-YK0 8 GB 1333 MHz 2 rank
  - 32x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
- LuckyPath = "/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
- Transparent Huge Pages enabled with:
- echo allkeys > /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>

---

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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:
  -x SSE4.2 -ipo -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
C++ benchmarks:
  -x SSE4.2 -ipo - no-prec-div -opt-prefetch -opt-mem-layout-trans=3
  -Wl,-z,defs -1/sh -lsmartheap

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

Peak Compiler Invocation
C benchmarks (except as noted below):
  icc -m32

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Peak Compiler Invocation (Continued)

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) -03(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) -03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias
403.gcc: -xSSE4.2 -ipo -03 -no-prec-div
429.mcf: basepeak = yes

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**Peak Optimization Flags (Continued)**

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

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  
- opt-ra-region-strategy=block  
- Wl,-z,muldefs  
- /sh = -asmcheap

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  
- /sh = -asmcheap

473.astar:  
- basepeak = yes

483.xalancbmk:  
- basepeak = yes

**Peak Other Flags**

C benchmarks:

438.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-V1.2.20140311.html
SPEC CINT2006 Result

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-icl4.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20140311.xml

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