Cisco Systems
Cisco UCS B420 M3 (Intel Xeon E5-4650 v2, 2.40 GHz)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = 1540</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006 = 1480</td>
</tr>
</tbody>
</table>

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

Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-4650 v2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU MHZ:</td>
<td>2400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>40 cores, 4 chips, 10 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1,2,3,4 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (32 x 8 GB 2Rx4 PC3-14900R-13, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 X 300 GB 15000 RPM SAS</td>
</tr>
</tbody>
</table>

Operating System: Red Hat Enterprise Linux Server release 6.5 (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
Other Software: Microquill SmartHeap V10.0

Software

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<tr>
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</tr>
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<tbody>
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<td>Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)</td>
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<tr>
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SPECint_rate2006 = 1540
SPECint_rate_base2006 = 1480

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Peak</th>
<th>Ratio</th>
<th>Seconds Base</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>80</td>
<td>705 1110</td>
<td>705 1110</td>
<td>80 586 1330</td>
<td>585 1340</td>
<td>590 1320</td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>80</td>
<td>960 805</td>
<td>958 806</td>
<td>80 937 824</td>
<td>938 823</td>
<td>938 823</td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>80</td>
<td>550 1170</td>
<td>547 1180</td>
<td>80 549 1170</td>
<td>550 1170</td>
<td>551 1170</td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>80</td>
<td>317 2300</td>
<td>317 2300</td>
<td>80 317 2300</td>
<td>317 2300</td>
<td>318 2290</td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>80</td>
<td>776 1080</td>
<td>776 1080</td>
<td>80 757 1110</td>
<td>762 1100</td>
<td>753 1110</td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>80</td>
<td>898 1080</td>
<td>898 1080</td>
<td>80 868 1120</td>
<td>868 1120</td>
<td>868 1110</td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>80</td>
<td>170 9770</td>
<td>170 9780</td>
<td>80 170 9770</td>
<td>170 9780</td>
<td>170 9770</td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>80</td>
<td>921 1850</td>
<td>959 1850</td>
<td>80 949 1870</td>
<td>951 1860</td>
<td>949 1870</td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>80</td>
<td>596 839</td>
<td>596 838</td>
<td>80 564 866</td>
<td>865 885</td>
<td>564 886</td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>80</td>
<td>670 838</td>
<td>673 835</td>
<td>80 670 838</td>
<td>673 835</td>
<td>667 841</td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>80</td>
<td>345 1600</td>
<td>345 1600</td>
<td>80 345 1600</td>
<td>345 1600</td>
<td>345 1600</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
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
$Rev: 6818 $ $Date:: 2012-07-17 # e86d102572650a6e4d596a3cee98f191
running on b420m3 Mon May 12 23:28:04 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 E5-4650 v2 @ 2.40GHz
Continued on next page
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General Notes
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006-1.4/libs/32:/opt/cpu2006-1.4/libs/64:/opt/cpu2006-1.4/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: Mon May 19 14:36:26 EDT 2014
Submission: cpu2006-20140519-29610.sub

Base Compiler Invocation

C benchmarks:
  icc -m32
C++ benchmarks:
  icpc -m32

Base Portability Flags

  400.perlbmk: -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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CPU2006 license: 9019  
Test sponsor: Cisco Systems  
Tested by: Cisco Systems  

Test date: May-2014  
Hardware Availability: Apr-2014  
Software Availability: Apr-2014

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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Software Availability: Apr-2014

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.

Tested with SPEC CPU2006 v1.2.
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