Cisco Systems
Cisco UCS B22 M3 (Intel Xeon E5-2450, 2.10 GHz)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>46.7</th>
</tr>
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<tbody>
<tr>
<td>SPECint_base2006</td>
<td>43.4</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
</table>
| Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
Compiler: C/C++: Version 12.1.3.293 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  
Other Software: Microquill SmartHeap V9.01 |
| CPU Name: Intel Xeon E5-2450  
CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
CPU MHz: 2100  
FPU: Integrated  
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
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: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 X 146 GB 15000 RPM SAS  
Other Hardware: None |
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Hardware Availability: Aug-2012
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>Base</td>
<td>378</td>
<td>25.9</td>
<td>Peak</td>
<td>46.7</td>
<td>30.9</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>Base</td>
<td>500</td>
<td>19.3</td>
<td>Peak</td>
<td>492</td>
<td>19.6</td>
</tr>
<tr>
<td>403.gcc</td>
<td>Base</td>
<td>289</td>
<td>27.8</td>
<td>Peak</td>
<td>287</td>
<td>28.1</td>
</tr>
<tr>
<td>429.mcf</td>
<td>Base</td>
<td>160</td>
<td>57.0</td>
<td>Peak</td>
<td>160</td>
<td>57.0</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>Base</td>
<td>512</td>
<td>20.5</td>
<td>Peak</td>
<td>472</td>
<td>22.2</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>Base</td>
<td>210</td>
<td>44.4</td>
<td>Peak</td>
<td>205</td>
<td>45.5</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>Base</td>
<td>504</td>
<td>24.0</td>
<td>Peak</td>
<td>505</td>
<td>24.0</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>Base</td>
<td>7.89</td>
<td>2630</td>
<td>Peak</td>
<td>7.89</td>
<td>2630</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>Base</td>
<td>591</td>
<td>37.4</td>
<td>Peak</td>
<td>481</td>
<td>46.0</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>Base</td>
<td>268</td>
<td>23.3</td>
<td>Peak</td>
<td>189</td>
<td>33.0</td>
</tr>
<tr>
<td>473.astar</td>
<td>Base</td>
<td>272</td>
<td>25.8</td>
<td>Peak</td>
<td>272</td>
<td>25.8</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>Base</td>
<td>156</td>
<td>44.3</td>
<td>Peak</td>
<td>150</td>
<td>45.9</td>
</tr>
</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
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aa42e583f96b07f99d3
running on localhost.localdomain Tue Jul 17 02:30:23 2012

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 E5-2450 0 @ 2.10GHz
  2 "physical id"s (chips)
  16 "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 : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 99007852 kB

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**Platform Notes (Continued)**

HugePages_Total: 0
Hugepagesize: 2048 kB

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

```
uname -a:
Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jul 17 02:28

SPEC is set to: /opt/cpu2006-1.2

```
Filesystem    Type    Size  Used Avail Use% Mounted on
/dev/sda1     ext4    134G  9.9G  118G   8% /
```

Additional information from dmidecode:
Memory:
12x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

**General Notes**

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "16"

Intel HT Technology=disable
Binaries compiled on a system with 2 X Intel Xeon E5-2690 CPU + 128 GB memory using RHEL 6.2
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

Submitted_by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Mon Sep 17 04:19:23 EDT 2012
Submission: cpu2006-20120917-24472.sub

**Base Compiler Invocation**

C benchmarks:
```
icc -m64
```
## Cisco Systems

**Cisco UCS B22 M3 (Intel Xeon E5-2450, 2.10 GHz)**

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### Base Compiler Invocation (Continued)

**C++ benchmarks:**

icpc -m64

### Base Portability Flags

- 400.perlbench: -DSPEC_CPU_LP64  
- 401.bzip2: -DSPEC_CPU_LP64  
- 403.gcc: -DSPEC_CPU_LP64  
- 429.mcf: -DSPEC_CPU_LP64  
- 445.gobmk: -DSPEC_CPU_LP64  
- 456.hmmer: -DSPEC_CPU_LP64  
- 458.sjeng: -DSPEC_CPU_LP64  
- 462.libquantum: -DSPEC_CPU_LP64  
- 464.h264ref: -DSPEC_CPU_LP64  
- 471.omnetpp: -DSPEC_CPU_LP64  
- 473.astar: -DSPEC_CPU_LP64  
- 483.xalancbmk: -DSPEC_CPU_LP64

### Base Optimization Flags

**C benchmarks:**

- xSSE4.2  
- ipo -03 -no-prec-div -parallel -opt-prefetch -auto-p32

**C++ benchmarks:**

- xSSE4.2  
- ipo -03 -no-prec-div -opt-prefetch -auto-p32  
- Wl,-z,muldefs -L/smartheap -lsmartheap64

### Base Other Flags

**C benchmarks:**

403.gcc: -Dalloca=_alloca

### Peak Compiler Invocation

**C benchmarks (except as noted below):**

- icc -m64

- 400.perlbench: icc -m32  
- 445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

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) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -ansi-alias
401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias
403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32
429.mcf: basepeak = yes
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias
456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32 -ansi-alias
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

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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)
   -opt-ra-region-strategy=block -ansi-alias
   -Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalancbmk:
   -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
   -Wl,-z,muldefs -L/smartheap -lsmartheap

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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.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.
Originally published on 9 October 2012.