Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-8890 v3 @ 2.50 GHz)

SPECfp®_rate2006 = Not Run
SPECfp_rate_base2006 = 2000

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

Hardware
CPU Name: Intel Xeon E7-8890 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 72 cores, 4 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable: 1.2,3,4 Chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Software
Operating System: SUSE Linux Enterprise Server 12 (x86_64) 3.12.28-4-default
Compiler: C/C++: Version 15.0.2.164 of Intel C++ Studio XE for Linux;
           Fortran: Version 15.0.2.164 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)

Test date: Apr-2015
Hardware Availability: Apr-2014
Software Availability: Feb-2015

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Note: SPECfp_rate_base2006 = 2000
Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-8890 v3 @ 2.50 GHz)

CPU2006 license: 9019
Test sponsor: Cisco Systems
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L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 1 x 400 GB 6Gb/s SSD
Other Hardware: None

Results Table

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<tr>
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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"
Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-8890 v3 @ 2.50 GHz)

SPEC CFP2006 Result

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 2000

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

Platform Notes

CPU performance set to Enterprise
Power Technology set to Performance
CPU Power State C6 set to Disabled
CPU Power State C1 Enhanced set to Disabled
Package C State Limit set to C0/C1 State
Energy Performance policy set to Balanced Performance
Memory Power saving mode set to Disabled
DRAM Clock Throttling Set to Auto
LV DDR Mode set to Performance mode
Closed Loop Thermal Throttling set to Enabled
Memory RAS configuration set to Maximum Performance
Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-cfac Thu Apr 16 09:56:22 2015

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 E7-8890 v3 @ 2.50GHz
4 "physical id"s (chips)
144 "processors"
core, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 18
siblings : 36
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 46080 KB

From /proc/meminfo
MemTotal: 1058822544 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 0
# This file is deprecated and will be removed in a future service pack or release.
# Please check /etc/os-release for details about this release.
os-release:
NAME="SLES"
VERSION="12"
VERSION_ID="12"
PRETTY_NAME="SUSE Linux Enterprise Server 12"

Continued on next page
Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-8890 v3 @ 2.50 GHz)

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

Platform Notes (Continued)

ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12"

uname -a:
Linux linux-cfac 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 16 05:40

SPEC is set to: /home/cpu2006-1.2
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sdp1      xfs   181G   44G  137G  25% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to
hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Cisco Systems, Inc. C460M4.2.0.4.20.040420150215 04/04/2015
Memory:
64x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 1600 MHz
32x NO DIMM NO DIMM   1600 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006-1.2/libs/32:/home/cpu2006-1.2/libs/64:/home/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/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>

Base Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Continued on next page
## Base Compiler Invocation (Continued)

Fortran benchmarks:
```bash
ifort -m64
```

Benchmarks using both Fortran and C:
```bash
icc -m64 ifort -m64
```

## Base Portability Flags

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<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
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<td>410.bwaves</td>
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## Base Optimization Flags

### C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

### C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

### Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

### Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
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<td>Software Availability: Feb-2015</td>
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</table>

The flags files that were used to format this result can be browsed at:

- http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags sources by saving the following links:

- http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-8890 v3 @ 2.50 GHz)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 2000

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For other inquiries, please contact webmaster@spec.org.

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