# SPEC® CFP2006 Result
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## Cisco Systems

Cisco UCS C260 M2 (Intel Xeon E7-2870, 2.40 GHz)

SPECfp®_rate2006 = NC

SPECfp_rate_base2006 = NC

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

**Test date:** Jan-2012
**Hardware Availability:** May-2011
**Software Availability:** Oct-2011

**SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the result does not meet the 3 month availability requirement in the SPEC CPU2006 run rules, because the tested processor was not supported on this platform within three months of publication.**

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7-4870 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.80 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 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: | 30 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 512 GB (32 x 16 GB 4Rx4 PC3-8500R-9, ECC) |
| Disk Subsystem: | 600 GB SAS 10K RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.1 (Santiago) 2.6.32-131.0.15.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | None |

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## Results Table

| Benchmark | Copies | Base | | | | | | Copies | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 416.gamess | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 433.milc | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 434.zeusmp | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 435.gromacs | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 436.cactusADM | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 437.leslie3d | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 444.namd | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 447.dealII | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 450.soplex | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 453.povray | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 454.calculix | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 459.GemsFDTD | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 465.tonto | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 470.lbm | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 481.wrf | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |
| 482.sphinx3 | 40 | NC | NC | NC | NC | NC | NC | 40 | NC | NC | NC | NC | NC | NC |

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.

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## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
Sysinfo program /opt/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebf5032aaa42e583f96b07f99d3
running on localhost.localdomain Wed Jan  4 12:41:49 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 E7- 4870 @ 2.40GHz
     2 "physical id"s (chips)
     40 "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 : 10
     siblings  : 20
     physical 0: cores 0 1 2 8 9 16 17 18 24 25
     physical 1: cores 0 1 2 8 9 16 17 18 24 25
   cache size : 30720 KB

   meminfo
MemTotal:       529190808 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

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## Platform Notes (Continued)

```
uname -a:
    Linux localhost.localdomain 2.6.32-130.0.15.el6.x86_64 #1 SMP Tue May 10
    15:42:40 EDT 2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 4 12:31

SPEC is set to: /opt/cpu2006
    Filesystem      Type      Size  Used Avail Use% Mounted on
    /dev/sda1       ext4      500G  5.7G  5.6G   2% /

Additional information from sysinfo:

(End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006/libs/32:/opt/cpu2006/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec 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

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## Base Compiler Invocation (Continued)

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

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

## Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
   435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
   437.leslie3d: -DSPEC_CPU_LP64
     444.namd: -DSPEC_CPU_LP64
    447.dealII: -DSPEC_CPU_LP64
    450.soplex: -DSPEC_CPU_LP64
    453.povray: -DSPEC_CPU_LP64
   454.calculix: -DSPEC_CPU_LP64 -nofor_main
  459.GemsFDTD: -DSPEC_CPU_LP64
     465.tonto: -DSPEC_CPU_LP64
      470.lbm: -DSPEC_CPU_LP64
               -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
    482.sphinx3: -DSPEC_CPU_LP64
```

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

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## Base Optimization Flags (Continued)

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```
```
482.sphinx3: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc -m64
```
```
450.soplex: icpc -m32
```

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

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

## Peak Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
```

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## Peak Portability Flags (Continued)

```
      416.gamess: -DSPEC_CPU_LP64
        433.milc: -DSPEC_CPU_LP64
      434.zeusmp: -DSPEC_CPU_LP64
     435.gromacs: -DSPEC_CPU_LP64 -nofor_main
    436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
     437.leslie3d: -DSPEC_CPU_LP64
        444.namd: -DSPEC_CPU_LP64
       447.dealII: -DSPEC_CPU_LP64
      453.povray: -DSPEC_CPU_LP64
     454.calculix: -DSPEC_CPU_LP64 -nofor_main
    459.GemsFDTD: -DSPEC_CPU_LP64
        465.tonto: -DSPEC_CPU_LP64
         470.lbm: -DSPEC_CPU_LP64
         481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
        433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
                  -prof-use(pass 2) -static -auto-ilp32

                  basepeak = yes

      482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
                  -unroll2
```

C++ benchmarks:

```
        444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
                  -prof-use(pass 2) -fno-alias -auto-ilp32
```

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## Peak Optimization Flags (Continued)

```
447.dealII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
            -inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -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
           -inline-calloc -opt-malloc-options=3
```

Benchmarks using both Fortran and C:

```
435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
             -prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes
```

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## Peak Optimization Flags (Continued)

```
454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-icl12.1-official-linux64.20111122.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-icl12.1-official-linux64.20111122.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.

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