SPEC® CFP2006 Result
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Cisco Systems

Cisco UCS B200 M2 (Intel Xeon E5640, 2.67 GHz)

$SPECfp®\_rate2006 =$ 187

$SPECfp\_rate\_base2006 =$ 183

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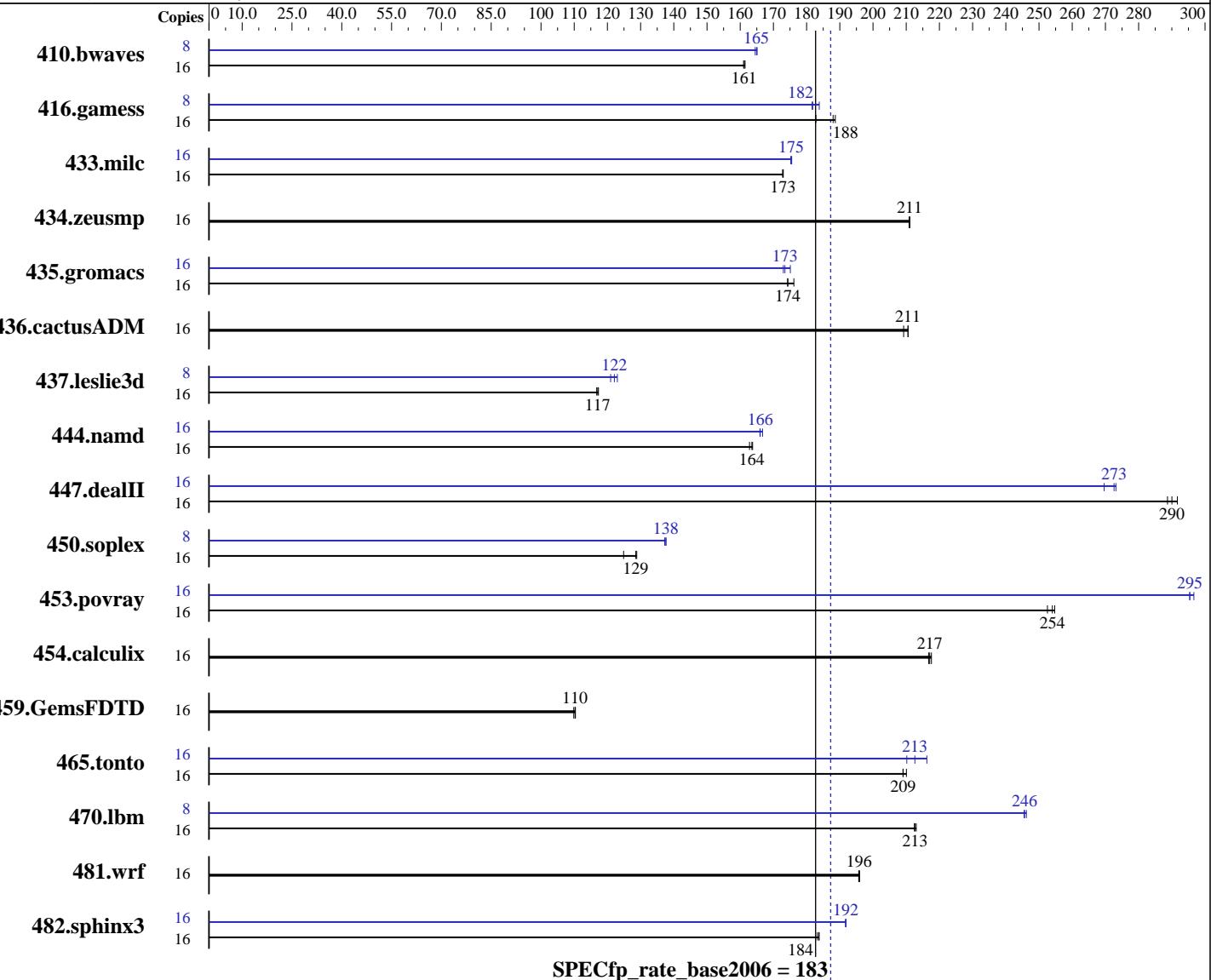**Test sponsor:** Cisco Systems
Tested by: Cisco Systems

Test date: Feb-2011
Hardware Availability: Mar-2011
Software Availability: Jan-2011

	Copies	
410.bwaves	8	165
	16	161
416.gamess	8	182
	16	188
433.milc	16	175
	16	173
434.zeusmp	16	211
435.gromacs	16	173
	16	174
436.cactusADM	16	211
437.leslie3d	8	122
	16	117
444.namd	16	166
	16	164
447.dealII	16	273
	16	290
450.soplex	8	138
	16	129
453.povray	16	295
	16	254
454.calculix	16	217
459.GemsFDTD	16	110
465.tonto	16	213
	16	209
470.lbm	8	246
	16	213
481.wrf	16	196
482.sphinx3	16	192
	16	184

SPECfp_rate_base2006 = 183

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Hardware
CPU Name: Intel Xeon E5640
CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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

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Software
Operating System: SUSE Linux Enterprise Server 11 (x86_64) with SP1, Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64
Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3L-10600R-9, ECC)
Disk Subsystem:	73 GB SAS, 15K RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Binaries compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1347	161	1350	161	**1349**	**161**	8	**659**	**165**	659	165	661	165
416.gamess	16	**1667**	**188**	1661	189	1714	183	8	852	184	862	182	**861**	**182**
433.milc	16	**849**	**173**	849	173	850	173	16	838	175	837	176	**837**	**175**
434.zeusmp	16	**690**	**211**	690	211	691	211	16	**690**	**211**	690	211	691	211
435.gromacs	16	648	176	656	174	**655**	**174**	16	**659**	**173**	660	173	652	175
436.cactusADM	16	**908**	**211**	908	211	914	209	16	**908**	**211**	908	211	914	209
437.leslie3d	16	**1284**	**117**	1288	117	1282	117	8	**616**	**122**	622	121	611	123
444.namd	16	**785**	**164**	784	164	788	163	16	**773**	**166**	770	167	773	166
447.dealII	16	628	292	634	289	**631**	**290**	16	**671**	**273**	679	270	670	273
450.soplex	16	**1038**	**129**	1069	125	1036	129	8	**485**	**138**	486	137	485	138
453.povray	16	**335**	**254**	337	253	334	255	16	288	295	**288**	**295**	287	297
454.calculix	16	609	217	607	218	**608**	**217**	16	609	217	607	218	**608**	**217**
459.GemsFDTD	16	1545	110	1538	110	**1540**	**110**	16	1545	110	1538	110	**1540**	**110**
465.tonto	16	**753**	**209**	753	209	750	210	16	**741**	**213**	749	210	728	216
470.lbm	16	1032	213	1035	212	**1034**	**213**	8	446	246	**447**	**246**	448	246
481.wrf	16	913	196	912	196	**913**	**196**	16	913	196	912	196	**913**	**196**
482.sphinx3	16	1697	184	1702	183	**1697**	**184**	16	1625	192	1627	192	**1626**	**192**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

    The config file option 'submit' was used.
     numactl was used to bind copies to the cores

Operating System Notes

    ulimit -s unlimited was used to set the stacksize to unlimited prior to run
    Large pages were not enabled for this run

Platform Notes

    BIOS Configuration : Data Reuse Optimization = Disabled

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Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

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
      481.wrf: -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 -ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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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
        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) -prof-use(pass 2) -static -auto-ilp32

         470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
                -ansi-alias -opt-prefetch -static -auto-ilp32

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Peak Optimization Flags (Continued)

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2`

C++ benchmarks:

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

447.dealII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32`

450.soplex: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3`
`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

453.povray: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Fortran benchmarks:

410.bwaves: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -static`

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`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

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`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

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) -prof-use(pass 2) -opt-prefetch`
`-static -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

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Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/Intel-Platform-Settings.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Intel-Platform-Settings.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 15:32:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 March 2011.