SPEC® CFP2006 Result
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Cisco Systems

Cisco UCS C200 M2 (Intel Xeon L5640, 2.26 GHz)

$SPECfp®_rate2006 = $ 202

$SPECfp_rate_base2006 = $ 194

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Sep-2010

Hardware Availability: Apr-2010

Software Availability: Jan-2010

Results graph showing Copies and performance for each benchmark:

Benchmark	Copies	Result
410.bwaves	12	170
410.bwaves	24	171
416.gamess	12	238
416.gamess	24	229
433.milc	24	180
433.milc	24	180
434.zeusmp	24	257
435.gromacs	24	222
435.gromacs	24	222
436.cactusADM	24	277
437.leslie3d	12	116
437.leslie3d	24	112
444.namd	24	216
444.namd	24	211
447.dealII	24	323
447.dealII	24	318
450.soplex	12	144
450.soplex	24	128
453.povray	24	376
453.povray	24	312
454.calculix	24	271
459.GemsFDTD	12	110
459.GemsFDTD	24	104
465.tonto	24	230
465.tonto	24	215
470.lbm	12	110
470.lbm	24	101
481.wrf	24	195
482.sphinx3	24	203
482.sphinx3	24	193

SPECfp_rate_base2006 = 194

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Hardware

CPU Name: Intel Xeon L5640

CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz

CPU MHz: 2267

FPU: Integrated

CPU(s) enabled: 12 cores, 2 chips, 6 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

Continued on next page

Software

Operating System: SuSe Linux Enterprise Server 11 (x86_64), Kernel 2.6.27-15-2-default, RC4

Compiler: Intel C++ and Fortran Compiler 11.1 IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064 l_cprof_p_11.1.064

Auto Parallel: No

File System: ext3

System State: Run level 3 (multi-user)

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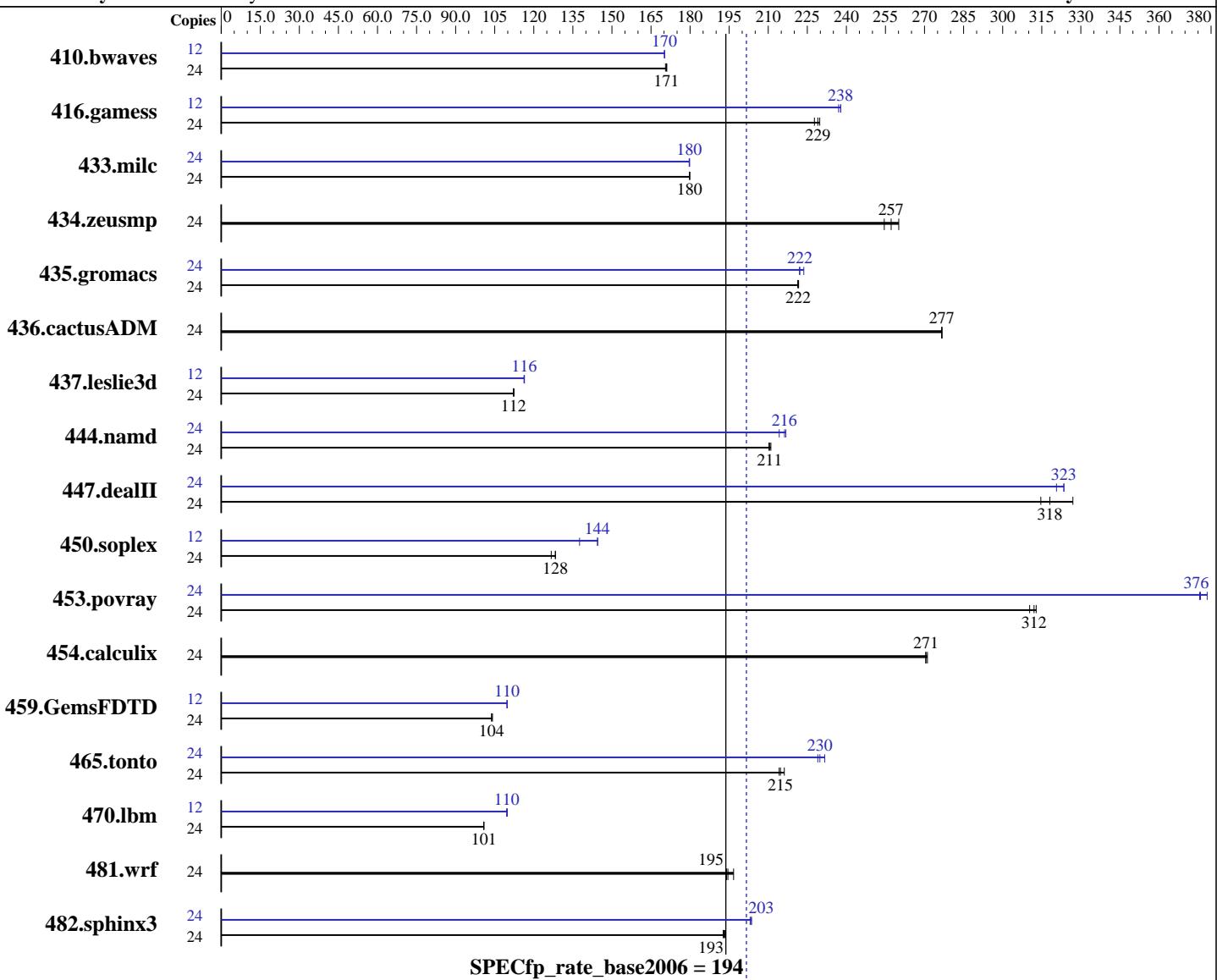SPECfp_rate2006 = 202

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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 PC3-10600R-9, ECC)
Disk Subsystem:	146 GB SAS, 10K RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1912	171	**1908**	**171**	1907	171	12	958	170	959	170	**958**	**170**
416.gamess	24	2045	230	2064	228	**2052**	**229**	12	**988**	**238**	991	237	988	238
433.milc	24	1225	180	**1225**	**180**	1226	180	24	1225	180	1226	180	**1226**	**180**
434.zeusmp	24	858	255	**849**	**257**	840	260	24	858	255	**849**	**257**	840	260
435.gromacs	24	**774**	**222**	774	221	773	222	24	766	224	772	222	**771**	**222**
436.cactusADM	24	1037	277	**1037**	**277**	1037	277	24	1037	277	**1037**	**277**	1037	277
437.leslie3d	24	**2010**	**112**	2011	112	2007	112	12	970	116	**970**	**116**	969	116
444.namd	24	915	210	912	211	**914**	**211**	24	899	214	888	217	**890**	**216**
447.dealII	24	**863**	**318**	873	315	840	327	24	**849**	**323**	856	321	849	324
450.soplex	24	1580	127	**1560**	**128**	1560	128	12	727	138	**693**	**144**	692	145
453.povray	24	408	313	**409**	**312**	411	310	24	337	379	340	376	**340**	**376**
454.calculix	24	**732**	**271**	732	270	730	271	24	**732**	**271**	732	270	730	271
459.GemsFDTD	24	2445	104	2453	104	**2453**	**104**	12	1160	110	1160	110	**1160**	**110**
465.tonto	24	**1100**	**215**	1102	214	1092	216	24	1031	229	**1028**	**230**	1019	232
470.lbm	24	**3270**	**101**	3270	101	3273	101	12	1501	110	**1504**	**110**	1504	110
481.wrf	24	1363	197	**1378**	**195**	1382	194	24	1363	197	**1378**	**195**	1382	194
482.sphinx3	24	2428	193	2419	193	**2424**	**193**	24	2304	203	2297	204	**2301**	**203**

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

General Notes

    Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

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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
```

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

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

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

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Tested by: Cisco Systems	**Software Availability:** Jan-2010

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) -static(pass 2) -prof-use(pass 2)`
                `-fno-alias -opt-prefetch`

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

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Peak Optimization Flags (Continued)

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

C++ benchmarks:

444.namd: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)`
`-unroll2 -ansi-alias -scalar-rep-`

450.soplex: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)`
`-unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

416.gamess: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
`-unroll2 -Ob0 -ansi-alias -scalar-rep-`

434.zeusmp: `basepeak = yes`

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

459.GemsFDTD: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
`-unroll2 -Ob0`

465.tonto: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)`
`-opt-prefetch -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

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Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revG.20100929.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revG.20100929.xml

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