SPEC® CFP2006 Result

Cisco Systems

Cisco UCS C240 M4 (Intel Xeon E5-2667 v3 @ 3.20GHz)

$SPECfp^®\_rate2006 = \quad 673$

$SPECfp\_rate\_base2006 = \quad 656$

Benchmark	Copies	Result
410.bwaves	32	549
416.gamess	32	752
416.gamess	32	712
433.milc	32	538
433.milc	32	538
434.zeusmp	32	756
435.gromacs	32	848
435.gromacs	32	817
436.cactusADM	32	879
437.leslie3d	16	422
437.leslie3d	32	389
444.namd	32	554
444.namd	32	552
447.dealII	32	1100
450.soplex	16	412
450.soplex	32	372
453.povray	32	1090
453.povray	32	964
454.calculix	32	978
459.GemsFDTD	32	369
465.tonto	32	767
465.tonto	32	738
470.lbm	32	732
481.wrf	32	674
481.wrf	32	673
482.sphinx3	32	598
482.sphinx3	32	608

SPECfp_rate_base2006 = 656

SPECfp_rate2006 = 673

Hardware

CPU Name:	Intel Xeon E5-2667 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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) 3.0.76-0.11-default
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)

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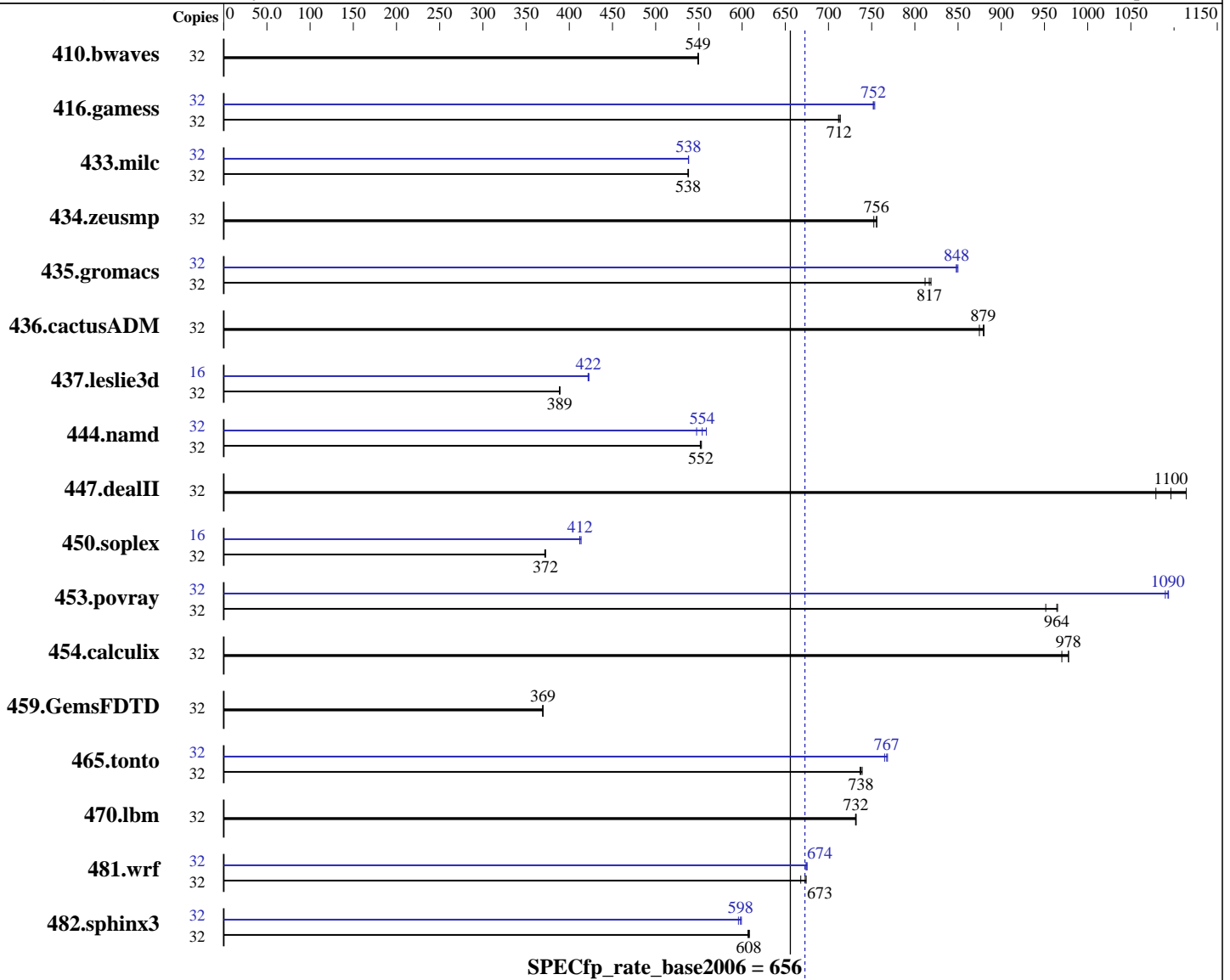|	
CPU2006 license: 9019	**Test date:** Oct-2014
Test sponsor: Cisco Systems	**Hardware Availability:** Sep-2014
Tested by: Cisco Systems	**Software Availability:** Sep-2013

L3 Cache:	20 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)	Other Software:	None
Disk Subsystem:	1 x 400GB SAS, SSD 6GB/s		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	**_792_**	**_549_**	792	549	791	550	32	**_792_**	**_549_**	792	549	791	550
416.gamess	32	880	712	878	714	**_879_**	**_712_**	32	**_833_**	**_752_**	831	754	833	752
433.milc	32	546	538	547	537	**_546_**	**_538_**	32	546	538	**_546_**	**_538_**	546	538
434.zeusmp	32	387	753	**_385_**	**_756_**	385	756	32	387	753	**_385_**	**_756_**	385	756
435.gromacs	32	279	819	281	812	**_280_**	**_817_**	32	269	850	**_269_**	**_848_**	269	848
436.cactusADM	32	**_435_**	**_879_**	437	875	435	880	32	**_435_**	**_879_**	437	875	435	880
437.leslie3d	32	**_774_**	**_389_**	774	389	773	389	16	**_356_**	**_422_**	357	422	356	423
444.namd	32	464	553	**_465_**	**_552_**	465	552	32	459	559	**_463_**	**_554_**	469	547
447.dealII	32	339	1080	**_334_**	**_1100_**	329	1110	32	339	1080	**_334_**	**_1100_**	329	1110
450.soplex	32	**_717_**	**_372_**	717	372	718	372	16	323	414	324	412	**_324_**	**_412_**
453.povray	32	176	965	179	952	**_177_**	**_964_**	32	156	1090	**_156_**	**_1090_**	156	1090
454.calculix	32	**_270_**	**_978_**	272	970	270	978	32	**_270_**	**_978_**	272	970	270	978
459.GemsFDTD	32	918	370	**_919_**	**_369_**	920	369	32	918	370	**_919_**	**_369_**	920	369
465.tonto	32	**_427_**	**_738_**	426	739	428	737	32	412	765	410	768	**_410_**	**_767_**
470.lbm	32	**_601_**	**_732_**	601	731	601	732	32	**_601_**	**_732_**	601	731	601	732
481.wrf	32	**_531_**	**_673_**	535	668	530	674	32	530	674	529	675	**_530_**	**_674_**
482.sphinx3	32	**_1026_**	**_608_**	1025	608	1028	607	32	**_1043_**	**_598_**	1041	599	1047	596

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.

Operating System Notes

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

Platform Notes

CPU performance set to Enterprise
Power Technology set to Energy Efficient
Energy Performance BIAS setting set to Balanced Performance

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Cisco UCS C240 M4 (Intel Xeon E5-2667 v3 @ 3.20GHz)

SPECfp_rate2006 = 673

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CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2013

Platform Notes (Continued)

```
Memory RAS configuration set to Maximum Performance
QPI configuration: COD set to Disabled
QPI configuration: Early Snoop set to Enabled
 Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on linux-spec Tue Nov 18 20:03:22 2014

 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 E5-2667 v3 @ 3.20GHz
       2 "physical id"s (chips)
       32 "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  : 16
       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:       264441504 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 11 (x86_64)

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 11 (x86_64)
       VERSION = 11
       PATCHLEVEL = 3

 uname -a:
    Linux linux-spec 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
    (ccab990) x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Nov 18 10:33 last=S

 SPEC is set to: /opt/cpu2006-1.2
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sdc2       ext3  364G   13G  350G   4% /

 Additional information from dmidecode:
   BIOS Cisco Systems, Inc. C240M4.2.0.3b.0.091220141950 09/12/2014
   Memory:
    16x 0xCE00 M393A2G40DB0-CPB 16 GB 2133 MHz
```
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Cisco Systems

Cisco UCS C240 M4 (Intel Xeon E5-2667 v3 @ 3.20GHz)

SPECfp_rate2006 =   673

SPECfp_rate_base2006 =   656

CPU2006 license: 9019		**Test date:**	Oct-2014
Test sponsor: Cisco Systems		**Hardware Availability:**	Sep-2014
Tested by: Cisco Systems		**Software Availability:**	Sep-2013

Platform Notes (Continued)

```
    8x NO DIMM NO DIMM

 (End of data from sysinfo program)
```

General Notes

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

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 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
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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
```

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SPECfp_rate2006 = 673

SPECfp_rate_base2006 = 656

CPU2006 license:	9019	**Test date:**	Oct-2014
Test sponsor:	Cisco Systems	**Hardware Availability:**	Sep-2014
Tested by:	Cisco Systems	**Software Availability:**	Sep-2013

Base Portability Flags (Continued)

```
  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:
```
    -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
```

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
```

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Test sponsor: Cisco Systems		**Hardware Availability:**	Sep-2014
Tested by: Cisco Systems		**Software Availability:**	Sep-2013

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: -xCORE-AVX2(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)
             -auto-ilp32

    470.lbm: basepeak = yes

 482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
             -unroll2
```

C++ benchmarks:

```
   444.namd: -xCORE-AVX2(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

  447.dealII: basepeak = yes

  450.soplex: -xCORE-AVX2(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: -xCORE-AVX2(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
```

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CPU2006 license: 9019		**Test date:**	Oct-2014
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Tested by: Cisco Systems		**Software Availability:**	Sep-2013

Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(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 -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.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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