SPEC® CFP2006 Result
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Fujitsu

PRIMERGY CX2550 M1, Intel Xeon E5-2643 v3, 3.4 GHz

$SPECfp^{®}\_rate2006 = 592$

$SPECfp\_rate\_base2006 = 576$

CPU2006 license: 19	**Test date:** Dec-2014
Test sponsor: Fujitsu	**Hardware Availability:** Sep-2014
Tested by: Fujitsu	**Software Availability:** Sep-2014

Copies

Benchmark	Copies	Value
410.bwaves	24	533
416.gamess	24	587
416.gamess	24	561
433.milc	24	530
433.milc	24	529
434.zeusmp	24	657
435.gromacs	24	664
435.gromacs	24	651
436.cactusADM	24	716
437.leslie3d	12	435
437.leslie3d	24	367
444.namd	24	467
444.namd	24	460
447.dealII	24	877
450.soplex	12	376
450.soplex	24	369
453.povray	24	853
453.povray	24	763
454.calculix	24	859
459.GemsFDTD	24	347
465.tonto	24	673
465.tonto	24	623
470.lbm	24	669
481.wrf	24	645
481.wrf	24	643
482.sphinx3	24	527

SPECfp_rate_base2006 = 576

SPECfp_rate2006 = 592

Hardware

CPU Name:	Intel Xeon E5-2643 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chip
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:	Red Hat Enterprise Linux Server release 7.0 (Maipo) Kernel 3.10.0-123.8.1.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	xfs

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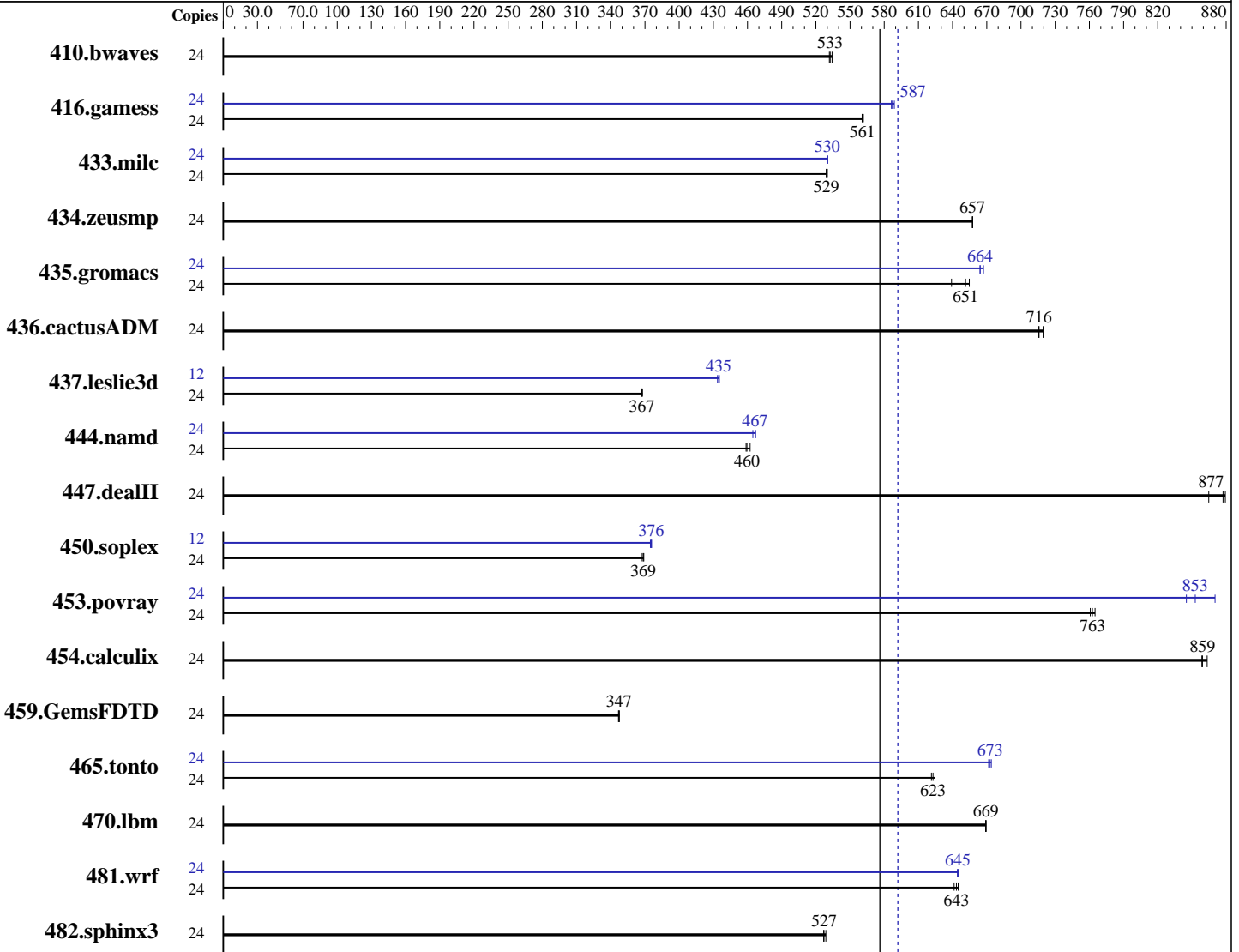|	
SPECfp_rate2006 =	592
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CPU2006 license: 19
Test sponsor: Fujitsu
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Test date: Dec-2014
Hardware Availability: Sep-2014
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L3 Cache:	20 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	613	532	**612**	**533**	611	534	24	613	532	**612**	**533**	611	534
416.gamess	24	837	562	838	561	**838**	**561**	24	801	586	**801**	**587**	798	589
433.milc	24	416	530	416	529	**416**	**529**	24	416	530	**416**	**530**	415	530
434.zeusmp	24	332	657	332	658	**332**	**657**	24	332	657	332	658	**332**	**657**
435.gromacs	24	268	639	**263**	**651**	262	655	24	257	667	**258**	**664**	258	664
436.cactusADM	24	399	719	401	716	**401**	**716**	24	399	719	401	716	**401**	**716**
437.leslie3d	24	**614**	**367**	613	368	615	367	12	260	434	**260**	**435**	259	435
444.namd	24	416	462	420	459	**419**	**460**	24	**413**	**467**	412	467	414	465
447.dealII	24	312	879	317	865	**313**	**877**	24	312	879	317	865	**313**	**877**
450.soplex	24	542	369	**543**	**369**	545	368	12	266	376	267	375	**266**	**376**
453.povray	24	**167**	**763**	168	761	167	765	24	147	870	**150**	**853**	151	845
454.calculix	24	229	863	231	859	**230**	**859**	24	229	863	231	859	**230**	**859**
459.GemsFDTD	24	**734**	**347**	733	348	734	347	24	**734**	**347**	733	348	734	347
465.tonto	24	**379**	**623**	378	625	380	621	24	352	672	**351**	**673**	350	674
470.lbm	24	493	669	493	669	**493**	**669**	24	493	669	493	669	**493**	**669**
481.wrf	24	416	645	**417**	**643**	418	641	24	416	644	**416**	**645**	416	645
482.sphinx3	24	888	527	885	529	**887**	**527**	24	888	527	885	529	**887**	**527**

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

BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced

Continued on next page

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Platform Notes (Continued)

```
   QPI snoop mode: Early Snoop
      COD Enable = Disabled, Early Snoop = Enabled
   CPU C1E Support = Disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>

 This result was measured on the PRIMERGY CX2550 M1. The PRIMERGY CX2550 M1
 and the PRIMERGY CX2570 M1 are electronically equivalent.
 For information about Fujitsu please visit: http://www.fujitsu.com
```

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
```

Continued on next page

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Base Portability Flags (Continued)

```
   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:
```
   -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
   -ansi-alias
```

C++ benchmarks:
```
   -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
   -ansi-alias
```

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
```

Peak Compiler Invocation

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

C++ benchmarks (except as noted below):
```
   icpc  -m64
```
```
    450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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

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

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Tested by:	Fujitsu	**Software Availability:**	Sep-2014

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
482.sphinx3: -DSPEC_CPU_LP64
```

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

 470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
444.namd: -xCORE-AVX2(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: basepeak = yes

450.soplex: -xCORE-AVX2(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

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
            -ansi-alias
```

Fortran benchmarks:

Fujitsu

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Tested by: Fujitsu	**Software Availability:** Sep-2014

Peak Optimization Flags (Continued)

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) -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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html

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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
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jan 27 13:33:41 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 January 2015.