SPEC® CFP2006 Result
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Fujitsu

PRIMERGY BX2580 M1, Intel Xeon E5-2695 v3, 2.3 GHz

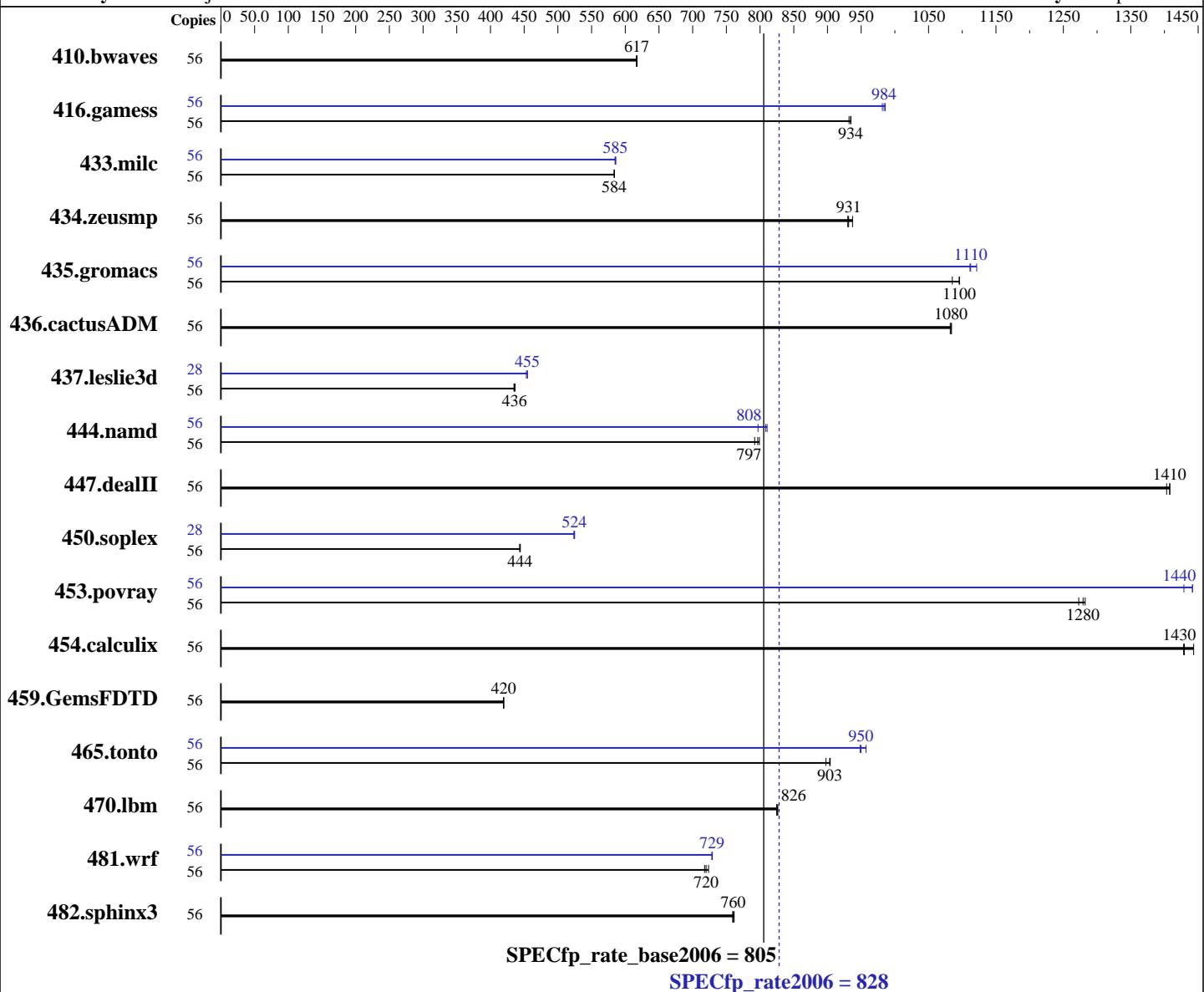$SPECfp^®\_rate2006 =$ 828

$SPECfp\_rate\_base2006 =$ 805

CPU2006 license: 19	**Test date:** Apr-2015
Test sponsor: Fujitsu	**Hardware Availability:** Mar-2015
Tested by: Fujitsu	**Software Availability:** Sep-2014

Copies

Benchmark	Copies	Result
410.bwaves	56	617
416.gamess	56	984
416.gamess	56	934
433.milc	56	585
433.milc	56	584
434.zeusmp	56	931
435.gromacs	56	1110
435.gromacs	56	1100
436.cactusADM	56	1080
437.leslie3d	28	455
437.leslie3d	56	436
444.namd	56	808
444.namd	56	797
447.dealII	56	1410
450.soplex	28	524
450.soplex	56	444
453.povray	56	1440
453.povray	56	1280
454.calculix	56	1430
459.GemsFDTD	56	420
465.tonto	56	950
465.tonto	56	903
470.lbm	56	826
481.wrf	56	729
481.wrf	56	720
482.sphinx3	56	760

SPECfp_rate_base2006 = 805

SPECfp_rate2006 = 828

Hardware

CPU Name:	Intel Xeon E5-2695 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	28 cores, 2 chips, 14 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 7.1 (Maipo) Kernel 3.10.0-229.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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$SPECfp\_rate2006 =$ **828**

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CPU2006 license: 19	**Test date:** Apr-2015
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L3 Cache:	35 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							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	56	1233	617	**1234**	**617**	1234	617	56	1233	617	**1234**	**617**	1234	617
416.gamess	56	1177	932	1173	935	**1174**	**934**	56	1117	981	1112	986	**1114**	**984**
433.milc	56	880	584	**881**	**584**	881	584	56	877	586	**878**	**585**	879	585
434.zeusmp	56	548	930	544	937	**547**	**931**	56	548	930	544	937	**547**	**931**
435.gromacs	56	**365**	**1100**	368	1090	365	1100	56	357	1120	360	1110	**359**	**1110**
436.cactusADM	56	618	1080	**618**	**1080**	617	1080	56	618	1080	**618**	**1080**	617	1080
437.leslie3d	56	**1208**	**436**	1210	435	1206	437	28	581	453	**579**	**455**	579	455
444.namd	56	**564**	**797**	562	799	567	792	56	563	797	**556**	**808**	554	810
447.dealII	56	455	1410	**455**	**1410**	457	1400	56	455	1410	**455**	**1410**	457	1400
450.soplex	56	1054	443	**1052**	**444**	1051	444	28	446	524	**445**	**524**	445	525
453.povray	56	232	1280	234	1270	**233**	**1280**	56	207	1440	209	1430	**207**	**1440**
454.calculix	56	320	1440	**323**	**1430**	323	1430	56	320	1440	**323**	**1430**	323	1430
459.GemsFDTD	56	1417	419	1416	420	**1416**	**420**	56	1417	419	1416	420	**1416**	**420**
465.tonto	56	**610**	**903**	609	904	614	898	56	**580**	**950**	581	948	576	957
470.lbm	56	931	826	**932**	**826**	933	825	56	931	826	**932**	**826**	933	825
481.wrf	56	865	724	872	718	**869**	**720**	56	859	729	858	729	**858**	**729**
482.sphinx3	56	**1436**	**760**	1437	759	1433	762	56	**1436**	**760**	1437	759	1433	762

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

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Platform Notes (Continued)

```
    QPI snoop mode: Cluster on Die
       COD Enable = Enabled, Early Snoop = Disabled
    CPU C1E Support = Disabled
    QPI Link Frequency Select = 6.4 GT/s
```

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
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/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>

 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
```

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Base Portability Flags (Continued)

```
    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:
```
    -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:
```
    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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Hardware Availability: Mar-2015
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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)
          -opt-mem-layout-trans=3(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)
          -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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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-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.

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