SPEC® CFP2006 Result
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Fujitsu

PRIMEQUEST 2800E, Intel Xeon E7-8890 v2, 2.80 GHz

$SPECfp®\_rate2006 = 3310$

$SPECfp\_rate\_base2006 = 3240$

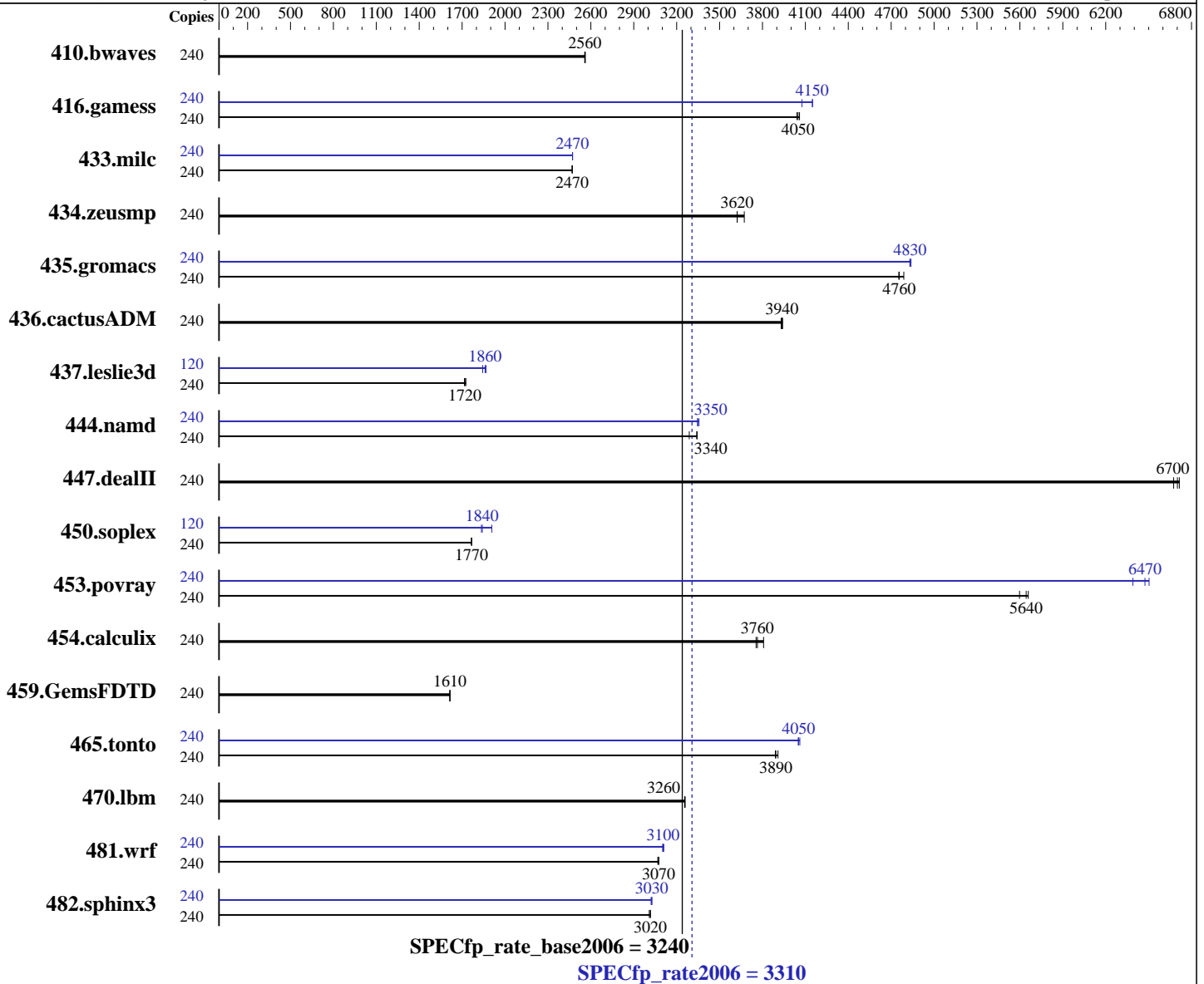**CPU2006 license:** 19　　　　　　　　　　　　　　　　　　　　　**Test date:** Jan-2014
Test sponsor: Fujitsu　　　　　　　　　　　　　　　　　　　**Hardware Availability:** Feb-2014
Tested by: Fujitsu　　　　　　　　　　　　　　　　　　　　**Software Availability:** Apr-2014

Benchmark	Copies	Result
410.bwaves	240	2560
416.gamess	240	4150
416.gamess	240	4050
433.milc	240	2470
433.milc	240	2470
434.zeusmp	240	3620
435.gromacs	240	4830
435.gromacs	240	4760
436.cactusADM	240	3940
437.leslie3d	120	1860
437.leslie3d	240	1720
444.namd	240	3350
444.namd	240	3340
447.dealII	240	6700
450.soplex	120	1840
450.soplex	240	1770
453.povray	240	6470
453.povray	240	5640
454.calculix	240	3760
459.GemsFDTD	240	1610
465.tonto	240	4050
465.tonto	240	3890
470.lbm	240	3260
481.wrf	240	3100
481.wrf	240	3070
482.sphinx3	240	3030
482.sphinx3	240	3020

SPECfp_rate_base2006 = 3240

SPECfp_rate2006 = 3310

Hardware

CPU Name: Intel Xeon E7-8890 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz: 2800
FPU: Integrated
CPU(s) enabled: 120 cores, 8 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable: 2,4,6,8 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: Red Hat Enterprise Linux Server release 6.5 (Santiago)
2.6.32-431.el6.x86_64
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: ext4

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L3 Cache:	37.5 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	2 TB (128 x 16 GB 2Rx4 PC3L-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	4 x SAS, 600 GB, 10000 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	240	1273	2560	1275	2560	**1275**	**2560**	240	1273	2560	1275	2560	**1275**	**2560**
416.gamess	240	**1160**	**4050**	1163	4040	1158	4060	240	1153	4080	1132	4150	**1133**	**4150**
433.milc	240	892	2470	**892**	**2470**	892	2470	240	**891**	**2470**	891	2470	891	2470
434.zeusmp	240	603	3620	**603**	**3620**	595	3670	240	603	3620	**603**	**3620**	595	3670
435.gromacs	240	358	4790	360	4750	**360**	**4760**	240	354	4840	**355**	**4830**	355	4830
436.cactusADM	240	**729**	**3940**	730	3930	728	3940	240	**729**	**3940**	730	3930	728	3940
437.leslie3d	240	1307	1730	**1312**	**1720**	1315	1720	120	604	1870	**606**	**1860**	612	1840
444.namd	240	576	3340	**576**	**3340**	585	3290	240	575	3350	573	3360	**575**	**3350**
447.dealII	240	411	6680	**410**	**6700**	409	6710	240	411	6680	**410**	**6700**	409	6710
450.soplex	240	1133	1770	**1133**	**1770**	1134	1770	120	545	1840	525	1910	**544**	**1840**
453.povray	240	226	5660	228	5600	**226**	**5640**	240	196	6500	200	6390	**197**	**6470**
454.calculix	240	**526**	**3760**	520	3810	527	3760	240	**526**	**3760**	520	3810	527	3760
459.GemsFDTD	240	**1577**	**1610**	1577	1620	1577	1610	240	**1577**	**1610**	1577	1620	1577	1610
465.tonto	240	604	3910	607	3890	**607**	**3890**	240	583	4050	**583**	**4050**	581	4060
470.lbm	240	1013	3260	**1012**	**3260**	1012	3260	240	1013	3260	**1012**	**3260**	1012	3260
481.wrf	240	**872**	**3070**	874	3070	872	3080	240	862	3110	**863**	**3100**	864	3100
482.sphinx3	240	1555	3010	1551	3020	**1551**	**3020**	240	1545	3030	**1546**	**3030**	1548	3020

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

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General Notes

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

 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
    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
```

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Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -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
```

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
```

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Peak Portability Flags (Continued)

```
    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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
                 -unroll2
```

C++ benchmarks:

```
      444.namd: -xAVX(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: -xAVX(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: -xAVX(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
```

Fortran benchmarks:

```
    410.bwaves: basepeak = yes

    416.gamess: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch
```

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Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(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: -xAVX(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: -xAVX -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/Fujitsu-Platform.20131009.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/Fujitsu-Platform.20131009.xml

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

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