

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

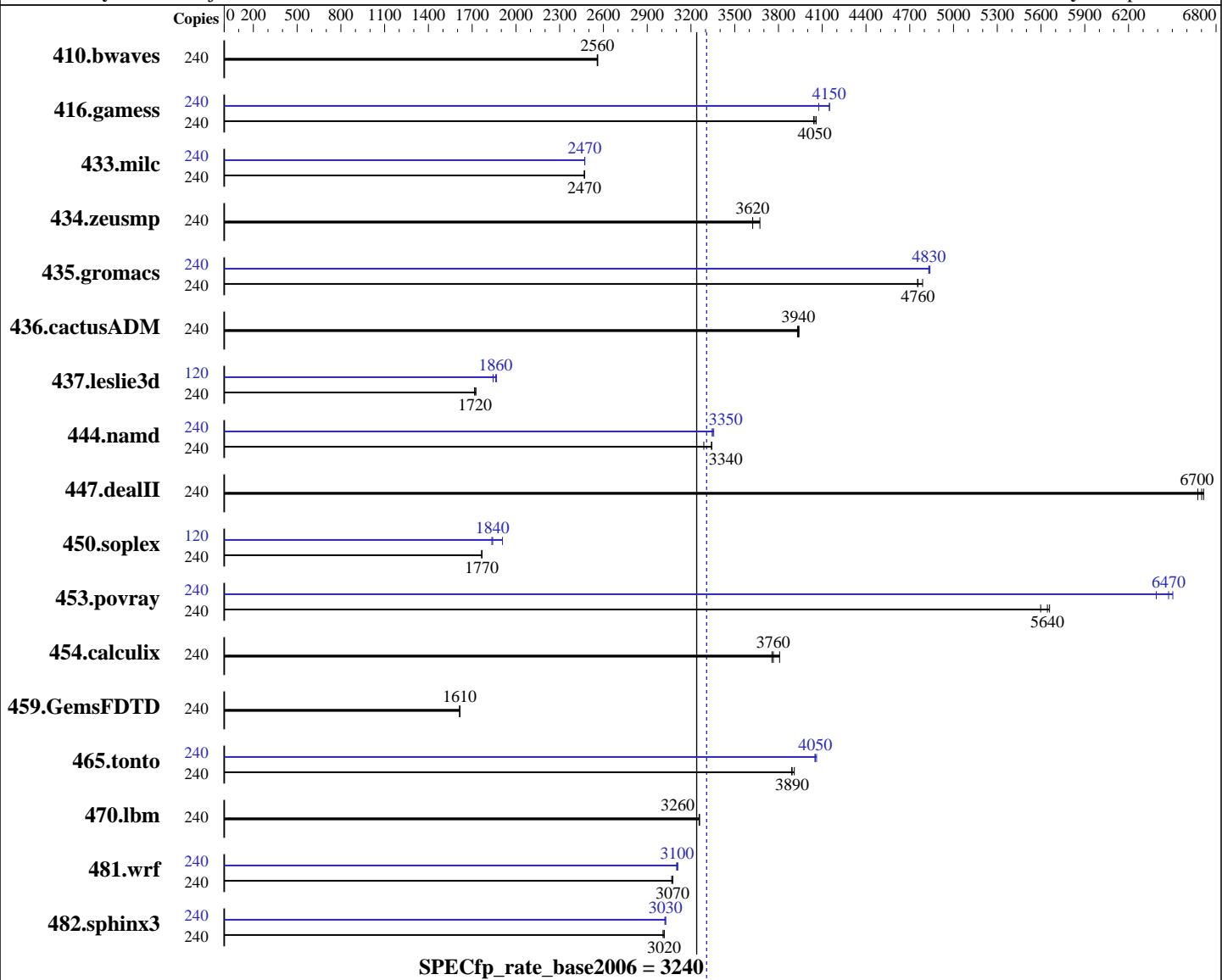
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jan-2014

Hardware Availability: Apr-2014

Software Availability: Apr-2014



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

Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
 Compiler: 2.6.32-431.el6.x86_64
 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
 Other Cache: None
 Memory: 2048 GB (128 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
 Disk Subsystem: 4 x SAS, 600 GB, 10000 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: --

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	<u>1275</u>	<u>2560</u>	240	1273	2560	1275	2560	<u>1275</u>	<u>2560</u>
416.gamess	240	<u>1160</u>	<u>4050</u>	1163	4040	1158	4060	240	1153	4080	1132	4150	<u>1133</u>	<u>4150</u>
433.milc	240	892	2470	<u>892</u>	<u>2470</u>	892	2470	240	<u>891</u>	<u>2470</u>	891	2470	891	2470
434.zeusmp	240	603	3620	<u>603</u>	<u>3620</u>	595	3670	240	603	3620	<u>603</u>	<u>3620</u>	595	3670
435.gromacs	240	358	4790	360	4750	<u>360</u>	<u>4760</u>	240	354	4840	<u>355</u>	<u>4830</u>	355	4830
436.cactusADM	240	<u>729</u>	<u>3940</u>	730	3930	728	3940	240	<u>729</u>	<u>3940</u>	730	3930	728	3940
437.leslie3d	240	1307	1730	<u>1312</u>	<u>1720</u>	1315	1720	120	604	1870	<u>606</u>	<u>1860</u>	612	1840
444.namd	240	576	3340	<u>576</u>	<u>3340</u>	585	3290	240	<u>575</u>	3350	573	3360	<u>575</u>	<u>3350</u>
447.dealII	240	411	6680	<u>410</u>	<u>6700</u>	409	6710	240	411	6680	<u>410</u>	<u>6700</u>	409	6710
450.soplex	240	1133	1770	<u>1133</u>	<u>1770</u>	1134	1770	120	<u>545</u>	1840	525	1910	<u>544</u>	<u>1840</u>
453.povray	240	226	5660	228	5600	<u>226</u>	<u>5640</u>	240	196	6500	200	6390	<u>197</u>	<u>6470</u>
454.calculix	240	<u>526</u>	<u>3760</u>	520	3810	527	3760	240	<u>526</u>	<u>3760</u>	520	3810	527	3760
459.GemsFDTD	240	<u>1577</u>	<u>1610</u>	1577	1620	1577	1610	240	<u>1577</u>	<u>1610</u>	1577	1620	1577	1610
465.tonto	240	604	3910	607	3890	<u>607</u>	<u>3890</u>	240	583	4050	<u>583</u>	<u>4050</u>	581	4060
470.lbm	240	1013	3260	<u>1012</u>	<u>3260</u>	1012	3260	240	1013	3260	<u>1012</u>	<u>3260</u>	1012	3260
481.wrf	240	<u>872</u>	<u>3070</u>	874	3070	872	3080	240	862	3110	<u>863</u>	<u>3100</u>	864	3100
482.sphinx3	240	1555	3010	1551	3020	<u>1551</u>	<u>3020</u>	240	1545	3030	<u>1546</u>	<u>3030</u>	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) -unroll14 -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
```

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.

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