SPEC® CFP2006 Result

Fujitsu

PRIMERGY RX350 S8, Intel Xeon E5-2690 v2, 3.00 GHz

$SPECfp®_rate2006 = $ 655

$SPECfp_rate_base2006 = $ 638

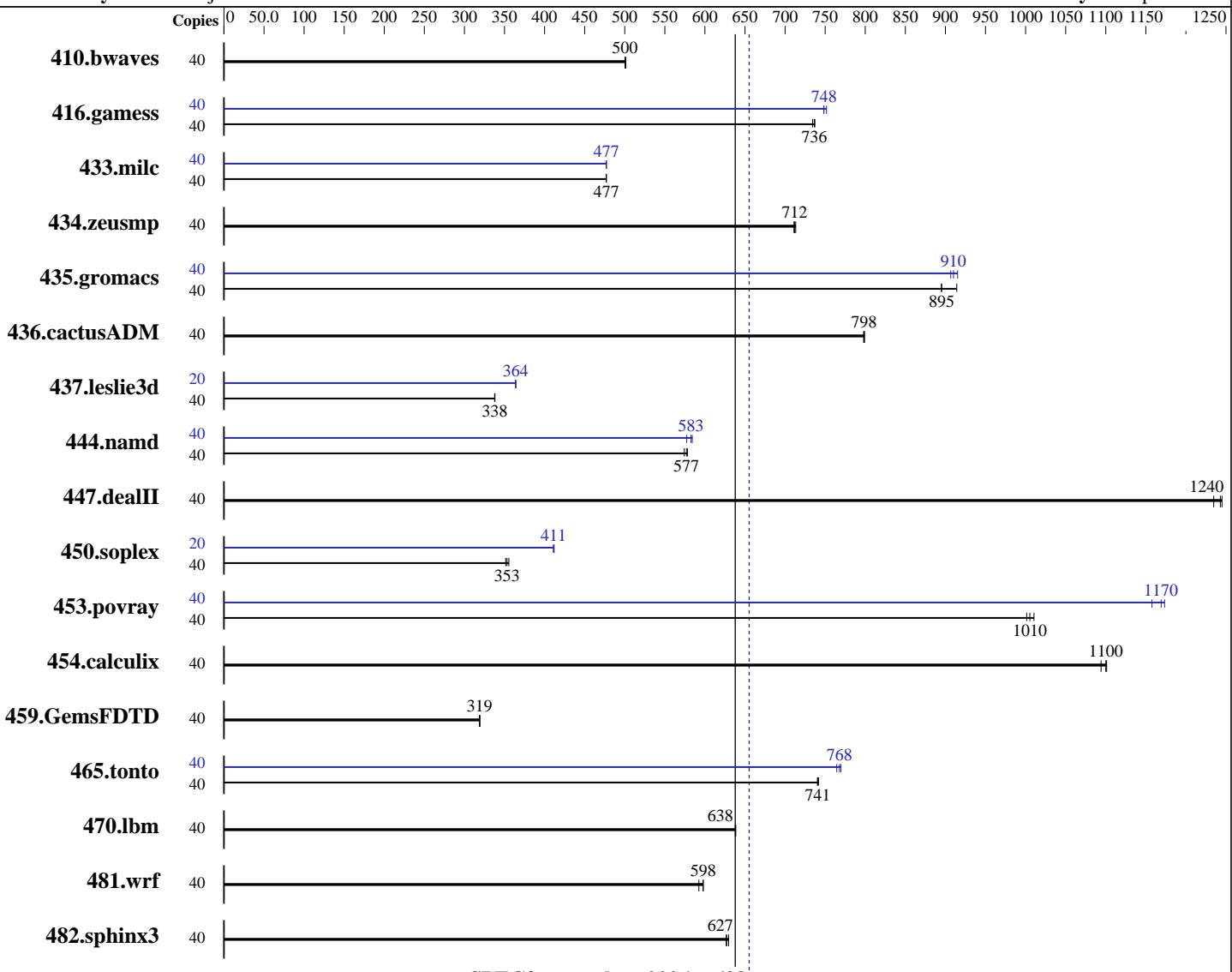| **CPU2006 license:** 19 | **Test date:** Sep-2013 |
| **Test sponsor:** Fujitsu | **Hardware Availability:** Oct-2013 |
| **Tested by:** Fujitsu | **Software Availability:** Sep-2013 |

Copies

Benchmark	Copies	Value
410.bwaves	40	500
416.gamess	40 / 40	748 / 736
433.milc	40 / 40	477 / 477
434.zeusmp	40	712
435.gromacs	40 / 40	910 / 895
436.cactusADM	40	798
437.leslie3d	20 / 40	364 / 338
444.namd	40 / 40	583 / 577
447.dealII	40	1240
450.soplex	20 / 40	411 / 353
453.povray	40 / 40	1170 / 1010
454.calculix	40	1100
459.GemsFDTD	40	319
465.tonto	40 / 40	768 / 741
470.lbm	40	638
481.wrf	40	598
482.sphinx3	40	627

SPECfp_rate_base2006 = 638

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Hardware

CPU Name: Intel Xeon E5-2690 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 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: Red Hat Enterprise Linux Server release 6.4 (Santiago)
2.6.32-358.11.1.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

Continued on next page

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L3 Cache:	25 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 PC3-14900R-13, ECC)	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	40	1086	500	**1086**	**500**	1085	501	40	1086	500	**1086**	**500**	1085	501
416.gamess	40	1062	737	**1064**	**736**	1067	734	40	1042	752	**1046**	**748**	1047	748
433.milc	40	770	477	770	477	**770**	**477**	40	770	477	**770**	**477**	770	477
434.zeusmp	40	**511**	**712**	510	713	512	711	40	**511**	**712**	510	713	512	711
435.gromacs	40	319	895	**319**	**895**	312	914	40	**314**	**910**	312	915	315	907
436.cactusADM	40	598	799	**599**	**798**	599	798	40	598	799	**599**	**798**	599	798
437.leslie3d	40	**1113**	**338**	1114	338	1112	338	20	**516**	**364**	517	364	516	364
444.namd	40	559	574	555	578	**556**	**577**	40	556	577	**551**	**583**	549	584
447.dealII	40	371	1230	**368**	**1240**	368	1240	40	371	1230	**368**	**1240**	368	1240
450.soplex	40	**945**	**353**	939	355	949	351	20	**406**	**411**	405	412	406	411
453.povray	40	**212**	**1010**	213	1000	211	1010	40	**182**	**1170**	184	1160	181	1170
454.calculix	40	**300**	**1100**	300	1100	302	1090	40	**300**	**1100**	300	1100	302	1090
459.GemsFDTD	40	1330	319	**1330**	**319**	1331	319	40	1330	319	**1330**	**319**	1331	319
465.tonto	40	531	742	**531**	**741**	532	740	40	511	770	**513**	**768**	515	764
470.lbm	40	862	638	861	638	**861**	**638**	40	862	638	861	638	**861**	**638**
481.wrf	40	754	592	**747**	**598**	747	598	40	754	592	**747**	**598**	747	598
482.sphinx3	40	1244	627	**1243**	**627**	1238	630	40	1244	627	**1243**	**627**	1238	630

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>
 This result was measured on the PRIMERGY RX350 S8. The PRIMERGY RX350 S8
 and the PRIMERGY TX300 S8 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
         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

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Base Portability Flags (Continued)

    482.sphinx3: -DSPEC_CPU_LP64

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:
    icc   -m64

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

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Peak Portability Flags (Continued)

```
     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: -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: basepeak = yes
```

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-
```

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

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

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: basepeak = yes

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.20130924.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.20130924.xml

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