SPEC® CFP2006 Result
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Fujitsu

PRIMERGY BX924 S3, Intel Xeon E5-2670, 2.60 GHz

$SPECfp^®\_rate2006 =$ 244
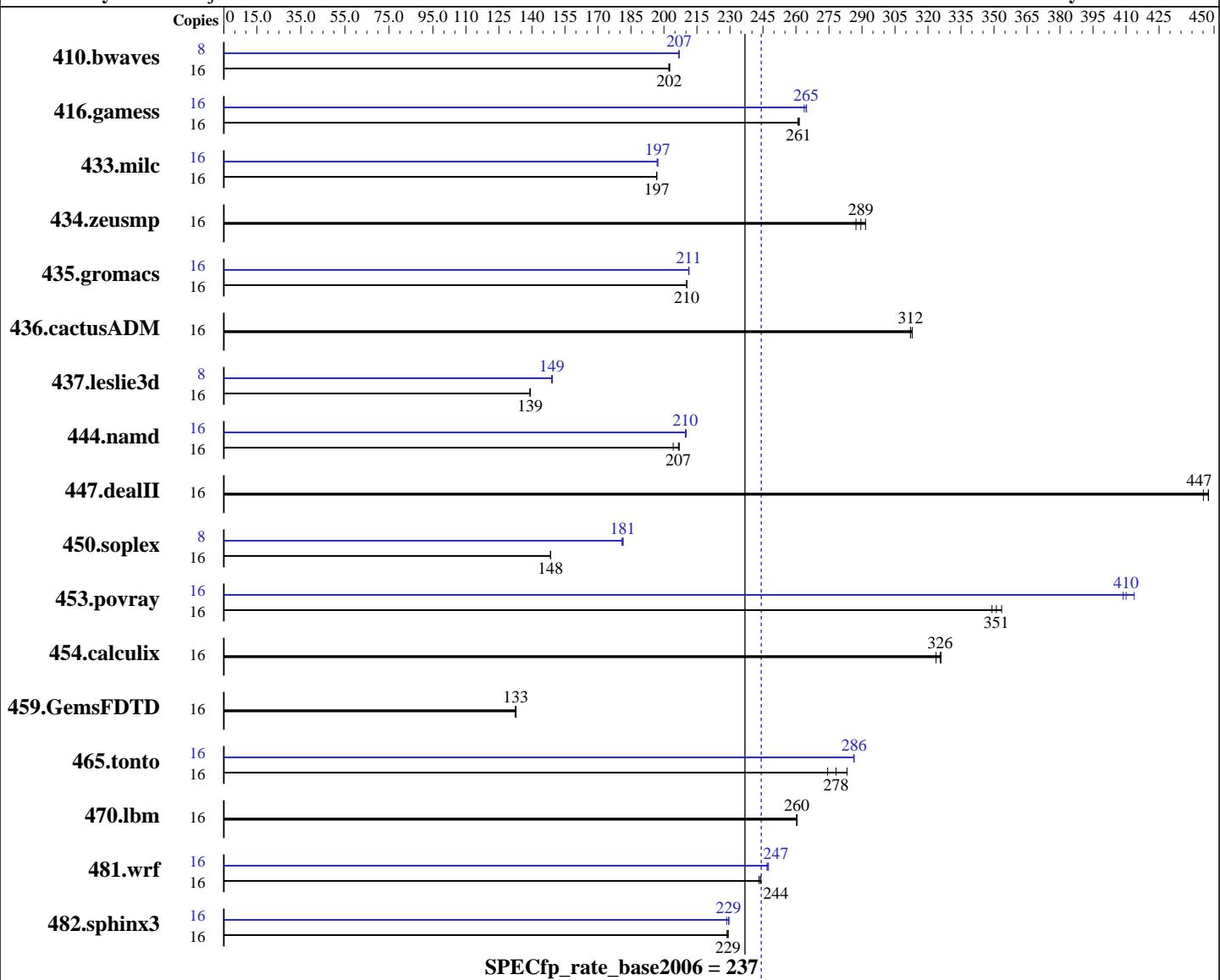
SPECfp_rate_base2006 = 237

CPU2006 license:	19		**Test date:**	Feb-2012
Test sponsor:	Fujitsu		**Hardware Availability:**	Mar-2012
Tested by:	Fujitsu		**Software Availability:**	Dec-2011

Copies — chart scale: 0 15.0 35.0 55.0 75.0 95.0 110 125 140 155 170 185 200 215 230 245 260 275 290 305 320 335 350 365 380 395 410 425 450

- 410.bwaves — 8: 207 — 16: 202
- 416.gamess — 16: 265 — 16: 261
- 433.milc — 16: 197 — 16: 197
- 434.zeusmp — 16: 289
- 435.gromacs — 16: 211 — 16: 210
- 436.cactusADM — 16: 312
- 437.leslie3d — 8: 149 — 16: 139
- 444.namd — 16: 210 — 16: 207
- 447.dealII — 16: 447
- 450.soplex — 8: 181 — 16: 148
- 453.povray — 16: 410 — 16: 351
- 454.calculix — 16: 326
- 459.GemsFDTD — 16: 133
- 465.tonto — 16: 286 — 16: 278
- 470.lbm — 16: 260
- 481.wrf — 16: 247 — 16: 244
- 482.sphinx3 — 16: 229 — 16: 229

SPECfp_rate_base2006 = 237

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Hardware

CPU Name:	Intel Xeon E5-2670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 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 6.2 (Santiago) 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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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:	64 GB (8 x 8 GB 2Rx4 PC3L-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM	Other Software:	None
Other Hardware:	PRIMERGY SX940 S1 for hw_disk		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	**1074**	**202**	1073	203	1075	202	8	**526**	**207**	526	207	525	207
416.gamess	16	1201	261	1198	262	**1199**	**261**	16	1183	265	1188	264	**1184**	**265**
433.milc	16	747	197	747	197	**747**	**197**	16	746	197	745	197	**745**	**197**
434.zeusmp	16	**503**	**289**	499	292	507	287	16	**503**	**289**	499	292	507	287
435.gromacs	16	543	210	543	210	**543**	**210**	16	541	211	540	211	**541**	**211**
436.cactusADM	16	613	312	611	313	**613**	**312**	16	613	312	611	313	**613**	**312**
437.leslie3d	16	**1080**	**139**	1079	139	1081	139	8	505	149	**505**	**149**	504	149
444.namd	16	628	204	620	207	**621**	**207**	16	611	210	**612**	**210**	612	210
447.dealII	16	**409**	**447**	409	447	411	445	16	**409**	**447**	409	447	411	445
450.soplex	16	**899**	**148**	899	148	899	148	8	369	181	**368**	**181**	368	181
453.povray	16	241	353	**242**	**351**	244	349	16	**208**	**410**	208	409	206	414
454.calculix	16	**405**	**326**	405	326	408	324	16	**405**	**326**	405	326	408	324
459.GemsFDTD	16	**1279**	**133**	1278	133	1282	132	16	**1279**	**133**	1278	133	1282	132
465.tonto	16	556	283	574	274	**566**	**278**	16	**550**	**286**	550	286	550	286
470.lbm	16	844	260	**844**	**260**	844	260	16	844	260	**844**	**260**	844	260
481.wrf	16	732	244	**733**	**244**	735	243	16	**723**	**247**	722	248	724	247
482.sphinx3	16	1364	229	**1361**	**229**	1361	229	16	1358	230	**1360**	**229**	1365	229

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"

General Notes

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

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General Notes (Continued)

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
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
```

Base Optimization Flags

C benchmarks:
```
    -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```
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Hardware Availability: Mar-2012
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Base Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -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
   454.calculix: -DSPEC_CPU_LP64 -nofor_main
 459.GemsFDTD: -DSPEC_CPU_LP64
```

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Tested by: Fujitsu

Test date: Feb-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Peak Portability Flags (Continued)

```
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) -prof-use(pass 2) -static -auto-ilp32
          -opt-mem-layout-trans=3
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2
```

C++ benchmarks:

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

```
410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -static
```

```
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- -static
```

```
434.zeusmp: basepeak = yes
```

```
437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -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
```

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Peak Optimization Flags (Continued)

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) `-prof-use`(pass 2) `-opt-prefetch`
`-static` `-auto-ilp32` `-opt-mem-layout-trans=3`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32`
`-opt-mem-layout-trans=3`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.01.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.01.xml

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

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