SPEC® CFP2006 Result
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Fujitsu Siemens Computers

PRIMERGY RX600 S4, Intel Xeon L7445, 2.13 GHz

$SPECfp®\_rate2006 =$ 116

$SPECfp\_rate\_base2006 =$ 110
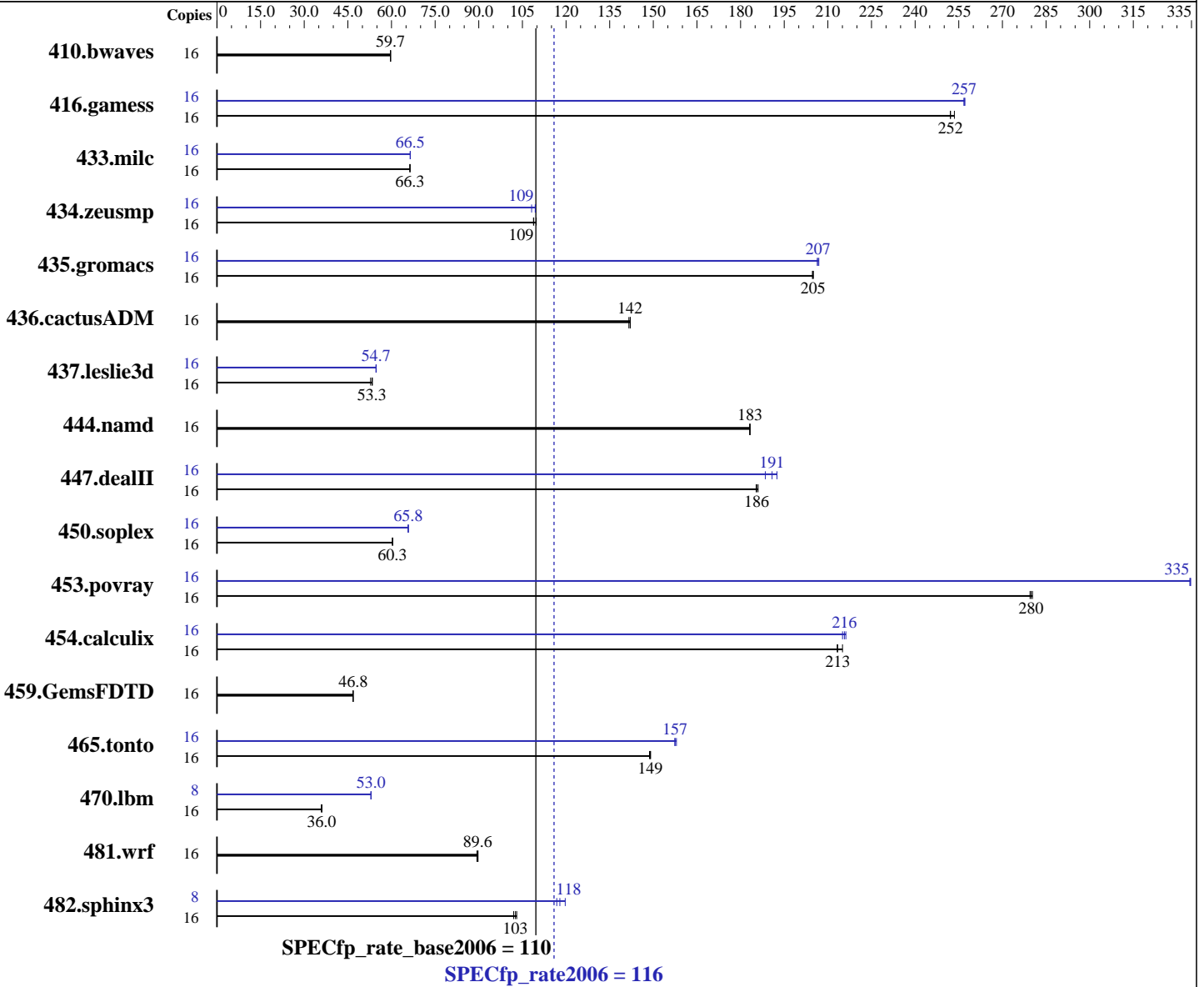
CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

Test date: Oct-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008

Copies — chart axis: 0 15.0 30.0 45.0 60.0 75.0 90.0 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 335

Benchmark	Copies	Result
410.bwaves	16	59.7
416.gamess	16	257
416.gamess	16	252
433.milc	16	66.5
433.milc	16	66.3
434.zeusmp	16	109
434.zeusmp	16	109
435.gromacs	16	207
435.gromacs	16	205
436.cactusADM	16	142
437.leslie3d	16	54.7
437.leslie3d	16	53.3
444.namd	16	183
447.dealII	16	191
447.dealII	16	186
450.soplex	16	65.8
450.soplex	16	60.3
453.povray	16	335
453.povray	16	280
454.calculix	16	216
454.calculix	16	213
459.GemsFDTD	16	46.8
465.tonto	16	157
465.tonto	16	149
470.lbm	8	53.0
470.lbm	16	36.0
481.wrf	16	89.6
482.sphinx3	8	118
482.sphinx3	16	103

SPECfp_rate_base2006 = 110

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Hardware

CPU Name: Intel Xeon L7445
CPU Characteristics: 1067 MHz system bus
CPU MHz: 2133
FPU: Integrated
CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
CPU(s) orderable: 1,2,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 6 MB I+D on chip per chip, 3 MB shared / 2 cores

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel: No
File System: ext3
System State: Multi-User Run Level 3
Base Pointers: 64-bit

Continued on next page

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L3 Cache:	12 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	64 GB (16x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC)		
Disk Subsystem:	1x SAS, 36 GB, 10000 rpm		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	3643	59.7	**3645**	**59.7**	3645	59.7	16	3643	59.7	**3645**	**59.7**	3645	59.7
416.gamess	16	1236	253	1243	252	**1242**	**252**	16	**1219**	**257**	1218	257	1220	257
433.milc	16	2215	66.3	**2214**	**66.3**	2212	66.4	16	2210	66.5	**2210**	**66.5**	2211	66.4
434.zeusmp	16	1326	110	1338	109	**1337**	**109**	16	1330	109	**1331**	**109**	1346	108
435.gromacs	16	**558**	**205**	557	205	558	205	16	552	207	554	206	**553**	**207**
436.cactusADM	16	1350	142	**1346**	**142**	1346	142	16	1350	142	**1346**	**142**	1346	142
437.leslie3d	16	2848	52.8	**2821**	**53.3**	2815	53.4	16	**2750**	**54.7**	2746	54.8	2750	54.7
444.namd	16	**700**	**183**	701	183	700	183	16	**700**	**183**	701	183	700	183
447.dealII	16	**986**	**186**	984	186	987	185	16	951	193	**959**	**191**	971	189
450.soplex	16	**2211**	**60.3**	2212	60.3	2209	60.4	16	2030	65.7	2028	65.8	**2029**	**65.8**
453.povray	16	304	280	**304**	**280**	305	279	16	**254**	**335**	254	335	255	334
454.calculix	16	614	215	**619**	**213**	619	213	16	**612**	**216**	611	216	614	215
459.GemsFDTD	16	3627	46.8	3626	46.8	**3626**	**46.8**	16	3627	46.8	3626	46.8	**3626**	**46.8**
465.tonto	16	1056	149	1059	149	**1057**	**149**	16	**1000**	**157**	1000	157	997	158
470.lbm	16	6124	35.9	**6102**	**36.0**	6096	36.1	8	**2076**	**53.0**	2076	52.9	2075	53.0
481.wrf	16	2000	89.4	1991	89.8	**1994**	**89.6**	16	2000	89.4	1991	89.8	**1994**	**89.6**
482.sphinx3	16	3057	102	3026	103	**3039**	**103**	8	1302	120	1335	117	**1323**	**118**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

> The config file option 'submit' was used.
> taskset has been used to bind processes to cores
> For peak modules using 1/2 the number of available cores, copies
> were each assigned to a single L2 cache using mysubmit.pl script.
> See the flags description file for mysubmit.pl details.

Operating System Notes

> 'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

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Platform Notes

```
BIOS configuration:
High Bandwidth option = Enable
```

General Notes

```
For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.com
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icc ifort
```

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:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

C++ benchmarks (except as noted below):
```
icpc
```

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

Fortran benchmarks (except as noted below):
```
ifort
```

```
437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

Benchmarks using both Fortran and C:
```
icc ifort
```

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
```

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Peak Portability Flags (Continued)

```
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
   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
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -fno-alias

 470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
          -auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

C++ benchmarks:

```
 444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll2 -Ob0 -ansi-alias
            -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
              -no-prec-div -static -opt-malloc-options=3 -opt-prefetch
```

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Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
           -no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
             -no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.13.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.13.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 20:44:47 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 October 2008.