SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX100 S6, Intel Xeon X3460, 2.80 GHz

$SPECfp^{®}2006 =$ 39.0

$SPECfp\_base2006 =$ 36.4

CPU2006 license:	19		**Test date:**	Dec-2009
Test sponsor:	Fujitsu		**Hardware Availability:**	Jan-2010
Tested by:	Fujitsu		**Software Availability:**	Nov-2009

Benchmark results chart (scale 0 to 115):

- **410.bwaves**: 79.5 / 79.3
- **416.gamess**: 26.8 / 24.1
- **433.milc**: 49.9
- **434.zeusmp**: 36.6
- **435.gromacs**: 23.8 / 23.2
- **436.cactusADM**: 111 / 95.3
- **437.leslie3d**: 30.5
- **444.namd**: 19.9 / 19.8
- **447.dealII**: 39.6 / 38.4
- **450.soplex**: 28.7 / 28.1
- **453.povray**: 37.6 / 28.9
- **454.calculix**: 31.2 / 30.2
- **459.GemsFDTD**: 39.7 / 38.1
- **465.tonto**: 33.1 / 23.9
- **470.lbm**: 49.1 / 48.4
- **481.wrf**: 47.4 / 41.2
- **482.sphinx3**: 44.1

SPECfp_base2006 = 36.4

SPECfp2006 = 39.0

Hardware

CPU Name:	Intel Xeon X3460
CPU Characteristics:	Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-User Run Level 3

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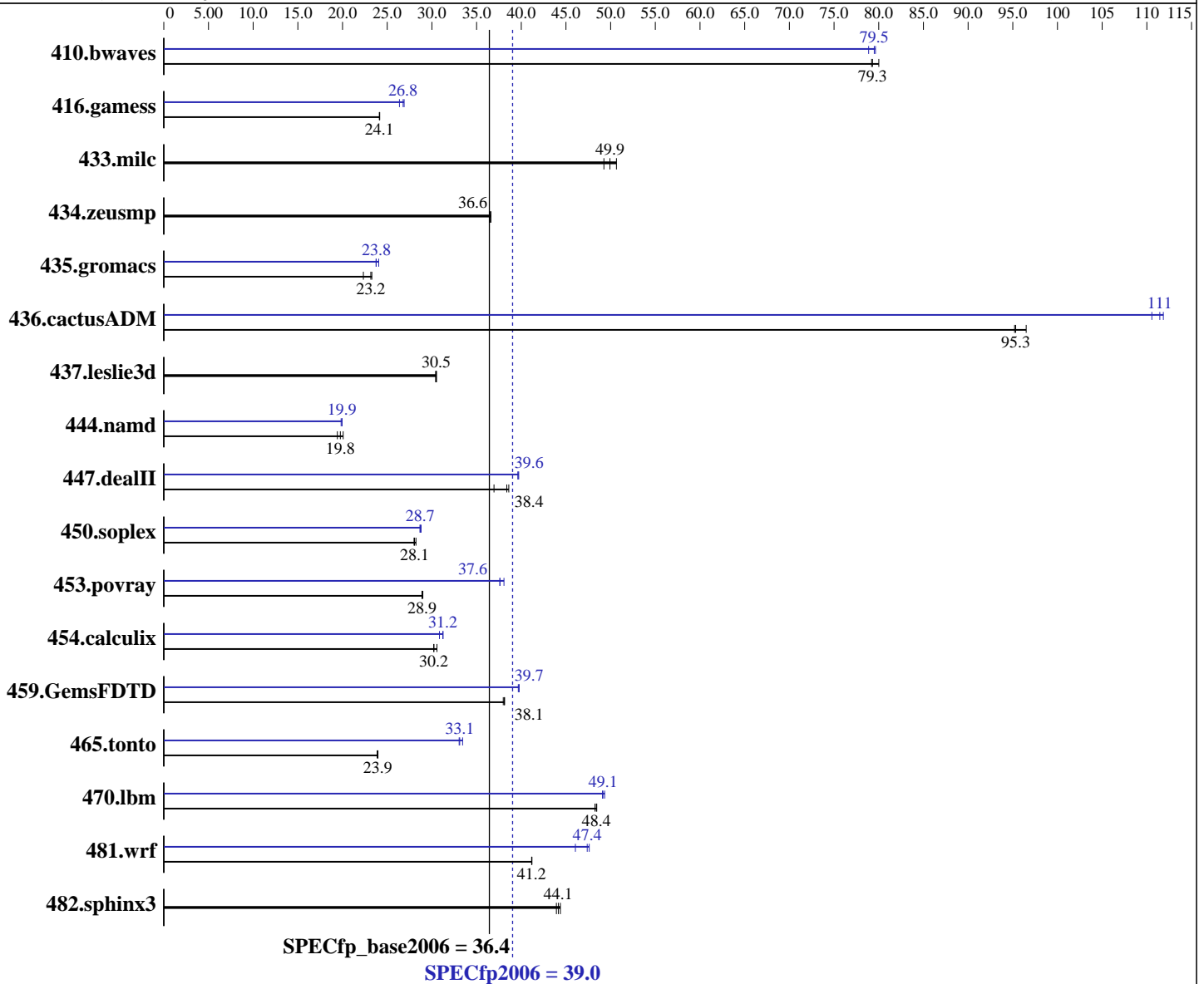| $SPECfp2006 =$	39.0
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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC)
Disk Subsystem:	1 x SATA, 250 GB, 7200 RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	172	79.2	**171**	**79.3**	170	80.0	171	79.6	172	78.9	**171**	**79.5**
416.gamess	**811**	**24.1**	812	24.1	810	24.2	728	26.9	743	26.4	**731**	**26.8**
433.milc	**184**	**49.9**	186	49.2	181	50.6	**184**	**49.9**	186	49.2	181	50.6
434.zeusmp	249	36.5	**249**	**36.6**	249	36.6	249	36.5	**249**	**36.6**	249	36.6
435.gromacs	**308**	**23.2**	320	22.3	307	23.3	**300**	**23.8**	297	24.1	301	23.7
436.cactusADM	126	95.2	**125**	**95.3**	124	96.5	108	111	107	112	**107**	**111**
437.leslie3d	308	30.5	309	30.4	**308**	**30.5**	308	30.5	309	30.4	**308**	**30.5**
444.namd	**406**	**19.8**	413	19.4	400	20.1	402	19.9	**402**	**19.9**	404	19.8
447.dealII	310	36.9	**298**	**38.4**	296	38.6	289	39.6	**289**	**39.6**	288	39.7
450.soplex	**297**	**28.1**	296	28.2	298	28.0	**291**	**28.7**	291	28.7	290	28.8
453.povray	184	29.0	**184**	**28.9**	184	28.9	141	37.6	**141**	**37.6**	140	38.1
454.calculix	273	30.2	**273**	**30.2**	270	30.6	267	30.8	**264**	**31.2**	264	31.2
459.GemsFDTD	**279**	**38.1**	279	38.0	278	38.1	267	39.8	**267**	**39.7**	267	39.7
465.tonto	**411**	**23.9**	412	23.9	411	24.0	**297**	**33.1**	298	33.0	294	33.4
470.lbm	284	48.4	**284**	**48.4**	285	48.3	279	49.3	280	49.1	**280**	**49.1**
481.wrf	**271**	**41.2**	271	41.2	271	41.2	**236**	**47.4**	235	47.6	243	46.1
482.sphinx3	444	43.9	439	44.4	**442**	**44.1**	444	43.9	439	44.4	**442**	**44.1**

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

Operating System Notes

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

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
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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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

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Hardware Availability: Jan-2010
Software Availability: Nov-2009

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
       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: basepeak = yes

          470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                   -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                   -parallel -ansi-alias -auto-ilp32

       482.sphinx3: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
        `-fno-alias -auto-ilp32`

    447.dealII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
        `-unroll2 -ansi-alias -scalar-rep- -auto-ilp32`

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

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

Fortran benchmarks:

    410.bwaves: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
        `-parallel`

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

    434.zeusmp: `basepeak = yes`

    437.leslie3d: `basepeak = yes`

    459.GemsFDTD: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
        `-unroll2 -Ob0 -opt-prefetch -parallel`

    465.tonto: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
        `-inline-calloc -opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

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

    436.cactusADM: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
        `-unroll2 -opt-prefetch -parallel -auto-ilp32`

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Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `Same as 454.calculix`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.20100202.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.20100202.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 Wed Jul 23 05:51:01 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 February 2010.