SPEC® CFP2006 Result
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Fujitsu

PRIMERGY BX922 S2, Intel Xeon E5620, 2.40 GHz

$SPECfp^{®}2006 =$ 37.2

$SPECfp\_base2006 =$ 34.6

CPU2006 license: 19		**Test date:**	Feb-2010
Test sponsor:	Fujitsu	**Hardware Availability:**	Mar-2010
Tested by:	Fujitsu	**Software Availability:**	Jan-2010

Benchmark results:

- 410.bwaves: 158 / 157
- 416.gamess: 21.5 / 19.3
- 433.milc: 41.6 / 41.2
- 434.zeusmp: 29.1
- 435.gromacs: 18.9 / 18.7
- 436.cactusADM: 175 / 156
- 437.leslie3d: 30.0
- 444.namd: 15.8
- 447.dealII: 31.5 / 30.9
- 450.soplex: 26.7 / 26.6
- 453.povray: 30.5 / 23.9
- 454.calculix: 24.1 / 23.3
- 459.GemsFDTD: 59.7 / 43.0
- 465.tonto: 26.5 / 20.1
- 470.lbm: 55.6 / 55.2
- 481.wrf: 39.4 / 35.8
- 482.sphinx3: 36.7

SPECfp_base2006 = 34.6

SPECfp2006 = 37.2

Hardware

CPU Name:	Intel Xeon E5620
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
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

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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 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-User Run Level 3

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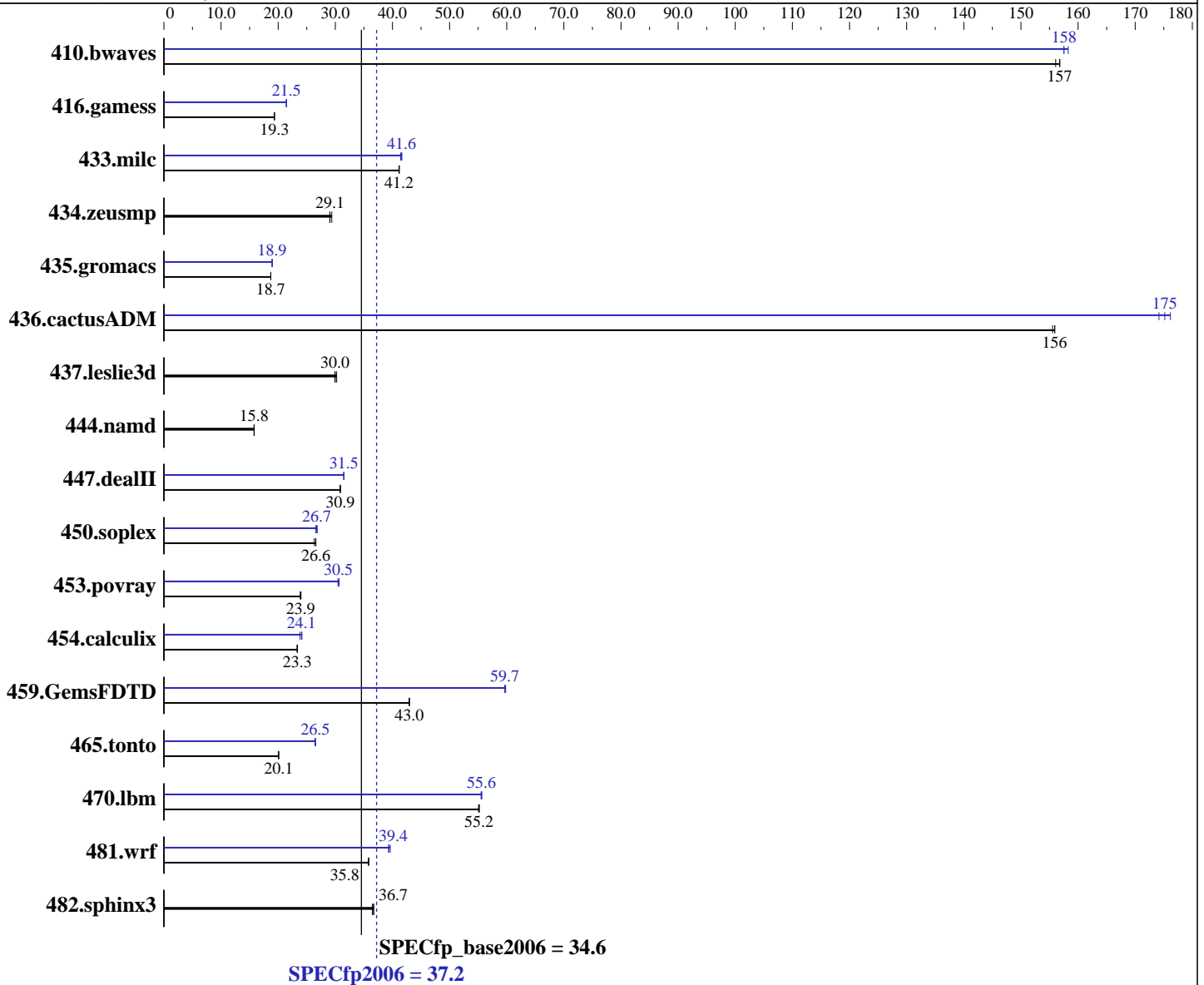|	
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L3 Cache:	12 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)	Other Software:	Binutils 2.18.50.0.7.20080502
Disk Subsystem:	1 x SSD SATA, 60 GB		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	86.7	157	87.1	156	**86.7**	**157**	86.3	158	**86.3**	**158**	85.9	158
416.gamess	**1012**	**19.3**	1012	19.4	1015	19.3	912	21.5	**913**	**21.5**	915	21.4
433.milc	223	41.2	223	41.2	**223**	**41.2**	221	41.6	**221**	**41.6**	222	41.4
434.zeusmp	**313**	**29.1**	310	29.4	313	29.0	**313**	**29.1**	310	29.4	313	29.0
435.gromacs	382	18.7	382	18.7	**382**	**18.7**	377	18.9	376	19.0	**377**	**18.9**
436.cactusADM	76.8	156	**76.6**	**156**	76.6	156	**68.2**	**175**	68.6	174	67.8	176
437.leslie3d	**314**	**30.0**	311	30.2	314	29.9	**314**	**30.0**	311	30.2	314	29.9
444.namd	**508**	**15.8**	508	15.8	508	15.8	**508**	**15.8**	508	15.8	508	15.8
447.dealII	371	30.9	371	30.9	**371**	**30.9**	363	31.5	363	31.5	**363**	**31.5**
450.soplex	314	26.6	317	26.3	**314**	**26.6**	314	26.5	311	26.8	**312**	**26.7**
453.povray	222	24.0	223	23.9	**222**	**23.9**	**174**	**30.5**	175	30.5	173	30.7
454.calculix	353	23.4	**353**	**23.3**	354	23.3	**343**	**24.1**	346	23.8	342	24.2
459.GemsFDTD	**247**	**43.0**	247	43.0	247	42.9	177	59.8	178	59.7	**178**	**59.7**
465.tonto	**490**	**20.1**	491	20.1	490	20.1	372	26.4	371	26.5	**371**	**26.5**
470.lbm	250	55.1	249	55.2	**249**	**55.2**	**247**	**55.6**	247	55.6	248	55.5
481.wrf	**312**	**35.8**	312	35.8	312	35.8	284	39.3	282	39.6	**284**	**39.4**
482.sphinx3	**531**	**36.7**	531	36.7	534	36.5	**531**	**36.7**	531	36.7	534	36.5

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

Platform Notes

The system automatically configures the memory to run at 1066 MHz.
BIOS configuration:
Data Reuse Optimization = Disable
Turbo Boost Technology: Performance/Power Setting = Traditional
Intel HT Technology = Disable

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General Notes

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

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

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Base Optimization Flags (Continued)

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
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks:
```
icpc   -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

> 433.milc: `-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)`
> `-ansi-alias`

> 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`

C++ benchmarks:

> 444.namd: `basepeak = yes`

> 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`

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Peak Optimization Flags (Continued)

    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 -auto-ilp32

    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

    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-linux64-revE.20100330.01.html

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You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.01.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 09:24:15 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 25 May 2010.