SPEC® CFP2006 Result
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Fujitsu

PRIMERGY BX924 S2, Intel Xeon L5609, 1.86 GHz

$SPECfp®\_rate2006 =$ 65.3

$SPECfp\_rate\_base2006 =$ 63.1

CPU2006 license: 19
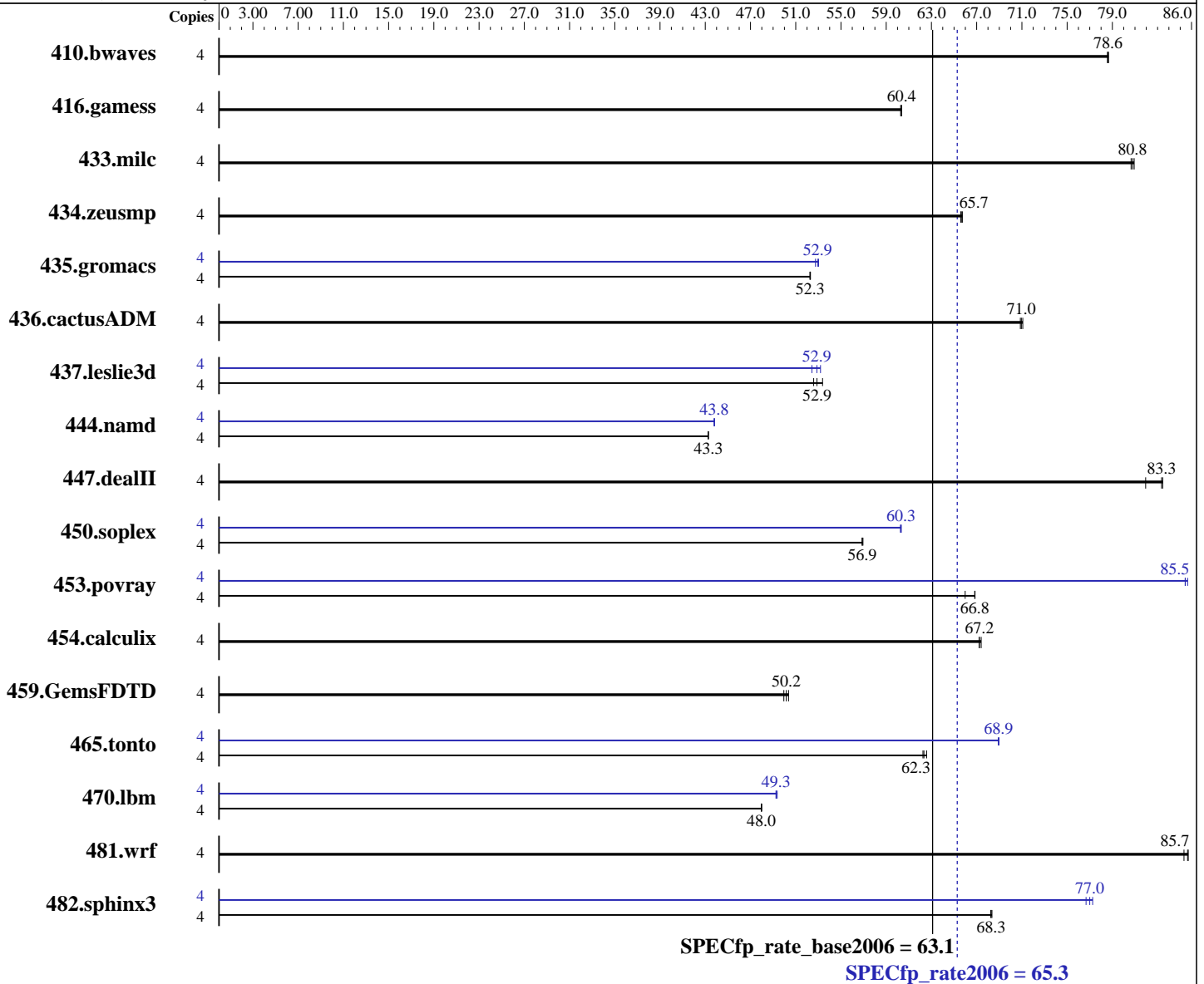**Test sponsor:** Fujitsu
Tested by: Fujitsu

Test date: Aug-2010
Hardware Availability: Jun-2010
Software Availability: Jan-2010

Benchmark	Copies	Result
410.bwaves	4	78.6
416.gamess	4	60.4
433.milc	4	80.8
434.zeusmp	4	65.7
435.gromacs	4	52.9
435.gromacs	4	52.3
436.cactusADM	4	71.0
437.leslie3d	4	52.9
437.leslie3d	4	52.9
444.namd	4	43.8
444.namd	4	43.3
447.dealII	4	83.3
450.soplex	4	60.3
450.soplex	4	56.9
453.povray	4	85.5
453.povray	4	66.8
454.calculix	4	67.2
459.GemsFDTD	4	50.2
465.tonto	4	68.9
465.tonto	4	62.3
470.lbm	4	49.3
470.lbm	4	48.0
481.wrf	4	85.7
482.sphinx3	4	77.0
482.sphinx3	4	68.3

SPECfp_rate_base2006 = 63.1

SPECfp_rate2006 = 65.3

Hardware

CPU Name: Intel Xeon L5609
CPU Characteristics:
CPU MHz: 1867
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 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

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
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: No
File System: ext3
System State: Run level 3 (multi-user)

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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:	24 GB (6x4 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 SATA, 160 GB, 5400 RPM		
Other Hardware:	None		

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	692	78.6	691	78.7	**691**	**78.6**	4	692	78.6	691	78.7	**691**	**78.6**
416.gamess	4	**1298**	**60.4**	1298	60.4	1299	60.3	4	**1298**	**60.4**	1298	60.4	1299	60.3
433.milc	4	**455**	**80.8**	455	80.7	454	80.9	4	**455**	**80.8**	455	80.7	454	80.9
434.zeusmp	4	**554**	**65.7**	554	65.7	555	65.6	4	**554**	**65.7**	554	65.7	555	65.6
435.gromacs	4	546	52.3	546	52.3	**546**	**52.3**	4	**540**	**52.9**	542	52.7	539	53.0
436.cactusADM	4	675	70.9	673	71.1	**674**	**71.0**	4	675	70.9	673	71.1	**674**	**71.0**
437.leslie3d	4	704	53.4	**711**	**52.9**	715	52.6	4	707	53.2	717	52.4	**711**	**52.9**
444.namd	4	741	43.3	741	43.3	**741**	**43.3**	4	**732**	**43.8**	733	43.8	732	43.8
447.dealII	4	548	83.5	**549**	**83.3**	558	81.9	4	548	83.5	**549**	**83.3**	558	81.9
450.soplex	4	587	56.9	**586**	**56.9**	586	56.9	4	554	60.3	**553**	**60.3**	553	60.3
453.povray	4	**318**	**66.8**	323	66.0	318	66.9	4	**249**	**85.5**	249	85.4	248	85.7
454.calculix	4	490	67.4	**491**	**67.2**	491	67.2	4	490	67.4	**491**	**67.2**	491	67.2
459.GemsFDTD	4	**846**	**50.2**	850	50.0	843	50.4	4	**846**	**50.2**	850	50.0	843	50.4
465.tonto	4	632	62.3	629	62.6	**631**	**62.3**	4	571	69.0	571	68.9	**571**	**68.9**
470.lbm	4	1145	48.0	**1146**	**48.0**	1146	48.0	4	1113	49.4	**1116**	**49.3**	1116	49.3
481.wrf	4	524	85.3	521	85.7	**522**	**85.7**	4	524	85.3	521	85.7	**522**	**85.7**
482.sphinx3	4	**1142**	**68.3**	1141	68.4	1142	68.2	4	1009	77.3	**1012**	**77.0**	1017	76.7

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.
     numactl was used to bind copies to the cores

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 1067 MHz.
    BIOS configuration:
    Data Reuse Optimization = Disable

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General Notes

```
For information about Fujitsu please visit: http://www.fujitsu.com
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

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
```

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

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Base Optimization Flags (Continued)

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

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

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
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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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)
             `-opt-malloc-options=3 -ansi-alias -auto-ilp32`

    482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

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: `basepeak = yes`

    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: `basepeak = yes`

    416.gamess: `basepeak = yes`

    434.zeusmp: `basepeak = yes`

    437.leslie3d: `-xSSE4.2 -ipo -O3 -no-prec-div -static`

  459.GemsFDTD: `basepeak = yes`

     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)
             `-unroll4 -auto -inline-calloc -opt-malloc-options=3`

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: `basepeak = yes`

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Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

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-ic11.1-linux64-revE.20100330.02.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.02.xml

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