SPEC® CFP2006 Result

Fujitsu

PRIMERGY BX922 S2, Intel Xeon E5640, 2.67 GHz

$SPECfp^®\_rate2006 =$ 91.9

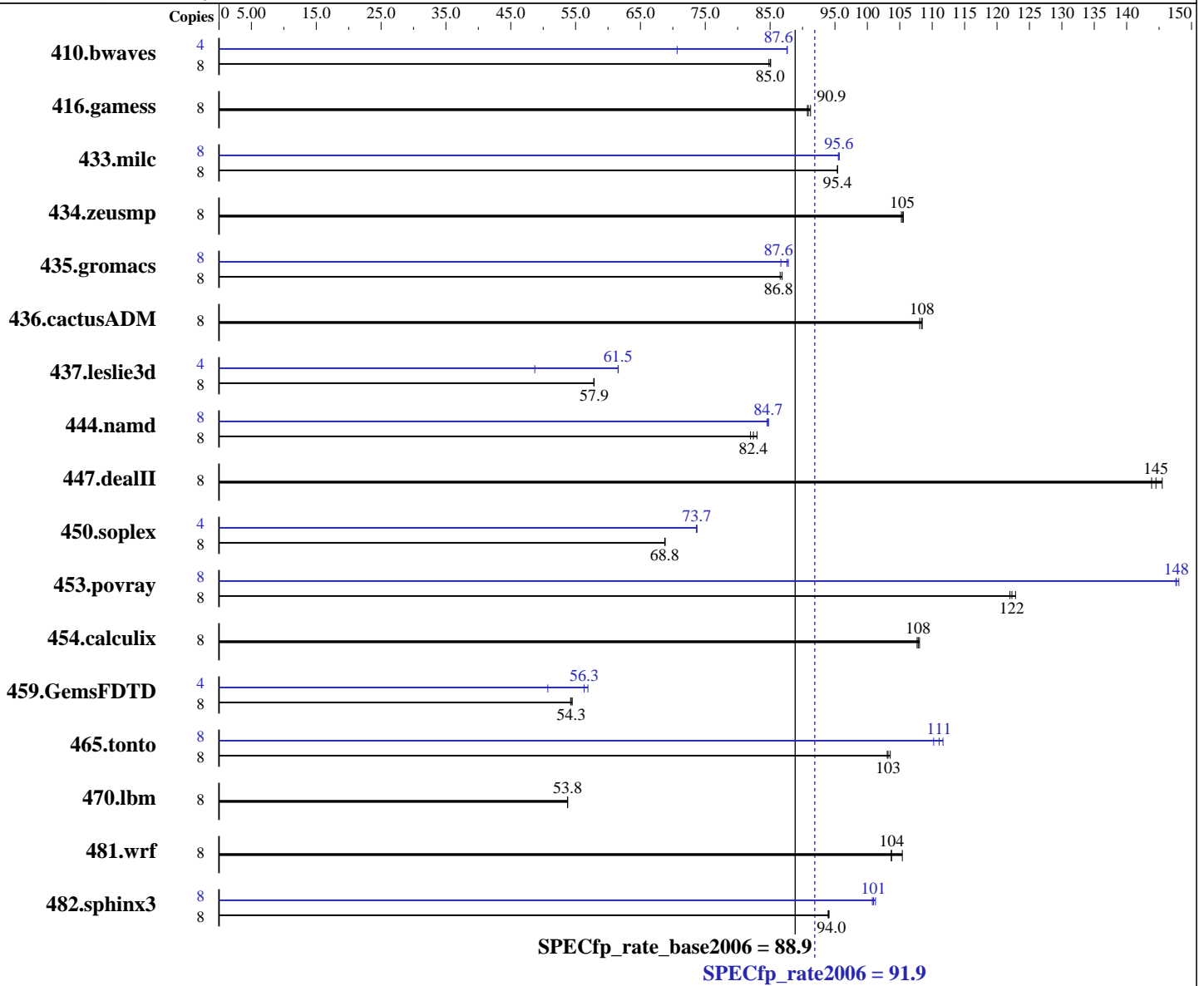$SPECfp\_rate\_base2006 =$ 88.9

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

Test date: Apr-2010
Hardware Availability: Mar-2010
Software Availability: Jan-2010

SPECfp_rate_base2006 = 88.9

SPECfp_rate2006 = 91.9

	410.bwaves	4	87.6
		8	85.0
	416.gamess	8	90.9
	433.milc	8	95.6
		8	95.4
	434.zeusmp	8	105
	435.gromacs	8	87.6
		8	86.8
	436.cactusADM	8	108
	437.leslie3d	4	61.5
		8	57.9
	444.namd	8	84.7
		8	82.4
	447.dealII	8	145
	450.soplex	4	73.7
		8	68.8
	453.povray	8	148
		8	122
	454.calculix	8	108
	459.GemsFDTD	4	56.3
		8	54.3
	465.tonto	8	111
		8	103
	470.lbm	8	53.8
	481.wrf	8	104
	482.sphinx3	8	101
		8	94.0

Hardware

CPU Name: Intel Xeon E5640
CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 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

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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: Multi-User Run Level 3

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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 SSD, 64 GB		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1278	85.1	**1279**	**85.0**	1282	84.8	4	**621**	**87.6**	769	70.7	620	87.7
416.gamess	8	1726	90.8	1717	91.2	**1724**	**90.9**	8	1726	90.8	1717	91.2	**1724**	**90.9**
433.milc	8	770	95.4	**770**	**95.4**	770	95.4	8	**768**	**95.6**	769	95.5	768	95.7
434.zeusmp	8	692	105	690	106	**691**	**105**	8	692	105	690	106	**691**	**105**
435.gromacs	8	660	86.6	658	86.8	**658**	**86.8**	8	659	86.7	650	87.8	**652**	**87.6**
436.cactusADM	8	885	108	881	108	**882**	**108**	8	885	108	881	108	**882**	**108**
437.leslie3d	8	**1300**	**57.9**	1299	57.9	1301	57.8	4	**611**	**61.5**	772	48.7	610	61.6
444.namd	8	773	83.0	**778**	**82.4**	783	82.0	8	759	84.5	**757**	**84.7**	757	84.8
447.dealII	8	**633**	**145**	636	144	629	145	8	**633**	**145**	636	144	629	145
450.soplex	8	970	68.7	969	68.8	**970**	**68.8**	4	453	73.6	453	73.7	**453**	**73.7**
453.povray	8	346	123	349	122	**348**	**122**	8	**288**	**148**	287	148	288	148
454.calculix	8	611	108	**612**	**108**	613	108	8	611	108	**612**	**108**	613	108
459.GemsFDTD	8	1565	54.2	1558	54.5	**1562**	**54.3**	4	**754**	**56.3**	837	50.7	746	56.9
465.tonto	8	764	103	760	104	**763**	**103**	8	714	110	705	112	**709**	**111**
470.lbm	8	2045	53.8	**2044**	**53.8**	2044	53.8	8	2045	53.8	**2044**	**53.8**	2044	53.8
481.wrf	8	**861**	**104**	862	104	848	105	8	**861**	**104**	862	104	848	105
482.sphinx3	8	**1658**	**94.0**	1657	94.1	1660	93.9	8	1540	101	**1545**	**101**	1547	101

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 = Disabled
Turbo Boost Technology: Performance/Power Setting = Traditional

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General Notes

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

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

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

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Base Optimization Flags (Continued)

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
```

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

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)
`-fno-alias -opt-prefetch`

470.lbm: `basepeak = yes`

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

416.gamess: `basepeak = yes`

434.zeusmp: `basepeak = yes`

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

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`

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-icl1.1-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-icl1.1-linux64-revE.20100330.02.xml

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

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