SPEC® CFP2006 Result

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Fujitsu

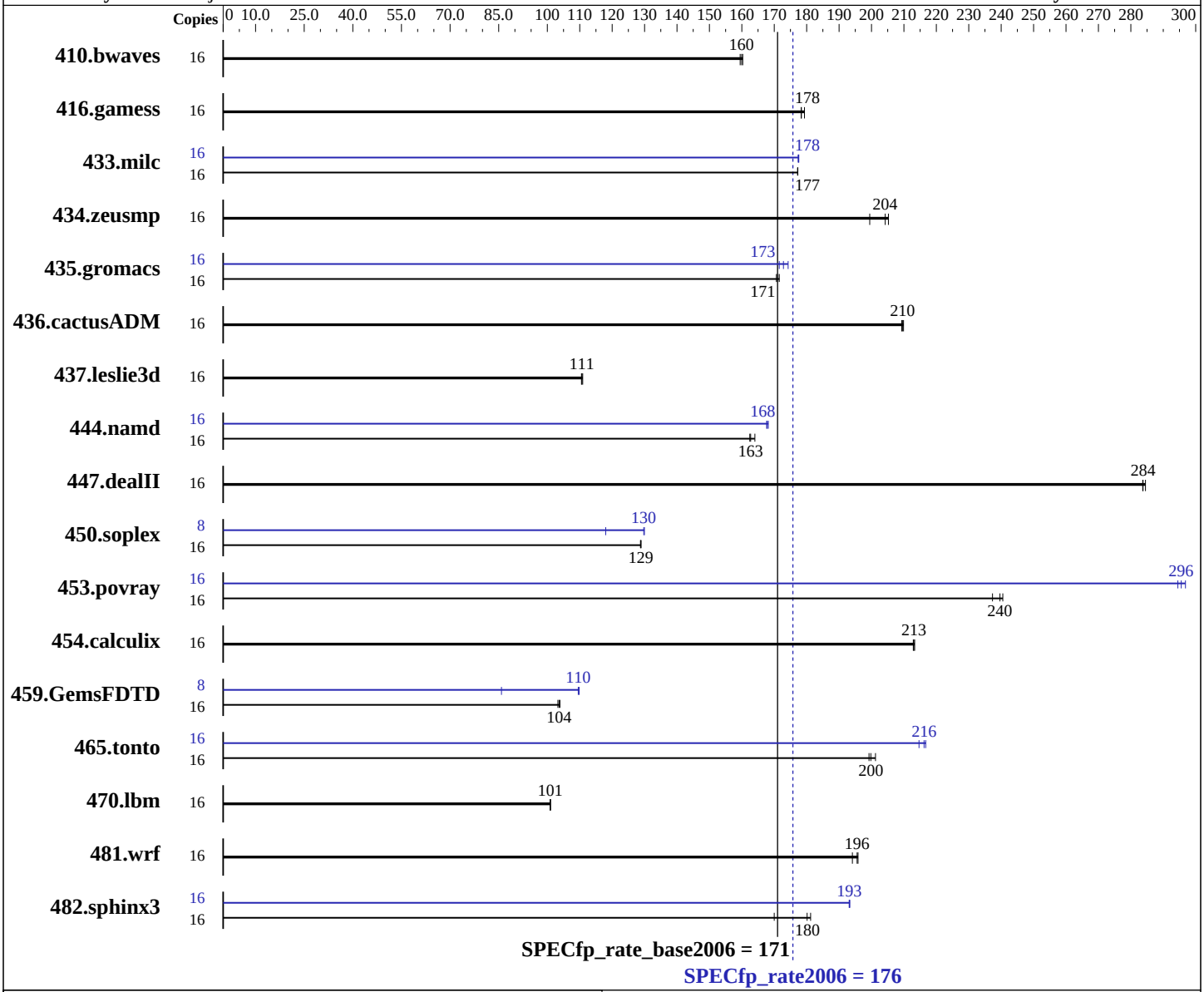
PRIMERGY BX922 S2, Intel Xeon E5640, 2.67 GHz

SPECfp®_rate2006 = 176

SPECfp_rate_base2006 = 171

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

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



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:	8 cores, 2 chips, 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
Other Cache: None
Memory: 48 GB (12x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC, see add'l detail in notes)
Disk Subsystem: 1 x SSD, 64 GB
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							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1363	159	**1359**	**160**	1357	160	16	1363	159	**1359**	**160**	1357	160
416.gamess	16	1757	178	1747	179	**1756**	**178**	16	1757	178	1747	179	**1756**	**178**
433.milc	16	829	177	**829**	**177**	829	177	16	827	178	**827**	**178**	828	177
434.zeusmp	16	730	199	709	205	**713**	**204**	16	730	199	709	205	**713**	**204**
435.gromacs	16	669	171	**668**	**171**	666	172	16	**661**	**173**	666	172	655	174
436.cactusADM	16	**912**	**210**	913	209	911	210	16	**912**	**210**	913	209	911	210
437.leslie3d	16	1361	111	**1359**	**111**	1356	111	16	1361	111	**1359**	**111**	1356	111
444.namd	16	**789**	**163**	790	162	782	164	16	**765**	**168**	763	168	765	168
447.dealII	16	643	285	645	284	**645**	**284**	16	643	285	645	284	**645**	**284**
450.soplex	16	1035	129	**1035**	**129**	1037	129	8	513	130	565	118	**514**	**130**
453.povray	16	359	237	**355**	**240**	354	241	16	287	297	**288**	**296**	289	295
454.calculix	16	**620**	**213**	619	213	620	213	16	**620**	**213**	619	213	620	213
459.GemsFDTD	16	1644	103	1634	104	**1638**	**104**	8	773	110	**775**	**110**	989	85.9
465.tonto	16	790	199	782	201	**788**	**200**	16	726	217	733	215	**728**	**216**
470.lbm	16	2177	101	**2179**	**101**	2179	101	16	2177	101	**2179**	**101**	2179	101
481.wrf	16	**914**	**196**	921	194	913	196	16	**914**	**196**	921	194	913	196
482.sphinx3	16	1721	181	1834	170	**1731**	**180**	16	1613	193	**1615**	**193**	1615	193

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

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:

Continued on next page

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: `basepeak = yes`

416.gamess: `basepeak = yes`

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`

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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