SPEC® CFP2006 Result

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Fujitsu

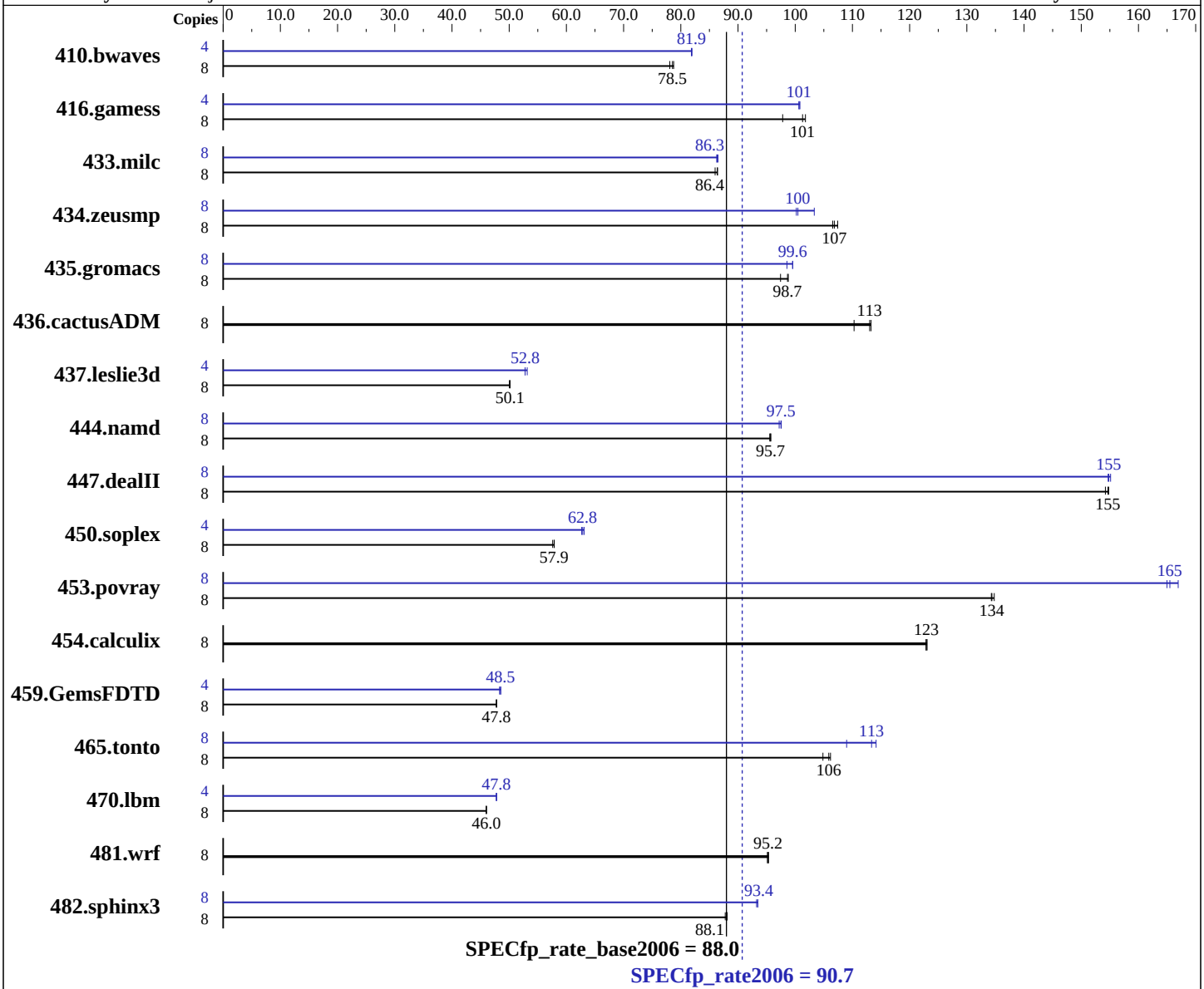
CELSIUS W380, Intel Xeon X3470

SPECfp®_rate2006 = 90.7

SPECfp_rate_base2006 = 88.0

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

Test date: Dec-2009
Hardware Availability: Mar-2010
Software Availability: Oct-2009



Hardware

CPU Name:	Intel Xeon X3470
CPU Characteristics:	Intel Turbo Boost Technology up to 3.6 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
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-default
Compiler:	Intel C++ and Fortran 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:	No
File System:	ext3
System State:	Multi-User Run Level 3

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2x4 GB PC3 10600E, 2 rank, CL9, ECC)
Disk Subsystem: 1 x SATA II, 400 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							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1392	78.1	1381	78.8	**1384**	**78.5**	4	664	81.9	**664**	**81.9**	663	81.9
416.gamess	8	**1547**	**101**	1602	97.8	1539	102	4	777	101	778	101	**778**	**101**
433.milc	8	854	86.0	850	86.4	**850**	**86.4**	8	849	86.5	851	86.3	**851**	**86.3**
434.zeusmp	8	**681**	**107**	678	107	683	107	8	**725**	**100**	727	100	705	103
435.gromacs	8	578	98.8	**579**	**98.7**	586	97.4	8	**574**	**99.6**	574	99.6	580	98.6
436.cactusADM	8	867	110	**846**	**113**	844	113	8	867	110	**846**	**113**	844	113
437.leslie3d	8	**1500**	**50.1**	1503	50.0	1500	50.1	4	712	52.8	707	53.2	**712**	**52.8**
444.namd	8	672	95.5	670	95.7	**671**	**95.7**	8	660	97.2	658	97.6	**658**	**97.5**
447.dealII	8	593	154	591	155	**592**	**155**	8	**591**	**155**	590	155	592	155
450.soplex	8	1153	57.9	**1153**	**57.9**	1158	57.6	4	532	62.7	**531**	**62.8**	529	63.1
453.povray	8	317	134	316	135	**317**	**134**	8	**257**	**165**	255	167	258	165
454.calculix	8	537	123	536	123	**537**	**123**	8	537	123	536	123	**537**	**123**
459.GemsFDTD	8	1776	47.8	1777	47.8	**1777**	**47.8**	4	878	48.3	875	48.5	**875**	**48.5**
465.tonto	8	741	106	**744**	**106**	751	105	8	**695**	**113**	722	109	690	114
470.lbm	8	2388	46.0	**2390**	**46.0**	2391	46.0	4	1150	47.8	1151	47.7	**1150**	**47.8**
481.wrf	8	939	95.1	937	95.3	**938**	**95.2**	8	939	95.1	937	95.3	**938**	**95.2**
482.sphinx3	8	1770	88.1	1777	87.8	**1770**	**88.1**	8	1668	93.5	1672	93.2	**1669**	**93.4**

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
```

Base Compiler Invocation

C benchmarks:

```
icc   -m64
```

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Base Compiler Invocation (Continued)

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

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:

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: `-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`

Continued on next page

Peak Optimization Flags (Continued)

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: -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-

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: -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: -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)

437.leslie3d: -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 -opt-prefetch

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

Continued on next page

Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

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-revD.20100119.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revD.20100119.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 06:24:05 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 January 2010.