SPEC® CFP2006 Result

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IBM Corporation

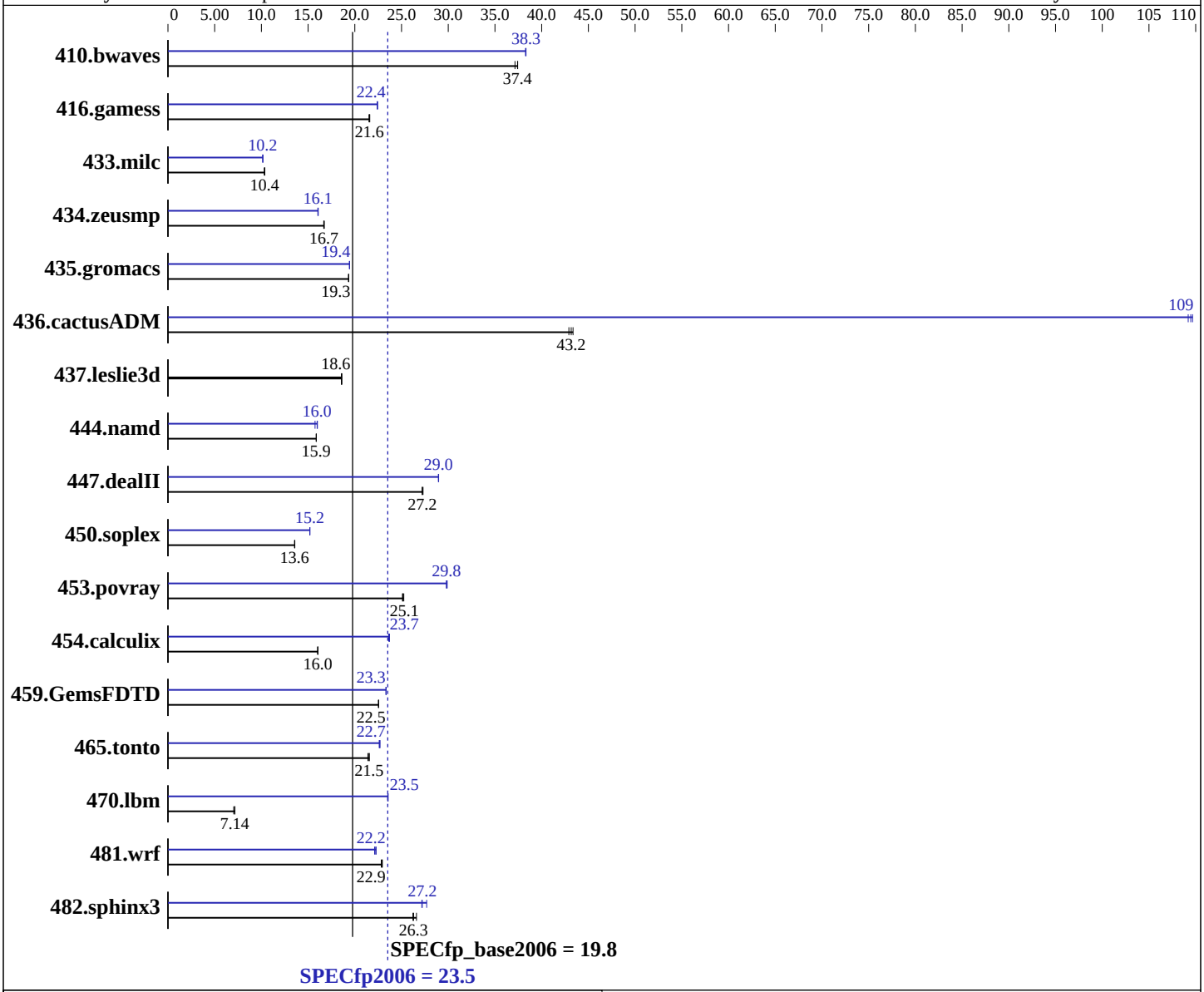
IBM System x iDataPlex dx360 (Intel Xeon E5472)

SPECfp®2006 = 23.5

SPECfp_base2006 = 19.8

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E5472
CPU Characteristics:	1600 MHz system bus
CPU MHz:	3000
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:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (4 x 4 GB DDR2-5300F ECC)
Disk Subsystem: 1 x 160 GB SATA, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	366	37.1	363	37.4	**363**	**37.4**	**355**	**38.3**	355	38.3	355	38.3
416.gamess	910	21.5	**908**	**21.6**	906	21.6	873	22.4	**873**	**22.4**	874	22.4
433.milc	891	10.3	**886**	**10.4**	885	10.4	904	10.2	**904**	**10.2**	904	10.2
434.zeusmp	546	16.7	**545**	**16.7**	544	16.7	**567**	**16.1**	566	16.1	567	16.1
435.gromacs	**369**	**19.3**	369	19.3	369	19.3	368	19.4	367	19.4	**367**	**19.4**
436.cactusADM	278	42.9	**277**	**43.2**	276	43.4	109	110	**109**	**109**	109	109
437.leslie3d	506	18.6	505	18.6	**506**	**18.6**	506	18.6	505	18.6	**506**	**18.6**
444.namd	**505**	**15.9**	505	15.9	505	15.9	**502**	**16.0**	501	16.0	509	15.7
447.dealII	421	27.2	419	27.3	**420**	**27.2**	395	29.0	**395**	**29.0**	395	29.0
450.soplex	**615**	**13.6**	616	13.5	614	13.6	549	15.2	549	15.2	**549**	**15.2**
453.povray	211	25.2	212	25.1	**212**	**25.1**	179	29.8	**178**	**29.8**	178	29.9
454.calculix	515	16.0	514	16.1	**514**	**16.0**	349	23.6	348	23.7	**348**	**23.7**
459.GemsFDTD	470	22.6	**471**	**22.5**	471	22.5	454	23.4	**455**	**23.3**	455	23.3
465.tonto	**457**	**21.5**	457	21.5	460	21.4	433	22.7	**434**	**22.7**	435	22.6
470.lbm	1954	7.03	**1924**	**7.14**	1917	7.17	**584**	**23.5**	584	23.5	583	23.6
481.wrf	489	22.8	**488**	**22.9**	487	22.9	**502**	**22.2**	505	22.1	501	22.3
482.sphinx3	733	26.6	743	26.2	**741**	**26.3**	704	27.7	**716**	**27.2**	717	27.2

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
```

Base Compiler Invocation

C benchmarks:

```
icc
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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:
-fast -parallel

C++ benchmarks:
-fast -parallel

Fortran benchmarks:
-fast -parallel

Benchmarks using both Fortran and C:
-fast -parallel

Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

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`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

433.milc: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

470.lbm: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

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Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revC.20090713.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revC.20090713.xml

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