SPEC® CFP2006 Result

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Supermicro

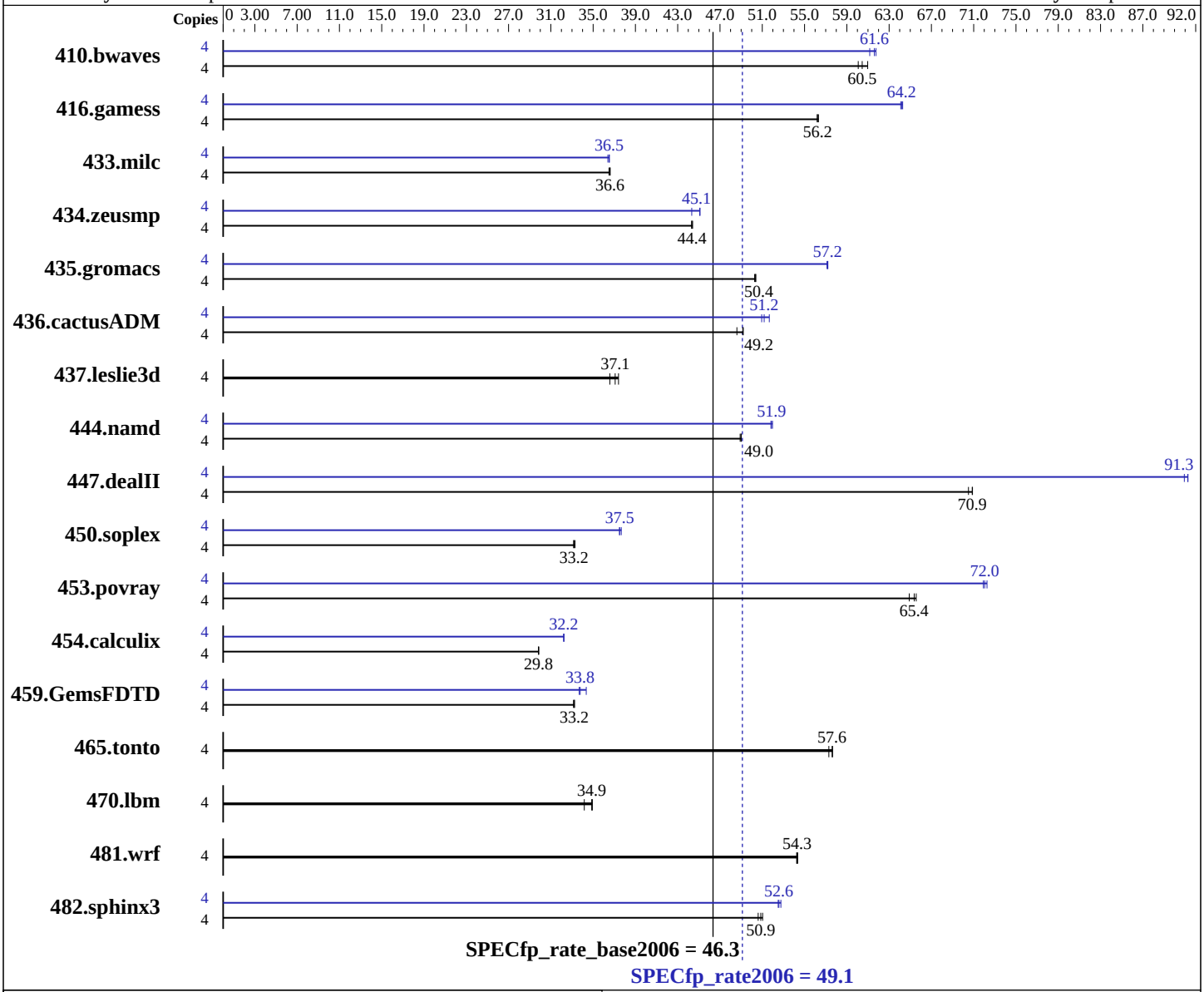
Motherboard H8DMR-82 AMD Opteron 2220

SPECfp®_rate2006 = 49.1

SPECfp_rate_base2006 = 46.3

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Sep-2007
Hardware Availability: Oct-2006
Software Availability: Apr-2007



Hardware

CPU Name:	AMD Opteron 2220
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

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Software

Operating System:	SuSE Linux Enterprise Server 10 SP1 64-bit kernel
Compiler:	The Portland Group (PGI) PGI pgcc 7.1-0 C Compiler PGI pgCC 7.1-0 C++ Compiler PathScale Compiler Suite, Release 3.0
Auto Parallel:	No
File System:	ReiserFS
System State:	Multi-user, run level 2

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2GB, PC2-5300 CL5 ECC Reg Dual Rank)
Disk Subsystem: SATA, 250 GB
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: SmartHeap 8.0 32-bit Library for Linux

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	892	61.0	**899**	**60.5**	905	60.1	4	889	61.2	880	61.8	**882**	**61.6**
416.gamess	4	**1393**	**56.2**	1391	56.3	1394	56.2	4	**1220**	**64.2**	1218	64.3	1222	64.1
433.milc	4	1006	36.5	1003	36.6	**1004**	**36.6**	4	1009	36.4	**1006**	**36.5**	1005	36.5
434.zeusmp	4	**821**	**44.4**	820	44.4	821	44.3	4	807	45.1	**808**	**45.1**	821	44.3
435.gromacs	4	568	50.3	**567**	**50.4**	567	50.4	4	499	57.2	500	57.1	**499**	**57.2**
436.cactusADM	4	984	48.6	**972**	**49.2**	971	49.2	4	925	51.7	938	50.9	**934**	**51.2**
437.leslie3d	4	1005	37.4	**1014**	**37.1**	1028	36.6	4	1005	37.4	**1014**	**37.1**	1028	36.6
444.namd	4	**655**	**49.0**	656	48.9	655	49.0	4	**618**	**51.9**	617	52.0	619	51.8
447.dealII	4	646	70.9	**646**	**70.9**	649	70.5	4	501	91.3	503	90.9	**501**	**91.3**
450.soplex	4	1006	33.2	1002	33.3	**1005**	**33.2**	4	886	37.7	890	37.5	**889**	**37.5**
453.povray	4	328	64.9	**326**	**65.4**	325	65.6	4	296	71.9	294	72.3	**295**	**72.0**
454.calculix	4	**1106**	**29.8**	1106	29.8	1105	29.9	4	**1024**	**32.2**	1024	32.2	1024	32.2
459.GemsFDTD	4	1277	33.2	**1277**	**33.2**	1281	33.1	4	1236	34.3	1260	33.7	**1257**	**33.8**
465.tonto	4	683	57.7	687	57.3	**683**	**57.6**	4	683	57.7	687	57.3	**683**	**57.6**
470.lbm	4	1609	34.2	**1576**	**34.9**	1574	34.9	4	1609	34.2	**1576**	**34.9**	1574	34.9
481.wrf	4	822	54.4	**823**	**54.3**	824	54.3	4	822	54.4	**823**	**54.3**	824	54.3
482.sphinx3	4	1540	50.6	**1533**	**50.9**	1528	51.0	4	1478	52.8	1485	52.5	**1483**	**52.6**

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

Operating System Notes

```
Environment stack size set to 'unlimited'
PGI_HUGE_PAGES set to 896.
Total number of huge pages available is 7168.
```

General Notes

```
Product description located as of
http://www.supermicro.com/Aplus/motherboard/Opteron2000/MCP55/H8DMR-82.cfm
taskset was used to bind processes to cores
```

Base Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks:
`pathf95`

Benchmarks using both Fortran and C:
`pathcc pathf95`

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`
436.cactusADM: `-DSPEC_CPU_LP64 -fno-second-underscore`
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`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore`
482.sphinx3: `-DSPEC_CPU_LP64`

Base Optimization Flags

C benchmarks:
`-Ofast`

C++ benchmarks:
`-Ofast`

Fortran benchmarks:
`-Ofast -OPT:malloc_alg=1`

Benchmarks using both Fortran and C:
`-Ofast -OPT:malloc_alg=1`

Peak Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

Fortran benchmarks:
pathf95

Benchmarks using both Fortran and C:
pathcc pathf95

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
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1

470.lbm: basepeak = yes

482.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -WOPT:aggstr=0 -m32

C++ benchmarks:

444.namd: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-exceptions

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Peak Optimization Flags (Continued)

447.dealII: `-Ofast -static -INLINE:aggressive=on -OPT:malloc_alg=1 -m32 -fno-exceptions`

450.soplex: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-m32 -O3 -OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1 -LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions`

453.povray: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -fno-fast-math`

Fortran benchmarks:

410.bwaves: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off -LNO:ignore_feedback=off`

416.gamess: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O2 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256`

434.zeusmp: `-Ofast -CG:local_fwd_sched=on -LNO:blocking=off -LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-Ofast -LNO:fission=2 -LNO:prefetch=0`

465.tonto: `basepeak = yes`

Benchmarks using both Fortran and C:

435.gromacs: `-O3 -OPT:rsqrt=2 -OPT:ro=3`

436.cactusADM: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa`

454.calculix: `-Ofast -LNO:simd=0 -WOPT:mem_opnds=on`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.06.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.06.xml`

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