



# CFP2000 Result

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## Advanced Micro Devices

Tyan Thunder K9QE (S4985) AMD Opteron (TM) 2220SE

SPECfp\_rate2000 = 28.6

SPECfp\_rate\_base2000 = 25.9

SPEC license #: 49 | Tested by: AMD Austin, TX | Test date: Jul-2006 | Hardware Avail: Sep-2006 | Software Avail: Aug-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	1	54.2	34.3	1	47.3	39.2
171.swim	1	97.0	37.1	1	90.9	39.5
172.mgrid	1	91.0	23.0	1	81.1	25.8
173.applu	1	92.5	26.3	1	80.2	30.4
177.mesa	1	61.0	26.6	1	56.9	28.5
178.galgel	1	79.4	42.4	1	70.2	47.9
179.art	1	88.6	34.0	1	63.3	47.6
183.quake	1	67.9	22.2	1	62.3	24.2
187.facerec	1	63.8	34.5	1	64.3	34.3
188.amp	1	133	19.2	1	124	20.5
189.lucas	1	83.3	27.8	1	72.5	32.0
191.fma3d	1	113	21.6	1	113	21.6
200.sixtrack	1	116	11.0	1	111	11.5
301.apsi	1	144	21.0	1	134	22.5

### Hardware

CPU: AMD Opteron (TM) 2220SE  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1,2,4  
 Parallel: No  
 Primary Cache: 64KBI + 64KBD on chip per core  
 Secondary Cache: 1024KB (I+D) on chip per core  
 L3 Cache: N/A  
 Other Cache: N/A  
 Memory: 4x512MB, DDR2-667 CL4 ECC Reg  
 Disk Subsystem: SATA, 74GB  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 9 SP3 (64-bit)  
 Compiler: PathScale EKOPath(TM) Compiler Suite, Release 2.3  
 File System: Linux/ext3  
 System State: Multi-user, run level 3

## Notes/Tuning Information

+FDO: PASS1= -fb\_create fbdata PASS2= -fb\_opt fbdata  
 +ACML means -L<acml2.7.0-install-dir>/pathscale64/lib -lacml,  
 which causes linking with AMD Core Math Library V2.7.0

### Baseline optimization

C programs: -Ofast -WOPT:mem\_opnds=on +FDO  
 Fortran programs: -Ofast -LNO:fusion=2 -OPT:fast\_complex=on +FDO  
 Portability Flags:  
 178.galgel: -fixedform

### Peak Tuning:

168.wupwise: -Ofast -LNO:prefetch Ahead=5:prefetch=3  
 -OPT:unroll\_times\_max=8:unroll\_size=128:IEEE\_NaN\_Inf=off:ro=3  
 -IPA:linear=on:plimit=50000:callee\_limit=5000  
 -INLINE:aggressive=on  
 171.swim: -Ofast -CG:local\_fwd\_sched=on -LNO:fusion=2 -m3dnow



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## Notes/Tuning Information (Continued)

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172.mgrid: -Ofast -CG:gcm=off -OPT:IEEE_arith=3:unroll_size=200
           -LNO:fusion=2:fission=1:blocking=off:prefetch_ahead=2
           -WOPT:mem_opnds=on:aggstr=0
173.applu: -Ofast -CG:local_fwd_sched=on -OPT:ro=3 -TENV:X=3
           -LNO:fusion=2:fission=2:full_unroll_size=10000 +FDO
177.mesa: -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on -WOPT:mem_opnds=on +FDO
178.galgel: -Ofast -OPT:fast_complex=on +ACML +FDO
           RM_SOURCES=lapak.f90
179.art: -O3 -OPT:Ofast -fno-math-errno -mno-sse2 -m32
183.quake: -Ofast -CG:load_exe=2 -WOPT:mem_opnds=on -m32 +FDO
187.facerec: -Ofast -LNO:fusion=2
           -OPT:fast_complex=on:IEEE_NaN_Inf=off:unroll_size=0 +FDO
188.ammp: -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
           -fno-math-errno -TENV:X=4 +FDO
189.lucas: -Ofast -OPT:ro=3:fast_nint=off:unroll_size=256 -WOPT:mem_opnds=on +FDO
191.fma3d: -O2 -ipa -CG:load_exe=1 -OPT:Ofast:IEEE_arith=3:ro=3
           -WOPT:mem_opnds=on:retype_expr=on -IPA:pu_reorder=1 +FDO
200.sixtrack: -O3 -OPT:Ofast:Olimit=6000:early_intrinsics=on
           -fno-math-errno -CG:load_exe=1 +FDO
301.apsi: -Ofast -CG:load_exe=0 -LNO:prefetch=0:simd=2

```

All memory slots populated on all CPU(s)

The system can be built using a Zippy 700W EPS12V power supply and any SSI-MEB case.

BIOS Changes: Enable Basic ECC