



# CFP2000 Result

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**Advanced Micro Devices**  
Tyan Thunder K9QE (S4985) AMD Opteron (TM) 8218

SPECfp\_rate2000 = **170**  
SPECfp\_rate\_base2000 = **155**

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	8	67.0	222	8	62.6	237
171.swim	8	173	166	8	171	168
172.mgrid	8	122	137	8	117	143
173.applu	8	122	159	8	108	181
177.mesa	8	72.0	180	8	62.4	208
178.galgel	8	101	265	8	92.1	292
179.art	8	137	176	8	90.0	268
183.equake	8	113	107	8	101	120
187.facerec	8	87.4	202	8	87.7	201
188.amp	8	153	133	8	144	141
189.lucas	8	120	154	8	108	171
191.fma3d	8	146	133	8	146	134
200.sixtrack	8	126	80.8	8	121	84.4
301.apsi	8	164	147	8	154	157

### Hardware

CPU: AMD Opteron (TM) 8218  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 4 chips, 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: 16x512MB, 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)  
taskset utility used to bind CPU(s) to processes.  
The system can be built using a Zippy 700W EPS12V power supply and any SSI-MEB case.  
BIOS Changes: Enable Basic ECC