# CFP2000 Result

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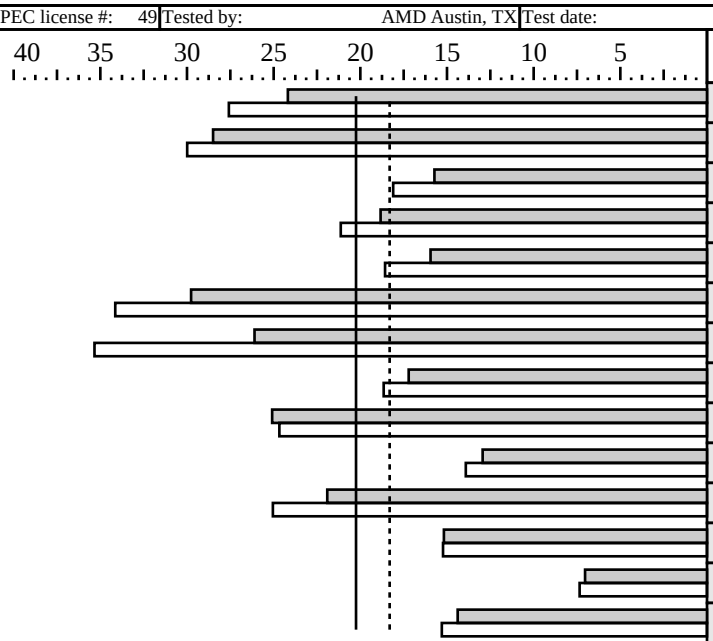
## Advanced Micro Devices

Tyan Thunder K9HM (S3992), AMD Opteron (TM) 2210

SPECfp_rate2000 = 20.2

SPECfp_rate_base2000 = 18.3

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




| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|---|---|---|---|---|---|---|
| 168.wupwise | 1 | 76.8 | 24.2 | 1 | 67.3 | 27.6 |
| 171.swim | 1 | 126 | 28.5 | 1 | 120 | 30.0 |
| 172.mgrid | 1 | 133 | 15.7 | 1 | 115 | 18.1 |
| 173.applu | 1 | 129 | 18.8 | 1 | 115 | 21.1 |
| 177.mesa | 1 | 102 | 15.9 | 1 | 87.4 | 18.6 |
| 178.galgel | 1 | 113 | 29.8 | 1 | 98.5 | 34.1 |
| 179.art | 1 | 116 | 26.1 | 1 | 85.3 | 35.3 |
| 183.equake | 1 | 87.6 | 17.2 | 1 | 80.8 | 18.7 |
| 187.facerec | 1 | 87.9 | 25.1 | 1 | 89.3 | 24.7 |
| 188.ammp | 1 | 197 | 12.9 | 1 | 183 | 13.9 |
| 189.lucas | 1 | 106 | 21.9 | 1 | 92.6 | 25.0 |
| 191.fma3d | 1 | 160 | 15.2 | 1 | 160 | 15.2 |
| 200.sixtrack | 1 | 181 | 7.03 | 1 | 174 | 7.35 |
| 301.apsi | 1 | 210 | 14.4 | 1 | 197 | 15.3 |

### Hardware

| | |
|---|---|
| CPU: | AMD Opteron (TM) 2210 |
| CPU MHz: | 1800 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1,2 |
| 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: | IDE, 120 GB |
| 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)

```
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:prefetch=3 +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.equake:   -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

system can be built using a standard ATX case and a Zippy 700W PSL-6701P power supply
Half memory slots populated on CPU in dual channel configuration
```