# CFP2000 Result

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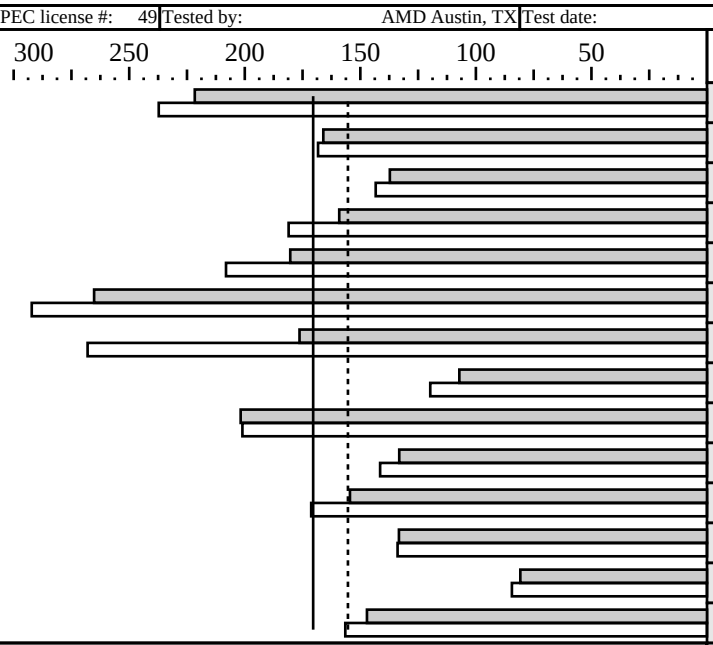
## Advanced Micro Devices

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.ammp | 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)

```
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.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

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
```