



CFP2000 Result

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Advanced Micro Devices
Tyan Thunder K9HM (S3992), AMD Opteron (TM) 2210

SPECfp_rate2000 = **71.4**
SPECfp_rate_base2000 = **65.0**

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 | 4 | 82.5 | 90.0 | 4 | 72.2 | 103 |
| 171.swim | 4 | 185 | 77.8 | 4 | 179 | 80.2 |
| 172.mgrid | 4 | 147 | 57.0 | 4 | 134 | 62.1 |
| 173.applu | 4 | 142 | 68.6 | 4 | 125 | 77.6 |
| 177.mesa | 4 | 102 | 63.6 | 4 | 87.9 | 73.9 |
| 178.galgel | 4 | 124 | 108 | 4 | 110 | 122 |
| 179.art | 4 | 139 | 86.9 | 4 | 98.8 | 122 |
| 183.equake | 4 | 110 | 54.9 | 4 | 99.9 | 60.4 |
| 187.facerec | 4 | 99.9 | 88.2 | 4 | 101 | 87.3 |
| 188.amp | 4 | 202 | 50.5 | 4 | 189 | 54.1 |
| 189.lucas | 4 | 129 | 71.8 | 4 | 119 | 78.0 |
| 191.fma3d | 4 | 177 | 55.1 | 4 | 176 | 55.3 |
| 200.sixtrack | 4 | 186 | 27.4 | 4 | 178 | 28.6 |
| 301.apsi | 4 | 217 | 55.6 | 4 | 208 | 58.1 |

Hardware

CPU: AMD Opteron (TM) 2210
 CPU MHz: 1800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 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: 8x512MB, 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 +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

```

system can be built using a standard ATX case and a Zippy 700W PSL-6701P power supply
 Half memory slots populated on all CPUs in dual channel configuration
 taskset utility used to bind CPU(s) to processes.