



CFP2000 Result

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Advanced Micro Devices
TYAN Thunder K8QW (S4881), AMD Opteron(TM) 856

SPECfp_rate2000 = 100
SPECfp_rate_base2000 = 90.6

SPEC license #: 49 Tested by: AMD, Austin, TX Test date: Mar-2006 Hardware Avail: Apr-2006 Software Avail: Jan-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	57.4	129	4	53.5	139
171.swim	4	136	106	4	127	113
172.mgrid	4	106	78.8	4	98.9	84.4
173.applu	4	105	92.5	4	88.0	111
177.mesa	4	62.7	104	4	54.3	120
178.galgel	4	89.3	151	4	80.3	168
179.art	4	115	105	4	77.8	155
183.equake	4	89.8	67.2	4	80.9	74.6
187.facerec	4	75.9	116	4	76.5	115
188.amp	4	133	76.5	4	125	81.4
189.lucas	4	109	85.0	4	98.8	93.9
191.fma3d	4	126	77.3	4	126	77.4
200.sixtrack	4	109	46.7	4	105	48.8
301.apsi	4	145	83.3	4	136	88.5

Hardware

CPU: AMD Opteron(TM) 856
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 4 cores, 4 chips, 1 core/chip
CPU(s) orderable: 1,2,4
Parallel: No
Primary Cache: 64KBI + 64KBD on chip
Secondary Cache: 1024KB (I+D) on chip
L3 Cache: N/A
Other Cache: N/A
Memory: 8x512MB, DDR400 CL3 ECC Reg
Disk Subsystem: SATA, 250 GB
Other Hardware: None

Software

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

Notes/Tuning Information

Tested by Advanced Micro Devices

```
+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
```



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Notes/Tuning Information (Continued)

```

171.swim: -Ofast -CG:local_fwd_sched=on -LNO:fusion=2 -m3dnow
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

```

BIOS 1.04
 2 DIMMS/CPU in dual channel configuration
 Tested system can be built with an SSI EEB case and
 a Zippy 700W power supply
 Taskset utility used to bind CPU(s) to processes