



CFP2000 Result

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Advanced Micro Devices

Tyan Thunder K8QS Pro (S4882), AMD Opteron (TM) 850

SPECfp_rate2000 = 19.9

SPECfp_rate_base2000 = 17.9

SPEC license #: 49 | Tested by: AMD, Austin, TX | Test date: Aug-2004 | Hardware Avail: Jul-2004 | Software Avail: Aug-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	1	92.4	20.1	1	78.4	23.7
171.swim	1	139	25.9	1	139	25.9
172.mgrid	1	124	16.8	1	113	18.5
173.applu	1	134	18.2	1	113	21.5
177.mesa	1	97.0	16.7	1	69.8	23.3
178.galgel	1	113	29.8	1	104	32.5
179.art	1	153	19.7	1	110	27.3
183.equake	1	94.2	16.0	1	94.2	16.0
187.facerec	1	106	20.9	1	97.6	22.6
188.amp	1	159	16.0	1	151	16.9
189.lucas	1	139	16.6	1	121	19.2
191.fma3d	1	151	16.1	1	146	16.7
200.sixtrack	1	151	8.48	1	150	8.48
301.apsi	1	168	18.0	1	167	18.1

Hardware

CPU: AMD Opteron (TM) 850
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 1 core, 1 chip, 1 core/chip
 CPU(s) orderable: 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: 4x512 MB PC3200 CL3.0 ECC Registered
 Disk Subsystem: SCSI, Seagate Cheetah ST336753LW
 Ultra 320, 15K rpm
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server for AMD64 (SP3)
 SuSE kernel 2.4.21-143-numa
 Compiler: PathScale EKO Compiler Suite, Release 1.3
 File System: Linux/ext3
 System State: Multi-user SuSE Run level 3

Notes/Tuning Information

Tested by Advanced Micro Devices

```
+FDO: PASS1= -fb_create fbdata PASS2= -fb_opt fbdata
+ACML is linking with AMD Core Math Library
```

Baseline optimization

```
C programs: -Ofast -WOPT:mem_opnds=on +FDO
Fortran programs: -Ofast -LNO:fusion=2
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 -TENV:X=4
loader: -IPA:space=1000:linear=on:plimit=50000:callee_limit=5000
-INLINE:aggressive=on
```



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Notes/Tuning Information (Continued)

```

171.swim: -Ofast -LNO:fusion=2:prefetch=2
172.mgrid: -O3 -LNO:fusion=2:blocking=off:prefetch=2
           -OPT:Ofast:unroll_times_max=8:unroll_size=256:ro=3
           -CG:gcm=off:cflow=off
173.applu: -Ofast -CG:local_fwd_sched=on
           -LNO:fusion=2:fission=2:full_unroll_size=10000:prefetch=3
           -OPT:ro=3 -TENV:X=3 -WOPT:val=2
177.mesa: -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on +FDO
178.galgel: -Ofast -OPT:fast_complex -CG:load_exe=0:use_movlpd=on +ACML
179.art: -O3 -OPT:ro=2:div_split=on:alias=typed -fno-math-errno -m32 +FDO
183.quake: basepeak = true
187.facerec: -Ofast -OPT:treeheight=on:IEEE_NaN_Inf=off:ro=3 -CG:load_exe=0
            -LNO:fusion=2:prefetch=0 +FDO -IPA:plimit=1800
188.amm: -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3 -LNO:prefetch=0 -fno-math-errno -TENV:X=4 +FDO
189.lucas: -Ofast -CG:prefetch=off:load_exe=2:local_fwd_sched
           -TENV:X=4 -WOPT:retype_expr=on +FDO
191.fma3d: -O2 -ipa -WOPT:mem_opnds=on:retype_expr=on -OPT:Ofast:IEEE_arith=3:ro=3
           +FDO -IPA:pu_reorder=1
200.sixtrack:= -Ofast +FDO
301.apsi: -Ofast -TENV:X=4 -LNO:fusion=2:prefetch=0
BIOS rev. 1.00

```

All memory slots populated on CPU0

The tested system can be assembled using an SSI MEB footprint case and a Tyan recommended 650W EPS-12V power supply, such as the Enermax 660W power supply (PEG851AX-VH)
DRAM Bank Interleaving Disabled in BIOS