



# CFP2000 Result

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## Advanced Micro Devices

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

SPECfp\_rate2000 = 42.2

SPECfp\_rate\_base2000 = 37.9

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	2	90.9	40.8	2	76.7	48.4
171.swim	2	119	60.4	2	119	60.2
172.mgrid	2	113	37.1	2	102	41.0
173.applu	2	130	37.6	2	109	44.8
177.mesa	2	96.0	33.8	2	69.0	47.0
178.galgel	2	102	66.0	2	94.1	71.5
179.art	2	146	41.2	2	107	56.3
183.equake	2	86.4	34.9	2	86.4	34.9
187.facerec	2	101	43.7	2	93.0	47.4
188.amp	2	157	32.4	2	150	34.1
189.lucas	2	122	38.1	2	105	44.2
191.fma3d	2	143	34.2	2	138	35.2
200.sixtrack	2	151	16.9	2	150	17.0
301.apsi	2	162	37.3	2	161	37.6

### Hardware

CPU: AMD Opteron (TM) 850  
CPU MHz: 2400  
FPU: Integrated  
CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
CPU(s) orderable: 1-4  
Parallel: No  
Primary Cache: 64KBI + 64KBD on chip  
Secondary Cache: 1024KB(I+D) on chip  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 8x512 MB PC3200 CL3.0 ECC Reg  
Disk Subsystem: SCSI, Seagate Cheetah ST336753LW, U320, 15K rpm  
Other Hardware: None

### Software

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

## Notes/Tuning Information

```
+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
-IPA:space=1000:linear=on:plimit=50000:callee_limit=5000
-INLINE:aggressive=on
171.swim: -Ofast -LNO:fusion=2:prefetch=2
```



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## Notes/Tuning Information (Continued)

```

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.ammp:   -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

```

Taskset utility used to bind CPU(s) to processes

All memory slots populated on CPU0 and CPU1

The tested system can be assembled using an SSI MEB footprint case, such as the CCSI RC0352 3U rackmount case, and a Tyan recommended 660W EPS-12V power supply, such as the Enermax 660W power supply (PEG851AX-VH)