



# CFP2000 Result

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Advanced Micro Devices  
TYAN S2865 K8E Tomcat, AMD Opteron (TM) 148

SPECfp2000 = 1860  
SPECfp\_base2000 = 1729

SPEC license #: 49 Tested by: AMD, Austin, TX Test date: Jul-2005 Hardware Avail: Aug-2005 Software Avail: Aug-2005

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
168.wupwise	1600	63.6	2517	58.5	2733	
171.swim	3100	150	2067	147	2107	
172.mgrid	1800	120	1499	109	1649	
173.applu	2100	110	1905	102	2060	
177.mesa	1400	81.3	1722	76.4	1832	
178.galgel	2900	104	2785	94.8	3060	
179.art	2600	104	2499	77.3	3362	
183.earthquake	1300	80.7	1612	75.1	1731	
187.facerec	1900	89.8	2115	85.7	2217	
188.amp	2200	168	1313	155	1419	
189.lucas	2000	109	1843	109	1843	
191.fma3d	2100	146	1442	144	1455	
200.sixtrack	1100	154	712	146	751	
301.apsi	2600	184	1415	177	1469	

### Hardware

CPU: AMD Opteron (TM) 148 (939-pin)  
CPU MHz: 2200  
FPU: Integrated  
CPU(s) enabled: 1 core, 1 chip, 1 core/chip  
CPU(s) orderable: 1  
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, DDR400 CL2.0  
Disk Subsystem: IDE, Western Digital WD2000JB, 7200 rpm  
Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 9 (SP2) for AMD64  
Compiler: PathScale EKOPath(TM) Compiler Suite, Release 2.1  
File System: Linux/ext3  
System State: Multi-user, run level 3

## Notes/Tuning Information

Tested by AMD

```
+FDO: PASS1= -fb_create fbdata PASS2= -fb_opt fbdata
+ACML means -L/opt/acml2.5.1/pathscale64/lib -lacml,
which causes linking with AMD Core Math Library V2.5.1
```

### 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 -LNO:fusion=2 -m3dnow
172.mgrid: -O3 -LNO:fusion=2:blocking=off
           -OPT:Ofast:unroll_times_max=8:unroll_size=256:ro=3
           -CG:gcm=off:cflow=off -m3dnow
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
177.mesa: -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on +FDO
178.galgel: -Ofast -OPT:fast_complex=on +ACML
179.art: -O3 -OPT:ro=2:div_split=on:alias=typed -fno-math-errno -m32
183.quake: -Ofast -CG:load_exe=2 -OPT:treeheight=on -WOPT:mem_opnds=on
           -m32 +FDO
187.facerec: -Ofast -OPT:IEEE_NaN_Inf=off:ro=3 -LNO:fusion=2
            -IPA:plimit=1500 +FDO
188.ammp: -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
          -fno-math-errno -TENV:X=4 +FDO
189.lucas: basepeak = true
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 -fno-math-errno -CG:load_exe=1 +FDO
301.apsi: -Ofast -TENV:X=4 -LNO:fusion=2:prefetch=0

```

The tested system can be assembled using a standard ATX footprint, an Antec True 550 Watt EPS12V power supply, and a PCI or PCIe graphics card.  
All memory slots were populated with Corsair CMX512-3200XL.  
Memory timings manually set in BIOS: CAS=2, TRCD=2, TRAS=5, TRP=2  
BIOS version 1.01