



# CFP2000 Result

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Advanced Micro Devices  
Tyan Thunder K8W (S2885), AMD Opteron (TM) 250

SPECfp\_rate2000 = 36.3  
SPECfp\_rate\_base2000 = 35.6

SPEC license #: 49 Tested by: AMD, Austin, TX Test date: Apr-2004 Hardware Avail: May-2004 Software Avail: Apr-2004

| Benchmark    | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|--------------|-------------|--------------|------------|--------|---------|-------|
| 168.wupwise  | 2           | 93.7         | 39.6       | 2      | 80.3    | 46.2  |
| 171.swim     | 2           | 181          | 39.7       | 2      | 181     | 39.7  |
| 172.mgrid    | 2           | 127          | 32.8       | 2      | 125     | 33.5  |
| 173.applu    | 2           | 154          | 31.6       | 2      | 176     | 27.6  |
| 177.mesa     | 2           | 79.8         | 40.7       | 2      | 75.5    | 43.0  |
| 178.galgel   | 2           | 106          | 63.5       | 2      | 98.5    | 68.3  |
| 179.art      | 2           | 181          | 33.3       | 2      | 179     | 33.6  |
| 183.equake   | 2           | 89.2         | 33.8       | 2      | 85.8    | 35.1  |
| 187.facerec  | 2           | 88.0         | 50.1       | 2      | 88.0    | 50.1  |
| 188.amp      | 2           | 158          | 32.3       | 2      | 153     | 33.3  |
| 189.lucas    | 2           | 130          | 35.8       | 2      | 127     | 36.4  |
| 191.fma3d    | 2           | 140          | 34.8       | 2      | 140     | 34.8  |
| 200.sixtrack | 2           | 150          | 17.0       | 2      | 150     | 17.0  |
| 301.apsi     | 2           | 185          | 32.6       | 2      | 185     | 32.6  |

### Hardware

CPU: AMD Opteron (TM) 250  
CPU MHz: 2400  
FPU: Integrated  
CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
CPU(s) orderable: 2  
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 DDR SDRAM ECC Registered CL3.0  
Disk Subsystem: SCSI, Ultra 320, 15k rpm  
Other Hardware: None

### Software

Operating System: SuSE Linux 8.0 SLES 64 bit (SP3)  
SuSE NUMA kernel 2.4.21-143  
Compiler: PGI Fortran 5.1-3  
SuSE gcc33 optional compiler (from SLES8 SP3)  
AMD Core Math Library (Version 1.5)  
for AMD64  
File System: Linux/ext3  
System State: Multi-user SuSE Run level 3

## Notes/Tuning Information

+FDO: PASS1=-fprofile-arcs PASS2=-fbranch-probabilities

+ACML is linking with AMD Core Math Library

pgf90 is the PGI Fortran compiler

gcc is the SuSE optional gcc 3.3 compiler (from SLES8 SP3)

Portability:

PORTABILITY=-DSPEC\_CPU2000\_LP64 is applied to all the C benchmarks.

178.galgel: -Mfixed

Baseline: C gcc -O3 -funroll-all-loops +FDO

Baseline: Fortran pgf90 -fastsse -Mipa=fast

Peak tuning:

168.wupwise: pgf90 -fastsse -Mipa=fast -Minline=levels:2

171.swim: basepeak=true

172.mgrid: pgf90 -fast -Mipa=fast

173.applu: pgf90 -fast -Mipa=fast

177.mesa: gcc -O3 -funroll-all-loops -finline-limit=2000 +FDO

178.galgel: pgf90 -fastsse -O3 -mp RM\_SOURCES=lapak.f90 +ACML

179.art: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=1500 +FDO

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info@spec.org

http://www.spec.org



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## Notes/Tuning Information (Continued)

```
183.equake: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=2000
187.facerec: basepeak=true
188.amp: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=2000 +FDO
189.lucas: pgf90 -fastsse -Mipa=fast -Mnosmart
191.fma3d: basepeak=true
200.sixtrack: basepeak=true
301.apsi: basepeak=true
```

ONESTEP is used for all base and peak runs  
Taskset utility used to bind processes to CPU(s)  
BIOS rev.: 1.01