



# CFP2000 Result

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## IBM

IBM eServer 326m, 2.6 GHz AMD Opteron(tm) Processor 252

SPECfp2000 = 2118

SPECfp\_base2000 = 1818

SPEC license #: 11 | Tested by: IBM Corporation | Test date: Nov-2005 | Hardware Avail: Nov-2005 | Software Avail: Nov-2005

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
168.wupwise	1600	60.2	2656	56.0	2855	
171.swim	3100	138	2249	118	2616	
172.mgrid	1800	105	1715	96.6	1863	
173.applu	2100	112	1878	92.6	2268	
177.mesa	1400	82.0	1707	63.2	2214	
178.galgel	2900	93.1	3115	82.8	3501	
179.art	2600	107	2423	73.4	3544	
183.earthquake	1300	81.5	1595	73.4	1770	
187.facerec	1900	88.7	2143	73.7	2580	
188.amp	2200	144	1527	136	1616	
189.lucas	2000	105	1909	91.6	2183	
191.fma3d	2100	155	1355	130	1613	
200.sixtrack	1100	146	755	121	910	
301.apsi	2600	152	1707	146	1779	

### Hardware

CPU: AMD Opteron(tm) Processor 252  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
 CPU(s) orderable: 1,2  
 Parallel: No  
 Primary Cache: 64KBI + 64KBD on chip  
 Secondary Cache: 1024KB (I+D) on chip  
 L3 Cache: N/A  
 Other Cache: N/A  
 Memory: 8 x 1024GB PC3200  
 Disk Subsystem: SCSI, 36GB 15K RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux 9.0 SP2 SLES 64 bit Kernel 2.6.5-7.191-smp (SP2)  
 Compiler: PathScale EKO Compiler Suite, Release 2.2.1  
 AMD Core Math Library 2.5.1  
 File System: Linux/reiserfs  
 System State: Multi-user, run level 3

## Notes/Tuning Information

Tested by IBM Corporation

+ACML: Linked with AMD Core Math Library

Base tuning for C programs: -Ofast -WOPT:mem\_opnds=on +FDO

Base tuning for FORTRAN programs: -Ofast -LNO:fusion=2 -OPT:fast\_complex +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

171.swim: -Ofast -CG:local\_fwd\_sched=on -LNO:fusion=2 -m3dnow

172.mgrid: -Ofast -CG:gcm=off:cflow=on -OPT:IEEE\_a=3:unroll\_size=200

-LNO:fusion=2:fission=1:blocking=off:prefetch Ahead=2

-WOPT:memopnds=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:prefetch=3 +FDO

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org



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## Notes/Tuning Information (Continued)

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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 +ACML +FDO
179.art:       -O3 -OPT:ofast -fno-math-errno -mno-sse2 -m32
183.earthquake: -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.ammpp:     -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
               -fno-math-errno -TENV:X=4 -LNO:prefetch=0 +FDO
189.lucas:     -Ofast -OPT:ro=3:fast_nint=off:unroll_size=256 -WOPT:memopnds=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=60000:early_intrinsics=on
               -fno-math-errno -CG:load_exe=1 +FDO
301.apsi:      -Ofast -CG:load_exe=0 -LNO:prefetch=0:simd=2

```

BIOS Configuration Notes  
Node Interleaving is Disabled

Other Configuration Notes  
Taskset utility used to bind process to CPU(s)