



# CFP2000 Result

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IBM Corporation  
IBM System X 3655 (AMD Opteron 2220)

SPECfp2000 = 2376  
SPECfp\_base2000 = 2156

SPEC license #: 11 | Tested by: IBM Corporation | Test date: Feb-2007 | Hardware Avail: Feb-2007 | Software Avail: Oct-2006

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	1000 2000 3000 4000			
168.wupwise	1600	54.5	2937	47.1	3400	[Bar chart showing ratio 3400]			
171.swim	3100	104	2986	95.5	3245	[Bar chart showing ratio 3245]			
172.mgrid	1800	92.8	1939	83.9	2145	[Bar chart showing ratio 2145]			
173.applu	2100	92.4	2274	84.4	2489	[Bar chart showing ratio 2489]			
177.mesa	1400	64.1	2183	60.2	2327	[Bar chart showing ratio 2327]			
178.galgel	2900	82.1	3531	72.9	3976	[Bar chart showing ratio 3976]			
179.art	2600	91.5	2840	65.4	3978	[Bar chart showing ratio 3978]			
183.quake	1300	72.9	1783	67.0	1940	[Bar chart showing ratio 1940]			
187.facerec	1900	68.2	2787	66.7	2850	[Bar chart showing ratio 2850]			
188.amp	2200	138	1593	128	1714	[Bar chart showing ratio 1714]			
189.lucas	2000	88.9	2251	77.6	2578	[Bar chart showing ratio 2578]			
191.fma3d	2100	114	1847	116	1814	[Bar chart showing ratio 1814]			
200.sixtrack	1100	117	936	111	993	[Bar chart showing ratio 993]			
301.apsi	2600	144	1801	136	1912	[Bar chart showing ratio 1912]			

### Hardware

CPU: AMD Opteron 2220  
CPU MHz: 2800  
FPU: Integrated  
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
CPU(s) orderable: 1,2 chips  
Parallel: No  
Primary Cache: 64 KB I + 64 KB D on chip (per core)  
Secondary Cache: 1 MB I+D on chip (per core)  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 16 GB (8x2 GB PC2-5300)  
Disk Subsystem: 1x36 GB 15K SAS  
Other Hardware:

### Software

Operating System: SuSE Linux Enterprise Server 9 (x86\_64) SP 3  
SuSE kernel 2.6.5-7.244-default  
Compiler: PathScale EKOPath(TM) Compiler Suite, Release 2.5  
AMD Core Math Library 3.5.0  
File System: Linux/ext2  
System State: Multi-user run level 3

## Notes/Tuning Information

+FDO: PASS1= -fb\_create fbdata PASS2= -fb\_opt fbdata  
+ACML means -L/pathscale64/lib -lacml,  
which causes linking with AMD Core Math Library V2.7.0

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

Base tuning for 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

171.swim: -Ofast -CG:local\_fwd\_sched=on -LNO:fusion=2 -m3dnw

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

-LNO:fusion=2:fission=1:blocking=off:prefetch Ahead=2 -WOPT:mem\_opnds=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 +FDO



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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=on RM_SOURCES=lapak.f90 +FDO +acml
179.art:       -O3 -OPT:Ofast -fno-math-errno -mno-sse2 -m32
183.quake:     -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.ammmp:     -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
               -fno-math-errno -TENV:X=4 +FDO
189.lucas:     -Ofast -OPT:ro=3:fast_nint=off:unroll_size=256 -WOPT:mem_opnds=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=6000:early_intrinsics=on -fno-math-errno
               -CG:load_exe=1 +FDO
301.apsi:      -Ofast -CG:load_exe=0 -LNO:prefetch=0:simd=2

```