



# CFP2000 Result

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IBM Corporation

IBM System X 3455 (AMD Opteron (TM) 2220 SE)

SPECfp2000 = 2218

SPECfp\_base2000 = 2029

SPEC license #: 11 | Tested by: IBM Corporation | Test date: Aug-2006 | Hardware Avail: Sep-2006 | Software Avail: Mar-2006

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	Performance (Ratio)			
						1000	2000	3000	4000
168.wupwise	1600	58.2	2747	51.9	3083	[Bar chart showing ratio 3083]			
171.swim	3100	112	2757	102	3028	[Bar chart showing ratio 3028]			
172.mgrid	1800	98.2	1833	89.5	2010	[Bar chart showing ratio 2010]			
173.applu	2100	98.7	2128	87.6	2398	[Bar chart showing ratio 2398]			
177.mesa	1400	64.0	2187	60.0	2332	[Bar chart showing ratio 2332]			
178.galgel	2900	85.8	3378	85.4	3397	[Bar chart showing ratio 3397]			
179.art	2600	106	2462	75.3	3453	[Bar chart showing ratio 3453]			
183.earthquake	1300	84.2	1545	76.2	1707	[Bar chart showing ratio 1707]			
187.facerec	1900	73.2	2596	72.4	2623	[Bar chart showing ratio 2623]			
188.amp	2200	139	1581	133	1649	[Bar chart showing ratio 1649]			
189.lucas	2000	94.4	2119	80.8	2476	[Bar chart showing ratio 2476]			
191.fma3d	2100	121	1729	123	1709	[Bar chart showing ratio 1709]			
200.sixtrack	1100	119	927	113	976	[Bar chart showing ratio 976]			
301.apsi	2600	150	1734	140	1857	[Bar chart showing ratio 1857]			

### Hardware

CPU: AMD Opteron 2220 SE  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2  
 Parallel: No  
 Primary Cache: 64KBI + 64KBD (on chip) per core  
 Secondary Cache: 1024KB (I+D) (on chip) per core  
 L3 Cache: N/A  
 Other Cache: N/A  
 Memory: 8x2GB, PC2-5300  
 Disk Subsystem: SATA, 80GB 10K RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux 9.0 SP3 SLES 64 bit Kernel 2.6.5-7.244-smp  
 Compiler: PathScale EKO Compiler Suite, Release 2.4  
 PathScale EKOPATH(TM) Compiler Suite, Release 2.4  
 File System: Linux/reiserfs  
 System State: Multi-user, run level 3

## Notes/Tuning Information

+FDO: PASS1= -fb\_create fbdata PASS2= -fb\_opt fbdata

### 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 -IPA:linear=on -LNO:prefetch Ahead=5:prefetch=3  
 -OPT:unroll\_times\_max=8:unroll\_size=128:IEEE\_NaN\_Inf=off:ro=3  
 171.swim: -Ofast -CG:local\_fwd\_sched=on -LNO:fusion=2 -m3dnow  
 172.mgrid: -Ofast -CG:gcm=off -OPT:IEEE\_arith=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 +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 -IPA:plimit=1500 -LNO:fusion=2
               -OPT:IEEE_NaN_Inf=off:ro=3:unroll_size=0 +FDO
188.amp:      -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
               -GRA:optimize_boundary=on -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:early_intrinsics=on
               -fno-math-errno -CG:load_exe=1 +FDO
301.apsi:     -Ofast -CG:load_exe=0 -LNO:prefetch=0:simd=2

```