



# CFP2000 Result

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IBM Corporation  
IBM BladeCenter LS41 (AMD Opteron 8220)

SPECfp2000 = 2210  
SPECfp\_base2000 = 1996

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	58.6	2731	54.9	2917	[Bar chart showing ratio vs reference time]			
171.swim	3100	113	2744	103	3017	[Bar chart showing ratio vs reference time]			
172.mgrid	1800	97.8	1840	87.6	2055	[Bar chart showing ratio vs reference time]			
173.applu	2100	100	2099	89.3	2351	[Bar chart showing ratio vs reference time]			
177.mesa	1400	68.6	2042	60.3	2321	[Bar chart showing ratio vs reference time]			
178.galgel	2900	86.3	3359	76.9	3771	[Bar chart showing ratio vs reference time]			
179.art	2600	110	2367	75.6	3440	[Bar chart showing ratio vs reference time]			
183.earthquake	1300	87.9	1479	79.0	1646	[Bar chart showing ratio vs reference time]			
187.facerec	1900	75.7	2511	75.0	2534	[Bar chart showing ratio vs reference time]			
188.amp	2200	142	1547	132	1663	[Bar chart showing ratio vs reference time]			
189.lucas	2000	94.8	2109	83.4	2397	[Bar chart showing ratio vs reference time]			
191.fma3d	2100	123	1707	125	1676	[Bar chart showing ratio vs reference time]			
200.sixtrack	1100	118	929	111	992	[Bar chart showing ratio vs reference time]			
301.apsi	2600	147	1768	139	1872	[Bar chart showing ratio vs reference time]			

### Hardware

CPU: AMD Opteron 8220  
CPU MHz: 2800  
FPU: Integrated  
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip  
CPU(s) orderable: 1,2,3,4 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: 32 GB (15x2 GB PC2-5300)  
Disk Subsystem: 1x73 GB 10K 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.ammpp:     -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

```