



# CFP2000 Result

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IBM Corporation  
IBM BladeCenter LS41 (AMD Opteron 8220)

SPECfp\_rate2000 = 172  
SPECfp\_rate\_base2000 = 156

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	8	64.3	231	8	57.3	259
171.swim	8	185	156	8	181	159
172.mgrid	8	124	134	8	118	142
173.applu	8	116	168	8	106	183
177.mesa	8	69.6	187	8	61.3	212
178.galgel	8	103	262	8	93.9	287
179.art	8	130	186	8	87.8	275
183.quake	8	128	94.5	8	99.5	121
187.facerec	8	88.8	199	8	87.3	202
188.amp	8	146	139	8	137	149
189.lucas	8	127	147	8	120	155
191.fma3d	8	140	139	8	142	137
200.sixtrack	8	119	85.8	8	112	91.1
301.apsi	8	154	156	8	148	163

### 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

```