



# CFP2000 Result

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## IBM Corporation

AMD Opteron LS20 for IBM eServer Blade Center (AMD Opteron (TM) 246)

SPECfp\_rate2000 = 34.7

SPECfp\_rate\_base2000 = 32.2

SPEC license #: 11 | Tested by: IBM, Inc. | Test date: Apr-2005 | Hardware Avail: Apr-2005 | Software Avail: Apr-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	2	86.9	42.7	2	87.1	42.6
171.swim	2	154	46.8	2	148	48.7
172.mgrid	2	142	29.4	2	126	33.2
173.applu	2	163	30.0	2	135	36.0
177.mesa	2	93.1	34.9	2	87.3	37.2
178.galgel	2	135	49.8	2	120	56.1
179.art	2	131	46.1	2	96.5	62.5
183.quake	2	107	28.2	2	98.8	30.5
187.facerec	2	117	37.5	2	114	38.8
188.amp	2	224	22.8	2	213	24.0
189.lucas	2	145	32.0	2	145	32.0
191.fma3d	2	174	28.1	2	170	28.7
200.sixtrack	2	171	14.9	2	169	15.1
301.apsi	2	214	28.2	2	207	29.1

### Hardware

CPU: AMD Opteron 246  
 CPU MHz: 2000  
 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: 4 x 2048MB, DDR400  
 Disk Subsystem: SCSI, 36GB 10K RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux 9.0 SLES 64 bit Kernel 2.6.5-7.151-smp (SP1)  
 Compiler: PathScale EKOPath(TM) Compiler Suite, Release 2.1  
 File System: Linux/reiserfs  
 System State: Multi-user, run level 3

## Notes/Tuning Information

Tested by IBM, Inc.

```
+FDO: PASS1= -fb_create fbdata PASS2= -fb_opt fbdata
+ACML means -L/opt/acml2.5.1/pathscale64/lib -lacml,
           which causes linking with AMD Core Math Library V2.5.1
```

### 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 -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
```



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## Notes/Tuning Information (Continued)

```

171.swim: -Ofast -LNO:fusion=2 -m3dnow
172.mgrid: -O3 -LNO:fusion=2:blocking=off
           -OPT:Ofast:unroll_times_max=8:unroll_size=256:ro=3
           -CG:gcm=off:cflow=off -m3dnow
173.applu: -Ofast -CG:local_fwd_sched=on
           -LNO:fusion=2:fission=2:full_unroll_size=10000:prefetch=3
           -OPT:ro=3 -TENV:X=3
177.mesa: -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on +FDO
178.galgel: -Ofast -OPT:fast_complex=on +ACML
179.art: -O3 -OPT:ro=2:div_split=on:alias=typed -fno-math-errno -m32
183.quake: -Ofast -CG:load_exe=2 -OPT:treeheight=on -WOPT:mem_opnds=on -m32
187.facerec: -Ofast -OPT:IEEE_NaN_Inf=off:ro=3 -LNO:fusion=2
            -IPA:plimit=1500 +FDO
188.ammp: -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
          -fno-math-errno -TENV:X=4 +FDO
189.lucas: basepeak = true
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 -fno-math-errno -CG:load_exe=1 +FDO
301.apsi: -Ofast -TENV:X=4 -LNO:fusion=2:prefetch=0

```