



CFP2000 Result

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IBM Corporation

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

SPECfp2000 = 1512

SPECfp_base2000 = 1389

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
168.wupwise	1600	87.3	1834	87.8	1822	
171.swim	3100	154	2010	135	2300	
172.mgrid	1800	142	1271	119	1507	
173.applu	2100	163	1292	132	1589	
177.mesa	1400	93.2	1502	88.5	1582	
178.galgel	2900	133	2176	116	2507	
179.art	2600	131	1986	93.2	2791	
183.quake	1300	106	1223	94.7	1373	
187.facerec	1900	117	1618	111	1712	
188.amp	2200	224	981	214	1028	
189.lucas	2000	145	1383	145	1383	
191.fma3d	2100	173	1212	194	1084	
200.sixtrack	1100	172	641	170	646	
301.apsi	2600	215	1212	207	1256	

Hardware

CPU: AMD Opteron 246
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 1 core, 1 chip, 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

```