# CFP2000 Result

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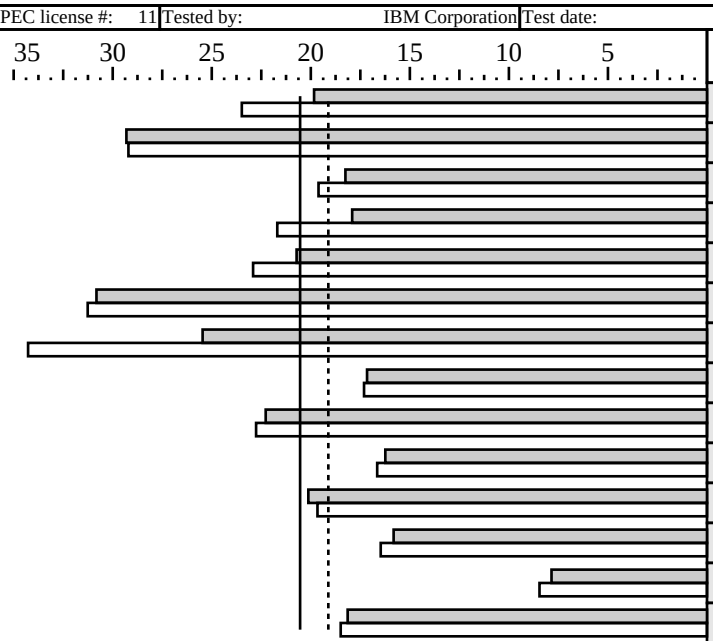
## IBM
## eServer 326, 2.4 GHz AMD Opteron (TM)

SPECfp_rate2000 = 20.5

SPECfp_rate_base2000 = 19.1

SPEC license #: 11 | Tested by: IBM Corporation | Test date: Oct-2004 | Hardware Avail: Oct-2004 | Software Avail: Oct-2004




| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|---|---|---|---|---|---|---|
| 168.wupwise | 1 | 93.6 | 19.8 | 1 | 79.0 | 23.5 |
| 171.swim | 1 | 123 | 29.3 | 1 | 123 | 29.2 |
| 172.mgrid | 1 | 114 | 18.3 | 1 | 106 | 19.6 |
| 173.applu | 1 | 136 | 17.9 | 1 | 112 | 21.7 |
| 177.mesa | 1 | 78.4 | 20.7 | 1 | 70.9 | 22.9 |
| 178.galgel | 1 | 109 | 30.8 | 1 | 108 | 31.3 |
| 179.art | 1 | 118 | 25.5 | 1 | 88.0 | 34.3 |
| 183.equake | 1 | 87.9 | 17.2 | 1 | 87.1 | 17.3 |
| 187.facerec | 1 | 98.9 | 22.3 | 1 | 96.8 | 22.8 |
| 188.ammp | 1 | 157 | 16.2 | 1 | 153 | 16.6 |
| 189.lucas | 1 | 115 | 20.1 | 1 | 118 | 19.7 |
| 191.fma3d | 1 | 154 | 15.8 | 1 | 148 | 16.5 |
| 200.sixtrack | 1 | 163 | 7.85 | 1 | 151 | 8.46 |
| 301.apsi | 1 | 166 | 18.1 | 1 | 163 | 18.5 |

### Hardware

| | |
|---|---|
| CPU: | AMD Opteron 250 |
| CPU MHz: | 2400 |
| 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: | 8x512MB, DDR400 |
| Disk Subsystem: | SCSI, 36GB 10K RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux 8.0 SLES 64 bit Kernel 2.4.21-143-smp (SP3) |
| Compiler: | PathScale EKO Compiler Suite, Release 1.4 |
| File System: | Linux/reiserfs |
| System State: | Multi-user, run level 3 |

## Notes/Tuning Information

```
Tested by IBM Corporation

 +FDO: PASS1= -fb_create fbdata  PASS2= -fb_opt fbdata

 Baseline optimization:
   C:              pathcc  -Ofast -WOPT:mem_opnds=on +FDO
   Fortran:        pathf90 -Ofast -LNO:fusion=2
 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 -TENV:X=4
     loader:     -IPA:space=1000:linear=on:plimit=50000:callee_limit=5000
                 -INLINE:aggressive=on
   171.swim:     -Ofast -LNO:fusion=2
   172.mgrid:    -O3 -LNO:fusion=2:blocking=off
```

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## Notes/Tuning Information (Continued)

```
                  -OPT:Ofast:unroll_times_max=8:unroll_size=256:ro=3
                  -CG:gcm=off:cflow=off
    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 -WOPT:val=2
    177.mesa:     -O2 -ipa -OPT:Ofast -fno-math-errno
                  -CG:local_fwd_sched=on +FDO
    178.galgel:   -Ofast -OPT:fast_complex
                  -CG:load_exe=0:use_movlpd=on
    179.art:      -O3 -OPT:ro=2:div_split=on:alias=typed
                  -fno-math-errno -m32 +FDO
    183.equake:   -Ofast -WOPT:mem_opnds=on -CG:local_fwd_sched=on
    187.facerec:  -Ofast -OPT:treeheight=on:IEEE_NaN_Inf=off:ro=3
                  -CG:load_exe=0 -LNO:fusion=2 +FDO -IPA:plimit=1800
    188.ammp:     -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
                  -fno-math-errno -TENV:X=4 -LNO:prefetch=0 +FDO
    189.lucas:    -Ofast -CG:load_exe=2:local_fwd_sched=on -LNO:fusion=2
                  -TENV:X=4 -WOPT:retype_expr=on +FDO
    191.fma3d:    -O2 -ipa -WOPT:mem_opnds=on:retype_expr=on -OPT:Ofast:IEEE_arith=3:ro=3
                  -LANG:short_circuit_conditionals=on +FDO -IPA:pu_reorder=on
    200.sixtrack: -Ofast -CG:load_exe=1 +FDO
    301.apsi:     -Ofast -TENV:X=4 -LNO:fusion=2:prefetch=0

  BIOS Settings:
    ChipKill was DISABLED

  Compiler Flags File:
    IBM-PathScale-20041025
```