



CINT2000 Result

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IBM

eServer 325, 2.0 GHz Opteron, gcc, 64-bit SuSE SLES8 Linux

SPECint2000 = 1239

SPECint_base2000 = 1132

SPEC license #: 11 | Tested by: IBM, Research Triangle Park, NC | Test date: Sep-2003 | Hardware Avail: Oct-2003 | Software Avail: Jul-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
164.gzip	1400	136	1028	130	1076	
175.vpr	1400	143	977	143	982	
176.gcc	1100	79.4	1386	77.8	1414	
181.mcf	1800	334	539	201	894	
186.crafty	1000	57.0	1754	54.8	1824	
197.parser	1800	180	1001	167	1080	
252.eon	1300	76.8	1692	70.9	1835	
253.perlbnk	1800	138	1305	138	1306	
254.gap	1100	104	1062	104	1062	
255.vortex	1900	148	1284	134	1422	
256.bzip2	1500	143	1052	139	1077	
300.twolf	3000	284	1056	234	1281	

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: 4x512MB PC2700 Reg ECC DDR SDRAM CL2.5
 Disk Subsystem: 1 x 40GB IDE
 Other Hardware: None

Software

Operating System: SuSE Linux 8.0 SLES 64 bit Kernel 2.4.19-249 (SP2)
 Compiler: SuSE gcc33 optional compiler (from SLES8 SP2)
 File System: Linux/reiserfs
 System State: Multi-user SuSE Run level 5

Notes/Tuning Information

Tested by IBM Corporation

gcc is the SuSE optional gcc33 package C compiler (from SLES8 SP2)

+FDO: PASS1=-fprofile-arcs PASS2=-fbranch-probabilities

ONESTEP is used for all base runs

Portability: PORTABILITY=-DSPEC_CPU2000_LP64 is applied to all benchmarks (affecting only 176.gcc, 252.eon, 253.perlbnk, 254.gap, and 255.vortex)

176.gcc: Approved src.alt is used

186.crafty: CPORTABILITY=-DLINUX_i386

252.eon: CXXPORTABILITY=-DHAS_ERRLIST -DFMAX_IS_DOUBLE

Approved src.alt is used

253.perlbnk: CPORTABILITY=-DSPEC_CPU2000_LINUX_I386 -DSPEC_CPU2000_NEED_BOOL -DSPEC_CPU2000_GLIBC22

254.gap: CPORTABILITY=-DSYS_IS_USG -DSYS_HAS_IOCTL_PROTO -DSYS_HAS_TIME_PROTO -DSYS_HAS_SIGNAL_PROTO -DSYS_HAS_ANSI -DSYS_HAS_CALLOC_PROTO

Baseline C: gcc -O3 -funroll-all-loops +FDO

Baseline C++: g++ -O3 -funroll-all-loops +FDO

Peak tuning:

164.gzip: -O3 -funroll-all-loops -finline-limit=900 -freduce-all-givs +FDO

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Notes/Tuning Information (Continued)

```
175.vpr:      -O3 -funroll-loops -finline-limit=1000 +FDO
176.gcc:      -O3 -funroll-all-loops -finline-limit=900 +FDO
181.mcf:      -O3 -funroll-all-loops -m32 +FDO
              ONESTEP=yes
186.crafty:   -O3 -funroll-loops -fprefetch-loop-arrays
197.parser:   -O3 -funroll-all-loops -m32 +FDO
              ONESTEP=yes
252.eon:      -O3 -funroll-all-loops -ffast-math -finline-limit=3000 +FDO
253.perlbnk:  -O3 -funroll-all-loops -finline-limit=1800 +FDO
254.gap:      basepeak=true
255.vortex:   -O3 -funroll-all-loops -finline-limit=1000 +FDO
256.bzip2:    -O3 -funroll-all-loops -freduce-all-givs -finline-limit=2700 +FDO
300.twolf:    -O3 -funroll-all-loops -static -finline-limit=2000 -m32 +FDO
```

Set the following BIOS parameters:
DRAM Interleave = AUTO