GoFast® for Borland C

Features

- Fast
- Reentrant
- ROMable
- Conforms to IEEE 754
- “Link and Go” compiler support
- Includes C startup code
- Includes sscanf and sprintf
- Includes test programs and make file

Description

GOFAST® for Borland C was carefully designed for high performance operation and ease of use including "link and go" compatibility with Borland C compilers. GOFAST provides ROMable, reentrant IEEE and ANSI compatible 80x86 floating point support.

Functionality

GOFAST supports reentrant floating point calculations for the Borland C++ compiler. GOFAST includes the following routines in library format:

- complete floating point emulator
- _status87, _clear87, _control87
- conversion operations
- sqrt
- sin, cos, tan
- asin, acos, atan, atan2
- sinh, cosh, atanh
- log, log10
- exp, pow
- initialization (DOS version)

GOFAST includes the following routines in source form to support linking without the Borland library:

- sscanf, sprintf
- floor, ceil, fabs

- modf, fmod, frexp, ldexp
- hypot, cabs
- internal long integer math
- skeleton startup routine
- initialization (embedded versions)

The GOFAST library routines work for all memory models. The source routines must be compiled with the proper options. The provided GOFAST makefile will do this.

Environment

GOFAST for Borland C will operate in either a DOS environment or an embedded environment.

In a DOS environment, the GOFAST library USEMU.LIB is used. This library includes an automatic initialization routine.

In an embedded environment, the GOFAST library USEMUND.LIB is used. library does not include an initialization routine. GOFAST provides two embedded initialization routines -- one that uses software interrupts (EMUINIT.ASM) and one uses the "coprocessor not present" interrupt (EMUIR7.ASM). The choice is yours. These initialization routines are ROMable, and provide maximum flexibility for embedded operation.

Considerations

GOFAST is primarily designed to facilitate embedded operation. However, it is also tuned for performance. The following table gives the timing of some floating point operations, both with and without GOFAST. The times, given in microseconds, were measured using a 16 MHz 386SX.

Function	BCC	GOFAST
Add	163	132
Subtract	170	125
Multiply	198	174
Divide	205	198
Sqrt	370	348
Exp	1337	1009
Log	1154	1081
Sin	806	824
Cos	788	806
Tan	1374	1264
Atan	1264	916

GOFAST Support

U S Software maintains a test lab where comprehensive confidence tests are performed on GOFAST in each target environment. A demonstration test program is included with your product delivery, and you are encouraged to run it on your own target hardware to verify system operation. Phone and fax support are provided with the product. Extended support is also available.