GoFast® for Microsoft 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 Microsoft C was carefully designed for high performance operation and ease of use including "link and go" compatibility with Microsoft C compilers -- versions 5.1, 6, 7, and 8. GOFAST provides ROMable, reentrant IEEE and ANSI compatible 80x86 floating point support.

Functionality

GOFAST supports reentrant floating point calculations for the Microsoft 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 Microsoft 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 Microsoft 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. This library does not include an initialization routine. GOFAST provides two embedded initialization routines -- one that uses software interrupts (EMUINIT.ASM) and one that 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	MSC	GOFAST
Add	165	128
Subtract	172	128
Multiply	220	174
Divide	247	194
Sqrt	608	271
Exp	2527	990
Log	2067	987
Sin	2840	697
Cos	2800	713
Tan	2197	1137
Atan	2217	787

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.