distort or screw up the functioning of the code in medium to high density interrupt situations. So if your program acts up and everything looks fine, try suppressing all monitor I/O. You can use idle ports for primitive (but effective) debugging. Important monitor commands are as follows:

- <F9>: Run this to change environment variables like the COM port in use. On the PC clusters, COM 1 is the port you are physically connected to.
- <Alt-S>: Save the environment settings to GPC.DAT. You may want to do this the first time after changing the default serial port to COM 1.
- <Shift-F10>: Quit monitor program. Note that this does not disrupt the link and the code you are running on the HC11 is still running and you can reestablish interface by entering GPC
- td: Download program. After entering td you need to specify the download program by using the <F7> option
- <F7>: Brings up a window where you specify your compiled s-record file (say foo.s19). If the file name is already in there, press enter
- <F6>: Log file to log your session

Sample Programs

- hello.c: Traditional homage to the C compiler. Running it will flash hello.c on the monitor screen
- ports.c: Self explanatory code to set certain port bits to output mode, read ports, write to ports and display values using a friendly interface. Please note certain programming practices. Do not assume any initial settings or values. If a certain port direction, mode matters to you, set it explicitly.

Guide to GCB11 Software

(Comments & questions: lalit@ri)

File Structure

Each PC in the Wean PC cluster is setup with the GCB11 tools and the GCC compiler. The GCB11 tools include an interface which lets you interact with the board including downloading code and debug stuff. All files related to this course are in the directory C:\GC11. There is a directory C:\GC11\USR for personal files and you are welcome to create personal sub-directories for development work. Please DO NOT place your files anywhere else. Please take care to avoid excessive usage of the hard disk space as a courtesy to other users.

- C:\GC11\TOOLS -> Utilities for download, debug,.... See Readme in this directory.
- C:\GC11\GCC -> Directory for GCC compiler
- C:\GC11\GCC\PC\BIN -> Directory containing compiler executables
- C:\GC11\GCC\PC\INCLUDE -> Directory containing header files for this environment
- C:\GC11\GCC\PC\DOC -> Documentation of all you need to know about GCC
- C:\GC11\BAT -> All batch files created for use on this environment. The utilities created so far are:
    - setenv.bat -> Environment setup file
    - compile.bat -> To compile and generate a s-record file for a single C source file
- C:\GC11\EX -> All example files given/ discussed in the course. Feel free to snatch suitable fragments.

How to get started

- Get a 3.5", high density floppy to store your programs. Do not depend on the hard disk to have the programs intact when you get back. The hard disk is to be viewed as temporary storage. Alternately you can use ftp to store files in your unix account.
- Go to the directory C:\GC11 and run setenv.bat by entering "setenv". This sets up the compiler environment and allows you to access all executables from anywhere
- Now goto the directory you are going to work in (example C:\GC11\USR\BEAVER)
- To compile a file (foo.c), enter "compile foo". This generates a s-record file "foo.s19" which will be downloaded to the microprocessor memory to run it.
- To start-up the monitor program enter gpc. The monitor program is designed to interact with the HC11 through its ROM utilities and allows you to download and run/debug compiled files (s-record files). You can also use print statements in your programs to print to the screen for debugging and understanding code. Note that print statements use interrupts and hence may