

EET364 Microcontroller Systems

OIT Portland West, Winter 2011

Lab Assignment #5 – Inter Integrated Circuit Bus Due February 10

Objective:

The student will control peripheral devices using serial interfaces in the 68HCS12. In this lab assignment, a clock IC will be controlled via the Inter Integrated Circuit (I²C) bus interface.

Equipment and Software needed:

- Dragon12-Plus and other things you know by now.
- program ds1307.asm and either iic.asm or iic.c described below.

General Instructions:

The first thing you need to do is set the time in the DS1307. Edit the ds1307.asm file to put in the correct date and time, then assemble and run the program.

The IIC controller is fairly difficult to program so use the IIC interface subroutines in iic.asm to operate the controller. An example of their use can be found in the ds1307.asm program. You should include this file at the end of your program source code using the #include directive. You will need to study the clock data sheet to see the commands necessary to access the part.

If you are using the C language, the IIC driver subroutines are in the file iic.c. The C code includes a timer so that an error value is returned rather than the code "hanging" when an error occurs. It also has a main function to initialize everything. Use this file as the starting point for your program.

Program Function:

Write a program which display the current time (hours and minutes) over the RS232 interface to the terminal program on the computer. It is to display the time only when it changes, which is once a minute.

Don't forget to add the heartbeat monitor!

To turn in:

- Commented program listing
- Screen capture showing the program operating.