**Project Identity**  
Automatic Expert Anesthesiology Monitor  
Week 3  
Through September 24, 2007  
Kane Killelea

**Work Completed**

This week we continued to work with the Blackfin processor and getting it integrated with our LabVIEW program. Timothy and Nate created a program that can access the GE Marquette system in the beginning steps of retrieving data from it. I worked on loading a tutorial program on the Blackfin processor and modifying it to perform some additional functions. The following program has been modified from a tutorial program included in the “Getting Started with the NI LabVIEW Embedded Module for ADI Blackfin Processors” manual. Figure 1 shows the front panel of the application, and Figure 2 shows the modified block diagram.

![Figure 1: LabVIEW front panel](image1)

![Figure 2: LabVIEW block diagram](image2)

This program simply takes an input, doubles it, and then compares it to a predetermined threshold value. If the output value is greater than then the threshold value, the Boolean indicator lights up. The program has been modified by adding in a case structure instructing the Blackfin board to turn all the LED lights on the board on if the output exceeds the threshold, and to turn the LEDs off if the output is less than the threshold. After following the instructions in the manual, I was successfully able to embed the
program onto the Blackfin board. This is a very important step in our project development because now we can focus on specific manipulations of the Blackfin chip rather than the general operation. After embedding and running this program several times in succession I proceeded to work with the program that Timothy and Nate created to work with the GE Marquette. I was unable to yield any good results from their program, as I encountered a lot of errors related to virtual instruments that are not compatible with the Blackfin board.

Last week’s meeting with Dr. McIsaac was conducted by Timothy and Nate via telephone. Last week Dr. McIsaac informed us that unless we specifically need to access equipment in the hospital we can conduct our weekly meetings over the phone. This week we will try to implement our LabVIEW program in the hospital in order to access the GE Marquette system.

During this past week I attempted to contact Toshiba concerning our LCD screen we obtained from Dave in the previous week. Toshiba referred me to Tops Electronic Service in Haverhill Massachusetts. I contacted Tops Service, and they referred me back to Toshiba stating that they are unable to disclose any information about Toshiba’s products due to an agreement with Toshiba. After receiving this e-mail we decided that we will not be able to use the LCD obtained from the stockroom, and knowing this I contacted Analog Devices Inc. to get a list of Blackfin compatible TFT-LCD displays. I am still awaiting a response from ADI, and I will send another e-mail to them if I don’t receive a response in the next few days. Once I get a response from ADI we will order an LCD screen that is compatible with Blackfin as soon as possible.

Future Work

The coming week is very important because we will be conducting our initial testing of our LabVIEW program at Hartford Hospital. There are a lot of unanswered questions as to how we will obtain our data from the GE Marquette, and once our initial testing is performed we will know how to modify the program, and what our next step will be. I will be focusing on modifying our existing program so that it will be compatible with the Blackfin board. In its current format there are certain virtual instruments that do not work in conjunction with the Blackfin processor. For example, the “write to text file.vi” cannot be used in the Blackfin chip because there is nowhere on the Blackfin’s memory to write a text file to. This week I will find out how to store information on the Blackfin, or how to export the collected information to a database or other storage source. Once I hear from Analog Devices I will find an LCD screen that we can use with the Blackfin board, and order it as soon as possible. We will also need to make any purchases we will need to complete the project very soon to insure we have all the parts in time.

Project Review

This week has largely revolved around continuing work accomplished in previous weeks. We made significant progress by manipulating the Blackfin board and embedding the tutorial program. In the coming weeks we will make a lot more progress
with integration with Blackfin, and after visiting Hartford Hospital next week we will be able to continue building our LabVIEW program. So far we are on task, with a large amount of work in the next few weeks. We will need to work very hard to stay current in our progress and get the project done on time.

**Hours Worked**

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