

ECE 6050 ADVANCED MICROPROCESSOR APPLICATIONS

SPRING 2012

Project Assignment #4

Team Project

Total: 100 pts. (25% of course grade)

Due 6:30pm, Thursday, April 19, 2012

Implement the **VME Interrupter** and **VME Interrupt Handler** functions of your Project #3 specifications using a Nexys 2 Board. The necessary MCF Bus and VME64x Bus signals should be emulated using switches and LEDs on your Solderless Breadboard, and/or by another Nexys 2 Board. You **need** to carry over **only** those modules from your Project #1, #2 and #3 designs that are **relevant** for the Project #4 circuits. The features of the VME64x that will apply to this project can be found at the link VME Bus References on the Class Web Page. The basic VME Bus specifications are given in the hard copy of the Instructor's Lecture Notes.

Tasks:

1. Develop **a set of .do files** to simulate a suitable subset of your VME64x_BIU Bridge and VME64x Bus signals and bus cycles, respectively, in order to verify the correct operation of your VME Interrupter and Interrupt Handler functions. Provide a **list** of these signals **along with comments**. **Demonstrate** the correct operation of the specified modules **by simulation**. Use real-time (**post-route**) simulations.
2. **Plot a schematic diagram** of your circuits. On the schematic, all nets must have labels and all devices must have distinct names- such as Uxx, where xx is a number, e.g., U00, etc.
3. **Demonstrate** the correct operation of the hardware implementation of the specified modules along with your simple, **manually controlled** VME64x Bus emulator.
4. Turn in a **Project Report**. Your Project Report should include the main sections as follows: Introduction, Design, and Conclusion.

The Class Web Page has pointers to relevant Data Sheets and User's Manuals. Additional materials can be found on the Xilinx and Digilentinc Web Pages, respectively, and on the other related manufacturers' Web Pages.