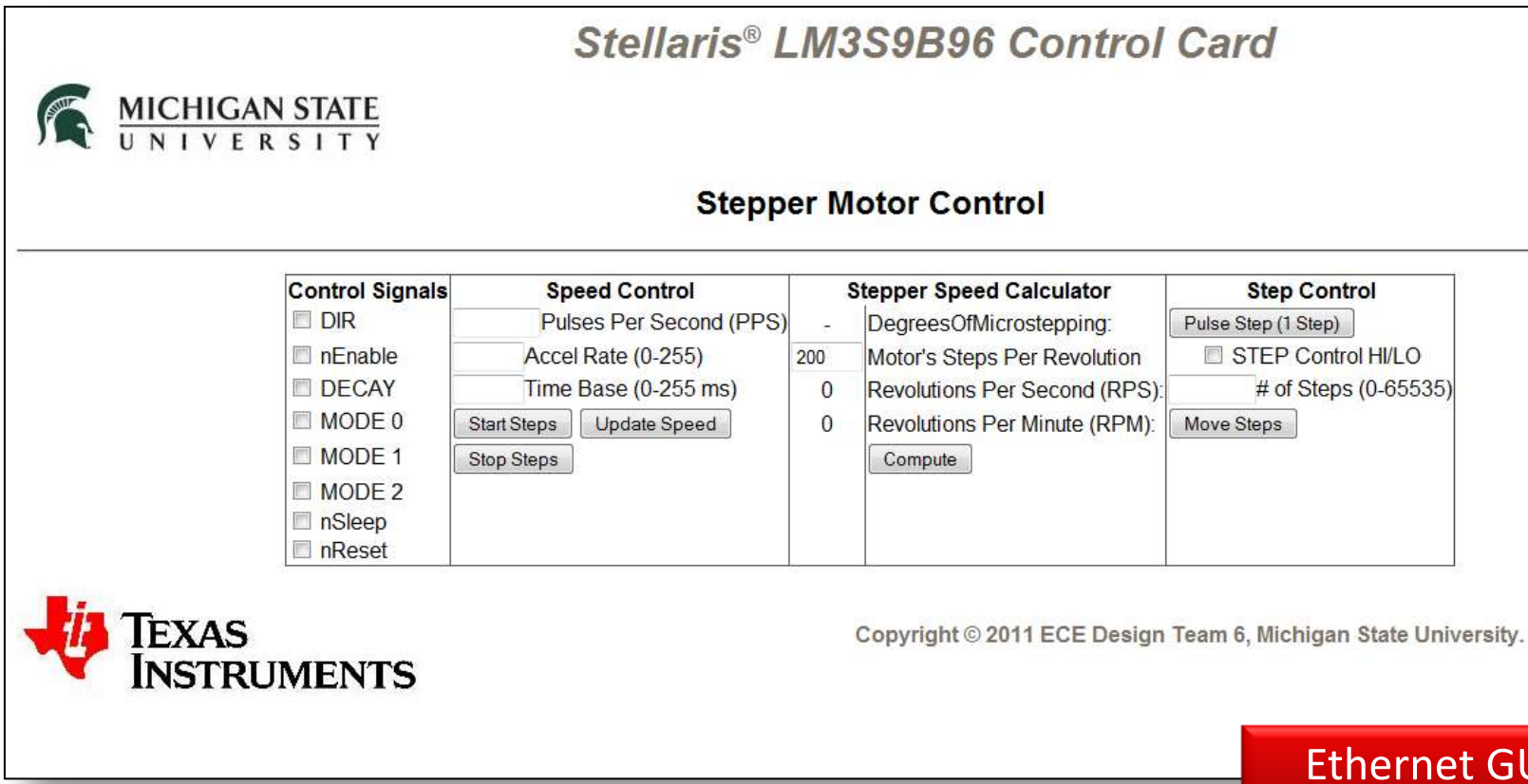


Stepper Motor Control

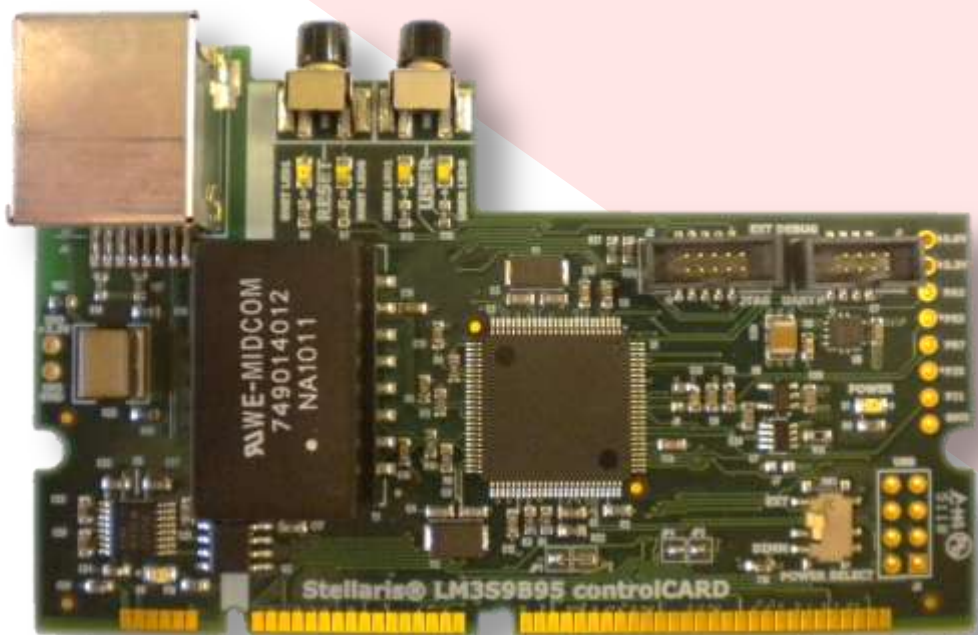
With the DRV8824EVM, MSP430F1612 CC and LM3S9B96 CC

Project Overview

Design Team 6 (DT6) project focuses specifically on the control of a stepper motor with a DRV8824, which is a motor controller IC created by Texas Instruments (TI). DT6 was given this IC on an evaluation module created by TI which also has a MSP430 onboard. DT6 was instructed by TI to redesign the DRV8824EVM so more microcontrollers (MCUs) could be used. DT6 designed the MSP430F1612 controlCARD and a new revision of the DRV8824EVM seen in the picture below. DT6 programmed the controlCARDS to work with Graphical User Interfaces (GUIs) in order to control the stepper motor.



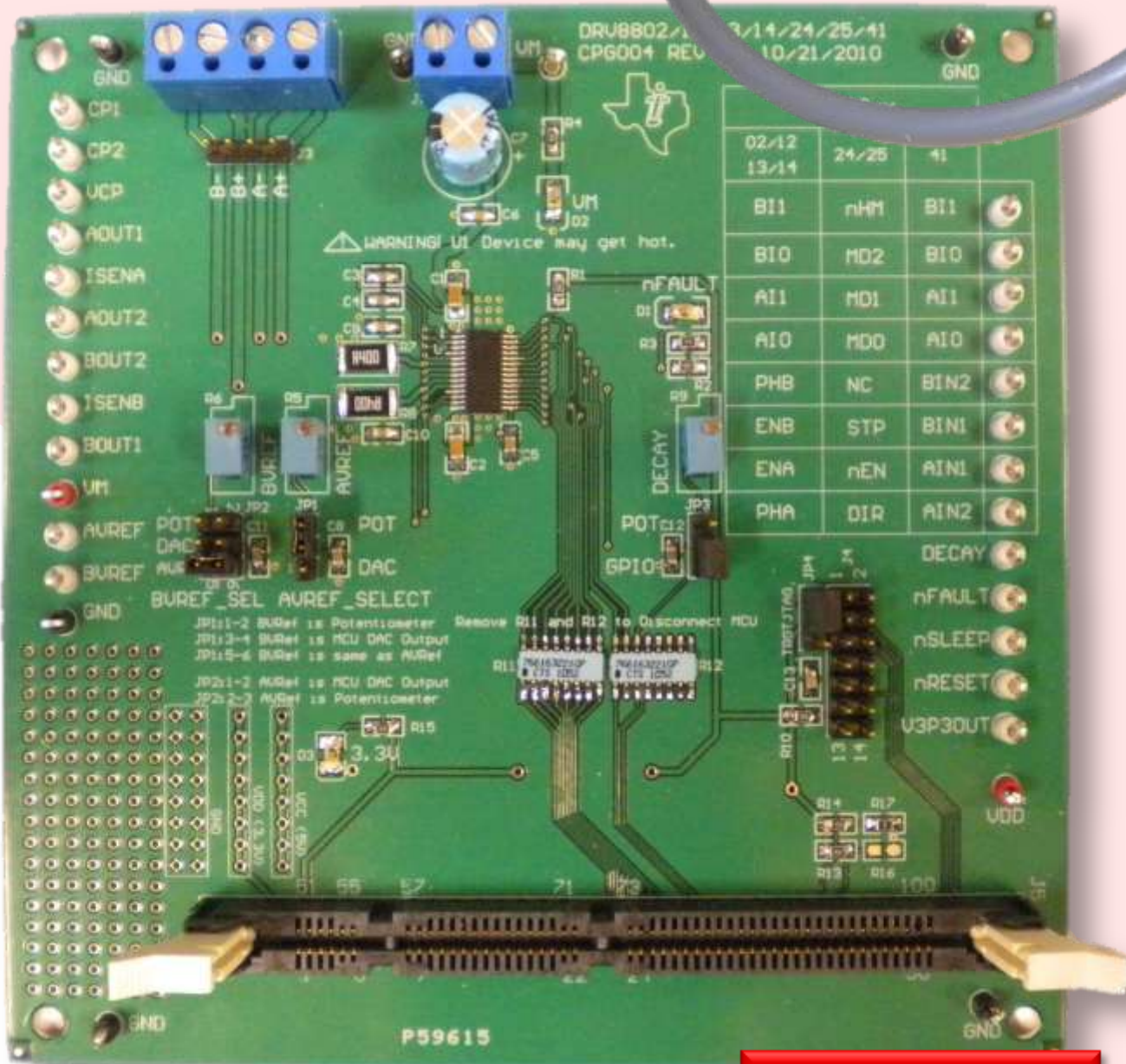
Ethernet GUI



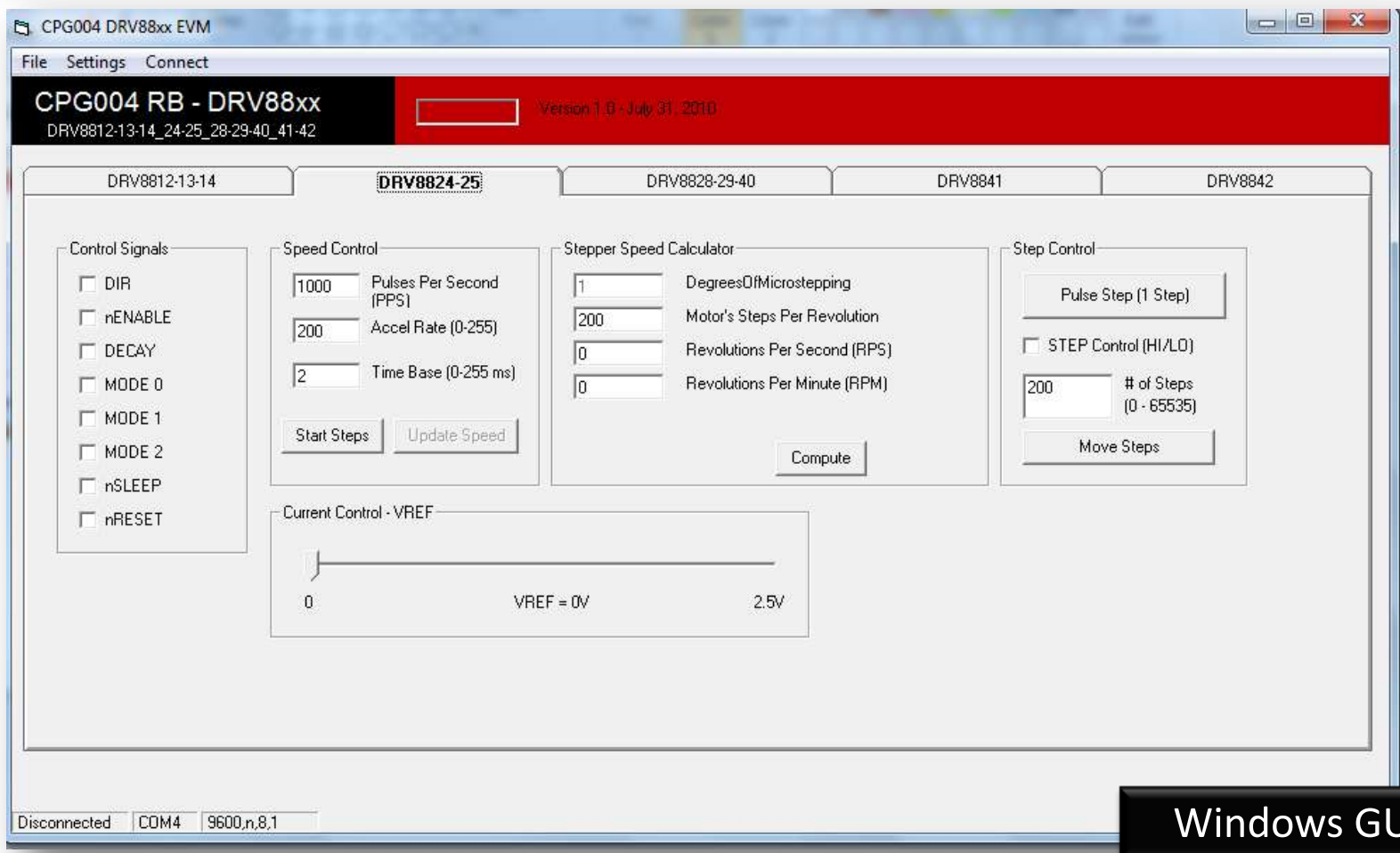
LM3S9B96 CC



MSP430F1612 CC

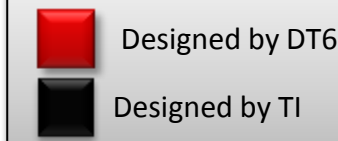


DRV8824EVM



Windows GUI

Legend:



Software

Windows GUI uses RS-232 to communicate with both the MCUs. This program allows for complete control of the DRV8824 inputs. **Ethernet GUI** uses Transmission Control Protocol to communicate to the Stellaris controlCARD through the Ethernet port.

Hardware

DRV8824EVMs motor driver can be interchanged. The DIMM slot can also be used for multiple types of controlCARDS to access the motor controller. **MSP430F1612 controlCARD** has a USB for serial communication to PCs. An 8MHz external clock is attached for accurate timing

Results

DT6 has produced two fully tested and functioning boards. DT6 has programmed the Stellaris to work with the Windows GUI along with a new Ethernet GUI created by DT6. A DRV8824 library has been created that includes all the function to drive the motor controller with just this file.

Budget

Expenses	Cost
Parts (100)	\$60.12
PCB Fabrication (DRV)	\$341.02
PCB Fabrication (DIMM)	\$612.53
PCB Assembly	\$0
Debugging Tools	\$0
Total	\$1013.67

Design Team Six

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