

This page represents the core of the Blackfin. It includes the USB to serial converter for access to the I-Boot and uCLinux console (terminal) on the Blackfin. The JTAG header is for programming the flash. Pin 3 needs to be cut off since the JTAG programming cable is keyed. The Ethernet connector has an integrated transformer inside. High frequency PCB layout techniques need to be utilized between the Ethernet connector and the Blackfin CoreModule.

All signals in and out of the board (GPIO) are 0V - 3.3V. The only exception are the I2C lines, which are 5V compliant (i.e. no level shifting is necessary to communicate on the I2C bus).

Note on PCB Layout:

Ethernet carries signals up to 100MHz. High frequency PCB layout techniques apply. RX and TX lines are differential, so differential microstrip lines should be laid out with a differential impedance of 100 ohms.

Pay attention to the amount of bus capacitance present on the I2C line. See the I2C specification for the maximum amount of bus capacitance allowed. Adjust the two pull-up resistors according to the bus capacitance.

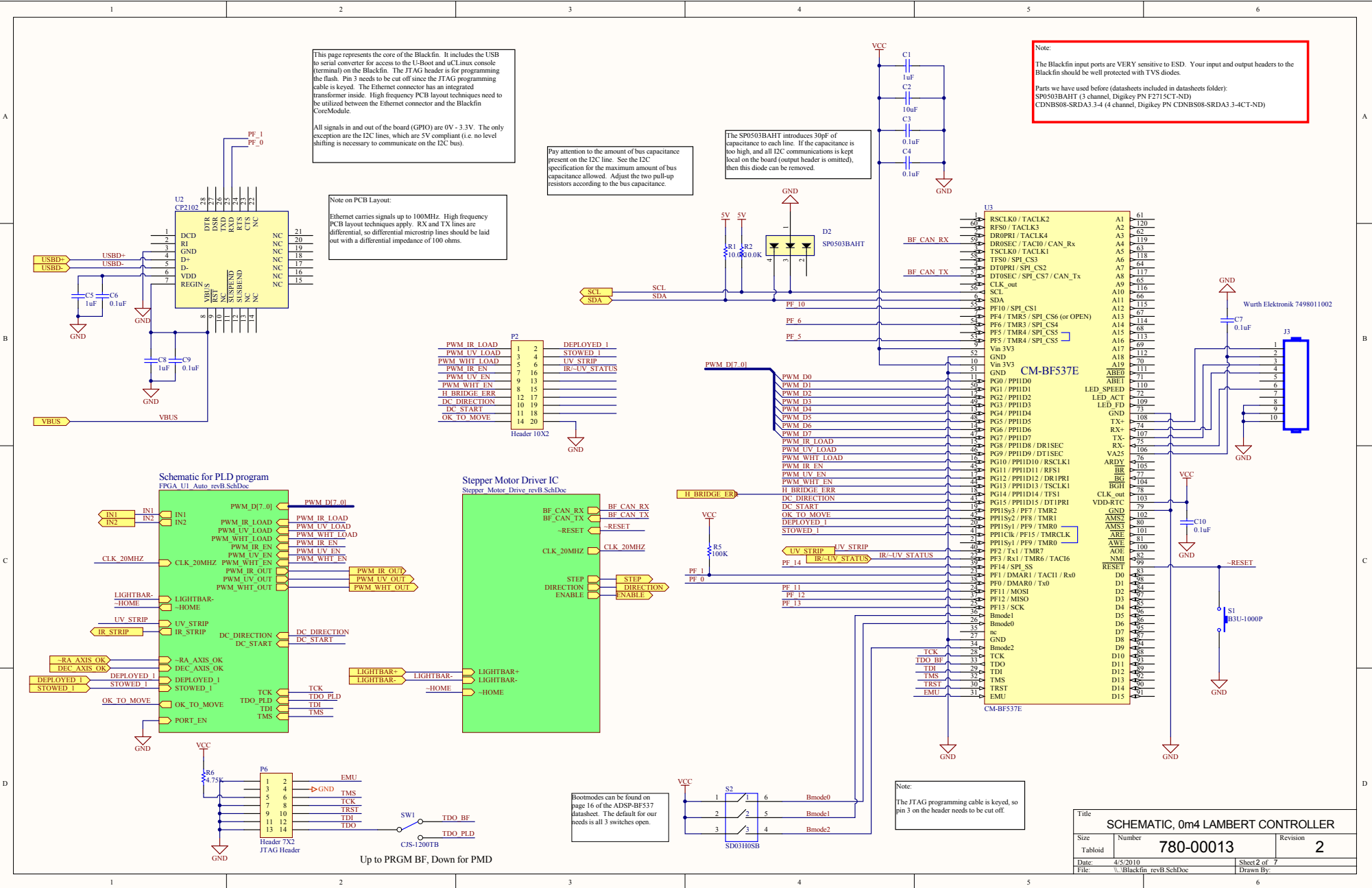
The SP0503BAHT introduces 30pF of capacitance to each line. If the capacitance is too high, and all I2C communications is kept local on the board (output header is omitted), then this diode can be removed.

Note:

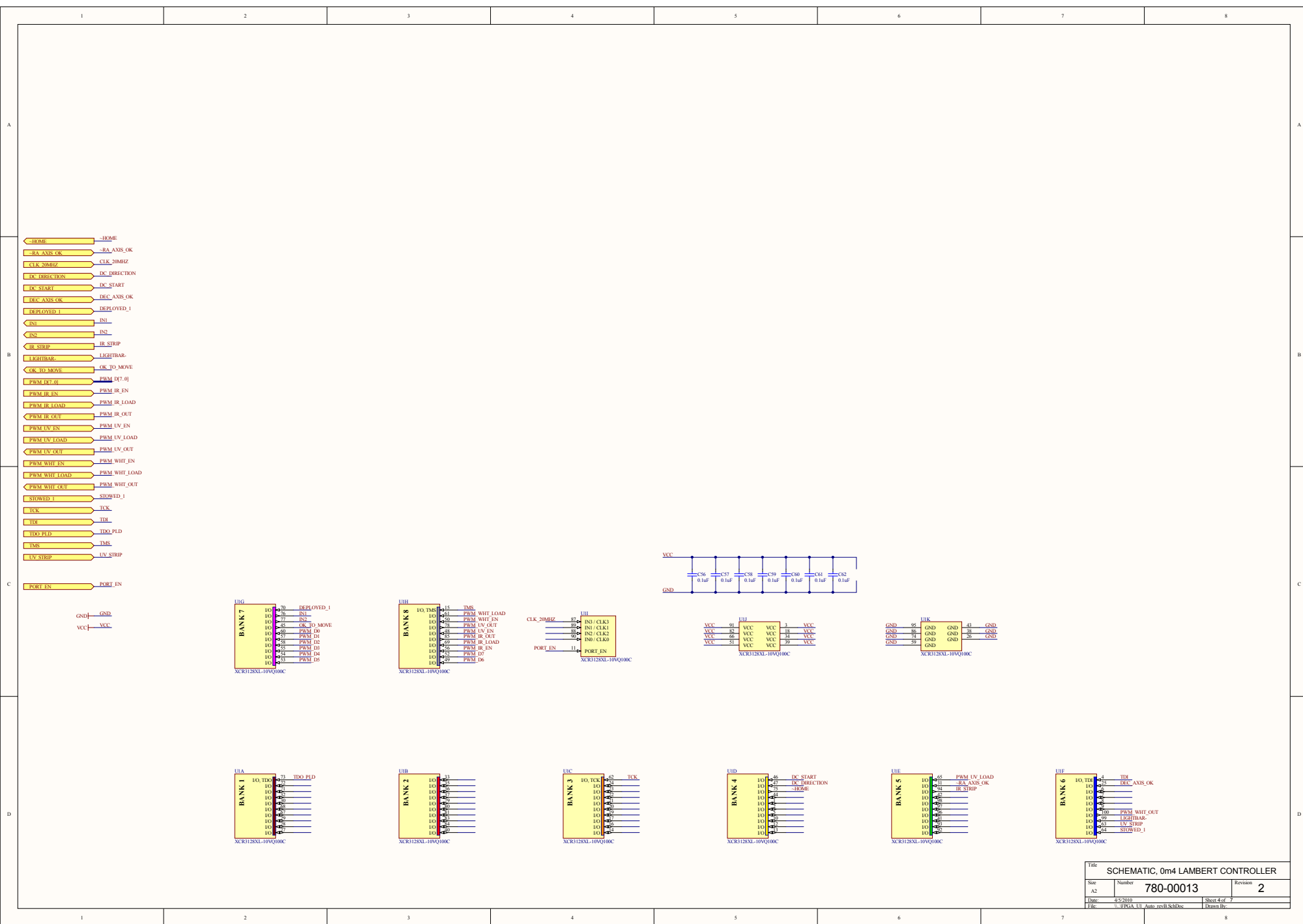
The Blackfin input ports are VERY sensitive to ESD. Your input and output headers to the Blackfin should be well protected with TVS diodes.

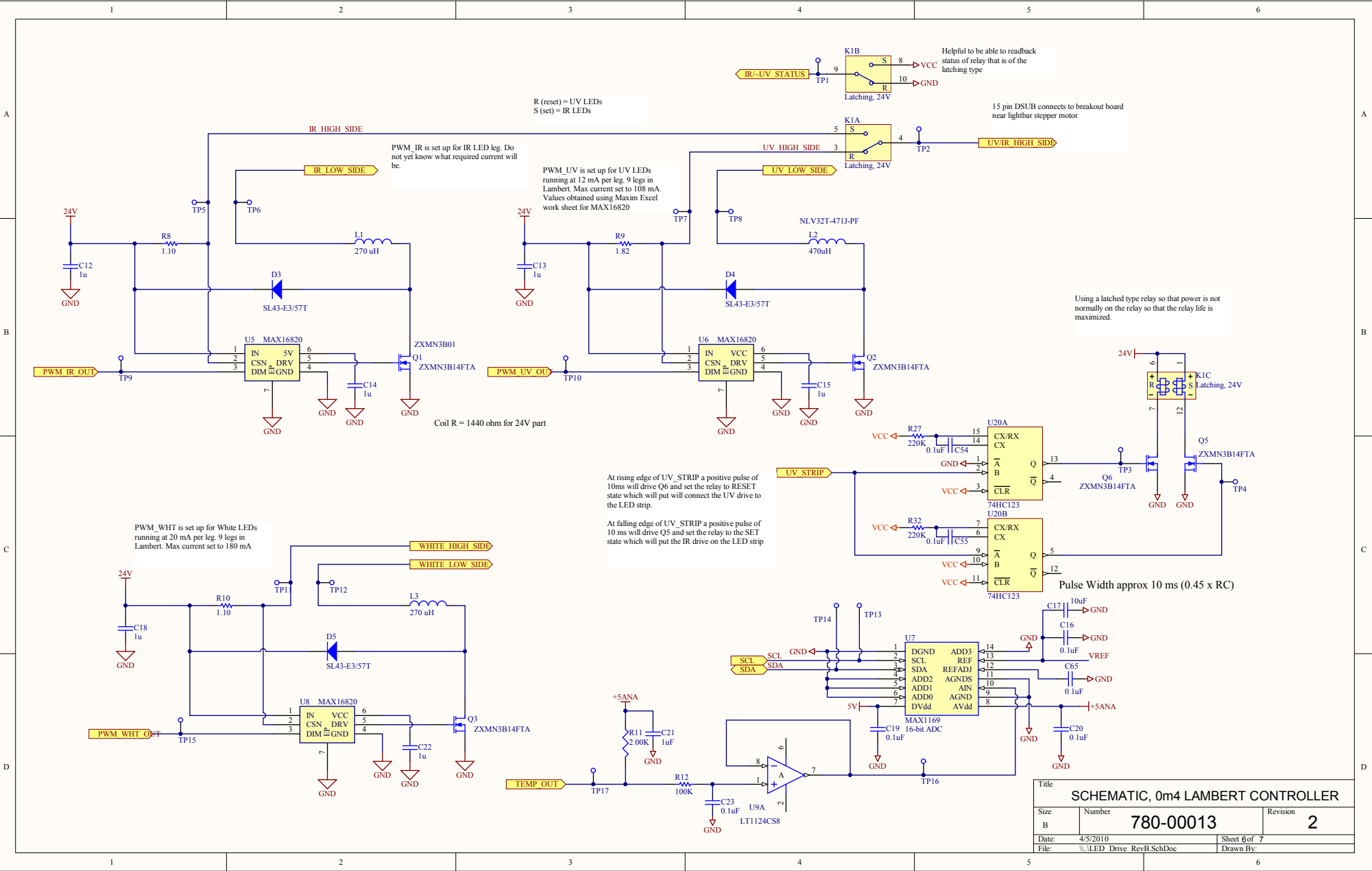
Parts we have used before (datasheets included in datasheets folder):

- SP0503BAHT (3 channel, Digkey PN F2715CT-ND)
- CNDBS08-SRDA3-3-4 (4 channel, Digkey PN CNDBS08-SRDA3-3-4CT-ND)



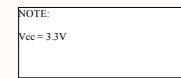
Title			
SCHEMATIC, 0m4 LAMBERT CONTROLLER			
Size	Number	Revision	
Tabloid	780-00013	2	
Date:	4/5/2010	Sheet 2 of 7	
File:	\\Blackfin_revB_SchDoc	Drawn By:	



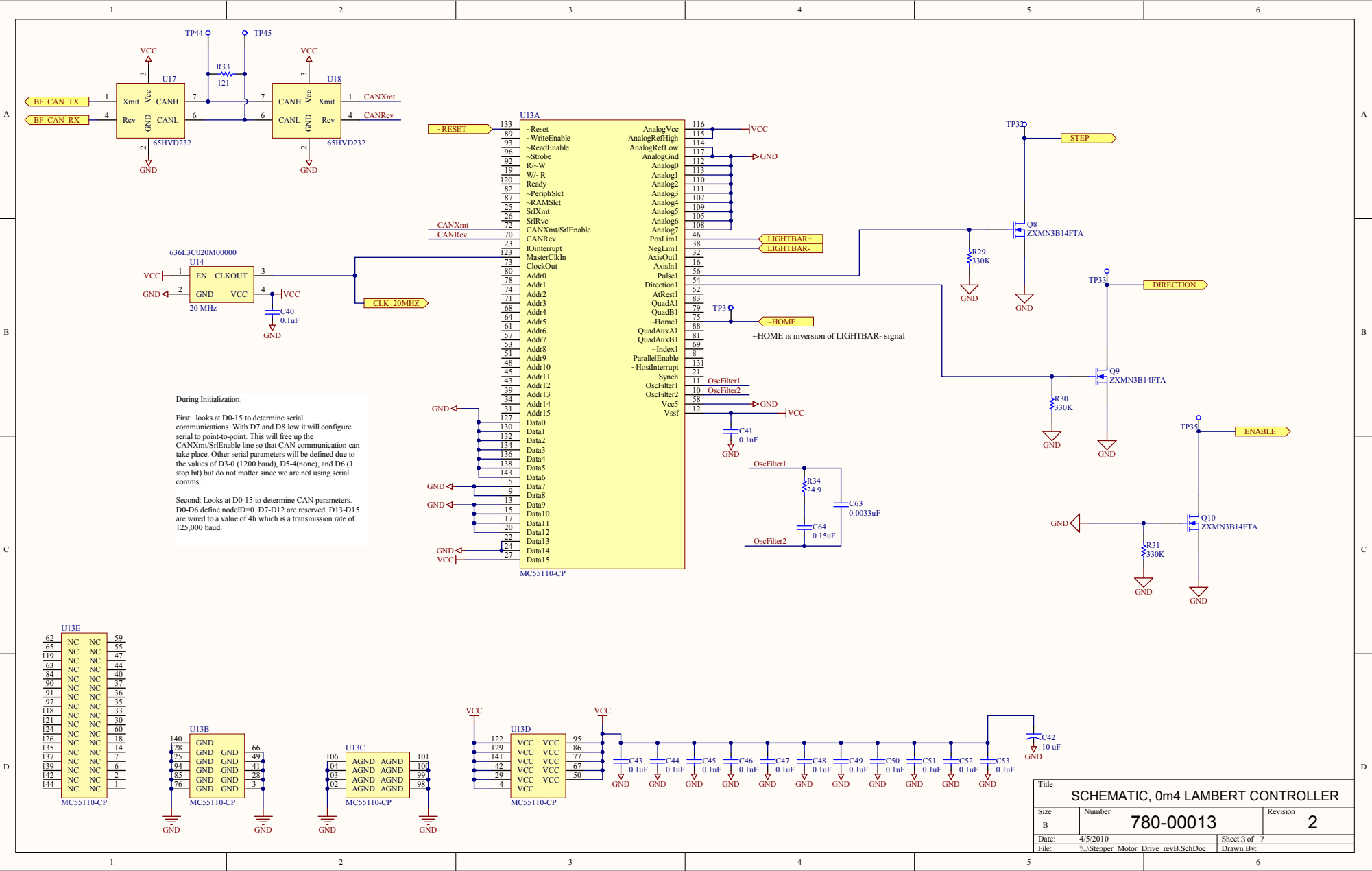


Title		
SCHEMATIC, 0m4 LAMBERT CONTROLLER		
Size	Number	Revision
B	780-00013	2
Date:	4/5/2010	Sheet 6 of 7
File:	\\.\LED Drive_RevB SchDoc	Drawn By:

The ADP3338 is a 3.3V linear regulator with a maximum output current of 1A.

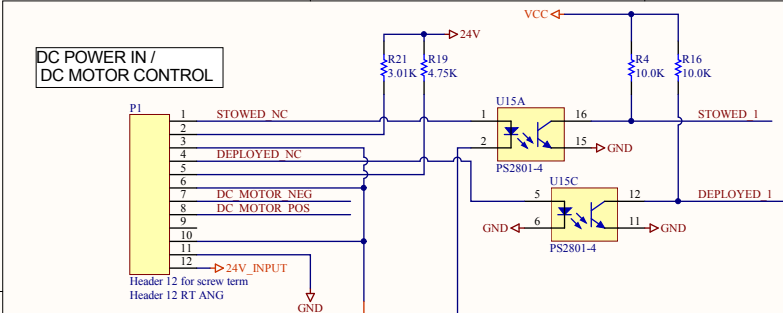


Title			
SCHEMATIC, 0m4 LAMBERT CONTROLLER			
Size	Number	Revision	
Tabloid	780-00013	2	
Date:	4/5/2010	Sheet 5 of 7	
File:	\\Power Input revB SchDoc	Drawn By:	

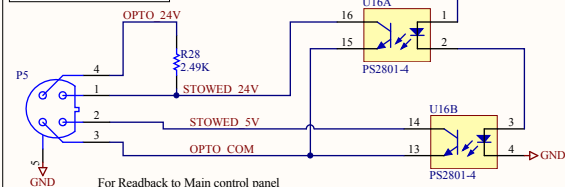


Title		
SCHEMATIC, 0m4 LAMBERT CONTROLLER		
Size	Number	Revision
B	780-00013	2
Date:	4/5/2010	Sheet 3 of 7
File:	\\.\Stepper Motor Drive revB.SchDoc	Drawn By:

# DC POWER IN / DC MOTOR CONTROL



# POSITION STATUS

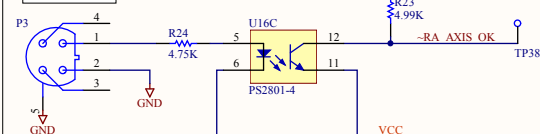


For Readback to Main control panel

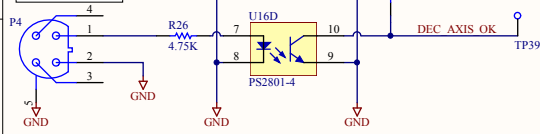
For interfacing to Kollmorgen S300 the manual says it wants a high level between 11-30V to drive an Opto LED at between 2 and 11 mA. The STOWED\_24V signal is going to go to both motor drives hence need to be able to source 4 to 22 mA. With pullups of 2.49K and 24V should give about 4mA for each input with a Vd on of 3V

The STOWED\_5V goes directly to an OC input on the WinSystems board for direct reading of the status of Lambert

# RA PROXY

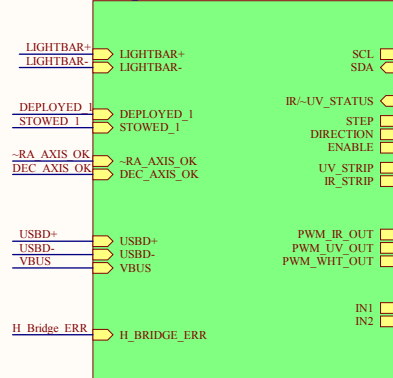


# DEC PROXY



# BlackFin --> CPLD/Stepper Motor Drive

Blackfin revB.SchDoc

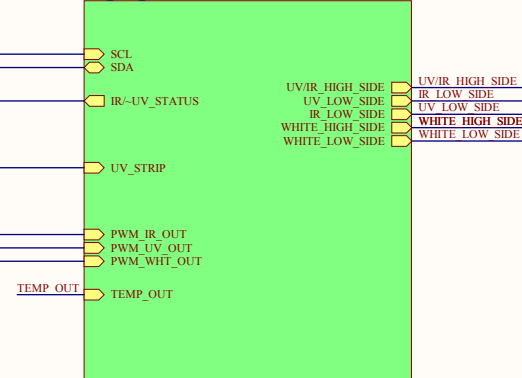


LIGHTBAR+ and LIGHTBAR- are HIGH true because PMD controller chip expects this. If both signals are high this is an error due to no voltage on the limit switches.

Limit switches on light bar should have +24V to common and then the NC side of the switch should be wired back to the U15 opto's. In the middle of a light bar move both LIGHTBAR signals will be low.

# LED Drive

LED Drive RevB.SchDoc

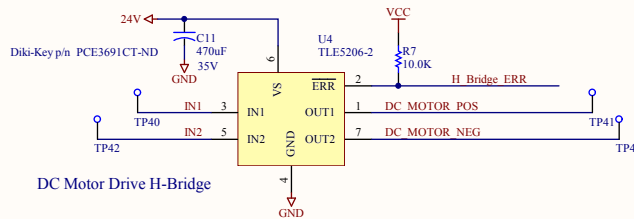
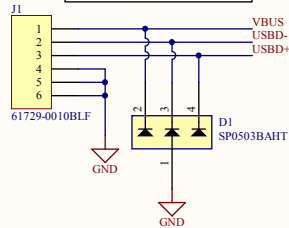


# Power Supplies

Power Input revB.SchDoc



This is the serial to USB converter that allows for console access to U-Boot and uClinux.



Title			
SCHEMATIC, 0m4 LAMBERT CONTROLLER			
Size	Number	Revision	
B	780-00013	2	
Date:	4/5/2010	Sheet 1 of 7	
File:	\\.\Top_Level_IO_revB.SchDoc	Drawn By:	