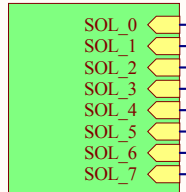
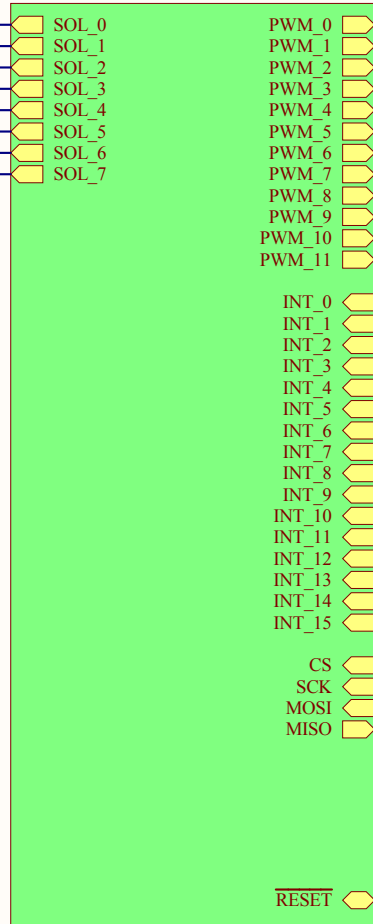


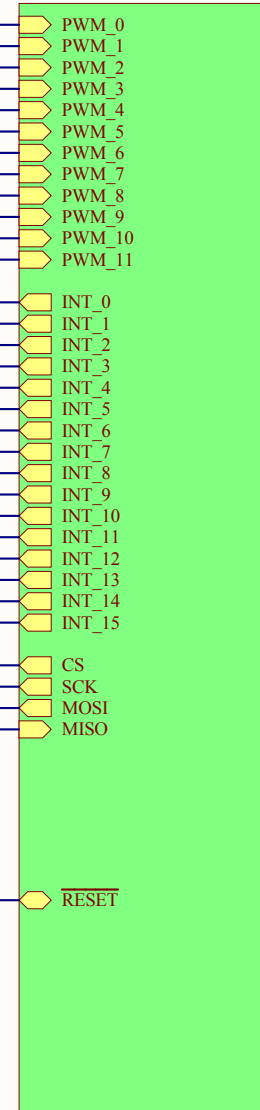
Solenoid Drive Circuits
Solenoids.SchDoc



MicroController
Co-Processor.SchDoc



Connectors
Connectors.SchDoc

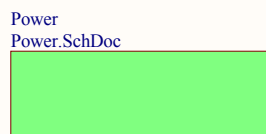


▲ Co-Processor Signals (STM32F103...)
12 PWM
8 Solenoid outputs
8 Encoder Inputs (16 external interrupts)

YUN Processor Signals
8-10 DIO
6 Analog Inputs

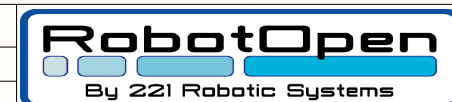
YUN Signals
1 I2C
1 SPI
1 USART

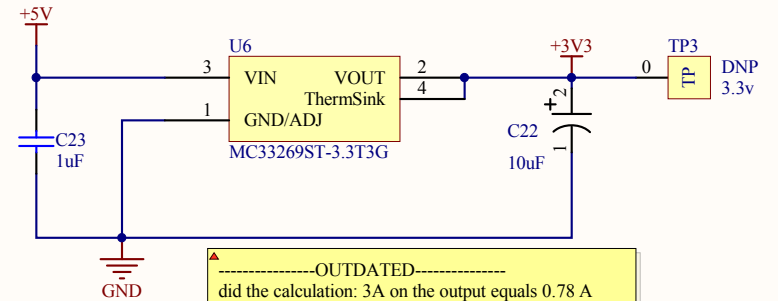
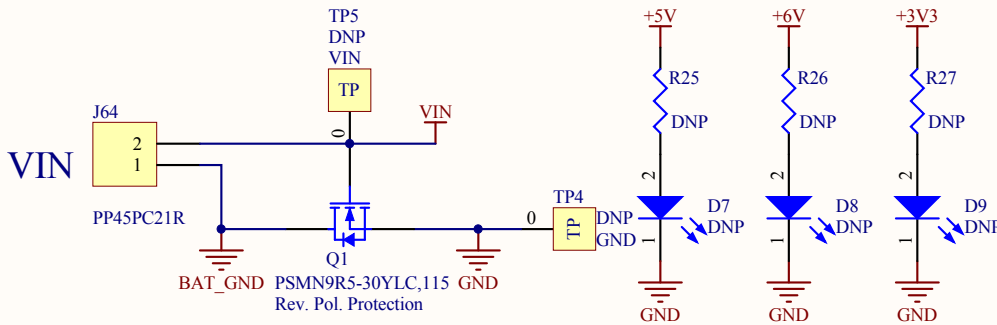
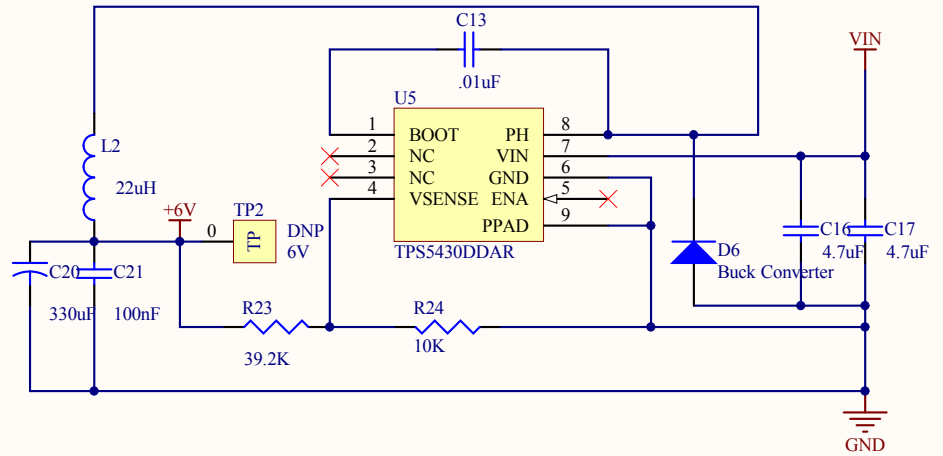
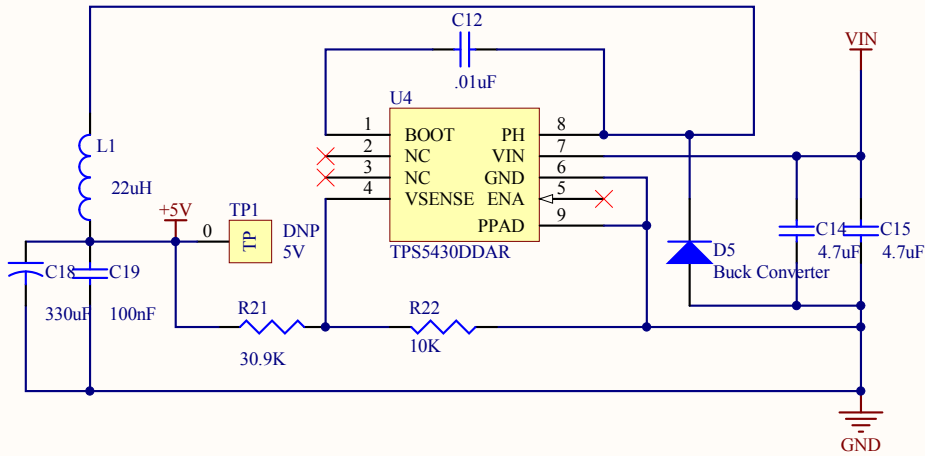
▲ 0.499" mil distance between the two boards
0.416" length of the pins below the board surface



Top Level

Size: A	Date: 9/13/2014	Revision: 1.0
Engineer: K. Chambles		Sheet: 1 of 5
Drawn By: K. Chambles		





-----OUTDATED-----
 The maximum output voltage, given a minimum input voltage of 6V with a variety of output currents, ranges from 5.13 V (when Io = 0.1 A) to 4.46 V (when Io = 3 A)
 $V_{outmax} = 0.87 * ((V_{inmin} - I_{omax} * 0.230) + V_d) (I_{omax} * R_L) + V_d$

-----OUTDATED-----
 did the calculation: 3A on the output equals 0.78 A on the input for 5V and 0.94A on the input for 6V
 that is with 80% efficient and it should be higher than this, so we are good, I have a trace width available for about 7A, therefore 4A on Solenoid, plus 2A on 5V & 6V brings us to 6

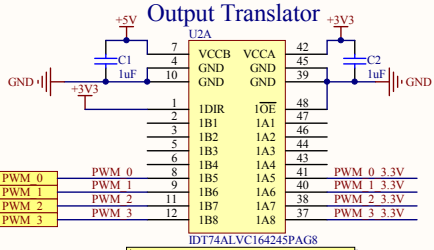
Power

Size: A	Date: 9/13/2014	Revision: 1.0
Engineer: K. Chambles	Sheet: 2 of 5	
Drawn By: K. Chambles		

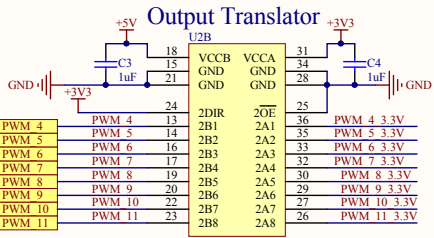


12 PWM outputs
 1 output UART
 1 outputs SPI
 8 solenoid outputs (optional)

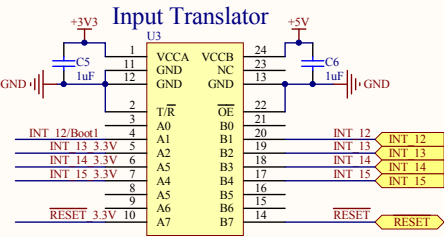
16 encoder inputs (3 inputs need voltage level translation)
 1 input UART
 3 input SPI



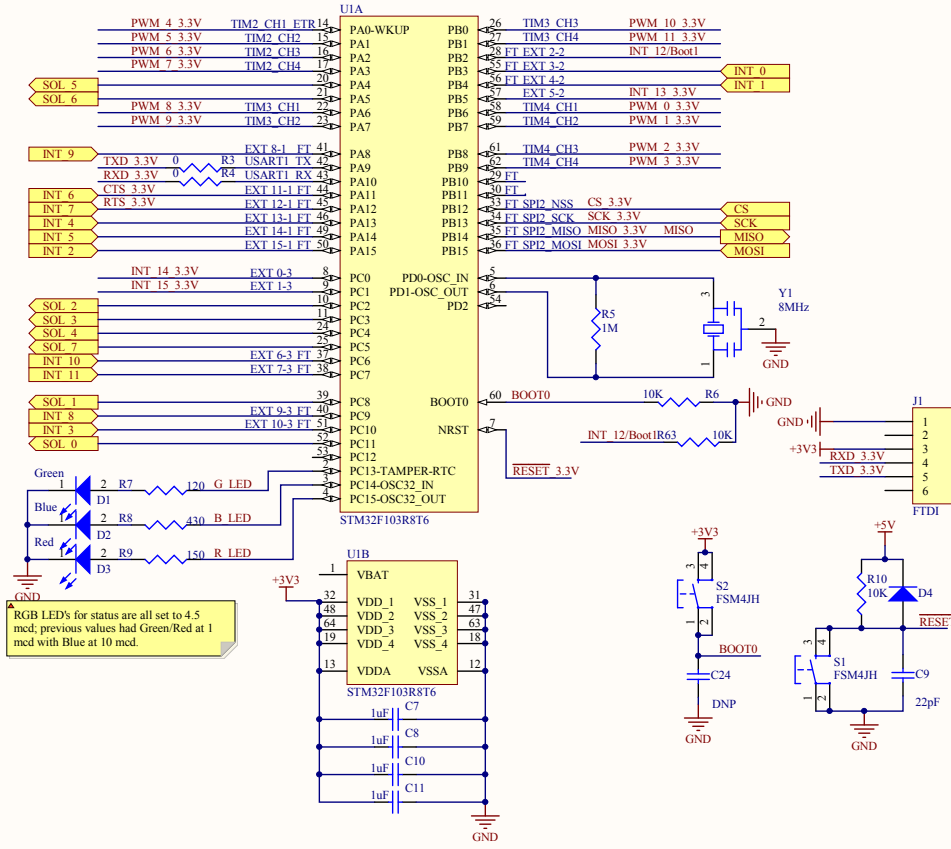
xIOE & xDIR are referenced to VCCA
 L & L data enabled, from B to A
 L & H data enabled, from A to B



xIOE & xDIR are referenced to VCCA
 L & L data enabled, from B to A
 L & H data enabled, from A to B



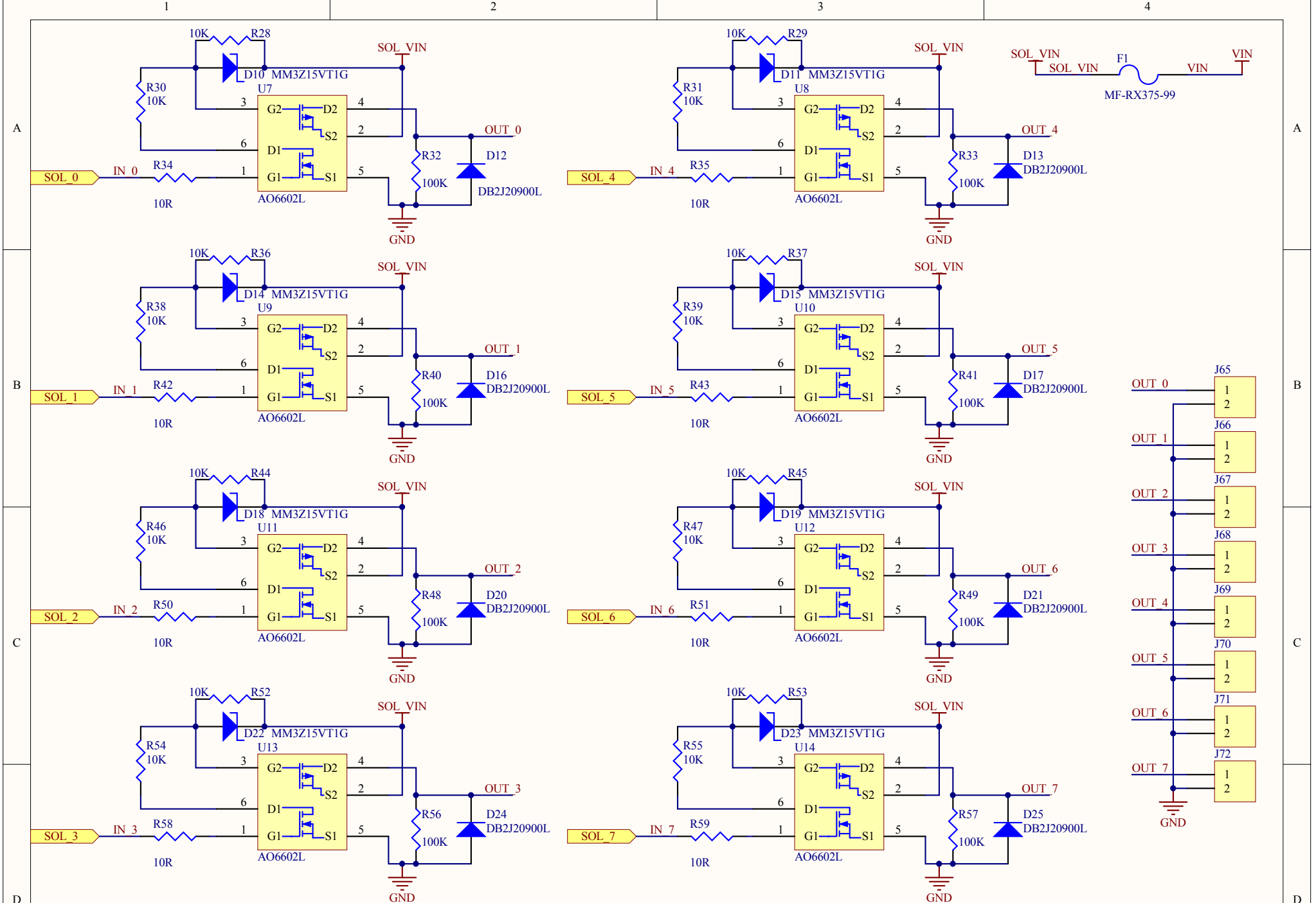
xOE & T/R are referenced to VCCA
 L & L data enabled, from B to A
 L & H data enabled, from A to B



RGB LEDs for status are all set to 4.5 mcd; previous values had Green/Red at 1 mcd with Blue at 10 mcd.

STM32F103 Co-Processor		
Size: B	Date: 9/13/2014	Revision: 1.0
Engineer: K. Chambls	Sheet: 3 of 5	
Drawn By: K. Chambls		

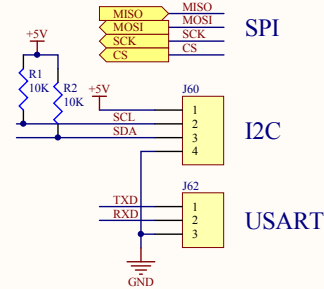
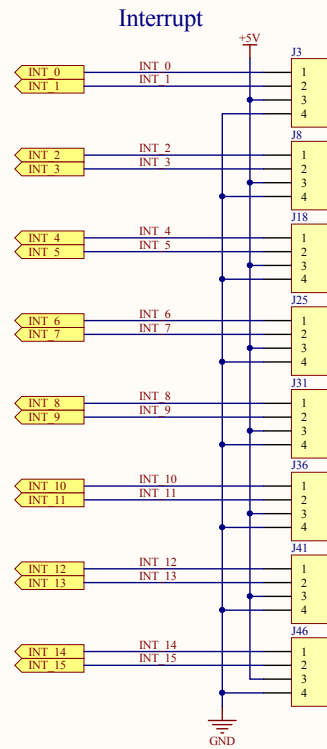
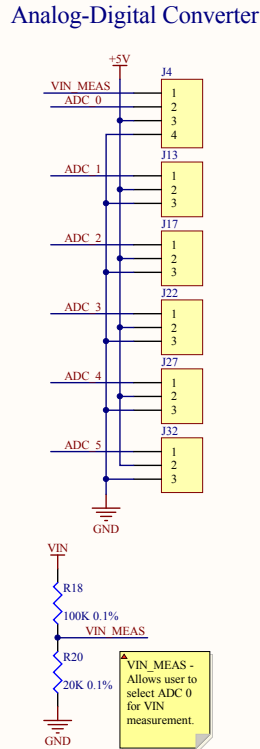
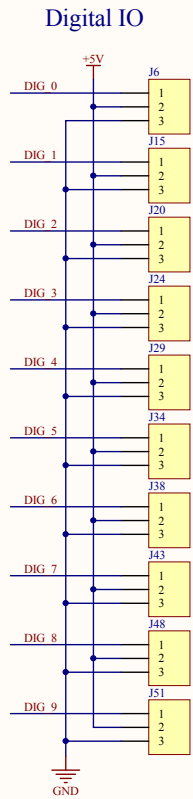
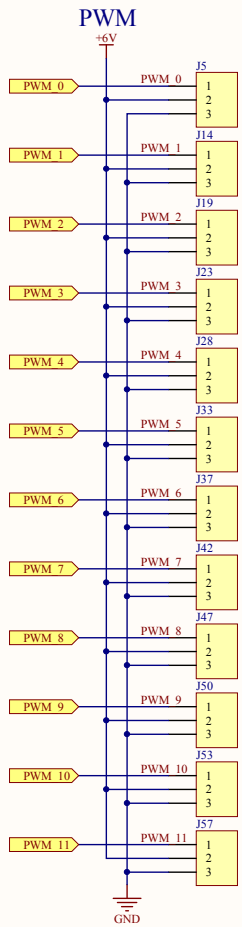
By 221 Robotic Systems



Solenoids

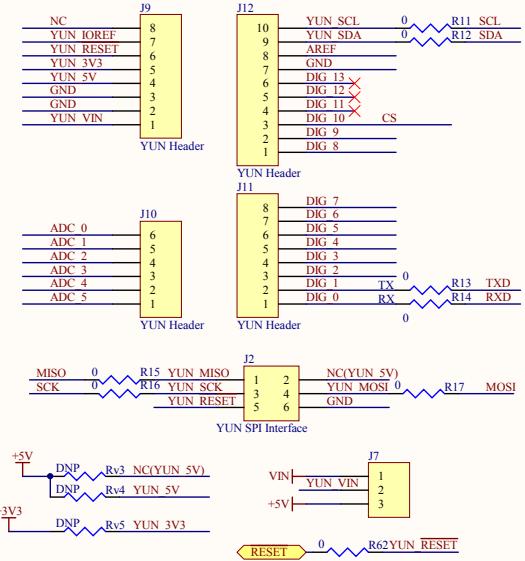
Size: A	Date: 9/13/2014	Revision: 1.0
Engineer: K. Chambles	Sheet: 4 of 5	
Drawn By: K. Chambles		





PREC040SFAN-RC Potential Part number for "YUN connectors" which will now be the breakaway, 0.1" spacing male headers since the YUN board will be mounted upside down/inverted. (0.416" tall header, resulting in a 0.499" mating height)

YUN Connectors



INITIAL NOTES ONLY (will be revised once exact desired function is identified, this config provides options)
 Rv1 - use as 1 option for getting 5V/VIN into the YUN, do not connect any other RvX
 Rv2 - use when not using the YUN (parallel 5 & 3.3 generated) do not connect any other RvX
 Rv3 - use as 1 option for getting 5V into the YUN, do not connect any other RvX
 Rv4 & Rv5 - use when not using the YUN (single 5 & 3.3 generated) do not connect any other RvX

Board Mounting Holes



Connectors

Size: B	Date: 9/13/2014	Revision: 1.0
Engineer: K. Chambls	Sheet: 5 of 5	
Drawn By: K. Chambls		

