

A

A

B

B

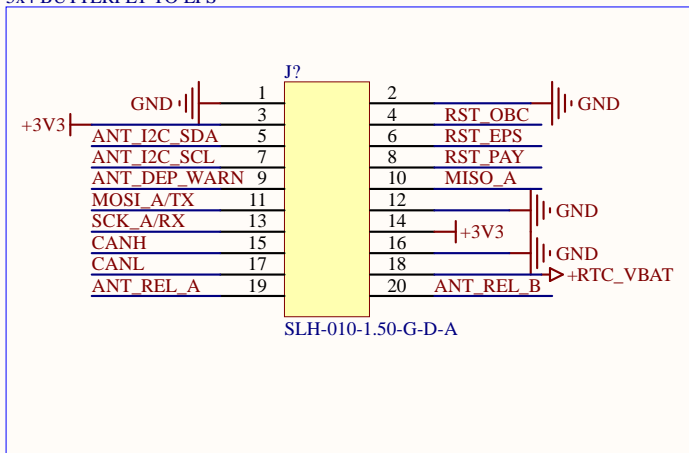
C

C

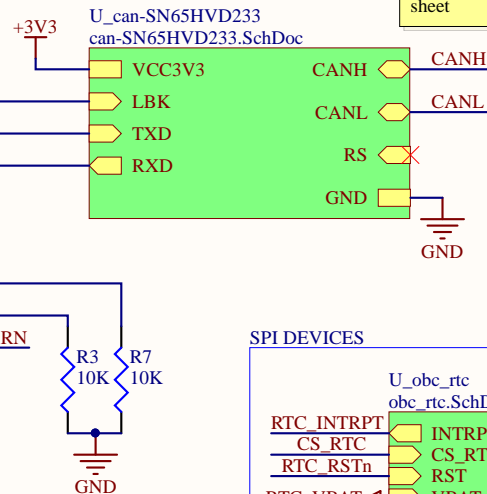
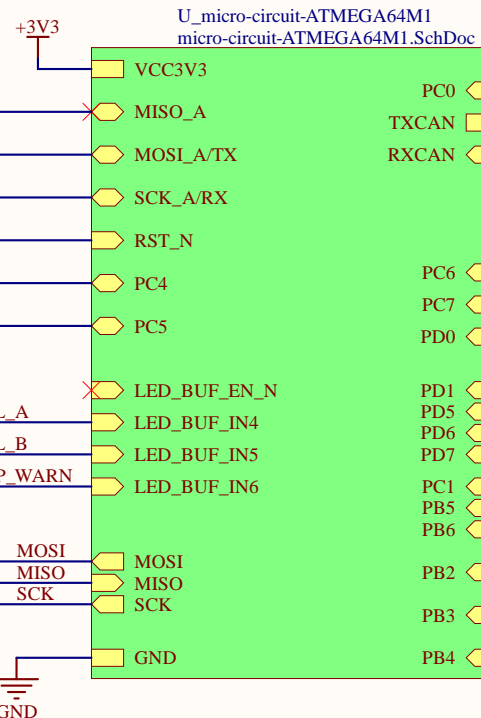
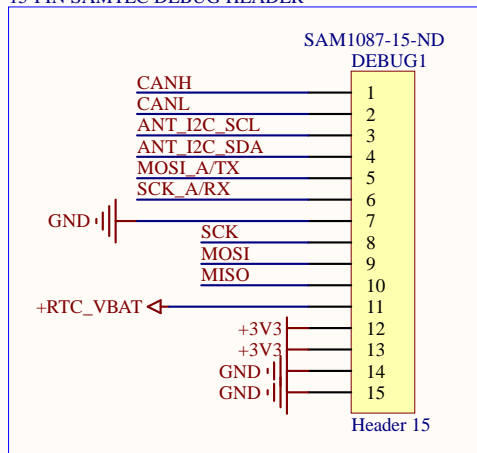
D

D

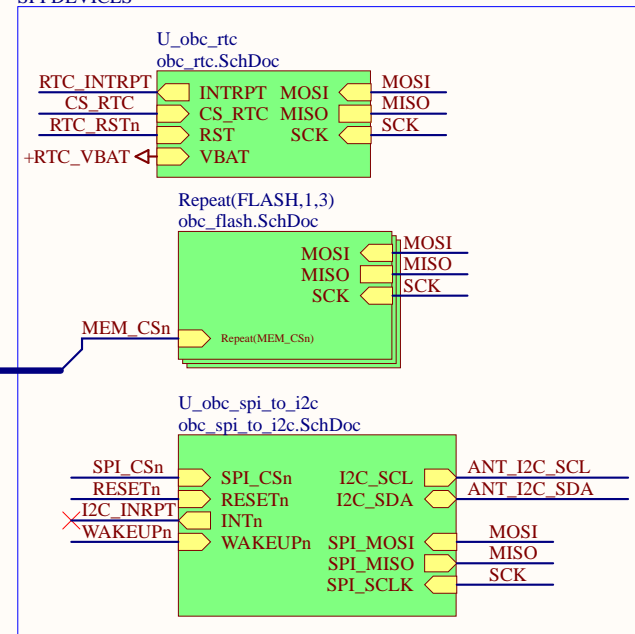
## 5x4 BUTTERFLY TO EPS



## 15-PIN SAMTEC DEBUG HEADER



## SPI DEVICES



Title

OBC Main

UTAT SS

Size

A

Number

1

Revision

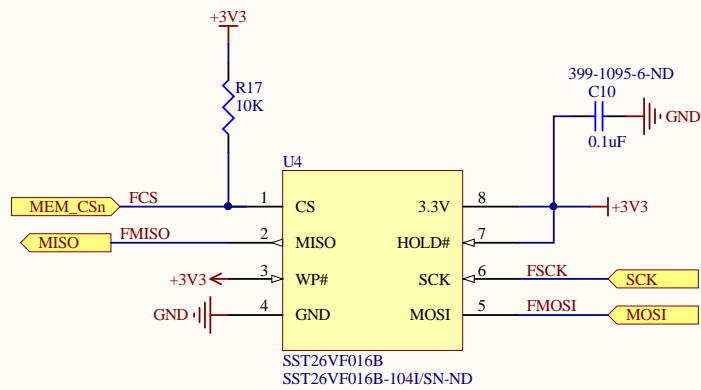
1.0

Date: 7/27/2019

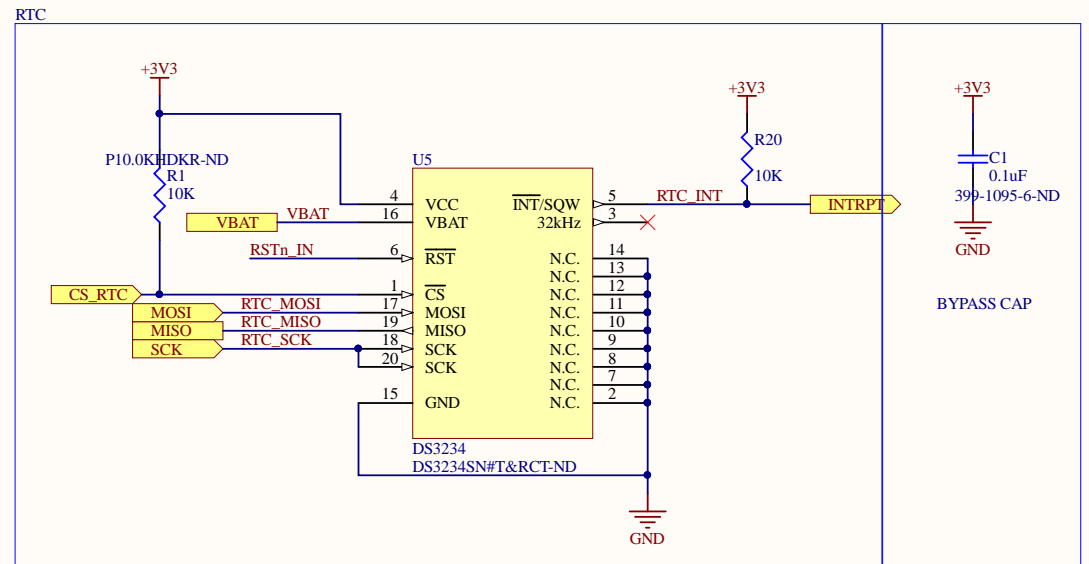
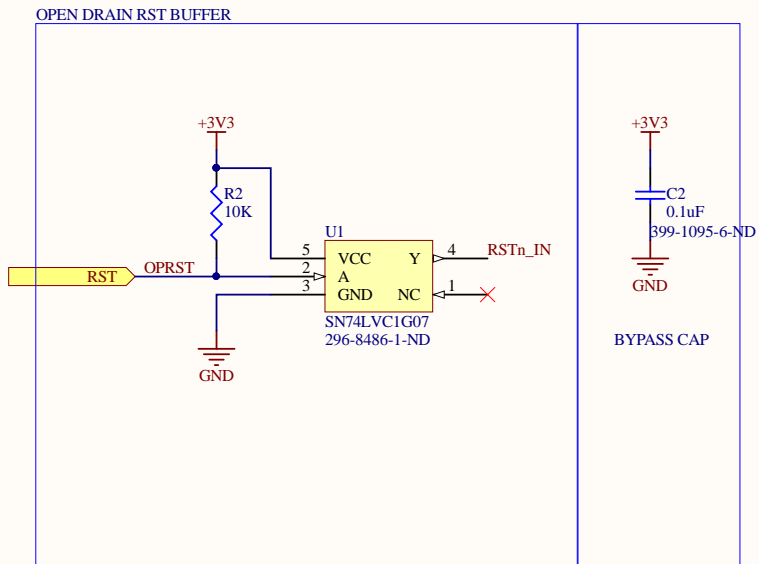
Sheet 1 of 8

File: C:\Users\...\obc\_main\_3.0.SchDoc

Drawn By: Mohamed Hirole

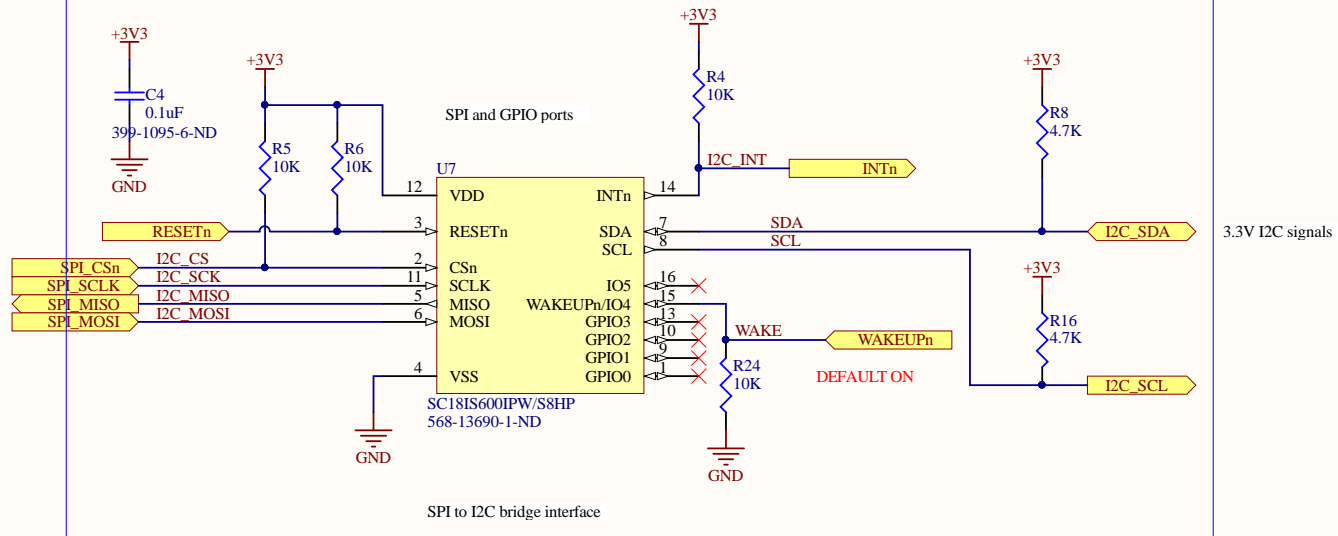


Title		UTAT SS	
Flash Memory			
Size	Number	Revision	
A4	2	2.0	
Date:	7/27/2019	Sheet 2 of 8	
File:	C:\Users\...\obc_flash.SchDoc	Drawn By:	Mohamed Hirole



Title		UTAT SS	
Size	Number	Revision	
A4	3	2.0	
Date:	7/27/2019	Sheet 3 of 8	
File:	C:\Users\...\obc_rtc.SchDoc	Drawn By:	Mohamed Hirole

# SPI TO I2C BRIDGE



Title		UTAT SS	
Size	Number	Revision	
A4	4	1.0	
Date:	7/27/2019	Sheet	4 of 8
File:	C:\Users\...\obc_spi_to_i2c.SchDoc	Drawn By:	Mohamed Hirole

# POWER INPUT

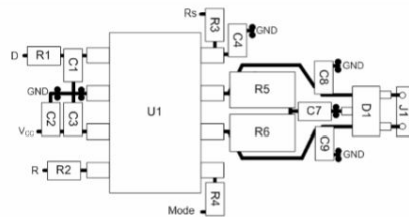
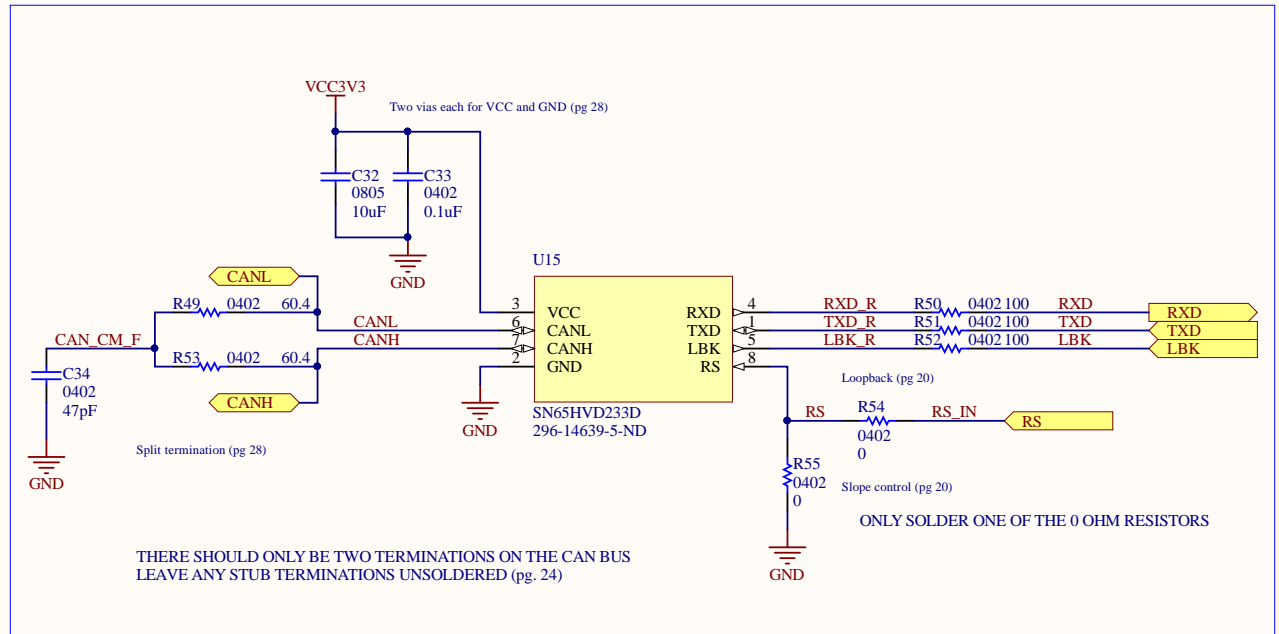
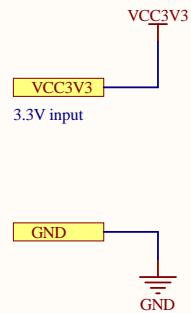


Figure 41. Layout Example Schematic

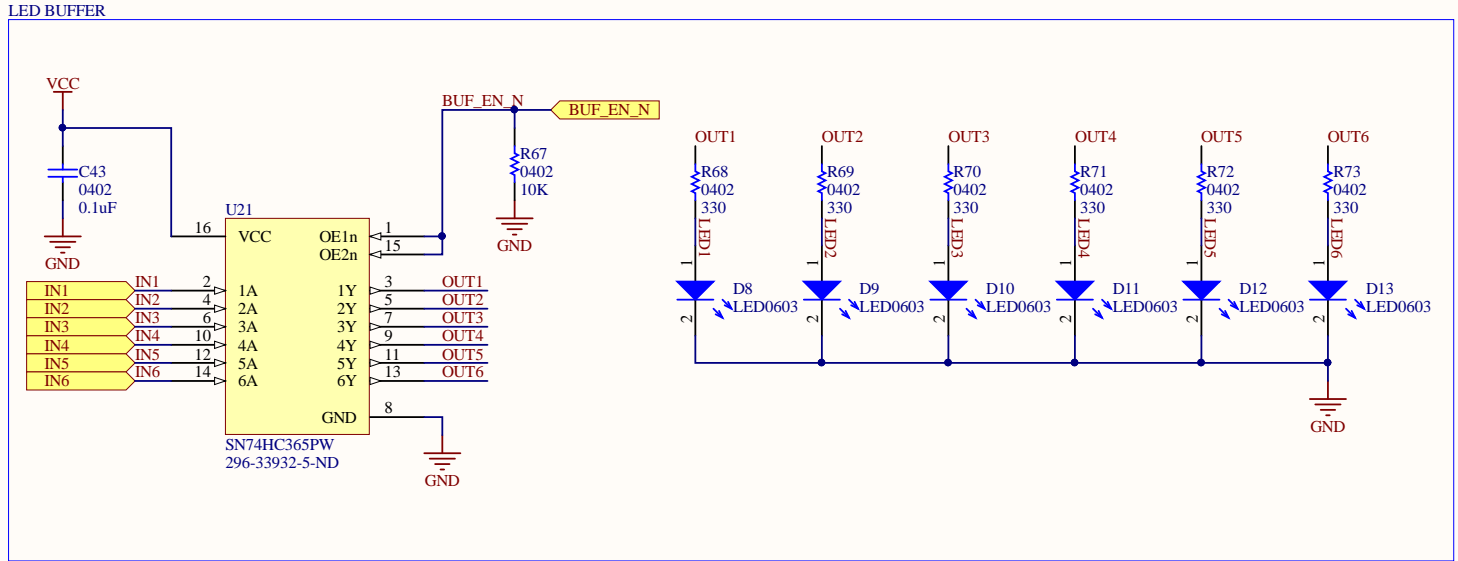
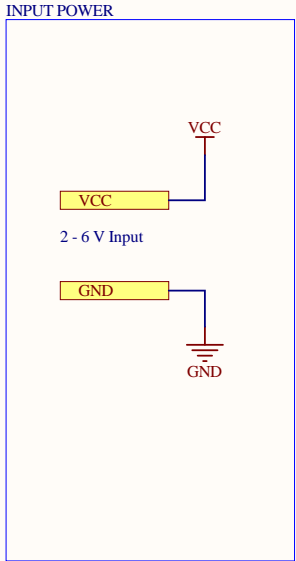
See pg. 28 of the datasheet for layout guidelines

This schematic implements the SN65HVD233 CAN transceiver with loopback control and two options for slope control.

A 0 Ohm resistor can be soldered to GND to permanently put the device in high speed mode (20 V / us slew), or a 0 Ohm resistor can be soldered to the RS port to control the device via an external microcontroller. Connecting the RS pin to a microcontroller allows the device to be put into low-power mode by setting the RS pin high.

- Device is meant to be used in a 3.3 V system
- 100 Ohm current limiting resistors placed on the digital lines to minimize digital noise to the device
- Only two CAN transceivers on the bus should have 120 ohm terminations. Other devices should be placed on 'stub' networks where the terminations are left unsoldered

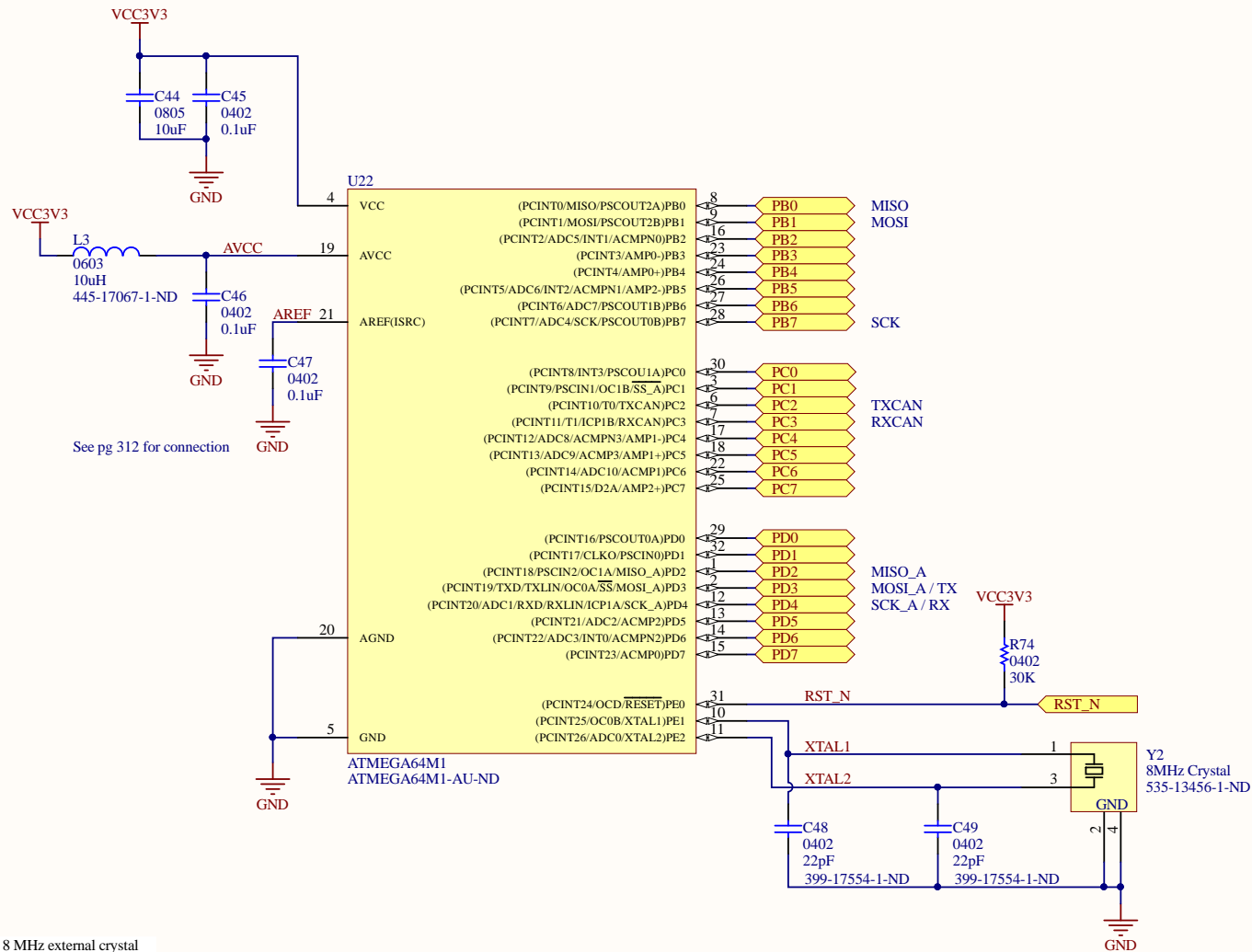
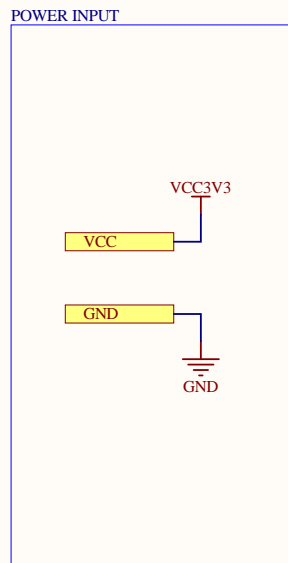
Title can-SN65HVD233.SchDoc		
Size A4	Number PCBS-COMMON	Revision 1.2
Date: 7/27/2019	Sheet * of *	
File: C:\Users\...\can-SN65HVD233.SchDoc	Drawn By: Dylan Vogel	



This schematic implements the SN74HC365PW non-inverting, tri-state hex buffer as an LED monitoring circuit. Connecting a signal to IN[1:6] will light up the corresponding LED on OUT[1:6].

- The BUF\_EN\_N input can be connected to a microcontroller to control the buffer. An input HIGH will set the outputs to high-impedance and disable the LEDs.
- In the schematic symbol which references this schematic sheet, parameters LED[1:6] can be added to specify the colour of each LED. See the micro-circuit common sheet for an example of this.
- Unconnected inputs should be grounded if you don't want random flickering of the LEDs.

Title		
led-monitoring-SN74HC365PW.SchDoc		
Size	Number	Revision
A4	PCBS-COMMON	1.1
Date:	7/27/2019	Sheet * of *
File:	C:\Users\...\led-monitoring-SN74HC365PW.SchDoc	By: Dylan Vogel



This schematic implements the ATMEGA64M1 microcontroller with a 8 MHz external crystal and necessary power connections.

- Crystal is connected in a Pierce configuration, values of the capacitors were calculated based on the capacitance of the crystal and ESR.
- I would read through 18.5.2 and 18.6.2 of the complete 64M1 datasheet if you're interested in the motivation behind the ADC input connections. They recommend connecting AVCC through a RC lowpass network to minimize noise.
- If the ADC functionality of the device is used, either AVCC or the internal 2.56 V source can be selected in software as the reference voltage.

Title		
micro-ATMEGA64M1.SchDoc		
Size	Number	Revision
A4	PCBS-COMMON	1.1
Date:	7/27/2019	Sheet * of *
File:	C:\Users\...\micro-ATMEGA64M1.SchDoc	Drawn By: Dylan Vogel

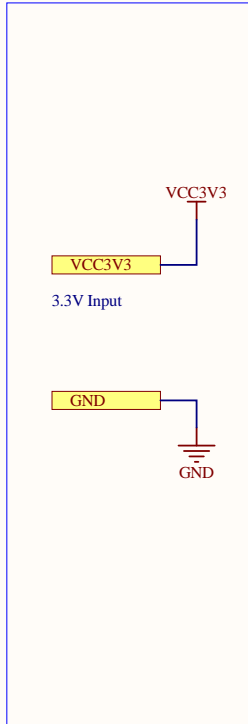
A

B

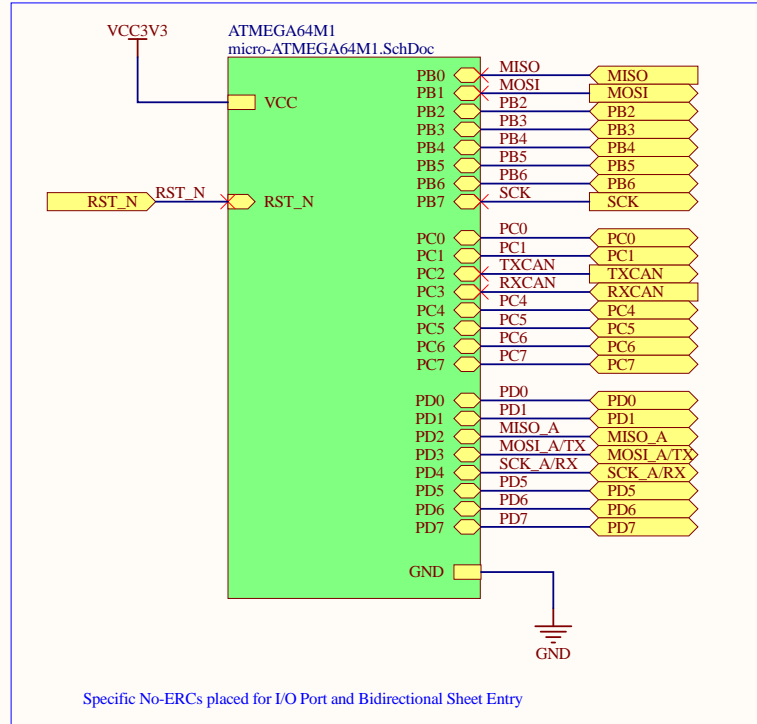
C

D

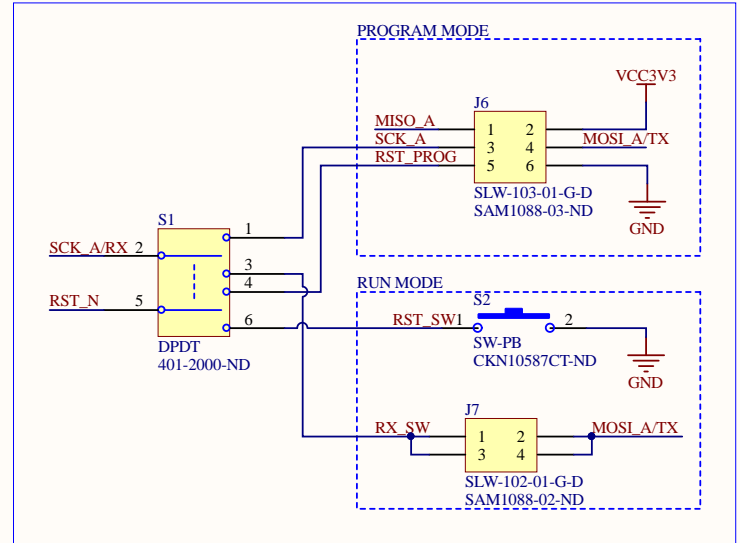
### POWER INPUTS



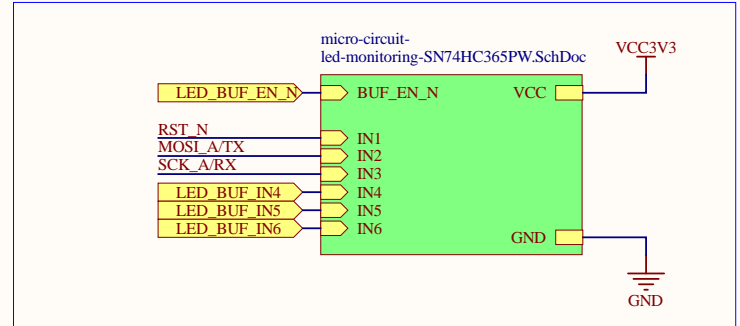
### ATMEGA32M1



### MODE SELECT CIRCUITRY



### LED MONITORING



This schematic extends the functionality already included in the micro-ATMEGA32M1 schematic, adding a mode select switch, programming header, reset button and LED indication for TX, RX and RSTn.

- IN[4:6] of the LED buffer have been left unconnected, but are broken out on ports LED\_BUF\_IN[4:6]. They can be connected in the schematic which includes this sheet to monitor up to an additional 3 lines. Highly recommend more blinking lights.

Title			
micro-circuit-ATMEGA64M1.SchDoc			
Size	Number	Revision	
A4	PCBS-COMMON	1.1	
Date:	7/27/2019	Sheet *	of *
File:	C:\Users\...\micro-circuit-ATMEGA64M1.SchDoc	By:	Dylan Vogel



