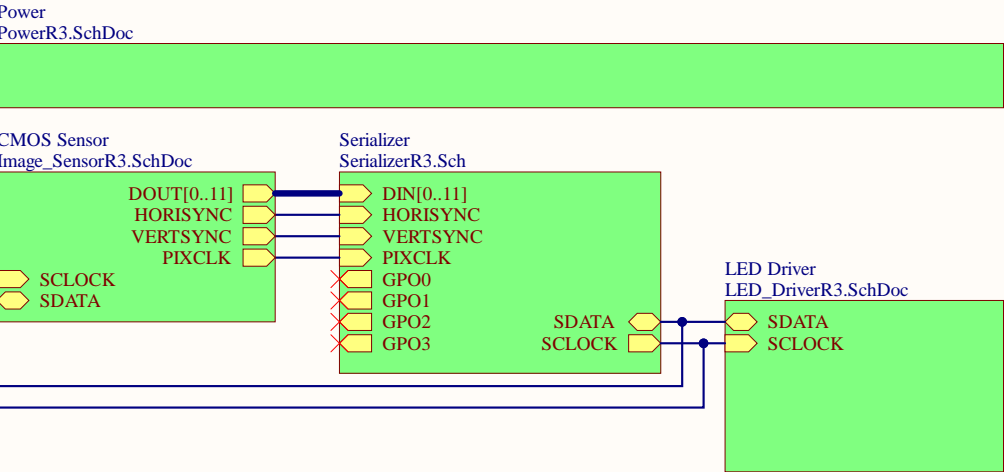
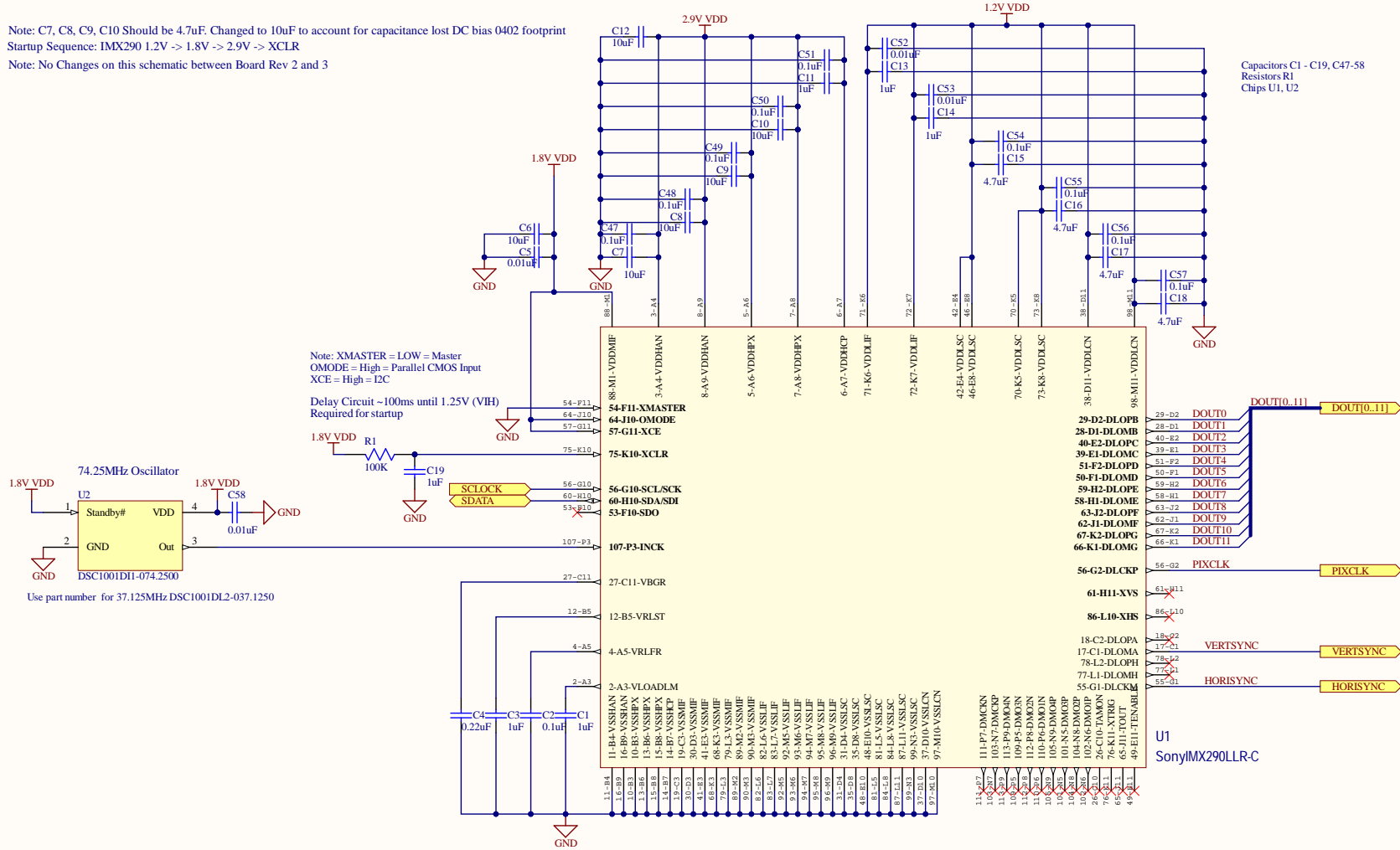


Note: No Changes on this schematic between Board Rev 2 and 3



Title Parent Sheet Block Diagram			Rice University Kemere Lab 6100 Main St. Houston, TX	Cannot open file C:\Jill\Sc hool\Ric
Size: B	Revision: 3	Project Name MiniR3.PrjPcb		
Date: 8/2/2020	Sheet 1 of 5			
File: C:\Kemere Lab\GitHub Files\MiniFAST PCB\Serializer_SystemR3.SchDoc				
Revision History Updated from v3.2 Miniscope.org				

Note: C7, C8, C9, C10 Should be 4.7uF. Changed to 10uF to account for capacitance lost DC bias 0402 footprint
Startup Sequence: IMX290 1.2V -> 1.8V -> 2.9V -> XCLR
Note: No Changes on this schematic between Board Rev 2 and 3



Title Sony Image Sensor			Rice University Cannot
Size: B			Kemere Lab open file
Revision: 3			6100 Main St. C:\Jill\Sc
Project Name MiniR3.PrjPcb			hool\Ric
Date: 8/2/2020 Sheet 2 of 5			
File: C:\Kemere Lab\GitHub Files\MiniFAST PCB\Image_SensorR3.SchDoc			
Revision History Updated from v3.2 Miniscope.org			

Note: C26 and C29, should be 4.7uF. Changed to 10uF to account for lower capacitance from dc bias of 0402 footprint
 C32 Should be 22uF. Changed to a 15uF to use an 0402 size cap
 REV3 Changes: Removed R6, R7 pullups on I2C lines. Did not need them.

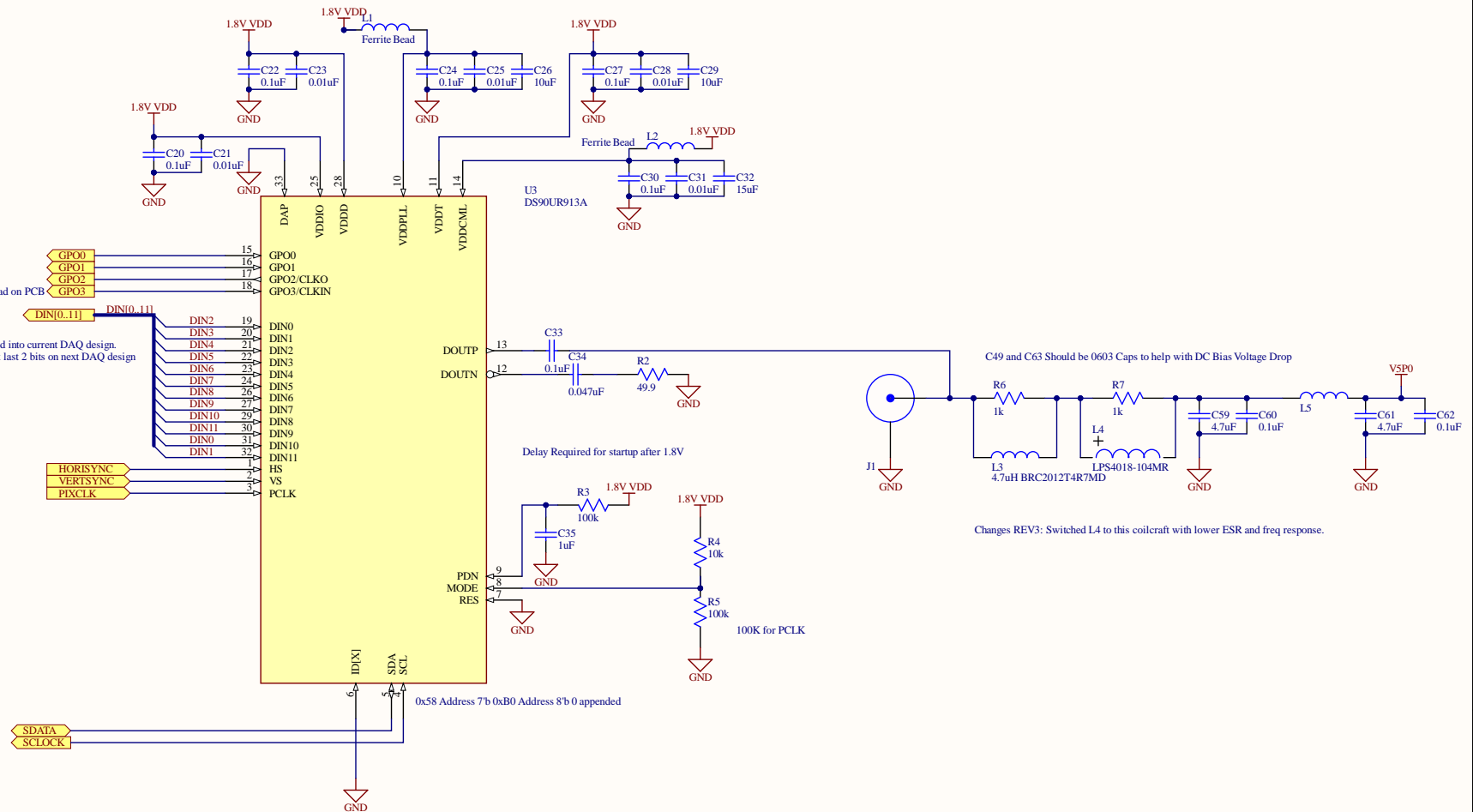
Capacitors C20 - C35, C59-62
 Resistors R2-R7
 Inductors L1-L5
 Chips U3

Note: GPO3 is routed to a pad on PCB
 Note: MSB is DIN11
 Note: The wiring allows 10 bit image to get routed into current DAQ design.
 Putting the last 2 bits to possibly route eventually to get last 2 bits on next DAQ design

Delay Required for startup after 1.8V

C49 and C63 Should be 0603 Caps to help with DC Bias Voltage Drop

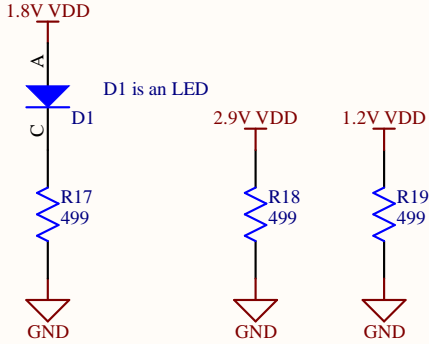
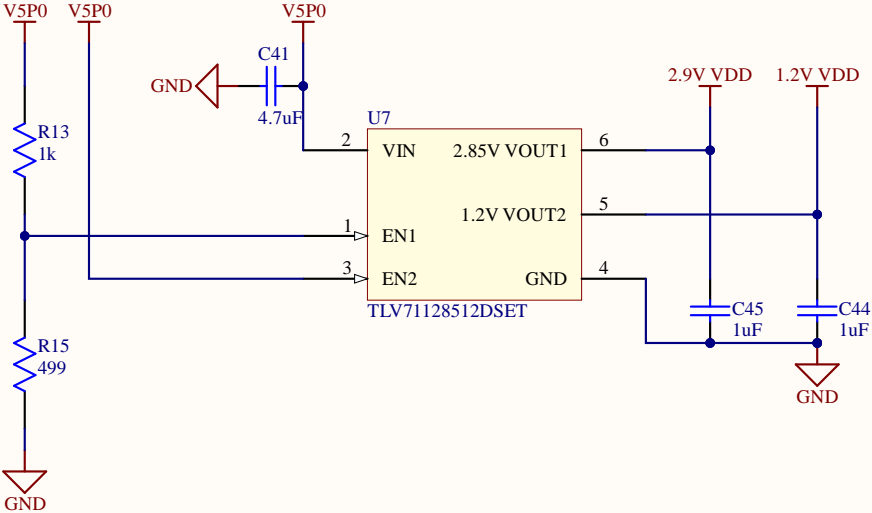
Changes REV3: Switched L4 to this coilcraft with lower ESR and freq response.



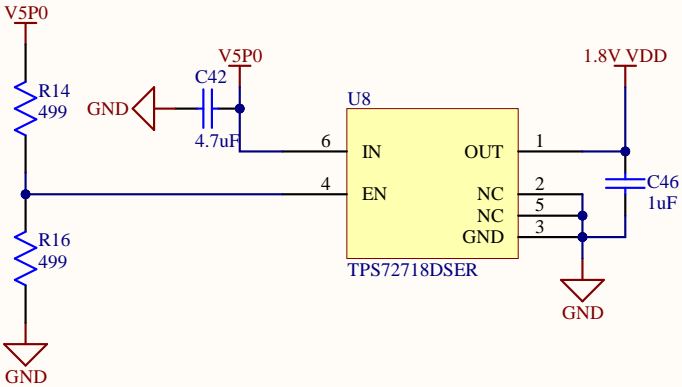
Title Serializer			Rice University Cannot open file	
Size: B	Revision: 3	Project Name: MiniR3.PrjPcb	6100 Main St.	C:\Jill\Sc
Date: 8/2/2020	Sheet 3 of 5	File: C:\Kemere Lab\GitHub Files\MiniFAST PCB\SerializerR3.Sch	Houston, TX	hool\Ric
Revision History Revised from v3.2 Miniscope.org				

Startup Sequence: IMX290 1.2V -> 1.8V -> 2.9V -> XCLR
Note: .9V is High for Enable
Note: The TLV711D chips have a 150k resistor pull down that affects the startup delay. Need to use a 10k resistor for R13 and R15
Note: C43 and C47 are only required to be 1uF. Used 4.7uF to account for the DC drop when using an 0402 Footprint.
Note: Changes on Rev3. Previously used a res/cap for the delayed startup sequence. Now, I use a resistor divider instead. R13,R14,R20,R21

Capacitors C40 - C46
Resistors R13-R19
Chips U7-U8
Diodes D1



Rev3 Change: R15, R18 and R19 are bleed resistors to ensure proper shutdown. Without adding them, voltage could still be measured across these sources. Likely due to the large amount of capacitors that are for the sensor.



Title Power			Rice University Kemere Lab 6100 Main St. Houston, TX	Cannot open file C:\Jill\Sc hool\Ric
Size: B	Revision: 3	Project Name MiniR3.PrjPcb		
Date: 8/2/2020	Sheet 4 of 5			
File: C:\Kemere Lab\GitHub Files\MiniFAST PCB\PowerR3.SchDoc				
Revision History Updated from v3.2 Miniscope.org				

Note: C39 and C41 are only required to be 1uF. Used 4.7uF to account for the DC drop when using an 0402 Footprint.
 MAX14595 /T/S= High for Normal Operation
 DAC5571 A0 = 98 I2C ADDRESS - Same as previous design
 DAC Output = 0 to 1V for output current of 0 to 100mA

Rev3 Changes: Switched LED Driver Circuit to be powered from 2.9V or external 5V

Issue was due to current changes from camera blanking period, the 5V was fluctuating and causing LED flicker.

The 2.9V has very little noise and can drive the circuit without much flicker.

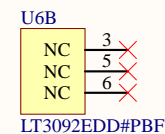
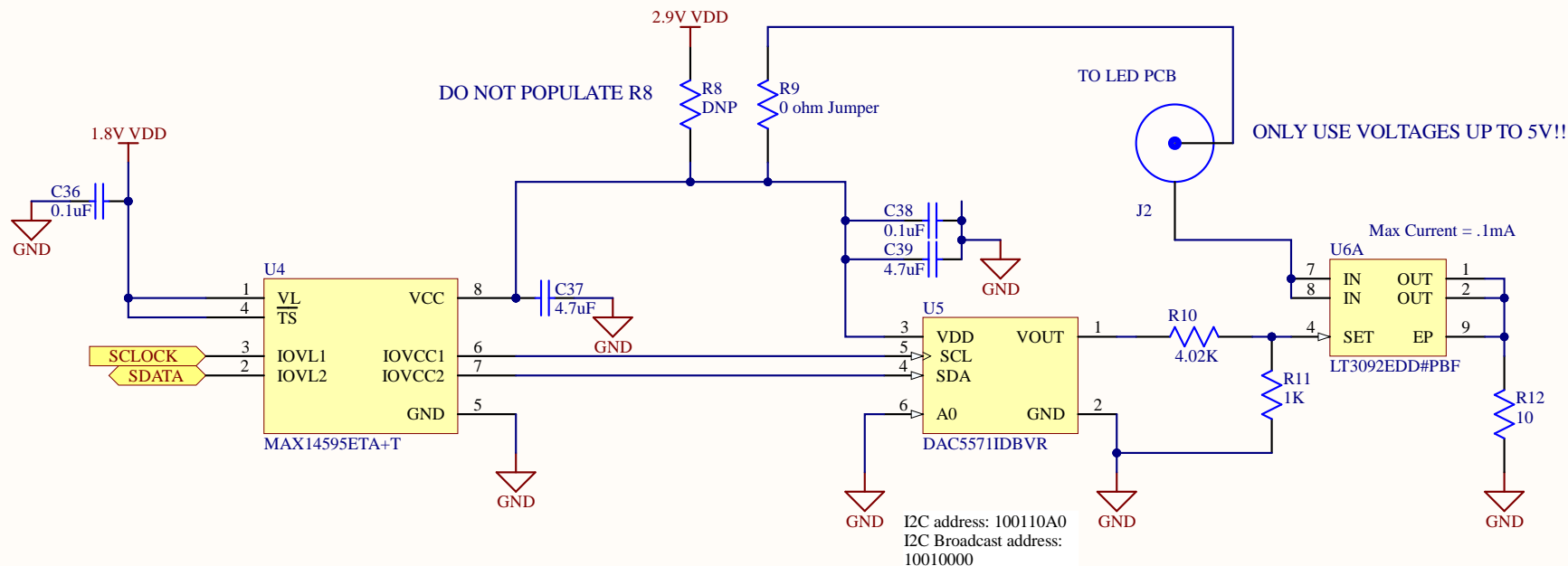
Also, removed the 5V on the LED Pad for power. You need to power the LED from a separate source now.

I use 5V from the DAQ jumper pin. The GND from the board is OK to use as long as external GND is the same as the board GND.

Rev3 Changes: Removed pullups on I2C line. The DAC5571 already has pullups

****DO NOT POPULATE BOTH R22 AND R23. YOU MUST CHOOSE ONE OPTION****

Capacitors C36 - C39
 Resistors R8-R12
 Chips U4-U6



Title LED Driver			Rice University Kemere Lab 6100 Main St. Houston, TX	Cannot open file C:\Jill\Sc hool\Ric
Size: B	Revision: 3	Project Name MiniR3.PrjPcb		
Date: 8/2/2020	Sheet 5 of 5			
File: C:\Kemere Lab\GitHub Files\MiniFAST PCB\LED_DriverR3.SchDoc				
Revision History Updated from v3.2 Miniscope.org				

