

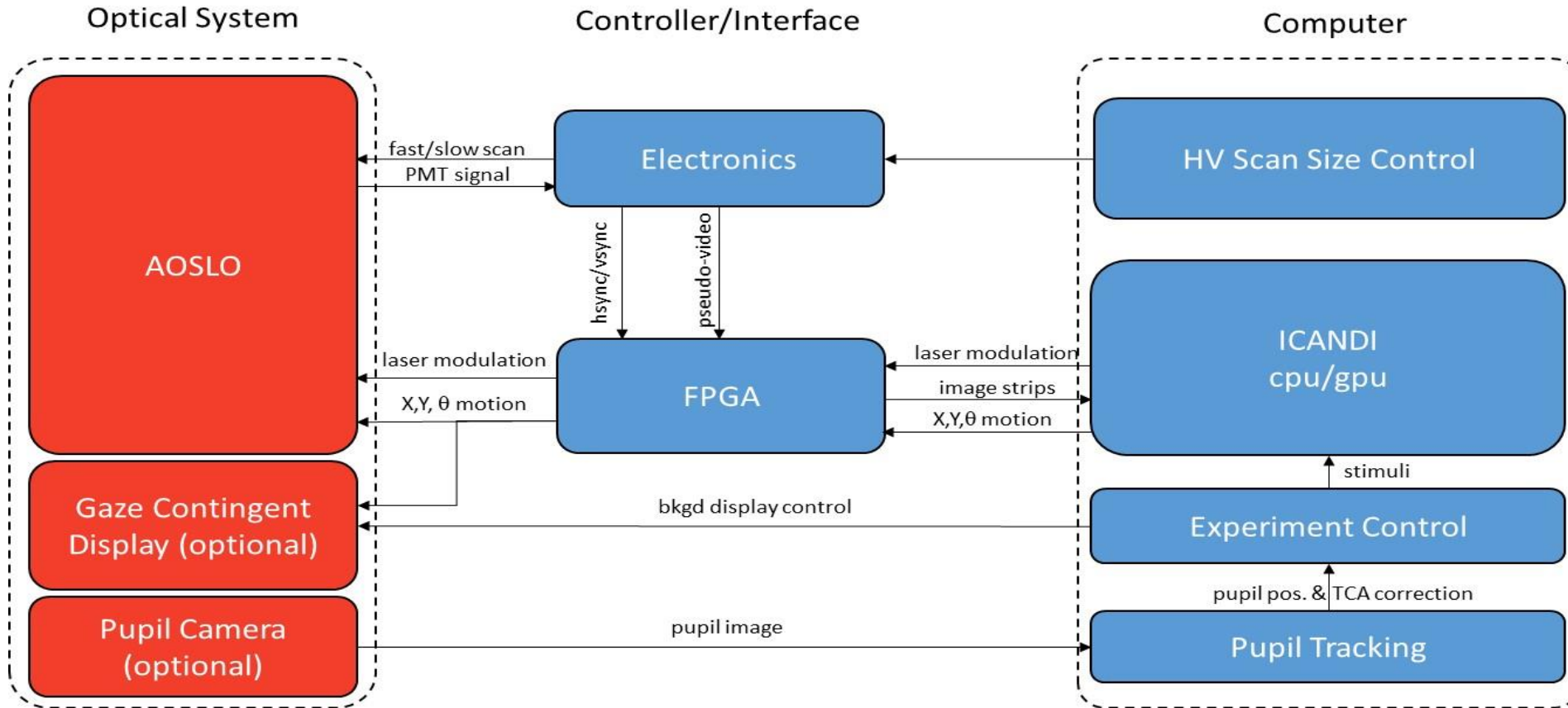
# Electronics for AOSLO

Review of which components we still need

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18 August 2020

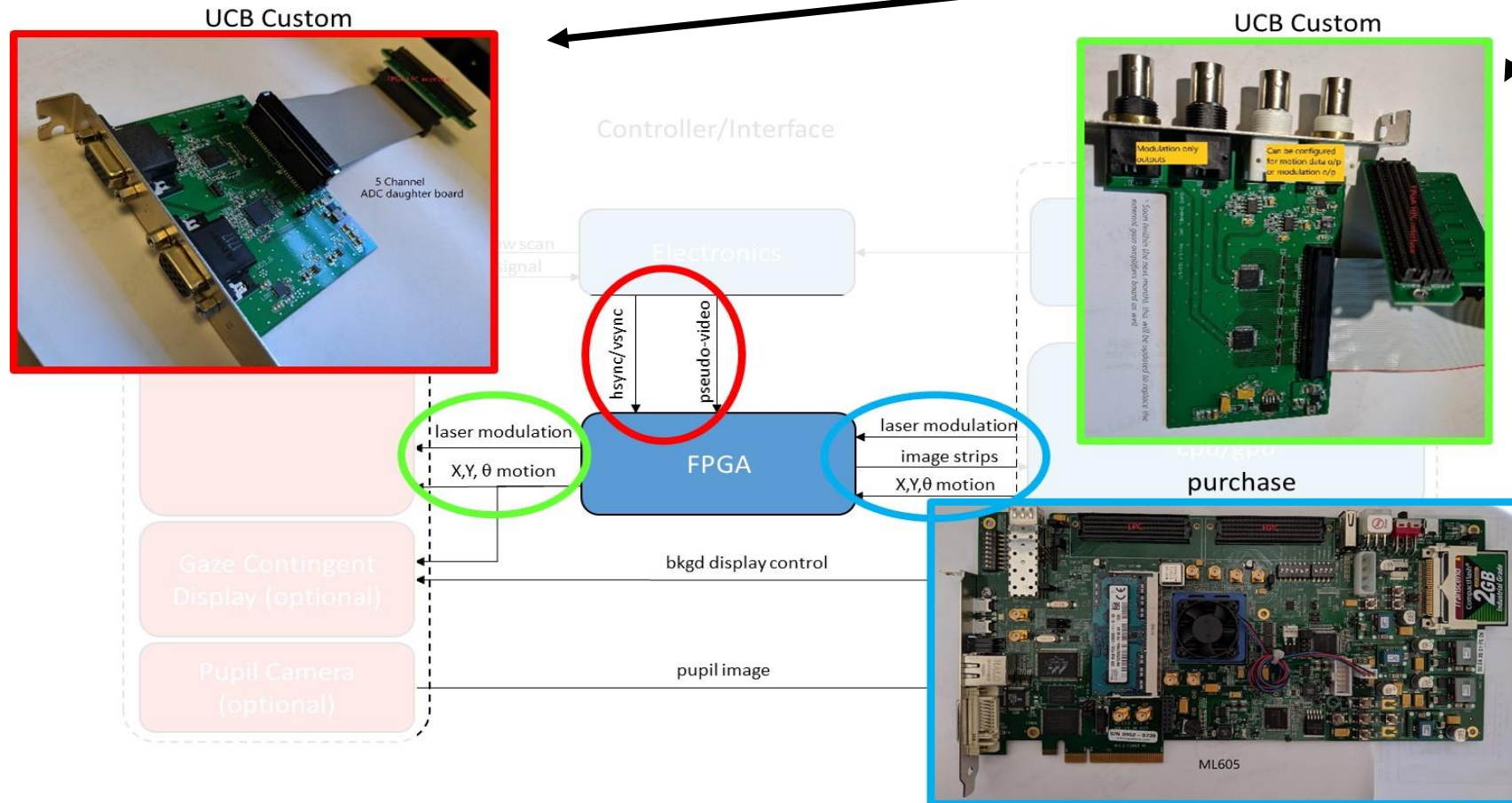
Austin Roorda put together a nice document explaining how the various components interface



From "Roordalab System for Realtime Tracking and Targeted Stimulus Delivery," Austin Roorda, March 5, 2020, <https://drive.google.com/file/d/1Nh9H0TgdHV5Ob3YQCPCEPRc8fmuW39D8/view>

# We have the FPGA, but we're still waiting for the two interface cards

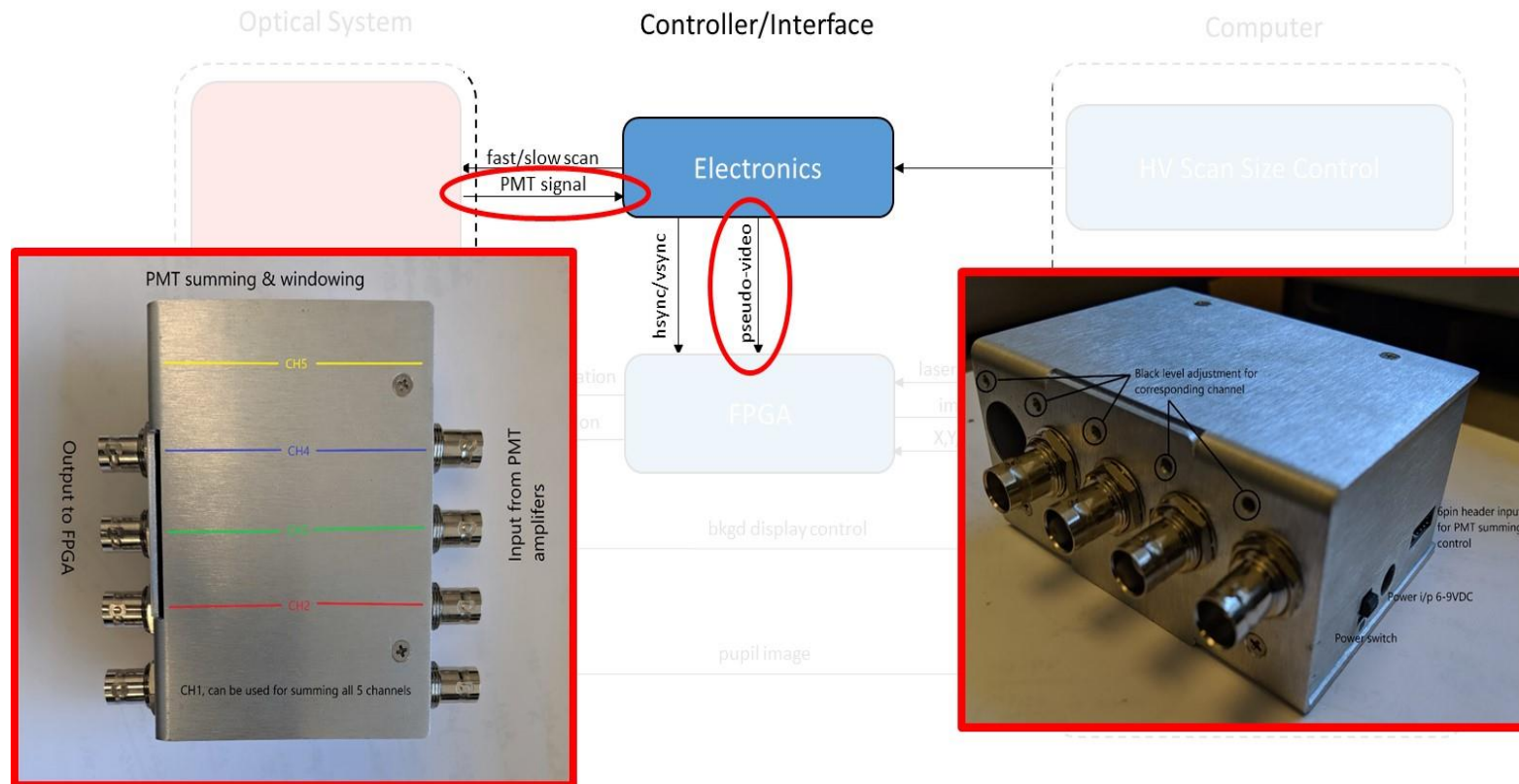
We're still waiting to receive these (the Roorda group has ordered them, but they haven't received their order yet)



We have this

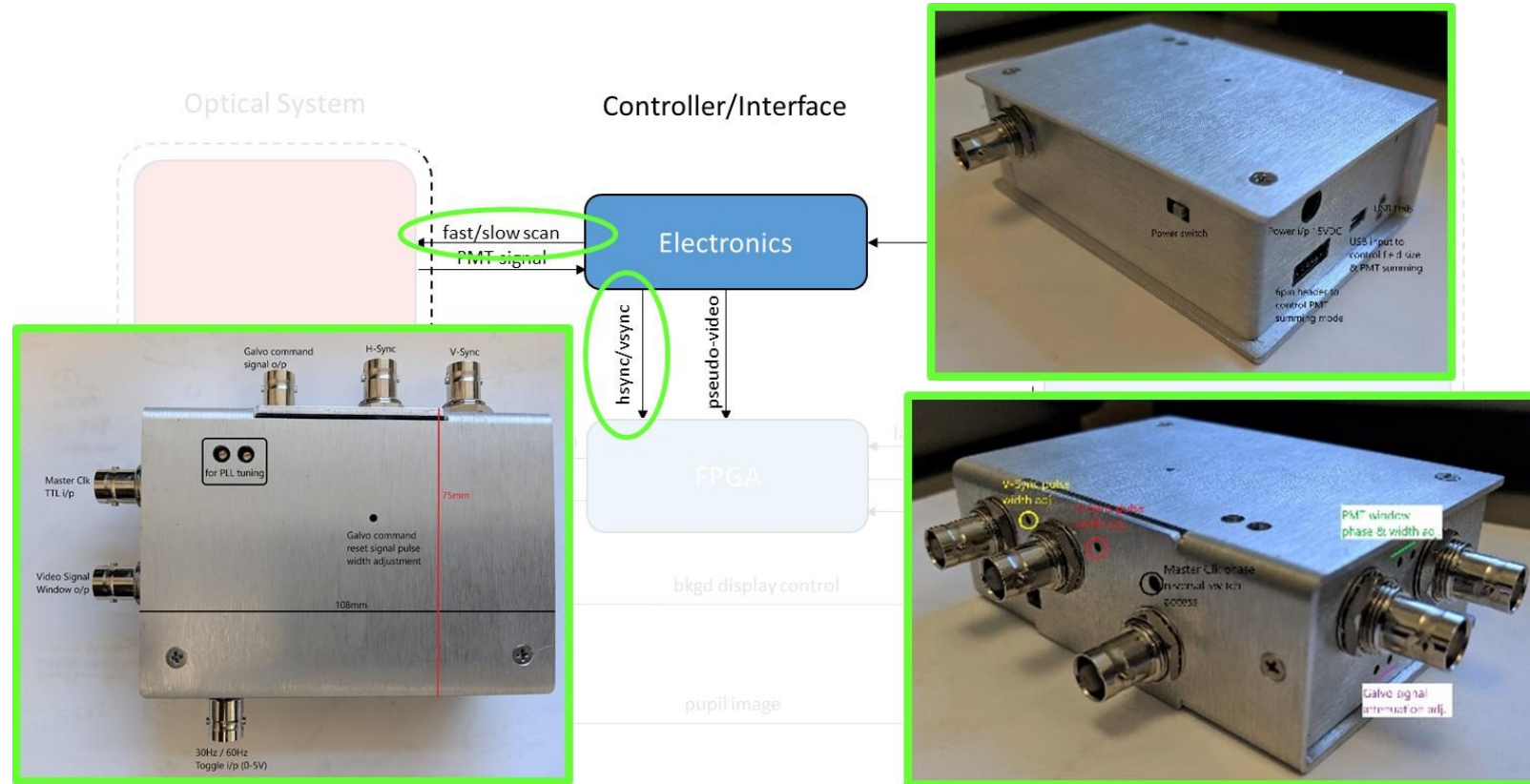
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We will also need this video signal box, which is designed and assembled by the Roorda lab



This assembly converts the raw PMT signal into a pseudo-video signal for each imaging channel

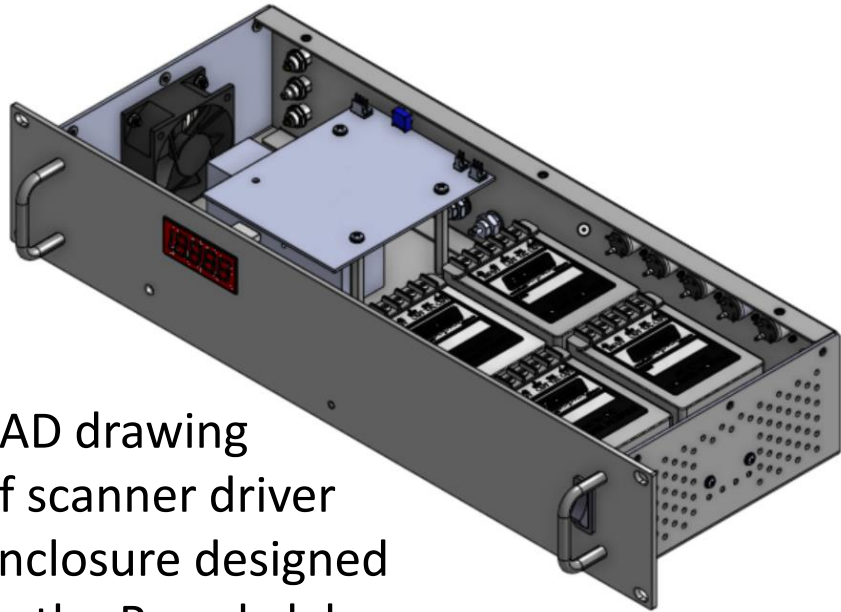
We also need the synchronization and timing control box, designed and assembled by the Roorda lab



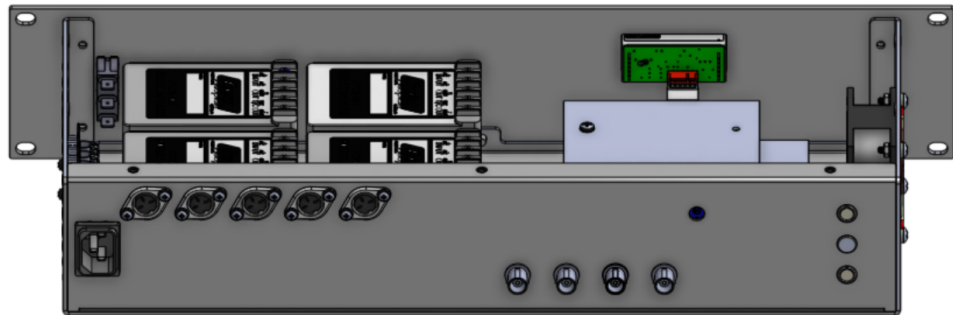
- The resonant (fast) scanner acts as the master clock for the AOSLO system
- This box uses the resonant scanner clock signal to generate the drive signal for the galvo (slow) scanner
- This box also controls the frame rate of the AOSLO system

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# We also need an assembly to house the drive electronics for the scanners



CAD drawing of scanner driver enclosure designed by the Roorda lab



- We can either have Pavan build this for us (he would build it in parallel with one he's building for Dr. Will Tuten's group at UCB) or we can build it ourselves
- It seems like a straightforward assembly, but we would likely need a bit more documentation to build it ourselves

1	Name	Qty	Part#	Vendor	Note
2	Scanner Enclosure	1		Protocase	
3	24VDC Linear Power Supply	2	24EB60	Acopian	
4	±15VDC Linear Power Supply	1	DB15-50	Acopian	
5	±5VDC Linear Power Supply	1	DB5-50	Acopian	
6	SWITCH ROCKER SPST 16A 125V	1	TRG22F2BBRLN	Digikey/Mouser/Newark	
7	OPTION CARD MULTI DMS-30/40	1	DMS-EB-C	Digikey/Mouser/Newark	
8	VOLTMETER 20VDC LED PANEL MOUNT	1	DMS-40PC-2-RL-C	Digikey/Mouser/Newark	
9	FAN AXIAL 60X25MM 115VAC WIRE	1	MA1062-HVL.GN	Digikey/Mouser/Newark	
10	FAN GUARD 60MM METAL	1	FG-6	Digikey/Mouser/Newark	
11	CONN RCPT FEMALE 4POS SOLDER CUP	1	EGG.0B.304.CLL	Digikey/Mouser/Newark/PEI-Genesis	
12	CONN RCPT FEMALE 6POS SOLDER CUP	1	EGG.0B.306.CLL	Digikey/Mouser/Newark/PEI-Genesis	
13	CONN RCPT FEMALE 3POS SOLDER CUP	1	EGG.0B.303.CLL	Digikey/Mouser/Newark/PEI-Genesis	
14	CONN PLUG MALE 3POS SOLDER CUP	1	FGG.0B.303.CLAD35	Digikey/Mouser/Newark/PEI-Genesis	
15	CONN PLUG MALE 6POS SOLDER CUP	1	FGG.0B.306.CLAD35	Digikey/Mouser/Newark/PEI-Genesis	
16	CONN PLUG MALE 4POS SOLDER CUP	1	FGG.0B.304.CLAD35	Digikey/Mouser/Newark/PEI-Genesis	
17	CONN BNC JACK STR 50 OHM SOLDER	4	5227726-2	Digikey/Mouser/Newark	
18	CONN RCPT FEMALE DIN 3P SOLDER	5	SD-30SN	Digikey/Mouser/Newark	
19	PWR ENT RCPT IEC320-C14 PANEL QC	1	FN9222ESB-15-06	Digikey/Mouser/Newark	
20	FUSE BLOCK CART 600V 10A CHASSIS	1	0031.5010	Digikey/Mouser/Newark	
21	FUSE GLASS 400MA 250VAC 5X20MM	4	5ST 400-R	Digikey/Mouser/Newark	

Screenshot of the parts list they provided for this assembly

# Here is a summary of the electronics we still need for the system:

- Daughter cards for the FPGA
  - 2 different cards
  - Will be installed in the PC for controlling the system (along with FPGA)
  - Ordered by UCB, but waiting to receive them from their vendor; delayed because of COVID-19
- Video signal box
  - Designed and assembled by UCB
  - I haven't asked about when this might be available
- Timing control box
  - Designed and assembled by UCB
  - I haven't asked about when this might be available
- Scanner driver box
  - Designed by UCB and built by them or us, depending on what we decide
  - I talked to Pavan about this last week, and I should let him know if we want him to build us one

We should discuss these questions to determine the best path forward

- How soon are we going to need these electronics?
- Can we finish the alignment without having all these components?
- How does the Roorda lab bill for their services?
- What are the benefits of us building the scanner driver enclosure ourselves?