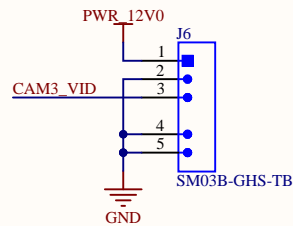
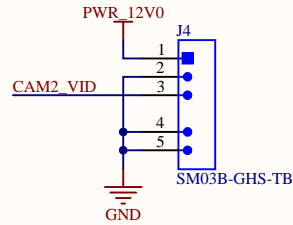
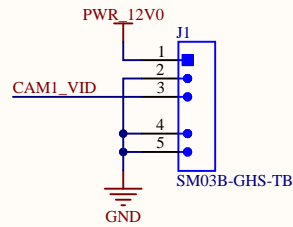
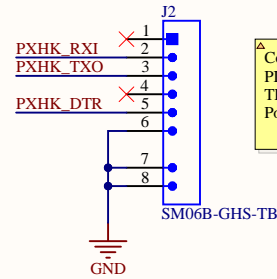


## Camera Connectors

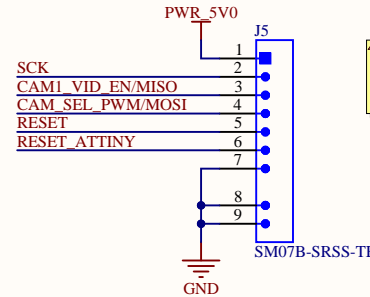


Cameras (5-40V input):  
 Caddx Baby Ratel 2 1200TVL 1.8mm FPV Camera  
<https://www.getfpv.com/caddx-baby-ratel-2-1200tvl-1-8mm-fpv-camera.html>  
 Pinout based on the pin header on cameras

## OSD Connectors

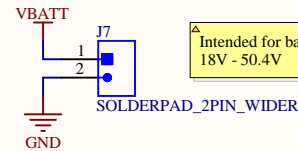


Connect to  
 PIXHAWK  
 TELEM 1 or 2  
 Port



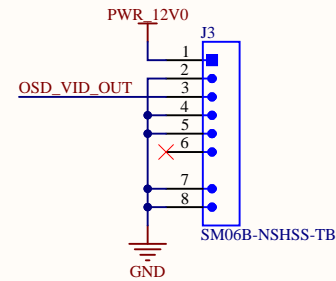
Programming pins for  
 atmega328p, max7456,  
 and attiny85 ICs

## Battery Voltage Input



Intended for battery voltage:  
 18V - 50.4V

## VTX Connector



VTX:  
 Flywoo 1.2GHz/1.3GHz 2W Video  
 transmitter VTX-1G3 9CH  
<https://flywoo.net/products/flywoo-1.2ghz-1.3ghz-video-transmitter-vtx-1g3-9ch>  
 Pinout based on header on the VTX

## Mounting Holes



M3 Standard Holes  
<https://uwarg-docs.atlassian.net/wiki/spaces/EL/pages/2189197330/Mounting+Hole+Pattern+Specifications>

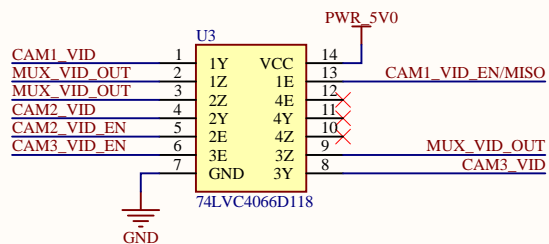


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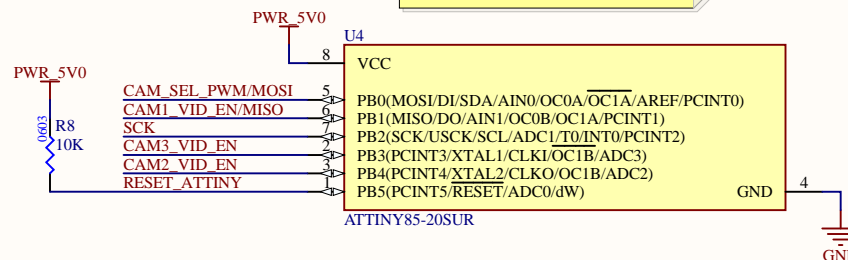
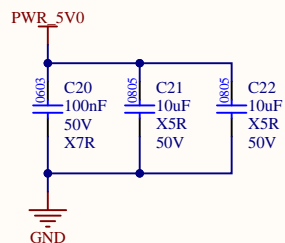


PROJECT Unified_VTX.PrjPcb, [No Variations]	REVISION P1
DOCUMENT IO_and_Connectors.SchDoc	MODIFIED 2024-11-12
ENGINEER Tom Chiu	REVIEWER *
SHEET	1 OF 4

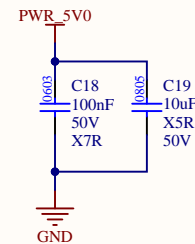




74LVC4066D118 MUX current consumption:  
100mA abs max  
Realistic max consuption from datasheet: 5.1mA



Pin 7 was used for "Camera Select Clock" and Pin 1 was for "Resetting", but neither were used anywhere in the code.



Using pins 2,3 and 6 for their PCINT functions: pin source interrupt source.

Following pins used for flashing program:  
5: MOSI  
6: MISO  
7: SCK  
1: Slave Select

Attiny85 current consumption:  
Max: 13mA if using 20MHz operating frequency at 5.5V input. 11mA if using 5V VCC.  
Min: <2mA for 1MHz operating frequency.

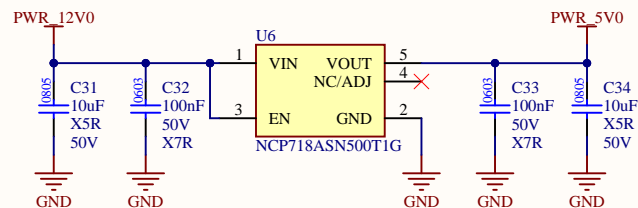
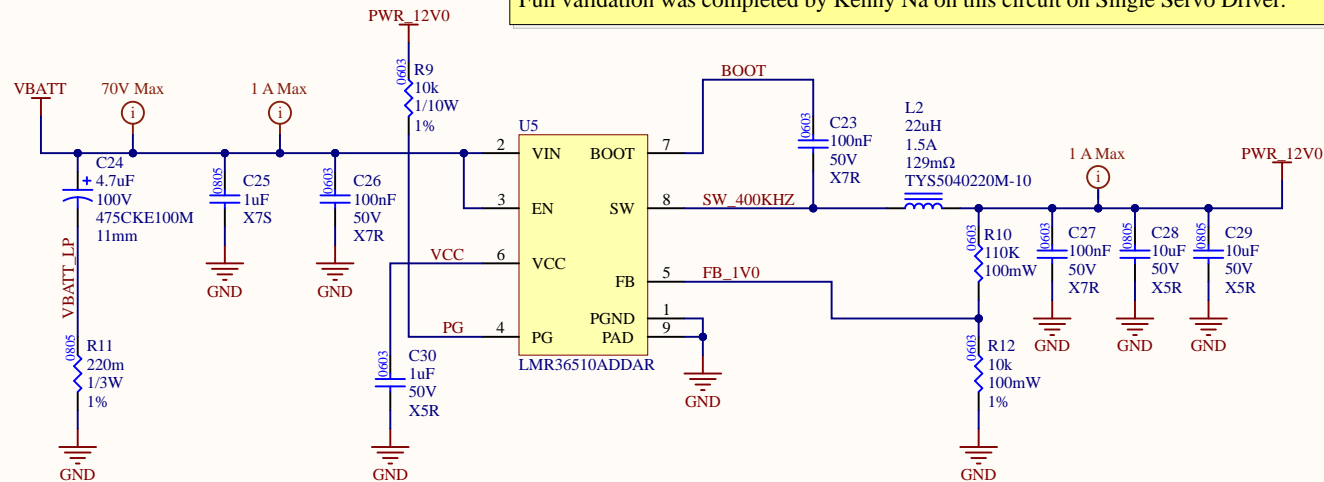


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PROJECT Unified_VTX.PrjPcb, [No Variations]			REVISION P1	
DOCUMENT Camera_MUX.SchDoc			MODIFIED 2024-11-09	
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This switching regulator design was taken from Daniel Puratich's Single Servo Driver board. Full validation was completed by Kenny Na on this circuit on Single Servo Driver.



10uF at input and output should be plenty based on datasheet which recommends minimums of 1uF and 4.7uF at the input and output respectively.

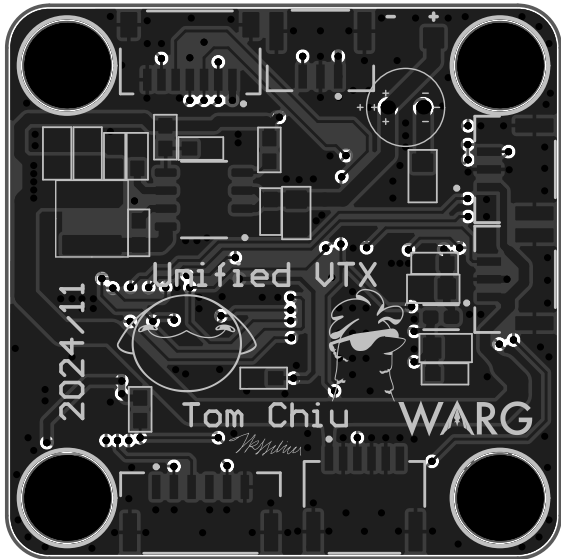


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PROJECT Unified_VTX.PrjPcb, [No Variations]		REVISION P1	
DOCUMENT Power.SchDoc		MODIFIED 2024-11-12	
ENGINEER Tom Chiu	REVIEWER *	SHEET 4 OF 4	

Layer	Name	Material	Thickness	Constant	Board Layer Stack
	Top Overlay				
	Top Solder	Solder Resist	0.40mil	3.5	
1	TOP		1.40mil		
	Dielectric 2	PP-006	8.00mil	4.1	
2	GND1	CF-004	1.40mil		
	Dielectric 1	FR-4	8.00mil	4.8	
3	GND2	CF-004	1.40mil		
	Dielectric 3	PP-006	8.00mil	4.1	
4	BOTTOM		1.40mil		
	Bottom Solder	Solder Resist	0.40mil	3.5	
	Bottom Overlay				



Line #	Name	Description	Designator	Revision State	Quantity	Manufacturer 1	Manufacturer Part Number 1
	475CKE100M	CAP ALUM 4.7UF 20% 100V RADIAL	C24	Unknown server	1	Cornell Dubilier	475CKE100M
	CGA3E2X7R1H104K080AA	CAP CER 0.1UF 50V X7R 0603	C1, C4, C5, C6, C7, C9, C10, C11, C12, C15, C18, C20, C23, C26, C27, C32, C33	Unknown server	17	TDK	CGA3E2X7R1H104K080AA
	GRT188R61H105KE13D	CAP CER 1UF 50V X5R 0603	C30	Unknown server	1	Murata	GRT188R61H105KE13D
	GRM21BC72A105KE01L	CAP CER 1UF 100V X7S 0805	C25	Unknown server	1	Murata	GRM21BC72A105KE01L
	GRM21BR61H106KE43L	CAP CER 10uF 50V X5R 0805	C28, C29	Unknown server	2	Murata	GRM21BR61H106KE43L
	GRM21BR61H106KE43L	CAP CER 10UF 50V X5R 0805	C2, C3, C8, C19, C21, C22, C31, C34	Unknown server	8		
	CC0603JRNPO9BN220	CAP CER 22PF 50V COG/NPO 0603	C16, C17	Unknown server	2		
	TMK325ABJ476MM-P	CAP CER 47UF 25V X5R 1210	C13, C14	Unknown server	2	Taiyo Yuden	TMK325ABJ476MM-P
	SM03B-GHS-TB	CONN HEADER SMD R/A 3POS 1.25MM	J1, J4, J6	Unknown server	3	JST	SM03B-GHS-TB(LF)(SN)
	SM06B-NSHSS-TB	CONN HEADER SMD R/A 6POS 1MM	J3	Unknown server	1	JST	SM06B-NSHSS-TB(LF)(SN)
	SM06B-GHS-TB	CONN HEADER SMD R/A 6POS 1.25MM	J2	Unknown server	1	JST	SM06B-GHS-TB(LF)(SN)
	SM07B-SRSS-TB	CONN HEADER SMD R/A 7POS 1MM	J5	Unknown server	1	JST	SM07B-SRSS-TB
	ECS-160-16-33B-CKM-TR	CRYSTAL 16.0000MHZ 16PF SMD	Y2	Unknown server	1		
	ECS-270-12-33Q-JES-TR	CRYSTAL 27.0000MHZ 12PF SMD	Y1	Unknown server	1	ECS International	ECS-270-12-33Q-JES-TR
	BLM18SG121TZ1D	FERRITE BEAD 120 OHM 0603 1LN	L1	Unknown server	1	Murata	BLM18SG121TZ1D
	TYS5040220M-10	FIXED IND 22UH 1.5A 129 MOHM SMD	L2	Unknown server	1	Laird Steward	TYS5040220M-10
	ATTINY85-20SUR	IC MCU 8BIT 8KB FLASH 8SOIC	U4	Unknown server	1	Microchip	ATTINY85-20SUR
	ATMEGA328P-AN	IC MCU 8BIT 32KB FLASH 32TQFP	U1	Unknown server	1	Microchip	ATMEGA328P-AN
	MAX7456EUI	IC OSD VIDEO GEN 28TSSOP	U2	Unknown server	1	Maxim	MAX7456EUI+T
	LMR36510ADDAR	IC REG BUCK ADJ 1A 8SOPWR	U5	Unknown server	1	Texas Instruments	LMR36510ADDAR
	NCP718ASN500T1G	IC REG LINEAR 5V 300MA TSOT23-5	U6	Unknown server	1		
	74LVC4066D118	IC SWITCH SPST-NO X4 100OHM 14SO	U3	Unknown server	1	Nexperia	74LVC4066D,118
	RC0603FR-070RL	RES 0 OHM JUMPER 1/10W 0603	R6	Unknown server	1		
	RL1220SR22-F	RES 0.22 OHM 1% 1/3W 0805	R11	Unknown server	1	Susumu	RL1220SR22-F
	RC0603FR-071KL	RES 1k OHM 1% 1/10W 0603	R2, R3, R4	Unknown server	3	Yageo	RC0603FR-071KL
	AC0603FR-1310KL	RES 10K OHM 1% 1/10W 0603	R12	Unknown server	1	Yageo	AC0603FR-1310KL
	RC0603FR-0710KL	RES 10K OHM 1% 1/10W 0603	R9	Unknown server	1	Yageo	RC0603FR-0710KL
	RC0603JR-1010KL	RES 10K OHM 5% 1/10W 0603	R1, R8	Unknown server	2		
	RC0603FR-0775RL	RES 75 OHM 1% 1/10W 0603	R5, R7	Unknown server	2		
	RC0603FR-07110KL	RES 110K OHM 1% 1/10W 0603	R10	Unknown server	1	Yageo	RC0603FR-07110KL
	SOLDERPAD_2PIN_WIDER	Solder Pad 2 Pins, 3mm pitch, 1.5mm pad size	J7	Unknown server	1		
	M3HOLE-STANDARD	Standard M3 Mounting hole as defined by mech team, see confluence for reasoning	MH1, MH2, MH3, MH4	Unknown server	4		