DeviationTX Transmitter 原理图

U3A — STM32F103-QFP100

Pin	Name		Name	Pin
23	PA0-WKUP		PE6	5
24	PA1 / ADC123_IN1		PE5	4
25	PA2 / ADC123_IN2 / UART2_TX		PE4	3
26	PA3 / ADC123_IN3 / UART2_RX		PE3	2
29	PA4 / SPI1_NSS / DAC_OUT1		PE2	1
30	PA5 / SPI1_SCK / DAC_OUT2		PE1 LED_STAT	98
31	PA6 / SPI1_MISO / ADC12_IN6		PE0 LED_RF	97
32	PA7 / SPI1_MOSI / ADC12_IN7		PD2 / SDIO_CMD	83
67	PA8 / TIM1_CH1		PC13-TAMPER-RTC INP_MIX0	7
68	PA9 / USART1_TX / TIM1_CH2		PC12 / SDIO_CK INP_MIX1	80
69	PA10 / USART1_RX / TIM1_CH3		PC11 / SDIO_D3 INP_AIL_DR	79
70	PA11 / USBDM		PC10 / SDIO_D2 INP_FMOD0	78
71	PA12 / USBDP		PC9 / SDIO_D1 INP_FMOD2	66
72	PA13 / JTMS / SWDIO		PC8 / SDIO_D0 INP_RUD_DR	65
76	PA14 / JTCK / SWCLK		PC7 / TIM8_CH2 INP_ELE_DR	64
77	PA15 / SPI3_NSS		PC5 / ADC12_IN15 INP_POTMETER	34
89	PB3 / SPI3_SCK		PC4 / ADC12_IN14 INP_PWR	33
90	PB4 / SPI3_MISO		PC3 / ADC123_IN13 INP_THR	18
91	PB5 / SPI3_MOSI		PC2 / ADC123_IN12 INP_AIL	17
35	PB0 / ADC12_IN8 / TIM8_CH2N		PC1 / ADC123_IN11 INP_RUD	16
36	PB1 / ADC12_IN9 / TIM8_CH3N		PC0 / ADC123_IN10 INP_ELE	15
37	PB2 / BOOT1		PC6 / I2S2_MCK INP_GEAR	63
92	PB6 / I2C1_SCL		PB15 / SPI2_MOSI / I2S2_SD PROT_MOSI	54
93	PB7 / I2C1_SDA		PB14 / SPI2_MISO PROT_MISO	53
95	PB8 / CAN_RX		PB13 / SPI2_SCK / I2S2_CK PROT_SCK	52
96	PB9 / CAN_TX		PB12 / SPI2_NSS / I2S2_WS PROT_SPI_CSN	51
			PB11 / I2C2_SDA PROT_RST	48
			PB10 / I2C2_SCL OUT_HAPTIC	47

Signals: OUT_SOUND, FLASH_SPI1_CS, TOUCH_SPI1_CS, TOUCH_IRQ, SPI1_SCK, SPI1_MISO, SPI1_MOSI, UART1_TX, UART1_RX, USBDM, USBDP, SW_DIO, SW_CLK, OUT_USBEN, LCD_SPI1_CS, LCD_LEDK, PB6, PB7, PB8, PB9, PE6, PE5, PE4, PE3, PE2, LED_STAT, LED_RF, PD2

P12 / TP — PA0

U3B — STM32F103-QFP100

Pin	Name		Name	Pin
14	NRST		VBAT	
	BOOT0 BOOT0 94		VDD_5	11
13	PD1 OSC_OUT		VDD_4	28
12	PD0 OSC_IN		VDD_3	100
9	PC15-OSC32_OUT		VDD_2	75
8	PC14-OSC32_IN		VDD_1	5
			VDDA	22
			VREF+	21
			VSS_1	49
			VSS_2	74
			VSS_3	99
			VSS_4	27
			VSS_5	10
			VREF-	20
			VSSA	19
			NC	73

R19 0 BOOT0, K5 Reset, C10 104, R26 10K, NRST, GND, VCC3D3
C8 20pF, C9 20pF, U5 8MHz

U3C — STM32F103-QFP100

Pin	Name		Name	Pin
84	PD3 / CLK		PD14 / D0 LCD_D0	61
85	PD4 / NOE		PD15 / D1 LCD_D1	62
86	PD5 / NWE		PD0 / D2 LCD_D2	81
87	PD6 / NWAIT		PD1 / D3 LCD_D3	82
88	PD7 / NOR_NE1 / NAND_NCE2		PE7 / D4 LCD_D4	38
59	PD11 / A16 / NAND_CLE		PE8 / D5 LCD_D5	39
60	PD12 / A17 / NAND_ALE		PE9 / D6 LCD_D6	40
	PD13 / A18		PE10 / D7 LCD_D7	41
			PE11 / D8 LCD_D8	42
			PE12 / D9 LCD_D9	43
			PE13 / D10 LCD_D10	44
			PE14 / D11 LCD_D11	45
			PE15 / D12 LCD_D12	46
			PD8 / D13 LCD_D13	55
			PD9 / D14 LCD_D14	56
			PD10 / D15 LCD_D15	57

LCD_RDX, LCD_WRX, LCD_RST, LCD_CSX, LCD_DCX, P19, P20

P11 — LCD-40PIN

Pin	Name	Signal
1	XL	LCD_XL
2	YU	LCD_YU
3	XR	LCD_XR
4	YD	LCD_YD
5	GND	GND
6	VCCIO	VCC3D3
7	VCC	VCC3D3
8	NC	
9	CS	LCD_CSX
10	RS/DCX	LCD_DCX
11	WR	LCD_WRX
12	RD	LCD_RDX
13	SDI/MOSI	
14	SDO/MISO	
15	RST	LCD_RST
16	GND2	GND
17	DB0	LCD_D0
18	DB1	LCD_D1
19	DB2	LCD_D2
20	DB3	LCD_D3
21	DB4	LCD_D4
22	DB5	LCD_D5
23	DB6	LCD_D6
24	DB7	LCD_D7
25	DB8	LCD_D8
26	DB9	LCD_D9
27	DB10	LCD_D10
28	DB11	LCD_D11
29	DB12	LCD_D12
30	DB13	LCD_D13
31	DB14	LCD_D14
32	DB15	LCD_D15
33	LEDA	VCC3D3
34	LEDK1	R15 220
35	LEDK2	R14 220
36	LEDK3	R13 220
37	GND3	GND
38	IM0	
39	IM1	
40	IM2	

LCD 使用 ILL9341 控制器
LCD_LEDK R16 1K Q3 NPN
LCD Back Light, PWM control.

U6 — XPT2046

Pin	Name		Name	Pin
1	VCC VCC3D3		DCLK SPI1_SCK	16
2	XP LCD_XL R25 220		CS TOUCH_SPI1_CS	15
3	YP LCD_YU R23 220		DIN SPI1_MOSI	14
4	XN LCD_XR R21 220		BUSY	13
5	YN LCD_YD R20 220		DOUT SPI1_MISO	12
6	GND GND		IRQ TOUCH_IRQ R24 47K	11
7	VBAT VCC3D3		VCCIO VCC3D3	10
8	IN		VRef VCC3D3	9

U7 — W25Q16

Pin	Name		Name	Pin
1	CS FLASH_SPI1_CS		VCC VCC3D3	8
2	DO SPI1_MISO		HOLD VCC3D3	7
3	WP VCC3D3		CLK SPI1_SCK	6
4	GND		DI SPI1_MOSI	5

蜂鸣器
B1 VCC3D3, PIN_BUZZER, SIP2, Q5 NPN, OUT_SOUND R22 1.5K

震动电机
J11 VCC3D3, PIN_HAPTIC, SIP2, Q2 NPN, OUT_HAPTIC R5 1.5K

USB
P8: 1 VCC → VCC5, 2 D- → USBDM, 3 D+ → USBDP, 4 GND, 5 ID
OUT_USBEN R17 1.5K Q4, R18 1.5K
J14 SIP4: 1 VCC5, 2 USBDM, 3 USBDP, 4 GND

油门、俯仰、副翼、方向、电位器
J8 INP_THR, J9 INP_RUD, J5 INP_AIL, J6 INP_ELE, J3 INP_POTMETER (VCC3D3, 1/2/3)

FMOD和MIX模式开关，三段式
J1: INP_FMOD0 / GND / INP_FMOD2
J2: INP_MIX0 / GND / INP_MIX1

Gear/开关键
J4: INP_GEAR

外接键盘
J15 IDC8: PE4/PE3, PE5/PE2, PB6/PB6, PB7/PB7

外接键盘定义：
PE2-PB6 BUT_LEFT
PE3-PB6 BUT_RIGHT
PE4-PB6 BUT_ENTER
PE2-PB7 BUT_DOWN
PE3-PB7 BUT_UP
PE4-PB7 BUT_EXIT

J12 SIP4: VCC5, UART1_RX, UART1_TX, GND
J13 SIP4: VCC5, SW_DIO, SW_CLK, GND
J7 SIP4: VCC3D3, LEDK1, LEDK2, LEDK3

信号指示灯，通过插件引出，用于外接
LED_STAT R1 470 LEDK1 D1 VCC3D3
LED_RF R2 470 LEDK2 D2 VCC3D3
GND R3 470 LEDK3 D3 VCC3D3 LED

左侧横向微调按钮 最下面为公共线
P7: PE5 BUT_TRIM_LH_POS, PE6 BUT_TRIM_LH_NEG, PB7 COMM

右侧横向微调按钮 最下面为公共线
P6: PE6 BUT_TRIM_RH_POS, PE5 BUT_TRIM_RH_NEG, PB6 COMM

左侧纵向微调按钮
K2: PE4 / PB9 BUT_TRIM_RV_POS
K4: PE2 / PB9 BUT_TRIM_RV_NEG

右侧纵向微调按钮
K1: PE3 / PB9 BUT_TRIM_LV_POS
K3: PE6 / PB9 BUT_TRIM_LV_NEG

这三个没必要增加了，直接使用软件控制，界面可以调节
J21: INP_RUD_DR, J22: INP_AIL_DR, J23: INP_ELE_DR
对应遥控器上左侧和右侧的微调按钮，没啥用，先放着吧

J32: PE3 BUT_TRIM_R_NEG, PB8 BUT_TRIM_R_POS, PE4
J33: PE5 BUT_TRIM_L_POS, PB8 BUT_TRIM_L_NEG, PE6

电源部分
P5 PowerIN, VCCIN, R11 100K
U2 AS1117: Vin Vout / GND → VCC5 78M05
C6 104, C4 47uF
U1 AS1117: VI VO1 / GND VO2 → VCC3D3
C2 104, C5 47uF, C7 104, C1 10uF
INP_PWR R12 47K
测量电池电压用
P10 Switch-3, COMM A B

U8 — RT9193
1 VIN, 3 EN, 2 GND, 5 VOUT, 4 BP → VCC3D3
VCC5
单节电池供电时，直接使用9193

PROT / NRF
PROT_RST R10 1K Q1 VCC3D3
VCC3D3 R4 0
如果不需要RESET引脚，那就直接接电源

J10 — NRF24L01
Pin	Name		Name	Pin
1	GND GND		VCC VCCWL	2
3	CE VCCWL		CSN PROT_SPI_CSN	4
5	SCK PROT_SCK		MOSI PROT_MOSI	6
7	MISO PROT_MISO		IRQ	8
9	GND1 GND		GND2 GND	10
C3 104

P1 TP, P3 TP, P2 TP, P4 TP

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U4

CON_DB0	1	DB0
CON_DB1	2	DB1
CON_DB2	3	DB2
CON_DB3	4	DB3
CON_GND	5	GND
CON_VCC	6	VCCIO
CON_CS	7	CS
CON_DS	8	RS/DCX
CON_WR	9	WR
CON_RD	10	RD
	11	NC
CON_X-	12	XR
CON_Y-	13	YD
CON_X+	14	XL
CON_Y+	15	YU
CON_VCC	16	LEDA
CON_OUTK1	17	LEDK1
CON_OUTK2	18	LEDK2
CON_OUTK3	19	LEDK3
CON_OUTK4	20	LEDK4
	21	NC2
CON_DB4	22	DB4
CON_DB8	23	DB8
CON_DB9	24	DB9
CON_DB10	25	DB10
CON_DB11	26	DB11
CON_DB12	27	DB12
CON_DB13	28	DB13
CON_DB14	29	DB14
CON_DB15	30	DB15
CON_RST	31	RESET
CON_VCC	32	VCCA
CON_VCC	33	VCCIO2
CON_GND	34	GND2
CON_DB5	35	DB5
CON_DB6	36	DB6
CON_DB7	37	DB7

LCD-37PIN

CON_LEDK R9 220
R8 220
R7 220
R6 220

P9

CON_X-	1	XL
CON_Y-	2	YU
CON_X+	3	XR
CON_Y+	4	YD
CON_GND	5	GND
CON_VCC	6	VCCIO
CON_VCC	7	VCC
	8	NC
CON_CS	9	CS
CON_DS	10	RS/DCX
CON_WR	11	WR
CON_RD	12	RD
CON_SDI	13	SDI/MOSI
CON_SDO	14	SDO/MISO
CON_RST	15	RST
CON_GND	16	GND2
CON_DB0	17	DB0
CON_DB1	18	DB1
CON_DB2	19	DB2
CON_DB3	20	DB3
CON_DB4	21	DB4
CON_DB5	22	DB5
CON_DB6	23	DB6
CON_DB7	24	DB7
CON_DB8	25	DB8
CON_DB9	26	DB9
CON_DB10	27	DB10
CON_DB11	28	DB11
CON_DB12	29	DB12
CON_DB13	30	DB13
CON_DB14	31	DB14
CON_DB15	32	DB15
CON_VCC	33	LEDA
CON_LEDK	34	LEDK1
CON_LEDK	35	LEDK2
CON_LEDK	36	LEDK3
CON_GND	37	GND3
	38	IM0
	39	IM1
	40	IM2

LCD-40PIN

VCC3D3