PSI-3000 MAIN BOARD

Version 0.1: APR-22, 2021

SCHEMATICS PAGE DESCRIPTIONS

P01: COVER
P02: MCU
P03: PWR, ADC
P04: ALD IN/OUT
P05: DAC
P06: UART(RS232)

INDICATION LED for SYSTEM POWER

INPUT POWER SUPPLY RATING

+24VDC: INPUT
+12VDC : 1.2A (Max)
+5VDC : 1.2A (Max)
+3.3VDC : 800mA (Max)

INDICATION LED for BOARD STATUS
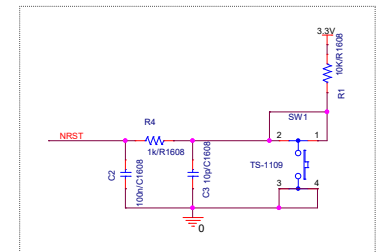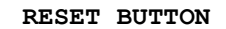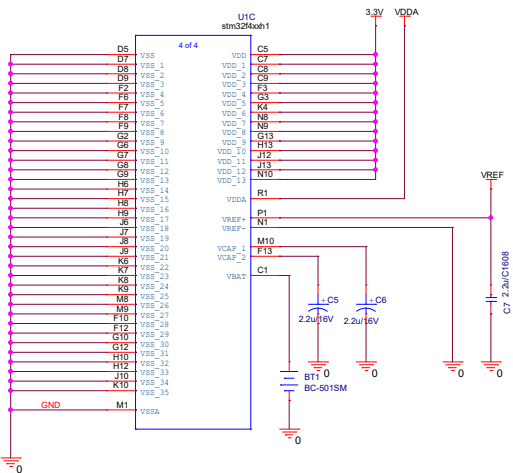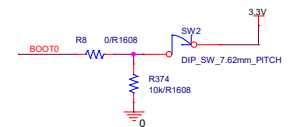
D27 : GREEN
D28 : RED
D60 : YELLOW

TOP SILK

| ATiK Logo | ATiK Co., Ltd
ASS'Y: PSI-3000 Main
P/N   : PSI-3000 Main, Rev0.1
S/N   : |

BOTTOM COPPER

PCB P/N : PSI-3000 Main, Rev0.1

U1B stm32f4xxh1 1 of 4

RS232_Tx4 / RS232_Rx4 / RS232_Tx2 / RS232_Rx2 / DAC1 / DAC2

PA0/WKUP, PA1, PA2, PA3, PA4, PA5, PA6, PA7, PA8, PA9, PA10, PA11, PA12, PA13, PA14, PA15

RS232_Tx1 / RS232_Rx1 / SYS_jtms_swdio / SYS_jtck_swclk / SYS_jtdi

BOOT1 / SYS_jtdo_swo / SYS_njtrst

PB0, PB1, PB2/BOOT1, PB3, PB4, PB5, PB6, PB7, PB8, PB9, PB10, PB11, PB12, PB13, PB14, PB15

RS232_Tx3 / RS232_Rx3

PC0, PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14/OSC32_IN, PC15/OSC32_OUT

sd_d0, sd_d1, sd_d2, sd_d3, sd_clk, sd_detect

PD0, PD1, PD2, PD3, PD4, PD5, PD6, PD7, PD8, PD9, PD10, PD11, PD12, PD13, PD14, PD15

sd_cmd / DAC_OD_1 / DAC_OD_2 / DAC_OD_3 / DAC_OD_4
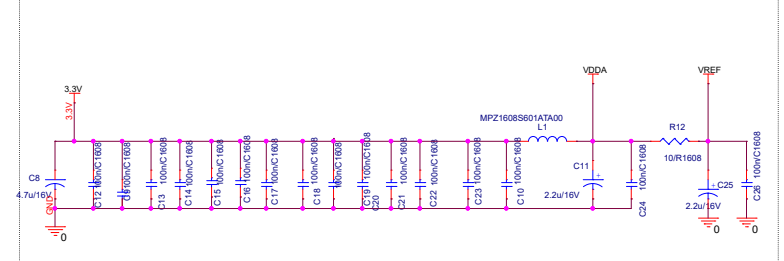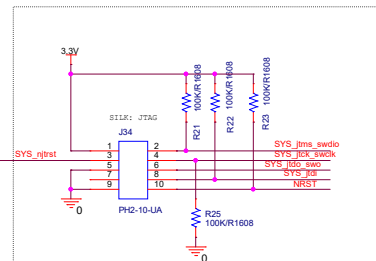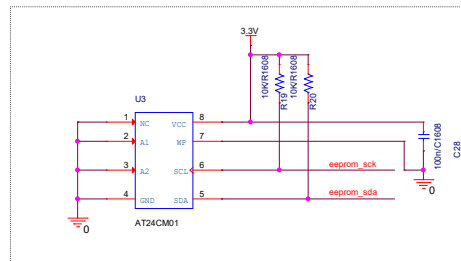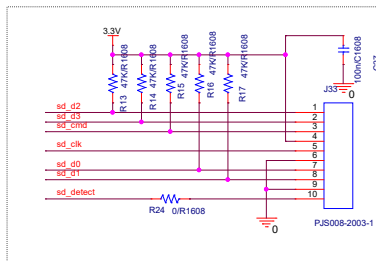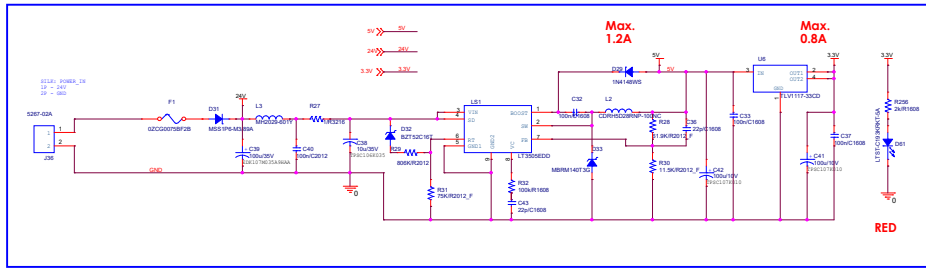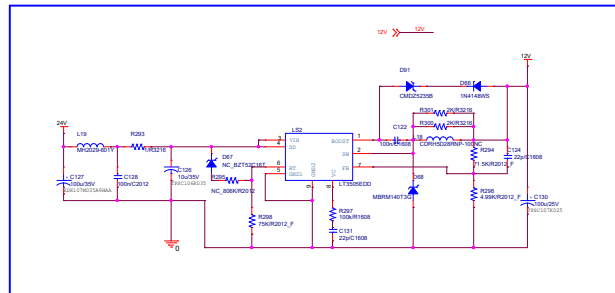
ANA_10V_PWM

R2 0/R1608   C1 6.8p/C1608   NX3215SA-32.768K   Y1
R6 0/R1608   C4 6.8p/C1608

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TEMP_1 / TEMP_2
ALD_IN_0 / ALD_IN_1 / ALD_IN_2 / ALD_IN_3
ALD_OUT_0 / ALD_OUT_1 / ALD_OUT_2 / ALD_OUT_3
LED_CON1 / LED_CON2

PE0...PE15, PF0...PF15, PG0...PG15, PH0/OSC_IN, PH1/OSC_OUT

TEMP_3 / TEMP_4 / TEMP_5 / TEMP_6
AV_Pselect1 / AV_Pselect2 / AV_Pselect3
eeprom_sck / eeprom_sda
TEMP_7 / TEMP_8

LED_YEL / LED_GRN / LED_RED

R255 1k/R1608   R10 1k/R1608   R11 1k/R1608
LTST-C193KGKT-5A D60 / D27 / D28

Y2 OUB-EN ASEM1-25   C117 100n/C1608

U1D stm32f4xxh1 3 of 4
SPI_SCK / SPI_MISO / SPI_MOSI
PI0...PI11
NRST, BOOT0, PDR_ON, BYPASS_REG
R3 0/R1608 NRST
R5 10k/R1608
R7 10k/R1608

U1C stm32f4xxh1 4 of 4
VSS, VSS_1...VSS_35, VSSA
VDD, VDD_1...VDD_13
VDDA, VREF+, VREF-, VCAP_1, VCAP_2, VBAT
GND

+C5 2.2u/16V   +C6 2.2u/16V   C7 2.2u/C1608
BT1 BC-501SM

J106 TEMP_1 / TEMP_2 / TEMP_3 / TEMP_4 / TEMP_5 / TEMP_6 / TEMP_7 / TEMP_8 5267-08A

Boot0
3.3V : System Boot
0V : App Boot

BOOT0 R8 0/R1608 SW2 DIP_SW_7.62mm_PITCH 3.3V
R374 10k/R1608

BOOT1 R9 10k/R1608

RESET BUTTON
NRST   R4 1k/R1608   SW1 TS-1109   R1 100k/R1608 3.3V
C2 100n/C1608   C3 10p/C1608

MICRO SD CARD
3.3V R13 47K/R1608 R14 47K/R1608 R15 47K/R1608 R16 47K/R1608 R17 47K/R1608
C27 100n/C1608
sd_d2, sd_d3, sd_cmd, sd_clk, sd_d0, sd_d1, sd_detect
R24 0/R1608
J33 PJS008-2003-1

EEPROM
3.3V R18 10k/R1608 R19 10k/R1608 R20 10k/R1608
U3 NC VCC / A1 WP / A2 SCL / GND SDA
AT24CM01
eeprom_sck / eeprom_sda
C28 100n/C1608

JTAG
3.3V
SILK: JTAG J34 PH2-10-UA
R21 100k/R1608 R22 100k/R1608 R23 100k/R1608
SYS_njtrst
SYS_jtms_swdio / SYS_jtck_swclk / SYS_jtdo_swo / SYS_jtdi / NRST
R25 100k/R1608

MCU POWER COUPING CAPACITOR
3.3V   VDDA   VREF   MPZ1608S601ATA00 L1
C8 4.7u/16V   C12...C24 100n/C1608   C10 100n/C1608   C11 2.2u/16V
R12 10/R1608   +C25 2.2u/16V   C26 100n/C1608
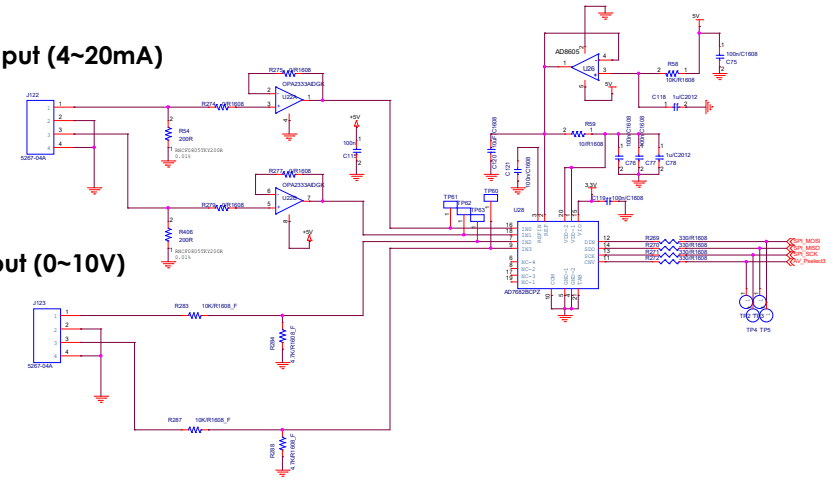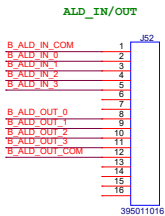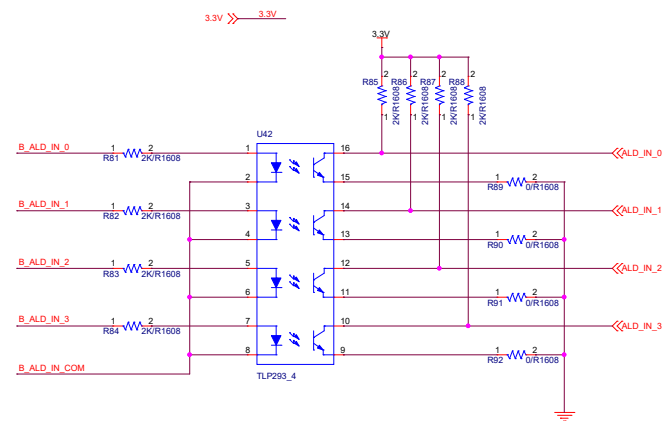
POWER SUPPLY for +5.0V, +3.3V

LED 12V POWER
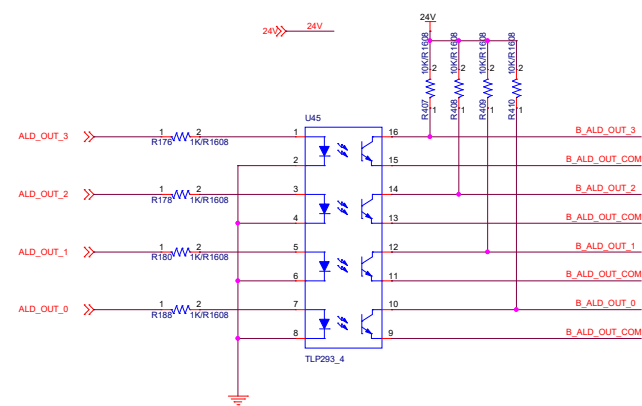
ADC (Photo Detector)

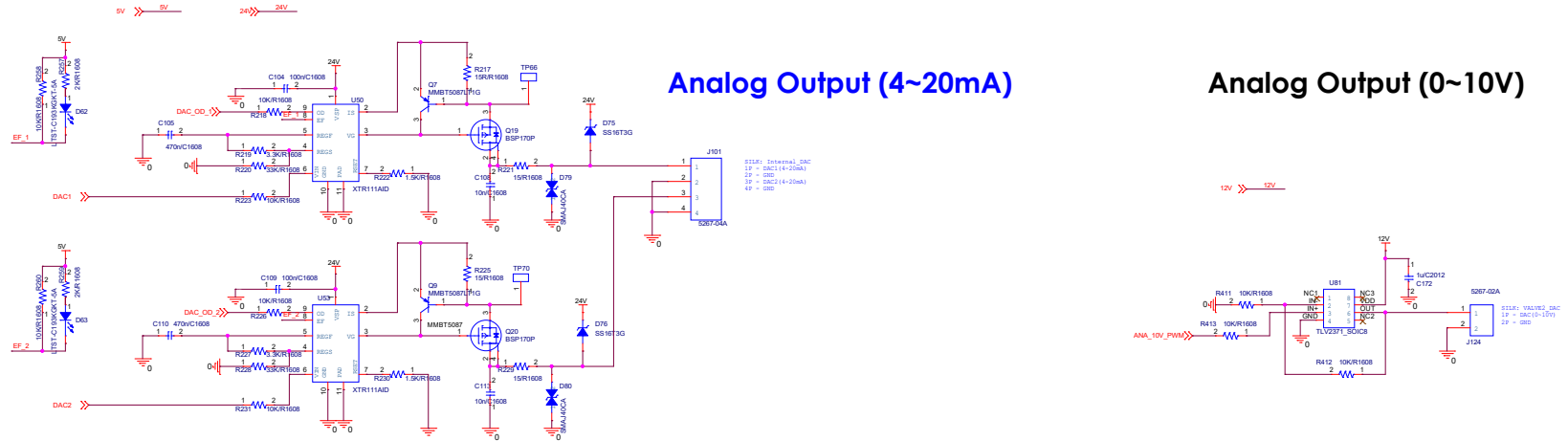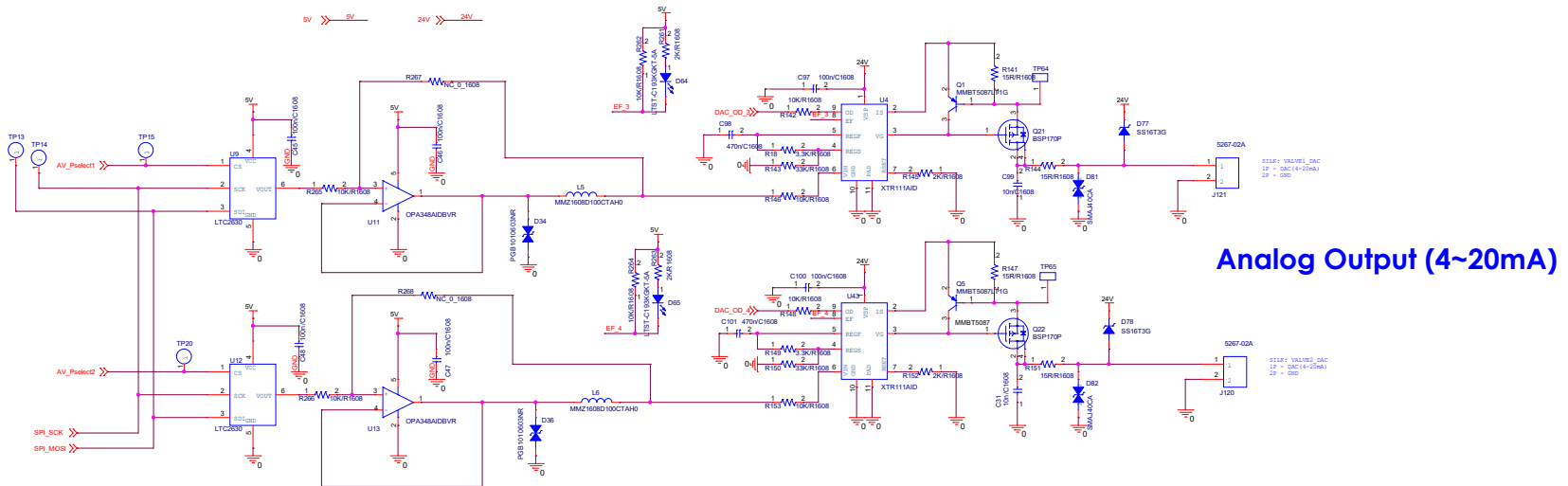**Analog Input (4~20mA)**

Analog Input (0~10V)

ALD_IN (4 Port)

3.3V

3.3V

3.3V

R85 2K/R1608
R86 2K/R1608
R87 2K/R1608
R88 2K/R1608

U42

B_ALD_IN_0 — R81 2K/R1608 — 1 | 16 — ALD_IN_0
2 | 15 — R89 0/R1608 — ALD_IN_0

B_ALD_IN_1 — R82 2K/R1608 — 3 | 14 — ALD_IN_1
4 | 13 — R90 0/R1608 — ALD_IN_1

B_ALD_IN_2 — R83 2K/R1608 — 5 | 12 — ALD_IN_2
6 | 11 — R91 0/R1608 — ALD_IN_2

B_ALD_IN_3 — R84 2K/R1608 — 7 | 10 — ALD_IN_3
8 | 9 — R92 0/R1608

B_ALD_IN_COM

TLP293_4

ALD_IN/OUT

J52

B_ALD_IN_COM	1
B_ALD_IN_0	2
B_ALD_IN_1	3
B_ALD_IN_2	4
B_ALD_IN_3	5
	6
	7
B_ALD_OUT_0	8
B_ALD_OUT_1	9
B_ALD_OUT_2	10
B_ALD_OUT_3	11
B_ALD_OUT_COM	12
	13
	14
	15
	16

395011016

ALD_OUT (4 Port)

24V

24V

24V

R407 10K/R1608
R408 10K/R1608
R409 10K/R1608
R410 10K/R1608

U45

ALD_OUT_3 — R176 1K/R1608 — 1 | 16 — B_ALD_OUT_3
2 | 15 — B_ALD_OUT_COM

ALD_OUT_2 — R178 1K/R1608 — 3 | 14 — B_ALD_OUT_2
4 | 13 — B_ALD_OUT_COM

ALD_OUT_1 — R180 1K/R1608 — 5 | 12 — B_ALD_OUT_1
6 | 11 — B_ALD_OUT_COM

ALD_OUT_0 — R188 1K/R1608 — 7 | 10 — B_ALD_OUT_0
8 | 9 — B_ALD_OUT_COM

TLP293_4

Internal DAC_OUT

Analog Output (4~20mA)

Analog Output (0~10V)

External DAC_OUT

Analog Output (4~20mA)

RS232(PC,DEBUG,LCD,RESEVED-4Port)

SILK: PC
1p - TX
2p - RX
3p - GND

SILK: DEBUG
1p - TX
2p - RX
3p - GND

SILK: LCD
1p - TX
2p - RX
3p - GND

SILK: RESERVED
1p - TX
2p - RX
3p - GND

FGND1

FGND2