Schematic

VBAT

R1 33k
R2 33
R3 33k
C1 100nF
C2 100nF
C3 12pF
VOLT
GND

ELRS
SPORT
ON
VBAT
GND
ELRS
WAFER-SH1.0-6PWB

TP1
SW-L
SW_D
SW_A_H
SW_A_L
GND
Name : WAFER-SH1.0-6PWB

TP2
SW-R
SW_E
SW_C_H
SW_C_L
R4 10k
R5 10k
GND
WAFER-SH1.0-6PWB

+3.3S
C4
C14 1uF
C5 100nF C6 100nF C13 100nF GND
C2
VBAT   VREF+ 21
VDD 11,19,28,50,75,100
VSS 10,27,74,99
VDDA 22
VSSA 20
C15 1uF
C24 100nF
GND
R8 0
STM32F407VET6
C32 100nF
C36 1uF
GNDA
C17 C23 100nF
C25 C27 100nF
C28 C30 100nF
C34 C35 100nF
C33 100nF
C37 C39 100nF
GND

U6.1 / STM32F407VET6
PA0-WKUP(PA0) 23
PA1 24   OLED_DC
PA2 25   OLED_SC
PA3 26   START
PA4 29   AUDIO
PA5 30   OLED_CLK
PA6 31
PA7 32   OLED_MOSI
PA8 67   ENC_A
PA9 68
PA10 69 ENC_B
PA11 70 USB_D-
PA12 71 USB_D+
PA13(JTMS-SWDIO) 72 SWDIO
PA14(JTCK-SWCLK) 76 SWCLK
PA15(JTDI) 77

PB0 35   FLASH_CS
PB1 36   VOLT R6 10k
PB2-BOOT1(PB2) 37
PB3(JTDOTRACESWO) 89 FLASH_CLK
PB4(NJTRST) 90 FLASH_DO
PB5 91   FLASH_DI
PB6 92
PB7 93
PB8 95
PB9 96
PB10 47
PB11 48
PB12 51 ON
PB13 52 MLX_SCLK
PB14 53 MLX_MISO
PB15 54 MLX_MOSI

VCC
R7 10k
R9 10k
C31 100nF
GND

PC0 15
PC1 16
PC2 17
PC3 18
PC4 33
PC5 34   SD_DETECT
PC6 63
PC7 64
PC8 65   DAT0
PC9 66   DAT1
PC10 78 DAT2
PC11 79 DAT3
PC12 80 CLK C41
PC13 7
PC14-OSC32_IN(PC14) 8
PC15-OSC32_OUT(PC15) 9
C43 12pF
X1 32.768kHz R10 1M
GND
C42 12pF

PD0 81
PD1 82
PD2 83   CMD
PD3 84   MLX1_CS
PD4 85   ENTER
PD5 86   SPORT
PD6 87   MLX2_CS
PD7 88   MUTE
PD8 55   USART3_TX
PD9 56   USART3_RX
PD10 57 PAGE
PD11 58 MENU
PD12 59 EXIT
PD13 60
PD14 61
PD15 62

PE0 97
PE1 98
PE2 1
PE3 2
PE4 3
PE5 4
PE6 5
PE7 38
PE8 39   SW_D
PE9 40   SW_E
PE10 41 SW_C_L
PE11 42 SW_C_H
PE12 43 SW_A_H
PE13 44 SW_A_L
PE14 45
PE15 46 LED1 LED2 LED3 LED4 LED5 VIBRO

PH0-OSC_IN(PH0) 12
PH1-OSC_OUT(PH1) 13
R12 1M
X2 8MHz GND
C44 12pF
R13 10k
BOOT0 94
NRST 14   RST GND
VCAP_1 49
VCAP_2 73
C45 2.2uF C46 100nF C47 2.2uF C48 100nF
GND
STM32F407VET6

ENC
LED5
ENC_A
ENC_B
ENTER
3V3
GND
WAFER-SH1.0-6PWB

BOT
LED5
PAGE
MENU
EXIT
VIBRO
C40 1uF
GND
R11 33
Q1 IRLML6402TRPBF
R14 10k
3V3
WAFER-SH1.0-6PWB

PANEL
START 3V3
TP3 TP6 TP5 TP4
U2 SPZ1.27-2-5PZZ
OLED_CLK OLED_MOSI OLED_DC OLED_SC LED1 LED2 LED3 LED4
GND

MICRO SD
CARD1 3V3
DAT0 DAT0(D0) 7
DAT1 DAT1(RSV) 8
DAT2 DAT2(RSV) 1
DAT3 CDDAT3(CS) 2
CMD   CMD(DI) 3
CLK   CLK(SCLK) 5
VDD 4   R15 10k C49 100nF
CD 9   C50
VSS 6
TF-01A
C50 100nF
GND
SD_DETECT

UART3
USART3_RX
USART3_TX
GND
+3.3S
H1

SWD
+3.3S
R18 10k R19 10k
R21 22
SWCLK
SWDIO
GND
+3.3S
H2

FLASH
+3.3S R20 10k
U4
FLASH_CS CS# 1
FLASH_DO DO(IO1) HOLD#orRESET#(IO3) 7
WP#(IO2) 3
+3.3S R29 10k   GND 4
W25Q64JVSSIQ
VCC 8
R27 10k
CLK 6   FLASH_CLK
DI(IO0) 5   FLASH_DI
R28 22
C52 10uF
C53 100nF
GND
+3.3S

Hall
Gim-L
MLX1_CS MLX_SCLK MLX_MOSI MLX_MISO 3V3
GND
WAFER-SH1.0-6PWB

Gim-R
MLX2_CS MLX_SCLK MLX_MOSI MLX_MISO 3V3
GND
WAFER-SH1.0-6PWB

PA0 Boot R16 +3.3S
TS-1088-AR0201610k
+3.3S R17 10k Rst
RST C51 100nF TS-1088-AR02016
GND

Schematic	Schematic1	Create at	2025-06-15
Board	Main	Update at	2025-09-30
Drawn		Page	STM
Reviewed		FPVapa	
Version	Size	Page 1 Total 2	
V1.0	A4	EasyEDA.com	

EasyEDA

Schematic — FPVapa

DC-DC 5-3.3

- VBAT
- R53 0
- TP11
- TP12
- U12 HE9073A33MR
  - VIN
  - VOUT
  - GND
- C94 1uF
- C87 1uF
- C95 1uF
- C96 1uF
- +3.3S
- TP13
- GND

POWER

- BAT
- VBAT
- F1
- JFC1206-1100FS
- C75 22uF
- R23 1k
- C74 100nF
- R26 1k
- U3 TPS63060DSCR
  - L1
  - VIN
  - EN
  - PS/SYNC
  - PG
  - VOUT
  - FB
  - GND
  - VAUX
  - PAD
- L1 1.5uH
- TP10
- C9 1uF
- 3V3
- R25 100k
- C7 22uF
- C8 22uF
- C10 100nF
- C11 10pF
- R24 18k
- C12 100nF
- LED1 XL-1608UGC-04
- R22 2k
- GND
- TP9
- ON
- GND

Charge / Battery (IP2312)

- VCC
- BAT
- L5 4.7uH
- R42 500m
- C18 22uF
- R50 2
- C19 22uF
- C20 10pF
- C21 22uF
- C22 10uF
- U5 IP2312-4V35
  - EP
  - VIN
  - SW
  - ICHG
  - BAT
  - D1
  - TEST
  - D2
  - NTC
- LED2 XL-2012SURC
- R48 43k
- R40 1k
- BAT
- R39 1k
- R49 51k
- LED3 XL-2012UBC
- R41 1k
- GND

Battery Protection

- Q4
- R45 2k
- Q5 AOS400A
- AOS400A
- U13 FM2113
  - OC
  - CS
  - OD
  - NC
  - VDD
  - VSS
- GND
- BAT
- R44 100
- C88 100nF
- Bat-L
- Bat-R
- WAFER-SH1.0-6PWB

USB

- USB1 TYPE-C16PIN
  - GND A1B12
  - VBUS A4B9
  - CC1 A5
  - DP1 A6
  - DN1 A7
  - SBU1 A8
  - CC2 B5
  - DP2 B6
  - DN2 B7
  - SBU2 B8
  - VBUS B4A9
  - GND B1A12
  - SHELL 1
  - SHELL 2
  - SHELL 3
  - SHELL 4
- VCC
- GND
- R59 22 → USB_D+
- R60 22 → USB_D-
- R58 5.1k
- R57 5.1k
- GND

Audio / Speaker

- AUDIO
- R38 100k
- GND
- MUTE
- H5 SPK
- GND
- C83
- R36 200k
- U11 IS31AP2005-SLS2-TR
  - SDB
  - NC
  - IN+
  - IN-
  - OUT-
  - GND
  - VCC
  - OUT+
- C80 100nF
- C81 1uF
- C85 22uF
- L4
- C82 22uF
- BLM18AG601SN1D
- 3V3
- C84 100nF
- R37 200k
- GND