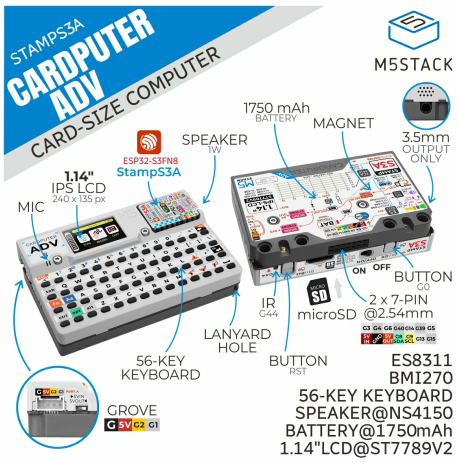
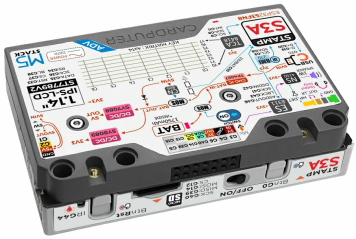
Cardputer-Adv

SKU:K132-Adv

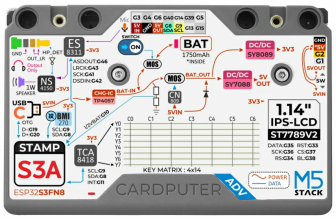
























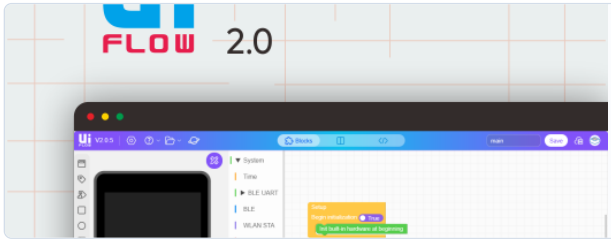




Description

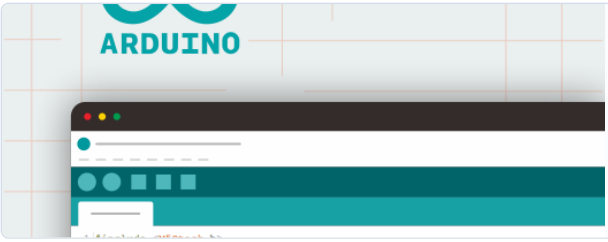
Cardputer-Adv is a programmable card-sized computer powered by the Stamp-S3A core module (based on ESP32-S3FN8). It integrates a 1.14" LCD display and a 56-key minimalist keyboard for convenient interaction and input operations.
In terms of audio, it features an ES8311 audio codec, a high SNR MEMS microphone, an NS4150B amplifier, and a 1W speaker, providing high-quality audio input and output capabilities. Additionally, it has a 3.5mm audio output jack for connecting external headphones or speakers. Internally, it is equipped with a 1750mAh high-capacity lithium battery, combined with a low-power design and an independent power switch to ensure good battery life. It integrates a 6-axis motion sensor BMI270, an infrared emitter, a microSD card slot, and also provides an HY2.0-4P Grove port and an EXT 2.54-14P expansion bus for connecting sensors and other peripherals. The base contains magnets for metal attachment and is compatible with LEGO hole extensions. This product is suitable for quick function prototyping, industrial control, home automation, and other scenarios.

Tutorial



UiFlow2

This tutorial demonstrates how to control the Cardputer-Adv device with the UiFlow2 graphical programming platform.



Arduino IDE

This tutorial will introduce how to program and control the Cardputer-Adv device through Arduino IDE

Features

- Stamp-S3A core controller
- 56-key keyboard
- 1.14" LCD display
- 160gf comfortable keypress feel
- ES8311 audio codec
- High SNR MEMS microphone
- NS4150B amplifier + 1W speaker
- 3.5mm audio output interface
- Infrared emitter
- 6-axis motion sensor BMI270
- HY2.0-4P Grove port
- EXT 2.54-14P expansion bus
- microSD card slot
- Built-in 1750mAh battery
- Magnetic back design
- LEGO hole compatible
- Development Platform
  - Arduino
  - UiFlow2
  - ESP-IDF
  - PlatformIO

Includes

- 1 x Cardputer-Adv

Applications

- Rapid prototyping and functional verification
- Industrial control and automation
- Embedded systems development and learning
- Wireless communication and IoT projects

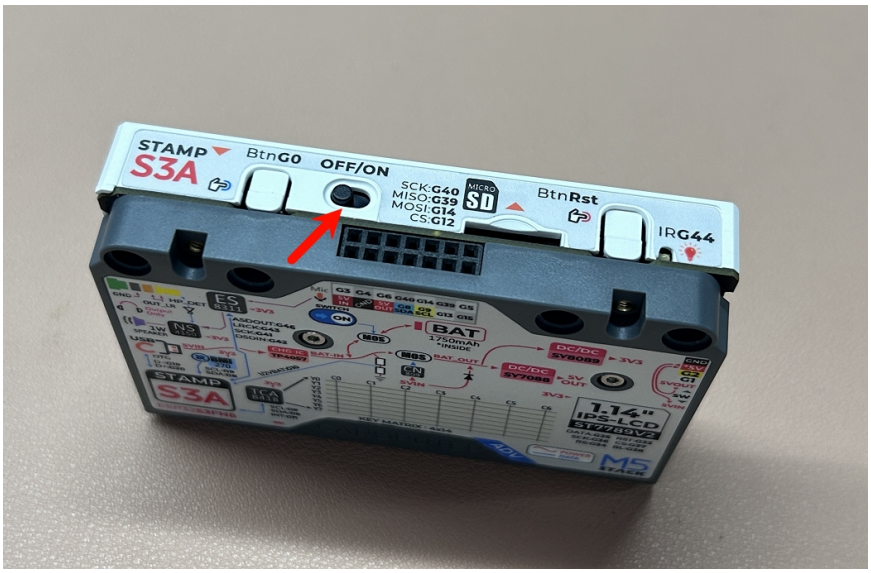
Specifications

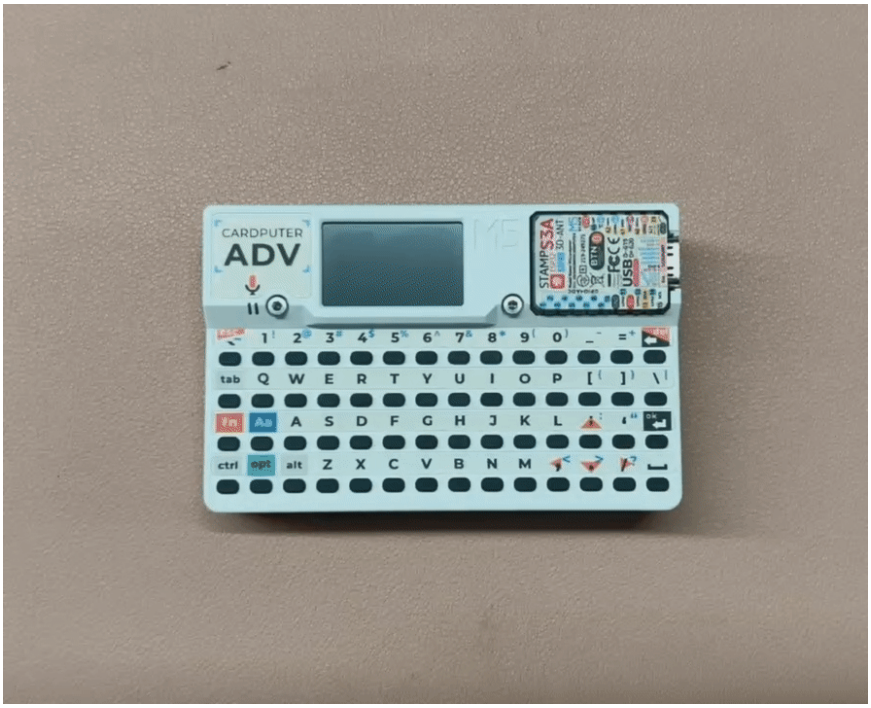
Specification	Parameter
SoC	ESP32-S3FN8 @ Xtensa® 32-bit LX7 dual-core processor, clock frequency 240MHz
Flash	8MB
External Storage	microSD
Display	ST7789V2@1.14", 240 x 135px
Keyboard	56 keys (4 x 14)
Key Actuation	160gf
Expansion Ports	HY2.0-4P + EXT 2.54-14P
IR	1x IR emitter
Audio Codec	ES8311
Speaker	NS4150B amplifier + 8Ω@1W speaker
Microphone	MEMS microphone, SNR: 65 dB
IMU	BMI270
Battery Capacity	1750mAh
Operating Temp.	0 ~ 40°C
Standby Current (Power Switch Set to OFF)	DC4.2V@0.23uA
Operating Current	DC4.2V@120.2mA
Wi-Fi Operating Current	DC4.2V@132.3mA
BLE Operating Current	DC4.2V@154.6mA
Product Size	84.0 x 54.0 x 19.6mm
Product Weight	81.0g
Package Size	145.7 x 95.0 x 20.7mm
Gross Weight	98.5g

Learn

Download Mode

To enter download mode, set the side power switch of the Cardputer-Adv to the `OFF` position. Then, before powering on, hold the `G0` button, apply power to the device, and release it afterward. The device will then enter download mode.





RGB LED Power Supply

RGB LED Power Supply Instructions

The device uses **Stamp-S3A** as its main controller. To optimize overall power consumption, Stamp-S3A adds an independent electronic switch for the RGB LED power supply compared with the previous Stamp-S3. Before controlling the RGB LED in software, set GPIO38, which controls this switch, to a high level.

Charging Notes

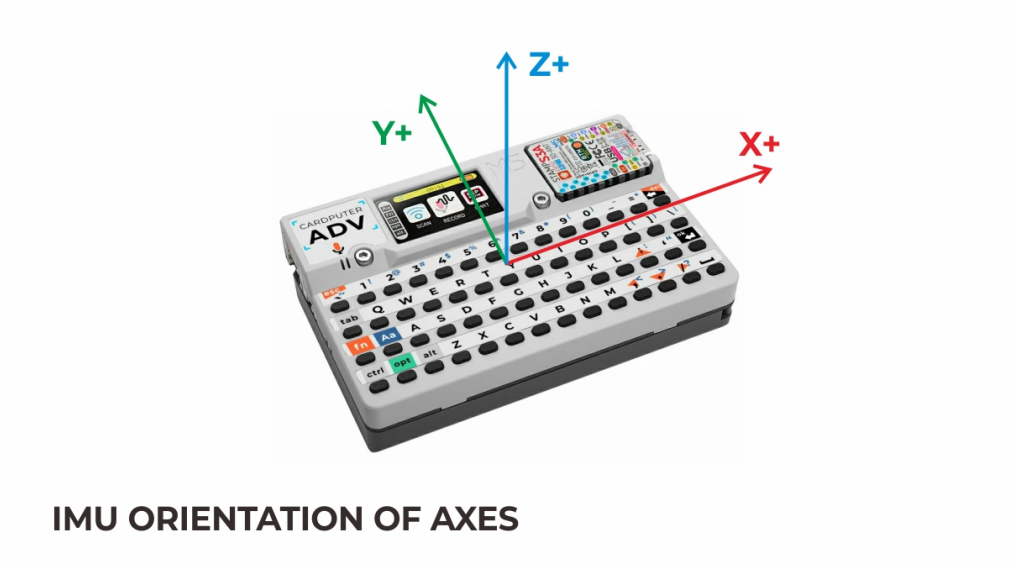
When charging the Cardputer-Adv, please switch the power to `ON`.



Speaker Feature

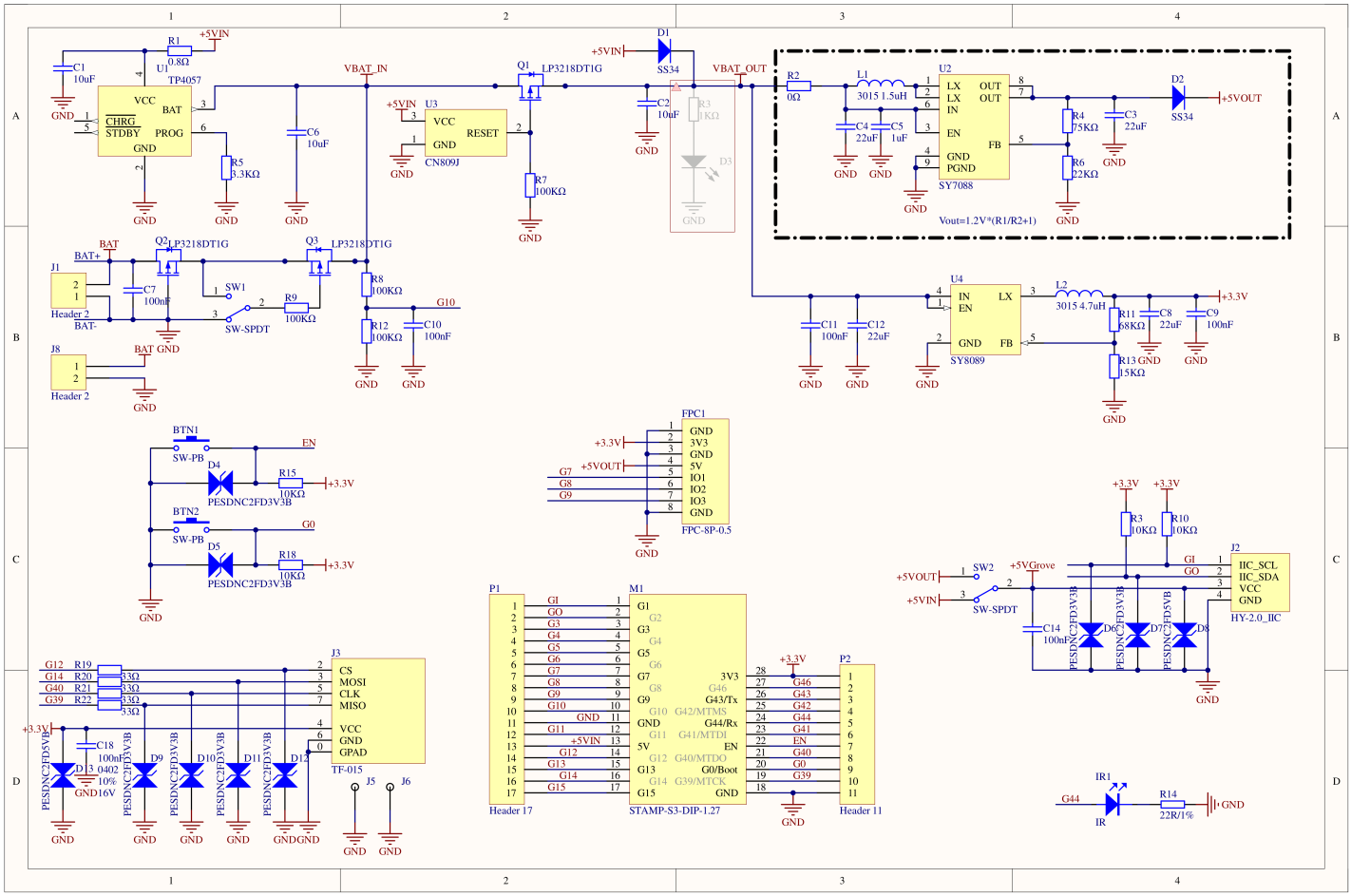
> **Note**
>
> When a 3.5mm headphone jack is inserted, the speaker amplifier will be disabled.

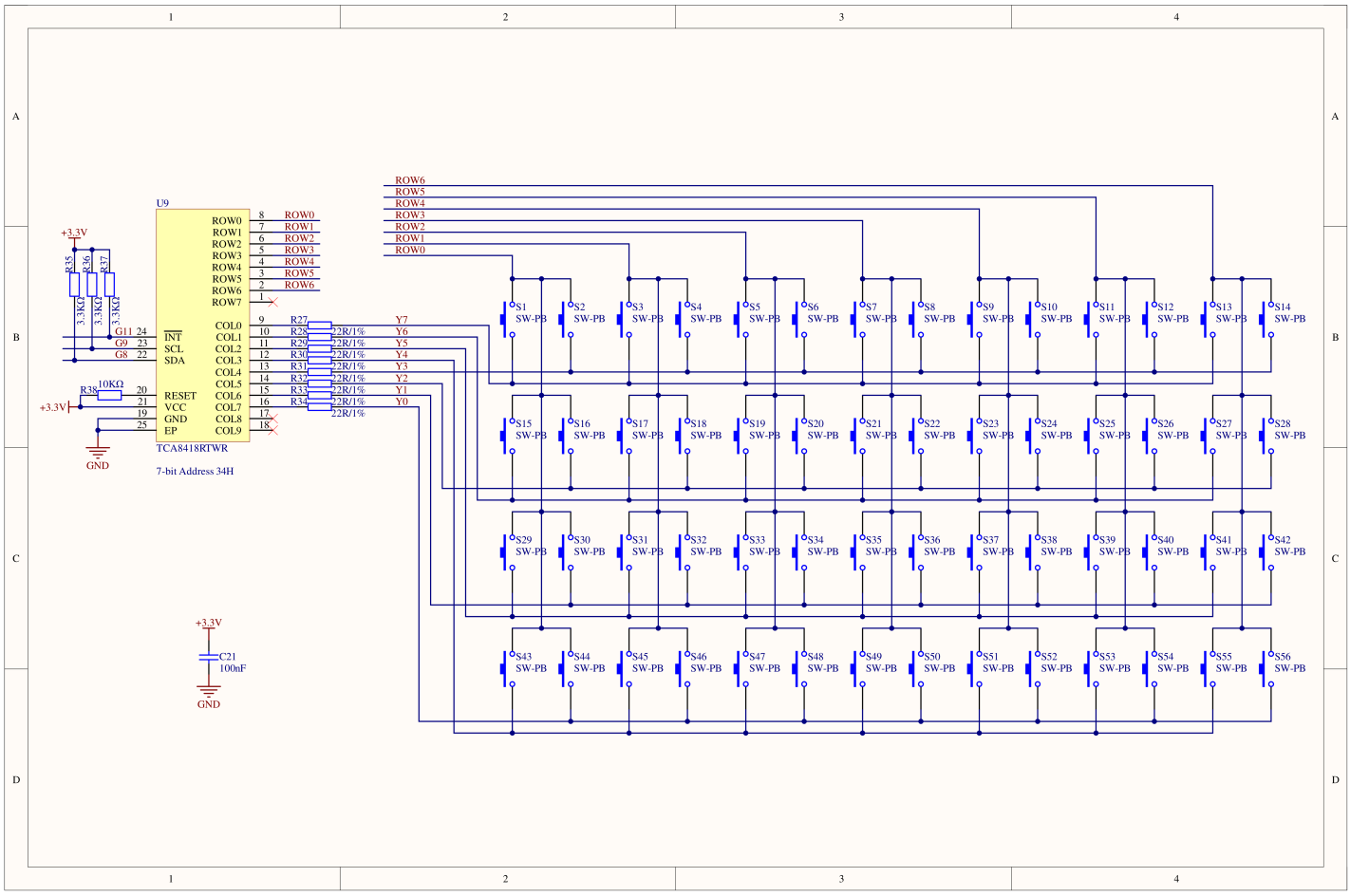
IMU Triaxial Direction Schematic Diagram

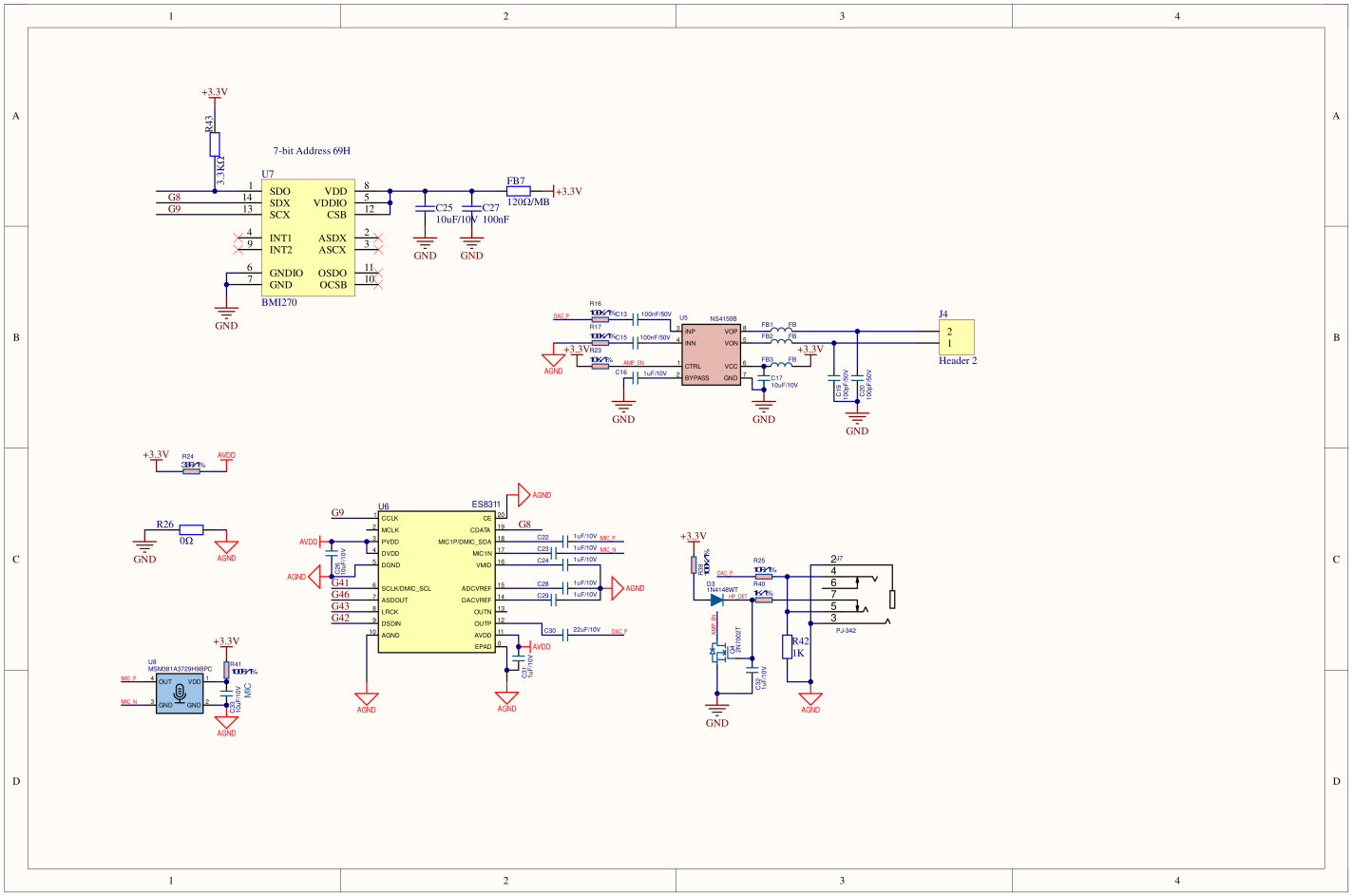


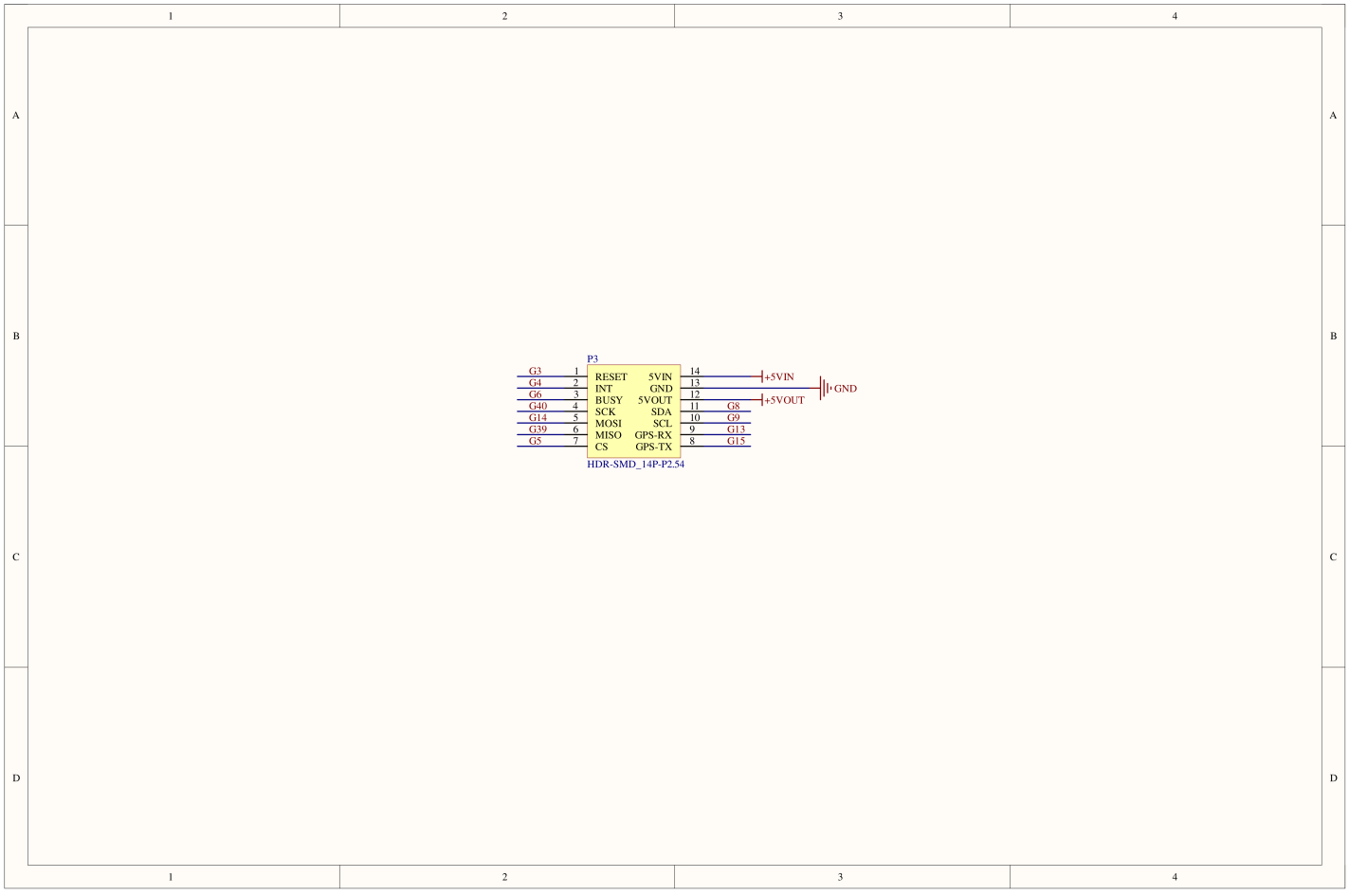
Schematics

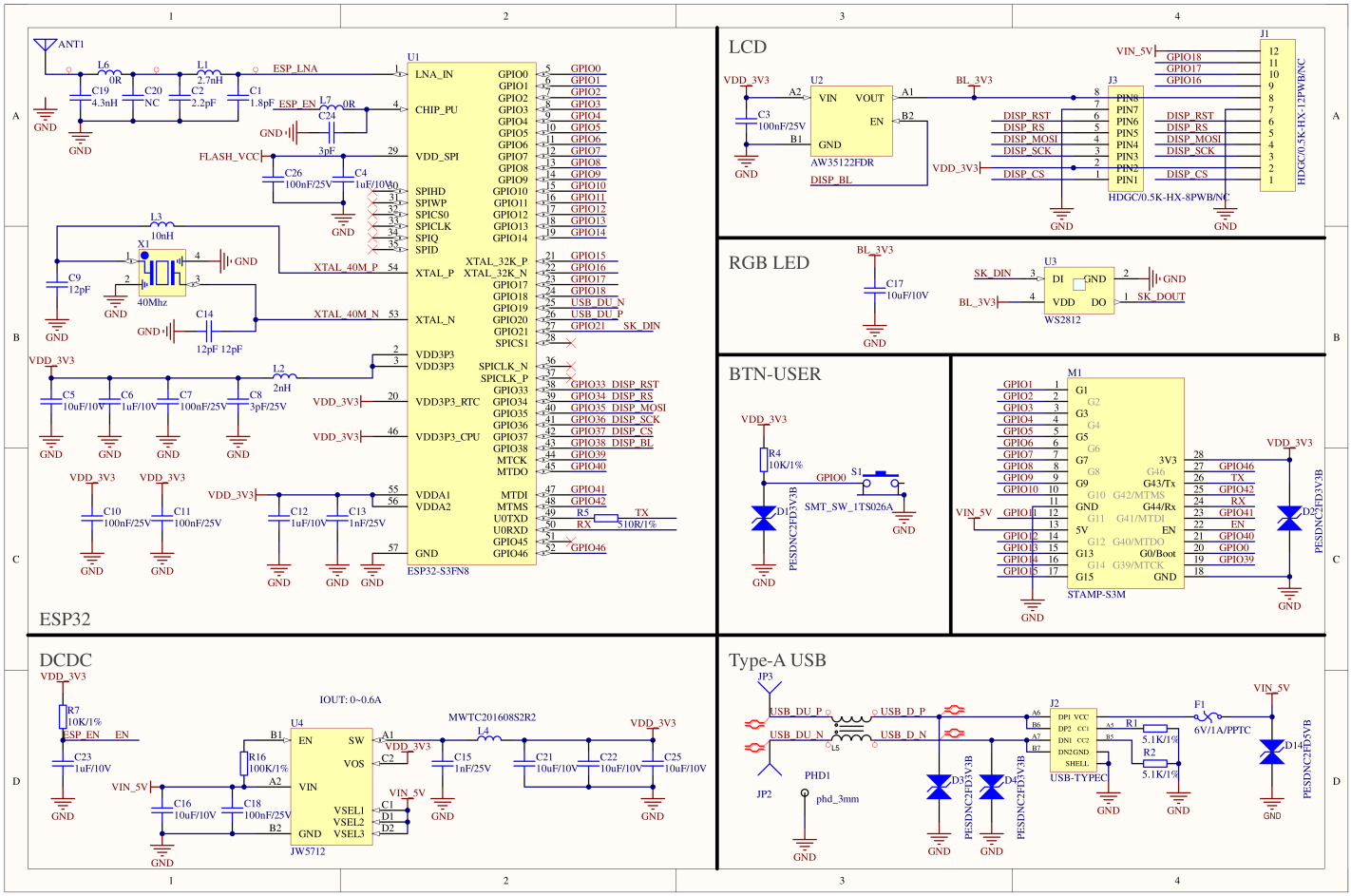
- Cardputer-Adv Schematics PDF
- Stamp-S3A Schematics PDF


R1 0.8Ω
U1 TP4057
C1 10uF
C6 10uF
R5 3.3KΩ
VBAT_IN
U3 CN809J
Q1 LP3218DT1G
D1 SS34
VBAT_OUT
C2 10uF
R3 1KΩ
D3
R7 100KΩ
R2 0Ω
L1 3015 1.5uH
U2 SY7088
C4 22uF
C5 1uF
R4 75KΩ
C3 22uF
R6 22KΩ
D2 SS34
+5VOUT
Vout=1.2V*(R1/R2+1)
BAT
J1 Header 2
Q2 LP3218DT1G
Q3 LP3218DT1G
C7 100nF
SW1
SW-SPDT
R9 100KΩ
R8 100KΩ
R12 100KΩ
C10 100nF
G10
J8 Header 2
U4 SY8089
L2 3015 4.7uH
C11 100nF
C12 22uF
R11 68KΩ
C8 22uF
C9 100nF
R13 15KΩ
+3.3V
BTN1 SW-PB
D4 PESDNC2FD3V3B
R15 10KΩ
EN
BTN2 SW-PB
D5 PESDNC2FD3V3B
R18 10KΩ
G0
FPC1 FPC-8P-0.5
P1 Header 17
M1 STAMP-S3-DIP-1.27
P2 Header 11
R3 10KΩ
R10 10KΩ
SW2 SW-SPDT
+5VGrove
C14 100nF
D6 PESDNC2FD3V3B
D7 PESDNC2FD3V3B
D8 PESDNC5FD5VB
J2 HY-2.0_IIC
IIC_SCL
IIC_SDA
VCC
GND
J3 TF-015
C18 100nF 0402 10% 16V
D9 PESDNC2FD3V3B
D10 PESDNC2FD3V3B
D11 PESDNC2FD3V3B
D12 PESDNC2FD3V3B
J5
J6
IR1 IR
R14 22R/1%
G44


U9 TCA8418RTWR
7-bit Address 34H
R35 3.3KΩ
R36 3.3KΩ
R37 3.3KΩ
R38 10KΩ
ROW0
ROW1
ROW2
ROW3
ROW4
ROW5
ROW6
COL0
COL1
COL2
COL3
COL4
COL5
COL6
COL7
COL8
COL9
R27 22R/1%
R28 22R/1%
R29 22R/1%
R30 22R/1%
R31 22R/1%
R32 22R/1%
R33 22R/1%
R34 22R/1%
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
S1 SW-PB
S2 SW-PB
S3 SW-PB
S4 SW-PB
S5 SW-PB
S6 SW-PB
S7 SW-PB
S8 SW-PB
S9 SW-PB
S10 SW-PB
S11 SW-PB
S12 SW-PB
S13 SW-PB
S14 SW-PB
S15 SW-PB
S16 SW-PB
S17 SW-PB
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S32 SW-PB
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S38 SW-PB
S39 SW-PB
S40 SW-PB
S41 SW-PB
S42 SW-PB
S43 SW-PB
S44 SW-PB
S45 SW-PB
S46 SW-PB
S47 SW-PB
S48 SW-PB
S49 SW-PB
S50 SW-PB
S51 SW-PB
S52 SW-PB
S53 SW-PB
S54 SW-PB
S55 SW-PB
S56 SW-PB
C21 100nF


+3.3V
R43
3.3KΩ
7-bit Address 69H
U7
SDO
SDX
SCX
INT1
INT2
GNDIO
GND
VDD
VDDIO
CSB
ASDX
ASCX
OSDO
OCSB
BMI270
G8
G9
FB7
120Ω/MB
C25
10uF/10V
C27
100nF
GND
AGND
AVDD
R24
0Ω
R26
U6
ES8311
CCLK
MCLK
PVDD
DVDD
DGND
SCLK/DMIC_SCL
ASDOUT
LRCK
DSDIN
AGND
CE
CDATA
MIC1P/DMIC_SDA
MIC1N
VMID
ADCVREF
DACVREF
OUTN
OUTP
AVDD
EPAD
G41
G46
G43
G42
G40
U8
MSM381A3729H9BPC
MIC
U5
NS4150B
INP
INN
CTRL
BYPASS
VOP
VON
VCC
GND
J4
Header 2
R16
R17
R23
C16
C17
C18
C26
FB1
FB2
FB3
FB
AMP_EN
DAC_P
D3
1N4148WT
R25
R40
R42
1K
C31
2N7002T
PJ-342
AMP_IN
HP_DET


P3
RESET
INT
BUSY
SCK
MOSI
MISO
CS
5VIN
GND
5VOUT
SDA
SCL
GPS-RX
GPS-TX
+5VIN
+5VOUT
GND
HDR-SMD_14P-P2.54



PinMap

LCD

Stamp-S3A	G38	G33	G34	G35	G36	G37
ST7789V2	DISP_BL	RST	RS	DAT	SCK	CS
RGB LED	PWR_EN					

Audio

Stamp-S3A	G8	G9	G41	G46	G43	G42
ES8311	SDA	SCL	SCLK	ASDOUT	LRCK	DSDIN

IMU

Stamp-S3A	G8	G9
BMI270	SDA	SCL

IR

Stamp-S3A	G44
IR TX	TX

Battery

Stamp-S3A	G10
Battery	ADC

Keyboard

Stamp-S3A	G8	G9	G11
TCA8418RTWR	SDA	SCL	INT

microSD

Stamp-S3A	G12	G14	G40	G39
microSD	CS	MOSI	CLK	MISO

HY2.0-4P

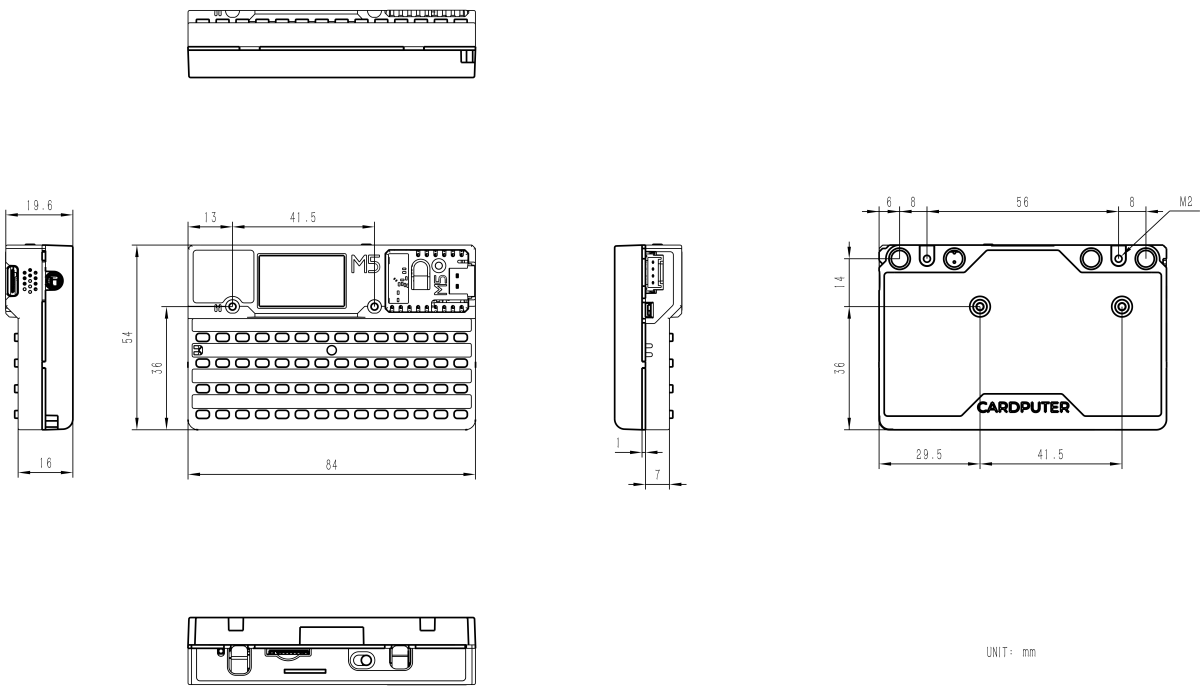
HY2.0-4P	Black	Red	Yellow	White
PORT.CUSTOM	GND	5V	G2	G1

EXT 2.54-14P

FUNC	PIN	LEFT	RIGHT	PIN	FUNC
RESET	G3	1	2	5VIN	
INT	G4	3	4	GND	
BUSY	G6	5	6	5VOUT	
SCK	G40	7	8	G8	I2C_SDA
MOSI	G14	9	10	G9	I2C_SCL
MISO	G39	11	12	G13	UART_TX
CS	G5	13	14	G15	UART_RX

Model Size

- Cardputer-Adv Model Size PDF



Structure

- Cardputer-Adv Structure Files

Softwares

Arduino

- Cardputer-Adv Arduino Quick Start
- Cardputer-Adv Arduino Driver Library

UiFlow2

- Cardputer-Adv UiFlow2 Quick Start

PlatformIO

```
[env:m5stack-cardputer]
platform = espressif32@6.7.0
board = esp32-s3-devkitc-1
framework = arduino
upload_speed = 1500000
build_flags =
    -DESP32S3
```

```
    -DCORE_DEBUG_LEVEL=5
    -DARDUINO_USB_CDC_ON_BOOT=1
    -DARDUINO_USB_MODE=1

lib_deps =
    M5Cardputer=https://github.com/m5stack/M5Cardputer
```

ESP-IDF

- Cardputer-Adv Factory Firmware

Easyloader

Easyloader	Download	Note
Cardputer-Adv Factory Easyloader	download	/

Video

Product Comparison

Product Comparison Item			
	Cardputer-Adv	**Cardputer v1.1**	**Cardputer**
Core Module	Stamp-S3A	Stamp-S3A	Stamp-S3
RGB LED Logic	Shares power with display backlight, optimized control logic	Shares power with display backlight, optimized control logic	Powered directly
Antenna Design	Optimized antenna design for better reception	Optimized antenna design for better reception	Standard antenna
Battery Capacity	1750mAh	120mAh + 1400mAh	120mAh + 1400mAh
Audio Solution	ES8311 + NS4150B	NS4168 + SPM1423	NS4168 + SPM1423
Audio Port	3.5mm audio jack	/	/
IMU	BMI270	/	/
Keyboard IO Exp.	TCA8418RTWR	74HC138	74HC138
Expansion Ports	HY2.0-4P + EXT 2.54-14P	HY2.0-4P	HY2.0-4P
Lanyard Hole	Yes	No	No

To compare information on the Cardputer series products, you can visit the Product Selection Table, check the target products, and get the comparison results. The selection table covers key information such as core parameters and functional features, and supports comparison of multiple products simultaneously.