
YF-023D

Smart Android 11 Board

Catalogue

Chapter1 Product Overview	
1.1 Brief Introduction.....	
1.2 Feature.....	
1.3 Appearance and Interface	
Chapter2 Basic Function	
Chapter3 PCB Dimension and Layout	
3.1 PCB Dimension.....	
3.2 Interface Parameter.....	
Chapter4 Electricity Performance	

Chapter1 Product Overview

1.1 Brief Introduction

YF-023D board adopt RK3566 Android 11 Quad Core with high performance, low consumption, main frequency 1.8GHz.

Embedded 3D GPU makes RK3566, OpenGL ES 1.1/2.0/3.2、 OpenCL 2.0 and Vulkan 1.1 are completely compatible. Built in NPU support 0.8T and INT8/INT16, Support almost all formats of H.264 decoder 4K@60fpsH.265 decoder 4K@60fps, also support H.264/H.265 encoder 1080p@60fps, high-quality JPEG encoder/decoder. Support different LCD driver, Ethernet, WIFI, BT4.1, amplifier etc.

Support mostly popular video and image decoding, double 6/8 bit LVDS,eDP/MIPI support 2K output LCD.

1.2 Feature

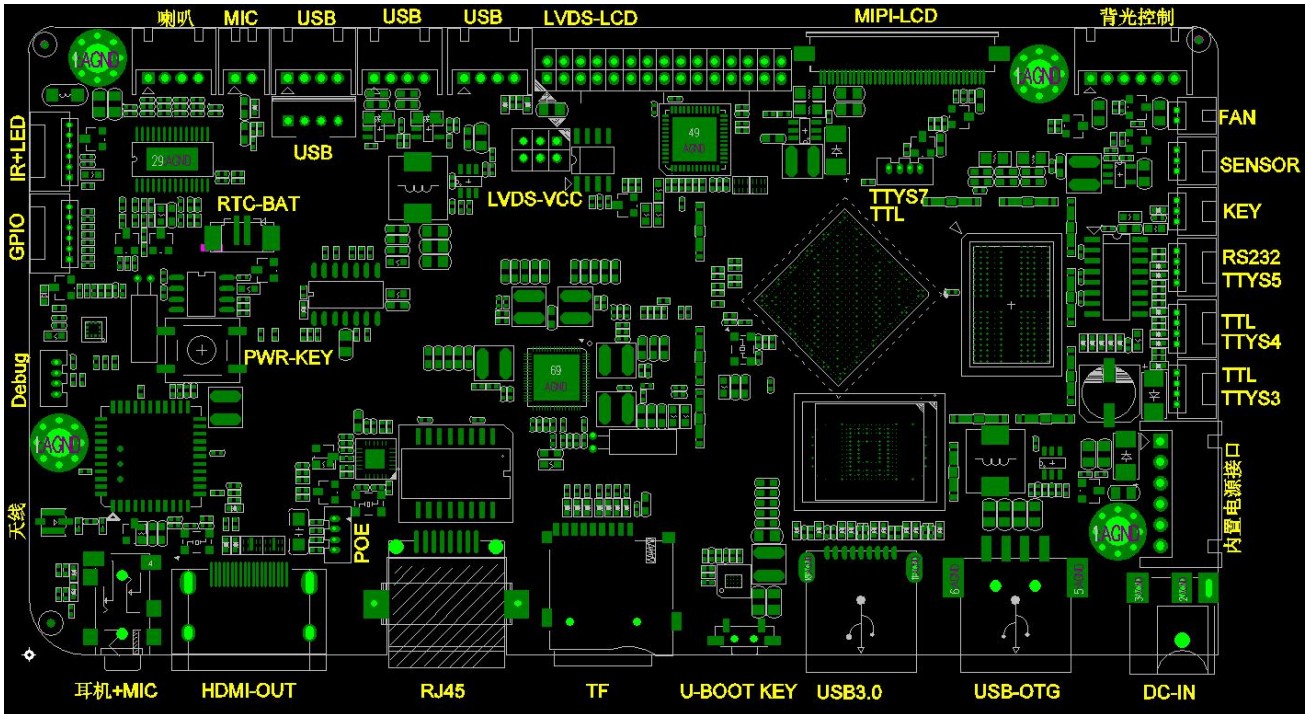
- ◆ USB/LVDS/100M ethernet/WIFI/BT4.1/eDP/SD card /microphone etc.
- ◆ 1080P/H.265(4K2K) video decoding and LVDS/eDP LCD
- ◆ Built in amplifier, support double channel 8R/3W
- ◆ USB(1*USB3.0)/serial port/GPIO/ADC expansion
- ◆ Horizontal/vertical display, video split, scrolling subtitles, timing

switch, USB data import and other functions.

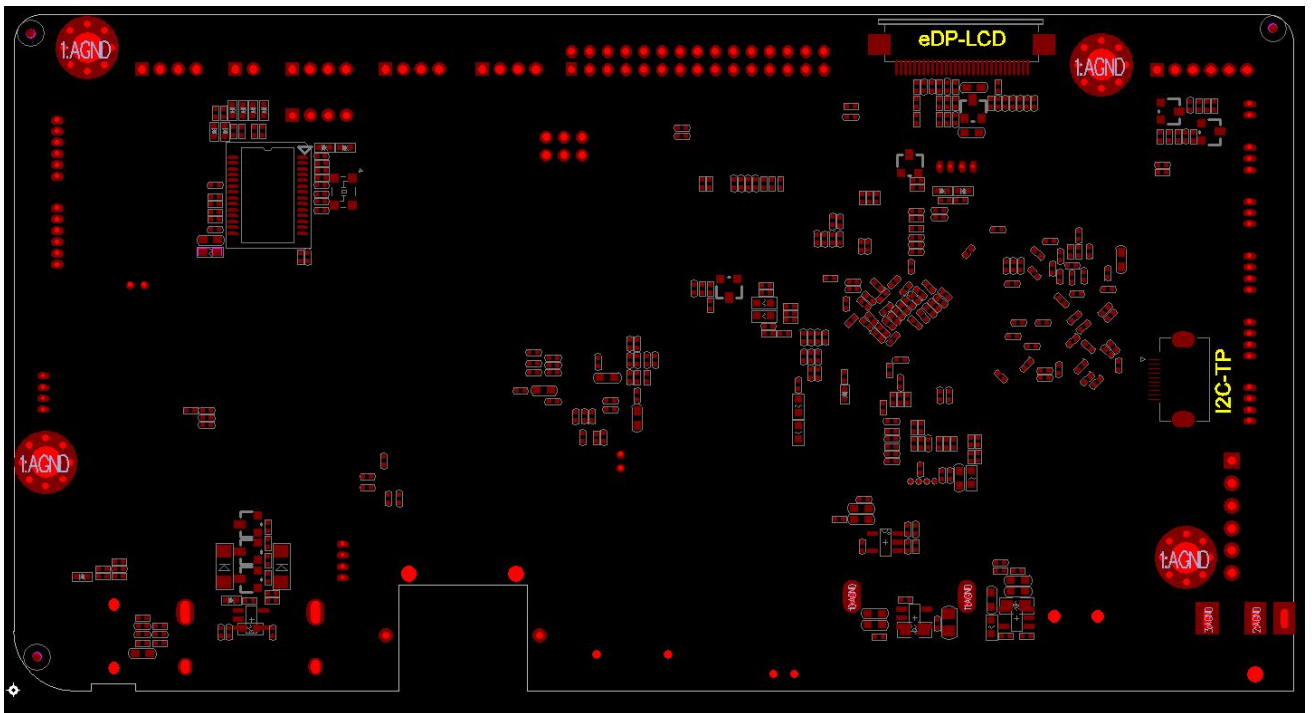
- ◆ playlist making software, good to manage and control

1.3 Appearance and Interface

Front:



Back:



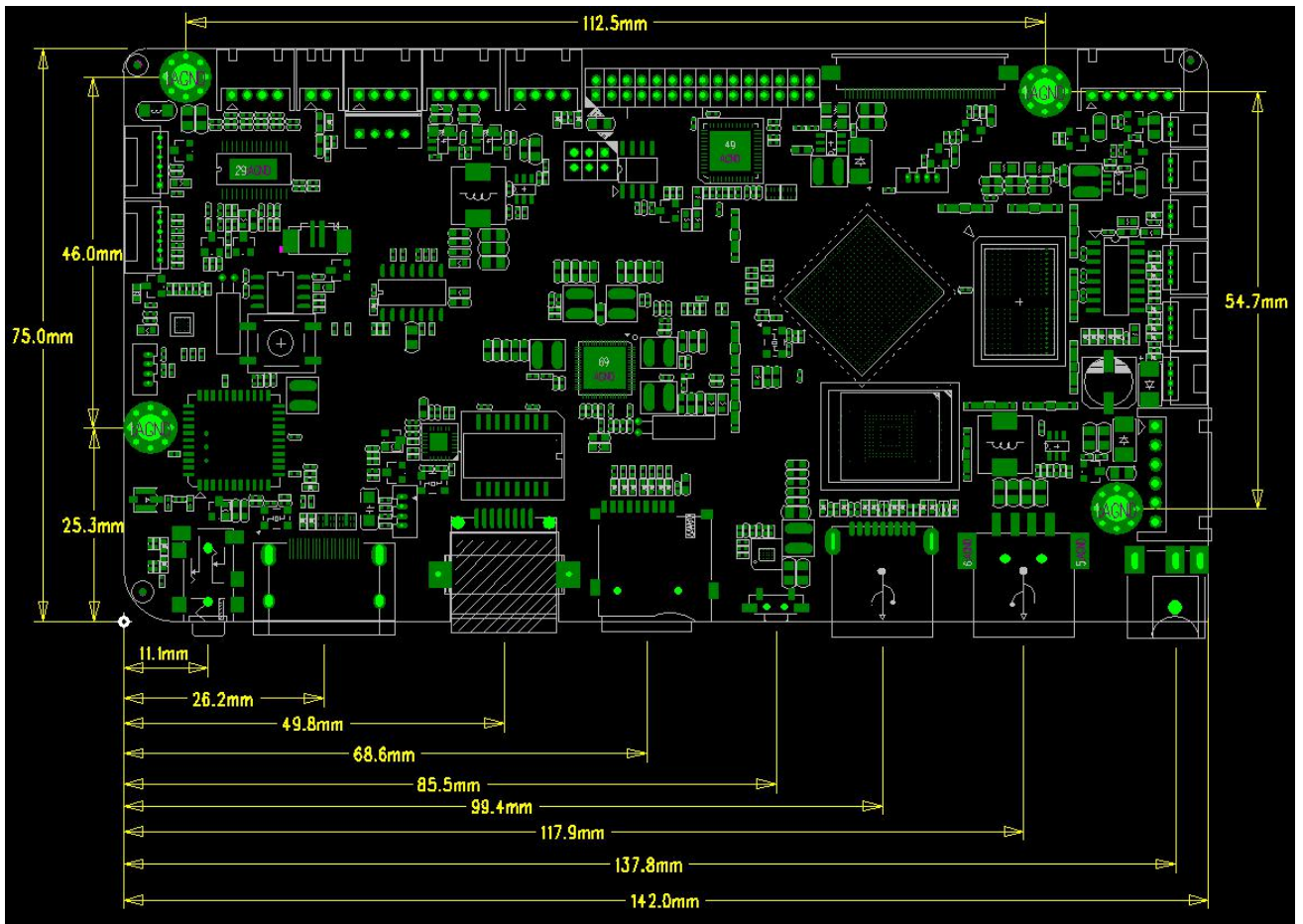
Chapter 2 Basic Function

CPU	Rockchip RK3566UP to1.8GHz;
GPU	Mali-G52-2EE GPU
NPU	NPU support 0.8T and INT8/INT16
Ram	Standard 2G LPDDR4X/LPDDR4
ROM	EMMC16G/32G(optional) standard 16G
Decoding	Support 1080P/H.265(4K2K)
OS	Android11.0
Display mode	Support loop,timing,Interstitial etc.display mode
Network	100M ethernet, support WIFI/BT4.1, wireless external expansion
USB2.0	6*USB HOST, 4*internal USB
USB 3.0	1*standard USB 3.0
Ethernet	1*10M/100M ethernet
HDMI	UP to 3840*2160
EDP	Up to 1920*1200
LVDS	Up to 1920*1080
MIPI	Up to 2560*1440
Audio	Left/right output 8R/3W speaker

RTC	support
Hardware watchdog	support
Timing	support
Serial port	4*TTL, 1*Debug, 1*RS232
System update	TF card/PC
Other functions	TF/USB import LCD parameter

Chapter3 PCB Dimension and Layout

3.1 PCB Dimension



PCB: 6 plates

dimension: 142*75*1.6mm

Screw hole specification: $\phi 3.5\text{mm} \times 4$

3.2 Interface Parameter

1 BAT1 RTC (J2)

Item	definition	property	description
1	RTC	input	3.3V
2	GND	GND	GND

2 LED+IR 6P-1.25(CON14)

Item	definition	property	description
1	LED-R	red	Power off
2	GND	GND	GND
3	LED-G	green	Power on
4	IR-VCC	IR-VCC	IR-VCC
5	GND	GND	GND
6	IR	IR signal	IR signal

3 Touch panel (JP1-10P/0.5mm)

Item	definition	property	description
1	GND	GND	GND
2	GND	GND	GND
3	RST	in/out	reset
4	INT	in/out	interrupt

5	GND	GND	GND
6	SCL	clock	clock
7	SDA	data	data
8	VCC	Power	V3.3
9	GND	GND	GND
10	GND	GND	GND

4 Serial port *3 (CON15/CON16/CON18)TTL

Item	definition	property	description
1	VCC-3.3V	out	3.3V
2	UART-TX	in/out	in/out
3	UART-RX	in/out	in/out
4	GND	GND	GND

5 Serial port (CON20)RS232

Item	definition	property	description
1	VCC-5V	out	5V
2	UART-TX	in/out	in/out
3	UART-RX	in/out	in/out
4	GND	GND	GND

6 Speaker (CON10)

Item	definition	property	description
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1	OUTL+	out	left+
2	OUTL-	out	left-
3	OUTR-	out	right-
4	OUTR+	out	right+

7 MIC(MIC1)

Item	definition	property	description
1	MCIN	in	MIC-
2	MCIP	in	MIC+

8 backlight (CON7)

Item	definition	property	description
1	VCC	power	12V
2	VCC	power	12V
3	BL-EN	out	EN
4	BL-ADJ	out	ADJ
5	GND	GND	GND
6	GND	GND	GND

9 I/O 6P-1.25(CON13)

Item	definition	property	description
1	VCC	power	3.3V
2	I/O	in/out	GPIO-1

3	I/O	in/out	GPIO-2
4	I/O	in/out	GPIO-3
5	I/O	in/out	GPIO-4
6	GND	GND	GND

10I/O 3P-1.25 (CN4)

Item	definition	property	description
1	I/O	in/out	Sensor
2	GND	GND	GND
3	VCC	VCC	+5V

11Key 3P-1.25 (J7)

Item	definition	property	description
1	PWR	Power key	Power key
2	ADKey	ADKey	ADKey
3	GND	GND	GND

◆ USB external expansion(CON2,CON3,CON4,CON5)

Item	definition	property	description
1	USB-5V	out	5V
2	DM	in/out	in/out
3	DP	in/out	in/out

4	GND	GND	GND
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◆ LVDS(CON14)

Item	definition	property	description
1	PVCC	out	+3.3V/+5V/ +12V
2			
3			
4	GND	GND	GND
5			
6			
7	RX00-	out	Pixel0 Negative Data (Odd)
8	RX00+	out	Pixel0 Positive Data (Odd)
9	RX01-	out	Pixel1 Negative Data (Odd)
10	RX01+	out	Pixel1 Positive Data (Odd)
11	RX02-	out	Pixel2 Negative Data (Odd)
12	RX02+	out	Pixel2 Positive Data (Odd)
13	GND	GND	GND
14	GND	GND	GND
15	RXOC-	out	Negative Sampling Clock (Odd)
16	RXOC+	out	Positive Sampling Clock (Odd)

17	RXO3-	out	Pixel3 Negative Data (Odd)
18	RXO3+	out	Pixel3 Positive Data (Odd)
19	RXE0-	out	Pixel0 Negative Data (Even)
20	RXE0+	out	Pixel0 Positive Data (Even)
21	RXE1-	out	Pixel1 Negative Data (Even)
22	RXE1+	out	Pixel1 Positive Data (Even)
23	RXE2-	out	Pixel2 Negative Data (Even)
24	RXE2+	out	Pixel2 Positive Data (Even)
25	GND	GND	GND
26	GND	GND	GND
27	RXEC-	out	Negative Sampling Clock (Even)
28	RXEC+	out	Positive Sampling Clock (Even)
29	RXE3-	out	Pixel3 Negative Data (Even)
30	RXE3+	out	Pixel3 Positive Data (Even)

◆ **MIPI (CN2)**

Pin	Symbol	Function
1	NC	No connection
2	VDD	Power supply VDDIN=3.3V
3	VDD	Power supply VDDIN=3.3V
4	GND	Groud

5	RESET	Global reset signal(3.3)
6	NC	No connection
7	GND	Groud
8	D0N	0- MIPI Differential data
9	D0P	0+MIPI Differential data
10	GND	Groud
11	D1N	1- MIPI Differential data
12	D1P	1+MIPI Differential data
13	GND	Groud
14	CLKN	-MIPI Differential clock data
15	CLKP	+MIPI Differential clock data
16	GND	Groud
17	D2N	2- MIPI Differential data
18	D2P	2+MIPI Differential data
19	GND	Groud
20	D3N	3- MIPI Differential data
21	D3P	3+MIPI Differential data
22	GND	Groud
23	NC	No connection
24	NC	No connection
25	GND	Groud

26	NC	No connection
27	NC	No connection
28	NC	No connection
29	NC	No connection
30	GND	Groud
31	LED-	LED Cathode
32	LED-	LED Cathode
33	NC	No connection
34	NC	No connection
35	NC	No connection
36	NC	No connection
37	NC	No connection
38	NC	No connection
39	LED+	LED Anode
40	LED+	LED Anode

◆ eDP (CN3)

Pin	Symbol	Function
1	APS_EN	APS on/off or No connection (optional)
2	H_GND	High Speed Ground
3	Lane1_N	Complement Signal Link Lane 1
4	Lane1_P	True Signal Link Lane 1
5	H_GND	High Speed Ground
6	Lane0_N	Complement Signal Link Lane 0
7	Lane0_P	True Signal Link Lane 0
8	H_GND	High Speed Ground
9	AUX_CH_P	True Signal Auxiliary Channel
10	AUX_CH_N	Complement Signal Auxiliary Channel
11	H_GND	High Speed Ground
12	LCD_VCC	LCD logic and driver power
13	LCD_VCC	LCD logic and driver power
14	LCD_Self_Test	LCD Panel Self-Test Enable
15	LCD_GND	LCD logic and driver ground
16	LCD_GND	LCD logic and driver ground
17	HPD	Hot Plug Detect
18	BL_GND	Backlight Ground
19	BL_GND	Backlight Ground

20	BL_GND	Backlight Ground
21	BL_GND	Backlight Ground
22	BL_ENABLE	Backlight on/off
23	BL_PWM_DIM	System PWM signal input for dimming
24	NC (WPN)	Reserved for the use by LCD manufacturer (WPN)
25	NC	No connection
26	BL_PWR	Backlight power
27	BL_PWR	Backlight power
28	BL_PWR	Backlight power
29	BL_PWR	Backlight power
30	NC	CLR_EN on/off or No connection (optional)

◆ **Other standard interface and functions**

storage	SD	Max 32G
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	USB*2	HOST port support data storage, data import, usb mouse and keyboard, camera, tp etc.,
Ethernet	RJ45	Wire network
HDMI	standard	HDMI max 4K
SD	standard	TF 128G

Item		min	type	max
voltage	voltage	--	12	--
	ripple	--	--	50mV
Power current	Working current	--	250mA	300mA
	Standby current	--	10MA	5mA
	USB power supply current	--	--	500mA
	LCD	--	--	1A
Wokring	Relatively	--	--	80%

environment	humidity			
	temperature	-20°C	--	70°C

Tips: when connect LVDS panel, pls notice to choose correct backlight voltage 3.3V, 5V, 12V,

Usage requirements:

1. Short circuit between bare board and peripherals.
2. in the process of installation and fixation, avoid the problem of

deformation of the bare board due to fixation.

3. When installing the LVDS screen, pay attention to whether the screen voltage and current match. Pay attention to the direction of the first foot of the screen holder.

4. when installing the LVDS screen, pay attention to whether the screen backlight voltage and current are consistent. If the power of the screen backlight is above 20W, whether to use other power boards for power supply.

5. When installing peripherals (USB, IO), pay attention to the IO level and current output of the peripherals.

6. When installing the serial port, pay attention to whether the 232,485 devices are directly connected. Whether the connection of TX and RX is correct.

7. whether the input power is connected to the power input interface, and whether the input power voltage, current, etc. meet the requirements according to the evaluation of the total peripherals.