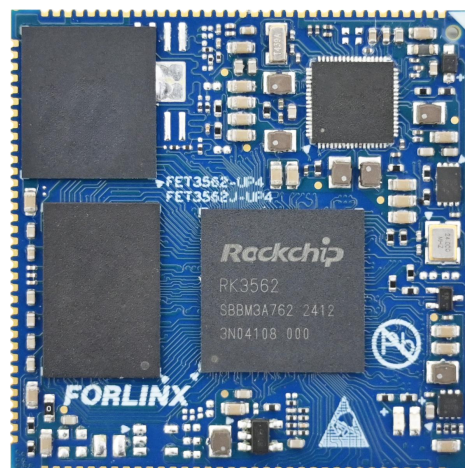


FET3562-UP4/FET3562J-UP4 SoM

The FET3562 - UP4 and FET3562J - UP4 System-on-Modules (SoMs) utilize the Rockchip RK3562 and RK3562J processors, designed for industrial automation and consumer electronics. These processors include four ARM Cortex-A53 cores and an embedded 3D GPU, supporting OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, and Vulkan 1.1. A built-in 2D hardware engine enhances display performance and ensures smooth operation. Board - to - board connection method. The plug - and - play design facilitates the installation and maintenance of products.

It has undergone thorough testing in industrial environments by Forlinx Embedded Laboratory to ensure stability and reliability. 10 to 15 years longevity, ensuring a consistent supply over time.



FET3562J-UP4 SoM

Product Features:

- Supports 38.4 GFLOPs 800MHz GPU Mali-G52
- Built-in 1TOPS NPU, suitable for AI edge computing applications
- H.265 high - definition hardware decoding
- Display interfaces: LVDS, MIPI DSI, RGB
- Rich industrial bus interfaces: PCIe 2.1, USB 3.0, CAN, etc.
- LCC+LGA package (compact size)
- Universal package and is compatible with the UP4 series of SoMs

4 × Cortex-A53 Architecture	2.0GHz Clock	UP4 package Compatibility
ARM-G52-2EE GPU	1TOPS NPU	PCIe, USB3.0 High-speed Interface

SoM Parameters

Processor		Rockchip RK3562J
	ARM:	4×Cortex-A53@1.8GHz
	NPU:	1TOPS INT8, supporting INT4/INT8/INT16/FP16
	GPU:	Mali-G52-2EE, supporting OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.0 and 1.1
	VPU:	Hardware Encoding: H.264, 1920×1080@60fps Hardware Decoding: H.265, VP9, 4096×2304@30fps; H.264, 1920×1080@60fps
RAM		1GB/2GB LPDDR4

ROM	8GB/16GB eMMC
Operating Temperature	-40°C~+85°C
Working Voltage	DC 5V
Connection	LCC + LGA (487 pins, pin center pitch of stamp hole is 1mm, single pin size: 0.7 * 0.6mm, ball pitch of LGA is 1.27 mm, single ball diameter is 0.8mm)

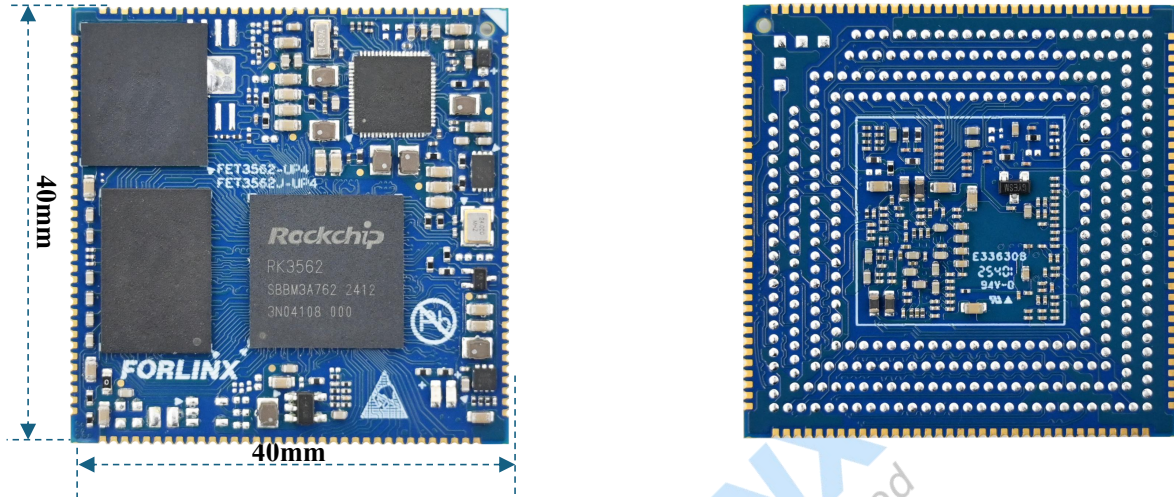
■ SoM Function Parameters:

Function	Maximum Number	Parameter	UP4 defines the number of interface resources	Parameter
USB2.0	1	Supports 1 x USB2.0 HOST, up to 480Mbps.	1	Supports 1 x USB2.0 HOST, up to 480Mbps
UART	≤10	Support flow control, with a maximum baud rate of 4Mbps.	3	A and B channels support flow control, with the maximum baud rate of 4Mbps
SPI	≤3	Support master and slave modes	1	Support master and slave modes
I2C	≤5	Supports standard mode 100kbit/s and fast mode 400kbit/s	3	Supports standard mode 100kbit/s and fast mode 400kbit/s
Ethernet	≤2	Supports one RGMII and one RMII	2	Supports one RGMII and one RMII
PCIe	≤1	PCIe 2.1, can only be used in RC mode, only supports single lane, 5Gbps, and can only be used alternatively with USB3.0 pin multiplexing	/	
USB3.0	≤1	Supports the master-slave mode of USB3.0, and can only be used alternatively with PCIe pin multiplexing.	1	Supports USB3.0 master and slave mode
ADC	≤16	10bits resolution, maximum sampling rate 1MS/s	3	10bits resolution, maximum sampling rate 1MS/s
			1	6-bit sampling resolution, 2KHz sampling rate, used for key detection
LVDS	≤1	Supports VESA/JEIDA LVDS data format with resolution up to 800 X 1280 @ 60Hz;	/	
MIPI-DSI	≤1	Supports 1 x MIPI DSI TX, 4-lanes, resolution up to 2048 X 1080 @ 60Hz;	1	Supports 1 x MIPI DSI TX, 4-lanes, resolution up to 2048 X 1080 @ 60Hz;
RGB	≤1	Supports RGB 888 format, with resolution up to 1280× 800	/	

MIPI-CSI	4	The MIPI _ CSI _ RX0 and the MIPI _ CSI _ RX1 have two ports in total; a single port supports 4-lanes, and the maximum rate of each lane is 2.5Gbps; a single port can also be split into two 2-lanes for use.	4	The MIPI _ CSI _ RX0 and the MIPI _ CSI _ RX1 have two ports in total; a single port supports 4-lanes, and the maximum rate of each lane is 2.5 Gbps; a single port can also be split into two 2-lanes for use.
SD card	1	Compatible with SDIO 3.0 protocol, 4bits data bit width	1	Compatible with SDIO 3.0 protocol, 4bits data bit width
SDIO	≤ 1	Compatible with SDIO 3.0 protocol, 4bits data bit width	1	Compatible with SDIO 3.0 protocol, 4bits data bit width
SAI	≤ 2	Supports protocol I2S, PCM, TDM, sampling rate up to 192kHz	1	Sample rate up to : 192kHz
Audio	1	Built - in codec, which directly outputs audio analog signals with a sampling rate ranging from 48KHz to 192KHz: Mono Speaker, class-D, 1.3 W; Stereo headphone output, 32Ohm load; 2 single-ended MIC inputs;	1	Built - in codec, which directly outputs audio analog signals with a sampling rate ranging from 48KHz to 192KHz: Mono Speaker, class-D, 1.3 W; Stereo headphone output, 32Ohm load; 2 single-ended MIC inputs;
PDM	≤ 1	Up to 8 channels, sampling rate up to 192KHz, master receive mode	/	
SPDIF	≤ 1		/	
CAN	≤ 2	Support CAN2.0 B, data rate 1Mbps	2	Support CAN2.0 B, data rate 1Mbps
PWM	≤ 16		1	

Note: The maximum number of parameters in the table is the theoretical value of hardware design or CPU; The number of interface resources defined by UP4 in the table is the maximum number supported by the UP4 universal package.

■ Appearance & Dimension



Note: PCB thickness is 1.2mm; total height of PCBA is 3.2mm; dimensional tolerance is ± 0.2 mm.

■ Software Support:

OS	Linux 5.10.198+QT5.15
System Flashing Method	•SD card •USB OTG

■ Peripheral Support List:

Linux5.10.198 Drive Support List	Interface	Function	Plan
	SDIO	Wi-Fi/Bluetooth	6221A-SRC
	I2C	RTC chip	PCF8563 and RX8010 chip
	I2C	Capacitive touch	GT928, FT5x06
	MIPI DSI	7-inch capacitive touch screen	FIT-LCD7.0_MIPi V2.1 V3.0, FT5x06 capacitive touch, resolution 1024×600
	MIPI CSI	Camera	OV13855, OV5645, IMX415
	USB	4G module	EC20, Mini PCI-e package
	USB	USB to four serial port	USB-TO-4-UARTS
	PCIe	PCIe NIC	E1000E, RTL8125
	RGMII	Gigabit Ethernet	YT8521SH-CA
	RMII	Dual 100 - Mbps Ethernet	YT8512H

	CAN	General	
	PWM	General	
	ADC	General	
	SPI	General	
	UART	General	
	GPIO	General	

■ Product Documentations List:

Linux5.10 Documentation List	User Manual, Compilation Guide, Linux Kernel Source Code, File System, Factory Image, Development Environment VM Ubuntu Image, FTP Tool, YUV Video Playback Tool, Camera Test Tool, SD Flash Card Creation Tool, USB OTG Flash Tool, Mass Production Programming Tool, Driver Installation Tool, Firmware Flash Tool, Serial Port Driver Installation Tool, QT Test Routine Source Code, Application Notes.
Hardware Documentation List	Hardware Manual, Hardware Design Guide, Pin Function Multiplexing Table, SoM 3D Diagram (STEP), Data Sheet, Carrier Board Schematic Source File (AD Format), Carrier Board PCB Source File (AD Format), Carrier Board Schematic PDF, SoM 2D CAD Diagram, Carrier Board 2D CAD Diagram.

Note: The documentation will be gradually provided and enriched after the product is released.

■ Order Model List:

Specification Model	Core	CPU Main Frequency	RAM	ROM	Operating Temperature	Supply
*FET3562J-UP4+182GSE16GIxx : xx	4×A55	1.8GHz	2GB	16GB	-40~+85°C	Batch
*FET3562J-UP4+184GSE32GIxx : xx	4×A55	1.8GHz	4GB	32GB	-40~+85°C	Batch

■ SoM Naming Rules:

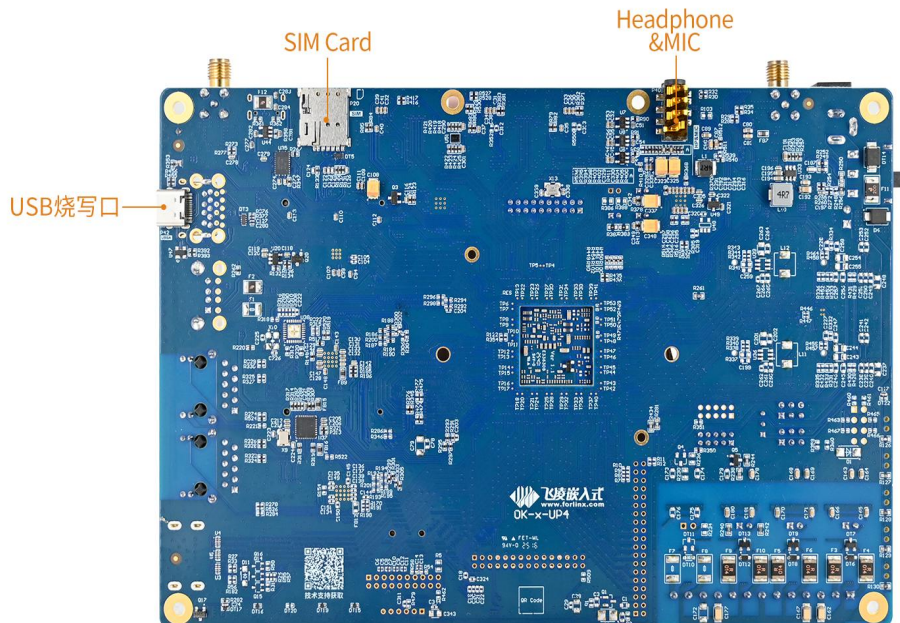
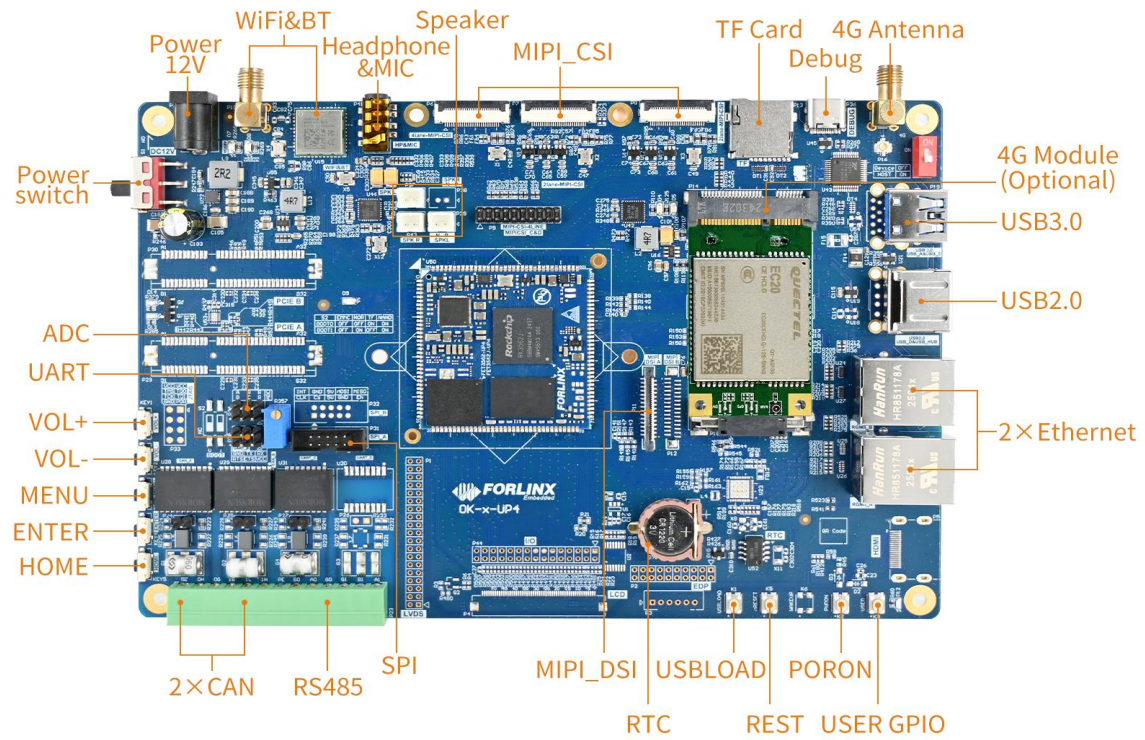
A	-	B	-	C	+	D	E	F	G	H	I	J	:	K	L
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This table describes SoM number terms to define its characteristics (e.g., CPU, frequency, temperature grade, version).

Field	Field Description	Value	Description
A	Product Line Identification	FET	Forlinx Embedded SoM
		FL	Forlinx Embedded All in One Panel
-	Segment Identification	-	
B	CPU Name	3562	RK3562
		3562J	RK3562J
-	Segment Identification	-	

C	Connection	UP4	LCC+LGA general package dimension 40mm×40mm
+	Segment Identification	+	The configuration parameter section follows this identifier.
D	CPU Clock	18	1.8GHz
		20	2.0GHz
E	RAM Capacity (Unit: Byte)	2G	2GB
		4G	4GB
F	Single ROM Type	SE	eMMC
G	Single ROM Capacity (Unit: Byte)	16G	16GB
		32G	32GB
		64G	64GB
H	Operating Temperature	C	0 to 80°C Commercial-grade
		I	-40 to 85°C Industrial-grade
I	Configuration No.	A~Z	If the D ~ H field values of each product are the same, the field values are the same, in ascending order according to the configuration release time
J	PCB Version	10	V1.0
		11	V1.1
		xx	Vx.x
: KL	Internal Identification of the Manufacturer	: xx	This is the internal identification of the manufacturer and has no impact on the use.

Development Board:



■ Development Board Function Parameters:

Function	Quantity	Parameter
WiFi	1	Single antenna 2.4G & 5GHz Wi-Fi Dual-band 1X1 802.11ac +Bluetooth 4.2
Bluetooth	1	
Audio	2	Mono speaker connector, class-D, 1.3 W; Stereo headphone output, 32 Ohm load; Headphone recording + on-board MIC recording
MIPI-CSI	3	FPC socket is led out, 4lane + 2lane + 2lane, of which 4lane can be connected to 4-to-4 analog camera module
TF Card	1	Support maximum SDR104 rate
4G	1	4G module supporting miniPCIE interface, with USB2.0 communication signal
UART Debug	1	Integrated in a Type-C port that can be connected to a computer for debugging
USB3.0	1	USB _ A can switch master-slave mode, and USB programming can be performed.
USB2.0	1	Led out via USB_HUB
Ethernet	2	Led out via standard RJ45 socket, 1 x Gigabit port and 1 x 100M network port
MIPI-DSI	1	4-lane MIPI-DSI , supports capacitive touch screen and backlight brightness adjustment. The maximum resolution of a single channel is 1920 × 1080@60Hz.
RTC	1	On-board CR1220 battery, keep going when power is off
RS485	1	Electrical isolation
CAN	2	Supports CAN2.0B, electrical isolation
ADC	3	The pin header pin-out functions, which can be connected to a sliding rheostat to collect voltage values.
SPI	1	Two SPI interfaces, which are led out from the simple bull seat and can be connected to the peripheral debugging function.
UART	1	5 x UART, led out through pin headers.
KEY ADC	5	Use 1 x LRADC to export 5 keys.

Note: The parameters in the table are the theoretical values of hardware design or CPU.

■ Power Consumption:

No.	Test Item	SoM Power	Development board power (including SoM)
1	No-load starting peak power consumption	2.06W	3.216W
2	Sleep power consumption	0.0279W	0.672W
3	No-load standby power consumption	0.62W	1.56W
4	USB read and write power	0.775W	2.052W
5	TF read and write power	1.185W	2.124W
6	4G module PING network power consumption	0.695W	2.34W
7	WiFi module PING network power consumption	0.615W	1.488W
8	7-inch MIPI screen video playback power	1.815W	5.256W
9	CPU pressure + memory pressure + eMMC read/write pressure test power	2.115W	2.748W

