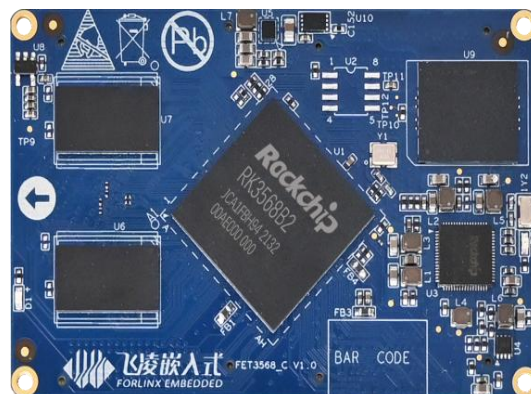


FET3568-C/FET3568J-C SoM

FET3568-C and FET3568J-C/FET3568J-C2 SoMs are developed and designed based on Rockchip RK3568B2 and RK3568J processors respectively, which are high-performance, low-power and feature-rich application processors built by Rockchip for AIoT and industrial markets. Features a quad-core 64-bit Cortex-A55 architecture running at up to 2.0 GHz with a built-in NPU. The SoM enhances the exposure of the processor's functional pins, allowing for evaluation and secondary development. It has undergone thorough environmental, stability, and aging tests to guarantee reliable and stable operation.



Product Features:

- Supports 38.4 GFLOPs 800MHz GPU Mali-G52
- Built-in 1TOPS NPU, suitable for AI edge computing applications
- Integrated Image Signal Processor (ISP), supporting 2 x MIPI-CSI camera interfaces
- Rich high-speed interfaces supported, including 2×USB 3.0, 2×PCIe 3.0, and 3×SATA 3.0
- Multiple display interfaces supported: HDMI (up to 4K output), LVDS, MIPI-DSI, RGB, and eDP, with triple-screen same-display or independent-display capabilities
- Supports dual gigabit ethernet

FET3568-C SoM

4×A55 CPU	Up to 2.0GHz Clock	1TOPS NPU
Mali-G52-2EE GPU	22nm Manufacturing Process Technology	64bits Processor

SoM Basic Parameters:

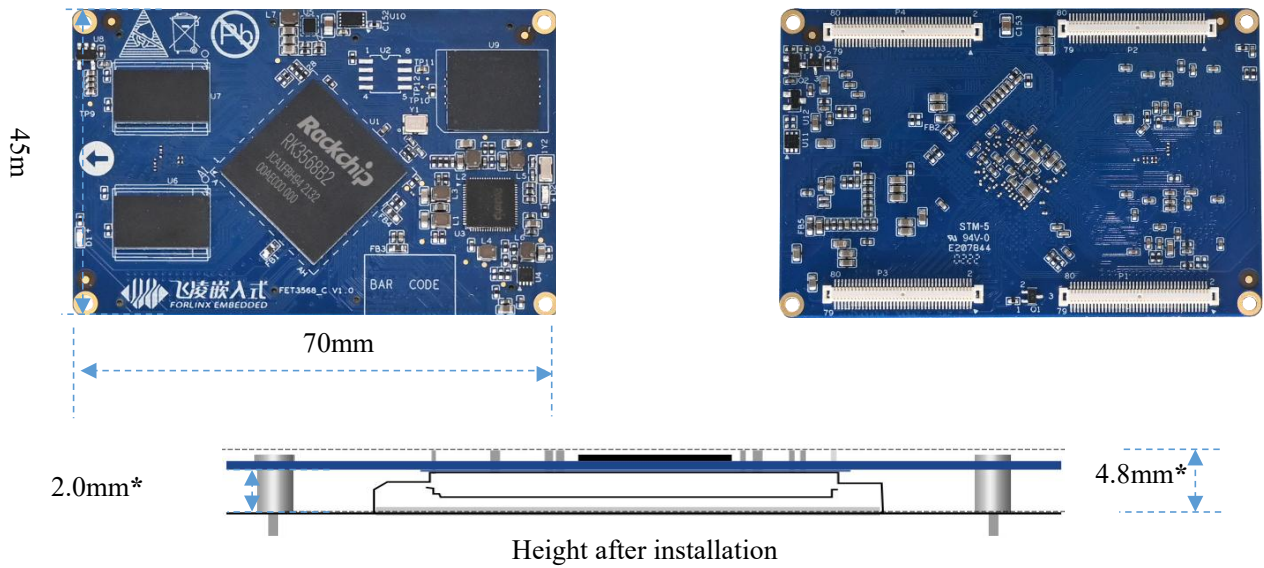
Processor	Rockchip RK3568B2 / RK3568J CPU: Quad-coreCortex-A55@2.0GHz / 1.8GHz NPU: 1TOPS, supports INT8/INT16/FP16/BFP16 mixing operation GPU: Mali-G52-2EE; OpenGL ES 1.1, 2.0, 3.2、 Vulkan 1.0,1.1、 OpenCL 2.0 VPU: Hardware Decoding: - H.264, H.265, VP9: up to 4096x2304@60fps - VP8: up to 1920x1088@60fps - VC1, MPEG-4, MPEG-2, MPEG-1: up to 1920x1088@60fps - H.263: up to 720x576@60fps Hardware Coding: - H.264/AVC, H.265/HEVC: up to 1920×1080@60fps	
RAM	FET3568-C/FET3568J-C: 1GB/2GB/4GB DDR4	FET3568J-C2: 4GB/8GB LPDDR4X
ROM	FET3568-C/FET3568J-C: 8GB/16GB/32GB eMMC	FET3568J-C2: 32GB/64GB eMMC
Operating Voltage	DC 5V	
Operating Temperature	FET3568-C: 0°C ~ +80°C	FET3568J-C/FET3568J-C: -40°C ~ +85°C
Connection	Board-to-board connector (4 × 80Pin, pin pitch 0.5mm, combined height 2.0mm)	

■ SoM Function Parameters:

Function	Quantity	Parameter
MIPI-DSI	2	2 x 4 - lane MIPI display serial interfaces, supporting the MIPI V1.2 version The maximum resolution of a single channel is 1920×1080@60Hz, and the maximum resolution of dual channels is 2560×1600@60Hz. The MIPI DSI TX0 is multiplexed with the LVDS TX PHY.
HDMI	1	Supports HDMI 2.0 with resolutions up to 1080p @ 120Hz or 4096 × 2304 @ 60Hz
LVDS	1	Single channel (4 lanes) supports 1280 × 800 @ 60Hz, multiplexed with MIPI DSI TX0 pin
eDP	1	1 x 4-lane eDP display interface, supporting eDP V1.3 version Maximum resolution 2560 × 1600 @ 60Hz
RGB	1	Supports RGB 888, maximum resolution 1280 * 800
Camera	2	Support 1 x DVP, 1 x 4 Lanes MIPI-CSI
Audio	≤4	1×8ch I2S/TDM, 2×2ch I2S, 1×8ch PDM
SDIO	≤2	SDIO 3.0 with up to 104MB/S data throughput
Ethernet	≤2	2 x GMAC, providing RGMII/RMII interface lead-out
USB 2.0	2	USB 2.0 Host, independent port, not multiplexed with USB 3.0
USB 3.0	2	1× USB 3.0 Host (operable independently as USB 2.0 Host); 1× USB 3.0 OTG (operable independently as USB 2.0 OTG)
SATA	≤3	SATA 3.0 up to 6.0 Gb/s with eSATA support
PCIe2.1	≤1	PCIe 2.1×1, up to 5.0Gbps, RC mode
PCIe3.0	≤2	PCIe 3.0, 1×2Lanes or 2×1Lane, up to 8.0Gbps per lane 1Lane supports only Root Complex (RC) mode; 2 lanes support both Root Complex (RC) and End Point (EP) modes
UART	≤10	Up to 4Mbps
CAN	≤3	Supports CAN2.0 B up to 1Mbps
SPI	≤4	Support master & slave mode, with configurable software
I2C	≤5	Supports 7bits and 10bits address modes up to 1 Mbit/s
PWM	≤16	32bits timer/counter
FSPI	≤1	Supports serial NOR Flash/NAND Flash and Boot

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

■ Appearance & Dimension :



Note: The * dimensional tolerance is $\pm 0.2\text{mm}$.

■ Software Support:

OS	Linux5.10.160+Qt5.15.8, Android11, Forlinx Desktop20.04 (based on Ubuntu20.04 file system) , Debian11, AMP (based on Linux4.19.232+Qt5.15.8), OpenHarmony4.1 (based on Linux5.10.184)			
OS Adaption	Product	RAM	ROM	OS
	FET3568-C	1GB	8GB	Linux5.10.160, AMP, OpenHarmony4.1*
		2GB	16GB	Linux5.10.160, Android11, Forlinx Desktop20.04, Debian11, AMP, OpenHarmony4.1
		2GB	32GB	Linux5.10.160, Android11, Forlinx Desktop20.04, Debian11, AMP, OpenHarmony4.1*
		4GB	32GB	OpenHarmony4.1*
	FET3568J-C	1GB	8GB	Linux5.10.160, AMP, OpenHarmony4.1*
		2GB	16GB	Linux5.10.160, Android11, Forlinx Desktop20.04, Debian11, AMP, OpenHarmony4.1
		2GB	16GB	OpenHarmony4.1
		4GB	32GB	Linux5.10.160, Android11, Forlinx Desktop20.04, Debian11, AMP, OpenHarmony4.1*
	FET3568J-C2	4GB	32GB	Linux5.10.160, Android11, Forlinx Desktop20.04*, Debian11*, AMP*, OpenHarmony4.1*
		8GB	64GB	
	Note: Items marked with * indicate ongoing adaptation.			
System Flashing Method	SD card, USB OTG			

■ Peripheral Support List:

Linux5.10.160 Drive Support List	Interface	Function	Plan
	IIC	Capacitive touch	FT5x06
	IIC	Capacitive touch	GT928
	IIC	RTC	PCF8563T
	SDIO	Wi-Fi	AW-CM358SM
	UART	BT	
	USB	UVC camera	Logitech C270
	USB	4G	Quectel EM05-CE R2.0 (driver compatible with EC20-CEHDLG)
	USB	5G	Quectel RM500U
	USB	USB to four serial port	XR21V1414
	MIPI-CSI	Camera	OV13850
	PCIe	Gigabit Ethernet	FIT-RTL8111F_PCIE_V1.0
	MIPI-DSI	7-inch LCD	FT5x06d capacitive touch, 1024 × 600 resolution
	LVDS	10.1-inch LCD	FIT_LVDS10.1C_V2.0, GT928 capacitive touch,
	eDP	12.5-inch LCD	BOE NV125FHM-N82, 1920×1080 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	PWM	LCD Backlight	General
	UART	General	General
	SPI	General	General
	GPIO	General	General

AMP (Based on Linux4.19.232) Drive Support List	Interface	Function	Plan
	IIC	Capacitive touch	FT5x06
	IIC	Capacitive touch	GT928
	IIC	RTC	PCF8563T
	SDIO	Wi-Fi	AW-CM358SM
	UART	BT	
	USB	UVC camera	Logitech C270
	USB	4G	Quectel EM05-CE R2.0 (driver compatible with EC20-CEHDLG)
	USB	5G	Quectel RM500U
	MIPI-CSI	Camera	OV13850
	PCIe	Gigabit Ethernet	FIT-RTL8111F_PCIE_V1.0
	MIPI-DSI	7-inch LCD	FT5x06d capacitive touch, 1024 × 600 resolution
	LVDS	10.1-inch LCD	FIT_LVDS10.1C_V2.0, GT928 capacitive touch,
	eDP	12.5-inch LCD	BOE NV125FHM-N82, 1920×1080 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	PWM	LCD Backlight	General
	UART	General	General
	SPI	General	General
	GPIO	General	General
Android11 Drive Support List	Interface	Function	Plan
	IIC	Capacitive touch	FT5x06
	IIC	Capacitive touch	GT928
	IIC	RTC	PCF8563T
	SDIO	Wi-Fi	AW-CM358SM
	UART	BT	
	USB	UVC camera	Logitech C270
	USB	4G	Quectel EM05-CE R2.0 (driver compatible with EC20-CEHDLG)
	USB	5G	Quectel RM500U
	MIPI-CSI	Camera	OV13850
	MIPI-DSI	7-inch LCD	FT5x06d capacitive touch, 1024 × 600 resolution
	LVDS	10.1-inch LCD	FIT_LVDS10.1C_V2.0, GT928 capacitive touch,
	eDP	12.5-inch LCD	BOE NV125FHM-N82, 1920×1080 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	PWM	LCD Backlight	General
	UART	General	General
	SPI	General	General
	GPIO	General	General

Forlinx Desktop20.04 Drive Support List	Interface	Function	Plan
	IIC	Capacitive touch	FT5x06
	IIC	Capacitive touch	GT928
	IIC	RTC	PCF8563T
	SDIO	Wi-Fi	AW-CM358SM
	UART	BT	
	USB	UVC camera	Logitech C270
	MIPI-DSI	7-inch LCD	FT5x06d capacitive touch, 1024 × 600 resolution
	LVDS	10.1-inch LCD	FIT_LVDS10.1C_V2.0, GT928 capacitive touch, 1280×800 resolution
	eDP	12.5-inch LCD	BOE NV125FHM-N82, 1920×1080 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	PWM	LCD Backlight	General
	UART	General	General
	SPI	General	General
	GPIO	General	General
Debian11 Drive Support List	Interface	Function	Plan
	SDIO	Wi-Fi	AW-CM358SM
	UART	BT	
	USB	UVC camera	Logitech C270
	MIPI	MIPI camera	OV13850
	IIC	RTC	PCF8563T
	MIPI	7-inch LCD	FT5x06d capacitive touch, 1024 × 600 resolution
	LVDS	10.1-inch LCD	GT928 capacitive touch, 1280×800 resolution
	eDP	12.5-inch LCD	BOE NV125FHM-N82, 1920×1080 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	PWM	LCD Backlight	General
	UART	General	General
	SPI	General	General
	GPIO	General	General
OpenHarmony4.1 Drive Support List	Interface	Function	Plan
	SDIO	Wi-Fi	AW-CM358SM, supports 2.4G/5G
	LVDS	10.1-inch LCD	GT928 capacitive touch, 1280×800 resolution
	RGMII	Gigabit Ethernet	RTL8211FSI-CG
	UART	General	General
	GPIO	General	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.
AMP 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.
Android11 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.
Forlinx Desktop20.04 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.
Debian11 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
OpenHarmony4.1 Documentation List:	User Manual, Compilation Guide, Linux Kernel Source Code, Factory Image, Development Environment VM Ubuntu Image, FTP Tool, SD Flash Card Creation Tool, USB OTG Flash Tool, 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
FET3568-C+201GSE8GCExx: xx	4×A55	2.0GHz	1GB	8GB	0~+80℃	Batch
FET3568-C+202GSE16GCAxx: xx	4×A55	2.0GHz	2GB	16GB	0~+80℃	Batch
FET3568-C+202GSE32GCFxx: xx	4×A55	2.0GHz	2GB	32GB	0~+80℃	Batch
FET3568-C+204GSE32GCDxx: xx	4×A55	2.0GHz	4GB	32GB	0~+80℃	Batch
FET3568J-C+181GSE8GIDxx: xx	4×A55	1.8GHz	1GB	8GB	-40~+85℃	Batch
FET3568J-C+182GSE16GIBxx: xx	4×A55	1.8GHz	2GB	16GB	-40~+85℃	Batch
* FET3568J-C+182GSE16GIBxx: xx	4×A55	1.8GHz	2GB	16GB	-40~+85℃	Batch
FET3568J-C+184GSE32GICxx: xx	4×A55	1.8GHz	4GB	32GB	-40~+85℃	Batch
* FET3568J-C2+184GSE32GIBxx: xx	4×A55	1.8GHz	4GB	32GB	-40~+85℃	Batch
FET3568J-C2+188GSE64GIAxx: xx	4×A55	1.8GHz	8GB	64GB	-40~+85℃	Batch

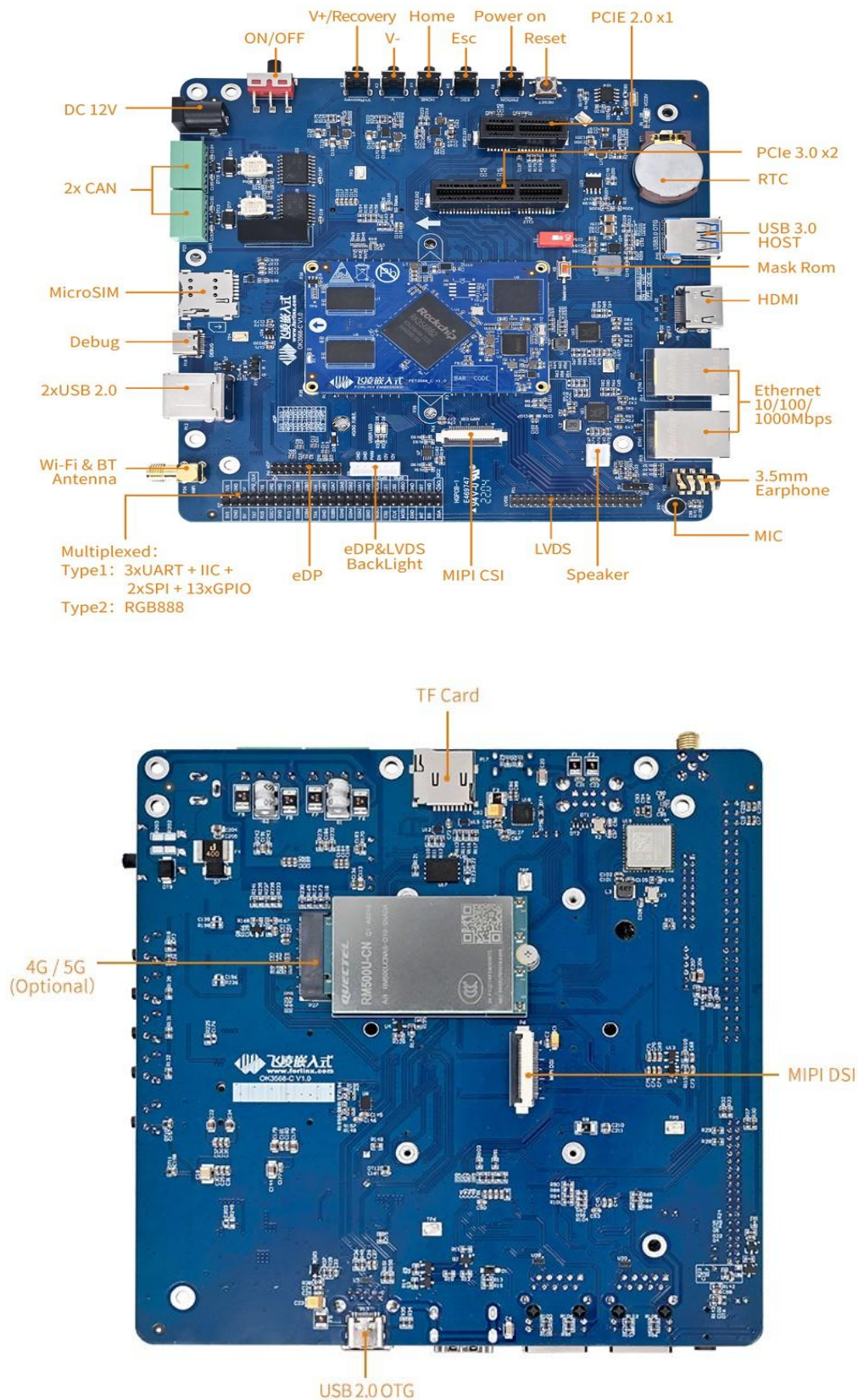
■ SoM Naming Rules:

A
-
B
-
C
+
D
E
F
G
H
I
J
:
K
L

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	3568	RK3568B2
		3568J	RK3568J
-	Segment Identification	-	
C	Connection	C/C2	Board to Board Connector
+	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
		8G	8GB
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
HDMI 2.0	1	Resolutions up to 1080p @ 120Hz or 4096 × 2304 @ 60Hz
eDP	1	Supports eDP 1.3 with resolutions up to 2560 × 1600 @ 60Hz
LVDS	1	Single-channel output, resolution up to 1280 × 800, default fit with 10.1-inch LVDS screen of Forlinx
LCD	1	Supports RGB888 with a resolution of up to 1280×800, multiplexed with SPI0, SPI2, UART3, UART4, UART5, and UART7. The development board defaults to the above functions, and can be switched to RGB functionality by modifying the software settings.
MIPI-DSI	1	Single-channel output with a resolution of up to 1920×1080@60Hz, and by default, it is adapted to the Forlinx 7-inch MIPI screen (with a resolution of 1024×600).
Camera	1	MIPI-CSI, adapted to OV13850
Audio	1	1 x stereo headphone output, 1 x 1.3W Class-D amplifier output, and 1 x MIC input.
TF Card	1	Supports extended storage and system flashing
Ethernet	2	2 x 10/100/1000Mbps adaptive network port, RJ45 lead-out
4G/5G	1	M.2 Key-B, including USB 3.0/2.0 interface, can be used to expand 4G/5G modules Adapted to EM05-CE (4G, driver compatible with EC20), RM500U-CN (5G) driver
Wi-Fi	1	On-board AW-CM358SM, 2.4G/5G dual-band Wi-Fi, BT5.0
Bluetooth	1	The Wi-Fi function utilizes 1 x SDIO interface, while the BT function occupies 1 x UART interface (Note: Bluetooth audio is not supported).
USB 2.0	2	2 x USB 2.0 Host, Type-A
USB 3.0	1	1 x USB 3.0 Host, Type-A; the USB 2.0 signal is multiplexed with the USB 2.0 download pins, and the function can be switched via the S2 DIP switch.
USB 2.0 OTG	1	The Type-C interface shares USB 2.0 pins with the USB 3.0 HOST, and can operate in device mode for firmware flashing and ADB debugging.
PCIe 2.1	1	Standard PCIe x1 socket; these functional pins can be multiplexed for SATA functionality through software modification.
PCIe 3.0	1	Standard PCIe x4 socket; can be software-configured to operate as 2 x PCIe x1.
UART	3	3.3 V TTL level; routed through 2.54 mm pitch header pin
CAN	2	CAN 2.0, up to 1Mbps; with quarantine and ESD protection
SPI	2	3.3 V TTL level; routed through 2.54 mm pitch header pin
I2C	1	3.3 V TTL level; routed through 2.54 mm pitch header pin
RTC	1	On-board CR2032 battery, keep going when power is off
Key	8	8 keys in total, including Reset, Switch, OTG, Maskrom, VOL +, VOL-, HOME and ESC
Debug	1	Onboard USB to serial port chip, led out by Type-C interface, convenient for notebook computer debugging, default baud rate 115 200
Power	1	DC 12V input
LED	2	User-defined LED light
FSPI	1	Default to empty soldering, and the function is not supported temporarily.

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