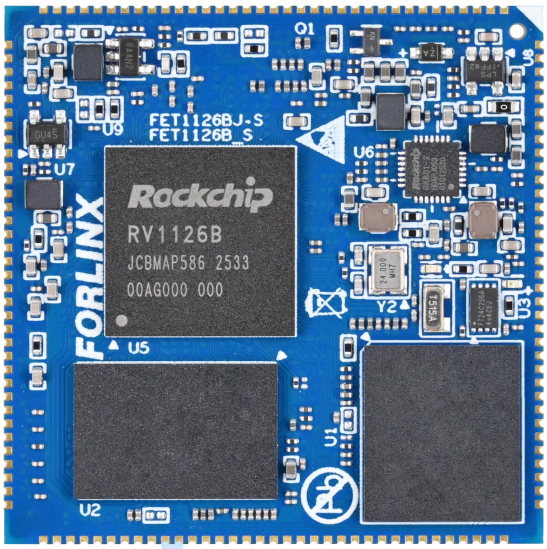
FET1126B-S/FET1126BJ-S SoM

The FET1126B-S/FET1126BJ-S SoM is developed and designed based on the Rockchip RV1126B/RV1126BJ.

It is a low-power, cost-effective application processor specially created by Rockchip for AI computing and processing at the device side and edge side.

It integrates four high - performance ARM Cortex - A53 cores with an AI computing power of 3 TOPS@INT8 and multiple industrial interfaces for edge - side applications, fully meeting AI analysis needs like edge video analysis and target recognition in smart industries, parks and construction sites.

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.



4×A53 CPU	3TOPS AI computing power	40mm×40mm Compact Size
Up to 1.6GHz Clock	RGMII Gigabit Ethernet Port	40PIN Interface Compatible with the interface definition of the Raspberry Pi

Product Features:

- Compact design 40mm×40mm, with all the functional pins of the processor led out;
- 3TOPS computing power, providing NPU routines such as RKNN;
- Display interfaces: MIPI DSI and RGB;
- Rich industrial bus interfaces: RGMII, UART, CANFD, SPI, etc;
- Edge - side AI algorithm routines for testing;
- Wide operating temperature range: -20°C to +85°C / -40°C to +85°C.

SoM Parameters

Processor		Rockchip RV1126B	Rockchip RV1126BJ
	CPU:	4×Cortex-A53, up to 1.6GHz	4×Cortex-A53, up to 1.3GHz
	NPU:	3 TOPS@INT8	
	GPU:	No 3D GPU, only 2D RGA is supported.	
	ISP:	VICAP input: RX raw8/raw10/raw12/raw14/raw16 Maximum input: 12M@30fps	

		Minimum input: 264x264
	AI ISP：	Maximum input: 8M@30fps Maximum resolution: 4096 x4096
	VPU：	**Video Decoder:** ● Supports hardware decoding of H.264 and H.265 ● H.265 HEVC/MVC Main Profile yuv420@L5.0 up to 3840x2160@30fps ● H.264 AVC/MVC Main Profile yuv400/yuv420/yuv422@L5.1 up to 3840x2160@30fps **Video Encoder:** ● Supports HEVC, H.264, JPEG hardware encoding ● Supports parallel encoding (HEVC + JPEG or H.264 + JPEG). ● Up to 12M@ 30fps **JPEG Decoder:** ● Supports image resolutions ranging from 48x48 to 65520x65520 ● Supports YUV400/YUV420/YUV422/YUV440/YUV411/YUV444
RAM	1GB/2GB/4GB LPDDR4	1GB/2GB/4GB LPDDR4
ROM	64GB eMMC	8GB/16GB/32GB eMMC
Operating Temperature	-20℃~+85℃	-40℃~+85℃
Working Voltage	DC 5V	
Connection	Stamp holes + LGA (A total of 237 pins are led out, including 140 pins in the form of stamp holes with a center - to - center pin spacing of 1 mm, and 97 pins in the LGA form with a center - to - center pin spacing of 1.27 mm)	

SoM Function Parameters:

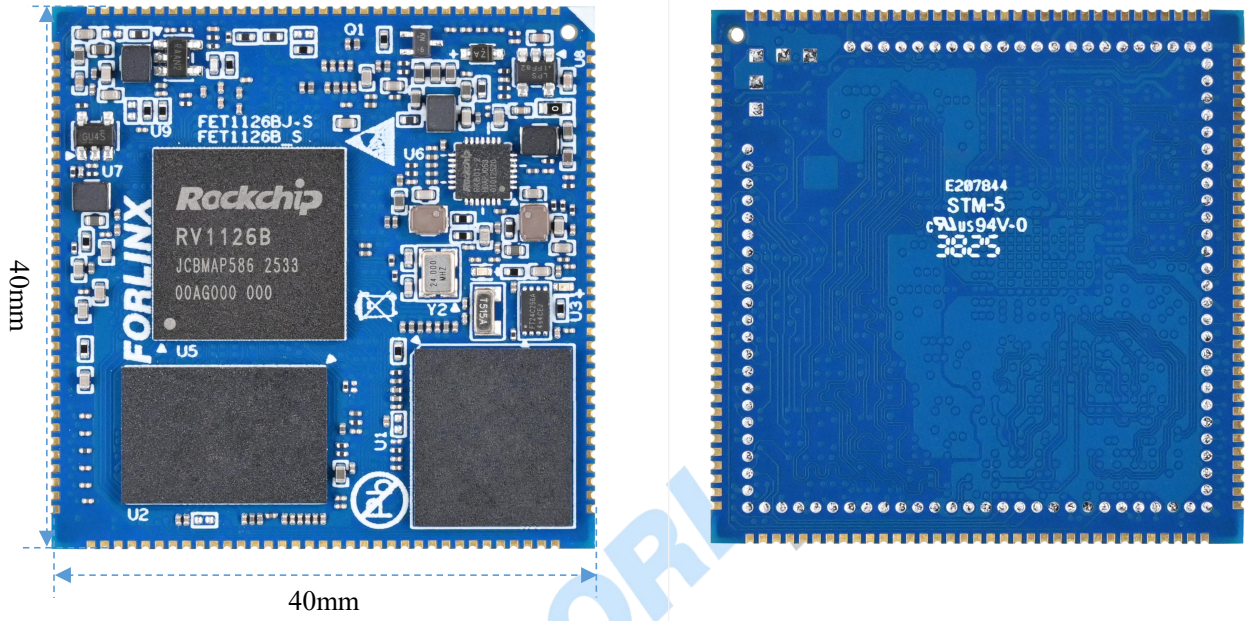
Function	Quantity	Parameter
Display	1	Supports 1 x display output, with a maximum supported resolution of 1920*1080@60fps. Supports multiple display interfaces:

		● RGB：24bit ● MIPI-DSI：4lane，1.5Gbps/lane ● BT.656/BT.1120
MIPI CSI	≤2	Supports 2 x 4lane,2.5Gbps/lane ● Supports 2 x MIPI CSI/LVDS/SubLVDS DPHY ● Each MIPI DPHY V1.2 has 4 lanes, with a data rate of 2.5 Gbps per lane ● Each interface can be configured as a 2x2 data channel port ● Supports virtual channels
DVP	1	Supports 8/10/12/14/16-bit data, with a maximum I/O frequency of up to 150 MHz Supports BT.601/BT.656 and BT.1120 inputs.
Ethernet	1	1 x MAC can be used for either 1 x RGMII interface or 1 x100Mbps interface (the CPU has 1 x built - in 100Mbps PHY)
USB	2	1 x USB2.0 Host 1 x USB 2.0/3.0 DRD
UART	≤8	Maximum supported baud rate is 4Mbps. UART1 - UART7 support automatic flow control
CAN	≤2	Supports CAN2.0 A/B
SDIO 3.0	≤2	1 x TF card interface, supporting high - speed cards; and 1 x SDIO with a 3.3V level
DSMC	≤1	1 x host interface for connecting to an FPGA Supports 4 chip select signals, as well as 8 - wire or 16 - wire serial transmission modes.
FSPI	≤1	Supports startup and 1/2/4 - bit modes
SPI	≤2	Supports both master and slave mode
I2C	≤5	Supports 7bits and 10bits address modes up to 1 Mbit/s
PWM	≤27	Supports up to 27 channels of PWM
ADC	≤24	24 single - ended inputs, 13bit, 2MSPS
SAI	≤3	Supports both master and slave mode

Audio ADC	≤2	2 x differential MIC inputs and 2 x Audio DSM differential outputs
GPIO	≤118	The total quantity excluding the internal use of the SoM

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

Appearance & Dimension:



Note:

- **The PCB thickness is 1.2 mm, 10 - layer gold - plated, and the dimensional tolerance is ±0.13 mm;**
- **The 5 square pads on the back are non - functional pins and do not need to be soldered.**

Software Support:

OS	Linux 6.1.141
Flashing	USB OTG,TF

Product Materials:

Linux6.1 Documentation List:	User's Manual, User's Compilation Manual, Factory Image, Kernel Source Code, Test Program Source Code, File System, Driver Tool, Download Tool, Burning Tool, Development Environment, AI algorithm routines.
Hardware Documentation List	Hardware Manual, Pin Multiplexing Comparison Table, Pin Function Comparison Table, SoM STEP File, Carrier Board STEP File, SoM DXF File, Carrier Board DXF File, Carrier Board PDF Schematic, Carrier Board PCB Source File, Carrier Board Design Data.

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

Order Model List:

Specification Model	Core	CPU Clock	RAM	ROM	Temperature Scope	Supply
FET1126B-S+161GSE 64GExx: xx	4×A53	Up to 1.6GHz	1GB	64GB eMMC*	-20℃~+85℃	Plan
FET1126B-S+162GSE 64GExx: xx	4×A53	Up to 1.6GHz	2GB	64GB eMMC*	-20℃~+85℃	Plan
FET1126B-S+164GSE 64GExx: xx	4×A53	Up to 1.6GHz	4GB	64GB eMMC*	-20℃~+85℃	Mass Production
FET1126BJ-S+131GS E8GIxx: xx	4×A53	Up to 1.3GHz	1GB	8GB eMMC	-40℃~+85℃	Plan
FET1126BJ-S+132GS E16GIxx: xx	4×A53	Up to 1.3GHz	2GB	16GB eMMC	-40℃~+85℃	Mass Production
FET1126BJ-S+134GS E32GIxx: xx	4×A53	Up to 1.3GHz	4GB	32GB eMMC	-40℃~+85℃	Plan

*As the commercial - grade eMMC capacity of each eMMC brand starts from 64GB and eMMCs below 64GB will all be discontinued, the minimum selectable capacity is 64GB.

*The planning and configuration status may change at any time without further notice. If you have any requirements, please contact our sales department for the latest progress.

SoM Naming Rules:

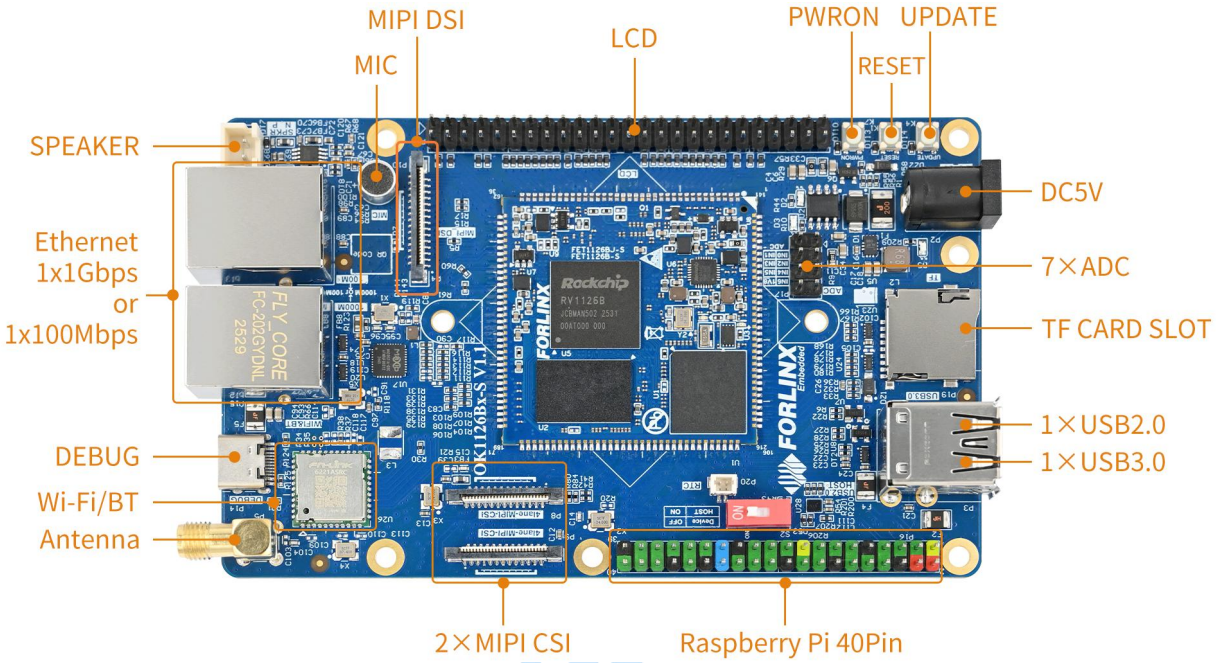
A	B	-	C	+	D	E	F	G	H	I	J	:	K	L

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
B	CPU Name	1126B	RV1126B
		1126BJ	RV1126BJ
-	Segment Identification	-	
C	Connection	S	Stamp hole connection
+	Segment Identification	+	The configuration parameter section follows this identifier.
D	CPU Clock (Max.)	16	1.6GHz
		13	1.3GHz
E	RAM Capacity (Unite：Byte)	512	512MB
		1G	1GB
		2G	2GB
		4G	4GB
F	Single ROM Type	SN	Nand Flash
		SE	eMMC
G	Single ROM Capacity (Unite：Byte)	8G	8GB
		16G	16GB
		32G	32GB
		64G	64GB
H	Operating Temperature	C	0 to 70℃ Commercial-grade
		E	-20 to 85℃
		I	-40 to 85℃ 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
:	Separator	:	This symbol is followed by the internal identification of the manufacturer, which has no effect on the use.

KL	Internal Identification of the Manufacturer	xx	This is the internal identification of the manufacturer and has no impact on the use.

OK1126Bx-S Development Board Interface:



OK1126Bx-S Development Board Parameters:

Function	Quantity	Parameter
LCD	1	Led out via pin headers, supporting capacitive touch screens and backlight brightness adjustment
MIPI DSI	1	4 - lane MIPI DSI interface, supporting capacitive touch screens and backlight brightness adjustment.
MIPI CSI	2	Led out through an FPC connector, with 4 lanes + 4 lanes
UART Debug	1	Integrated into a Type - C port, which can be connected to a computer for debugging
USB2.0	2	1 x USB_HOST interface is led out via a USB connector 1 x USB_OTG interface is led out through a Type - C connector for OTG burning, or combined with USB3.0 and led out via a USB3.0 connector.
USB3.0	1	1 x USB3.0 HOST interface is led out via a USB3.0 connector
Ethernet	1	Standard RJ45 sockets are used for connection. 1 x 100Mbps interface and 1 x 1000Mbps interface. Since the CPU has only one MAC, **only one can be selected at a time, so they cannot be used simultaneously.**
UART	1	UART5 is led out through a 40PIN header
CAN	2	CAN0 and CAN1 are led out through a 40PIN header
IIC	2	I2C3 and I2C4 are led out through a 40PIN header
SPI	1	SPI1 is led out through a 40PIN header

WiFi Bluetooth	1	Single - antenna 2.4G & 5GHz. Wi - Fi Dual - band 1X1 802.11ac + Bluetooth 4.2
ADC	7	7 x ADC are led out through pin headers
RTC	1	An external CR2032 coin-cell battery is used to keep time when powered off.
SPEAKER	1	Output through a power amplifier chip, allowing an external 4Ω - 3.3W speaker to be connected
MIC	2	1 x is connected to the on - board electret microphone, and the other 1 x is not led out
FSPI	1	An external FLASH chip can be connected to support startup
TF Card Slot	1	Supports a TF card with a maximum SDR104 speed
KEY	3	Buttons for CPU reset, power on/off, and startup item selection

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

Power Consumption:

No.	Test Items	SoM Power	Development Board Power (including SoM)
1	Peak power at startup without load	1.69W	2.69W
2	Standby without load	0.505W	1.27W
3	Hibernation	0.39W	0.9W
4	USB read and write	0.59W	1.775W
5	TF card read and write	0.98W	1.835W
6	Network port PING test	0.735W	1.815W
7	Operating with a camera	0.9W	2.26W
8	Operating with a 7 - inch MIPI screen and playing videos	1.025 W	4.15W
9	Operating with a camera, a 7 - inch MIPI screen and playing videos simultaneously	1.34W	4.66W
10	100% CPU utilization	1.51W	2.24W
11	100% memory utilization	1.045W	1.835W
12	eMMC read and write	1.16W	1.93W
13	CPU stress + memory stress + eMMC read - write stress	1.97W	2.635W

Note 1: Test conditions:
The SoM is configured with 4GB LPDDR4+64GB eMMC. The screen is an optional product provided by Forlinx Embedded. The power supplies for both the SoM and the carrier board operate at 5V.
Note 2: The power consumption data is for reference only.

Applications:

It can be widely applied to various edge AI scenarios with strict requirements for real - time performance, reliability, and long - term supply, including intelligent security, smart construction sites, see-through kitchens, etc. With its powerful AI computing power, rich industrial interfaces, and the design of stamp holes + LGA connection,this SoM can help you effectively reduce the development difficulty, shorten the project cycle, and ensure the stable operation of terminal devices in complex environments and long - term reliable supply.