

FET7110-C SoM

FET7110-C system on module is powered by StarFive JH7110 quad-core RISC-V processor running at speed up to 1.5GHz and with advanced GPU performance available for multiple video codec. It supports 2x PCIe2.0, 2x Gigabit Ethernet, 2x CAN2.0, etc. Linux5.15.0 could be well supported, which is preferable for machine vision and other intelligent vision processing related applications.



Highlights:

- RISC-V, open source;
- Quad-core processor up to 1.5GHz;
- Versatile: 2x PCIe2.0, 2x 1GbE, 2x CAN2.0;
- Advanced GPU for multi-media processing;
- Well supported OS Linux5.15.0;
- Dynamic power control

RISC-V	1.5GHz	4
Architecture	Clock	Core Num
Dual Gigabit	600MHz	64-bit
Ethernet	GPU	Processor



Linux5.15.0

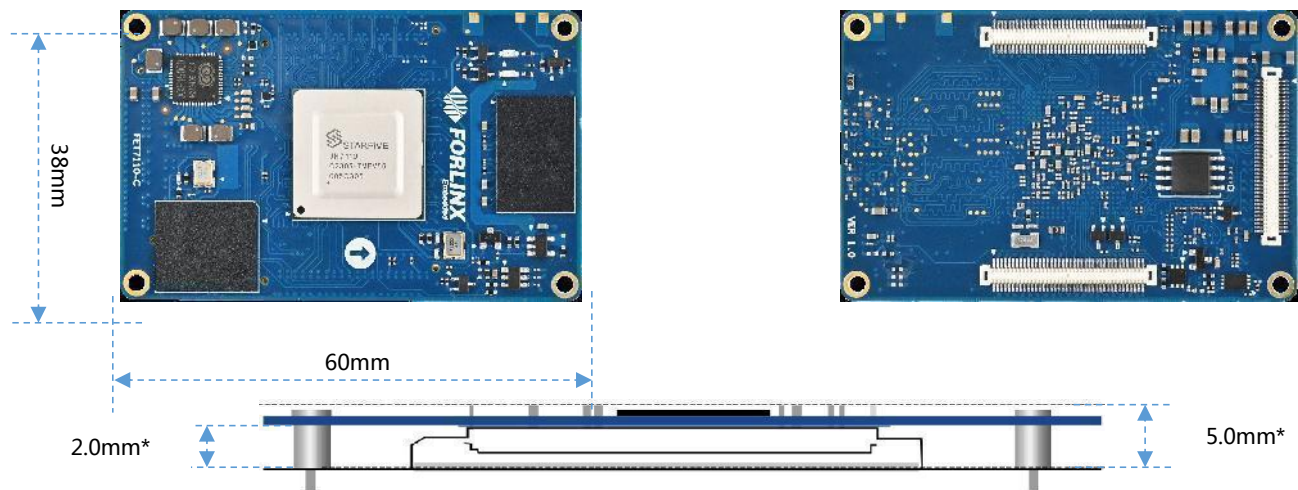
SoM features :

CPU	StarFive JH7110
	CPU: RISC-V, quad-core, up to 1.5GHz
	GPU:
	• IMG BXE-4-32 MC1@600MHz
	• OpenCL 3.0, OpenGL ES 3.2, Vulkan 1.2
VPU:	• Video Decoding: H.265/H.264, 4K@60fps or 1080p@30fps
	• Video Encoding: H.265, 1080p@30fps
RAM	2/4GB LPDDR4
ROM	32GB eMMC
Voltage input	DC 5V
Operating temp	0~ +80°C
Package	Board-to-board connector(3*80-pin, 0.5mm pitch)

SoM specifications:

JH7110	QTY	Spec.
HDMI	1	HDMI2.0, up to 4K@30fps
MIPI-DSI	1	4-lane MIPI DSI, up to 2K@30fps
MIPI-CSI	1	4-lane, works with 1-lane/ 2-lane/ 3-lane/ 4-lane, each lane up to 2.5Gbps
DVP	1	12-bit
Audio	1	8-lane I2S PCM/ TDM Supports MIC and phone, one is for headphone, and the other is for 1W 8Ω mono speaker
SDIO	1	For TF card
Ethernet	2	GMAC, available for RMII/RGMII 10/100/1000 Mbps
PCIe2.0	1	PCIe2.0x1, 2 PCIe2.0 controllers integrated with PHY
USB2.0	1	Master/ slave mode, supports both HS mode and FS mode
USB3.0	1	Multiplexed with PCIe2.0
UART	≤6	Maybe multiplexed with GPIO
CAN2.0B	2	Up to 5Mbps
SPI	≤7	Maybe multiplexed with GPIO
IIC	≤7	Maybe multiplexed with GPIO
PWM	≤8	Maybe multiplexed with GPIO
GPIO	≤64	maximum

Exterior and dimensions:



tolerance $\pm 0.2\text{mm}$

OS:

OS version	Linux5.15.0
Firmware installation	• TF card

Driver list:

	Peripheral	Function	Chipset
Linux5.15	IIC	Capacitive touching	GT911
	IIC	Capacitive touching	GT928
	IIC	Capacitive touching	FT5316
	IIC	RTC	PCF8563T
	IIC	Audio codec	NAU88C22YG
	PCIe	WiFi	RTL8822CE , RTL8862BE
	USB	UVC camera	C270
	USB	4G modem	EM05
	USB	5G modem	RM500Q
	USB	USB HUB	CYUSB3304-68LTXI
	MIPI-DSI	7''	FIT-LCD7.0V2.1 with resolution of 1024x 600
	HDMI	output	1920x 1080
	RGMII	Gigabit Ethernet	YT8521SH
	PWM	LCD backlight	/
	MIPI-CSI	Camera	OV5645

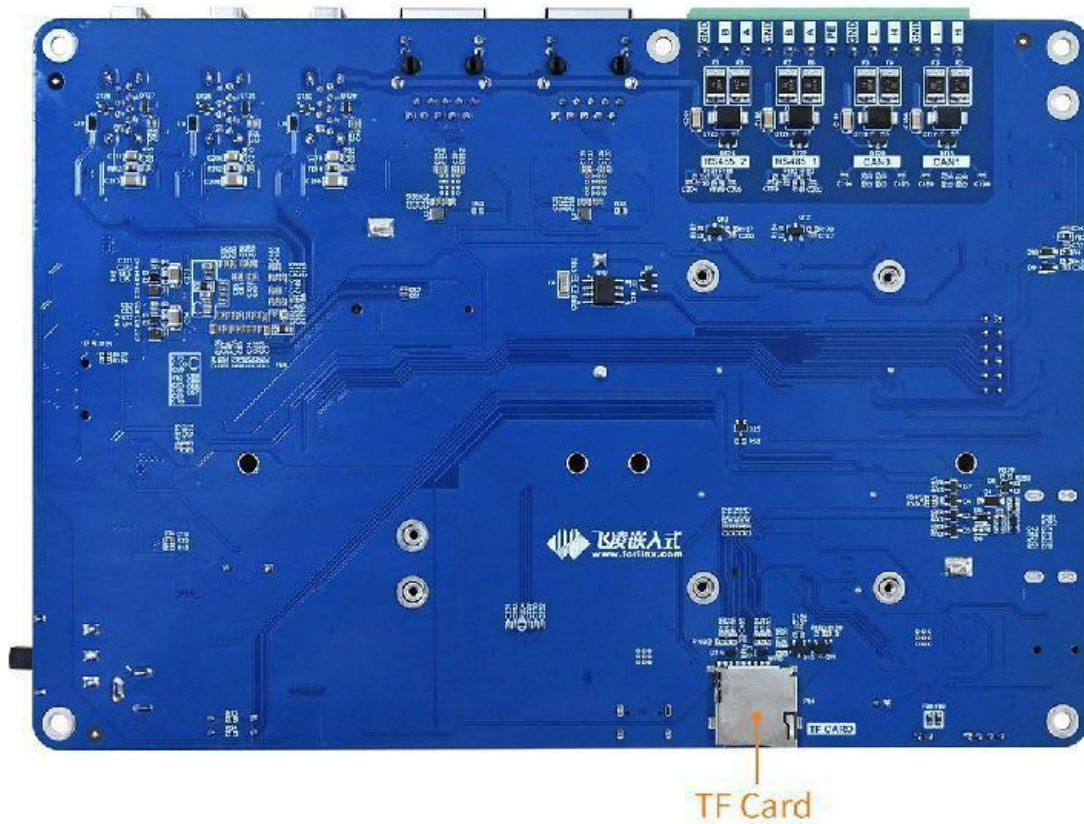
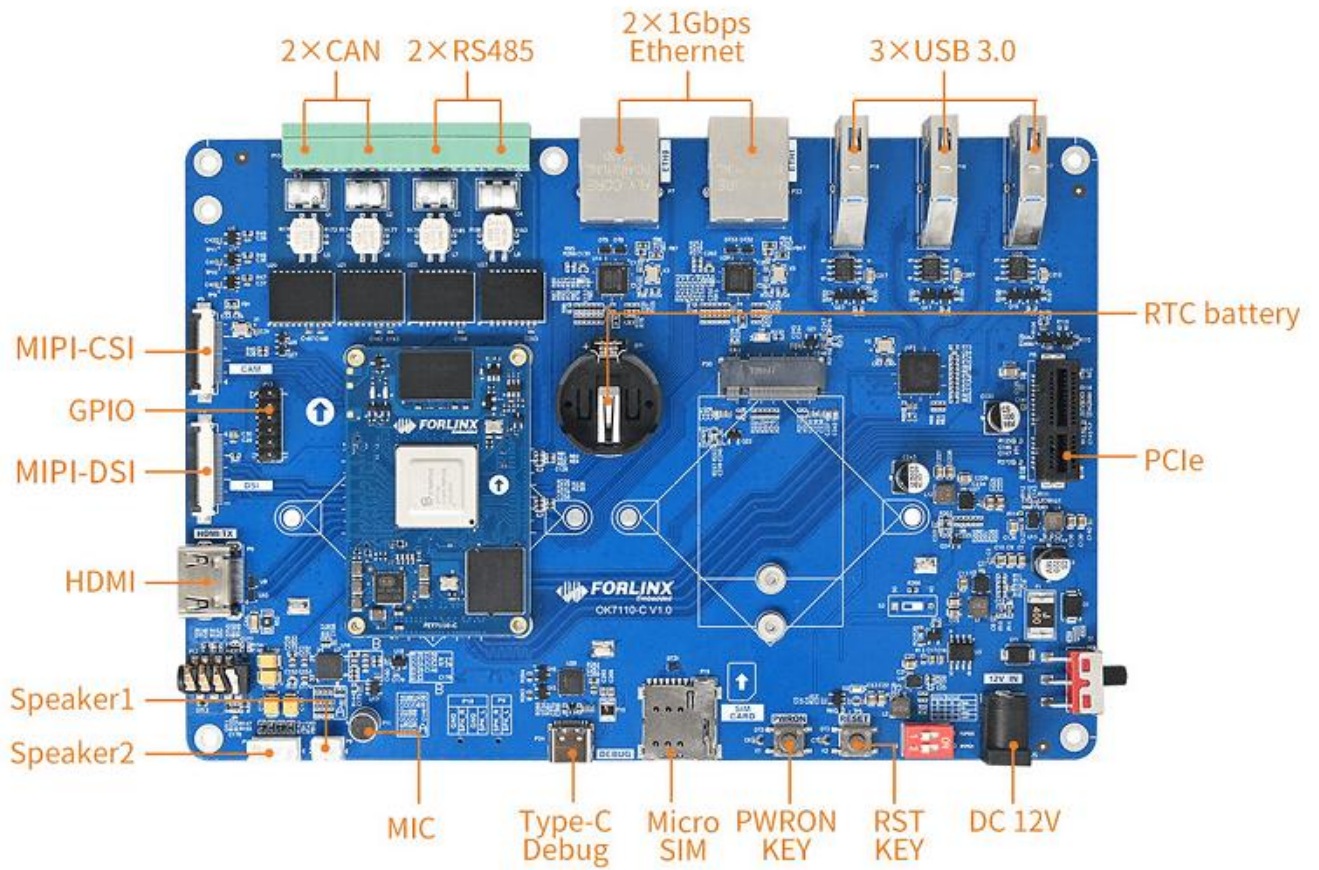
Provided technical files

Linux5.15	User manual, compiling guideline, GIT source, 3P tool and lib, reference files from StarFive, kernel source code, file system, OS image, VM ubuntu image, SD card making tool
Hardware	User manual, carrier board schematic, carrier board PCB(CAD), datasheet, carrier board and SoM DXF files, pinmux sheet

Ordering options:

Model	Core number	CPU speed	RAM	Flash	Working temp	Phase
FET7110-C+152GSE32GCE11:A1	4×RISC-V	1.5GHz	2GB	32GB	0~+80℃	sampling
FET7110-C+154GSE32GCF11:A1	4×RISC-V	1.5GHz	4GB	32GB	0~+80℃	sampling
TBD*	4×RISC-V	1.5GHz	2GB	32GB	-40~85℃	scheduled
TBD*	4×RISC-V	1.5GHz	4GB	32GB	-40~85℃	scheduled

Development board/ kit



Carrier board features

Peripheral	QTY	Spec.
HDMI	1	up to 1080p@30fps
MIPI-DSI	1	4-lane MIPI DSI, fits with Forlinx 7” MIPI-DSI module with resolution of 1024×600
Camera	1	One FPC is available on carrier board for 1x 4-lane MIPI-CSI , supports Forlinx 5.0MP MIPI-CSI module OV5645
Ethernet	2	RJ45, 10/100/1000Mbps adaptive
USB3.0	1	3x USB3.0-A from USB_HUB
PCIe2.0	1	1x PCIe2.0x1 lane slot is available on carrier board
UART	1	Pin headers
UART for debug	1	1x debug converted to USB, it is available on carrier board by Type-C
RS485	2	isolated
CAN2.0	2	isolated
SPI	1	Pin headers with pitch of 2.54mm
Audio	1	Input: 1x MIC, 3.5mm jack; Output: 1x Phone, 1x mono speaker(1W 8Ω)
TF card slot	1	USH-I, up to 104MB/s
4G/ 5G	1	Alternative 4G: M.2 Key B slot, recommended model EM05, EC20/ EC25 5G: M.2 Key B slot, recommended model RM500U-CN, RM500Q-GL Micro-SIM card slot
KEY	2	1x power on/ off, 1x reset
RTC	1	