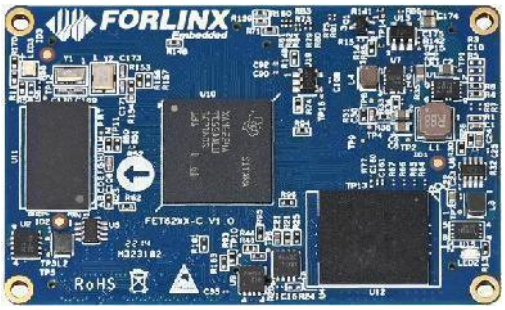
FET62xx-C SoM

The FET62xx-C is a cost efficient and advanced performance System on Module (SoM) based on TI Sitara™ AM62x series industrial grade SoCs powered by ARM Cortex A53 cores with speed up to 1.4GHz. The FET62xx-C SoM is integrated with a wide array of interfaces such as 2-port Gigabit Ethernet, TSN,USB 2.0, MMC/SD, Camera interface, OSPI, CAN-FD . With the pin-to-pin compatibility for single-core AM6251, dual-core AM6252 and quad-core AM6254, the FET62xx-C SoM is an ideal solution for designers to short time-to-market, and could be used in a wide range of industrial applications, such as Human Machine Interfaces (HMI), Industrial computer, Edge computing, Retail automation, Telematics Control Unit (TCU), 3D Re-configurable automotive instrument cluster, Medical equipment.



4x A53	1.4GHz	8G FLOPS
Architecture	Clock	GPU
TSN	16nmFF	64-bit
Ethernet	Technology	Processor

Features:

- 10~15 years lifespan;
- Cortex-A53+Cortex-M4F, more secure;
- Support IEEE1588 PTP(Precision Time Protocol);
- 2x 1000Mbps Ethernet(GMAC), support TSN;
- Supports RGB 888, LVDS, up to 1920 x 1200@60fps。

Linux5.10

■ SoM features :

CPU	TI AM62x **MPU:** Cortex-A53 @1.4GHz **MCU:** Cortex-M4F @400 MHz **GPU:** •AXE1-16M@500MHz •OpenGL 3.x/2.0/1.1 + Extensions, Vulkan 1.2
RAM	1GB/2GB DDR4
ROM	8GB eMMC
Voltage input	DC 5V
Operating temp	-40~85℃
Package	Board-to-board connector(4*80-pin, 0.5mm pitch)

Note: NPU is not available.

AM62x series processor

Item	AM6254	AM6252	AM6251	AM6234	AM6232	AM6231
CPU core number	4	2	1	4	2	1
3D Graphics engine	√	√	√	×	×	×

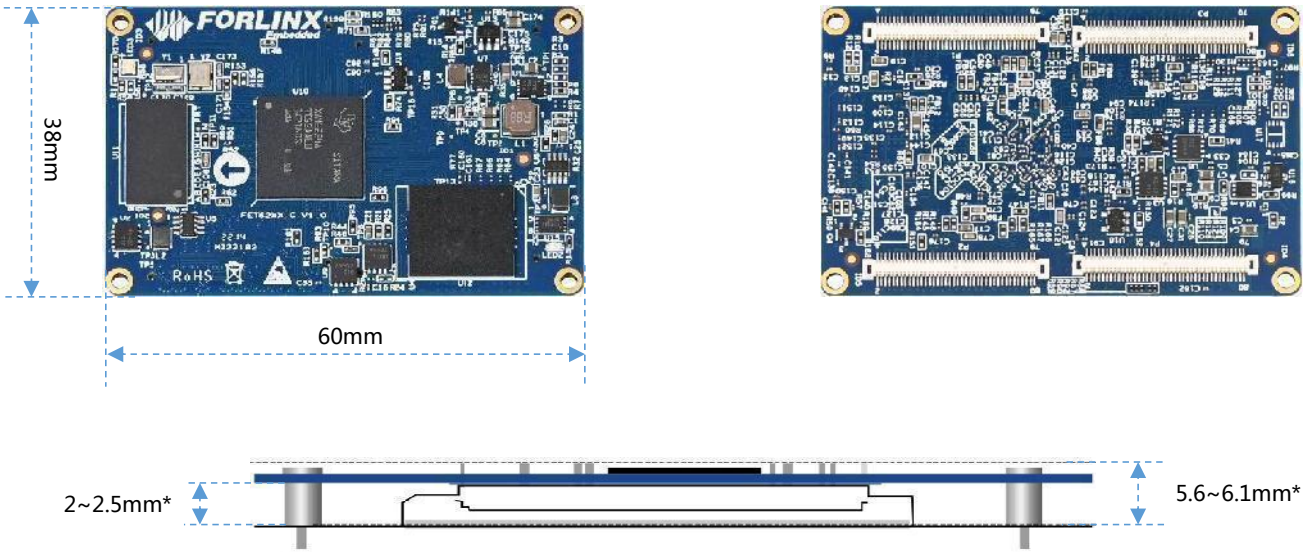
SoM parameters:

A53 interface	QTY	Spec.
LVDS*a	2	2x 4-lane LVDS(8 data,2clocks), each lane up to 1.19 Gbps; Single LVDS up to WUXGA(1920x1200@60fps, 162MHz pixel clock); Supports three modes as below: •single LVDS output model; •2x single LVDS(copy) output mode: two LVDS output same content; •dual LVDS output mode, 8-lane data and 2-lane clock combine to one output channel
RGB Parallel*a	1	One RGB888 parallel interface, up to WUXGA(1920 x 1200@60fps, 165MHz pixel clock)
MIPI CSI	1	One 4-lane MIPI CSI; MIPI-DPHY 1.2; Supports 1, 2, 3 or 4-lane mode, each lane up to 2.5Gbps;
Audio	≤3	Sending and receiving clock up to 50MHz; Supports TDM, Inter-IC Sound(I2S) and other similar forms; Supports digital audio (SPDIF, IEC60958-1and AES-3); Supports audio reference output clock
SD	≤2	Supports two 4-bit SD/ SDIO, up to UHS-I; Complies with eMMC 5.1, SD 3.0 and SDIO3.0
Ethernet	2	Supports RMII(10/100) or RGMII(10/100/1000); Supports IEEE1588(Annex D, Annex E, Annex F with 802.1AS PTP); Supports TSN; Supports hardware IP/UDP/TCP verify and uninstall
USB	2	USB 2.0(up to 480 Mbps); Can be configured to USB host, USB device or USB DRD(dual-role device) mode; Integrated with USB VBUS
UART	≤9	Compatible with 16C750; Supports RS485 flow control; Rating up to 3.6Mbps; Stop bit is available for 1, 1.5, 2bit; Check bit: odd, even, none
CAN-FD	≤3	Complies with CAN2.0A, B or ISO 11898-1 Supports complete CAN FD(up to 64 data bytes) Supports RAM parity check/ ECC Rating up to 5Mbps
SPI	≤5	Each lane has programmable frequency, pole and polarity and phase of serial clock; MCSPI up to 50MHz
I2C	≤6	Support standard mode(up to 100Kbps) and high speed mode(400Kbps); 7-bit and 10-bit device addressing mode
PWM	≤3	Each pair of PWM support two PWM output(EPWMxA and EPWMxB) available for below configuration: •two separate PWM output, single edge;

		•two bilaterally symmetrical separate PWM ; •one bilateral asymmetry separate PWM output ; •Dead-band generation with independent rising and falling edge delay control
eQEP	≤3	Enhanced quadrature encoder pulse input; •input sync; •quadrature encoder unit; •Supports position counters and control units for position measurement •Supports quadrature edge capture unit for low-speed measurements
eCAP	≤3	Enhanced capture module, applicable for •audio input sampling rate measurement; •rotating machinery speed measurement(eg. Toothed sprockets sensed by Hall sensors); •Elapsed time measurement between position sensor pulses; •Period and duty cycle measurement of pulse train signals; •Decode current or voltage magnitude from duty cycle encoded current/voltage sensors
GPMC	1	Up to 133MHz Flexible 8-bit and 16-bit asynchronous memory interface, can be mounted with maximum4chips(22-bit address); Available for NAND, NOR, Muxed-NORand SRAN
OSPI/QSPI	1	Supports 166MHz DDR/200MHz SDR
JTAG	1	Supported

a. Available for 1 x 2048x1080 + 1 x 1280x720

■ Exterior and dimensions:



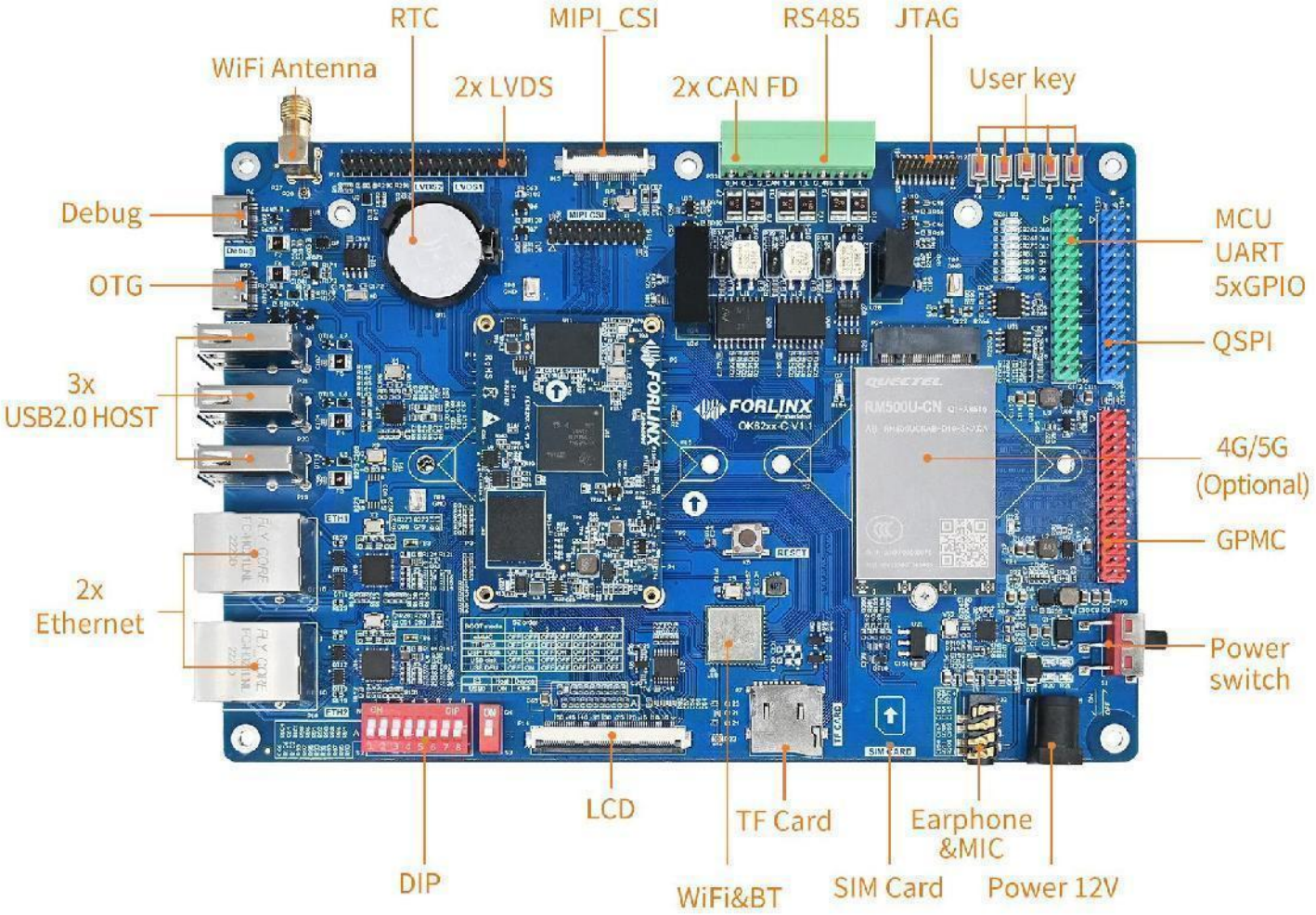
Height diagram after installation

*SoM connector and carrier board connector combined height will be default 2mm (total height 5.6mm)or 2.5mm(total height 5.6mm) Note: tolerance ±0.2mm

■ OS:

OS version	Linux5.10.87+QT5.14.2
Firmware installation	•SD / TF card •U-disk

Development board/ kit



Carrier board features

Peripheral	QTY	Spec.
LVDS	2	Dual asynchronous channels(8 data, 2clocks), supports 1920x1200p60; Available for below three modes: •single LVDS output mode; •2x single LVDS(copy) output mode: two LVDS output same content; •dual LVDS output mode, 8-lane data and 2-lane clock combine to one output channel Default and recommended model: Forlinx 10.1'' LVDS module, 1280x800 @ 60fps
RGB parallel	1	By FPC connector, 16-bit(RGB565) Default and recommended model: Forlinx 7'' LCD module, 1024x600@ 60fps
Camera	1	FPC connector Recommended module: OV5645, up to 2592X1944
Ethernet	2	10/100/1000Mbps auto-negotiation, RJ45
USB2.0	4	3 x USB HOST 1 x USB OTG
DEBUG UART	3	UART0 of A53 and WKUP_UART0 of R5 converted to USB, by Type-C connector MCU_UART0 of M4F by 2.54mm pin headers
RS485	1	Electrical isolated, automatic control of sending and receiving direction Static, surge, group pulse protection level-3
CAN-FD	2	Electrical isolated, CAN-FD up to 5Mbps Static, surge, group pulse protection level-3
SPI	1	MCU_SPI0 by pin headers with pitch of 2.54mm Rating up to 50 MHz
I2C	2	MCU_I2C0 and WKUP_I2C0 are by pin headers with pitch of 2.54mm
GPMC	1	GPMC_AD0~AD15 by pin headers with pitch of 2.54mm, 16-bit data/ address signals and related control signal
Audio	1	1x earphone output and 1x MIC input
TF-CARD	1	1x TF Card slot, supports UHS-I TF card, up to 104MB/s
4G/5G	1	4G and 5G are optional and alternative; 4G: M.2 Key B 4G module, recommended model: Quectel EM05(default), EC20; 5G: M.2 Key B 5G module, recommended model: Quectel RM500U-CN; Standard MicroSIM card slot
WiFi	1	On-boardAW-CM358M; IEEE 802.11 a/b/g/n/ac dual-band WIFI, up to 433.3Mbps; Bluetooth 5, up to 3Mbps
Bluetooth	1	
KEY	5	4 keys input for A53, 1 key input for M4F
LED	8	4 LED out put for A53, 4 LED output for M4F
RTC	1	On-board separate RTC chip
EEPROM	1	2K bit Mounted to MCU_I2C0 or WKUP_I2C0
QSPI Flash	1	128M bit Mounted to A53 QSPI or MCU SPI0
JTAG	1	By 2 x 10-Pin pin headers with pitch of 1.27mm

