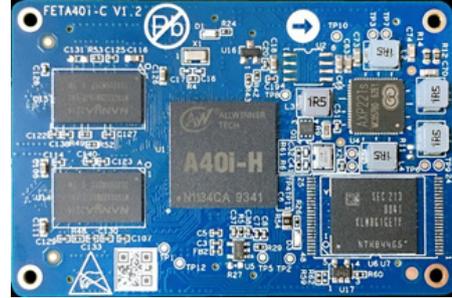## Overview

PEB-A40I system on module is based on Allwinner Cortex-A7 quad-core industrial grade processor A40i runs at speed up to 1.2GHz.

Mostly popular video and image encode forms are perfectly supported.

It is applicable for industrial control vision interactive products, such as smart terminals, industrial control, data collection, machine vision, industrial IoT, portable devices, digital signage,
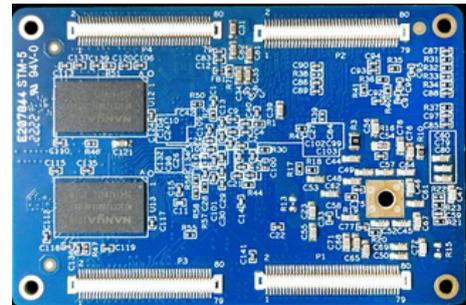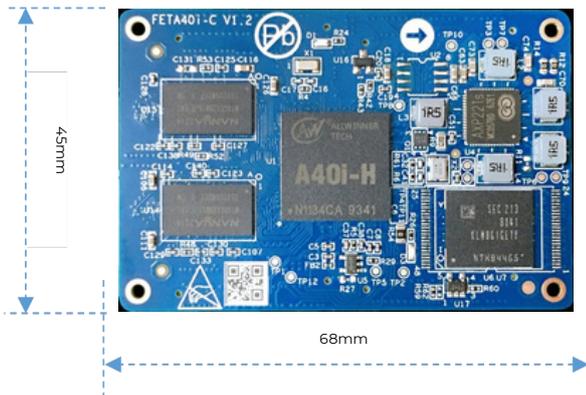

Features

- Quad-core processor A40i up to 1.2GHz, integrated with Mali400MP2 GPU;
- Dual-screen displaying both sync. and async, various display interfaces;
- One Gigabit Ethernet and one fast Ethernet are supported and available for WIFI/ BT4.0, 4G is also supported;
- Can support multiple camera inputs, 2-ch DVP camera up to 5.0MP, 4-ch TVIN can support NTSC and PAL;
- Integrated with audio codec, can support one differential PHONEOUT, one stereo earphone output, and one microphone input;

4x Cortex-A7	1.2GHz	Mali-400MP2
Architecture	Clock	GPU
Linux/ Android	2	4
OS	Ethernet	TVIN

Dimensions

45mm

68mm

2.0mm*

5.5mm*

Height diagram after installation

* Note: tolerance ±0.2mm

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SoM Features

CPU	Allwinner A40i **CPU:** quad-core Cortex-A7@ 1.2GHz **GPU:** Mali-400 MP2, supports OpenGL ES 2.0,OpenGL ES 1.1,Open VG 1.1 **VPU:** Hard decode: · up to 1080p@60fps: · MPEG1,MPEG2,MPEG4,H.263BP,H.264 Hard encode: · up to 1080p@45fps: · H.264,JEPG
RAM	1GB/ 2GB(standard : 1GB)
ROM	8GB eMMC
Power input	Main power: DC 5V; Li-battery power input: 4.2V
Operating temp	-25℃~ +85℃/ -40~85℃
Package	Board-to-board connector(4*80-pin, 0.5mm pitch)

SoM Peripherals

CAMERA	Qty: ≤2 Spec.: CSI0: one 8/ 16-bit DVP, up to 5.0MP, 1080P@ 30FPS CSI1: one 8/ 16/ 24-bit DVP, up to 5.0MP, 720P@ 30FPS
TVIN	Qty: 4 Spec.: 4 CVBS input channels, supports NTSC and PAL
LCD	Qty: ≤2 Spec.: RGB888, up to 1920x 1080@ 60FPS
HDMI	Qty: 1 Spec.: · HDMI1.4 · up to 1080P@60FPS, support HDCP1.2
LVDS	Qty: 1 Spec.: 1080P@60FPS
MIPI-DSI	Qty: 1 Spec.: MIPI DSI V1.01&MIPI D-PHY V1.0; 4-lane, up to 1080P@60FPS
TVOUT	Qty: 4 Spec.: 4-lane CVBS, supports NTSC and PAL
SD/MMC/SDIO	Qty: ≤4 Spec.: · SD/MMC/SDIO0: 4-bit data bus(for firmware flashing); SD/MMC/SDIO1: 4-bit data bus; · SD/MMC/SDIO2: 8-bit data bus(for eMMC on SoM); SD/MMC/SDIO3: 4-bit data bus;
USB HOST	Qty: 2 Spec.: USB2.0, up to 480Mbps
USB OTG	Qty: 1 Spec.: USB2.0, up to 480Mbps
I2S/PCM	Qty: ≤2 Spec.: Host/ slave mode configurable, compatible with left-aligned, right-aligned, PCM and TDM; Support 8~32-bit audio resolution and 8~192KHz sampling rate
Audio Codec	Qty: 1 Spec.: · Supports 1x differential PHONEOUT, 1x stereo earphone output, 1x MIC< 1x LINEIN
UART	Qty: ≤8 Spec.: Each UART baud rate 115200; UART0: 3-wire, debug port; UART1: 8-wire; UART2/UART3: 5-wire; UART4/UART5/UART6/UART7: 3-wire
SPI	Qty: ≤4 Spec.: Full-duplex, clock is configurable, up to 100MHz; 4x SPI controller with host/ slave mode configurable, each SPI controller supports 2x chip select
I2C	Qty: ≤5 Spec.: Up to 400Kbps
Ethernet	Qty: ≤2 Spec.: 1x 10/ 100Mbps negotiable; 1x 10/ 100/ 1000Mbps negotiable
PWM	Qty: ≤8 Spec.: Supports interrupt PWM output and capturing input, supports 3 output wave forms
JTAG	Qty: supported
Keyboard	Qty: supported Spec.: Up to 8x 8
KEYADC	Qty: ≤2 Spec.: 6-bit, 2-lane, input power 0~2V, for analog key detecting, converting rate up to 250Hz
SMC	Qty: ≤2 Spec.: Complies with ISO/IEC 7816-3:1997(E)& EMV2000(4.0)
CIR	Qty: ≤2 Spec.: FIFO
SATA	Qty: 1 Spec.: Up to 3.0Gbps, eSATA is supported

OS

OS	Linux3.10, Linux5.310, Android7.1, Forlinx Desktop
OS image flashing	·SD card ·USB OTG

Drivers List

Interface	Details (Function / Chipset / Specification)
Android 7.1	
USB	Function: WiFi/BT Chipset/ module: BL-M8723DU1
USB	Function: 4G Chipset/ module: EC20/ EC25
USB	Function: camera Chipset/ module: C270(UVC)
I2C	Function: RTC Chipset/ module: RX8010
I2C	Function: Camera Chipset/ module: OV5640
TVIN	Function: Analog input Chipset/ module: FIT-ACAM-A V1.0
TTL	Function: TTL to RS232 Chipset/ module: FIT-RS232-II V1.1
RS232	Function: GPS Chipset/ module: FIT-GPS&BD-UM220 V1.0
Linux 3.10	
USB	Function: WiFi-BT Chipset: RL-UM02WBS-8723BU-V1.2
USB	Function: 4G Chipset: EC20/ EC25
USB	Function: USB to 4x UART Chipset: FIT-USB-TO-4-UARTS
USB	Function: camera Chipset: C270(UVC)
USB	Function: USB to fast Ethernet Chipset: AX88179
MIPI_CSI	Function: Camera Chipset: OV5640
SDIO	Function: WiFi Specification: FIT-WIFI-II_RTL8189ES(210'335x)
TTL	Function: TTL to RS232 Specification: FIT-RS232-II V1.1
LVDS	Function: 10.1" Specification: FIT_LVDS10.1C_V2.0 2380x800, capacitive TP: GT928
RGB	Function: 7" Specification: FIT-LCD7.0, 1024x600, capacitive TP: GT911
MIPI-DSI	Function: 7" Specification: FIT-LCD7.0MIP I, 1024x600, capacitive TP: GT911, FT5x0x
RGB	Function: 7" Specification: FIT-LCD7.0, 800x 480, resistive TP
Forlinx Desktop 16.04	
USB	Function: WiFi-BT Chipset: RL-UM02WBS-8723BU-V1.2
USB	Function: 4G Chipset: EC20/ EC25
USB	Function: USB to 4x UART Chipset: FIT-USB-TO-4-UARTS
USB	Function: camera Chipset: C270(UVC)
USB	Function: USB to fast Ethernet Chipset: AX88179
SDIO	Function: WiFi Chipset: FIT-WIFI-II_RTL8189ES(210'335x)
TTL	Function: TTL to RS232 Chipset: FIT-RS232-II V1.1
LVDS	Function: 10.1" Chipset: FIT_LVDS10.1C_V2.0 2380x800, capacitive TP: GT928
RGB	Function: 7" Chipset: FIT-LCD7.0, 1024x600, capacitive TP: GT911
MIPI-DSI	Function: 7" Chipset: FIT-LCD7.0MIPI, 1024x600, capacitive TP: GT911, FT5x0x
RGB	Function: 7" Chipset: FIT-LCD7.0, 800x 480, resistive TP

Provided technical files

Firmware	User manual, compiling guideline, kernel source code, file system, OS image, VM ubuntu image, SD card tool, USB OTG tool, QT demos and source code
Hardware	User manual, carrier board schematic, carrier board PCB(AD), datasheet, carrier board and SoM DXF files, pinmux sheet

Development Board/Kit

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Drivers List

Interface	QTY & Spec.
LCD	QTY: 1 Spec.: RGB888, 24-bit, up to 1920*1080@60FPS
LVDS	QTY: 1 Spec.: Supports single/dual LVDS, up to 1920*1080@60FPS, multiplex with RGB
MIPI-DSI	QTY: 1 Spec.: 4-lane, up to 1080P@60FPS
HDMI	QTY: 1 Spec.: HDCP 1.2, up to 1080P@60FPS
TVOUT	QTY: 1 Spec.: 4x TVOUT from SoM with 1 available on carrier board, supports NTSC and PAL
CAMERA	QTY: 1 Spec.: 8-bit DVP, up to 5.0MP, 1080P@ 30FPS, recommended model: OV5640
TVIN	QTY: 4 Spec.: 4 CVBS input
Audio	QTY: 1 Spec.: 1x MIC, 1x Phone, 1x Speaker
USB HOST	QTY: 3 Spec.: USB2.0, the processor is with 1 USB, and another 2 are expanded by HUB, up to 480Mbps
USB OTG	QTY: 1 Spec.: micro USB connector, USB2.0, up to 480Mbps
Ethernet	QTY: 1 Spec.: RJ45, 10/ 100Mbps negotiable
WiFi	QTY: 1 Spec.: IEEE 802.11b/g/n 2.4GHz
BT	QTY: 1 Spec.: BT V2.1/BT V3.0/BT V4.0
SD card slot	QTY: 2 Spec.: 1 for SD card, for OS image flashing, 1 for TF card, for data storage Compatible with SD, SDHC and SDXC
SDIO	QTY: 1 Spec.: 20-pin header with pitch of 2.0mm
LED	QTY: 2 Spec.: For user's definition
PWM	QTY: 1 Spec.: For backlight
RTP TBD	QTY: 4 Spec.: For resistive TP
TWI	QTY: 4 Spec.: Available for standard mode 100kbit/s or fast mode 400kbit/s
UART	QTY: 4 Spec.: UART2 and UART3 are 5-wire serial ports, UART4 and UART7 are 3-wire serial ports, 3.3V
SMART_CARD^{TBD}	QTY: 1 Spec.: Complies with ISO/IEC 7816-3:1997(E) and EMV2000(4.0)
UART Debug	QTY: 1 Spec.: RS232, DB9 connector
JTAG Debug	QTY: 1 Spec.: /
KEY	QTY: 3 Spec.: VOL+, VOL- and HOME three keys are expanded by one KEYADC on carrier board
RS485	QTY: 1 Spec.: isolated
SPI	QTY: 1 Spec.: SPI2
SATA	QTY: 1 Spec.: Up to 3.0Gbps
RTC	QTY: 1 Spec.: RX8010SJ
4G	QTY: 1 Spec.: Mini PCIe slot

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