



SPECIFICATION FOR

AIY-A003M

Ver 1.0

Base NXP I.MX6U

ARM@ Cortex@-A9 Processor

Customer's Approval:

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	SIGNATURE	DATE
PREPARED BY (RD ENGINEER)		
CHECKED BY		

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1. Product Overview

AIY-A003M use MCIMX6Q ARM quad-core Cortex A9 CPU, Maximum main frequency 1.2GHZ,Support Android7.1.GPU Support 2D、 3D Graphic processing, Mainstream Audio and Video Format and Image Decoding. Integration VPU(video processor), the H.264 codec of 720 P and 1080 video can be realized easily. Supports horizontal and vertical screen display、 Two screens display the same or different content.

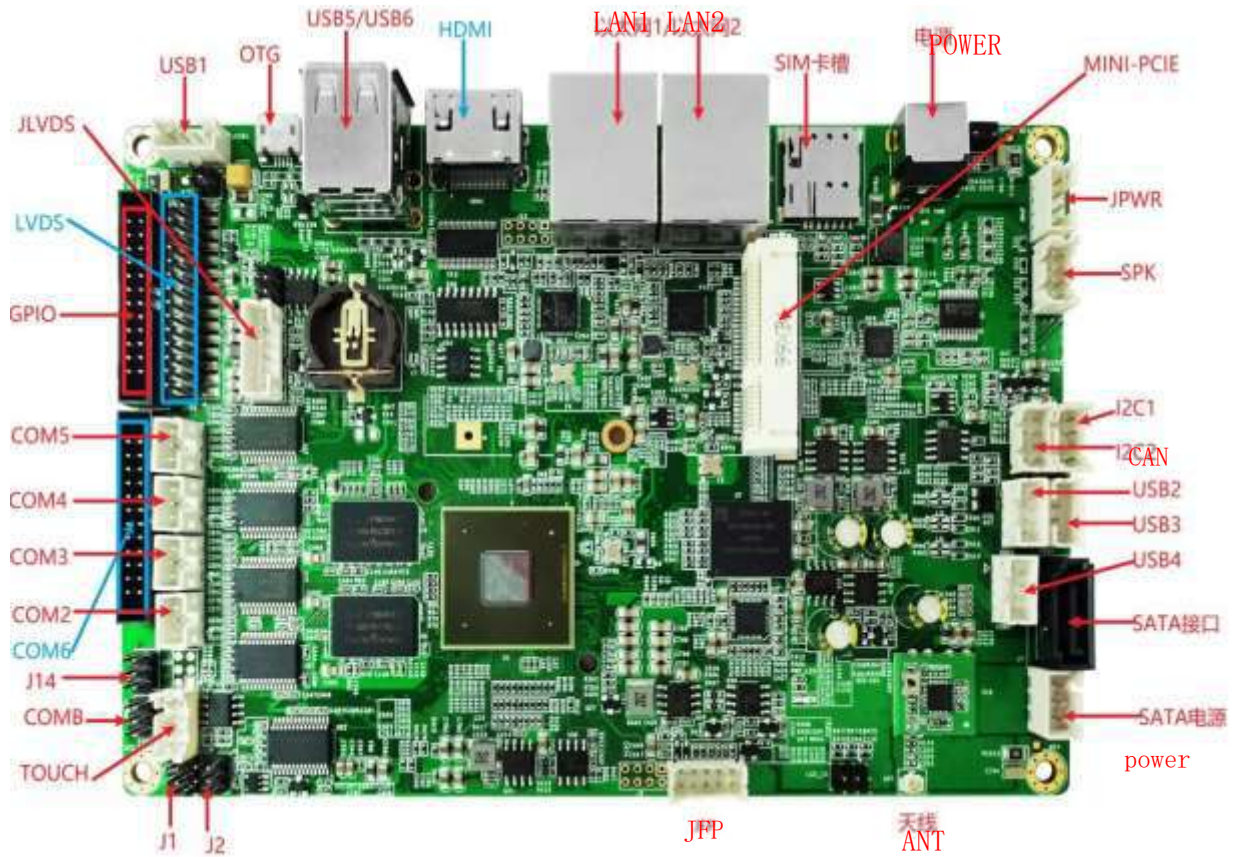
Support HDMI、 RGB、 LVDS Display output,6 USB Interface、 1 OTG、 Multiple GPIO and UART Interface, To achieve full support USB external expansion devices such as touch screen / fingerprint module / printer / camera / RFID card reader / barcode scanner / coinager / U disk / mobile hard disk, Can meet the needs of different customers; Integrated Gigabit RJ45 network port ,2.4 G/5G WiFi, support 4G modules, can adapt to a variety of network environments.

2. Hardware parameter

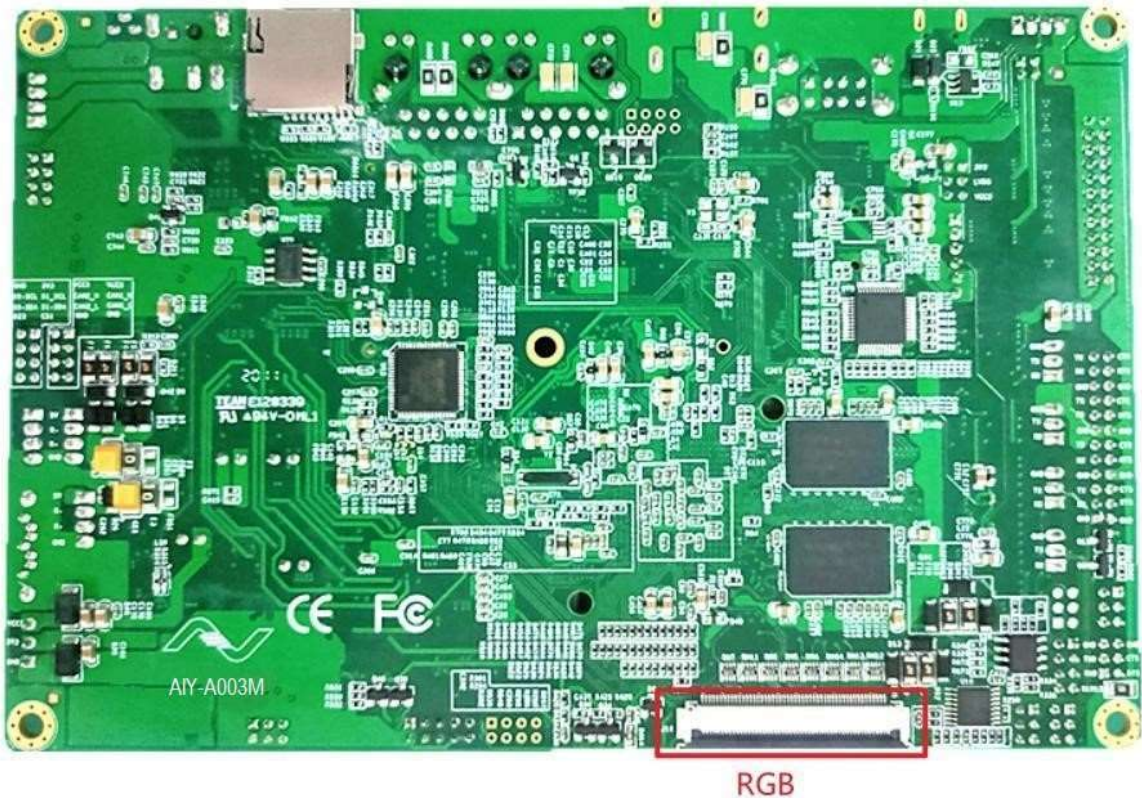
AIY-A003M Specifications		
System	Android 7.1	
CPU	MCIMX6Q ARM quad-core Cortex A9、Maximum main frequency 1GHz、 High performance, low power consumption. Support 2D 、 3D Graphic processing, H.264Coding and decoding, HDMI、LVDS Double screen display	
Memory	2G DDR3 + 8G EMMC (Support TF cards)	
Display	HDMI	1920×1200
	RGB	1920×1200
	LVDS	(Single 8 bit 1366×768, Double 8 bit 1920×1080)
Video Format Support	WMV、AVI、FLV、RM、RMVB、MPRG 、 TS、MP4	
Image Format Support	BMP、JPEG、PNG、GIF	
Communication interface	Gigabit Ethernet*2	
	WIFI、	
	UART*8, 4 RS232 Independent interface, 2 RS485 RS232 reuse with RS232, other 4 UART integrated into a 24 P dupont socket	
	Standard USB interface*2 、 Standard OTG interface*1 、 USB pitch2.0 Socket*4	
	I ² C*2	
	MiniPCIE 4G Module (Optional)	
	SIM Card	
	GPIO	
	SATA	
Audio interface	MIC、SPK	
Power supply	9-24V DC IN	
Power Mode	Standby, sleep	
System upgrade	Support for Local USB Upgrade	
Language	Multilingualism	
Working temperature	-20~60℃	
Storage temperature	-30~70℃	

3. Interface description

2.1 Interface diagram



TF卡槽



2.2 Interface definition

COMDB: (COM1)

Definition	PIN		Definition
COM1_RXD	1	2	COM1_RTS
COM1_TXD	3	4	COM1_CTS
GND	5	6	GND

COM2:

Definition	PIN		Definition
COM2_RX	1	3	GND
COM2_TX	2		

COM3:

Definition	PIN		Definition
COM3_RX	1	3	GND
COM3_TX	2		

COM4:

Definition	PIN		Definition
COM4_RX	1	3	GND
COM4_TX	2		

COM5:

Definition	PIN		Definition
COM5_RX	1	3	GND
COM5_TX	2		

COM6:

Definition	Pin		Definition
GND	1	1	GND
COM6_RX	3	3	COM6_RTS
COM6_TX	5	5	5
GND	7	7	7
COM7_RX	9	9	9
COM7_TX	11	11	11
GND	13	13	13
COM8_RX	15	15	15
COM8_TX	17	17	17

GND	19	19	19
COM9_RX	21	21	21
COM9_TX	23	23	23

COM UART Switch Mode Description:

COM	mode	Simultaneous short connection
COM2	232mode	J2: 1-3、2-4 J13: 1-2
COM2	485mode	J2: 3-5、4-6 J13: 3-4、5-6
COM3	232mode	J1: 1-3、2-4 J14: 1-2
COM3	485mode	J1: 3-5、4-6 J14: 3-4、5-6

J1:

Definition	PIN		Definition
COM3_TX	1	2	COM3_RX
COM3_TX_cn	3	4	COM3_RX_cn
TX+DATA3+	5	6	TX-DATA3-

J2:

Definition	Pin		Definition
COM2_TX	1	2	COM2_RX
COM2_TX_cn	3	4	COM2_RX_cn
TX+DATA2+	5	6	TX-DATA2-

J14:

Definition	PIN		Definition
UART3_RX	1	2	EIM_D25
EIM_D25	3	4	COM3_RX_cn
RE/DE	5	6	GND

GPIO:

Definition	PIN		Definition
CSIO_PIXCLK	1	2	GEN
CSIO_HSYNC	3	4	CSIO_DATA_EN
CSIO_VSYNC	5	6	CSIO_DAT11
CSIO_MCLK	7	8	CSIO_DAT12
CSIO_DAT4	9	10	CSIO_DAT13
CSIO_DAT5	11	12	CSIO_DAT14
CSIO_DAT6	13	14	CSIO_DAT15
CSIO_DAT7	15	16	CSIO_DAT16
CSIO_DAT8	17	18	CSIO_DAT17
CSIO_DAT9	19	20	CSIO_DAT18
CSIO_DAT10	21	22	CSIO_DAT19
GND	23	24	GND

LVDS:

Definition	PIN		Definition
VDD_PANEL	1	2	VDD_PANEL
VDD_PANEL	3	4	NC
GND	5	6	GND
LVDS0_TX0_N	7	8	LVDS0_TX0_P
LVDS0_TX1_N	9	10	LVDS0_TX1_P
LVDS0_TX2_N	11	12	LVDS0_TX2_P
GND	13	14	GND
LVDS0_CLK_N	15	16	LVDS0_CLK_P
LVDS0_TX3_N	17	18	LVDS0_TX3_P
LVDS1_TX0_N	19	20	LVDS1_TX0_P
LVDS1_TX1_N	21	22	LVDS1_TX1_P
LVDS1_TX2_N	23	24	LVDS1_TX2_P

GND	25	26	GND
VDS1_CLK_N	27	28	LVDS1_CLK_P
LVDS1_TX3_N	29	30	LVDS1_TX3_P

JLVDS:

Definition	PIN		Definition
LVDS_PAN	1	4	LCD_PWM
LVDS_PAN	2	5	GND
LCD_BL_EN1	3	6	GND

RGB:

Definition	PIN		Definition
VCC	1	26	R3
VCC	2	27	R4
VCC	3	28	R5
VCC	4	29	R6
GND	5	30	R7
GND	6	31	GND
B0	7	32	LCD_PWM
B1	8	33	DISPO_RST
B2	9	34	NC
B3	10	35	TP_INT
B4	11	36	TP_RST
B5	12	37	I2C_SCL_RGB
B6	13	38	I2C_SDA_RGB
B7	14	39	GND
G0	15	40	DISPO_DE
G1	16	41	DISPO_VSYNCH
G2	17	42	DISPO_HSYNCH

G3	18	43	DISPO_CLK
G4	19	44	GND
G5	20	45	YT
G6	21	46	YB
G7	22	47	XL
R0	23	48	XR
R1	24	49	NC
R2	25	50	GND

USB1/USB2/USB3/USB4:

Definition	PIN		Definition
VCC	1	2	USB_HUB
USB_HUB	3	4	GND

USB5/USB6:

Definition	PIN		Definition
VCC	1	2	USB_HUB_1
USB_HUB_1	3	4	GND
VCC	5	6	USB_HUB_2
USB_HUB_2	7	8	GND
GND	9	10	GND
GND	11	12	GND

JPWR:

Definition	PIN		Definition
PWR	1	2	PWR
GND	3	4	GND

SPK:

Definition	PIN		Definition
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OUTPL	1	2	HeadPh_R
OUTNL	3	4	HeadPh_L
OUTNR	5	6	MIC1*P
OUTPR	7	8	AGND1

I2C1:

Definition	PIN		Definition
3V3	1	2	GND
S1_SCL	3	4	S0-SCL
S1_SDA	5	6	S0-SDA
C51	7	8	D23

CAN:

Definition	PIN		Definition
VCC5	1	2	VCC5
CAN1_H	3	4	CAN2_H
CAN1_L	5	6	CAN2_L
GND	7	8	GND

SATA:

GND	1	2	SATA_T_C+
SATA_T_C-	3	4	GND
SATA_R_C+	5	6	SATA_R_C-
GND	7	8	

SATA Power supply:

Definition	PIN		Definition
GND	1	2	3V3
VCC5	3	4	

JFP:

Definition	PIN		Definition
PWRLED	1	2	GND
SATALED	3	4	EIM_OE
NC	5	6	NC
JFP_RST	7	8	GND
JFP_PWRSW	9	10	GND

MINI-PCIE:

Definition	P N		Definition
3V3	1	2	3V3
NC	3	4	GND
NC	5	6	1.5V
3V3	7	8	USIM1_VCC
GND	9	10	USIM1_IO
NC	11	12	USIM1_CLK
NC	13	14	USIM1_RST
GND	15	16	NC
NC	17	18	GND
NC	19	20	EIM_BCLK
GND	21	22	PCIE_RST
NC	23	24	3V3
NC	25	26	GND
GND	27	28	1.5V
GND	29	30	PCIe_SMB_CLK
NC	31	32	PCIe_SMB_DATA
NC	33	34	GND
GND	35	36	USB_HUB_6-MINIPCIE
GND	37	38	USB_HUB_6+MINIPCE
3V3	39	40	GND

3V3	41	42	WWAN1_LED
GND	43	44	NC
NC	45	46	NC
NC	47	48	1.5V
NC	49	50	GND
NC	51	52	3V3
NC	53	54	NC
NC	55	56	NC
GND	57	58	GND
GND	59	60	GND

OTG:

Definition	PIN		Definition
VCC	1	4	ID
D-	2	5	GND
D+	3	6	

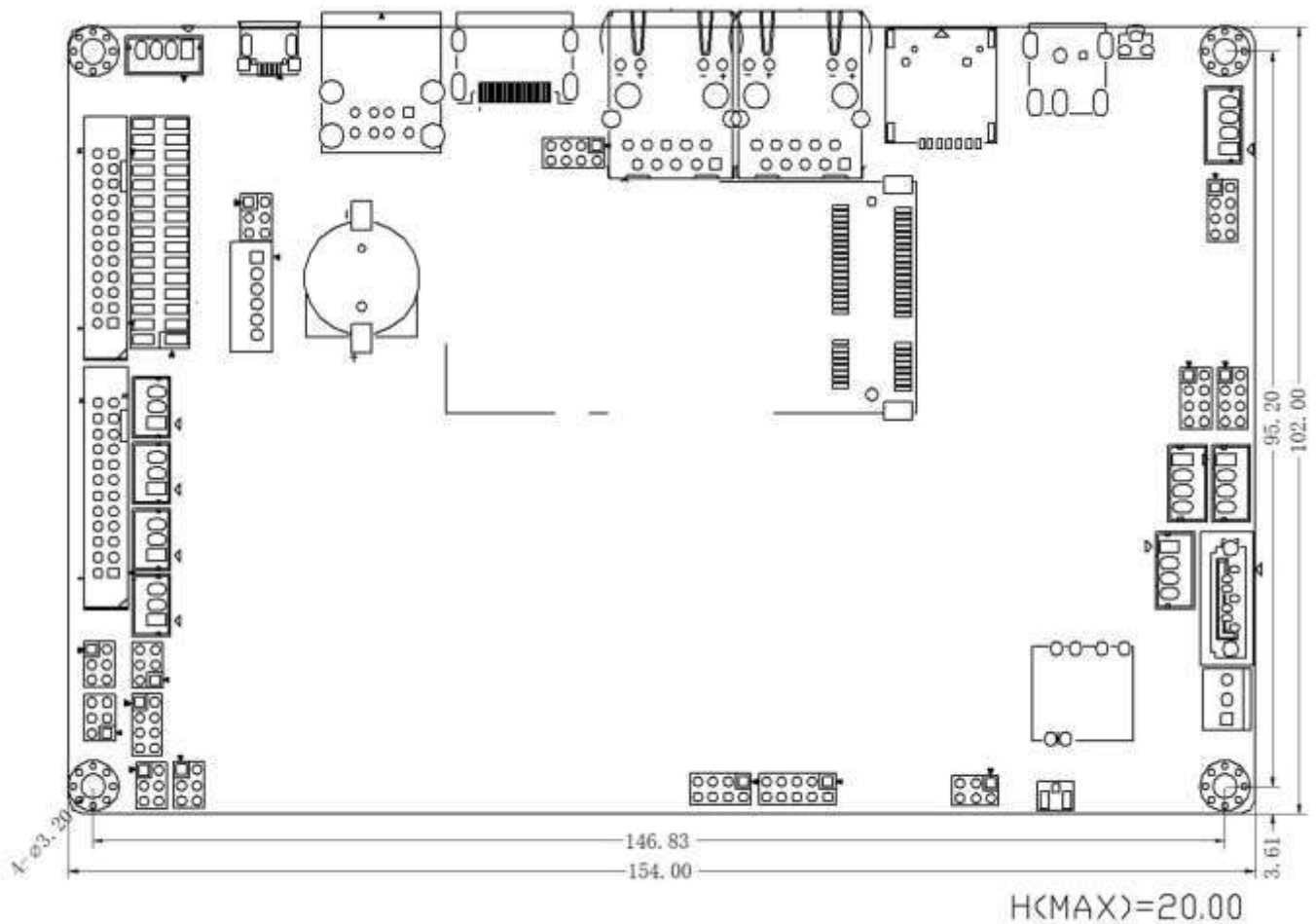
SIM Card:

Definition	PIN		Definition
NC	1	7	CLK
GND	2	8	GND
VCC	3	9	GND
VPP	4	10	GND
RST	5	11	GND
I/O	6		

TOUCH:

Definition	PIN		Definition
TOUCHSCREEN_X+	1	2	COM3_RX
TOUCHSCREEN_X	3	4	MCU_COM_SIN
TOUCHSCREEN_Y+	5	6	COM3_TX
TOUCHSCREEN_Y	7	8	MCU_COM_SOUT

4. Structural dimensions



5. Points for attention

During assembly and use, note the following (and not limited to) problem points.

- 1) The short circuit problem of bare board and peripheral.
- 2) In the process of installation and fixing, avoid the deformation problem caused by the fixing of the bare plate.
- 3) Pay attention to the direction of the first foot when connecting the screen.
- 4) When the peripheral (UART. etc) is installed, The IO level of the peripheral should match with the motherboard
- 5) Make sure RX/TX is properly connected when installing serial ports
- 6) Verify that the input voltage is correct before power is connected.