



SPECIFICATION FOR

AIY-A002M

Ver1.0

Base NXP I.MX6U

ARM@ Cortex@-A7 Processor

Customer's Approval:

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	SIGNATURE	DATE
PREPARED BY (RD ENGINEER)		
CHECKED BY		

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1. PRODUCT OVERVIEW

AIY-A002M belongs to Linux intelligent mainboard, use i.MX6UL ARM Cortex-A7 high energy efficiency CPU, it is a cost-effective application processor used in industrial-grade single-board computers for industrial control and communications.

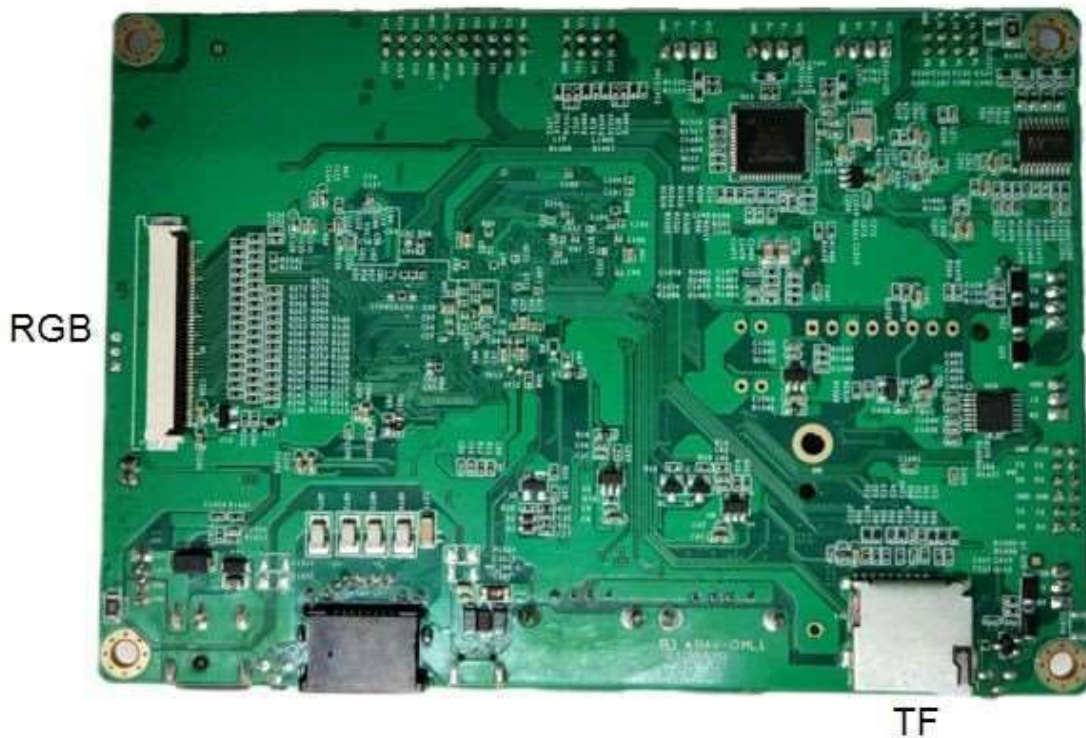
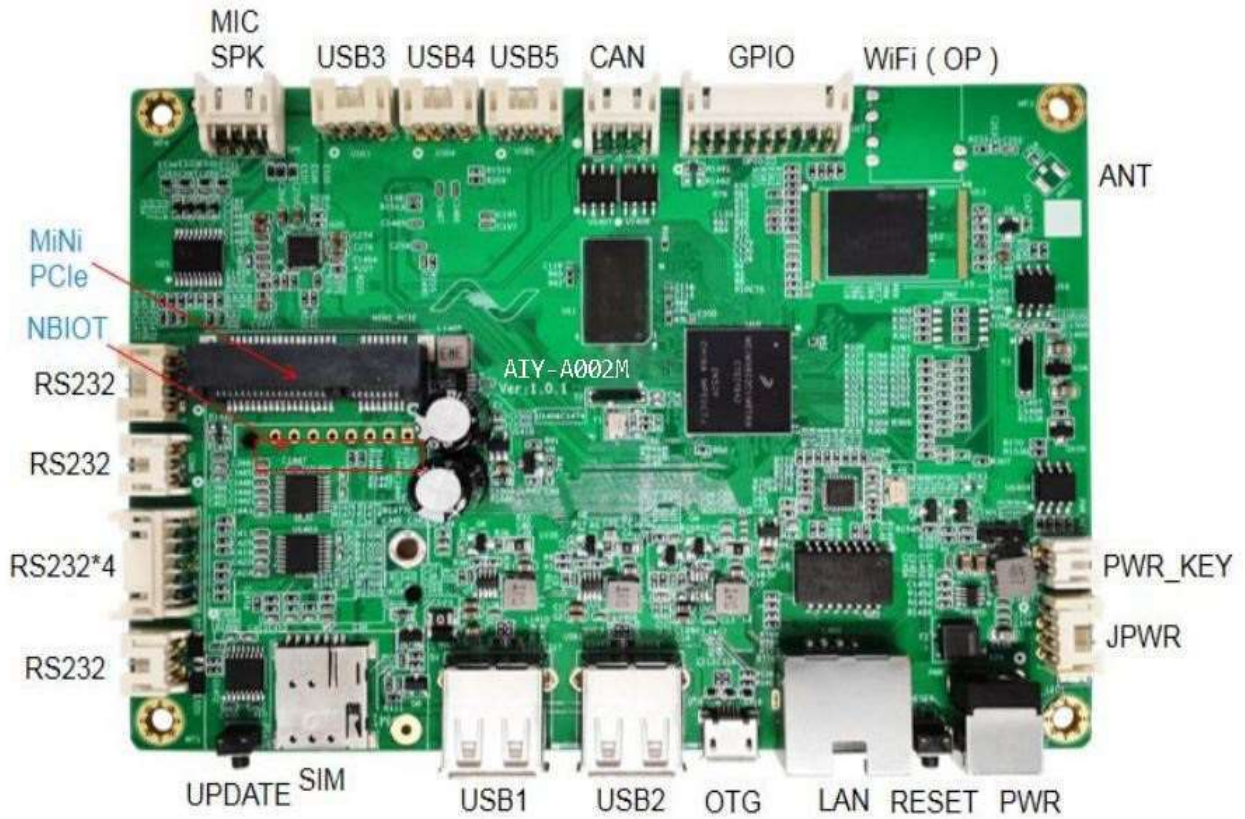
AIY-A002M build-in 512MB DDR3L and 8GB EMMC, Integrated Ethernet、WiFi、NB IOT、USB、CAN、TF card and other functions. supports RGB1366*768 resolution video output.

2. Hardware parameters

AIY-A002M introduce	
Operation system	Linux
CPU	i.MX6UL, Cortex-A7 high energy efficiency processor
memory	512MB DDR3L+ 8GB EMMC (support TF Card)
display port	RGB (1366*768)
communication interface	100Mbps Ethernet
	WIFI (optional)
	RS232*7 (One of them can power the peripherals)
	OTG*1、USB*2、USB host*3
	CAN*2
	SPI*2
	I2C*1
	GPIO*5
Audio interface	Dual channel output、MIC Audio input
Extended Interface	MINI PCIE (4G Modules, optional)
	SIM Card
	NB IOT (Optional)
Power supply	12V DC
Power Mode	Standby mode, sleep mode
System upgrade	Support for Local USB Upgrade
OSD Language	Chinese, English
Working temperature	-20~60℃
Storage temperature	-30~70℃
Dimensions	126*90 mm

3. Interface description

(1) Interface diagram



(2) Pin Definition

1) JPOWER

Define	PIN		Define
12V	1	2	12V
GND	3	4	GND

2) PWR KEY

Define	PIN		Define
GND	1	2	PWR KEY

3) RGB

Define	Pin		Define
VCC	1	26	R3
VCC	2	27	R4
VLCD	3	28	R5
VLCD	4	29	R6
GND	5	30	R7
GND	6	31	GND
B0	7	32	PWM
B1	8	33	RST
B2	9	34	DISP
B3	10	35	INT
B4	11	36	GPIO
B5	12	37	SCL
B6	13	38	SDA
B7	14	39	GND
G0	15	40	DE
G1	16	41	VSYNC
G2	17	42	HSYNC

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

4) WIFI

Define	PIN		Define
VCC	1	4	GND
USB_DN	2	5	GND
USB_DP	3	6	ANT

5) Speaker/MIC

Define	PIN		Define
OUTPL	1	2	MIC_IN1L
OUTNL	3	4	MIC_IN1R
OUTNR	5	6	MIC_IN2L
OUTPR	7	8	GND

6) LAN

Define	PIN		Define
TX+	1	8	NC
TX-	2	9	VENET

RX+	3	10	LED2/Nintse
NC	4	11	VENET
NC	5	12	LED1/REGOFF
RX-	6	13	GND
NC	7	14	GND

7) RS232 (4PIN, it can power the peripherals)

Define	PIN		Define
GND	1	3	RX
TX	2	4	VCC

8) RS232 (3PIN)

Define	PIN		Define
GND	1	3	RX
TX	2		

9) RS232 (COM4)

Define	PIN		Define
GND	1	2	GND
TX	3	4	TX
RX	5	6	RX
GND	7	8	GND
TX	9	10	TX
RX	11	12	RX

10) MINI PCIE (4G)

Define	PIN		Define
WAKE	1	2	VCC_PCIE
NC	3	4	GND
NC	5	6	+1.5V
CLKREQ#	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	W_DISABLE
GND	21	22	PERST
NC	23	24	VCC_PCIE
NC	25	26	GND
GND	27	28	+1.5V
GND	29	30	NC
NC	31	32	NC
NC	33	34	GND
GND	35	36	USB_HUB_6-R
GND	37	38	USB_HUB_6+R
VCC_PCIE	39	40	GND
VCC_PCIE	41	42	LED_WWAN
GND	43	44	LED_WLAN
TP5	45	46	LED_WPAN

TP7	47	48	+1.5V
TP6	49	50	GND
TP8	51	52	3V3

11) USB1/USB2

Define	PIN		Define
VCC	1	3	D+
D-	2	4	GND

12) USB3/USB4/USB5

Define	PIN		Define
VCC	1	3	D+
D-	2	4	GND

13) OTG

Define	PIN		Define
VCC	1	4	ID
DM	2	5	GND
DP	3		

14) CAN*2

Define	PIN		Define
VCC	1	2	VCC
CAN1_H	3	4	CAN2_H
CAN1_L	5	6	CAN2_L
GND	7	8	GND

15) SPI/GPIO/I2C

Define	PIN		Define
SPI_PWR	1	2	SPI_PWR
SPI1_SCLK	3	4	SPI2_SCLK
SPI1_SS0	5	6	SPI2_SS0
SPI1_MOSI	7	8	SPI2_MOSI
SPI1_MISO	9	10	SPI2_MISO
GPIO_4	11	12	GND
GPIO_2	13	14	GPIO_3
GPIO_0	15	16	GPIO_1
I2C_SCL_EXP	17	18	I2C_SDA_EXP
GND	19	20	GND

16) NB-IOT

Define	PIN		Define
VBAT	1	5	RXD
VCC_NB	2	6	PEN
GND	3	7	NC
TXD	4	8	NC

17) TF CARD

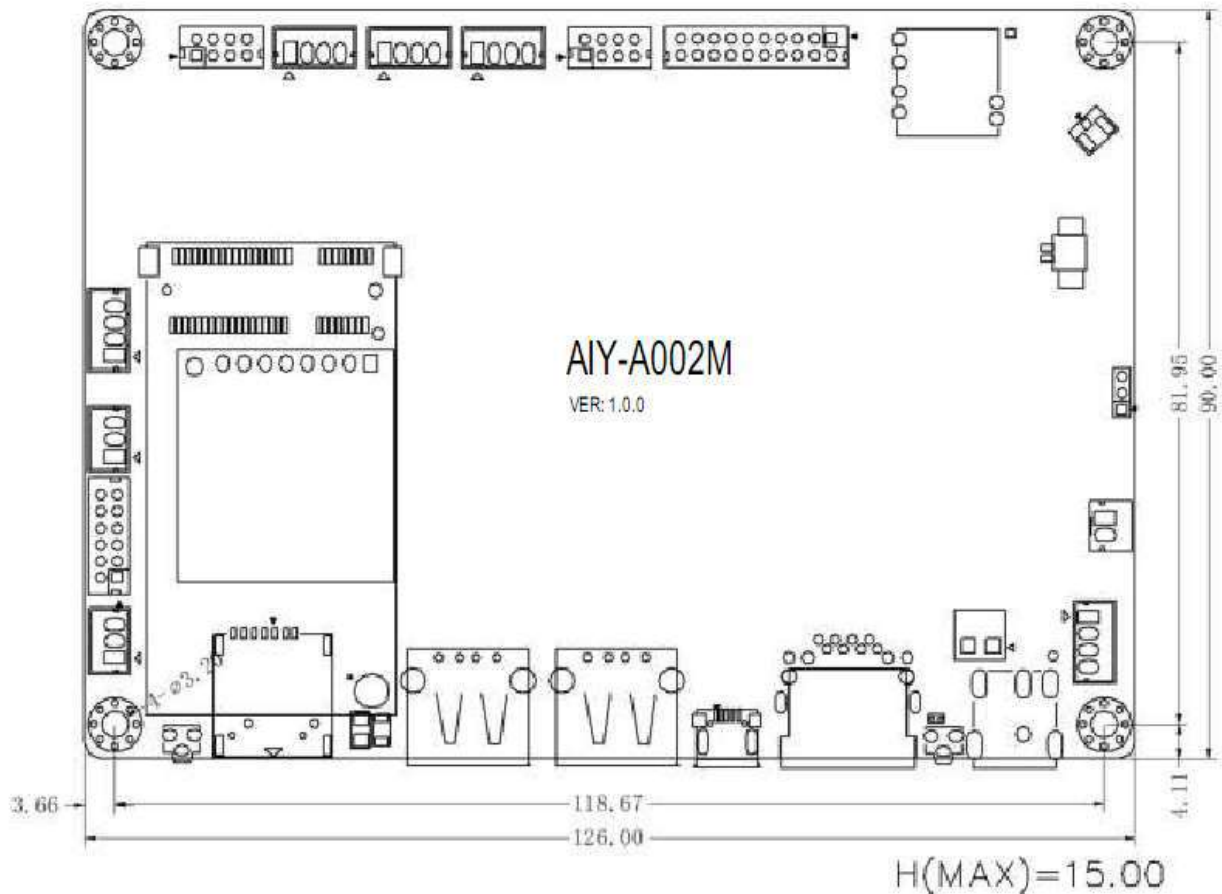
Define	PIN		Define
DATA2	1	6	VSS
CD/DATA3	2	7	DATA0
CMD	3	8	DATA1

VDD	4	9	SD
CLK	5	10	GND

18) SIM

Define	PIN		Define
NC	4	2	RST
GND	5	7	I/O
VCC	1	3	CLK
VPP	6	8	GND

4. Mechanical structures



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.