



# **ARMPAC-6XXB** Series

7"/10.1" Plastic Chassis Fanless Broadcom BCM2711, Quad core Cortex-A72 HMI

## **User Manual**

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## **Revision History**

Reversion	Date	Description
1.0	2023/03/13	Official Version

## Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

#### Caution

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

#### Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

## Packing List

Accessories (as ticked) included in this package are:		
Adaptor		
Driver & manual CD disc		
Other	_(please specify)	

### **Safety Precautions**

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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## Chapter 1

### **1.1 Features**

- ARM based HMI
- Fanless design
- Flat front panel touch screen
- Raspberry Pi Computer Module 4, Quad Core Cortex-A72 Processor
- Onboard 4GB LPDDR4 DRAM
- Onboard 16GB/32GB eMMC Flash
- DC 24V power input w/ 3KV isolation

### **1.2 Specifications**

	ARMPAC-607B(P)	ARMPAC-610B(P)		
System	System			
CPU	Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz			
Memory	Onboard 4GB	LPDDR4 DRAM		
External IO Port				
USB	1 x USB 2.0 via Vertical USB	type-A connector (Master)		
	1 x USB download via	micro USB (Slave only)		
Serial/Parallel	1 x Pitch 3.5mm 2x5pin Ter	minal Block(COM1_2) with:		
	1 x RS232(RX, TX, RTS, CTS)/2W RS48	35(D+, D-) (COM1), select via jumper		
	1 x RS232(RX, TX,	RTS, CTS) (COM2)		
LAN	1 x GbE LAN, RJ45			
Power	DC24V±10% power input, w/3kV Isolation			
Option	Onboard Wifi/BT module			
	2.4GHz, 5.0 GHz IEEE 802.11 b/g/n/ac wireless			
	Bluetooth 5.0, BLE			
<b>RTC Battery</b>				
<b>RTC Battery</b>	CR2032			
Switch				
Switch	2x2Pin Switch for Burning Mode & Boot Device Select (eMMC/USB Boot Mode)			
LED Indicator				
LED Indicator	1xPower LED			
Storage Space				
Storage	Onboard 16GB/32GB eMMC Flash			

	1 x Micro SD Slot			
Expansion				
Expansion Slot	1 x Mini-PCIe Slot full size for optional 4G module(EC25, w/SIM slot series)			
	1 x 2x8Pin Header for TB-508 series			
	(2xUART[RX,TX],I2C,USB2.0[Vi	a 1 to 4 USB2.0 Hub],3.3V,5V)		
	1 x Micro SIM	slot for mPCIe		
Display				
Display Type	7" color TFT LVDS LCD	10.1" color TFT LCD		
Resolution	800x480	1280x800		
Max. Color	262К	TBD		
Luminance	400	350		
Contrast Ratio	400: 1	800: 1		
Viewing Angle	140(H)/140(V)	170(H)/170(V)		
Backlight Lifetime	20,000 hrs	30,000 hrs		
Touch Screen – Projected Capacitive Type				
Interface	USB			
Light Transmission	88±2%			
Power				
Power Input	DC24V±10% power input, w/3kV Isolation			
Power	MAX: 7.7W (607B)	MAX: 15.4W (610B)		
Consumption				
Mechanical				
Front Bezel Metal	Plastic/Par	nel Mount		
Rear Panel Metal	Plastic/VESA 75	Plastic/VESA 75		
Chassis Color	Blac	sk C		
IP Rating	IP65 Fro	nt Panel		
Dimensions(mm)	204 x 150 x 46	269 x 189 x 49.5		
Net Weight (Kg)	0.7	0.9		
Environmental	Environmental			
Operating	0~E0°⊂ ( 20~	60°C option		
Temperature	0~50 (C (-20~60°C option)			
Storage	-30~70°C			
Temperature				
Humidity	10 to 90% @ 40 $^{\circ}$ C , non-condensing			
Certification	CE / FCC	Class A		
<b>Operating System</b>	Yocto Linux Kernal 5.x	w/Chromium Browser		
	ANDROID 10 above (Default)			

## **1.3** Dimensions



Figure 1.1: Dimensions of ARMPAC-607B(P)



Figure 1.2: Dimensions of ARMPAC-610(P)

### **1.4 Brief Description of ARMPAC-6XXB**

ARMPAC-6B series have 7", and 10.1" in fanless designed ARM based HMI, which comes with flat front panel LED backlight touch designed. They are powered by Broadcom BCM2711 ARM Quad core Cortex-A72 processor, 4GB DDR3 onboard memory, and 16GB eMMC or 32GB eMMC NAND flash onboard. ARMPAC-6XXB series is DC 24V power input and IP66 compliant front panel. The 7", and 10.1" model can be VESA 75 x 75 mounted. The chassis color is Black C for plastic design in 7" and 10.1". Default projected capacitive touch screen supports 7H anti-scratch surface is ideal for use as PC-based controller for industrial automation.



Figure 1.3: Front View of ARMPAC-6XXB Series



Figure 1.4: Rear View of ARMPAC-6XXB Series

## **1.5 VESA Mounting**

The ARMPAC-6XXB series is designed to be VESA mounted as shown in Picture. Just carefully place the unit through the hole and tighten the given screws from the rear to secure the mounting.



Figure 1.5: ARMPAC-6XXB Series VESA Mounting

## 2.1 Motherboard Jumpers Setting and Connectors



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#### 1. DC\_IN1:

(3.50mm Pitch 1x3 Pin Connector), For DC 24V system power input.

Pin#	Signals
1	FG
2	DC_IN-
3	DC_IN+

#### 2. USB1:

(USB type A Port), Front USB connector, it provides a USB2.0 port, High-speed USB 2.0 allows data transfers up to 480 Mb/s, support USB full-speed and low-speed signaling.

#### 3. USB2:

(2.0mm Pitch 1x4 Pin Wafer Header), It provides an internal USB2.0 port, High-speed USB 2.0 allows data transfers up to 480 Mb/s, support USB full-speed and low-speed signaling.

	Pin#	Signals
4 GND	1	5V_VCC
3 D+	2	D-
$\stackrel{2}{\longrightarrow}$ D- $\stackrel{1}{\longrightarrow}$ VCC <b>E</b>	3	D+
	4	GND

#### 4. LAN1:

(RJ45 Connector), Front LAN port. It provides a standard GbE RJ45 Ethernet port.

#### **RJ45 LED Status**

	Speed(LED1)	Link/Activity(LED2)
10	Off	
100	Yellow Solid	Yellow Blinking
GbE	Yellow Blinking	

5. CN2:

(3.50mm Pitch 2x5 Pin Terminal Block), Provides 2xCOM, including 1x4-wired RS232/2-wired RS485 and 1x4-wired RS232.



Pin#	COM1(RS232)	COM1(RS485)	COM2(RS485/CAN)
1			GND
2	GI	ND	
3			CAN_H
4	СТЅ		
5			CAN_L
6	RTS		
7			485-
8	тх	485-	
9			485+
10	RX	485+	

5-1. JP4 (2x4 Pin Jumper), For 4-wired RS232/2-wired RS485 select.

	JP4			
1	00	2		
5	00	6	RS232	(1-3,2-4)
7	00	8	RS485	(3-5,4-6)

5-2. JP8 (1x3 Pin Jumper), For RS485 add terminal.



#### 6. CON1

(2.00mm Pitch 2x8 Female Header), Connector for TB-508 series I/O expansion boards.

Signals	Pin#	Pin#	Signals
5V_VCC	1	2	12V_VCC
USB_D-	3	4	UART3_TXD
USB_D+	5	6	UART3_RXD

GND	7	8	GND
GND	9	10	
SDA1	11	12	
SCL1	13	14	UART4_TXD
3.3V_VCC	15	16	UART4_RXD

#### 7. DEBUG1

•

DEBUG1	Pin#	Signals
1 100	1	3.3V_VCC
2 VCC 3 TX 4 RX GND	2	UART0_TX
	3	UARTO_RX
	4	GND

#### 8.CN1:

(2.00mm Pitch 2x15 Pin Male Header), Provides 18/24bits dual channel LVDS, support up to 1920x1080@60fps.

Signals	Pin#	Pin#	Signals
LCD_VCC	1	2	LCD_VCC
(3.3V/5V select via JP1)	Ţ	Z	(3.3V/5V select via JP1)
LCD_VCC	2	л	CND
(3.3V/5V select via JP1)	5	4	GND
GND	5	6	GND
TXA0-	7	8	TXA0+
TXA1-	9	10	TXA1+
TXA2-	11	12	TXA2+
GND	13	14	GND
TXAC-	15	16	TXAC+
TXA3-	17	18	TXA3+
TXB0-	19	20	TXB0+
TXB1-	21	22	TXB1+
TXB2-	23	24	TXB2+
GND	25	26	GND
TXBC-	27	28	TXBC+
TXB3-	29	30	TXB3+

8-1. JP1 (1x3 Pin Jumper), For LVDS VCC 3.3V/5V select.

#### 9. CN4

(2.00mm Pitch 1x2 Pin Wafer Header), For power LED.

Pin#	Signals
1	PWR_LED
2	GND

#### 10. PSW1

(2.00mm Pitch 1x2 Pin Wafer Header), For external power switch.

Pin#	Signals
1	Power ON/OFF
2	GND

#### 11. BAT1/2 (Co-lay)

(2.00mm Pitch 1x2 Pin Wafer Header/1.25mm Pitch 1x2 Pin Wafer Header\_Default) For RTC battery.

Pin#	Signals
1	VRTC_R
2	GND

#### 12. INVT1:

(2.0mm Pitch 1\*6 box Pin Header), Backlight power & control.



Pin#	Signals
1	12V_VCC
2	12V_VCC
3	GND
4	GND

5	BKLT_EN
6	BKLT_CTRL

**12-1. JP5** (1x3 Pin Jumper), For LCM backlight control mode select.



**12-2. JP6** (1x3 Pin Jumper), For LCM backlight control 3.3/5V select.

JP6  $\begin{array}{r} 1 \\ 2 \\ 0 \end{array}$  Open = 3.3V Short= 5V

**12-3. JP7** (1x3 Pin Jumper), For LCM backlight enable 3.3/5V select.



#### 13. MPCIE

Standard mini PCIe socket with 1xMicro SIM slot (13-1). Support full-sized expansion cards.

#### 14. SW2

For boot mode select (eMMC/OTG device).



15. OTG1

Micro-USB connector for USB download mode.

16. SD1

Micor SD slot support up to 32GB.

## **Chapter 3**

### 3.1 Update Linux for ARMPAC-607BP/610BP

- 1. To upgrade the Yocto Linux firmware, you must have three files as below and prepare a 16 GB above USB flash disk for installation.
  - File 1: win32diskimager-1.0.0-install.exe
    - Make USB boot image disk tool.
  - File 2: 607B\_usb\_flashos.img or 610B\_usb\_flasgos.img Bootable USB flash disk image file (Linux).
  - File 3: core-image-base-raspberrypi4-64.img Yocto Linux FW image file (607B and 610B are different).

#### Step 1. → File1: win32diskimager-1.0.0-install.exe.

1) Install win32diskimager-1.0.0-install.exe



tup - Win32Diskimager — 🗌	-
cense Agreement	
Please read the following important information before continuing.	0
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
This program is licensed under the GNU GPL Version 2 License. Included libraries are licensed under GPL v2 and LGPL v2.1 accordingly.	^
GNU GENERAL PUBLIC LICENSE Version 2, June 1991	
Copyright (C) 1989, 1991 Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.	Ŷ
I accept the agreement	
O I do not accept the agreement	

🐋 Setup - Win32DiskImager	-8		×
Select Destination Location		8	
Where should Win32DiskImager be installed?		(	
Setup will install Win32DiskImager into the following fo	der.		
To continue, click Next. If you would like to select a different fo	l <mark>der, c</mark> lick Bro	wse.	
C:\Program Files (x86)\ImageWriter	Br	owse	
			_
and the state of t			
At least 44.2 MB of free disk space is required.			
	Necks	-	
< Back	Next >	Car	ncei

😼 Setup - Win32DiskImager	2 <del>100</del>		×
Select Start Menu Folder Where should Setup place the program's shortcuts?		(	
Setup will create the program's shortcuts in the followi	ng Start Mer	nu folder.	
To continue, dick Next. If you would like to select a different fo	lder, click Br	owse. rowse	]
< Back	Next >	Car	ncel

👒 Setup - Win32DiskImager		<u>8</u>		×
Select Additional Tasks Which additional tasks should be performed?			¢	
Select the additional tasks you would like Se Win32DiskImager, then click Next.	tup to perform while	installing		
Additional shortcuts:				
Create a desktop shortcut				
	< Back	Next >	Can	icel
		1	12	

📚 Setup - Win32Disklmager		
Ready to Install Setup is now ready to begin installing Win32DiskImager on you	ır computer.	
Click Install to continue with the installation, or click Back if you change any settings.	ı want to revie	ew or
Destination location: C:\Program Files (x86)\ImageWriter Start Menu folder: Image Writer Additional tasks:		^
Additional shortcuts: Create a desktop shortcut		~
< Back	Install	Cancel



#### Step 2. → File2: 607B\_usb\_flashos.img or 610B\_usb\_flasgos.img

1) Run "Win32diskimager" APP to make Linux USB boot disk.



2) Select source file: 607B\_usb\_flashos.img or 610B\_usb\_flasgos.img

Recycle Bin				P	Ма	nage ECB-1	8		
Microsoft Hige	😻 Win32 Disk Imager - 1.0 Image File	0 	Device	File Home Share → → ↑ ↓ ↓ This # Quick access ● OneDrive	View Disc Im PC > Local Disk (C: Name FW 607B_USB	age Tools ) > ECB-18 ^ flashos	<ul> <li>Date modified</li> <li>2/16/2023 5:30 AM</li> <li>2/14/2023 7:59 PM</li> </ul>	ひ 。 Sea Type File folder Disc Image File	<ul> <li>2</li> <li>rch ECB-18</li> <li>Size</li> <li>7,879,680 KB</li> </ul>
Winsedissi	CJECB-18/FW/6078/6078/108_ftethos.inc Hash None Cleanerate Copy Read Only Allocated Partitions Progress	Select a disk image Cryanize  New folder Music	E:U = sk (C:) > ECB-18	This PC Dot: tr Compared to the second sec	Search ECB-18	imager-1.0.0-install ۲ ۶ ۶ Size	11/22/2022 2:43 PM	Application	12,273 KB
	Cancel Read Write		FW 607B_USB_fla	2/16/2023 5:30 AM 2/14/2023 7:59 PM	File folder Disc Image File	7,879,680 KB			
		Program Files     Program Files     Visers     Windows     File name	607B_USB_flashos	; v]	Disk Images (*.img Open	r*IMG) → Cancel			

#### 3) Select "Write"

	$\leftarrow \rightarrow \sim \uparrow \square$ This PC	> Local Disk (C:) > ECB-18	~	ල ව Sear	rch ECB-18
	☆ Quick access OneDrive	Name FW 607B_USB_flashos	Date modified 2/16/2023 5:30 AM 2/14/2023 7:59 PM	Type File folder Disc Image File	Size 7,879,680 Ki
Image File C:/ECB-18/607B_USB_fi Hash None  Genera	ashos.img te Copy	Device [E:1] •			
	Partitions				

#### 4) Select "Yes"

Image File					Device
C:/ECB-18/607	B_USB_flashos.i	mg		2	[E:\] ▼
Hash None	Confirm overw Writing (Target Are you	rrite - 1.0 to a physical dev Device: [E:\] "") I sure you want to	vice can corrupt th o continue?	× . ne device,	
Read C			Ves	No	

📚 Win32 Disk Imager - 1.0		1. <del></del>	
Image File			Device
C:/ECB-18/607B_USB_flashos.img	)		E:\] ▼
Hash None  Generate Con Read Only Allocated Partitions	ру		
Progress			97%
Cancel Read	Write	Verify Only	Exit
30.6931MB/s			03:58/04:04

5) Select "OK"

🔜 I 🕑 🛄 🗧 I	Manage	ECB-18		-	
File Home Share Vie	ew Disc Image Tools				~ (
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $_{\bullet}$ $\diamond$ This PC $\diamond$	Local Disk (C:) > ECB-18	~	ē	,⊂ Sea	rch ECB-18
A 📌 Quick access	Name	Date modified	Туре		Size
ConeDrive	FW	2/16/2023 5:30 AN	/ File f	older	7 070 C00 KD
This PC	win32diskimager-1.0.0-i	nstall 11/22/2022 2:43 P	M Appl	image File	12,273 KB
👾 Win32 Disk Imager - 1.0	- 0 X				
Image File	Device				
C:/ECB-18/607B_USB_flashos.img	(E:\] -				
Hash Complete - 1.0 X None Generate Write Successful. Read Only Allocated Parti OK					
Progress					
Cancel Read Write Verify Or Done.	nly Exit 04:04/04:04	E Microsoft Windows You need to forma you can use it. Do you want to format i	t the di	sk in driv	× e D: before
			F	ormat disk	Cancel

#### 6) Select "Exit"

☐   ☑ 🚽   File Home Share View	M N Disc Ir	lanage ECB-1 nage Tools	8		-	□ × ~ (3
<ul> <li>← → &lt; ↑</li> <li>← This PC →</li> <li>         # Quick access         OneDrive     </li> </ul>	Local Disk (C Name FW 607B_US	:) > ECB-18 ^ B_flashos	<ul> <li>Date modified</li> <li>2/16/2023 5:30 AM</li> <li>2/14/2023 7:59 PM</li> </ul>	ی Type File f Disc	O Sear older Image File	rch ECB-18 Size 7,879,680 KB
This PC  Win32 Disk Imager - 1.0  Image File  C:/ECB-18/6078_USB_flashos.img  Hash None  Generate Copy  Read Only Allocated Partitions  Progress	S win32dis	kimager-1.0.0-install	11/22/2022 2:43 PM	Appl	ication	12,273 KB
Cancel Read Write Verify Only Exit Win32 Disk Imager	y [	Exit You you Do y	Aicrosoft Windows need to format to can use it. ou want to format it?	he dis	sk in drive ormat disk	e D: before

#### 7) Safely Remove USB Disk





#### Step 3. → File3: core-image-base-raspberrypi4-64.img

1) Plug-in USB boot disk to copy FW file.

		Name	Date modified	Tune Si A	<u>^</u>		~				
-	📌 Quick access		2/15/2022 1 45 414	ijpe ola	🖈 Quick access	Name		Date mode	ned	type	
soft ie	ConeDrive	- rw	2/15/2023 1:45 AM	File folder	C OneDrive	CO	re-image-base-raspberrypi4-6	4 2/12/2023	10:34 PM	Disc Ima	ge File
		hcm2708-mi-h d	1/30/2023 3:47 AM	DTB File	onebrive						
2	This PC	hcm2708-mi-b-	1/30/2023 3:47 AM	DTB File	This PC						
	3D Objects	bcm2708-rpi-b-r	1/30/2023 3:47 AM	DTB File	3D Objects						
usia)	Desktop	bcm2708-rpi-cm	1/30/2023 3:47 AM	DTB File	Desktop						
	Documents	bcm2708-rpi-zer	1/30/2023 3:47 AM	DTB File	Documents						
	Downloads	bcm2708-rpi-zer	1/30/2023 3:47 AM	DTB File	L Downloads						
	b Music	bcm2709-rpi-2	1/30/2023 3:47 AM	DTB File	Musia						
	Pictures	bcm2710-rpi-2	1/30/2023 3:47 AM	DTB File	D' Music						
	Theorem	bcm2710-rpi-3	1/30/2023 3:47 AM	DTB File	Pictures						
	VIDEOS	bcm2710-rpi-3	1/30/2023 3:47 AM	DTB File	Videos		Microsoft Windows			×	
	Local Disk (C:)	bcm2710-rpi-cm	1/30/2023 3:47 AM	DTB File	🏪 Local Disk (C:)		I WICIOSOFE WINDOWS			^	
	🕳 boot (D:)	bcm2710-rpi-zer	1/30/2023 3:47 AM	DTB File	👝 boot (D:)		You need to format the	he disk in drive	E: before		
	USB Drive (E:)	bcm2710-rpi-zer	1/30/2023 3:47 AM	DTB File	uSB Drive (E:)		you can use it.				
	- hoot (D:)	bcm2711-rpi-4	1/30/2023 3:47 AM	DTB File	heat (D)						
		bcm2711-rpi-40	1/30/2023 3:47 AM	DTB File	Literra 1 iterrated 20	2.8.40	Do you want to format it?				12-
	USB Drive (E:)	bcm2711-rpi-cm	1/30/2023 4:58 AM	DTB File	Titem Titem selected on	2 IVID					94
	A Network	bootcode.bin	1/30/2023 3:47 AM	BIN File				Format disk	Cancel		
	-	cmdline	1/30/2023 3:48 AM	Text Docu 🗸							
		<		>							

2) Copy "core-image-base-raspberrypi4-64.img" file to USB boot disk "FW" folder.



3) Make USB boot image finished, then safely remove USB Disk.



1. Key-in below command to erase the EMMC data.

/erase.sh									
Poky	(Yocto	Pro.je	ct Refer	ence D	istr	n) 4		nashennuni4-64 -	
								. aspect gpi i oi	
raspb	erryp14	-64 10	ogin: ro	ot					
roote	caspber	run i 4	-64:"# 0	d test					
roote	raspher	rypi4-	-64: "/te	st# ls	-1			a	
total	36								
TUNC	-xr-x 1	1000	tracing	306	Mar	9	2018	burn-in.sh	-
-rwa-	xr-x 1	1000	tracing	17576	Har	9	2018	burnin	
	-xrx 1	POOL	root		reb	13	E202	erase.sh	
		1000	tracing	122	mar	2	2018	Wifi.sh	
1 100 100	THE OWNER WATER OF TAXABLE PARTY.		tracing	160	Her.		2010	WIII_nome.cont	
TW T	acabana		64 · / /						

Erase successfully, Please Power Off.

raspberrypi root@raspber root@raspber	1-64 l rrypi4 rrumi4	ogin: ro -64:~# -64:~# c	ot 1 test					
rooteraspbe	rypi4	-64: ~/te:	st# ls	-1				
total 36								
-rwxr-xr-x	L 1000	tracing	306	Mar	9	2018	burn-in.sh	
-ruxr-xr-x	1000	tracing	17576	Mar	9	2018	burnin	
-rwxr-xr-x	root	root	72	Feb	13	2023	erase.sh	
-ruxr-xr-x	1000	tracing	117	Mar	9	2018	wifi.sh	
-rw-r 1	1000	tracing	123	Mar	9	2018	wifi home.conf	
root@raspber	rupi4-	-64: 7/tes	st#					
rooteraspher	rypi4-	-64: ~/tes	st# ./	erase	e.sh			
200+0 record	s in							
200+0 record	s out							
209715200 bu	tes (2	10 MB. 2	00 Mil	B) co	mie	4. 3.	14172 S. 60 9 MB/S	
rooteraspher	run i4-	64: "/tes	ta					
and the second se		C						

2. Plug-in USB boot disk to ARMPAC-607BP/610BP, then power on.





3. Yocto Linux have been updated successfully!!



## 3.2 Update Android Firmware

To update Android firmware, there must be four files as shown below.

$\rightarrow \uparrow \uparrow \square \rightarrow$ this	; PC → Local Disk (C:) → ECB-18	ٽ ~	⊘ Sear	ch ECB-18
	Name	Date modified	Туре	Size
🖈 Quick access	FW	2/12/2023 5:54 PM	File folder	
a OneDrive	🐺 rpiboot_setup	2/10/2023 12:48 PM	Application	18,299 KE
This DC	🧊 win32diskimager-1.0.0-install	11/22/2022 2:43 PM	Application	12,273 KE
2D Objects	📙 usb_driver_r13-windows	2/12/2023 9:47 PM	File folder	
Music				
Videor				
Local Disk (C:)				

#### 1. File1: usb\_driver\_r13-windows.zip

Google USB Driver (ADB Interface Driver).

#### 2. File2: win32diskimager-1.0.0-install.exe

Make FW boot partition image tool.

#### 3. File3: rpiboot\_setup.exe

Connection eMMC tool.

#### 4. File4: FW image files

Erase eMMC File & update utility & Android Firmware Files

#### Step 1. → File1: usb\_driver\_r13-windows.zip

 Connect Micro USB Cable from ARMPAC-607BP/610BP to your desktop/laptop and Install ADB Interface Driver.



2) Double click "ADB Gadget" to "Update Driver".



3) Select "Browse my computer for driver software" to locate and install driver software.

DB Gad	get Prope	erties			>	<		
General	Driver	Details	Events					
T	ADB Ga	idget						
	Driver P Driver D Driver V Digital S	rovider: late: 'ersion: iigner:	Microsoft 6/21/2006 10.0.19041.1 Microsoft Window	15		÷	Update Drivers - ADB Gadget	
Driv Upc Roll	ver Details date Driver Back Driv	r er	View details about th Update the driver for If the device fails aft back to the previous	e installed dri this device. er updating th ly installed dri	verfiles. e driver, roll ver.		→ Search automatically for drivers Windows will search your computer for the best available driver and install it on your device.	
Disable Device Uninstall Device		vice Disable the device.		e. → Browse my com Locate and install a c			→ Browse my computer for drivers Locate and install a driver manually.	
				OK	Cancel		<u> </u>	
								C

4) Click "Browse" to \usb\_driver\_r13-windows\usb\_driver\

	ter
Search for drivers in this location:	
C:\Users\DDD1GV5\Documents	✓ Browse
✓ Include subfolders	
	ivers on my computer
<ul> <li>Local Disk (C:)</li> <li>ECB-18</li> <li>FW</li> <li>usb_driver_r13-windows</li> </ul>	th the device, and all drivers in the

5) Click "Browse" to \usb\_driver\_r13-windows\usb\_driver\





6) Click "Close" to complete the driver installation.





#### Step 2. → File2: win32diskimager-1.0.0-install.exe

1) Install "win32diskimager-1.0.0-install.exe".





😼 Setup - Win32DiskImager		Ē	×
Select Destination Location		.8	
Where should Win32DiskImager be installed?		Q	J.
Setup will install Win32DiskImager into the following folder	r.		
To continue, click Next. If you would like to select a different folde	r <mark>, c</mark> lick Br	owse.	
C:\Program Files (x86)\ImageWriter	E	Browse	
At least 44.2 MB of free disk space is required.			
< Back Ne	ext >	Car	ncel

👒 Setup - Win32DiskImager	800		×
Select Start Menu Folder Where should Setup place the program's shortcuts?			
Setup will create the program's shortcuts in the follow	wing Start M	enu <mark>fold</mark> er.	
To continue, click Next. If you would like to select a different i	folder, click E	Browse. Browse	
		_	
< Back	Next >	Ca	ncel







#### Step 3. → File3: rpiboot\_setup.exe

1) Install "rpiboot\_setup.exe".



	8.000		>
			8
alling Raspberry Pi USB b	boot.		Q
eement.			
i.0			^
			_
opyleft license for softw	vare and othe	er kinds of	
ractical works are desig y contrast, the GNU Ge are and change all versi s users. We, the Free S	ned to take a neral Public Li ons of a prog Software Fou	away your icense is iramto ndation,	*
click I Agree to continue	. You must a	ccept the	
		C	- 20
	lling Raspberry Pi USB I eement. .0 opyleft license for softw ractical works are desig r contrast, the GNU Ge re and change all versi s users. We, the Free S lick I Agree to continue	lling Raspberry Pi USB boot. eement. .0 opyleft license for software and othe ractical works are designed to take a / contrast, the GNU General Public L re and change all versions of a prog s users. We, the Free Software Fou dick I Agree to continue. You must a	lling Raspberry Pi USB boot. eement. .0 opyleft license for software and other kinds of ractical works are designed to take away your / contrast, the GNU General Public License is re and change all versions of a programto s users. We, the Free Software Foundation, dick I Agree to continue. You must accept the

Choose which features of Raspbe	rry Pi USB boo	t you want to in	stall.	Q
Check the components you want nstall. Click Next to continue.	to install <mark>and</mark> u	incheck the com	ponents you dor	i't want to
Select components to install:	Raspberry	Pi USB Boot	Description Position you over a comp see its descr	r mouse onent to iption,
Space required: 29.1 MB				

🍯 Raspberry Pi USB boot Setup	15	_		×
Choose Install Location				8
Choose the folder in which to install Raspberry Pi USB boot.				<b>e</b>
Setup will install Raspberry Pi USB boot in the following folder. To dick Browse and select another folder. Click Install to start the in	install in a stallation.	a differ	ent fold	ler,
Destination Folder C:\Program Files (x86)\Raspberry Pi		Brows	se	]
Space required: 29.1 MB Space available: 59.5 GB				
Nullsoft Install System v3.08				
< Back	Install		Can	icel







#### Step 4. → File4: FW image files (Erase eMMC)

- 1) Connect Micro USB Cable from ARMPAC-607BP/610BP to your desktop/laptop.
- 2) Run "Command Prompt"

Recycle	Ein Snip & Sketch Sticky Notes T		Productivity	त्र न <b>४ २ न</b>	We speak Outlook		Bevice Manager     File Action View     ← → □ □ □ □     ↓     CONSTRUCTION     Addition     Android De     Android De     Android De     Android De     Android De     Android De     De     Dik drives     Dick drives	Help MTE Composite ADB Interfa to and outputs	×
	- 🋉 Tips		Office	6	Mail 🖻	🛄 I 🕑 🦲 〒 1 607B	36 Cimura	pres	- 0 ×
	V		0		$\downarrow$	File         Home         Share         View           ←         →         ↑         Image: white wh	> 607B	✓ 8	Search 607B
			Microsoft Edge	Photos		Downloads	Name	Date modified	Туре
	-—		Explore			Music	img	2/12/2023 11:19 PM	File folder
	Windows Accessories					Videor	adb	5/5/2022 1:01 PM	Application
					I.	Local Disk (C:)	AdbWinUsbApi.dll	5/5/2022 1:01 PM	Application exten
	Windows Administrative Tools			$\pm$	$\pm$	ECB-18	emmc	2/13/2023 12:28 AM	Text Document
	Windows Ease of Access		Microsoft Store			EW	EraseMMC	2/12/2023 11:45 PM	Windows Batch File
700						ush driver r13-windows	💽 fastboot	5/5/2022 1:01 PM	Application
8	Windows PowerShell					Intel	libwinpthread-1.dll	5/5/2022 1:01 PM	Application exten
	Windows Security		$\downarrow$	$\downarrow$		PerfLogs	iggi upgrade	12/2/2022 10:23 AM	Windows Batch File
	_				Play	Program Files			
	Windows System					Program Files (x86)			
5	Command Prompt					Users	<		,
5226		-12	Pin to Start			9 items 2 items selected 85 bytes			111 K
6	Control Panel		More		-M Die te tacki				
	File Explorer				Pin to taskt	par			
Ö	📨 Run				CO Run as adm	inistrator			
-	P Type here to search		0	H 📀	D Open file lo	cation		🗊 ^ @ 🐿 🤀	(1) 12:43 AM

- 3) Change the path to the FW placement directory
- 4) Key-in "EraseMMC.bat"



5) Power off, then change Dip-Switch 2 to **ON** (Download Mode).



**Step 5.** → **Run "rpiboot**" utility to connect eMMC.

- 1) Connect Micro USB Cable from ARMPAC-607BP/610BP to your desktop/laptop.
- 2) Power on ARMPAC-607BP/610BP.
- 3) Run **"rpiboot**" utility





- 4) If there is more than one "USB Driver", it means that eMMC is connected.
- 5) Run "Win32diskimager" APP

Recycle Br Microsoft Edge	Microsoft Windows You need to format the dis you can use it. Do you want to format it?	× ik in drive D: before trimat disk Cance	Image: Point of the period       File     Computer       View     Image: Point of the period       Image: Point of the period     This period	Manage Drive Tools PC C C	<ul> <li>D</li> <li>D</li> <li>Search This PC</li> </ul>	× Q
United States	Open       Open file location       Pan as administrator       Troubleshoot compatibility       Pin to Start       Scan with Microsoft Defender       Pin to taskbar       Restore previous versions       Send to       Cut       Copy       Create shortcut       Delete       Rename		Ji B C Objects     Desktop     Doscuments     Downloads     Music     Pictures     Videos     Music     USB Drive (D)     USB Drive (D)     VSB Drive (D)     VSB Drive (D)     Network  9 items     1item selected	<ul> <li>Downloads</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> <li>Devices and drives (i, solution)</li> <li>Solution (Columnation)</li> <li>Solution (Columnation)</li> <li>USB Drive (Do)</li> </ul>	2) 3.8 GB	
	Properties					

6) Select source file: "/FW/6XXB/img/deploy-sd.img"

Recycle Bin	Microsoft Windows     X You need to format the disk in drive D: before						
on the case	you can use it.	😼 Select a disk image					Х
	Do you want to format it?	← → → ↑ 🛄 « ECB-18 → F	FW → 607B → img	5 v	Search img		P
Microsoft	Format disk Cancel	Organize 🔻 New folder				EE 🔹 🔲	0
Edge		👌 Music	Name	Date modified	Туре	Size	
8	😼 Win32 Disk Imager - 1.0 — 🗆 🗙	Pictures	boot	7/15/2022 2:34 PM	Disc Image File	28,672 KB	3
	Image File	Local Disk (C:)	bootloader-sd	10/5/2022 12:19 PM	Disc Image File	130.944 KB	8
Wins2Diski		ECB-18	deploy-gpt	7/15/2022 2:34 PM	Disc Image File	128 KB	3
		FW	🔷 💿 deploy-sd	7/15/2022 2:34 PM	Disc Image File	262,144 KB	5
	Hash	607B	env	7/14/2022 7:33 PM	Disc Image File	256 KB	3
	None  Generate Copy	usb_driver_r13-windows	i super	7/15/2022 2:36 PM	Disc Image File	1,433,600 KB	l.
	Read Only Allocated Partitions	PerfLogs					
	Progress	Program Files					
		Program Files (x86)	~				
	Cancel Read Write Verify Only Exit	File name: deg	oloy-sd	~	Disk Images ( Open	'.img *.IMG) Cancel	×

Image File			Device
C:/ECB-18/FW/607B/img/deploy	-sd.img		[D:\] •
lash			
None T Generate C	00V		
Tione Generate	opy.		
Read Only Allocated Partition	IS		
Progress			
Progress			
Progress			

C:/ECB-18/	FW/607B/img/deploy-sd.img	Device [D:\] ▼
Hash	Source Confirm overwrite - 1.0 X Writing to a physical device can corrupt the device. (Target Device: [D:\] "") Are you sure you want to continue?	
Read O Progress	Yes No	

👒 Win32 Disk Imager - 1.0		-	- C	x c
Image File				Device
C:/ECB-18/FW/607B/img/deploy-sd.img				[D:\] -
Hash None  Generate Copy Read Only Allocated Partitions				
Progress				29%
Cancel Read Wr	rite	Verify Only		Fxit
				- Aller and a second se

👒 Win32 Disk Imager - 1.0 —	-	I X
Image File		Device
C:/ECB-18/FW/607B/img/deploy-sd.img		[D:\] 🔻
Hash None  Generate Write Successful.		
Read Only Allocated Partit OK OK		
Cancel Read Write Verify Only		Exit
Done.	00:	53/00:53

7) Power Off, then change Dip-Switch 2 to **Off** (Normal Mode)



#### Step 6. → FW image files (Upgrade Android FW)

- 1) Connect Micro USB Cable from ARMPAC-607BP/610BP to your desktop/laptop.
- 2) Power on ARMPAC-607BP/610BP.
- 3) Run "Command Prompt"



- 4) Change the path to the FW placement directory
- 5) Key-in "upgrade.bat"



🔤 Administrator: Command Prompt - upgrade	_31		×
Microsoft Windows [Version 10.0.19045.2006] (c) Microsoft Corporation. All rights reserved.			^
C:\Windows\system32>cd\			
C:\>cd C:\ECB-18\FW\607B			
C:\ECB-18\FW\607B>upgrade			
C:\ECB-18\FW\607B≻fastboot.exe flash gpt .\img\deploy-gpt.: Sending 'gpt' (128 KB) OKAY [ Writing 'gpt' OKAY [ Finished. Total time: 0.094s	img 0.016s] 0.031s]		
C:\ECB-18\FW\607B>fastboot.exe flash bootloader .\img\boot] Invalid sparse file format at header magic Sending sparse 'bootloader' 1/1 (7296 KB) OKAY [ Writing 'bootloader' OKAY [ Finished. Total time: 7.343s	loader-sd 0.266s] 6.843s]	.img	
C:\ECB-18\FW\607B>fastboot.exe flash uboot-env .\img\env.im Sending 'uboot-env' (256 KB) OKAY [ Writing 'uboot-env' OKAY [ Finished. Total time: 0.078s	ng 0.016s] 0.031s]		
C:\ECB-18\FW\607B>fastboot.exe reboot Rebooting OKAY [ Finished. Total time: 0.000s	0.000s]		
C:\ECB-18\FW\607B>timeout /t 3			
Waiting for 0 seconds, press a key to continue			
C:\ECB-18\FW\607B>fastboot.exe oem format < waiting for any device > OKAY [ 0.016s] Finished. Total time: 0.016s			
C:\ECB-18\FW\607B>fastboot.exe flash bootloader .\img\boot] Invalid sparse file format at header magic	loader-sd	.img	~

Administrator: Command Prompt - upgrade		-		×
< waiting for any device >				^
OKAY [ 0.016s]				
Finished. Total time: 0.016s				
C:\ECB-18\FW\607B>fastboot.exe flash bootloader Invalid sparse file format at header magic	. <mark>\img\b</mark> oot	loader-so	1.img	
Sending sparse 'bootloader' 1/1 (7296 KB)	OKAY [	0.24951		
Writing 'hootloader'	OKAY [	6.82751		
Finished. Total time: 7.387s				
C:\FCB-18\FW\607B>fastboot.exe flash uboot-env .	\img\env.i	mø		
Sending 'uboot-env' (256 KB)	OKAY [	0 01651		
Writing 'uboot-env'	OKAY [	0.03151		
Finished. Total time: 0.125s	Surf [	010222]		
C:\FCB-18\FW\607B>fastboot.exe flash recovery bo	ot .\img\b	oot.img		
Invalid sparse file format at header magic		P		
Sending sparse 'recovery hoot' 1/2 (16380 KB)	OKAY [	0.54751		
Writing 'recovery hoot'	OKAY I	0 73451		
Sending sparse 'recovery hoot' 2/2 (7140 KB)	OKAY I	0 23451		
Writing 'recovery hoot'	OKAY [	0.60951		
Finished. Total time: 2.297s				
C:\ECB-18\FW\607B≻fastboot.exe erase misc				
Erasing 'misc'	OKAY [	0.03151		
Finished. Total time: 0.141s				
C:\ECB-18\FW\607B>fastboot.exe reboot-fastboot				
Rebooting into fastboot	OKAY [	0.0475]		
< waiting for any device >				
Finished. Total time: 13.374s				
C:\ECB-18\FW\607B>fastboot.exe flash boot a .\im	g\boot.img			
Sending 'boot a' (32768 KB)	OKAY [	1.1115]		
Writing 'boot a'	OKAY I	0.57851		
Finished. Total time: 2.541s		and the second s		
C:\ECB-18\FW\607B>fastboot.exe flash dtbo a .\im	g\boot dtb	o.img		
Sending 'dtbo a' (48 KB)	OKAY [	0.00051		
Writing 'dtbo a'	OKAY I	0.063s1		
a sharan an a				~

### Please any key to Countinue......

📾 Administrator: Command Prompt			-	×
Sending 'dtbo_a' (48 KB)	OKAY	[	0.0005]	-
Writing 'dtbo_a'	OKAY	]	0.0635]	
Finished. Total time: 0.094s				
C:\ECB-18\FW\607B>fastboot.exe flash super .\img\	super.	.ir	ng	
Invalid sparse file format at header magic				
Sending sparse 'super' 1/6 (262124 KB)	OKAY	]	13.7655]	
Writing 'super'	OKAY	ĺ	4.5475]	
Sending sparse 'super' 2/6 (262128 KB)	OKAY	Į	12.9055]	
Writing super	OKAY	ŗ	4.5785	
Sending sparse super 3/6 (262140 KB)	OKAY	Ļ	11.07/5]	
Writing Super	OKAY	Ļ	5.9065	
Sending sparse 'super' 4/6 (260588 KB)	OKAY	Ļ	12./335	
Writing super	OKAY	Ļ	5.9685	
Sending sparse super 5/6 (235248 KB)	OKAY	Ļ	11.3905	
writing super	UKAY	Ļ	5.3285	
Sending sparse super 6/6 (76640 KB)	UKAY	Ļ	3.6095	
writing super	UKAY	L	3.3905]	
Finished. Total time: 100.7595				
C:\ECB-18\FW\007B>TastDoot.exe -w	OKAN		0 521-1	
Erasing userdata	UKAY		0.5315]	
Frase successful, but not automatically formatting				
File system type raw not supported.	OKAN		0.000-1	
Frasing metadata	UKAY		0.0005]	
Frase successful, but not automatically formatting				
File system type raw not supported.				
Finished. Total time: 0.5945				
C:\ECB_18\EW\607B\timeout /t 1				
Waiting for 0 seconds, press a key to continue				
C:\ECB-18\EW\607B>fasthoot exe rehoot				
Rehonting	OKAY		0 000-1	
Finished Total time: 0 016s	ORAT		0.0003]	
Thisned, focal cline, 0.0105				
C:\ECB-18\FW\607B>pause				
Press any key to continue				
C:\ECB-18\FW\607B>cd				
C:\ECB-18\FW>				

6) When firmware has been updated successfully, The screen will show the "android" word and enter to Android OS desktop.





				0
	Q Search apps			
0	8		(1)	
Clock	Contacts	Files	Firefox	
	<b>\$</b>	-		
Search	Settings	WebView Browse		
			k	
	Clock Clock Search	Q Search appsImage: ClockImage: ContactsImage: ClockImage: ContactsImage: ClockImage: ClockImag	ClockContactsFilesClockSettingsWebView Browse	ClockContactsFilesFirefoxClockContactsFilesFirefoxCockSettingsWebView BrowseK

7) Please remove Micro USB Cable from ARMPAC-607BP/610BP.

#### Notes:

USB Download Port: When connecting this product to the HOST PC by a micro-USB cable, the USB HUB will be disabled, so these 3 USB host connectors TYPE-A (USB1), Touch (USB3) and m-PCIE 4G/LTE module (USB2) will not work.

Download Tools info:

#### Download "rpiboot\_setup.exe"

https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot\_setup.exe

#### Download "win32diskimager-1.0.0-install.exe"

https://osdn.net/projects/sfnet\_win32diskimager/downloads/Archive/win32diskimager-1.0.0-install.exe/

## Download the "Google USB Driver ZIP File" (usb\_driver\_r13-windows.zip)

https://developer.android.com/studio/run/win-usb

