AIM-Android10-ARM_64-TPC1XX User Manual 2023-06-01



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1 About Manual

Thank you for using Advantech product and AIM-Android 10. This manual is a user manual of AIM-Android 10. This manual may be copied and distributed in any medium, either commercially or non-commercially.

2 Introduction

AIM-Android 10 is developed for Advantech devices based on formal Android 10. It is customized to satisfy users' requirements and to add new functions and features.

2.1 New features

2.1.1 Automatic Installation

In the process of installation, device recognizing can make phase more automatically. It will ensure that the users use Advantech android in Advantech device more comfortably.

2.1.2 Debugging Support

In the Advantech device you can also use adb over NET. It will ensure that the users use debugging in Advantech device more comfortably.

2.1.3 Serial Port Support

We have developed a demo serial port JNI, JAR and utility for users. It can test serial port functions with UI utility.

2.1.4 Pre-installed Third Party Applications

Third party applications are installed as default: KioskSetting, Android agent(Device Manager), ComPort, Chromium, power manager. It is more convenient for the user.

2.2 Device support list

We currently support the following products: TPC-1XX

2.3 Preview

After installation, you can see the HOME and application list:



HOME

7:57 🖬 🖪				
I		Q Search apps		
•	-	0	۲	
Android Agent	Calendar	Chromium	Clock	ComPort
2			5	L
Contacts	Files	Gallery	Kiosk Setting	Phone
Ф		\$	ø	
power manager	Search	Settings	WebView Browser Tester	
		٠		

App List

3 Boot up from SD card or eMMC

TPC-1XX supports boot from SD card or onboard flash. This section will guide you how to build an image for TPC-1XX Android system boot media.

The storages devices name as following

Device	Node	
sdcard	/dev/mmcblk1	
eMMc	/dev/mmcblk2	

3.1 Create a bootable SD card

You are able to find the pre-built image from Advantech website. Please follow the steps below to create an SD card(<u>not less than 16G</u>) for boot up. (Note: The PC's free partion need <u>10G</u> <u>or more</u>)

Ubuntu: Copy "AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip" package to your PC/root/. Open "Terminal" on Ubuntu LTS. \$sudo su (Change to "root" authority) Input your password. # cd /root/ # unzip AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip (Unzipfiles) Insert one SD card into your PC. Check the SD card location, like /dev/sdb #dd if=/root/AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd /eamb9918-sdcard_20211222.img of=/dev/sdb bs=4096 #sync #eject /dev/sdb Then insert the SD card to TPC-1XX and power up. Now, it should boot up with an Ubuntu environment.



Windows 10:

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Unzip the AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip.(Note: The PC's free partion

need <u>10G or more</u>)

Use the rufus to burn the image.

🖉 Rufus 3.10.1647	—	\times
Drive Properties		
Drive Properties —		
NO LABEL (Disk 2) [16 GB]	~	周
Boot selection		
eamb9918-sdcard_20211214.img	✓ ✓ SELECT	-
Partition scheme	Target system	
MBR	BIOS (or UEFI-CSM)	
 Hide advanced drive properties List USB Hard Drives Add fixes for old BIOSes (extra partition 	, align, etc.)	
Use Rufus MBR with BIOS ID	0x80 (Default)	
Format Options Volume label 16 GB		
File system	Cluster size	
FAT32 (Default)	8192 bytes (Default)	
Hide advanced format options Quick format Create extended label and icon files Check device for had blocks	1 pass	~
	1 pass	
Status —		
REAL	YC	
§ î ≆ ≣	START CLOSE	
Using image: eamb9918-sdcard_20211214.i	mg	

Then insert the SD card to TPC-1XX and power up.

Now, it should boot up with an Ubuntu environment.

Note:

1. The DIP switch (SW2) needs to be adjusted to "1-off 2-on 3-on 4-off 5-off 6-off".

2. If you switch the operating system from android to linux, you need to re-input the uboot env.

The resolution's parameters:

```
1024x600(7",tdm07040ws) -> lvds_panel_mode 0
1280x800(10",g101ice) -> lvds_panel_mode 1
1366x768(15.6",g156bge) -> lvds_panel_mode 2
1920x1080(15.6".g156hce) -> lvds_panel_mode 3
1920x1080(21",g215han) -> lvds_panel_mode 5
For example:
#env default -a
#setenv lvds_panel_mode 1
#saveenv
#reset
```



3.2 Boot from eMMC

Please follow the section 3.1 to create a bootable SD card, that is TPC-1XX Ubuntu SD card. The TPC-1XX Android Image is in the SD card(/root/AndroidImg).

In the TPC-1XX Ubuntu.

Perform the following command: \$sudo su #cd /root/AndroidImg #./burnEmmc.sh /dev/mmcblk2 And then, please power off and remove the SD card. Now, the TPC-1XX can boot up from the Android.

Note:

1.The DIP switch(SW2) needs to be adjusted to "1-on 2-off 3-off 4-off 5-off 6-off".2.Wait for the LCD interface to have a screen output (for the first time, the eMMC needs about 65s). Do not shut down during the waiting process / Unplug the SD card / Unplug the monitor / Run the system command through the console, otherwise the system may crash.

3. If you switch the operating system from linux to android, you need to re-input the uboot env.

The resolution's parameters:

1024x600(7",tdm07040ws) -> lvds_panel_mode 0
1280x800(10",g101ice) -> lvds_panel_mode 1
1366x768(15.6",g156bge) -> lvds_panel_mode 2
1920x1080(15.6".g156hce) -> lvds_panel_mode 3
1920x1080(21",g215han) -> lvds_panel_mode 5
For example:
#env default -a
#setenv lvds_panel_mode 1
#saveenv
#reset



4 OS Upgrade

TPC-1XX supports the system upgrade function. The system update function requires OTA app.. If your current system is not installed, please refer to Chapter 4.1 for installation first. If it is already installed, please skip Chapter 4.1.

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		Q Search apps		
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Android Agent	Calendar	Chromium	Clock	ComPort
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Contacts	Files	Gallery	Kiosk Setting	ΟΤΑ
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Phone	power manager	Search	Settings	WebView Browser Tester
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4.1 Install AndroidOTA app

1. Put the AndroidOTA_v1.0.apk package into the USB stick and connect the USB stick to the device





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Audio	
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Kingston USB 30.42 GB free		
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Kingston USB 30.42 GB free		
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4.2 Copy the update package to the internal storage

1. If you cannot see the internal storage (TPC_1XX) in the File browser, please follow the steps below

1:36		••
Recent	🖪 Images 🔞 Audio 🔛 Videos 📔 Documents	New window
Recent	RECENT FILES ON PHONE	New folder
Videos		Sort by
Audio		Select all Show internal storage
Downloads		Get info

No items



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Images	RECENT FILES ON PHONE		≔
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Downloads			
TPC_1XX 5.92 GB free	Screenshot_2022 27.04 kB 1.36 AM		
USB drive 8.01 GB free			

•

Put the update.zip ota package into the USB stick and connect the USB stick to the device
 Copy the system update package update.zip file in the USB flash drive

◄

3:03 ψ 🕲 \times 1 selected < Î : Open with 🗾 Images 🕜 Audio 🔛 Videos 📄 Documents C Recent Sort by... FILES ON KINGSTON USB DRIVE Images Select all LOST.DIR Videos 3 Copy to... Audio Move to... Compress ıЩı 3 Downloads Rename TPC_1XX 5.92 GB free Get info AndroidOTA_v1.0. 2.21 MB 2:35 AM update.zip 592 MB 2:25 AM Kingston USB... 30.42 GB free ψ 2 (1)◀ • 4. Select internal storage (TPC_1XX).



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ĝ	Kingston USB drive 30.42 GB free					
				Noitems		
					CANCEL	СОРУ
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5. Create a new folder named ota_package.

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\equiv TPC_1XX						:
FILES ON TPC_1XX						New folder
Alarms	Android	AndroidManager	DCIM	Download	Movies	Sort by Hide internal storage
Notifications	pic	Pictures	Podcasts	Ringtones		

		CANCEL	СОРҮ
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FILES ON TPC_1XX							:=
Alarms	Android	AndroidManager	DCIM	Download	Movies	Music	
Notifications	pic	Pictures	Podcasts	Ringtones			
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≡ ota_package	~						:
FILES ON TPC_1XX							:=
			No items				
						CANCEL	СОРУ

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4.3 Start Update

Method 1:

Restart the system directly. After the system is powered on next time, the ota app will automatically detect the update package of /sdcard/ota_package/ directory and then complete the system update.

Method 2:

Run ota app to update . Follow the picture steps below

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Contacts	Files	Gallery	Kiosk Setting	ота
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Phone	power manager	Search	Settings	WebView Browser Tester
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Α				
/sdcard/ota_package	/undate zin			
/ sucura/ ota_package	upuate.zip			
		UPDATE		



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ΟΤΑ				
/sdcard/ota_package/upd	ate.zip			
	Loading			
	5%		5/100	
		version 1.0		
OTA				
/sdcard/ota_package/upd	ate.zip			
		UPDATE		
	UPDATE SUCCESS!			
	Ready to reboot device		_	
	•	version 1.0		

5 Usage

5.1 About SerialPort sample

After installing AIM-Android, you will see a Serial application in App list. Users can test serial port with it.

Note:

Choose the SerialPort mode.
 Settings->Network & internet->
 Select serial mode(com1)(232mode,422mode,485mode)
 The COM1(/dev/ttymxc0) support three modes: 232mode,422mode,485mode.
 The COM2(/dev/ttymxc2) only support 485 mode.

After starting the application, you will see:

0	11 , 2		
1:53 OComPort			
COM Po	rt Settings	Loop Back Windows	
COM Port Baud Rate Common	/dev/ttymxc0 115200 ✔ LoopBack	Sent Bytes O Received Bytes O Lost Bytes O Corrupted Bytes O Start Loopback Test	
		< ● ■	

Serial port options

Usage: choose the port, baudrate.(e.g., ttymxc0, 115200)

5.2 About KioskSetting

For Android Kiosk solution, Advantech provide a kiosk setting launch App, user can use this App to set any other android App as kiosk App, kiosk App means it will run in full screen when boot up, navigate bar and status bar of android will hide.

5.2.1 Set the Kiosk Setting app as the default launcher

Just launch the kiosksetting app, the app can be the android default home app. When KioskSetting app starts for the first time, you can see the following screen. Please set the password of kiosk mode according to the prompt information in the dialog box.



Klosk Mode Password Setup	
Note: The password must be at least 12 characters long and include: an uppercase character, a lowercase character, a digit and a symbol.	
Password	
Confirm Password	
Use a 6-character password	
SUBMIT	

After input, click "SUBMIT" button to enter the app main interface.

	Kiosk Setting							
	V1.0.6							
	Select One App For Kiosk I	Mode			 		Ċ	6
	\$	\bigcirc						
	Settings	Chromium	WebStation					
L				 	 			
	SELECT THE APPS	WEBSTATION SET	JP			LOCK & LAUNCH	EXIT	

5.2.2 Set third app as kiosk app

First, click the "Chromium" icon in the main interface, and then click the "LOCK & LAUNCH" button to set the Chromium app as kiosk app.



Kiosk Setting						
V1.0.6						
Select One App For Kiosk Mode						Ċ f
Settings	WebStation					
SELECT THE APPS WEBSTATION S	ETUP				LOCK & LAUNG	CH EXIT
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	GitHub	维基百科	VZEX	百度知道		
	Discover - off				¢	

5.2.3 Exit kiosk app

If you want to exit the kiosk app, you need to touch the screen in the upper left corner and pull it inward for 3 seconds and enter the password for setting the kiosk mode before.



					Exit Ki	osk Ma	de												
					Passv	vord (
												[CONTIN	JE	CANCE	L			
a	1	14/	2	0	3	r	4	+	5	Ň	6		7	;	8	0	9	n	0
Ч		vv		е		1		ι		у		u		1		0		þ	
	а		S		d		f		g		h		j		k		Ι		
+		z		Х		С		V		b		r	ı	m	1	ļ		?	*
?123		,																	٢

5.2.4 Set WebView as kiosk app

Click the "WEBSTATION SETUP" and input the URL.



Kiosk Setting			
Select One App For Kiosk	Mode	<u>ර</u> සි	
Setect One App For Nosk	Mode Chromium WebStation		
SELECT THE APPS Kiosk Setting V1.06	WEBSTATION SETUP	HEXIT	
Select One App For Kiosk I	Aode	06	
Settings	WebStation Address Setup URL https://www.google.com		
SELECT THE APPS	WEBSTATION SETUP	SH EXIT	

Click the "WebStation" icon in the main interface, and then click the "LOCK & LAUNCH" button to set the WebStation app as kiosk app.

Kiosk Setting			
VIUS Select One App For Klosk Mode		Ċ	f
Settings Chromium WebStahm			
X			
	~		
SELECT THE APPS WEBSTATION SETUP	LOCK & LAUNCH	EXIT	



If you want to exit the kiosk app, you need to touch the screen in the upper left corner and pull it inward for 3 seconds and enter the password for setting the kiosk mode before.

5.2.5 Select the app to display

Click the "SELECT THE APPS" icon in the main interface

Kiosk Setting	
V1.0.6	
Select One App For Kiosk Mode	0
🔯 🧿 🚊	
Settings Chromium WebStation	
/	
SELECT THE APPS WERSTATION SETUP	LOCK & LAUNCH





5.2.6 Exit kioskSetting

Click the "EXIT" in the main interface and input the password. If you exit the application successfully, the launche3 will be the default home app.





5.3 Other Applications

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Many other applications for arm supported by Android or other resource web sites. You can search and download them from internet by yourself.

5.4 Virtual keyboard

5.4.1 How to keep the virtual keyboard display while the

physical keyboard is active

Open the "Show virtual keyboard" option on the "System->Languages & Input->Physical keyboard" page of the setting app.



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8:00 🕲		$\odot \heartsuit$
←	Physical keyboard	۹
	KEYBOARD ASSISTANCE	
	Show virtual keyboard Keep it on screen while physical keyboard is active	۲
	Keyboard shortcuts helper Display available shortcuts	
	4 • =	

NOTE: If you do not want to pop up the virtual keyboard when using the physical keyboard, please turn off this option.

5.4.2 How to disable virtual keyboard

Open the "Apps & notifications" page in the setting app and find the "Android keyboard(AOSP)" app, then click to go to the app details page

8	:01 🕲		Θ	\bigcirc
	÷	App info	Q	:
	•	Android Agent 3.06 MB		
		Android Keyboard (AOSP) 147 kB		
	1	Calendar 65.54 kB		
	9	Chromium 9.31 MB		
	9	Clock 106 kB		
	Ş	ComPort 57.34 kB		
	E	Contacts 57.34 kB		



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Enabling an Intelligent Planet	AIM-Android 10 Manual
8:01 (3)	$\odot \diamondsuit$
← App info	۹
a de la companya de la	
An due i d Kenne	
Android Keyr	board (AUSP)
O ISABLE	A FORCE STOP
Notifications ~0 notifications per week	
Permissions No permissions granted	
Storage & cache 197 kB used in internal storage	
Mobile data & Wi-Fi	
No data used	

Then click the "DISABLE APP" button

8:02 🕲		e	∋⊽
÷	App info		۹
		Andreid (AOCD)	
		Android Keyboard (AUSP)	
	D: Notifications ~0 notifications per week	If you disable this app, Android and other apps may no longer function as intended. Keep in mind, you can't delete this app since it came pre-installed on your device. By disabling, you turn this app off and hide it on your device. CANCEL DISABLE APP	
	Permissions		
	No permissions granted		
	Storage & cache 197 kB used in internal stor	rage	
	Mobile data & Wi-Fi		
	No data used	 ✓ ✓ 	

NOTE: If you want to enable the virtual keyboard again, please click the button below

A	D\ANTECH				
	Enabling an Intelligent Planet			AIM-Android 10 Manual	
8:05	1 (3)				$\odot \heartsuit$
←	App info				Q
		Android	Koyboard (AOSP)		
		Android	Reyboard (AOSP)		
	(U) ENABLE			A FORCE STOP	
	Notifications ~0 notifications per week				
	Permissions No permissions granted				
	Storage & cache 197 kB used in internal storage				
	Mobile data & Wi-Fi				
	No data used	•	•		

5.5 How to use adb tool in windows

5.5.1 Install ADB

After the connection is built, download & execute "ADBDriverInstaller.exe" to install adb driver.

ADB Driver Installer 2.0 - ADB	APK Installe	r	- 0 ×
Current Operating System: Win	dows 7 Service Pack 1 [x64]	Device Manager	Refresh
Manufacturer	Description	Device Status	
O ASUS	ADB Interface	Driver incorrect	ly
Heb	AD8 Driver Installer 2.0 for Windows XP (Vista/7/8/10 [x86 or x64]		Instal

5.5.2 Create PATH

Add adb-tool and create path in windows.





Variable	Value
APR_ICONV_PATH TEMP TMP	C:\Program Files (x86)\Subversion\iconv %USERPROFILE%\AppData\Local\Temp %USERPROFILE%\AppData\Local\Temp
6	New Edit Delete
ystem variables	
ystem variables Variable	Value
ystem variables Variable APR_ICONV_PATH	Value C:\Program Files (x86)\Subversion\iconv
ystem variables Variable APR_ICONV_PATH asl.log	Value C:\Program Files (x86)\Subversion\iconv Destination=file
ystem variables Variable APR_ICONV_PATH asl.log ComSpec 50. No. HOST. C	Value C:\Program Files (x86)\Subversion\iconv Destination=file C:\windows\system32\cmd.exe
ystem variables Variable APR_ICONV_PATH asl.log ComSpec FP_NO_HOST_C	Value C:\Program Files (x86)\Subversion\iconv Destination=file C:\windows\system32\cmd.exe NO

Compu	ter Material (E:) adb-tools		
File Edit View Tools	Help	14	
	In library Snare with INew to	lder	
🚖 Favorites	Name	Date modified	Туре
Nesktop	adb.exe	2016/9/14 18:15	Application
🐌 Downloads	🔊 adbWinApi.dll	2016/9/14 18:16	Application ext
📃 Recent Places			
📜 Libraries			

x.
PATH
E: \adb-tools
OK Cancel





Appendix

1. How to start application after booting android system?

After android system is started, it will broadcast an action message named 'android.intent.action.BOOT_COMPLETED'. You can receive this message and start your application.