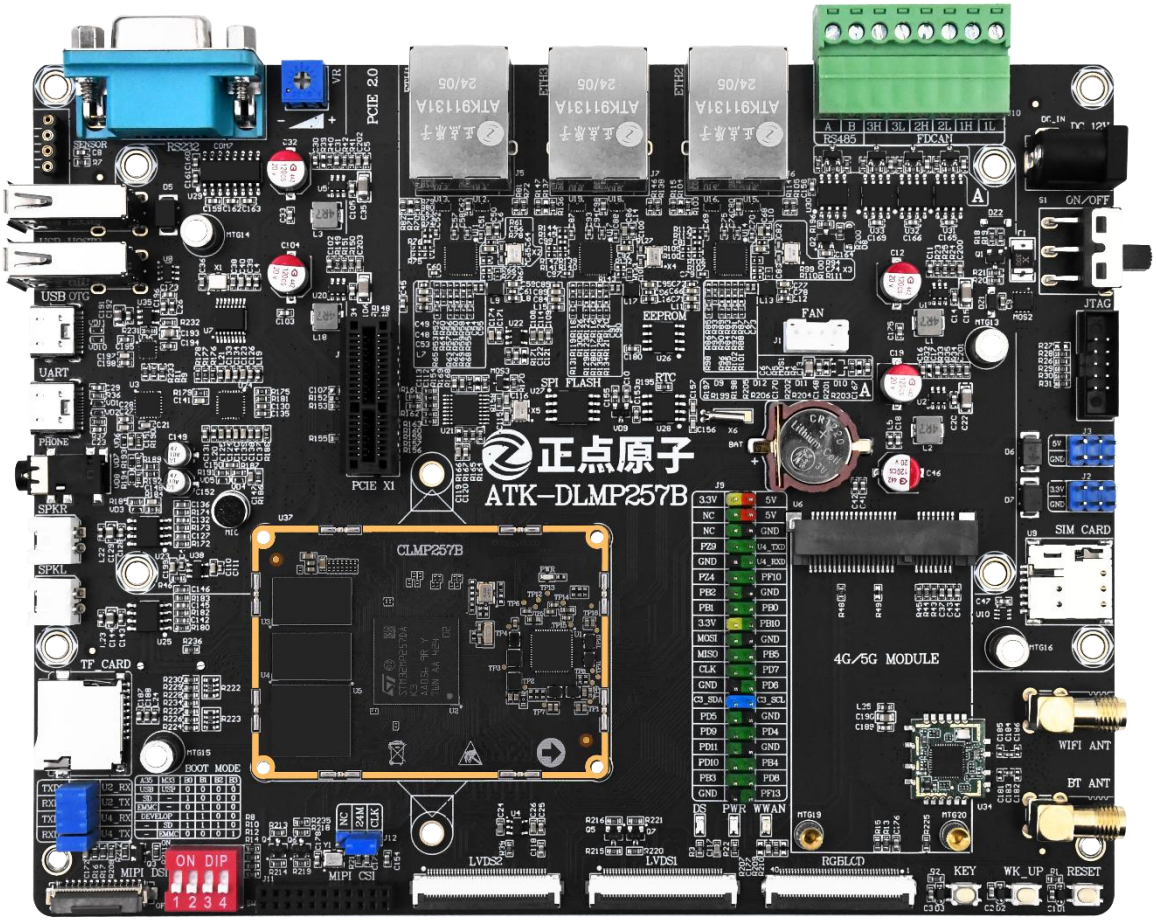
ATK-DLMP257B

Virtual machine usage Reference manual

V1.0



ALIENTEK

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Disclaimer

The product specifications and instructions mentioned in this document are for reference only and subject to update without prior notice; Unless otherwise agreed, this document is intended as a product guide only, and none of the representations made herein constitutes a warranty of any kind.

In order to get the latest version of product information, please regularly visit the download center or contact the customer service of Taobao ALIENTEK flagship store. Thank you for your tolerance and support.

Revision History:

Version	Version Update Notes	Responsible person	Proofreading	Date
V1.0	release officially	ALIENTEK	ALIENTEK	2025.04.01

Catalogue

Chapter 1. Environmental Declaration

In order to facilitate users to develop based on ATK-DLMP257B development board, ALIENTEK team specially packaged a basic virtual machine image to help users learn and develop smoothly. This virtual machine can only be used for the compilation of ATK-DLMP257B source code provided by ALIENTEK. If you need the corresponding libraries and tools for compiling other programs, please install and adapt them by yourself.

This virtual machine is configured as follows:

Mirror parameter	Description	Remarks
Image package compressed file size	20.1GB	
Image package unzipped file size	44.9GB	Includes cross compiler 15G, Qt environment more than 20 G
Number of processors	4	
Memory	8GB	
Hard disk	500GB	This can be expanded manually later
Network adapter	bridge pattern	If you cannot connect to the Internet, please adapt according to your own computer network
USB controller	USB3.0	Can be configured in "Virtual Machine Settings"
Ubuntu version	Ubuntu24.04	No upgrade is required, which can lead to compilation errors, etc
File Transfer service	vsftpd	
Default login username	alientek	
Default login password	123456	
root Password	123456	

Users need to install VMware software on their computer to use this virtual machine. The configuration and software version of the author's computer are as follows, for reference only:

Parameters	Description	Remarks
CPU	Intel i9-12900H	
Memory	16.00 GB	At least 8GB
Storage	512 GB solid state drive	Reserve at least 100GB
System version	Windows10 64-bits	
VMware version	VMware® Workstation 17 Pro	
File transfer tools	filezilla	
Decompression software	7-Zip	

Chapter 2. Virtual machine image import

2.1 Unzip the image package

After downloading the image package, we can create a folder to store the unzipped files. This folder will also be the storage space of our virtual machine. If the space is limited, we will choose a disk with at least 100GB of space. (The total virtual machine size should be at least 60GB. The larger the storage space, the more beneficial it is for later learning. It is also necessary to consider the compilation space, other tools, routine source code, user's actual situation, etc. It is necessary to expand the capacity in advance before the storage space is insufficient, otherwise the virtual machine window interface cannot be started)

Unzip the image package. Here I use 7-Zip software to decompress, such as error! The reference source was not found. Here it is:

Figure 2.1-1 Unzip the image package

Wait for the decompression to complete:

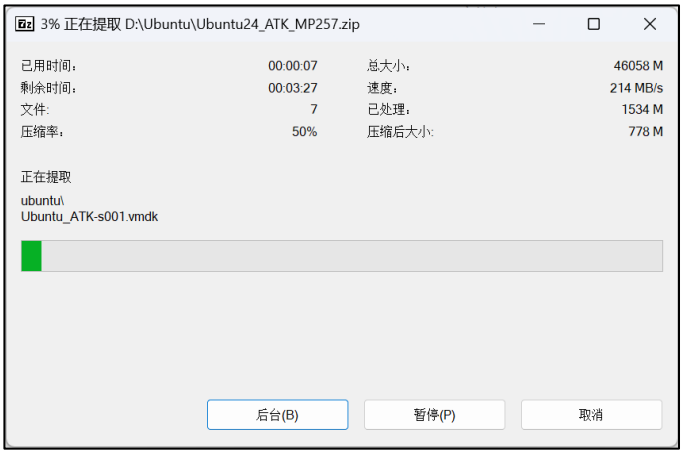

Figure 2.1-2 Wait for the unzipped image package to complete

Once the decompression is complete, the image zipper file can be moved to another disk space to make room for the virtual machine.

The extracted virtual machine is about 45GB, as shown in the figure.

Figure 2.1-3 Size of the unzipped image

2.2 Turn on the virtual machine

Open the VMware software, open "File" in the upper left corner, and select "Open" as shown in the figure.

Figure 2.2-1 Open the virtual machine

Locate the unzipped.vmx file and open it, as shown.

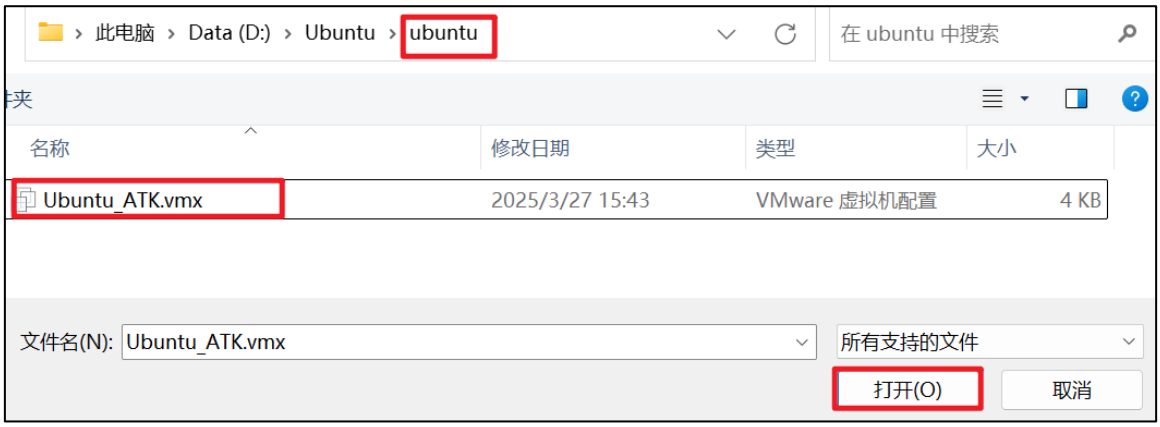

Figure 2.2-2 Open the vmx file

If opened and prompted to take ownership, we can choose to take ownership. If not, you can ignore it.

After importing the virtual machine, the default configuration information looks like this:

Figure 2.2-3 Default virtual machine configuration

Open our virtual machine system, will prompt "This virtual machine may have been moved or copied", select "I have copied this virtual machine". I have tested that if you choose "mobile" there will be network issues and errors will occur when transferring files.

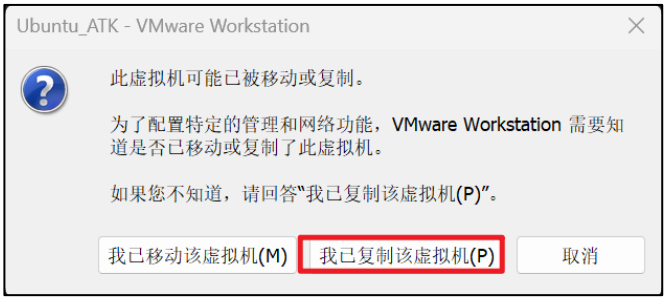

Figure 2.2-4 Make sure to replicate the virtual machine

Once the virtual machine starts up, it will log us in automatically. The default user is alientek and the password is the number 123456.

The default virtual machine interface looks like this:

Figure 2.2-5 Default virtual machine interface

In this way, our basic virtual machine environment import is completed, and then we can configure the network, USB3.0 and so on according to our computer environment. To build the network environment, you can refer to the video of the correct ALIENTEK on the B station, and you only need to configure the virtual machine to network. The USB3.0 configuration is shown in Figure 2.2.8 (some older versions may set USB3.1) :

Figure 2.2-6 Set USB3.0\3.1

Chapter 3. Cross-compiler toolchain usage

3.1 The cross-compilation toolchain

The factory system cross-compilation toolchain for the ATK-DLMP257B development board is included in the ATK-DLMP257B virtual machine, located in the /opt/st/stm32mp2/5.0.3-snapshote directory. After enabling the factory system cross compilation tool chain in the terminal, the user can compile the ARM64 architecture executable file or firmware, and run it on the development board.

```
alientek@ubuntu:~/桌面$ cd ~
alientek@ubuntu:~$ cd /opt/st/stm32mp2/5.0.3-snapshot/
alientek@ubuntu:/opt/st/stm32mp2/5.0.3-snapshot$ ls
environment-setup                       sysroots
environment-setup-cortexa35-ostl-linux  version-cortexa35-ostl-linux
site-config-cortexa35-ostl-linux
alientek@ubuntu:/opt/st/stm32mp2/5.0.3-snapshot$
```

Figure 3.1-1 Factory system cross compilation toolchain

Specific source code compilation, can be combined with the corresponding documents to operate, such as the factory source code compilation can refer to the development board network disk information under the user manual directory of the ATK-DLMP257B factory system source code use guide, C application compilation can refer to the ATK-DLMP257B embedded Linux C application programming guide under the tutorial document directory of the development board network disk materials.

Chapter 4. Using Qt creator

4.1 Introduction to Qt Creator Software

Qt Creator is a cross-platform IDE developed by Qt Corporation, designed for developing applications using the Qt framework. It provides a user-friendly interface, a rich set of features, and deep integration into the Qt ecosystem, designed to ease the development, debugging, and deployment process of Qt applications. The display interface of ATK-DLMP257B uses Qt5.15, and the program source code is open source.

In the ATK-DLMP257B virtual machine, the Qt Creator software is installed, and the default is Qt Creator software version 5.0.2 and QT version 5.15.2

4.2 Open Qt Creator

Do the following to open Qt Creator: First, open "Show Applications" in the lower left corner of the virtual machine, and the search bar will pop up, as shown in the figure:

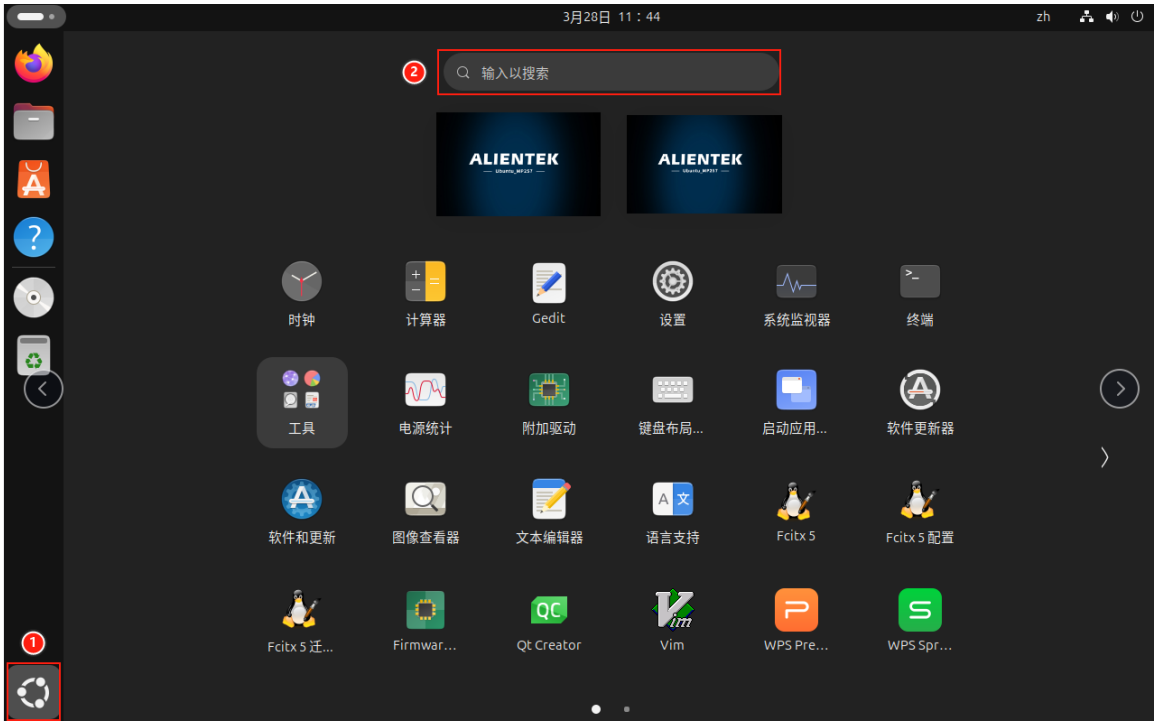

Figure 4.2-1 Display the application

Search for Qt in the search bar and click Qt Creator to run the software, as shown in the figure.

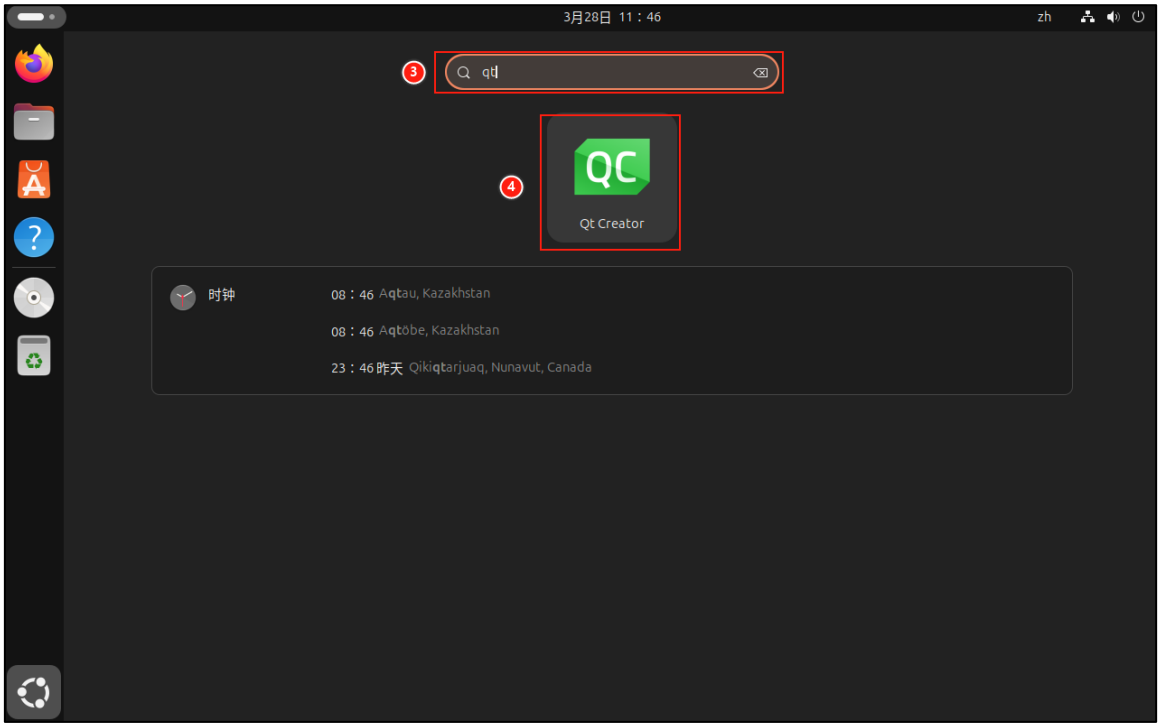

Figure 4.2-2 Search for and open Qt Creator

Open the back screen.

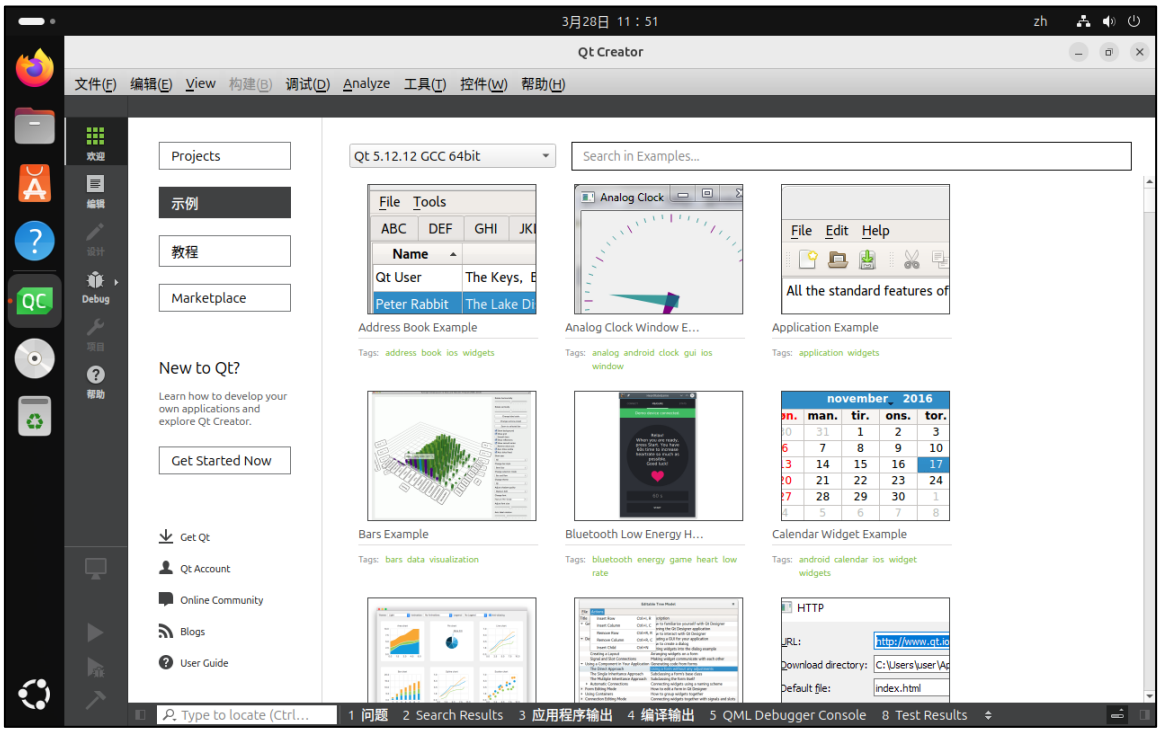

Figure 4.2-3 Qt Creator interface

4.3 Qt Compilation

In the ATK-DLMP257B virtual machine, the build kit of the ATK-DLMP257B development board (including gcc, g++, qmake and other configurations) has been added to the Qt Creator build suite,

and the user does not need to modify it. Qt program compilation steps based on ATK-DLMP257B development board can refer to "[ALIENTEK] ATK-DLMP257B builds Qt development environment based on the factory system " under the user manual directory of the network disk information of the development board.

In ATK-DLMP257B virtual machine, Qt remote debugging configuration of ATK-DLMP257B development board has been added. As long as the user has configured the network, the virtual machine and the network of the development board can communicate normally, Qt remote debugging can be used. The use method can refer to "[ALIENTEK] ATK-DLMP257B builds Qt development environment based on the factory system " in the user manual directory of the development board network disk information.

4.4 Instructions for the Qt interface source code of the development board's factory system

Please refer to the " ATK-DLMP257B factory QtUI compilation manual V1.0" in the user manual directory of the development board network disk information.