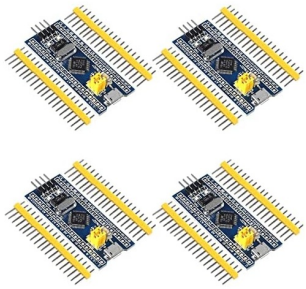


LuatOS AIR32F103C8T6 USB C STM32 Compatible Devpmetment Board User Guide

LuatOS

AIR32 BLUEPILL USER GUIDE

Contents

SUPPORT

If you require assistance, please feel free to contact us at tamshunservice@gmail.com.

OVERVIEW

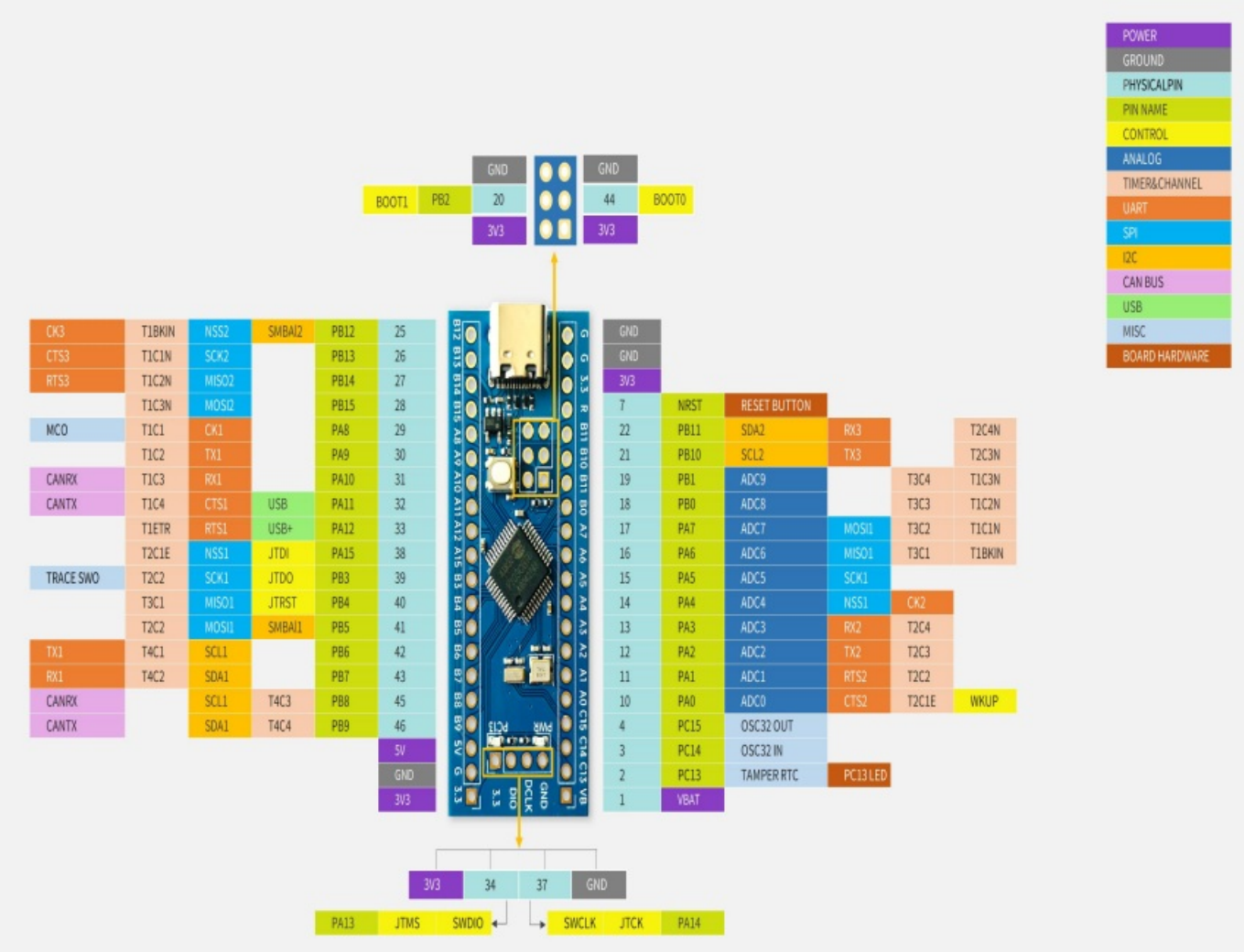
Air32F103 is a series of microcontrollers with the first model being the Air32F103CBT6. Its peripherals and hardware design are compatible with some of the mainstream F103 models in the market. It has a maximum frequency of 256MHz, with 96KB of RAM and 128KB of flash memory. Each IO can be configured with independent internal pull-up and pull-down resistors.

AIR32F103 CHIP COMPARISO

Chip Parameters Comparison

	STM32 F103C6T6	STM32 F103C8T6	AIR32 F103CBT6	AIR32 F103CCT6 (Coming soon)
FLASH	32K	64K	128K	256K
RAM	10K	20K	96K	96K
Main Frequency	72M	72M	256M	256M
Timer	3	4	10	10
ADC	2 (10 channels)	2 (10 channels)	3 (16 channels)	3 (16 channels)
DAC	None	None	2 (2channels)	2 (2channels)

PINOUT DEFINITION



AIR32F103 BLUEPILL PCB
https://wiki.luatos.com/_static/bom/BluePill.html

SCHEMATIC

Please click the following link for reference.
https://cdn.openluat-luatcommunity.openluat.com/attachment/20220605164915340_AIR32CBT6.pdf

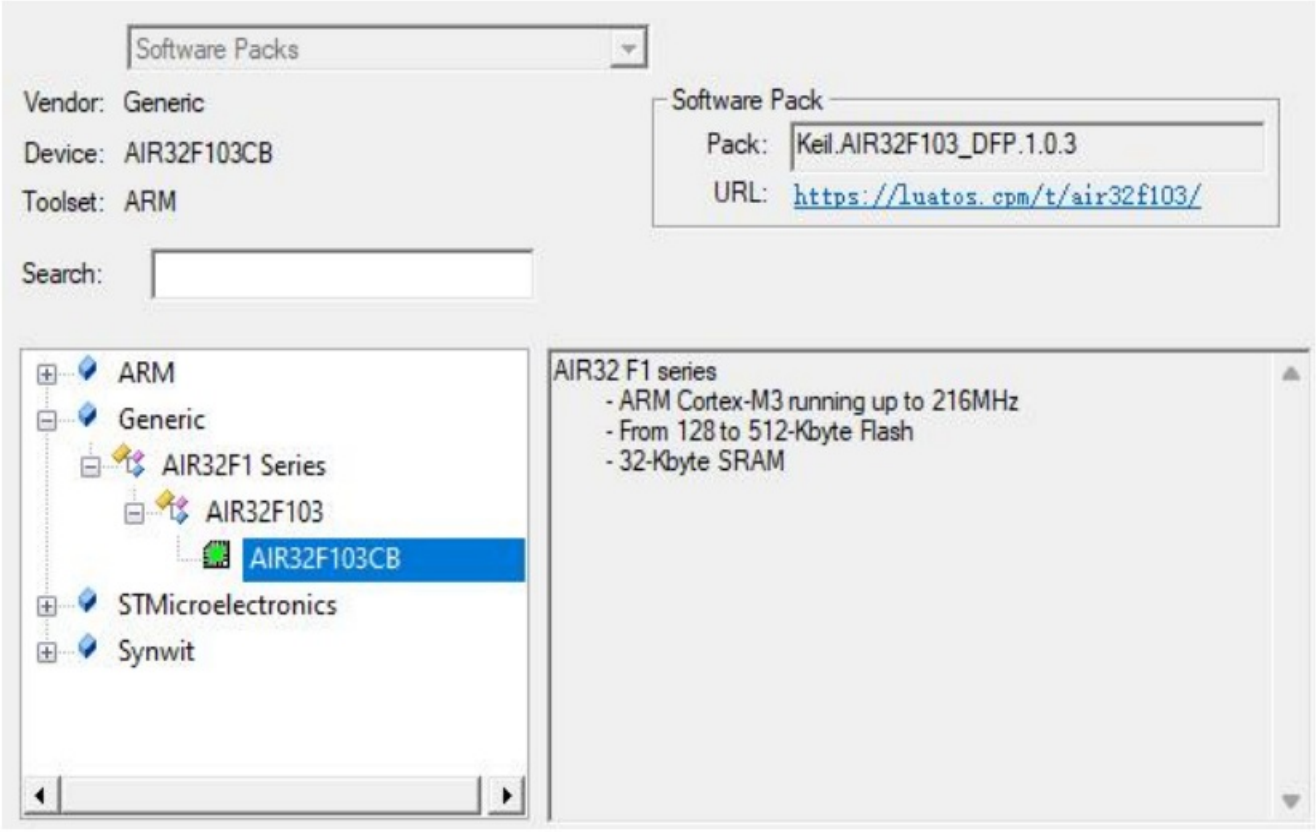
DEVELOPMENT ENVIRONMENT CONFIGURATION

Note: The following development system is Windows by default.

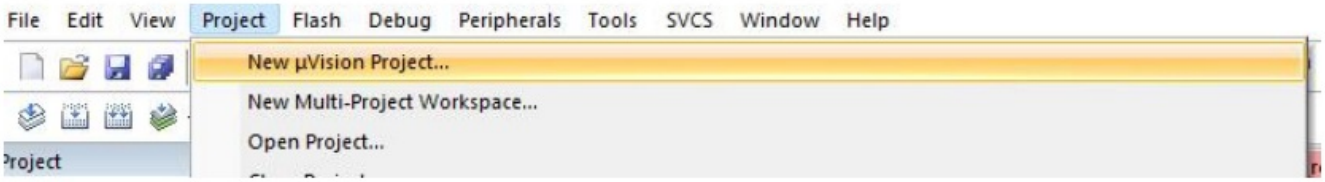
Preparation

1. Install MDK5.
2. Download and install the SDK of AIR32F103.

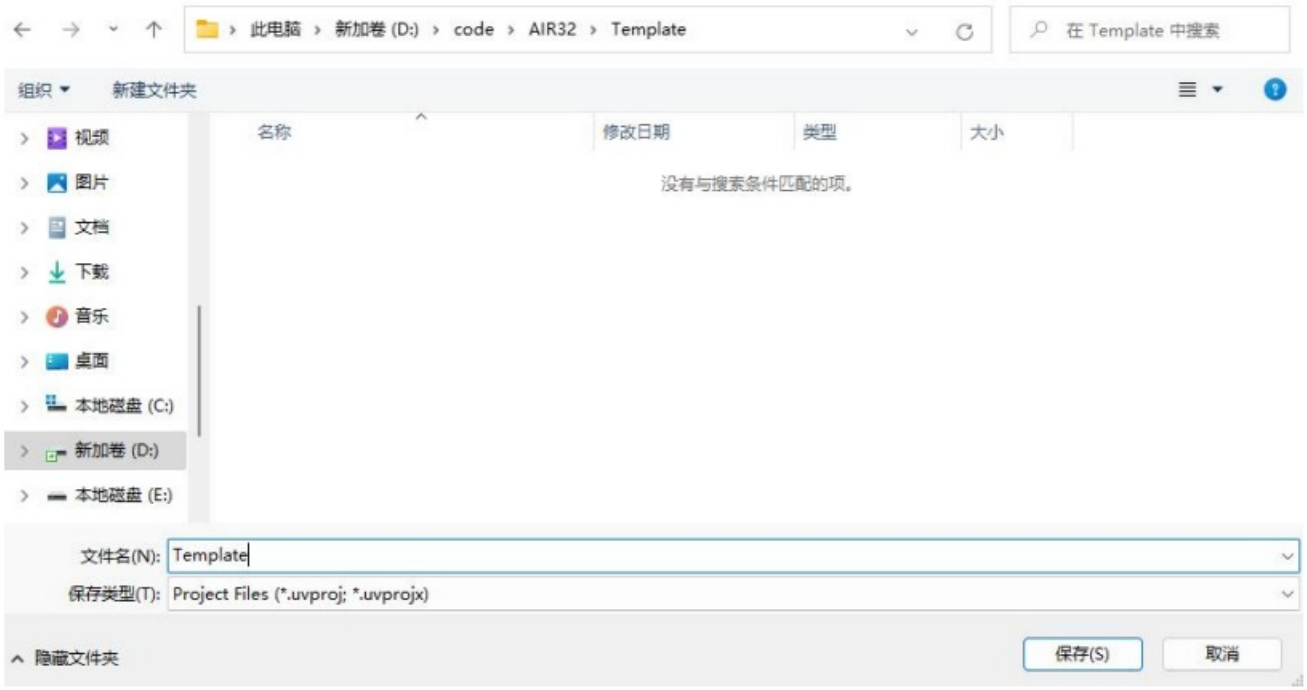
Install the Support Package
Find the latest pack file in the AIR_Jlink_Keil folder, double click to install it.



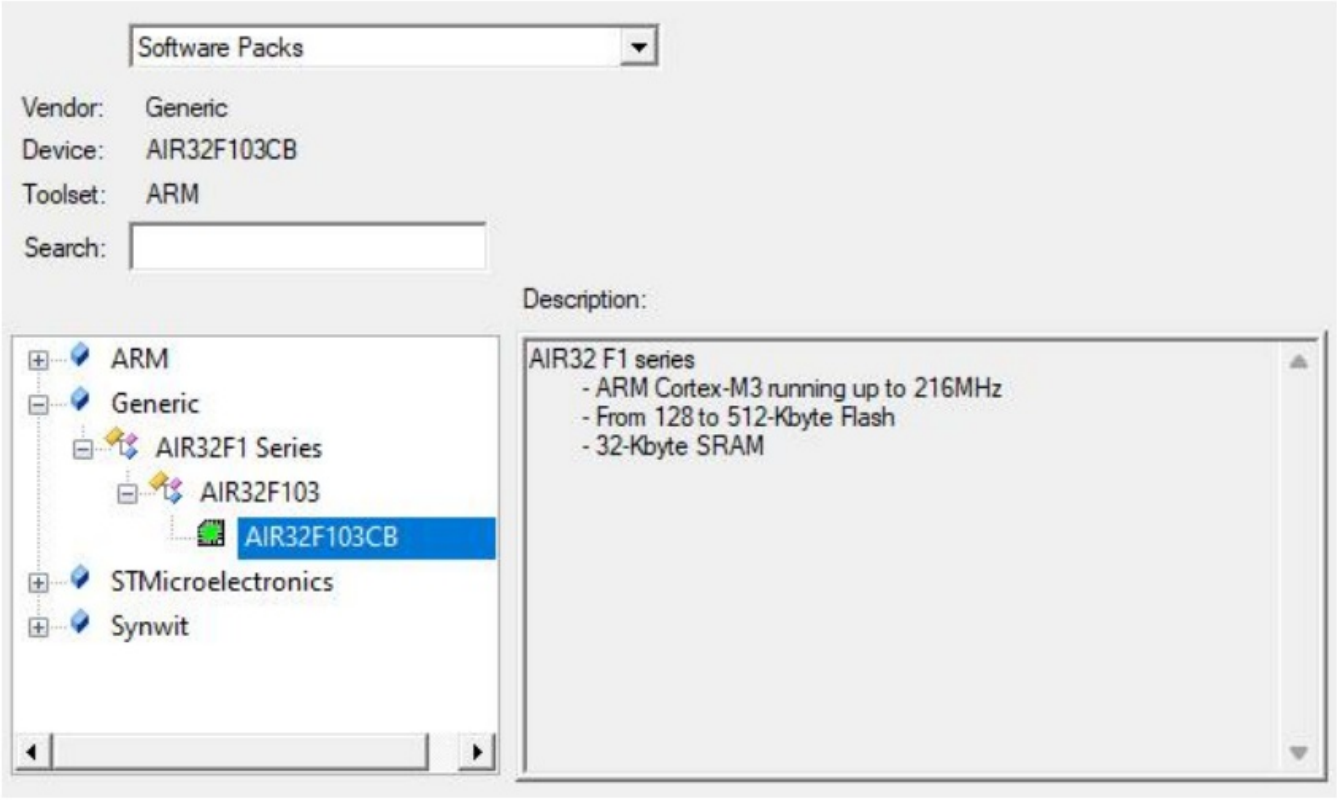
New Construction
Click Project->New µVision Project in the menu bar



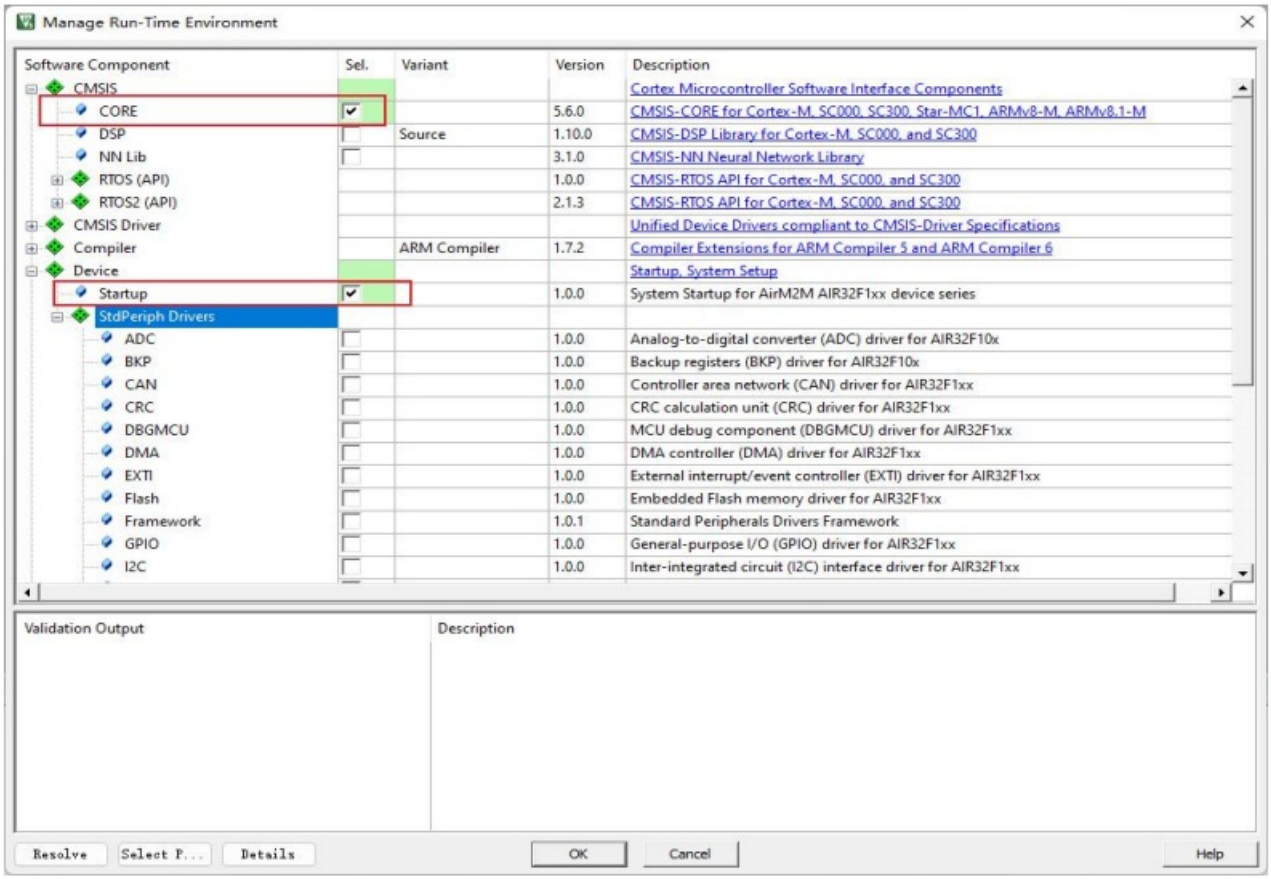
Create folder and project name, path according to your actual choice



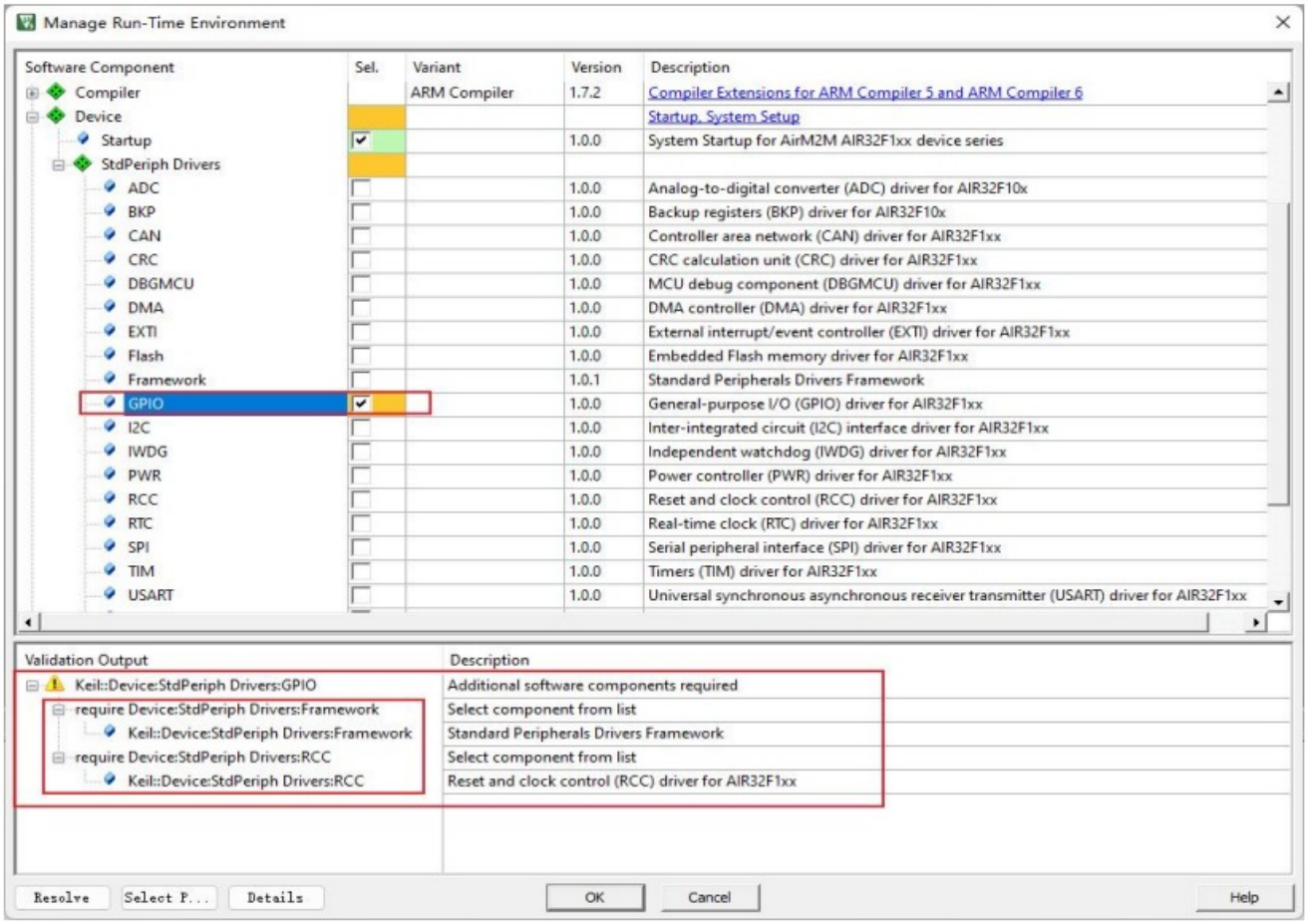
Select AIR32F103CBT6 under Generic in the device list.



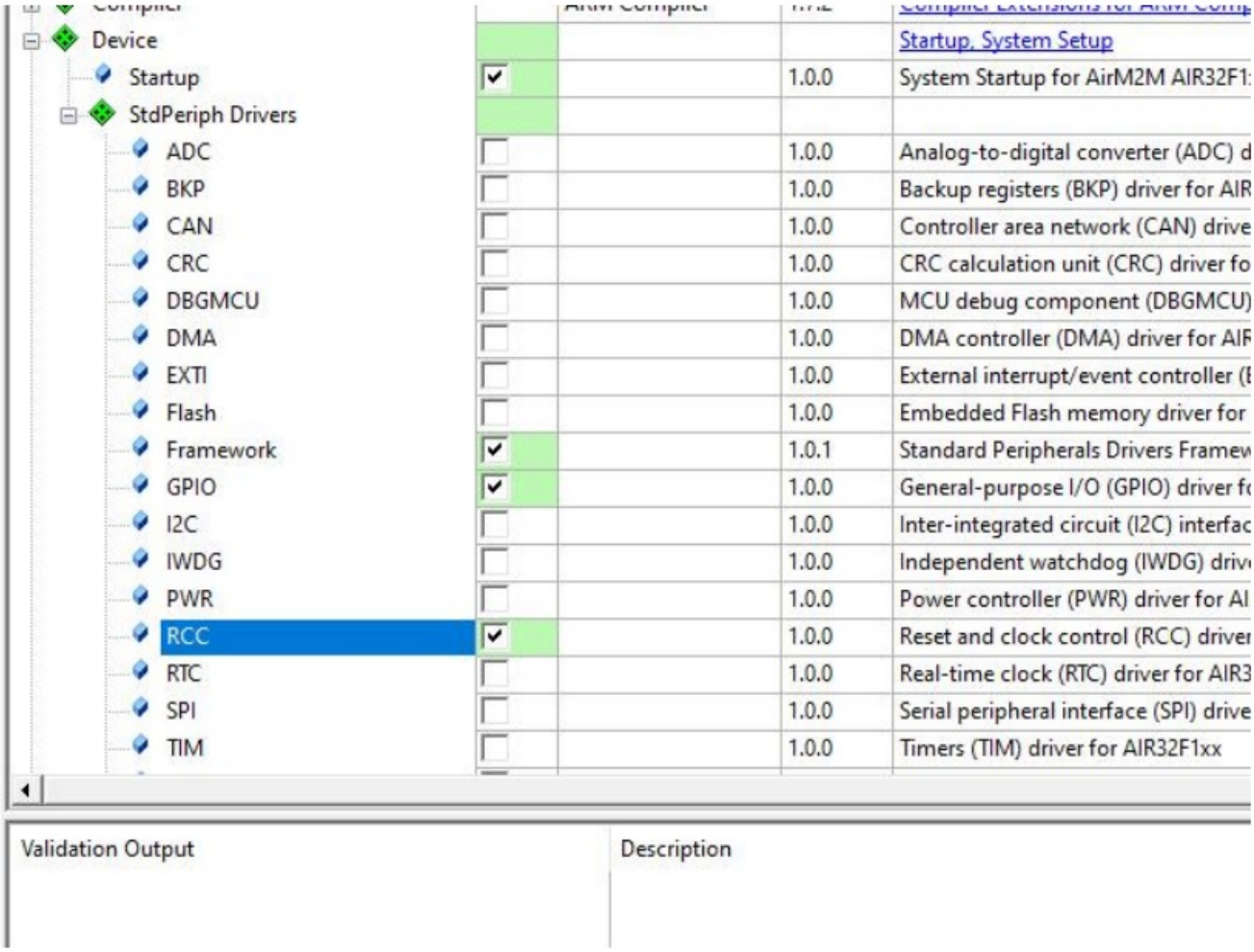
Add the startup file, check the CORE under CMSIS and Startup under Device to automatically configure the startup file.



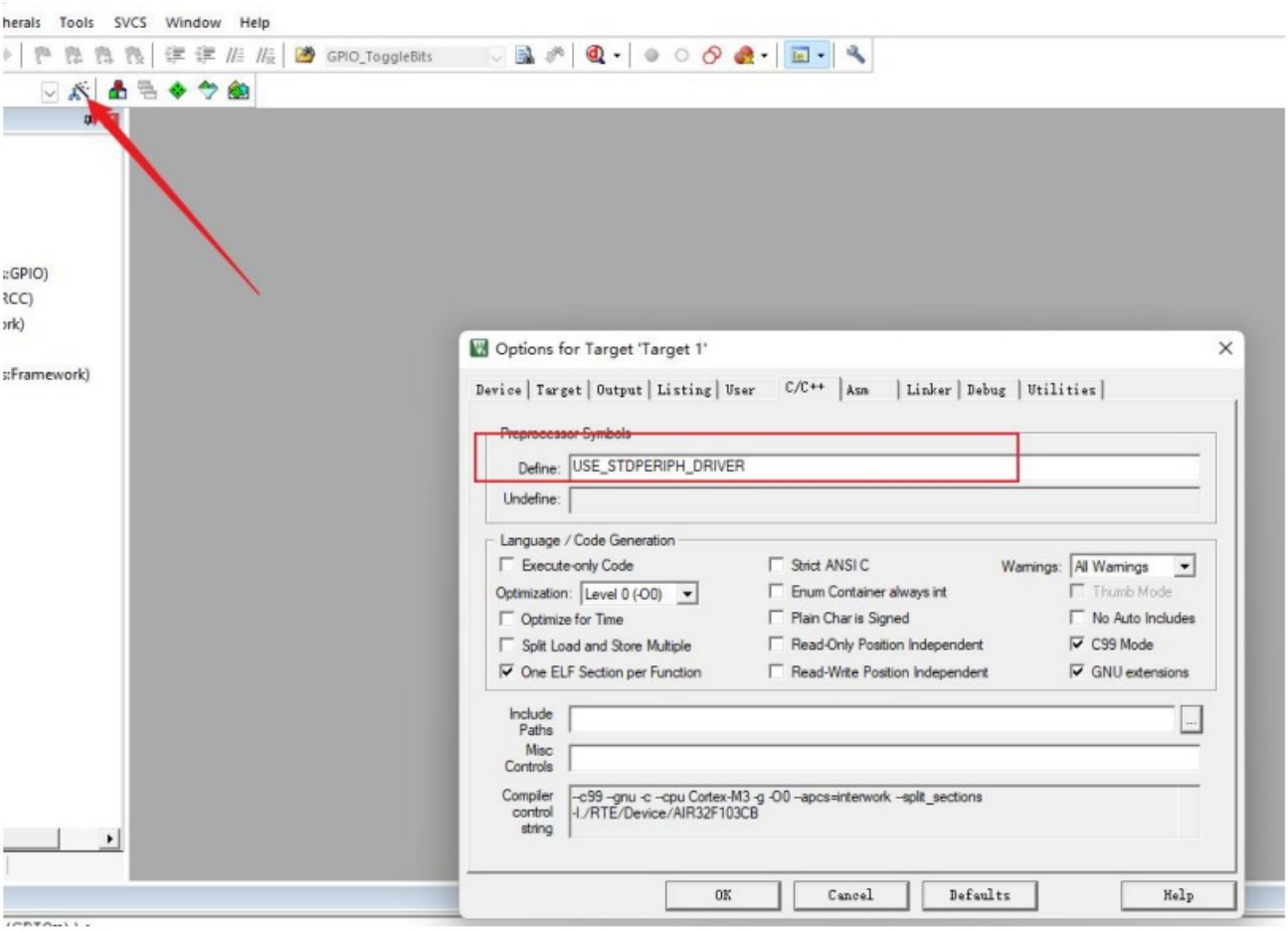
Add peripheral library support, for example, add GPIO library, check the GPIO component after you can see the following will prompt the lack of other components, according to the prompt to check, you can also check all.



After checking the missing dependencies according to the prompt, the prompt is removed and the project is created by clicking OK.



Add library function definitions.



Test Code

Create a new file by clicking on the “New File” button in the upper-left corner. Right-click and save it as “main.c”. Add a main function to the file with the following code:

```
int main(void)
{
while(1);
}
```

Click on the compile button to test whether the code can be compiled successfully.

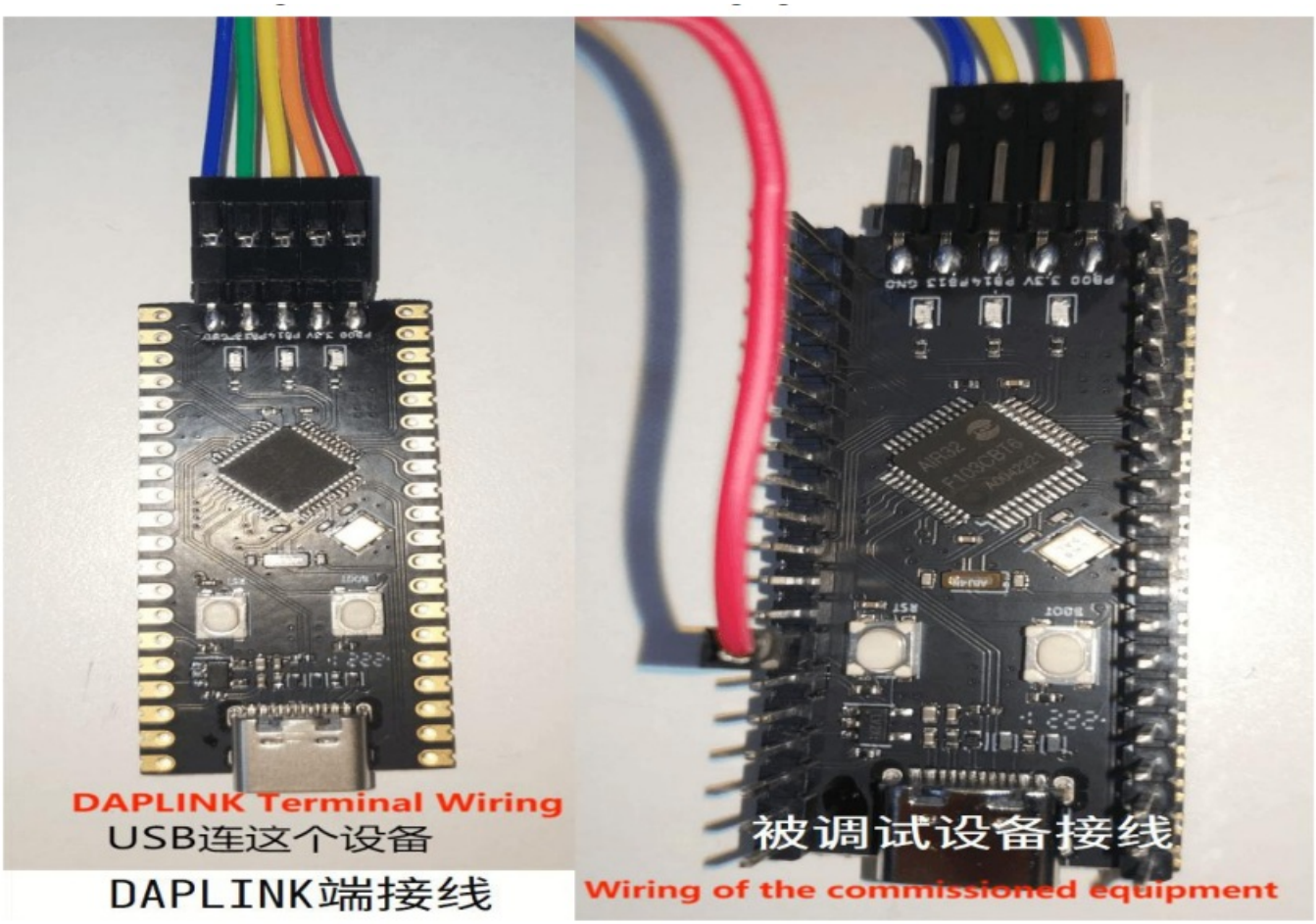
DOWNLOAD AND BURN

The Air32F103 development board comes with the DAPLINK firmware as the default (unlike the BluePill development board, which has no firmware by default). This allows the board to be used directly as a debugger for another device during debugging and programming. Here, we will introduce how to use DAPLINK, which can also be applied to other debuggers.

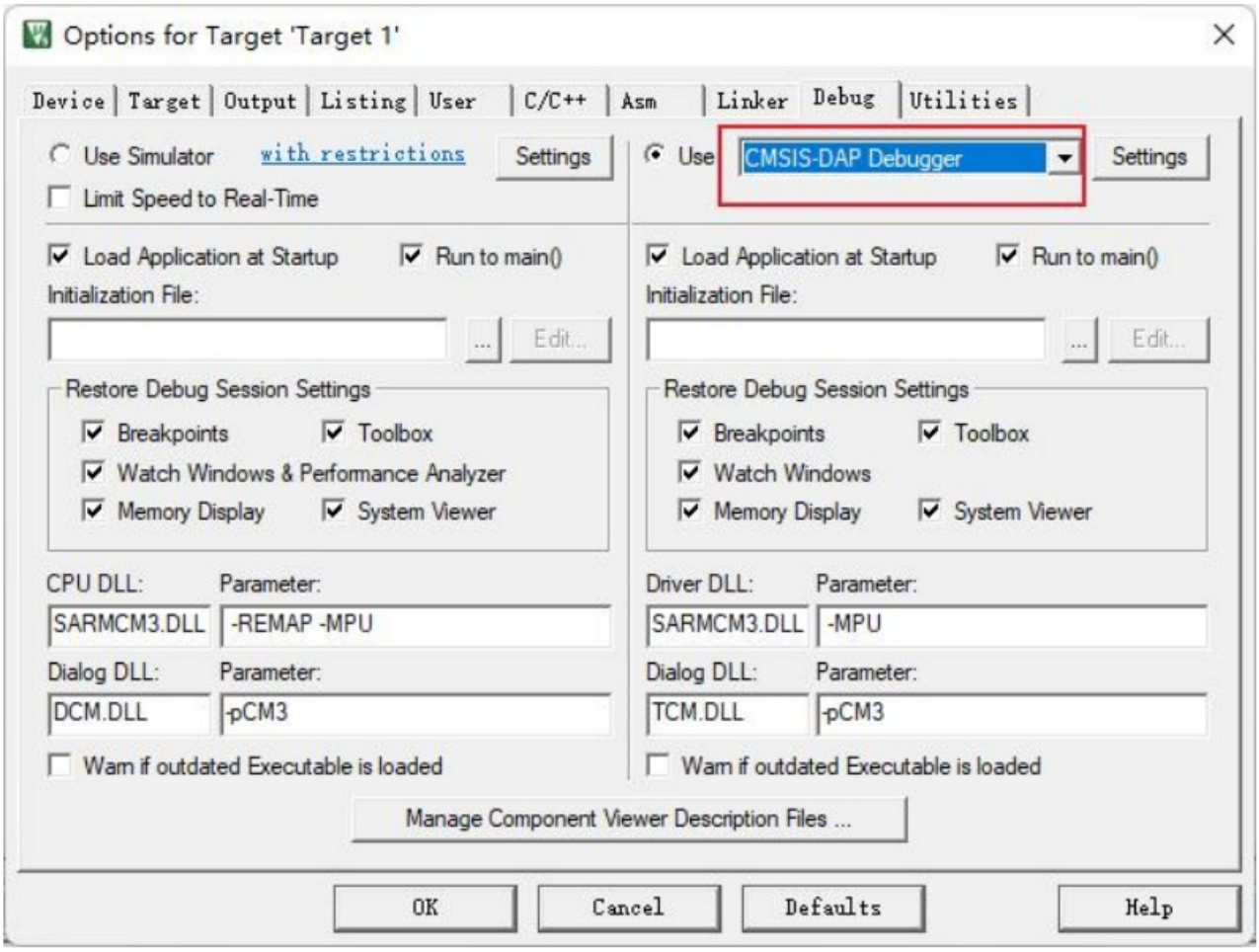
For the AIR32F103 development board with the DAPLINK firmware, PB13 is connected to the SWDCLK of the device being debugged, PB14 is connected to the SWDIO of the device being debugged, and PB0 is connected to the reset pin.

PIN	Function
PB13	SWD_CLK (Externally Controlled)
PB14	SWD_DIO (Externally Controlled)
PB0	RST (Reset) Pin (Externally Controlled)
PA2	TX of Virtual Serial Port
PA3	RX of Virtual Serial Port

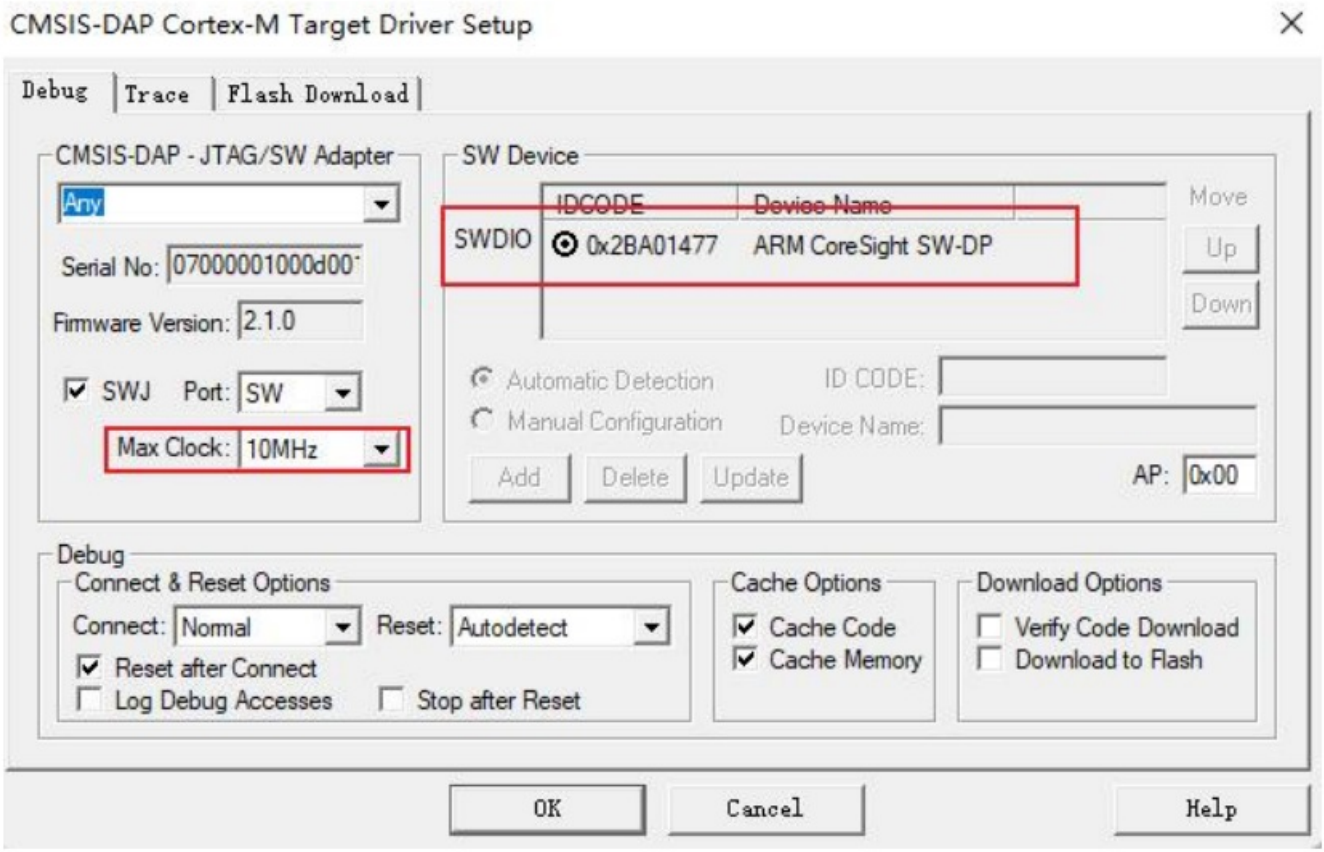
The overall connection diagram is shown in the following figure:



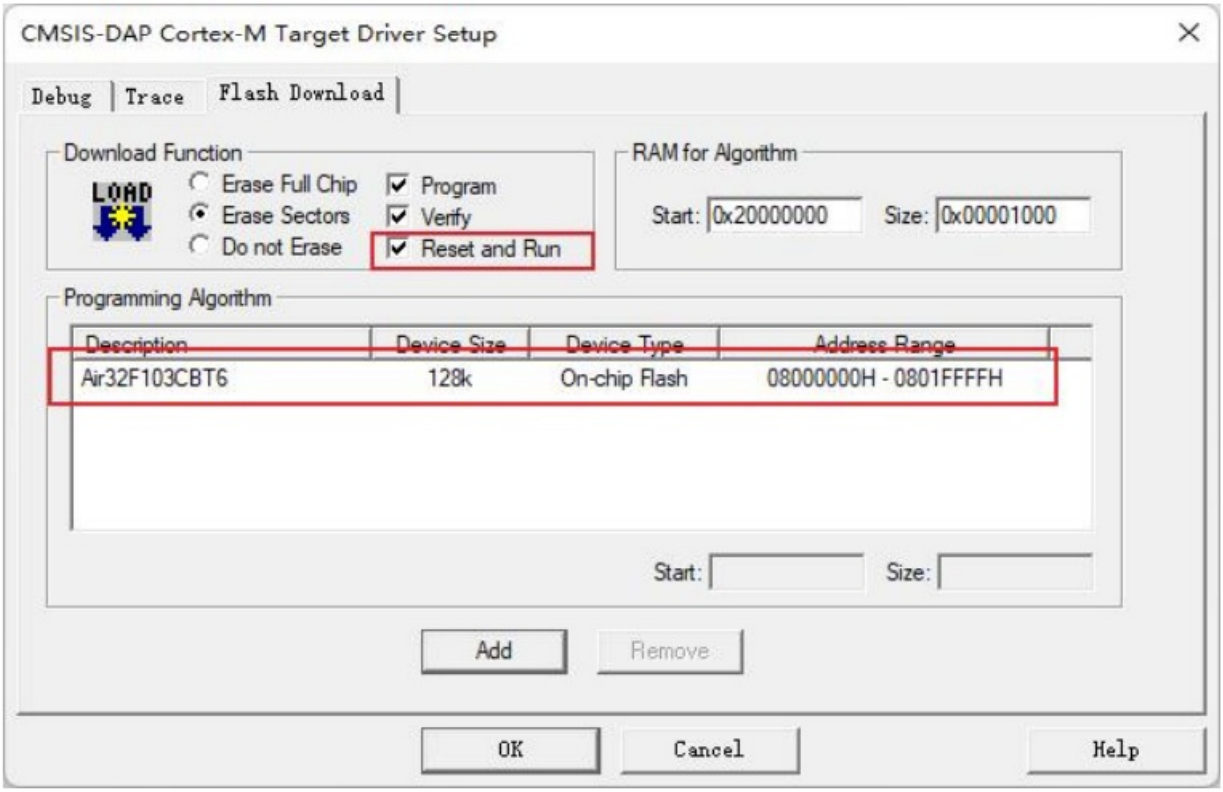
Click on the project configuration magic wand, go to the Debug tab, select CMSIS-DAP Debugger in the dropdown list, and click on Settings.



To check if the device is connected properly, you can see the device in the SW Device list if it is connected properly. You can adjust the clock speed to improve efficiency.

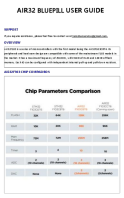


Click on the Flash Download tab, where you can see that our support package has already added the download algorithm for us by default. You can select the ‘Reset and Run’ option, so that the code will reset and run automatically after each download, without the need to press the reset button manually.



After the configuration is completed, you can click on the burn button to download and burn the code to the device directly.

Documents / Resources

	LuatOS AIR32F103C8T6 USB C STM32 Compatible Devpmetment Board [pdf] User Guide AIR32F103C8T6 USB C STM32 Compatible Devpmetment Board, AIR32F103C8T6, USB C STM32 Compatible Devpmetment Board, Compatible Devpmetment Board, Devpmetment Board , Board

References

- Interactive BOM for KiCAD
- Interactive BOM for KiCAD
- User Manual