User Manual

User Manual

G32A1445 EVAL Board

Version: V1.0

Contents

1 Introduction

This user manual introduces the functions, onboard resources, and supporting SDK of the G32A1445 evaluation board. The SDK and related data mentioned in the document are available on our official website (http://www.geehy.com).

1.1 G32A Ecosystem

The G32A ecosystem includes product application solution, hardware development board, download simulation tool, development tool chain and SDK. Moreover, the development tool chain is suitable for many development tools at home and abroad, such as Keil-MDK, and IAR for Arm, and all of them are equipped with relevant enginering in the SDK to meet the needs of different users in different platforms.

Figure 1 G32 Ecosystem

1.2 Evaluation board

The G32A1445 evaluation board is a complete demonstration and development platform for G32A1445 MCU, and it is equipped with a G32A1445 MCU chip. The chip is based on Arm® Cortex® -M4 core, with an operating frequency of 112MHz, Flash 512KB. This evaluation board has rich peripheral functions and is equipped with EVAL SDK, which can help developers efficiently evaluate chip performance or develop related applications.

Figure 2 G32A1445 EVAL Baseboard

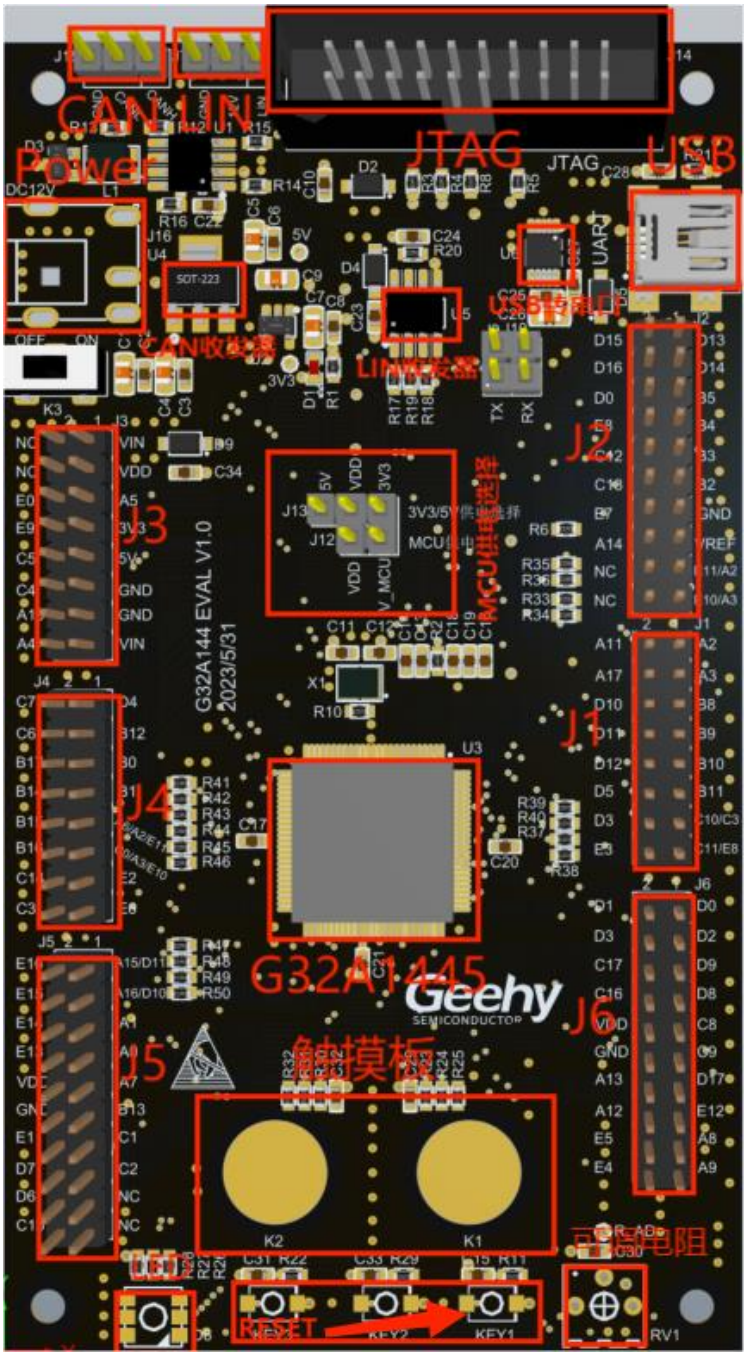


Table 1 Component Composition Table

Component name	Description
J1, J2, J3, J4, J5, J6	Pin output
G32A1445	MCU
LED	RGB tricolor light (PTD15-Green, PTD16-Blue, PTD0-Red)
KEY1	Reset key
KEY2, KEY3	PTC13, PTC12
RV1 potentiometer	PTC14 (ADC0)
U4 CAN transceiver	PTE4/PTE5 (CAN RX/TX)
U5-LIN transceiver	PTD6/PTD7/PTE9 (LIN RX/LIN_SLP/TX)

Component name	Description
U6-CH340E	USB-to-serial port RX/TX
J9, J10	PTC7, PTC6 (UART TX/RX)
J13	MCU power supply selection 3.3V/5V
J14	JTAG
K3	ON/OFF 12V power supply

2 Function overview

The G32A1445 evaluation board includes the following peripheral functions, and can be used together with SDK to help developers evaluate the chip performance or develop related applications.

1. CAN
2. LIN
3. USB to UART
4. Key×3
5. RGB LED

2.1 Power supply control

The G32A1445 evaluation board can be powered by an external 12V power adapter or through USB; the JTAG/SWD interface can provide 3.3V power supply to MCU; MCU power supply option (J13 5V/3.3V) is reserved on the evaluation board.

2.2 Clock

The onboard 8MHz external clock is used for G32A1445.

2.3 Reset

Provide KEY1 reset key and JTAG reset signal.

2.4 Simulation interface

Standard 20-pin IDC JTAG connecting interface.

2.5 LED

Onboard D1 power indicator light, D6 tri-color light.

2.6 Keys

Provide 2 IO pull-down keys.

2.7 CAN

Provide CAN transceiver interface, requiring a 5V power supply system.

2.8 LIN

Provide LIN transceiver interface, requiring an additional 12V power supply.

3 SDK Overview

SDK is provided in the compressed package form, and it includes the onboard driver packages such as basic LED, Button, and COM port drivers, as well as multiple necessary libraries such as G32A1445 standard library and peripheral driver library. It also includes many routines easy to reuse, such as ADC sampling, CAN/CANFD transmitting and receiving, and CRC check.
Note: The SDK needs to be downloaded on our official website (http://www.geehy.com).

3.1 On-board driver

The onboard driver files are located in the "Boards" folder, and they provide the KEY, LED, and COM drivers for the G32A1445 evaluation board.

3.2 Library files

The library files are located in the "Libraries" folder, and they provide the core driver files and peripheral driver files for the G32A1445 evaluation board.

3.3 Middleware

The middleware files are located in the "Middlewares" folder and are some third-party tools or source codes used in the demo provided by the G32A1445 evaluation board.

3.4 Routine

SDK package includes many applications easy to reuse, such as ADC sampling, CAN/CANFD transmitting and receiving, and CRC check. This chapter will give a brief introduction to the demo provided by the G32A1445 evaluation board.

3.5 IDE support

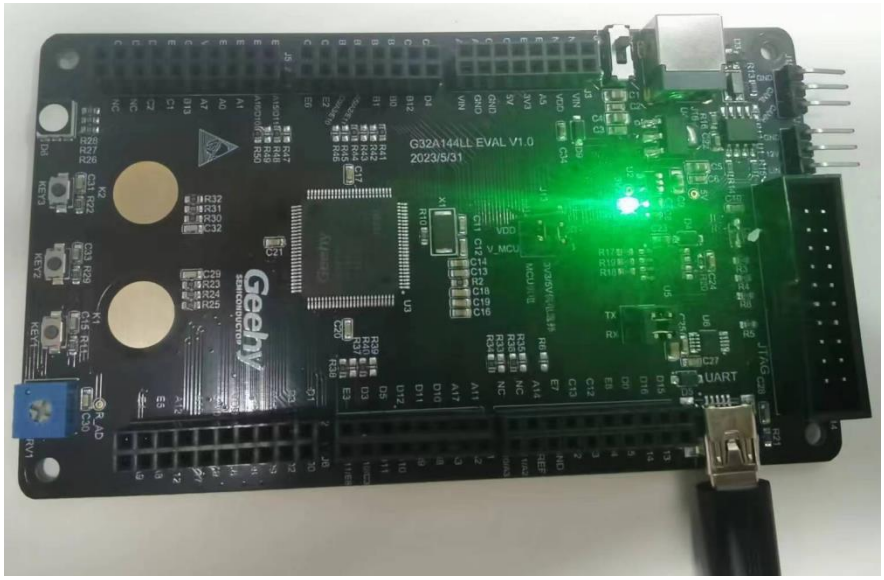
All the demos provided by the G32A1445 evaluation board support IAR for Arm and Keil MDK.

4 IDE debugging

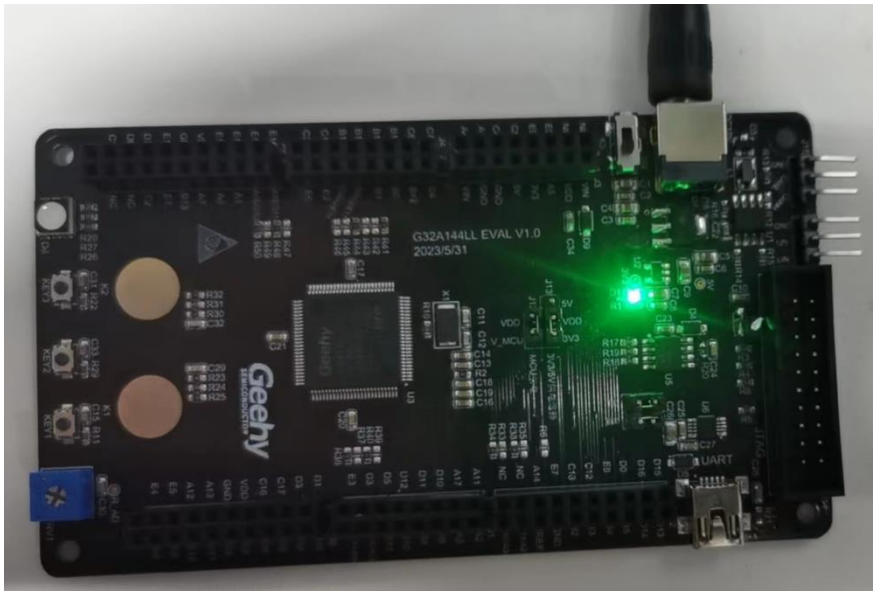
4.1 KEIL debugging

Step 1: Power the evaluation board

① Supply power through USB port



② Supply power by a 12V power adapter

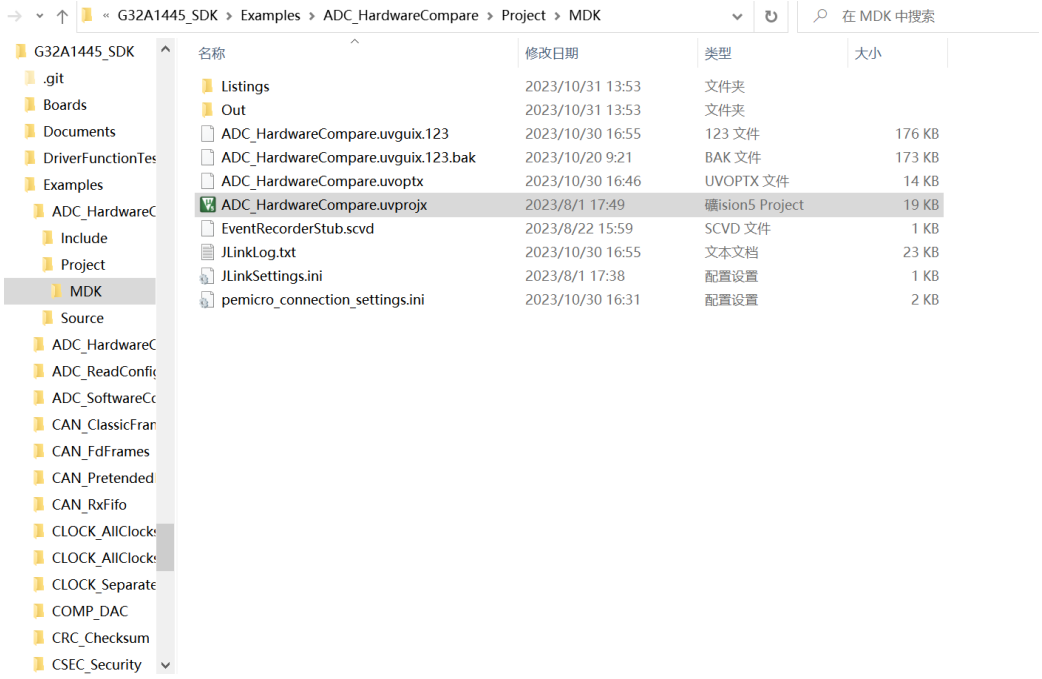


Step 2: Debug with J-LINK in KEIL environment

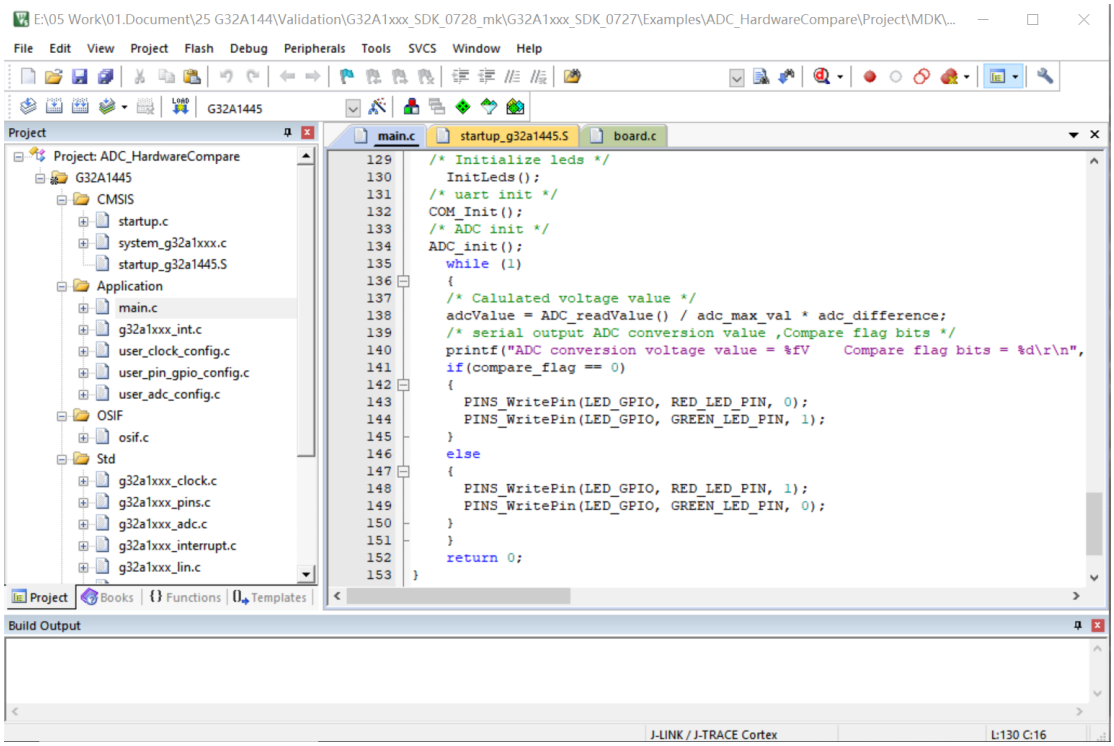
Download SDK locally and install KEIL

① Connect J-LINK to PC

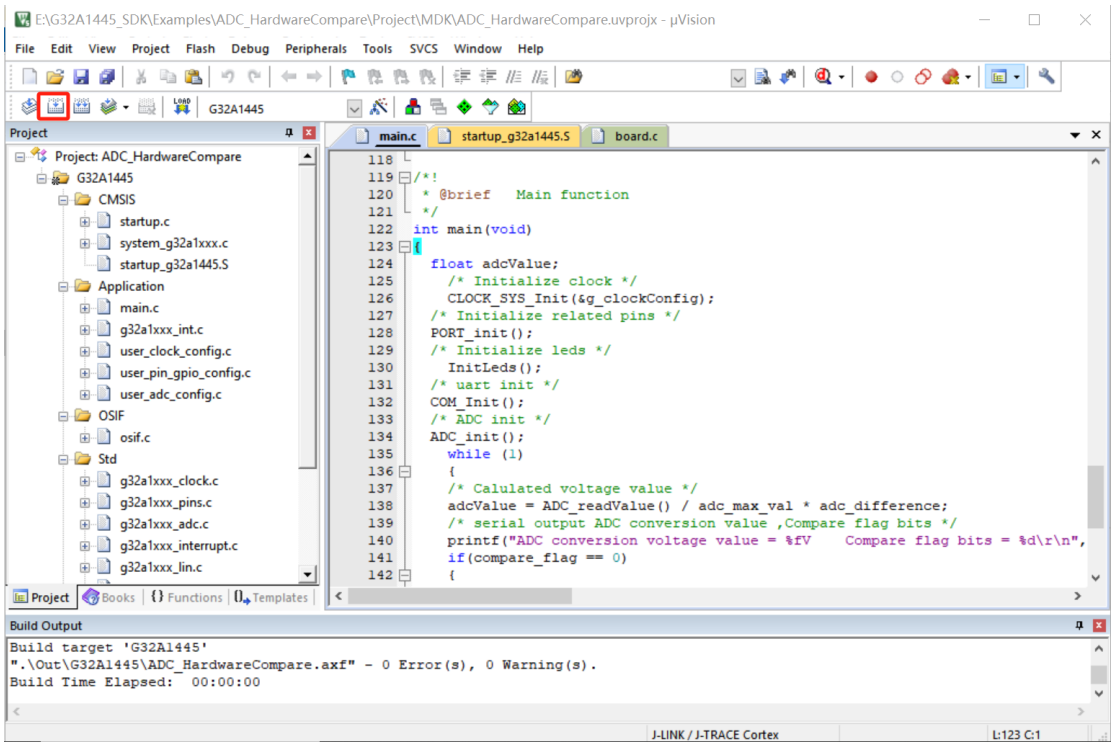
② Open the KEIL engineering under SDK



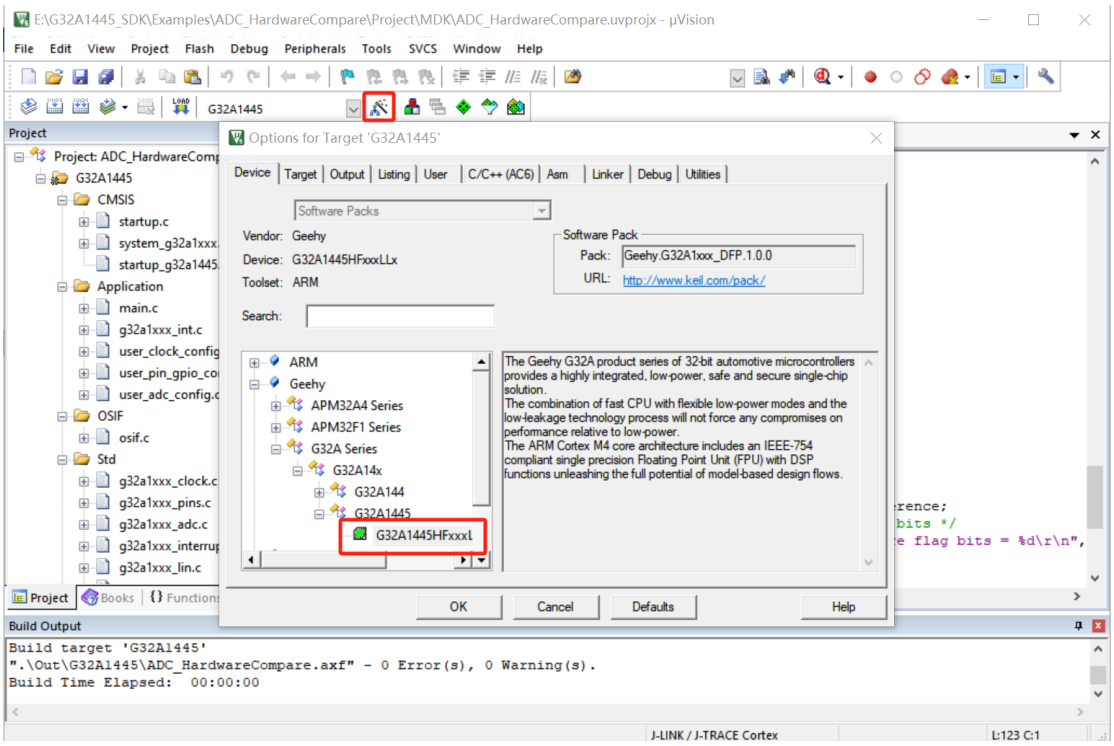
③ Open the post-engineering interface



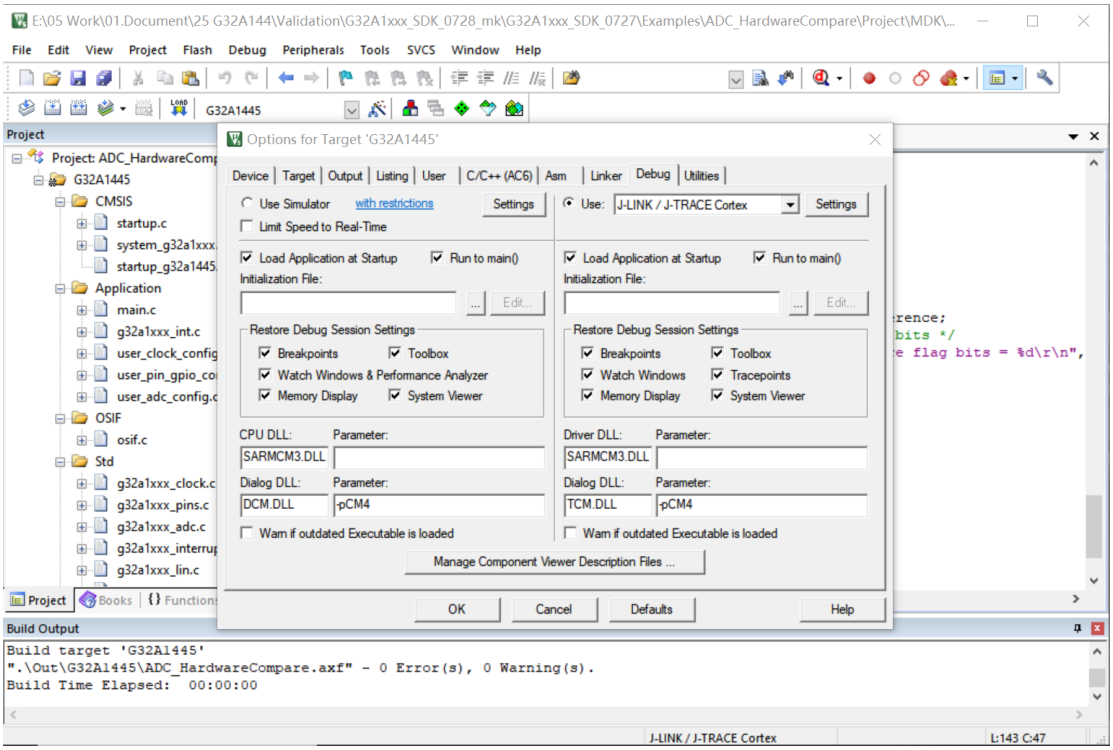
④ Compile the engineering



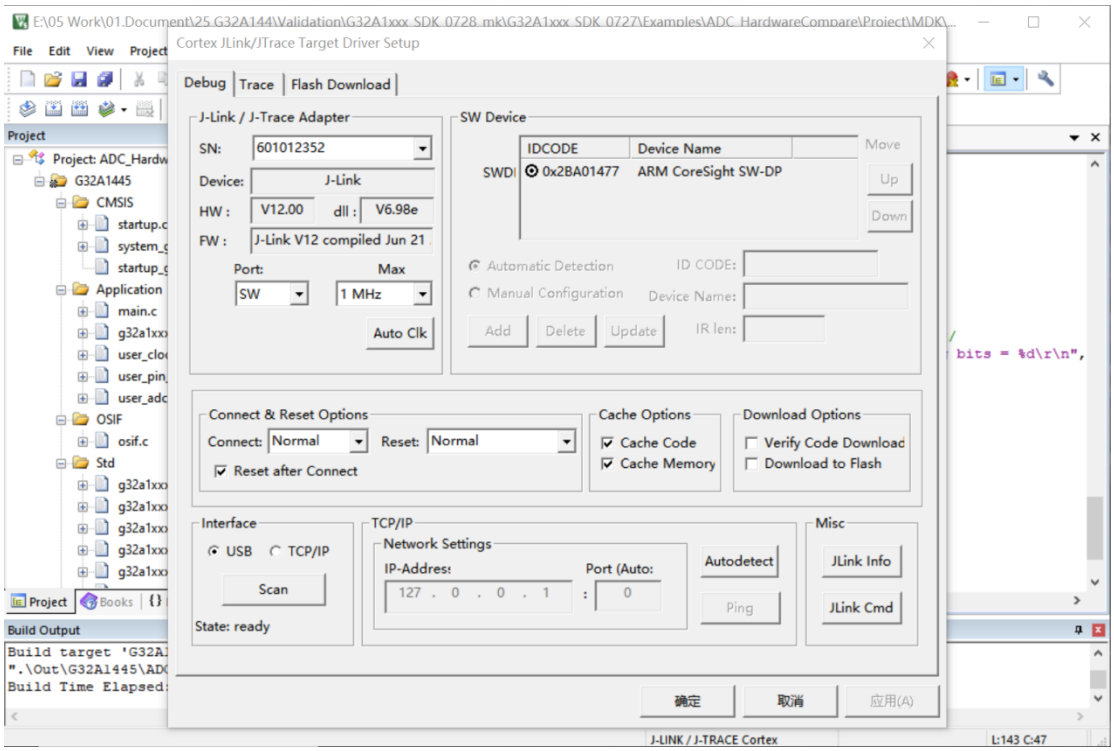
⑤ Click the Option button and select the chip model suitable for the SDK



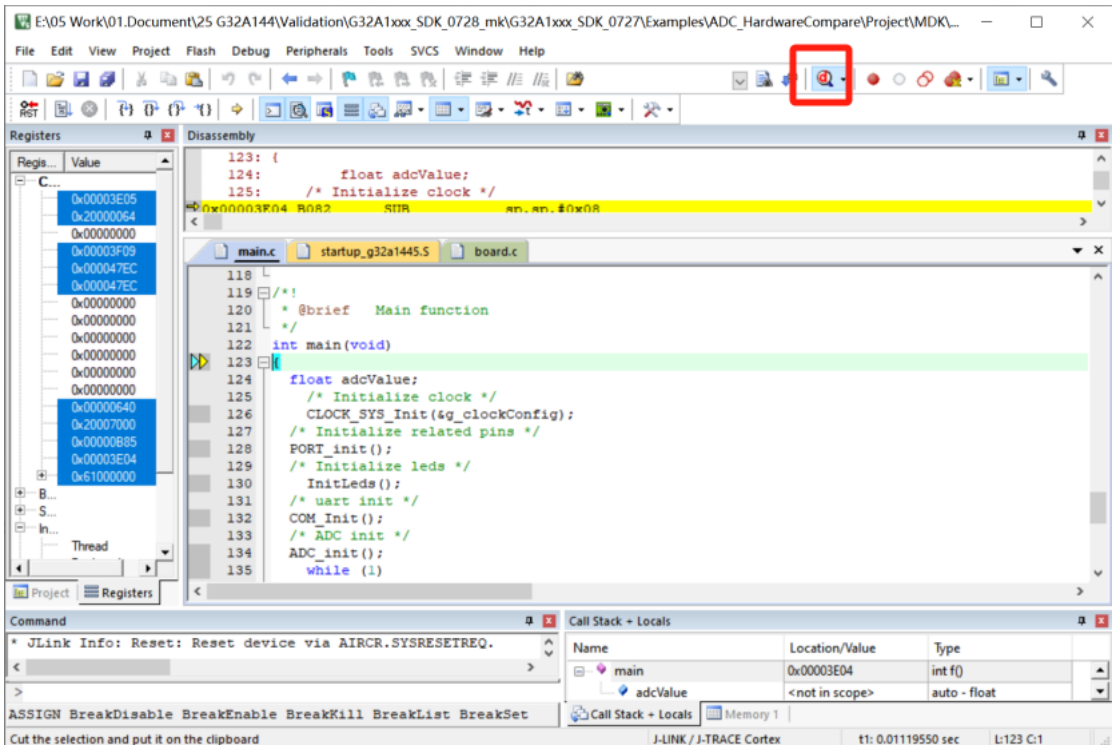
⑥ Select the debugging hardware tool J-LINK in the option interface and click "Settings"



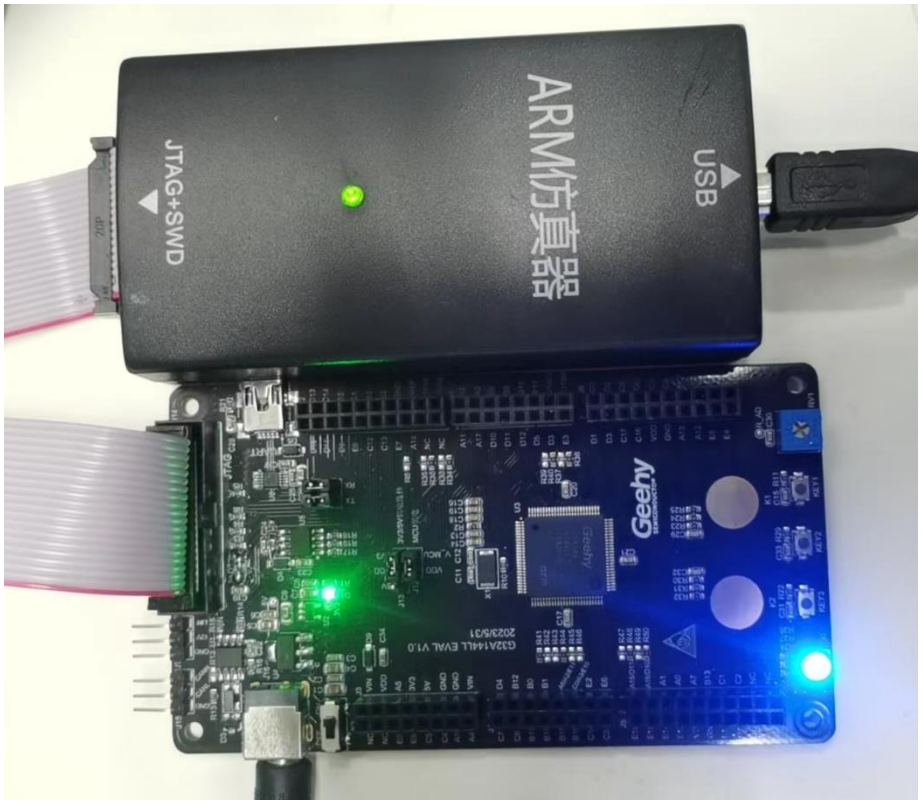
⑦ After clicking, the debugging tools can be identified



⑧ After confirming the option, click Debug to start the debugging process



⑨ In the debugging process, rotate the evaluation board RV1 resistor, and the color of the tricolor light changes



4.2 IAR debugging

Step 1: Power the evaluation board

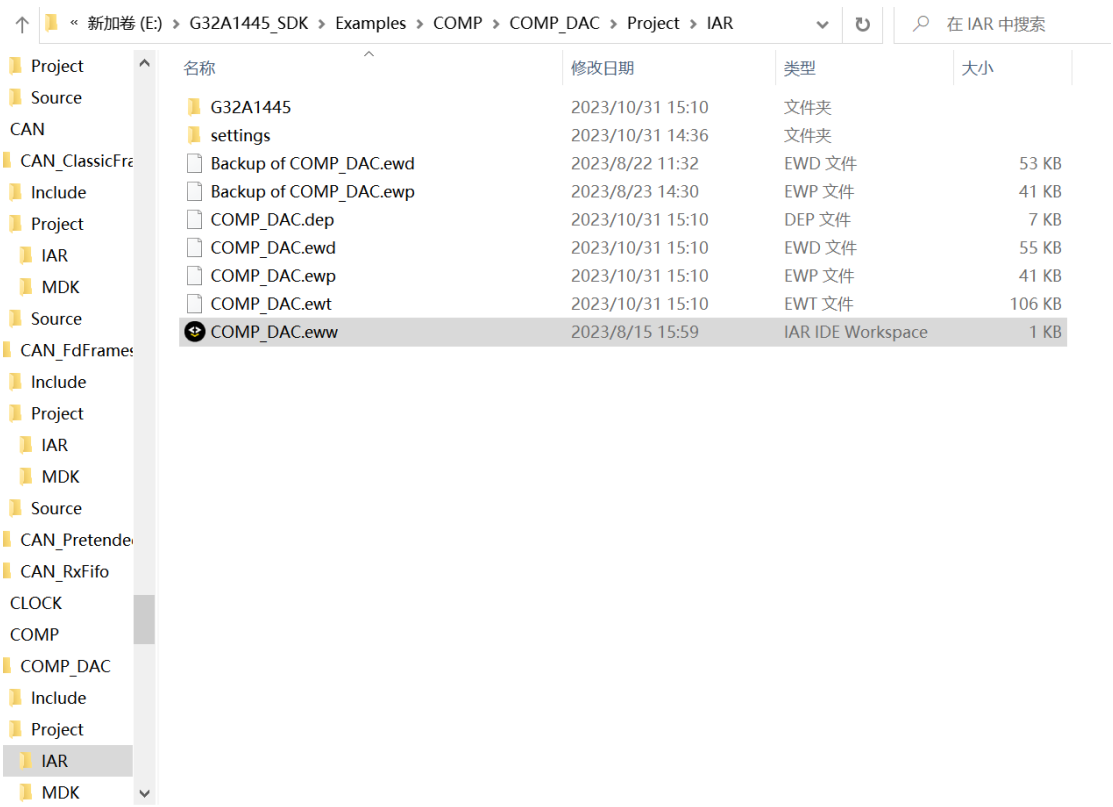
The same as 4.1 Step 1;

Step 2: Debug with J-LINK in IAR environment

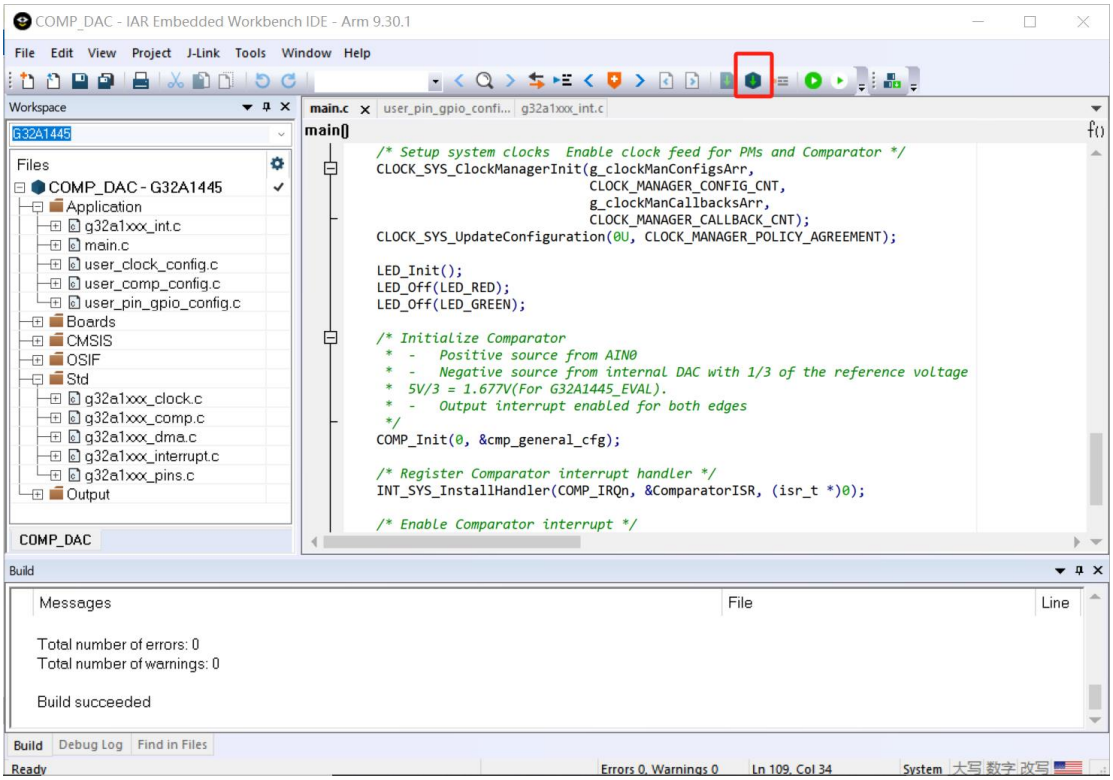
Download SDK locally and install IAR

① Connect J-LINK to PC

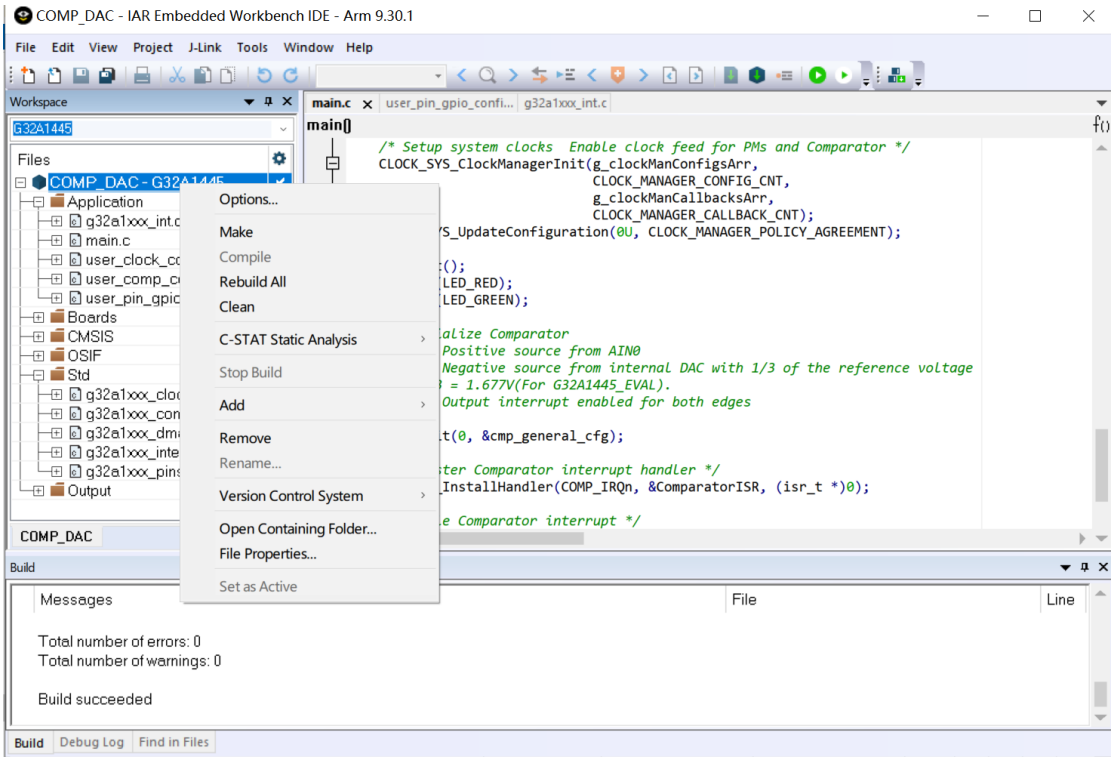
② Open the IAR engineering under SDK



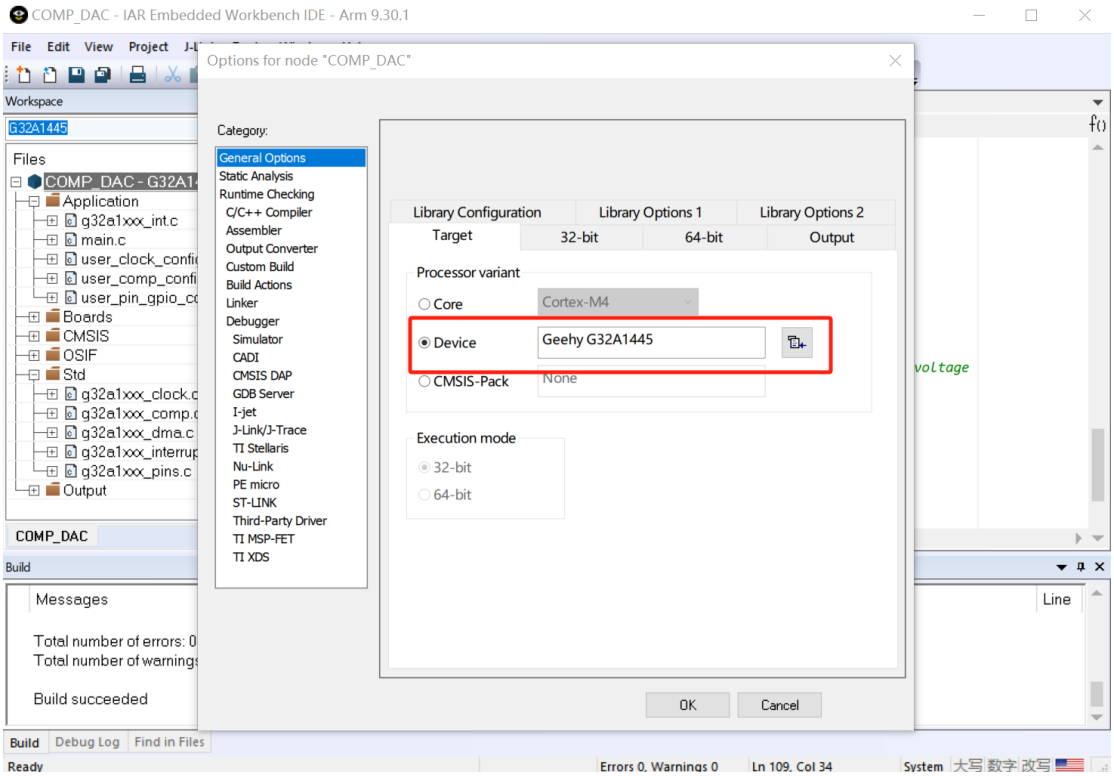
③ Compile the engineering



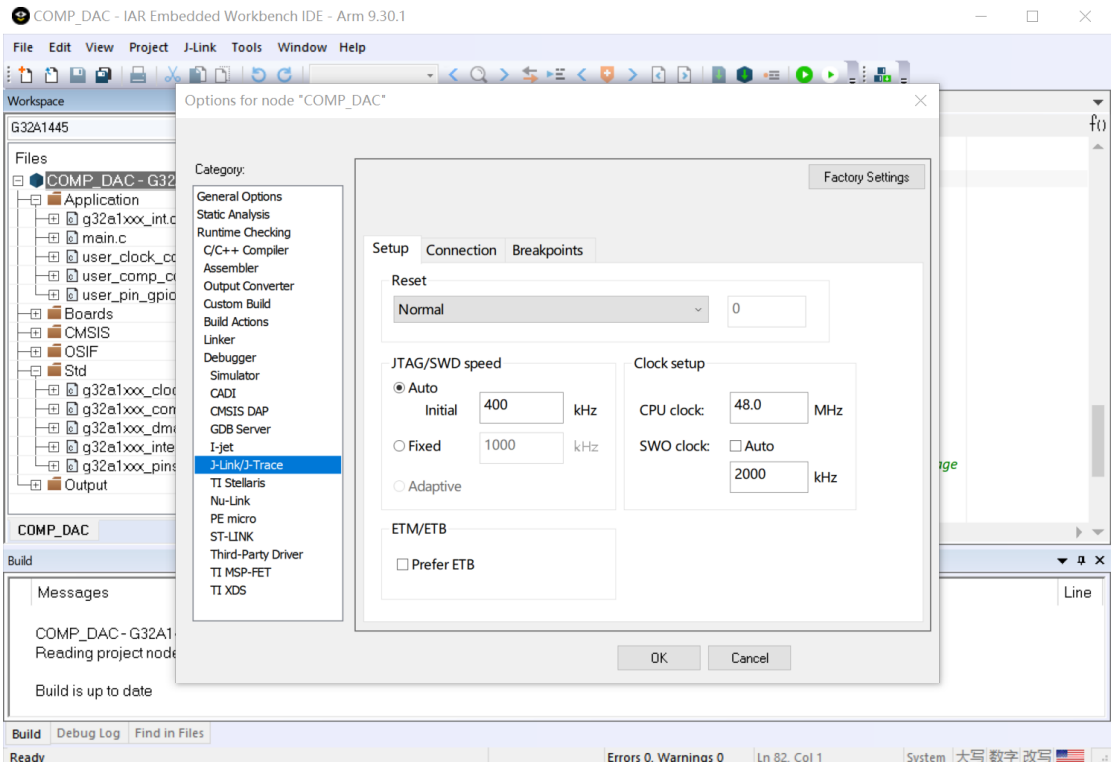
④ Click the project options "Options"



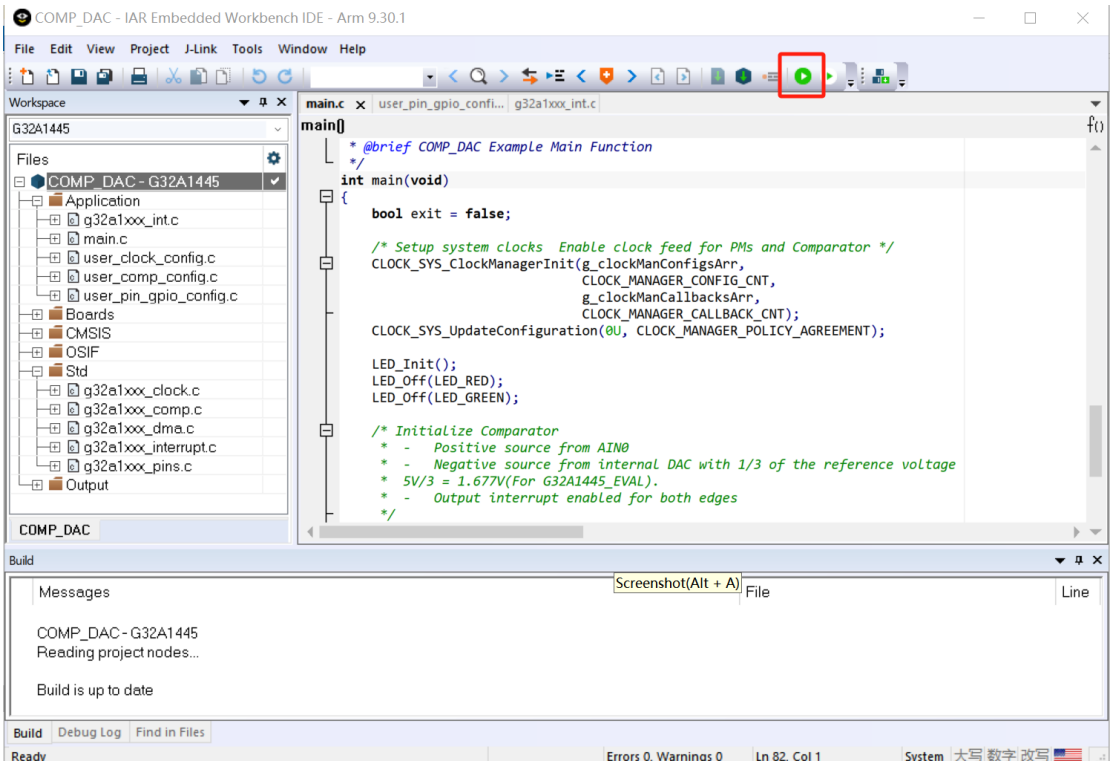
⑤ Select the device model



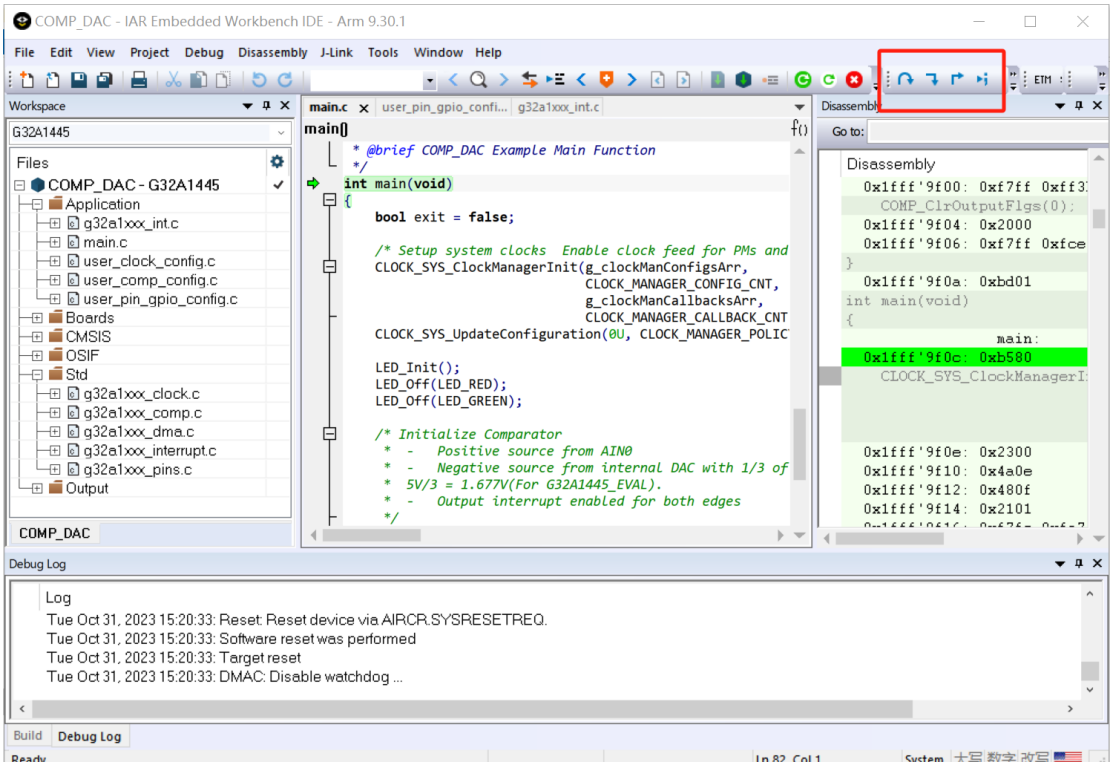
⑥ Click OK after confirming the tool information



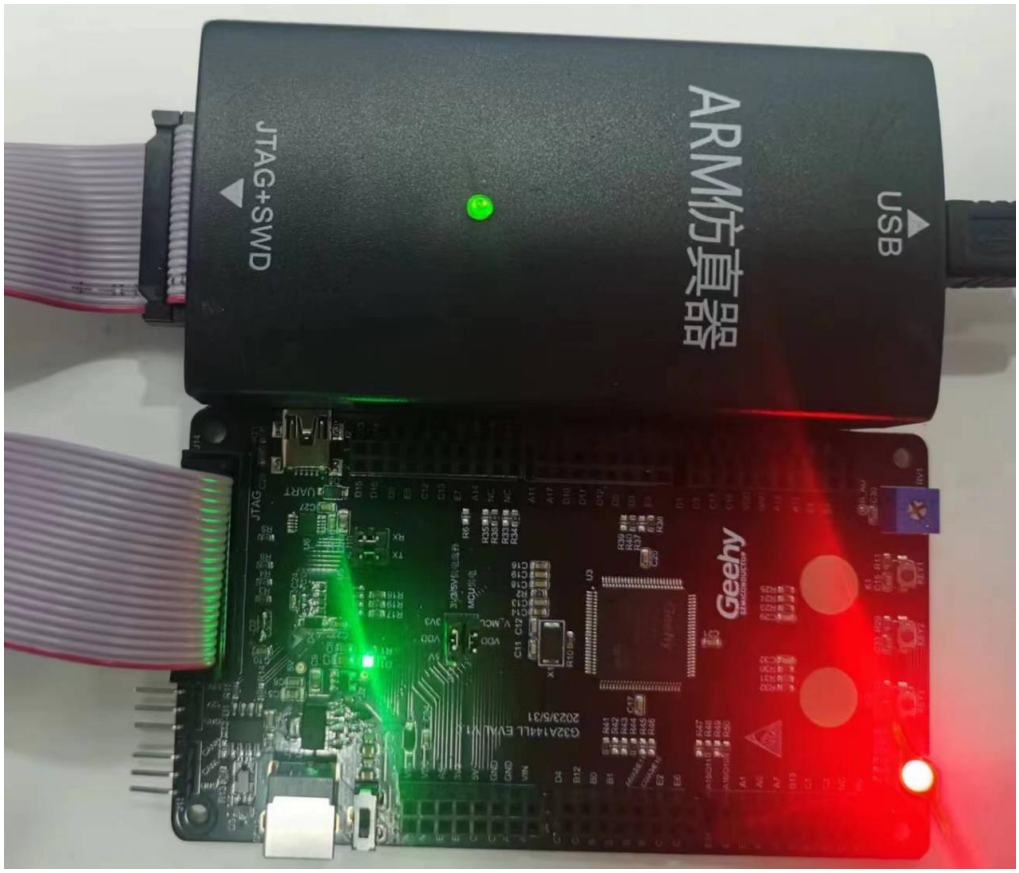
⑦ Click "'Download and debug" to perform the burning and debugging process



⑧ Click the Run button



⑨ Gently slide the back pin of J5 with your finger, and the color of the tricolor light will change



5 References

The chip specification and peripheral details can be seen in the *G32A1445 User Manual*, *G32A1445 Datasheet*,
and *G32A1445 Schematic Diagram*. For more technical support, please visit our official website: www.geehy.com.

6 Revision History

Table 2

Date	Revision	Changes
August 2024	1.0	New edition

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