Programming Instructions of REF_11kW_PFC_SIC_QD

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About this document

Scope and purpose

This document provides guiding instructions to flash the firmware in the **Control card (CD20001015)** in 11 kW high-efficiency high-density bi-directional three-/single-phase PFC/inverter board '**REF_11kW_PFC_SIC_QD'**.

Intended audience

The intended audiences for this document are PCB manufacturers, technicians, and developers of electronic systems.

Hardware and Software requirements:

The software requirements are listed below:

1. SEGGER J-Link driver
2. XMC Flasher from Infineon Developer Center Launcher
3. Software package (hex file) from Infineon

The hardware requirements are listed below:

1. REF_11kW_PFC_SIC_QD: Control card (CD30001015) (Figure 3/4)
2. Debugger adapter card assembly (Figure 5) provided by Infineon
3. XMC Link Debugger + USB type A male to micro-USB cable (Figure 6)
4. 12V DC Supply & customized wire assembly

Software Installations:

1) JLink Driver available from https://www.segger.com/downloads/jlink/JLink_Windows_V720b.exe. (Figure 1)

2) XMC™ Flasher through Infineon Developer Center Launcher available from https://www.infineon.com/cms/en/tools/landing/infineontoolbox.html. (Figure 2)

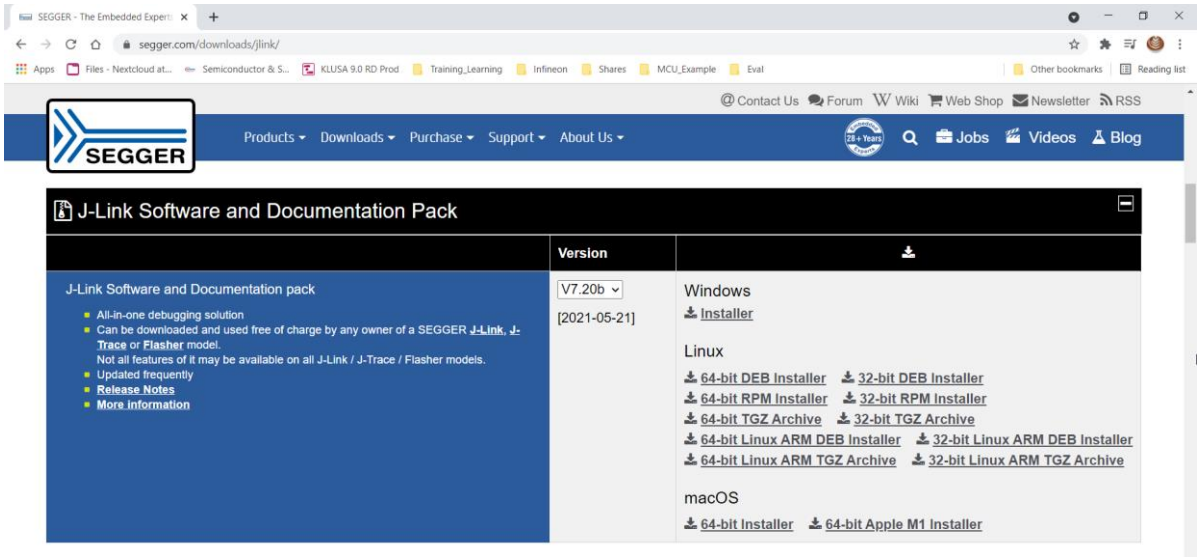


Figure 1: JLink Driver software

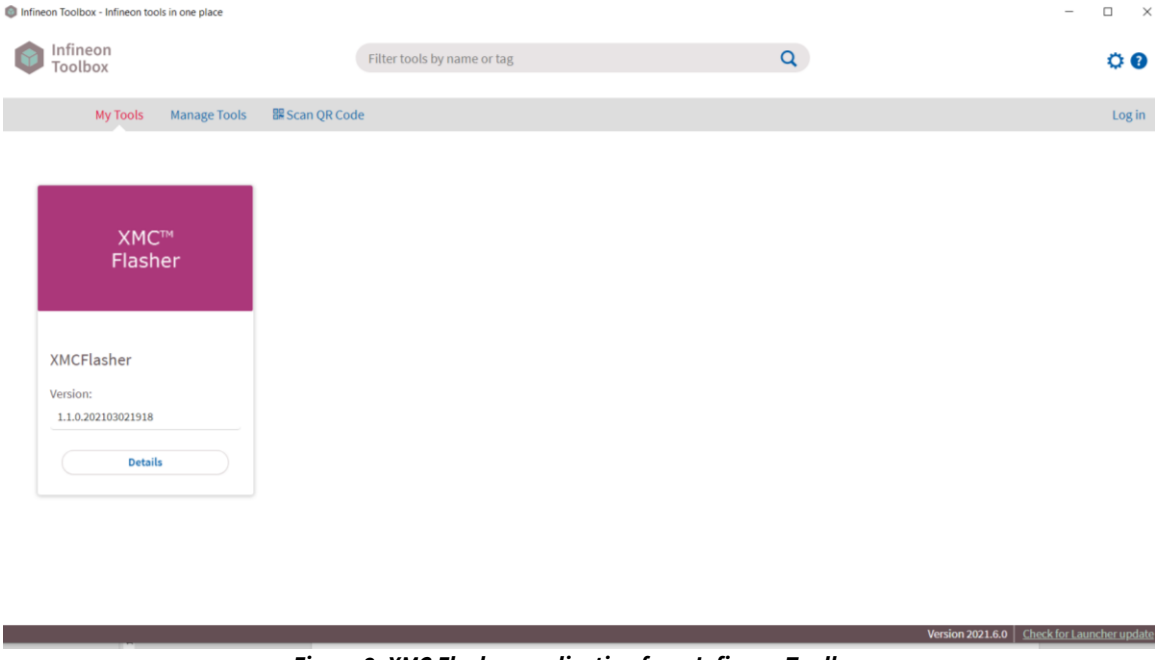


Figure 2: XMC Flasher application from Infineon Toolbox

Hardware setup:

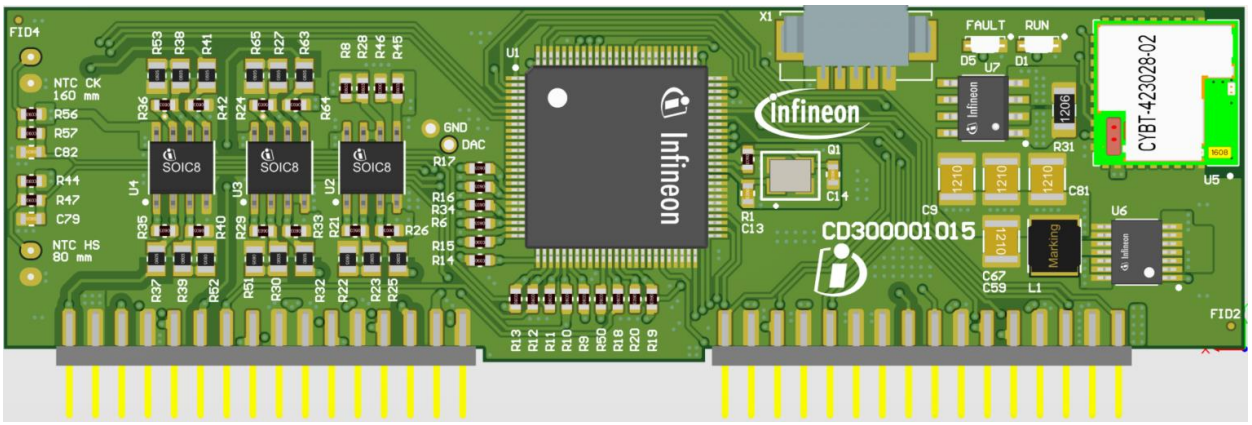


Figure 3: Control card (CD30001015) Bottom view

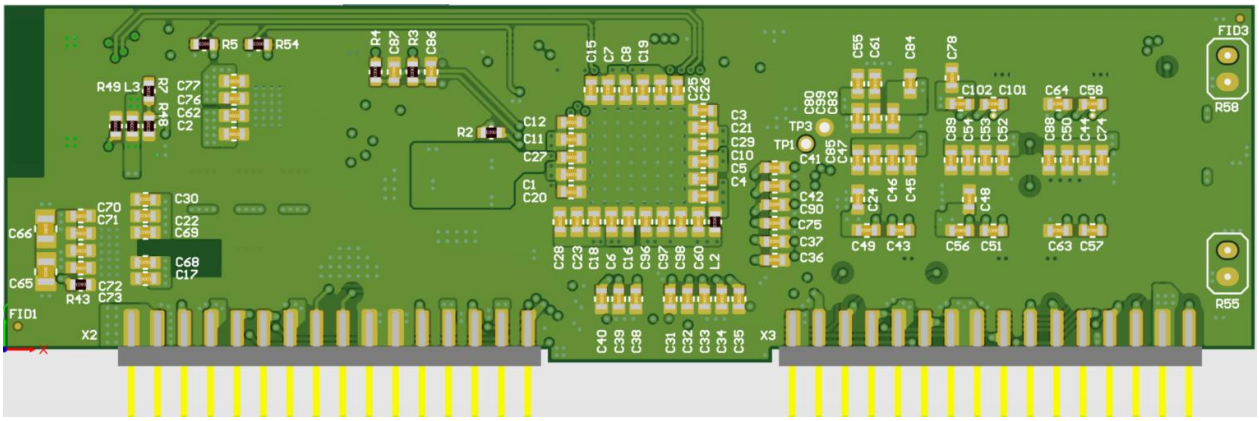


Figure 4: Control card (CD30001015) Bottom view

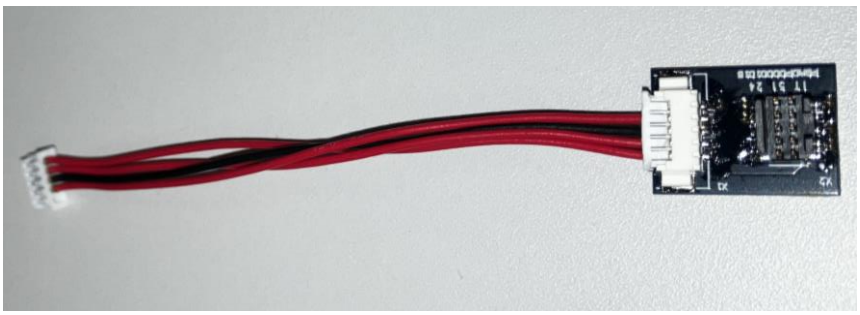


Figure 5: Debugger adapter card assembly



Figure 6: XMC Link Debugger + Micro USB Cable

Procedure:

(1) Connect XMC link debugger to PC or Notebook using Micro USB cable (Figure 6).

(2) Connect XMC link debugger and debugger adapter card assembly together to interface with X1 connector on Control card (Figure 3).

(3) Using custom wire assembly connect 12V supply to pins on the control card as shown in Figure 7

(4) After powering up the board with 12V, 200mA Supply, LEDs are powered up and one of the LED blinks.

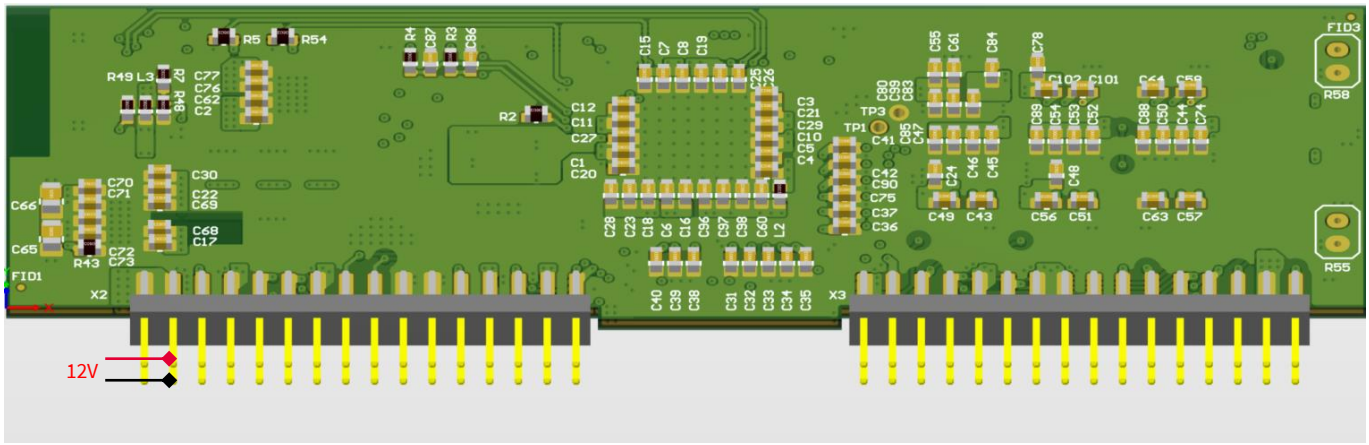


Figure 7: Control card 12V supply setup

Programming the Control card (CD30001015)

After installation of JLink Driver from SEGGER and XMC™ Flasher from Infineon Toolbox, the following steps guide to program/flash the software into the board.

Step-1: Open XMC™ Flasher installed in Infineon Toolbox (Figure 8).

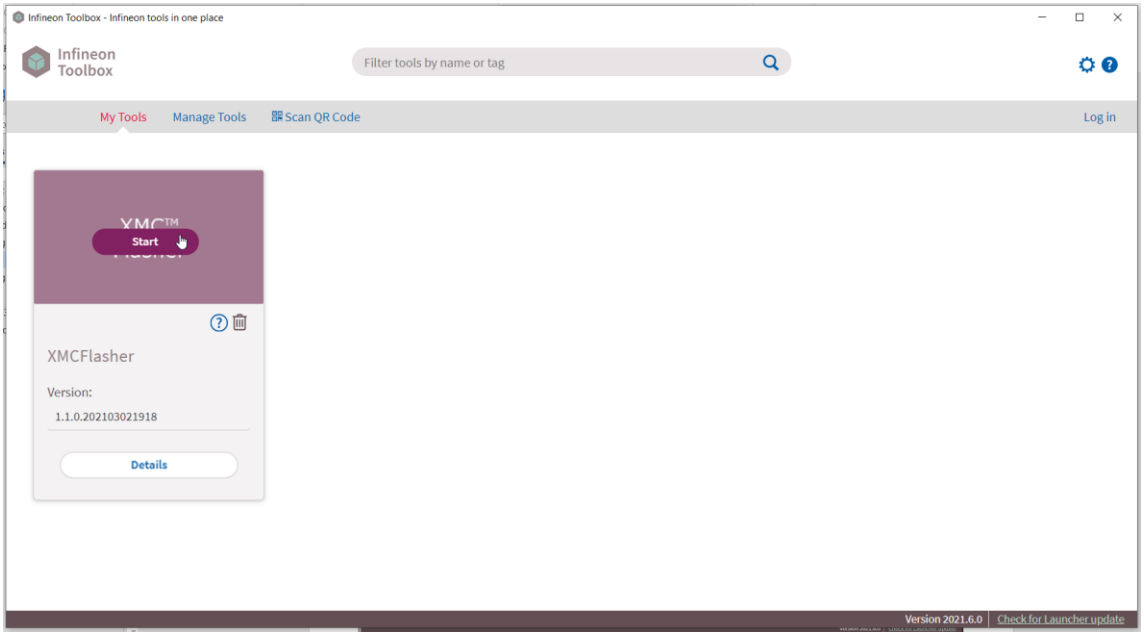


Figure 8: XMC Launcher from Infineon Toolbox

The program window appears as shown in below Figure 9.

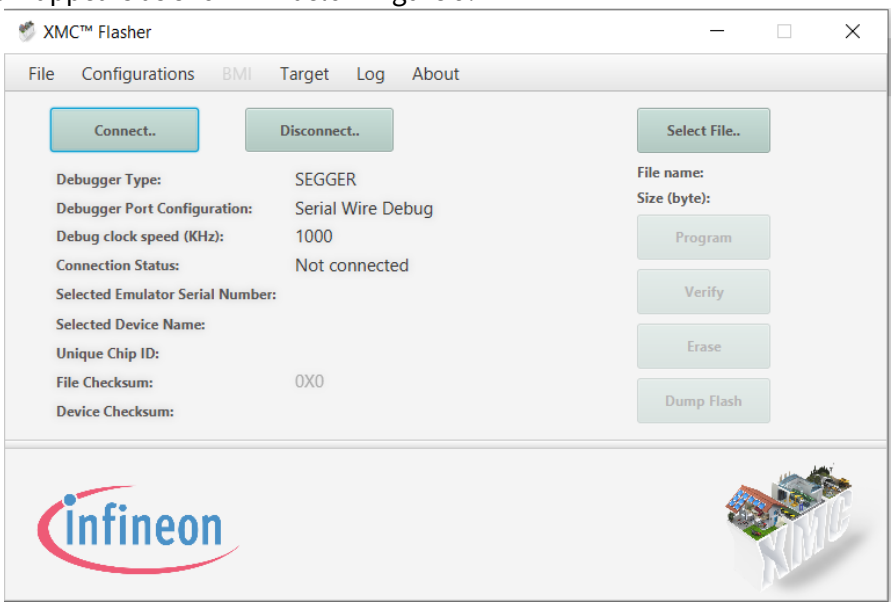


Figure 9: XMC™ Flasher application

Step 2: Click on **Connect** button to start connecting XMC™ Flasher to target Device. Select "**XMC4400-512**'' from List of Targets and click 'Ok'.

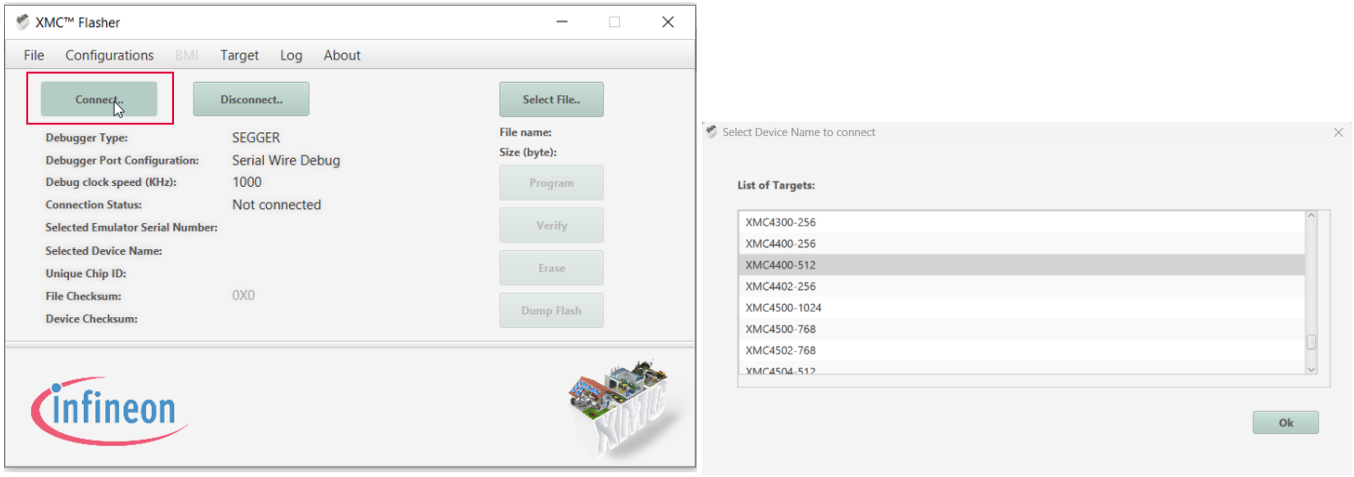
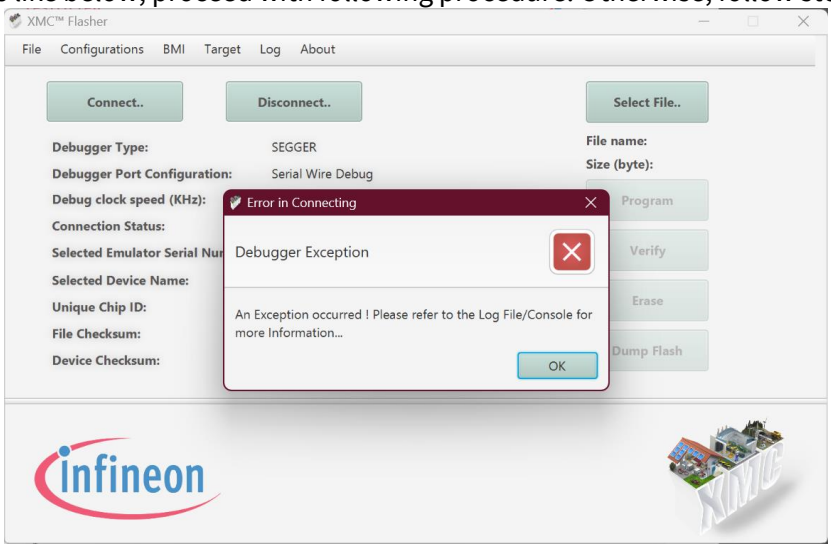


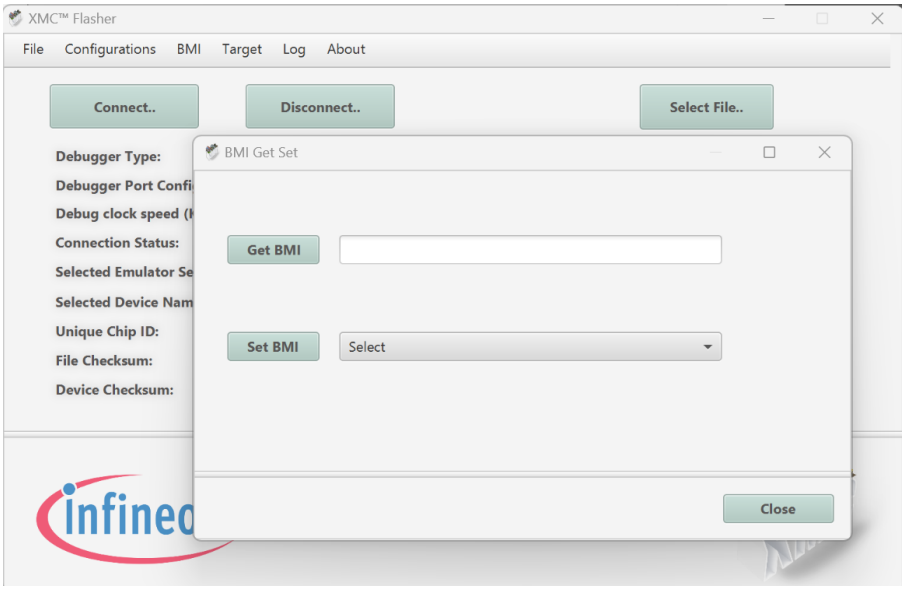
Figure 10: Selection of Target device in XMC Flasher

If the window appears like below, proceed with following procedure. Otherwise, follow step 3.

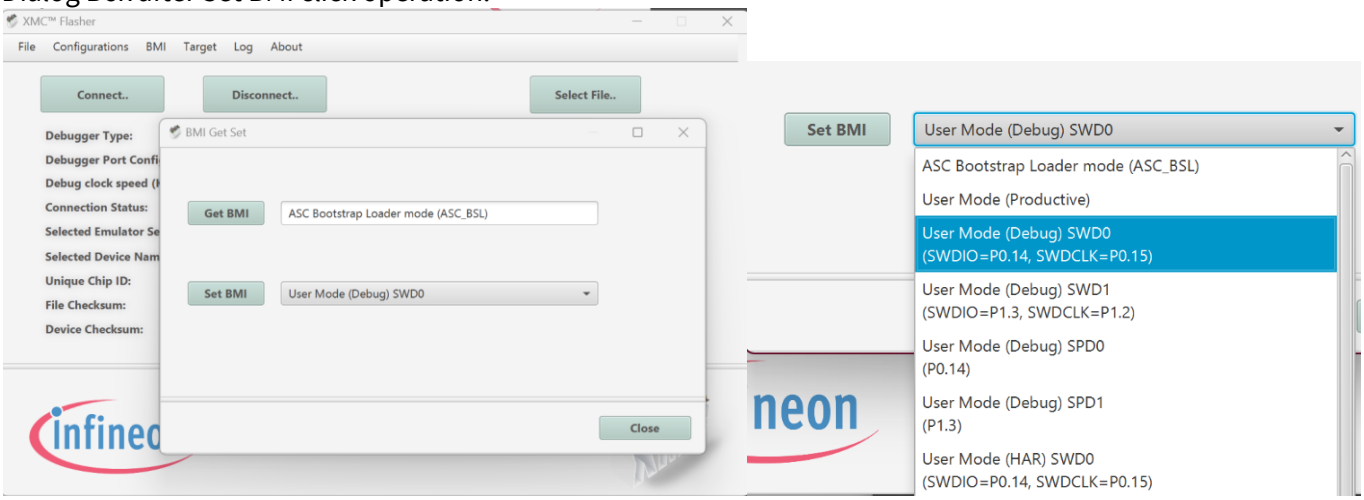


Click Ok to close the dialog box. Click BMI (Menu bar) --> BMI Get Set

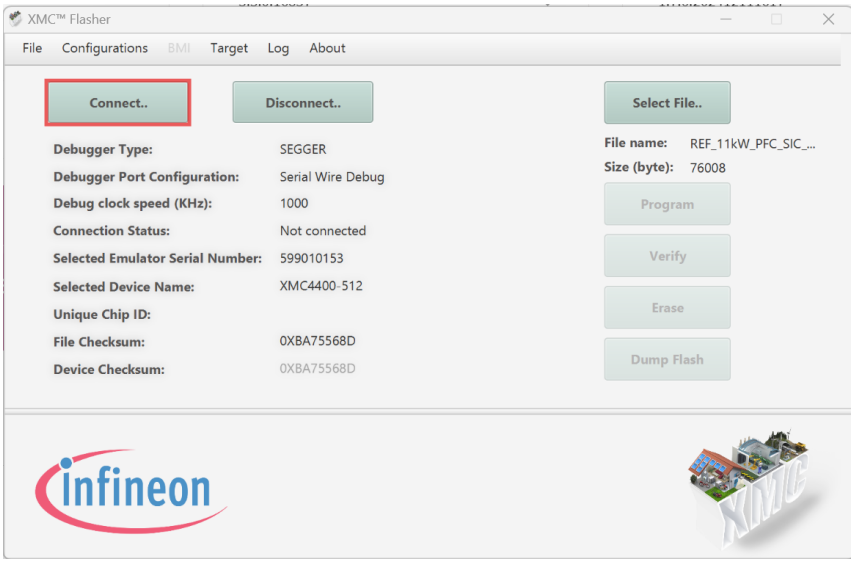
The dialog box appears as shown below



After click on **Get BMI**, the default mode ASC Bootstrap Loader Mode (ASC_BSL) will appear. Then choose **Set BMI** dropdown selection as **User Mode (Debug) SWD0** as shown below and then click on **Set BMI**. Close the Dialog Box after Set BMI click operation.



The window appears as shown below.



Step 3: After clicking the **Connect** Button the communication establishes with the **Target device (XMC4400-512)** and status shows connected. XMC Flasher window looks like below.

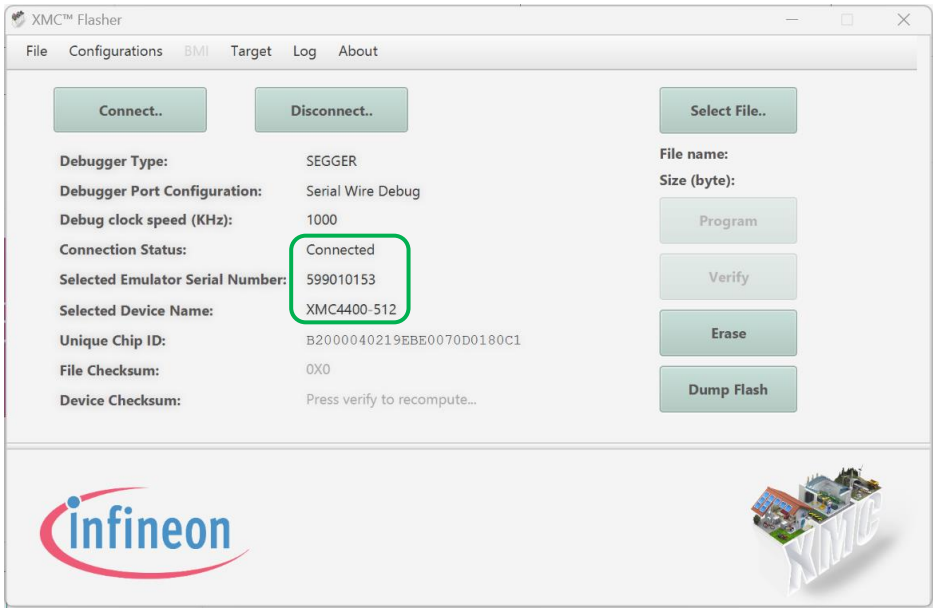
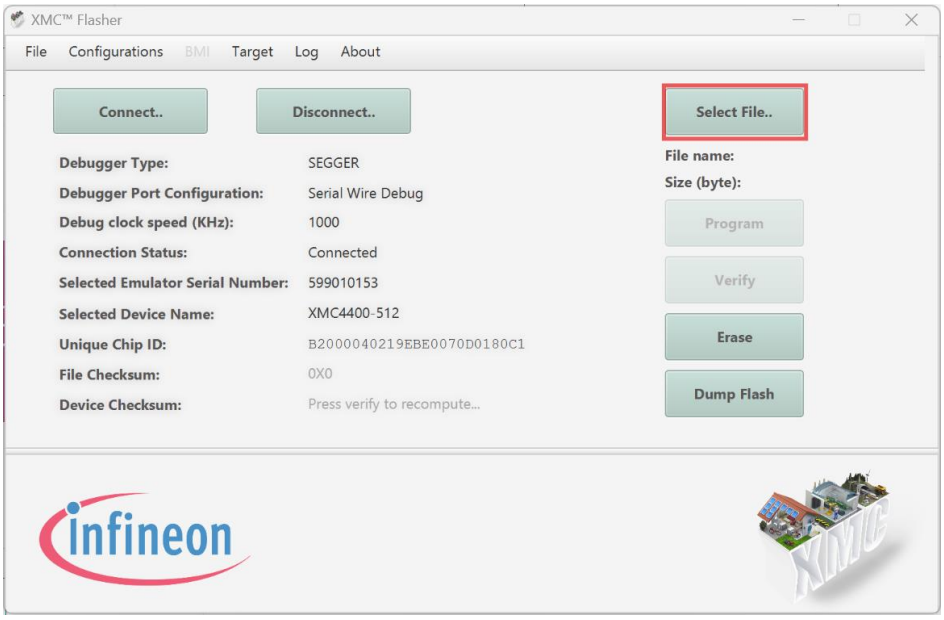


Figure 11: XMC™ Flasher Connected to Target Device

Step 4: Click on **Select File..** button and choose the hex file "**REF_11kW_PFC_SIC_QD.hex**" in the file directory.



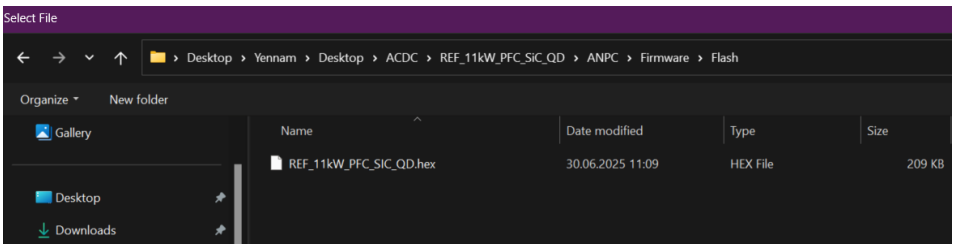


Figure 12: Select hex file in XMC™ Flasher

The window appears as shown below.

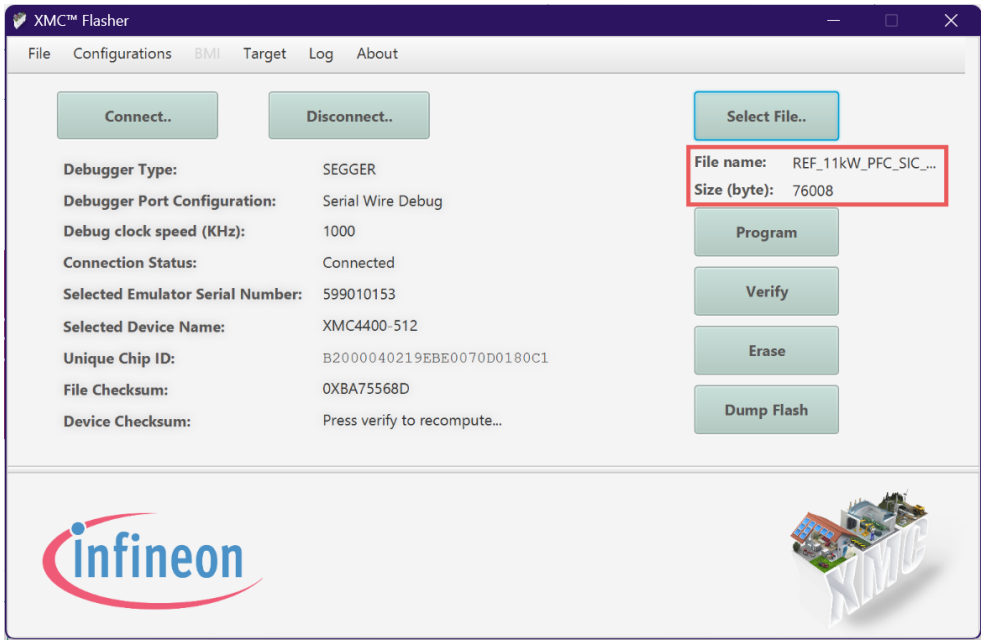
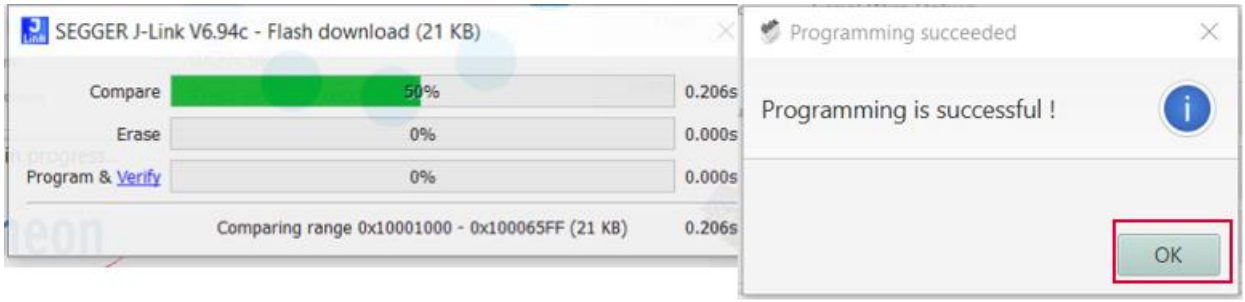


Figure 13: Program hex file in XMC™ Flasher

Step 5: Check the hex file is loaded and click **Program** button. RED led on the board blinks once. Click Ok after programming is successful.



Step 6: Now click on **Verify** button to complete the programming verification.

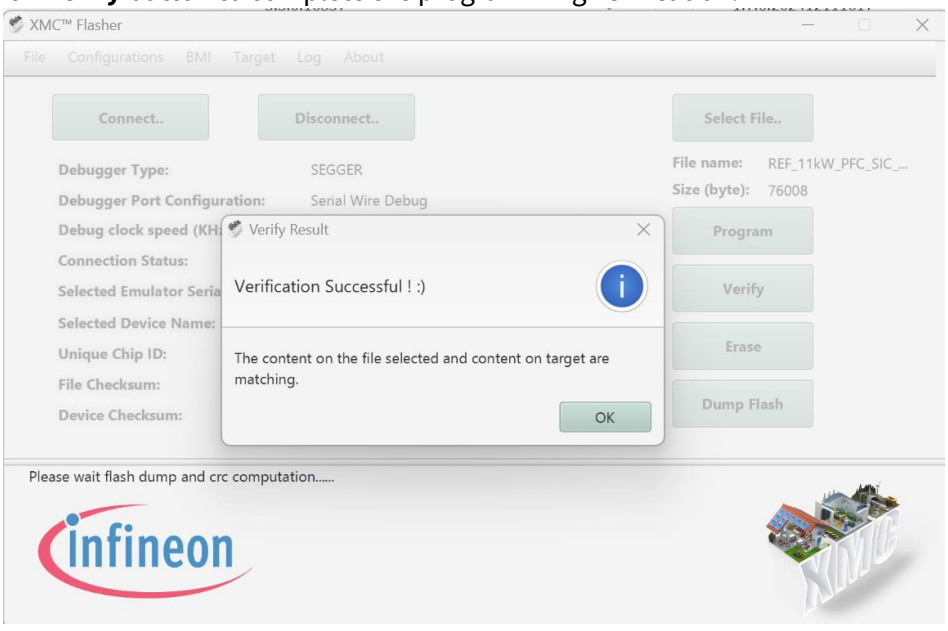


Figure 14: Program verification in XMC™ Flasher

Step 7: After the verification is successful, click Ok and then **Disconnect** button on the XMC flasher window. Red LED on the board blinks.

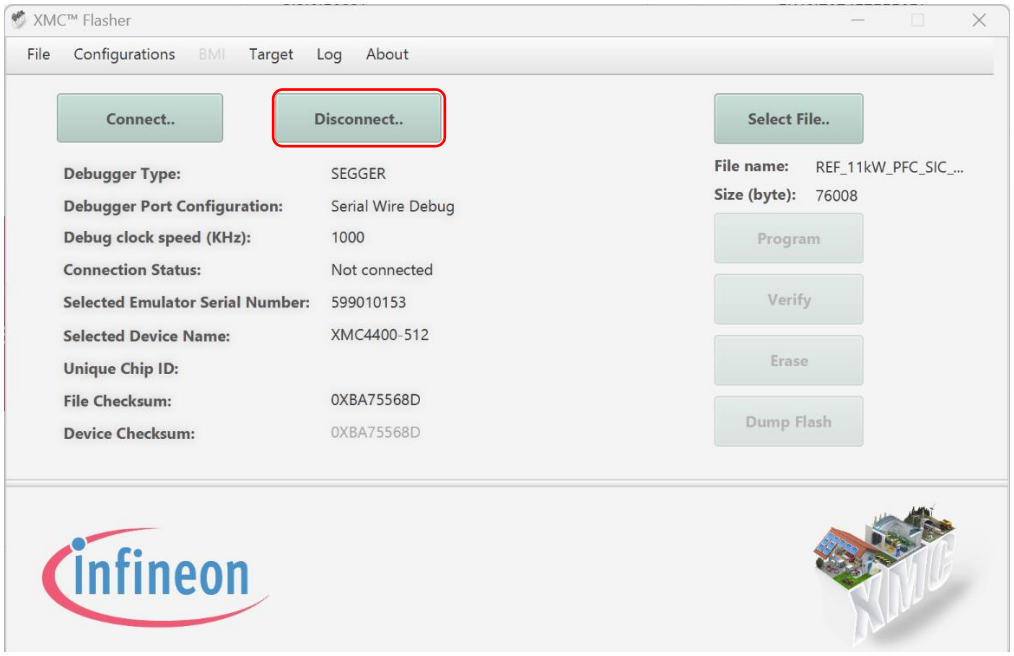


Figure 15: Disconnect Target Device in XMC™ Flasher

The programming/flashing of software into Control card (CD20001015) is successful.
Close the XMC Flasher window. Disconnect 12V supply and customized wiring assembly.

Revision history

Document version	Date of release	Description of changes
1.0	08/07/2025	Initial Release
1.1	03/11/2025	CD300001015 designator update

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