

UM11581

Arduino Shields GUI and firmware installation

Rev. 1.0 — 22 February 2021

User guide

Document information

Information	Content
Keywords	MIMXRT1050-EVK, LPC55S69-EVK, 8MMINILPD4-EVK
Abstract	This document describes the Installation procedure for the Arduino Shields GUI and the Firmware for the MIMXRT1050-EVK, LPC55S69-EVK and 8MMINILPD4-EVK. PCA995X GUI is used as reference for installation.



Revision history

Rev	Date	Description
v.1.0	20210222	Initial version

1 Introduction

This document describes the Installation procedure for the Arduino Shields GUI and the firmware for MIMXRT1050-EVK, LPC55S69-EVK, and 8MMINILPD4-EVK which supports the family of Arduino Development Shields. The EVK firmware programs the microcontroller as USB to I²C/SPI bridge and supports all GUIs.

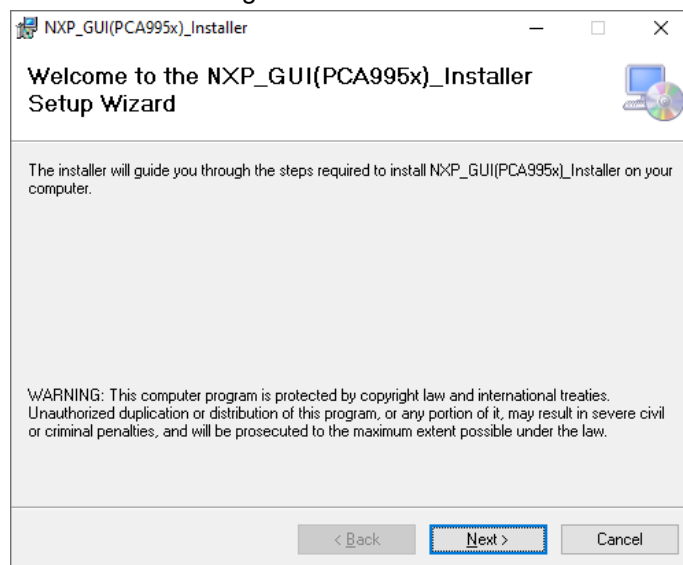
There is a separate GUI that needs to be loaded for each category of Arduino Shield (e.g., LED, Temp Sensor, Real Time Clock, etc.) and has a drop-down box to select individual devices within that category (e.g., PCA9957HN and PCA9959HN). PCA995X LED GUI is used as reference for installation.

2 GUI installation

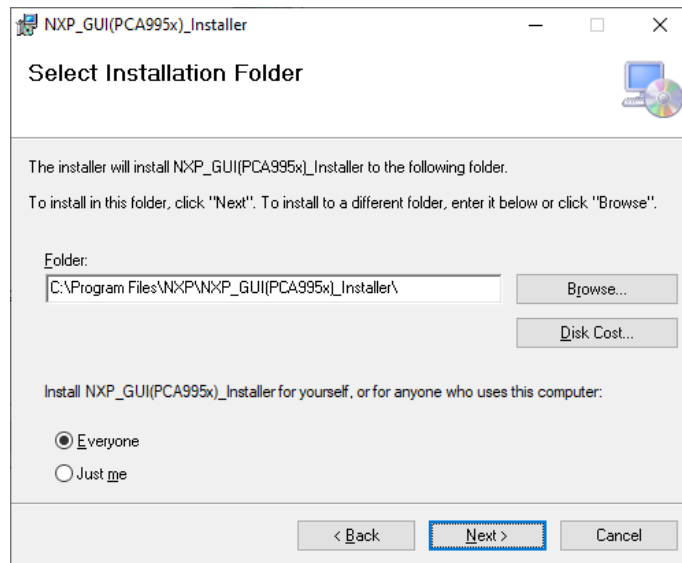
The GUI software comes in an MSI package installer.

Example: 2404200423_V1220_NXP_GUI(PCA995x).msi

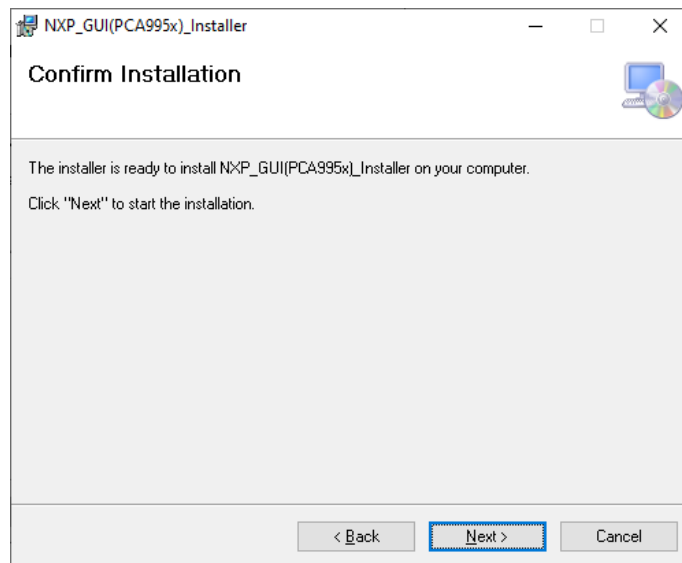
1. Launch the package to start the installation procedure.
2. Press “NEXT” to begin installation



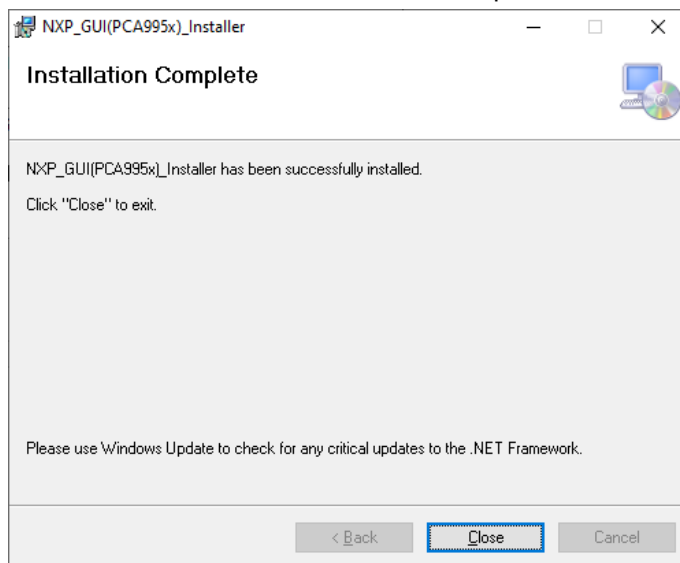
3. Select the location where the software will be installed in the next window.



4. Press "Next" to start the installation



5. Press "Close" after the installation is complete



The GUI is Installed and ready to use.

3 Firmware installation

The GUI is designed to work in conjunction with the three EVKs listed below:

- MIMXRT1050-EVK
- LPC55S69-EVK
- 8MMINILPD4-EVK

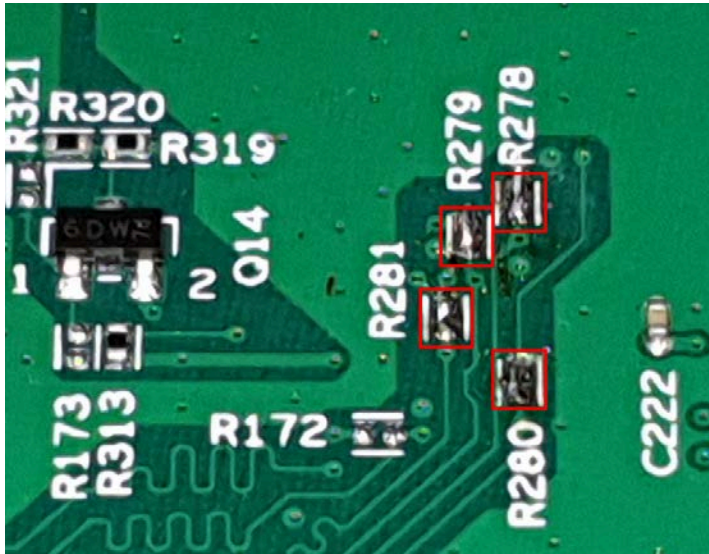
3.1 MIMXRT1050-EVK

3.1.1 Introduction

This section contains the prerequisites and the guidelines to be followed to flash a bin image to MIMXRT1050-EVK from a Windows PC.

3.1.2 Modifying the EVK

There are changes that need to be made to the EVK for this step to work. Four resistors need to be shunted to connect the SPI port: R280, R281, R270, R278.

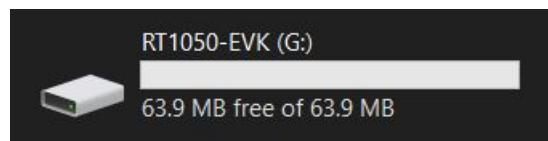


3.1.3 Flashing the firmware

The IMXRT1050_v1.0.8_3.bin image is required for this step.

The guideline for flashing .bin image to imxrt1050 from a Windows PC includes the following steps:

1. Detection of rt1050 requires “Windows serial driver” which is available in the following link. <https://os.mbed.com/docs/mbed-os/v5.14/tutorials/windows-serial-driver.html>
2. Connect the evk to windows PC via usb cable in j28 connector and install the driver. Here we are going to flash by OpenSDA MSD drag/drop steps.
3. Configure the power supply from the Debug USB (connect J1 5-6). Connect J28 OpenSDA interface with USB cable.
4. Set SW7 to OFF-OFF-OFF-ON.
5. Power on board.
6. Computer detects RT1050-EVK as removable device. Drag the generated *.bin file into RT1050-EVK



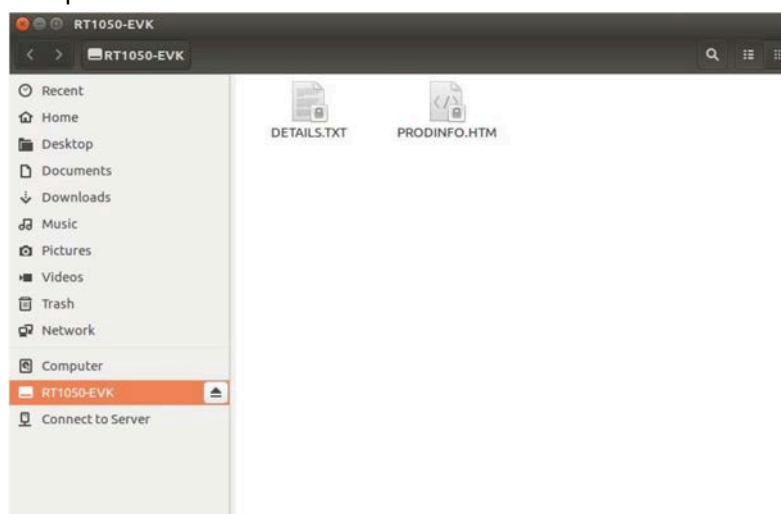
7. Power off. Set SW7 to OFF-ON-ON-OFF.
8. Power on. Push on board reset button.

Flashing .bin image from Linux PC:

The guideline for flashing .bin image to imxrt1050 from a Linux PC includes the following steps:

1. Here we are going to flash by OpenSDA MSD drag/drop steps.
2. Configure the power supply is form the Debug USB (connect J1 5-6).
3. Connect J28 OpenSDA interface with USB cable.
4. Set SW7 to OFF-OFF-OFF-ON.
5. Power on board.

6. Computer detects RT1050-EVK as removable device.



Drag the generated *.bin file into RT1050-EVK.

7. Power off. Set SW7 to OFF-ON-ON-OFF.
8. Power on. Push on board reset button.

The EVK is ready to be used with the GUI software.

3.2 LPC55S69-EVK

3.2.1 Driver installation

Download the driver from the following link and install it:

<https://downloadcenter.intel.com/download>

Download and install the LPCScript driver for windows from the following link:

<https://www.nxp.com/design/microcontrollers-developer-resources/>

Download and install Flash magic tool for windows from the following link:

<http://www.flashmagictool.com/>

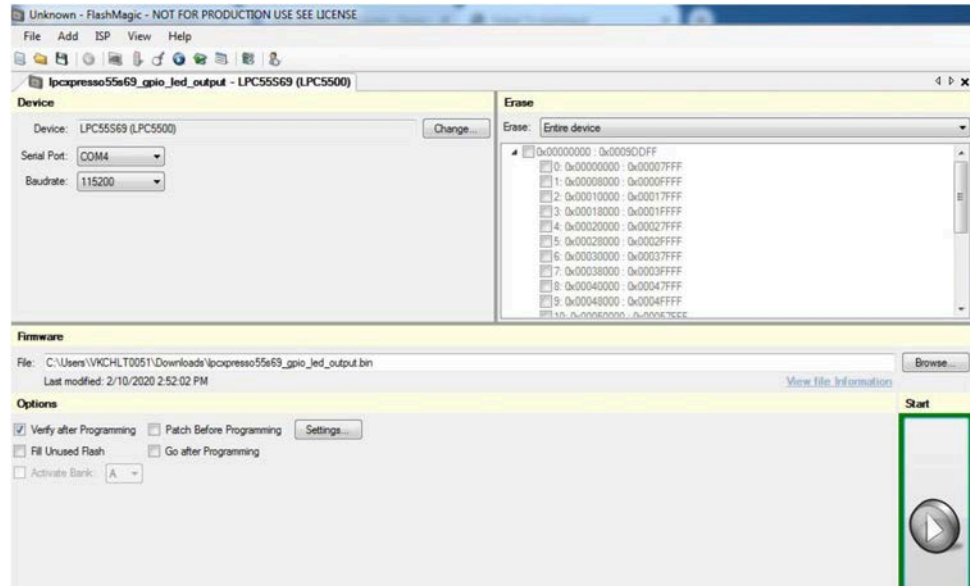
3.2.2 Flashing the .bin image from Windows PC

The .bin file LPC55S69_v2.0.7_3.bin is required for this step.

1. Connect the Jumper J10 to enable ISP mode in the LPC55S69.
2. Connect the LPC55S69 debug probe to the Windows PC in which flash magic is installed.
3. Copy the binary file (*.bin) into the Windows PC.

- Open the Flash magic tool and it will contain the serial com port available. Set the baudrate (115200), device (LPC556S9) and select the .bin file from the Windows PC correctly.

Flash the .bin using the start button.



- Remove the debug probe, then remove J10.
- Power up the board and press reset.

3.3 I.MX8MINI-EVK (8MMINILPD4-EVK)

3.3.1 Introduction

This section provides the complete details to work with 8MMINILPD4-EVK (hereafter referred to as **(NXP_U_ARDS)**). A Linux system or Virtual machine running Ubuntu 16.04 is required, as well as a micro SDcard of at least 8 GB capacity and an SDcard reader.

3.3.2 Preparing SD card for the NXP_U_ARDS

The primary boot source for NXP_U_ARDS EVK is an SD card. Use either prebuilt executables or build new executables to prepare SD cards. The following section describes the details to prepare SD cards either from newly compiled images (after compiling source code from the user side) or from prebuilt images.

The image fsl-image-validation-imx-imx8mddr4evk-20200805112543.rootfs.sdcard.bz2 is required for this step.

Run the following commands in the Linux terminal:

```
> bunzip2 -dk -f
fsl-image-validation-imx-imx8mddr4evk-<date_time>.rootfs.sdcard.bz2
> sudo dd
if=fsl-image-validation-imx-imx8mddr4evk-<date_time>.rootfs.sdcard
of=/dev/sd<device_node> bs=1M conv=fsync
```

(**Note: replace date_and_time according to compilation time**)

device_node is the name of the node that represents the device to which image is copied. It can be sdb, sdc, mmcblk0, mmcblk1 etc. (replace date_time according to compilation time).

> sync

Now the SD card is ready for booting NXPU_ARDS EVK.

4 Abbreviations

Table 1. Abbreviations

Acronym	Description
GUI	Graphical User Interface
EVK	Evaluation Kit
FW	Firmware

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Date of release: 22 February 2021
Document identifier: UM11581