

1 Introduction

Thank you for your interest in the EV9710 Evaluation Board.

This quick start guide will help you get started with your EV9710 evaluation. The datasheet and user manual provide full details on the board, but this “quick start” guide consolidates information from multiple sources to accelerate your testing.

This guide walks the user through the following steps:

- Downloading necessary files
- Connecting the EV9710 and PE0003
- Installing PE0003 USB driver
- Using PE0003 graphical user interface (GUI) to adjust CMX971 settings

2 History

Version	Changes	Date
1	Initial release	14-12-11

3 EV9710 Operation

3.1 Download of Documents and Software

Please visit the CML website (www.cmlmicro.com) and download the following files:

- CMX971 Datasheet
- EV9710 User Manual
- EV9710 Schematic
- EV9700 Evaluation Software package (applicable to entire CMX97x family)
- PE0003 User Manual
- PE0003 Driver

3.2 Preparing for Operation

The following test equipment will be needed:

- PC with Windows 8x or earlier.
- +5V supply for PE0003.
- +7.2V supply (rated for 100mA) for EV9710.
- Baseband IQ generator (for CMX971 IQ inputs)
- RF signal generator (for CMX971 LO)
- RF spectrum analyzer
- Oscilloscope (for generic signal viewing if desired)

Here are the connection steps:

- Connect EV9710 to PE0003 “C-BUS1” connector.
- Connect baseband IQ generator to EV9710 J9.
 - The EV9710 is configured by default for differential IQ inputs. A minor PCB modification is required for single-ended input support; user manual section 4.3, note a, describes this modification.
- Connect RF signal generator to EV9710 LO_IN (J5).

- Connect RF spectrum analyzer to EV9710 Tx_OUT (J2).

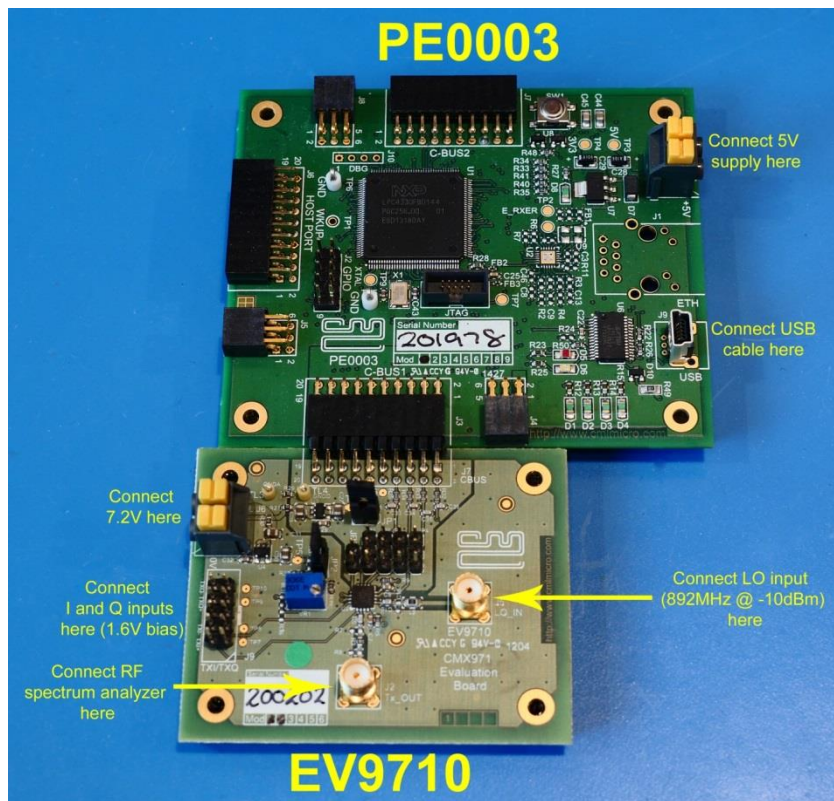


Figure 1: Assembled EV9710 and PE0003

3.3 PE0003 Installation

- Connect PE0003 to PC with USB cable.
- The PC will ask for a USB driver the first time a PE0003 is connected. When prompted, load the USB driver from the unzipped PE0003 Driver package.
 - Your PC may attempt to use "Windows Update" to find the PE0003 USB driver. Cancel the "Windows Update" search. On your PC click "Start" button, right click on "Computer" and select "Properties". Select "Device Manager". Right click "PE0003 Evaluation Kit" and choose "Update driver software". Choose "Browse my computer" and locate the PE0003 driver. Click "Install anyway" if you get a driver warning message.

3.4 CMX971 Configuration with PE0003 GUI

- Apply power to EV9710.
- Apply 892MHz @ -10dBm LO signal to EV9710 LO_IN.
- Set baseband IQ inputs to 1.6VDC.
- Launch the "ES9700xx.exe" graphical user interface on your PC.
- Select "EV9710" in the GUI and do the following:
 - "C-BUS Control" tab: click "Gen. Reset" in bottom right corner.
 - "Registers" tab: check the "Auto Write" box at bottom of window.
 - "Registers" tab: "General Control Register (\$1B)" area > check "Bias Generator" and "Tx Enable", and select "/2" in "LO Division" pull-down box.
 - "Registers" tab: click "Write Control Reg" in "Control Register (\$1E)" area to write \$00 to register \$1E.

At this point a -40dBm 446MHz signal should be present at EV9710 Tx_OUT (J2). Differential IQ input signals (1Vp-p typ at 1.6V bias) can be applied to EV9710 at this time

3.5 Helpful Hints

Detailed PE0003 driver installation information can be found in the PE0003 User Manual. For Win7 and Win8 driver signing issues see the FAQ tab on the CML website's PE0003 Product page.

Detailed information on GUI operation can be found in the PE0003 User Manual.

A reference document for the Script language can be downloaded from the CML website's PE0003 product page on the Knowledge Base tab.

Differential inputs are preferred as these reject common mode noise and have a higher SNR.

Use a good-quality low phase-noise LO as this will have a direct impact on the transmission quality.

Keep a reasonable space between RF evaluation boards to avoid RF coupling issues.

Keep RF leads routed away from the boards and other when making precise measurements. This will avoid signal coupling affecting the results.

The PE0003 generates high spurious noise typical of high speed processors and this may be coupled into the RF circuits. While every care has been taken to avoid issues, optimum performance will be achieved with a production design that includes overall shielding and consideration of the layout with respect to the processor speed and proximity.

Please contact CML Technical Support if you have any questions or require further assistance.

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