

Curiosity Nano Explorer Errata

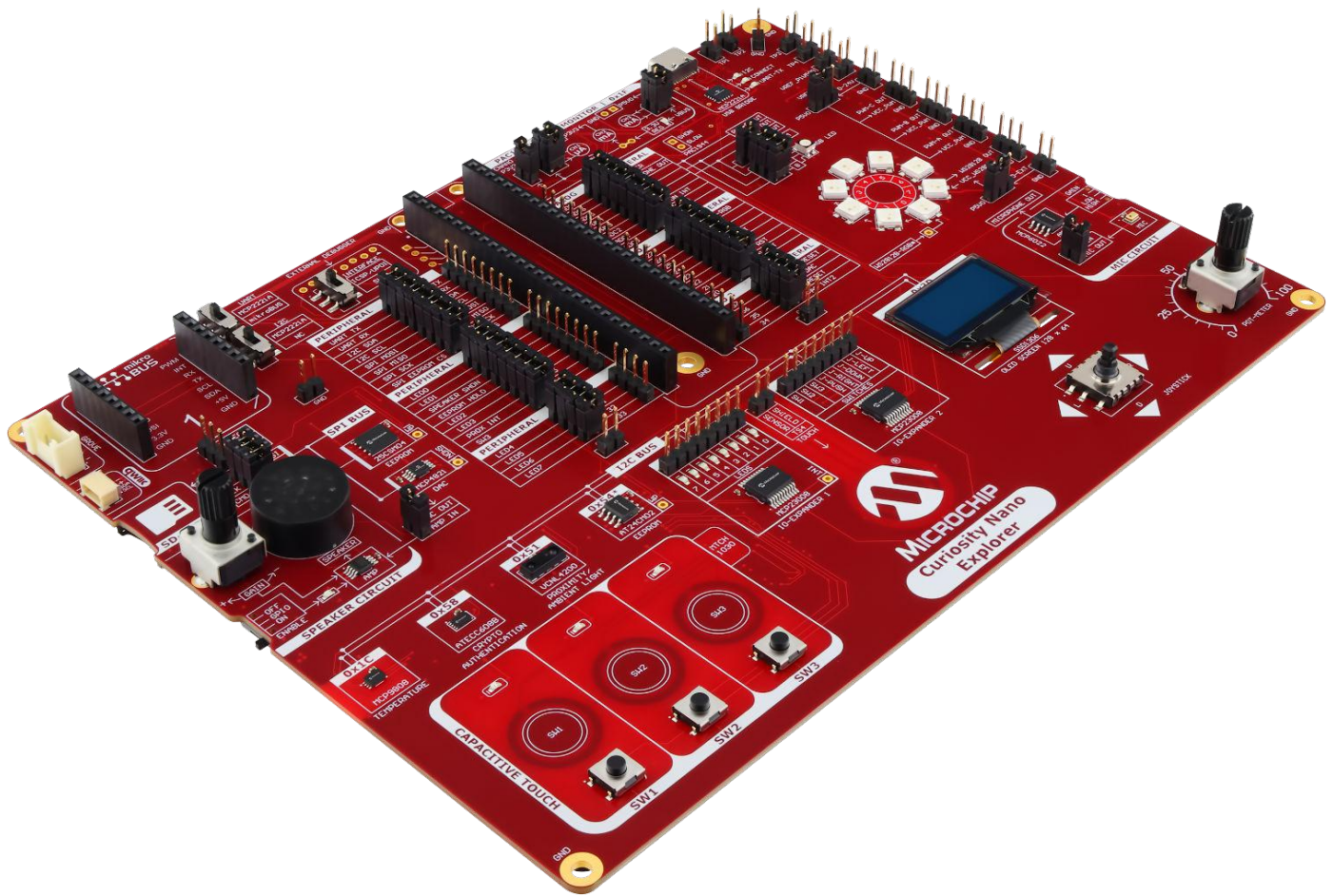
Curiosity Nano Explorer Errata [EV58G97A]



Introduction

Revision history and errata for all revisions of Curiosity Nano Explorer (EV58G97A).

This document describes the revision history and errata for all revisions of the Curiosity Nano Explorer (EV58G97A), previous and current. See the [Curiosity Nano Explorer Online User Guide](#) for details about all the peripherals on the board.



Info: Links to the latest version of this document:

- [Curiosity Nano Explorer Online Errata](#)
- [Curiosity Nano Explorer PDF Errata](#)

1. Hardware Revision History

Information about known issues, revision history of current and older revisions, and how older revisions differ from the latest revision.

1.1 Identifying Product ID and Revision

There are two ways to find the revision and product identifier of the Curiosity Nano Explorer: The MPLAB® X IDE Kit Window or the sticker on the bottom of the PCB.

The Kit Window will appear in MPLAB X IDE when connecting a Curiosity Nano development board to the computer. An additional page for the Curiosity Nano Explorer is shown when the CNANO is plugged into to the socket on the board.

The first nine digits of the serial number, listed under kit information, contain the product identifier and revision.



Tip: If closed, the Kit Window can be opened in MPLAB X IDE through the menu bar **Window > Kit Window**.

The same information is found on the sticker on the bottom side of the PCB. The data matrix code on the sticker contains a string with the product identifier 02-00630, revision, and serial number.

The product identifier and revision is also printed in plain text as 02-00630/rr, where "rr" represents the revision. The serial number is printed on the next line.

The string in the data matrix code has the following format:

```
"nnnnnnnnrrssssssss"
```

```
n = product identifier
```

```
r = revision
```

```
s = serial number
```

1.2 Revision 3

Revision 3 is the initially released board revision.

1.3 Revision 2

Revision 2 is an early adopters revision.

I²C PULL-UP A: 4.7 kΩ (R101 and R102)

I²C PULL-UP B: 4.7 kΩ (R505 and R506)

A 10 nF capacitor (C405) is mounted instead of a 10 kΩ resistor (R452).

2. Errata

Errata and issue description for all board revisions.

Legend

- Erratum is not applicable
- X Erratum is applicable

Category	Short Description	Valid for PCBA Revision	
		Rev. 2	Rev. 3
Silkscreen	2.1.1. D0 and CMD Swapped in Silkscreen Next to the SDCARD Socket	X	X
Silkscreen	2.1.2. PAC1944 Power Monitor CH3 Silkscreen Arrows Point in the Wrong Direction	X	X
Power supply	2.2.1. Inserting USB Cables in a Certain Order may Lead to a Voltage Drop	X	X
Power supply	2.2.2. Bridge Reset (MCP2221A/MIC2008) Powers Microcontroller Through I/O Pins	X	X
I/O section	2.3.1. LED I/O Expander Cannot Read Low Pin Status	X	X
I/O section	2.3.2. Capacitive Touch Buttons and Mechanical Switch SW1 are Unusable	X	-
I ² C bus	2.4.1. I2C Bus Signal Rise Time not Compliant with 400 kHz Operation	X	-

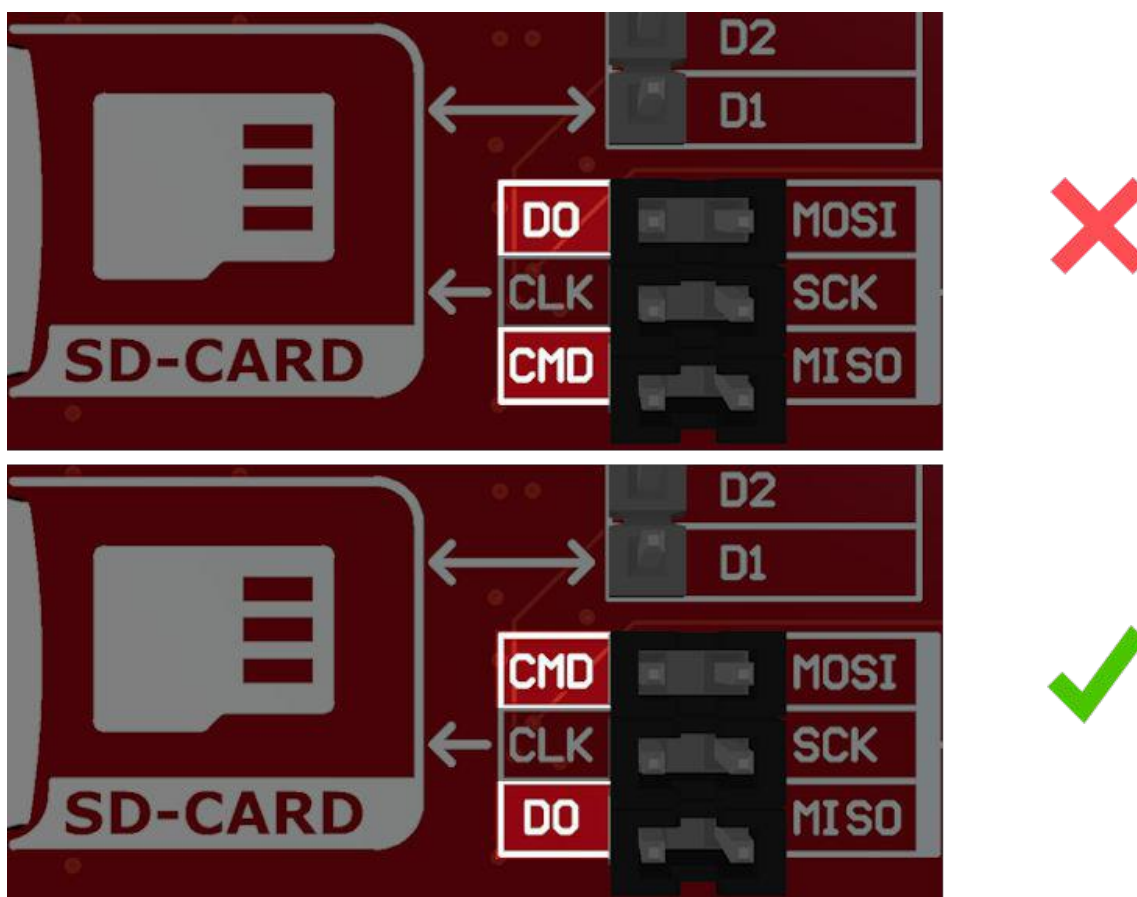
2.1 Silkscreen

2.1.1 D0 and CMD Swapped in Silkscreen Next to the SDCARD Socket

Marking of D0 and CMD in the silkscreen is swapped compared to the electrical connection in the PCB. The connections to the microcontroller are correct to communicate with an SDCARD.

- X The D0 and CMD silkscreen location is swapped compared to the electrical connection
- ✓ The D0 and CMD silkscreen location matches the electrical connection

Figure 2-1. SDCARD Silkscreen



Work Around

None.

Affected PCBA Revisions

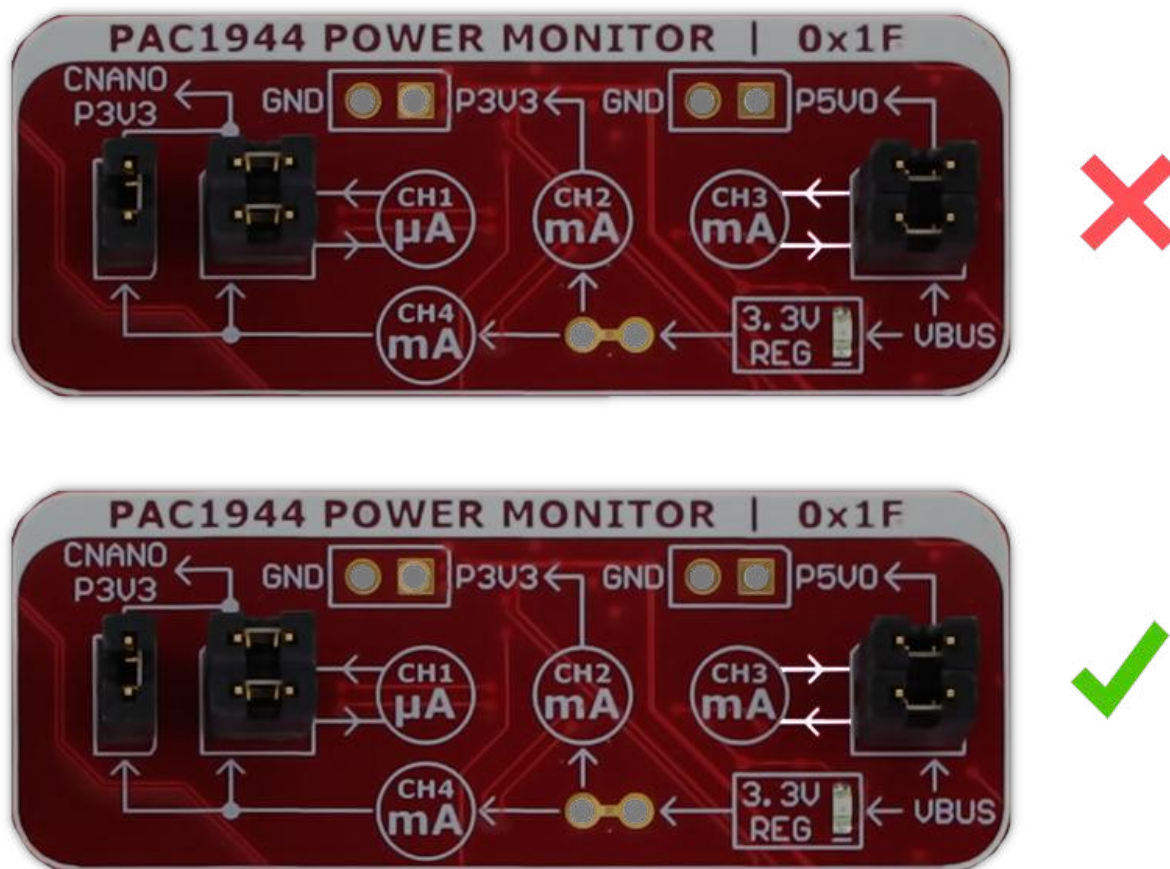
Rev. 2	Rev. 3
X	X

2.1.2 PAC1944 Power Monitor CH3 Silkscreen Arrows Point in the Wrong Direction

Arrows are drawn in the silkscreen to indicate the current flow in the PAC1944 power monitor section of the board. The arrows indicating the current flow through channel 3 point in the wrong direction.

- X Silkscreen arrows point in the opposite direction of the current flow through channel 3
- ✓ Silkscreen arrows point in the same direction as the current flow through channel 3

Figure 2-2. Power Monitor Silkscreen

**Work Around**

None

Affected PCBA Revisions

Rev. 2	Rev. 3
X	X

2.2 Power Supply**2.2.1 Inserting USB Cables in a Certain Order may Lead to a Voltage Drop**

Unplugging the USB-C® cable from the Curiosity Nano Explorer while a USB cable is connected to an attached Curiosity Nano microcontroller board causes the input power multiplexer on the Curiosity Nano Explorer to enter a faulty state. Current flows through the body diode of MOSFET Q502, and the output voltage will be about a diode drop lower than the expected 5.0V in this failure state. Currents above 1A may destroy the MOSFET.

The voltage multiplexer can enter the same failure state if a USB-A to USB-C cable is disconnected from the source while a USB cable is connected to an attached Curiosity Nano evaluation kit.

Work Around

Always unplug the USB cable from an attached Curiosity Nano board before unplugging the USB-C cable from the Curiosity Nano Explorer. Do not unplug a USB-C cable connected to the Curiosity Nano Explorer from the source first.

Affected PCBA Revisions

Rev. 2	Rev. 3
X	X

2.2.2 Bridge Reset (MCP2221A/MIC2008) Powers Microcontroller Through I/O Pins

Microcontrollers on Curiosity Nano development boards attached to the socket on the Curiosity Nano Explorer are powered through I/O when the MCP2221A is disabled through the BRIDGE_RESET signal. In some scenarios VCC_VBUS (5V) may oscillate on/off with a ~5 Hz frequency.

Work Around

Do not use the software controlled power off (BRIDGE_RESET) implemented through the MCP2221A/MIC2008

or

disconnect the CNANO I/O from the affected I/O pins:

- Remove jumper JP136 to disconnect PAC-INT2
- Remove jumper JP139 to disconnect BRIDGE_RESET
- Set switch S501 to the mikroBUS™ setting to disconnect the UART TX line from the MCP2221A
- Set switch S500 to "NC" to disconnect the board I²C bus from the PAC1944 and MCP2221A

Affected PCBA Revisions

Rev. 2	Rev. 3
X	X

2.3 I/O Section**2.3.1 LED I/O Expander Cannot Read Low Pin Status**

The microcontrollers' I/O pins on Curiosity Nano boards, the pin-header row (J301) next to the LEDs, and I/O expander 1 (MCP23008/U300) are all connected to the LEDs through a resistor network. The voltage on the I/O expander pin is 1.8V when an LED is activated by pulling the CNANO pin low. 1.8V is in the undefined range for the I/O expander pin, and results from read operations cannot be used.

Work Around

None

Affected PCBA Revisions

Rev. 2	Rev. 3
X	X

2.3.2 Capacitive Touch Buttons and Mechanical Switch SW1 are Unusable

The MTCH1030 enters "Touch Tune Data" mode on power-up, disabling the capacitive touch status outputs, and transmits detailed touch data as UART through the OUT2 pin. The touch buttons do not change the output signals, and the mechanical switch SW1 is not usable as a button.

Work Around

Prevent the MTCH1030 from entering "tune data mode" by pulling the TUNE_EN pin high during power-up by replacing C405 with a 10 kΩ resistor.

Affected PCBA Revisions

Rev. 2	Rev. 3
X	-

2.4 I²C Bus

2.4.1 I²C Bus Signal Rise Time not Compliant with 400 kHz Operation

The SDA and SCL rise time is measured to ~440 ns, way above the maximum rise time of 300 ns from the I²C specification for 400 kHz operation. The rise time will increase further if extensions are connected to the Grove, QWIIC, and/or mikroBUS connectors due to the increased I²C bus capacitance.

Work Around

Use 100 kHz communication on the I²C bus

or

replace the I²C pull-up resistors to be compatible with 100 kHz and 400 kHz operation.

I²C PULL-UP A: 2.7 k Ω (R101 and R102)

I²C PULL-UP B: 5.1 k Ω (R505 and R506)

Affected PCBA Revisions

Rev. 2	Rev. 3
X	-

3. Document Revision History

Revision history of this document.

Doc. Rev.	Date	Comments
A	06/2024	Initial document release

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