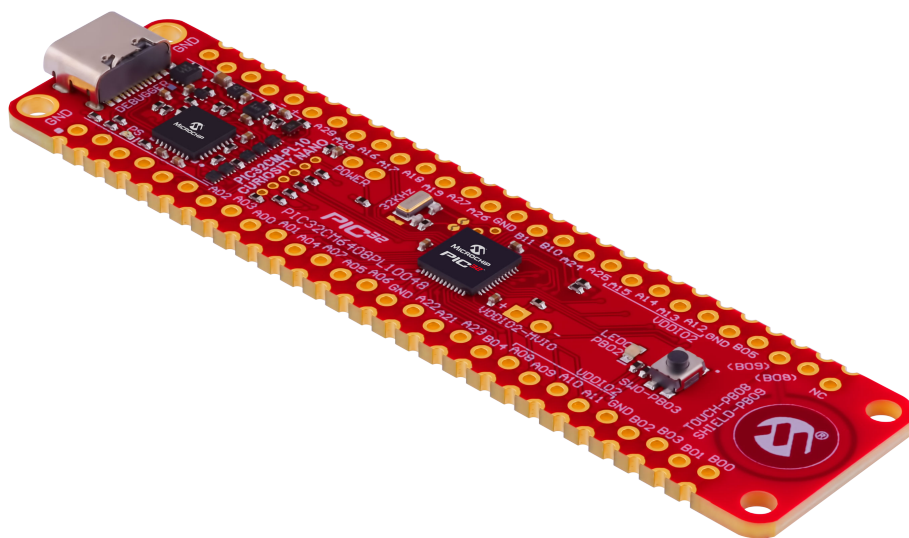


Preface

The PIC32CM PL10 Curiosity Nano evaluation kit (EV10P22A) is a hardware platform for evaluating the PIC32CM PL10 family of microcontrollers. This board features the PIC32CM6408PL10048 microcontroller (referred to as the target MCU in this document) mounted on the board.

The Curiosity Nano series of evaluation boards include an on-board programmer and debugger. No external tools are necessary to program and debug the PIC32CM6408PL10048.



- **Kit Website** - Kit information, latest user guide, and design documentation.
- **Device Website** - Find documentation, data sheets, samples, and purchase microcontrollers.
- **Microchip Direct** - Purchase this kit from Microchip Direct.
- **MPLAB® Discover** - Get started with code examples on MPLAB® Discover.
- **Schematics** - Board schematics and revision history.
- **Design Documentation** - Production files for every revision.

Table of Contents

Preface.....	1
1. PIC32CM6408PL10048 Key Features.....	4
2. Pinout.....	5
3. Board Features.....	6
3.1. Board Features.....	6
3.2. Board Overview.....	6
3.3. Block Diagram.....	7
3.4. Curiosity Nano Pinout.....	7
4. Out-of-Box Demo.....	9
5. Setup Essentials.....	10
5.1. Quick Start.....	10
5.2. Using Pin Headers.....	10
6. On-Board Nano Debugger.....	12
6.1. Overview.....	12
6.2. Power and Status LED.....	12
6.3. Connections.....	12
6.4. Disconnecting the On-Board Debugger.....	13
6.5. Connecting External Debuggers.....	14
7. Hardware Peripherals.....	16
7.1. LED.....	16
7.2. Mechanical Switch.....	16
7.3. Crystal.....	17
7.4. Touch Button.....	18
7.5. Multi-Voltage I/O.....	19
8. Power Supply.....	21
8.1. Target Regulator.....	21
8.2. External Supply.....	22
8.3. VBUS Output Pin.....	23
8.4. Cut Straps.....	23
8.5. Low-Power Measurement.....	24
8.6. Power Supply Exceptions.....	24
9. Hardware Revision History and Known Issues.....	26
9.1. Identifying Product ID and Revision.....	26
9.2. Revision 2.....	26
10. Document Revision History.....	27
11. Appendix.....	28
11.1. Schematic.....	29
11.2. Assembly Drawing.....	31
11.3. Curiosity Nano Explorer.....	32

11.4. Curiosity Nano Base for Click boards™	33
11.5. Bill of Materials.....	34
Microchip Information.....	35
Trademarks.....	35
Legal Notice.....	35
Microchip Devices Code Protection Feature.....	35
Product Page Links.....	36

1. PIC32CM6408PL10048 Key Features

The Arm® Cortex-M0+ MCU features low power consumption, flexible analog capabilities, advanced timers, and versatile communication options.

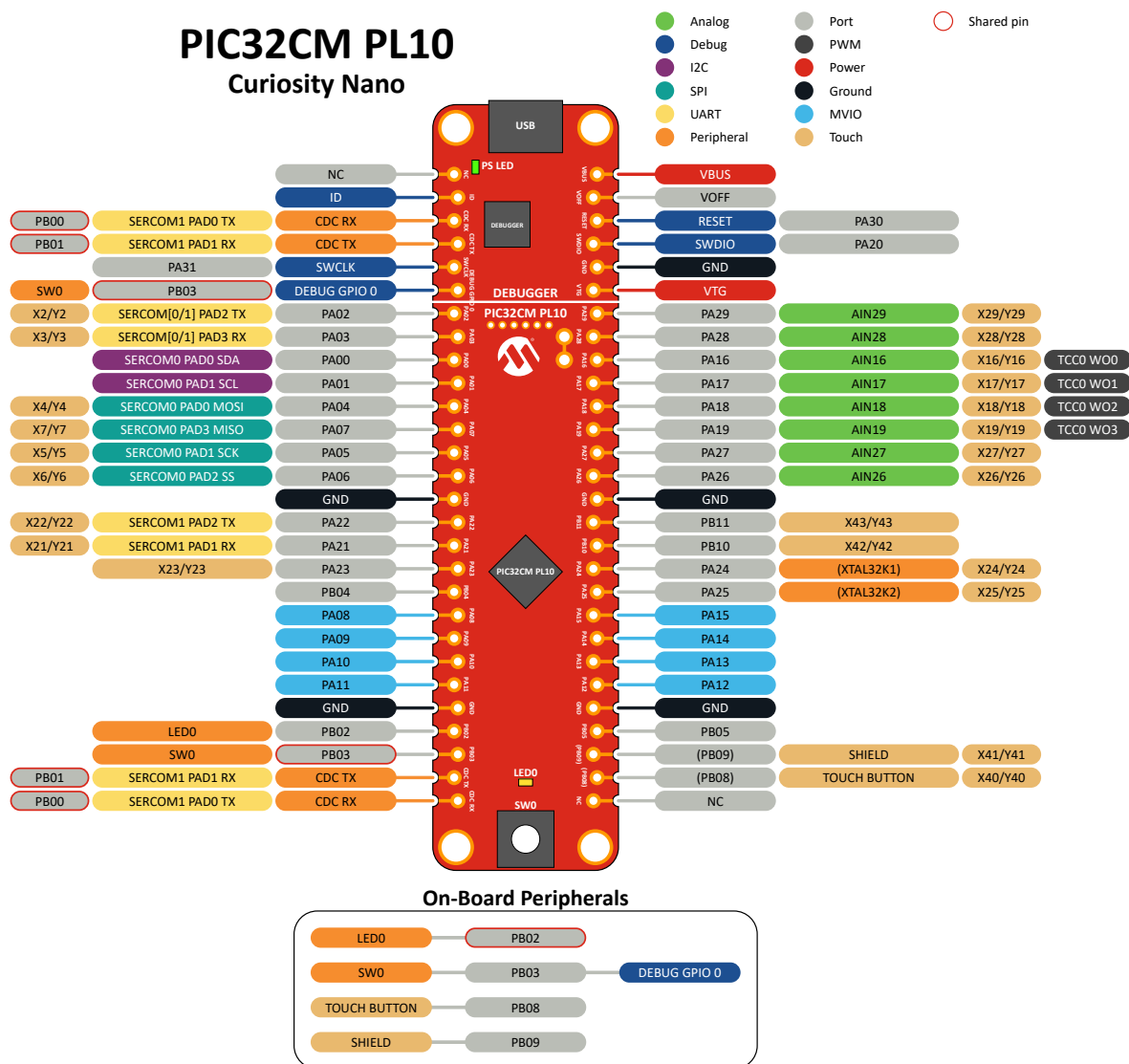
- Arm Cortex-M0+ Core with Speeds up to 24 MHz Across a Supply Voltage Range of 1.8–5.5V
- 64 KB In-System Self-Programmable Flash with 8 KB SRAM
- Operating Voltage: 1.8–5.5V
- Available in 48-Pin TQFP and 48-Pin VQFN WF Packages
- Low Power
 - Idle and Standby sleep modes
 - Sleep Walking peripherals
- Multi-Voltage I/O (MVIO)
- Peripheral Touch Controller (PTC) with 25 Self-Capacitance Channels
- One 12-bit, 800 ksps Analog-to-Digital Converter (ADC)
- Two Analog Comparators (AC) with Window Compare Function
- Four 16-bit Timer/Counters:
 - Three 16-bit basic Timer/Counters (TC0-2)
 - One 16-bit Timer/Counter for Control with four PWM channels (TCC0)
- 32-bit Real Time Counter (RTC) with Clock/Calendar Function
- Two Serial Communication Interfaces (SERCOM), Configurable to Operate as:
 - USART with full-duplex and single-wire half-duplex configuration
 - ISO7816 UART
 - I²C up to 1 MHz (SERCOM0)
 - SPI
 - LIN Host/Client
 - RS-485
- Two-Channel Direct Memory Access Controller (DMAC) with CRC Generator
- Four-channel Event System (EVSYS)
- Configurable Custom Logic (CCL) with Four Look-Up Tables (LUT)
- Programming and Debugging Interface Disable (PDID) Functionality
- Watchdog Timer (WDT)
- External Crystal Oscillator with Failure Detection
- Integrated Temperature Sensor
- Temperature Ranges:
 - Industrial: –40°C to +85°C
 - Extended: –40°C to +125°C

2. Pinout

PIC32CM PL10 Curiosity Nano pinout diagram.

All the PIC32CM6408PL10048 I/O pins are accessible at the edge connectors on the board. The image below shows the board's pinout.

Figure 2-1. PIC32CM PL10 Curiosity Nano Pinout



Info: Refer to the Pinout and Multiplexing section in the PIC32CM6408PL10048 data sheet for all available functions on each pin.

3. Board Features

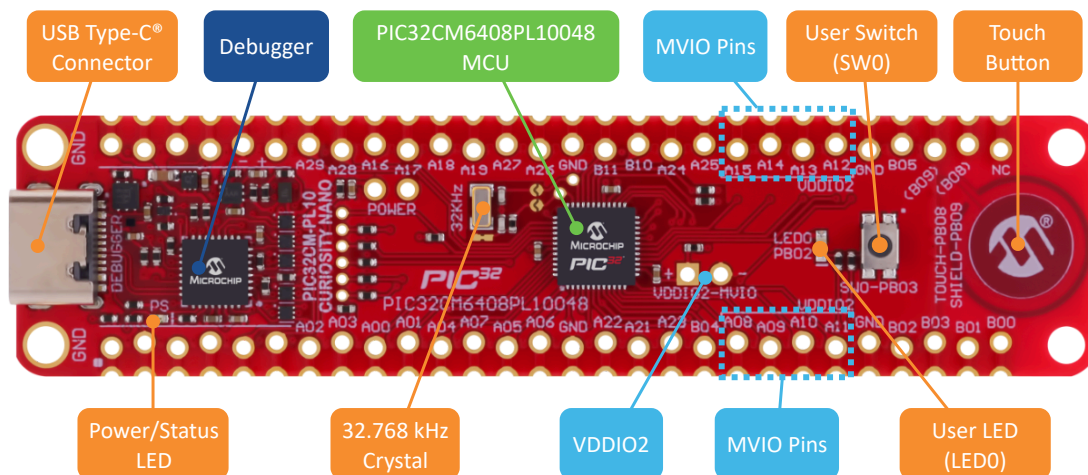
Features of Curiosity Nano, board layout picture, board block diagram, and Curiosity Nano pinout standard.

3.1. Board Features

- PIC32CM6408PL10048 Microcontroller
- On-Board Nano Debugger
 - Programming and debugging
 - Virtual serial port via USB CDC
 - Green power and status LED
 - One debug GPIO channel (DGI GPIO)
 - Board identification in Microchip development environments
- Power and Connectivity
 - USB Type-C® for power and data
 - Adjustable target voltage (1.8–5.5V, up to 500 mA) controlled by the on-board debugger
 - 1x2 100 mil header for alternative VDDIO2 supply
- Hardware Peripherals
 - Yellow user LED
 - Mechanical user switch
 - Touch button
 - 32.768 kHz Crystal
- Curiosity Nano Edge Connector
 - Sockets into Curiosity Nano base boards
 - Staggered layout for press fit pin headers
 - Breadboard compatible
 - Castellated edges for surface mounting

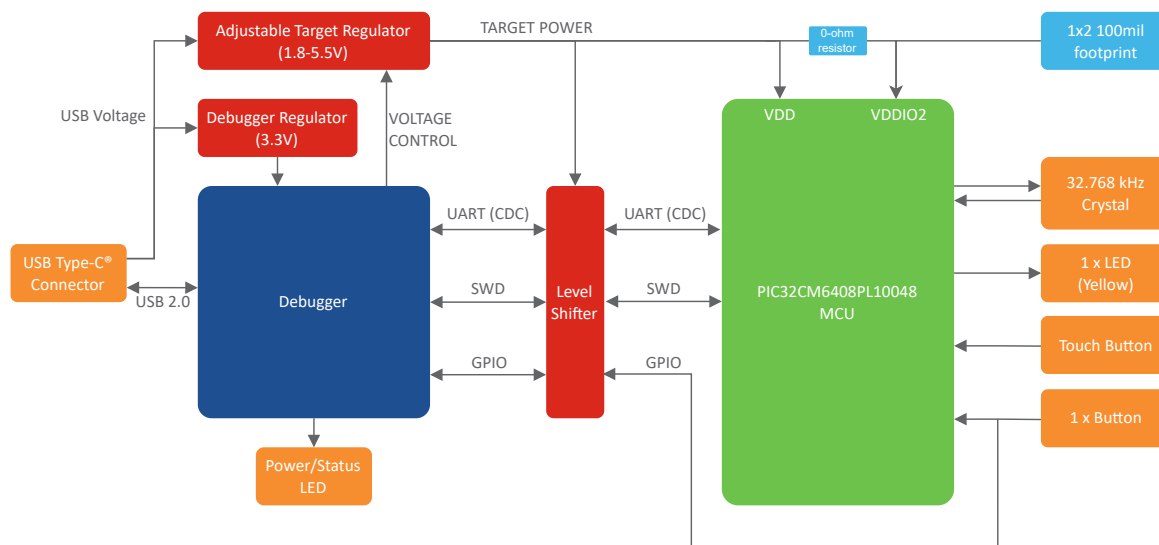
3.2. Board Overview

Figure 3-1. PIC32CM PL10 Curiosity Nano Board Overview



3.3. Block Diagram

Figure 3-2. PIC32CM PL10 Curiosity Nano Board Block Diagram



3.4. Curiosity Nano Pinout

All Curiosity Nano boards follow a standardized pinout for key functions, as illustrated in the image below. Specific pins are reserved for the debugger interface, which supports programming protocols such as UPDI, SWD, or ICSP. Additional dedicated pins are provided for the CDC virtual serial port and the Data Gateway Interface (DGI).

Serial communication interfaces are consistently mapped to designated pins:

- UART
- I2C
- SPI

The CDC UART may share pins with the serial communication section, be available on dedicated pins located directly below the serial section, or, in some cases, be accessible only through the debugger section.

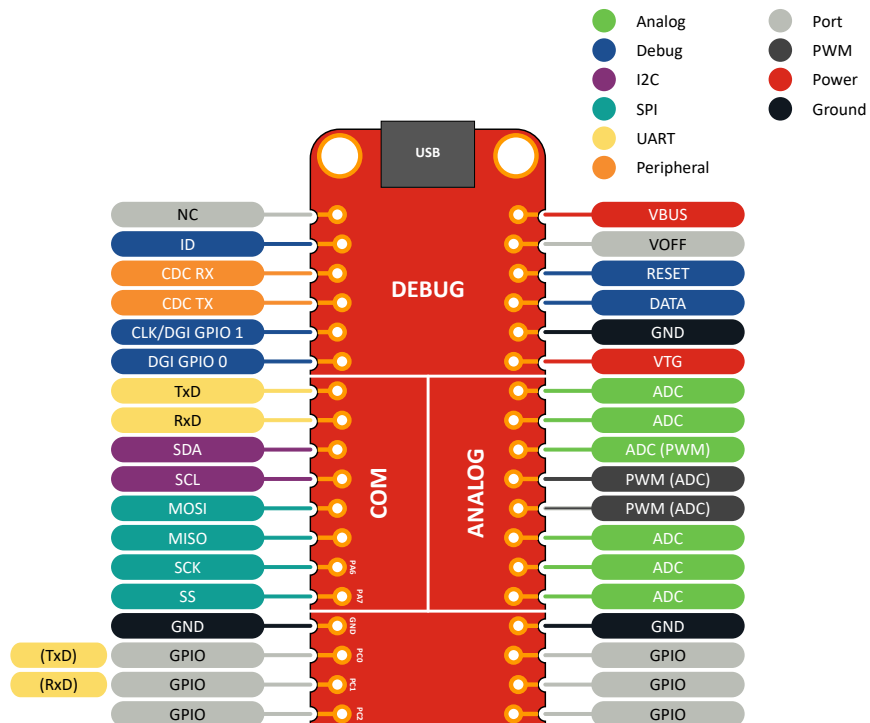
Analog capability is guaranteed only for pins within the analog section. At least two of these pins support PWM output, and some kits may offer a third optional PWM pin.

The placement and availability of additional features, such as extra serial or analog functions, may vary depending on the specific Curiosity Nano board. For this reason, only GPIO functionality is guaranteed for pins outside the sections mentioned above.



Tip: The location of debugger, serial communication, and analog pins on the edge connector is consistent across all Curiosity Nano boards, ensuring compatibility and ease of use.

Figure 3-3. Curiosity Nano Pinout



Info: Features shown in parentheses are optional and may not be available on all Curiosity Nano boards.

4. Out-of-Box Demo

This is an interactive demo program.

The PIC32CM6408PL10048 is pre-programmed with an example application that demonstrates GPIO control, capacitive touch, mechanical switch input, and UART communication. These features are accessible through three example modes:

- **Mode 1 (default):** Blinks the yellow user LED (LED0) at a frequency of 0.5 Hz.
- **Mode 2:** Adjusts the LED blink frequency in real time:
 - User switch (SW0) toggles the blinking frequency between 0.5 Hz and 1 Hz.
 - Touch button toggles the blinking frequency between 0.5 Hz and 5 Hz.
- **Mode 3:** Pressing the user switch (SW0) transmits an 8-bit incrementing counter value over UART. This data can be monitored in real time using MPLAB® Data Visualizer.

The modes are controlled via the kit's CDC UART interface. To interact with the application, open a COM port terminal with the following settings: 115200 baud, 8 data bits, 1 stop bit, no parity.



Tip: DTR may need to be asserted in your terminal program for proper communication.

Switch between programs by sending '1', '2', or '3' over UART; send '0' to reset and show the menu.

For full details, see: [PIC32CM PL10 Curiosity Nano Out-of-Box Demo](#).

5. Setup Essentials

Step-by-step project setup and pin-header assembly instructions.

5.1. Quick Start

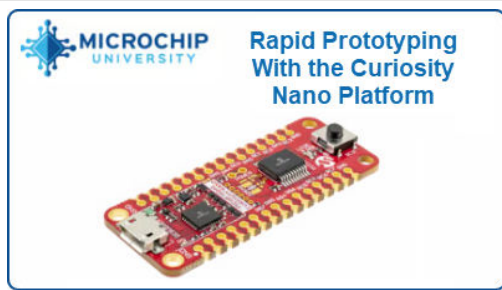
1. Choose your preferred integrated development environment (IDE):
 - MPLAB® Tools for VS Code®
 - Partner Toolchains: Microchip supports a range of partner toolchains. For more information and a list of supported tools, visit the [Development Tool Partners](#) page.
2. For VS Code follow these steps:
 - a. Download and install [VS Code](#) for your operating system.
 - b. Install [MPLAB Tools for VS Code](#).
 - c. Browse and select an example project using [MPLAB® Discover](#)
 - d. Download and open the selected example project in VS Code.
 - e. Connect the PIC32CM PL10 Curiosity Nano to your computer using a USB cable.
 - f. Program the target MCU with the example code using MPLAB Tools for VS Code.
 - g. Refer to this [this guide](#) for tips and tricks on using the extensions.

Next Steps

- Explore additional example projects in [MPLAB® Discover](#) and try customizing them for your application.
- Use the PIC32CM PL10 Curiosity Nano with a Curiosity Nano Base Board:
 - [Curiosity Nano Explorer](#)
 - [Curiosity Nano Base for Click Boards™](#)
- Monitor data output:
 - Use the integrated terminal in VS Code or use your preferred terminal to access the UART interface on your board
 - For advanced data monitoring and visualization, use [MPLAB Data Visualizer](#)



Tip: Take a look at [this](#) free Microchip University course.



The Curiosity Nano platform enables rapid prototyping and includes built-in debugging for working with new microcontrollers.

5.2. Using Pin Headers

The edge connector footprint on the PIC32CM PL10 Curiosity Nano has a staggered design, where each hole is shifted 8 mils (~0.2 mm) off-center. This hole shift allows the use of standard 100 mil pin headers without soldering them to the board. The pin headers can be used in applications such as pin sockets and prototyping boards once they are firmly in place.

Figure 5-1. Connecting Curiosity Nano Board to Base Board Using Pin Headers



Tip:

- Start at one end of the pin header and gradually insert the header along the length of the board. Once all the pins are in place, use a flat surface to push them in
- For applications that permanently use pin headers, it is still recommended to solder them in place
- Once the pin headers are in place, they are difficult to remove by hand. Use a set of pliers and carefully remove the pin headers to avoid damage to the headers, the PCB, or yourself.

6. On-Board Nano Debugger

This section describes the features and interfaces of the on-board debugger for programming and debugging.

6.1. Overview

The PIC32CM PL10 Curiosity Nano features an on-board Nano Debugger for programming and debugging. When connected to a host computer, the Nano Debugger appears as a composite USB device offering several interfaces:

- **Debugger:** Enables programming and debugging of the target MCU.
- **Virtual serial port (CDC):** Provides access to the target MCU's UART interface.
- **Data Gateway Interface (DGI):** Microchip's proprietary interface for streaming data to the host computer.



Tip: For detailed instructions and advanced features, refer to the [Nano Debugger Manual](#).

6.2. Power and Status LED

The on-board debugger controls a Power and Status LED (marked PS) on the PIC32CM PL10 Curiosity Nano board. The table below shows how the different operation modes control the LED.

Table 6-1. On-Board Debugger LED Control

Operation Mode	Power and Status LED
Boot Loader mode	The LED blinks slowly during power-up
Power-up	The LED is ON
Normal operation	The LED is ON
Programming	Activity indicator: The LED blinks slowly during programming or debugging
Drag-and-drop programming	Success: The LED blinks slowly for 2 sec. Failure: The LED blinks rapidly for 2 sec.
Fault	The LED blinks rapidly if a power fault is detected
Off	The on-board debugger is powered down, the LED is OFF



Info: Slow blinking is approximately 1 Hz, and rapid blinking is about 5 Hz.

6.3. Connections

The table below lists the connections between the target MCU and the debugger. When the debugger is inactive, these connections are set to high-impedance (tri-state) mode. This allows users to use these pins for any function without interference from the debugger.

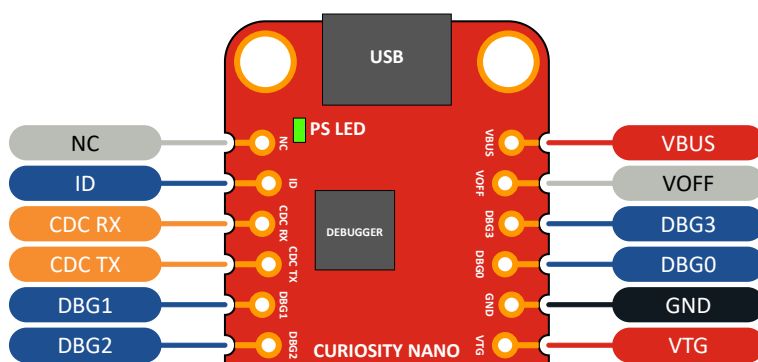


Info: The 12 edge connections closest to the debugger USB connector have a standardized pinout, but the function of the programming and debugging pins varies depending on the programming interface used.

Table 6-2. On-Board Debugger Connections

Debugger Pin	PIC32CM6408PL10048 Pin		Description
CDC TX	PB01	SERCOM1 PAD1 RX	USB CDC TX line
CDC RX	PB00	SERCOM1 PAD0 TX	USB CDC RX line
DBG0	PA20	SWDIO	Debug data line
DBG1	PA31	SWCLK	Debug clock line
DBG2	PB03	GPIO0	Debug GPIO0/SW0
DBG3	PA30	RESET	Reset line
VOFF	—	—	Pull VOFF low to disable the on-board regulator and allow external power on VTG; VOFF is monitored by the debugger
ID	—	—	Identification of supported base boards and extensions at power-up

Figure 6-1. Curiosity Nano Debugger Pinout



Tip: For the complete PIC32CM PL10 Curiosity Nano pinout, see the [PIC32CM PL10 Curiosity Nano Pinout](#).

6.4. Disconnecting the On-Board Debugger

All signals between the on-board debugger and the target device are routed through cut straps on the bottom of the board. These cut straps can be used to disconnect the debugger from the target for various purposes, such as:

- Evaluating the target MCU's power consumption in isolation removes the on-board debugger's influence on current measurements
- Using the target MCU with an external programmer/debugger
- Using the on-board debugger as a standalone programmer/debugger for other devices

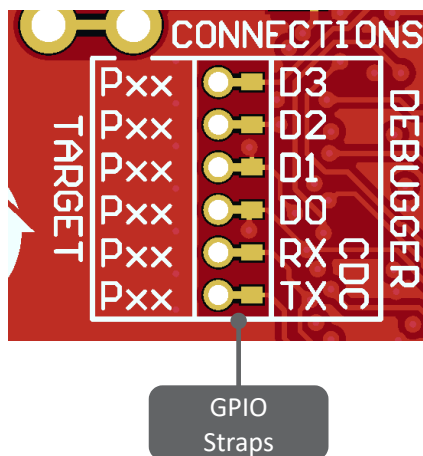
The following cut straps are available to separate the debugger from the target:

- Debugger Pins (J101, J102, J103, J104, J105, J106)
- [Power](#)



Attention: Cutting the GPIO straps to the on-board debugger disables the virtual serial port, programming, debugging, and data streaming functions.

Figure 6-2. Curiosity Nano Debugger Cut Straps

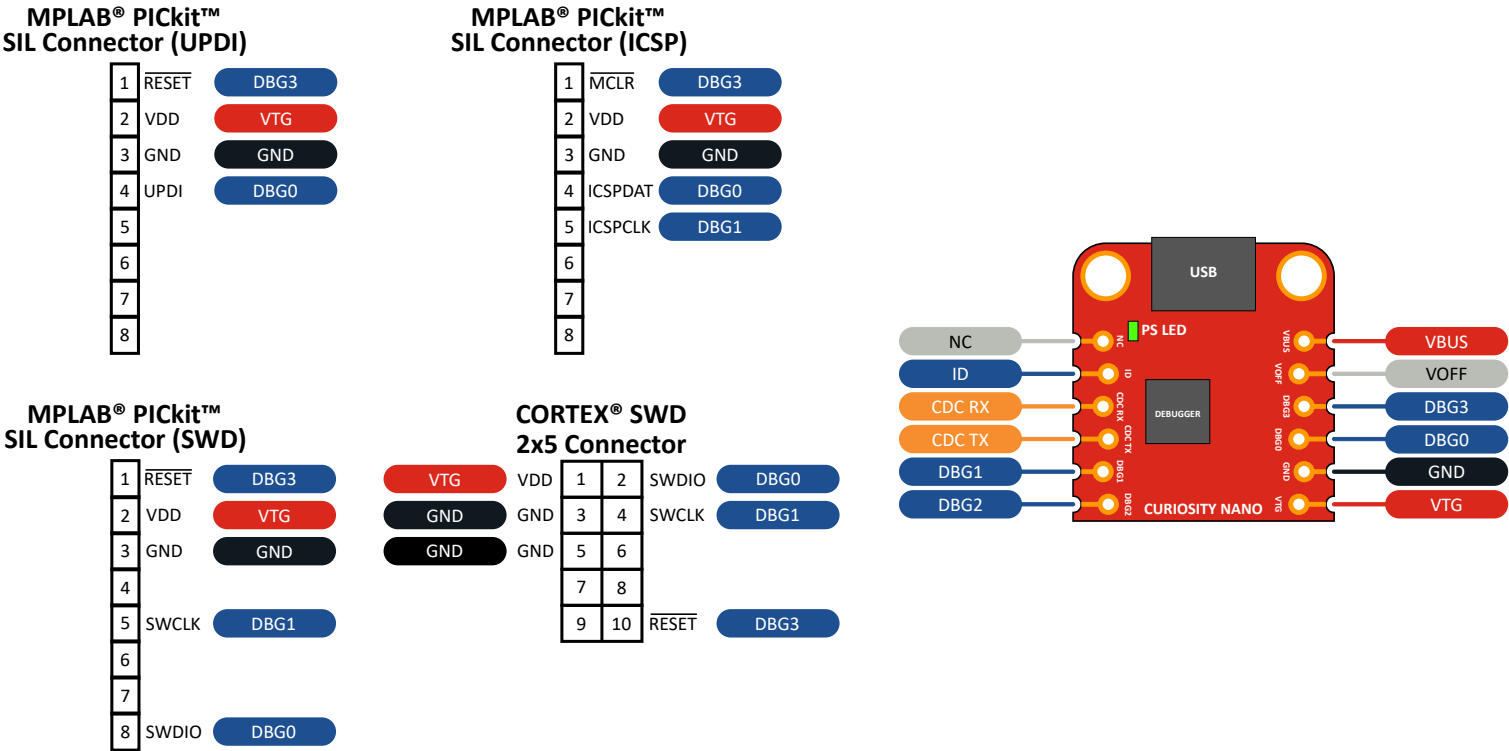


Tip: To reconnect any cut connections, use solder or mount a 0 Ω 0402-size resistor across the cut strap.

6.5. Connecting External Debuggers

Although the board includes an on-board debugger, external debuggers can also be connected directly to the target MCU for programming and debugging. When the on-board debugger is not actively in use, it keeps all pins connected to the board edge and the target MCU in a tri-state condition. This ensures that the on-board debugger does not interfere with any external debug tools.

Figure 6-3. Connecting an External Debugger/Programmer to a Curiosity Nano Board



To prevent contention, do not use the on-board debugger for programming or debugging while the external debugger is connected.

7. Hardware Peripherals

Kit hardware peripherals overview.

7.1. LED

One yellow user LED is available on the PIC32CM PL10 Curiosity Nano board. It can be controlled by either GPIO or PWM. Driving the connected I/O line to GND will activate the LED.

Figure 7-1. PIC32CM PL10 Curiosity Nano LED0 Block Diagram

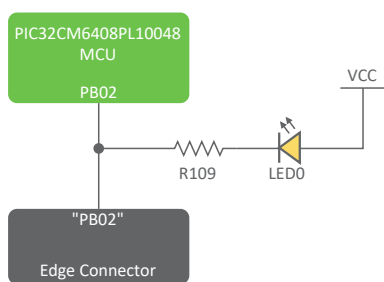


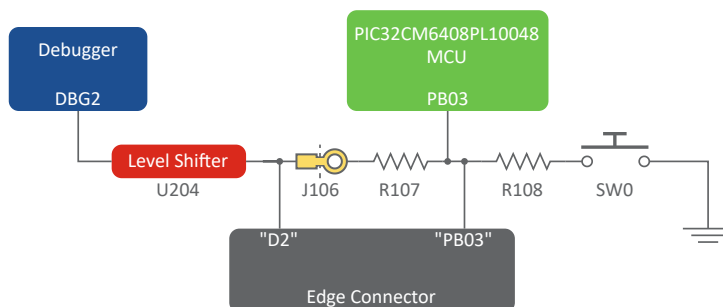
Table 7-1. LED Connection

MCU Pin	Description	Default Connection
PB02	User LED (yellow), active low	- LED0 - Edge connector

7.2. Mechanical Switch

The PIC32CM PL10 Curiosity Nano board has one mechanical switch - a generic, user-configurable switch. Pressing it connects the I/O pin to ground (GND).

Figure 7-2. PIC32CM PL10 Curiosity Nano SW0 Block Diagram



Tip: There is no externally connected pull-up resistor on the switch. Enable the internal pull-up resistor on Pin PB03 to use it.

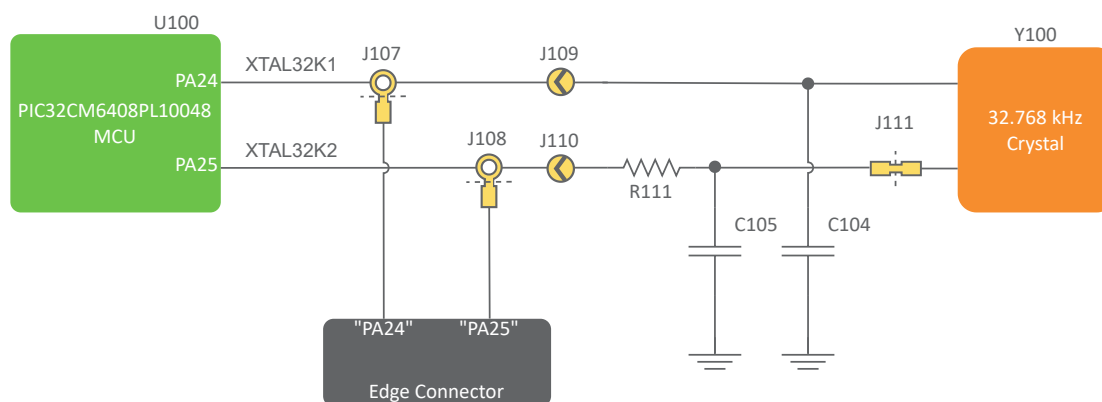
Table 7-2. Mechanical Switch Connection

MCU Pin	Description	Default Connection
PB03	User switch (SW0), supports DGI event monitoring	- SW0 - Edge connector On-board debugger

7.3. Crystal

The PIC32CM PL10 Curiosity Nano Board has a 32.768 kHz crystal mounted. The crystal is not connected to the target MCU by default, as the GPIO pins are routed to the edge connector.

Figure 7-3. 32.768 kHz Crystal Block Diagram



Info: The 32.768 kHz crystal on the PIC32CM PL10 Curiosity Nano is included for use and testing with the PIC32CM6408PL10048 External 32.768 kHz Oscillator (XOSC32K) configured in High-Power mode.

Table 7-3. Crystal Connections

MCU Pin	Description	Default Connection
PA24	Crystal output, XTAL32K1	Edge connector
PA25	Crystal input, XTAL32K2	

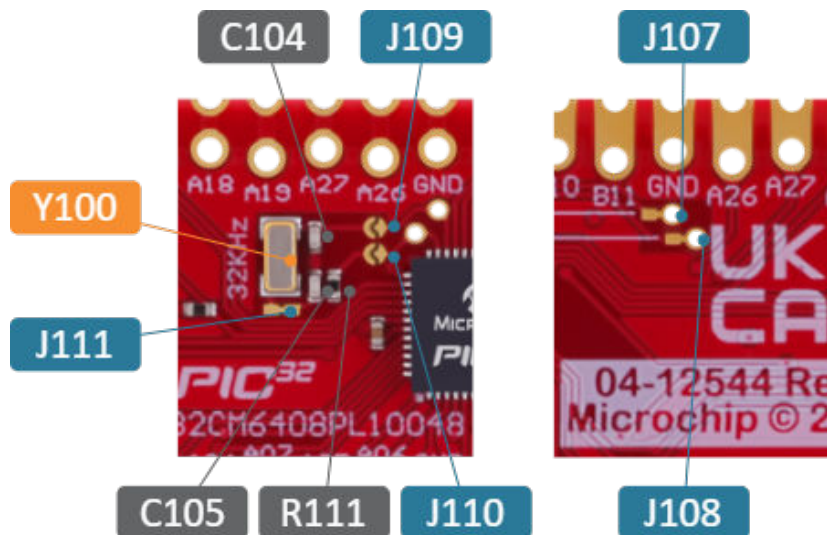


WARNING Always disconnect the board from all power sources before making any hardware modifications.

How to Connect the Crystal to the Target MCU

1. Disconnect the two I/O lines routed to the edge connector by cutting the two cut straps on the bottom side of the board, J107 and J108.
2. Connect the two I/O lines to the crystal by soldering a blob on each circular solder point on the top of the board (J109 and J110).

Figure 7-4. 32.768 kHz Crystal Overview



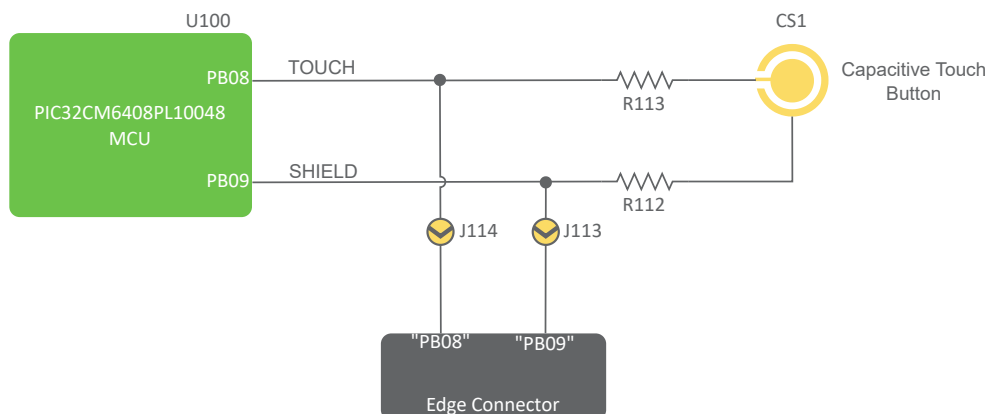
Info: The 0Ω series resistor, R111, may be replaced with any suitable resistor to limit the drive strength of the crystals. If no resistor is required, leave the resistor in place.

The 32.768 kHz crystal has a cut strap (J111), which can be used to measure the oscillator safety factor. This is done by cutting the strap and adding a 0402 SMD resistor across it. The [AN2648](#) application note from Microchip contains more information about oscillator allowance and safety factors.

7.4. Touch Button

The PIC32CM PL10 Curiosity Nano board has a single capacitive touch button with an active shield. For details on configuration and usage, refer to the Peripheral Touch Controller (PTC) chapter in the PIC32CM PL10 device [data sheet](#).

Figure 7-5. PIC32CM PL10 Curiosity Nano Touch Button Block Diagram



Tip: Generate the code with the capacitive touch library in [MPLAB® Harmony](#) and visualize touch sensor data in [MPLAB® Data Visualizer](#).

Table 7-4. Capacitive Touch Button Connection

MCU Pin	Description	Default Connection
PB08	Shield connection for improved noise immunity	- Touch button shield - Edge connector (disconnected by default)
PB09	Capacitive touch connection	- Touch button sensor - Edge connector (disconnected by default)



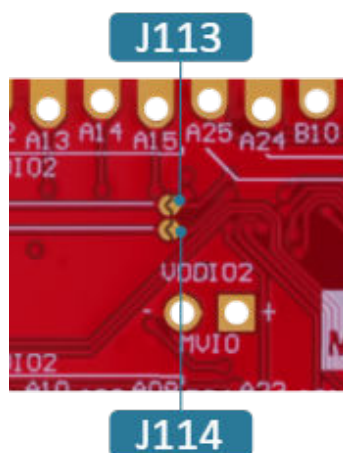
Always disconnect the board from all power sources before making any hardware modifications.

By default, the touch lines are not connected to the edge connector. PB08 and/or PB09 can be repurposed for other functions by connecting them to the edge connector through soldering the corresponding pads (J113 and J114) located on the bottom of the board.



Important: This modification will affect the touch button's performance and may cause it to not function as intended.

Figure 7-6. Touch I/O Line Solder Points



7.5. Multi-Voltage I/O

The target MCU includes a Multi-Voltage I/O (MVIO) domain powered through the VDDIO2 pin. Pins PA08–PA15 are exclusively powered by VDDIO2. If VDDIO2 is not supplied, these I/O pins will not operate.

On the PIC32CM PL10 Curiosity Nano board, VCC_TARGET supplies VDDIO2 by default. Removing the 0Ω resistor R110 disconnects the default power connection. After the removal, an external power supply can power the MVIO pins through the 1x2-100mil footprint (J112).



WARNING

- Always disconnect the board from all power sources before making changes
- To prevent damage to the board, remove R110 before applying external voltage to VDDIO2
- The MVIO circuit lacks reverse polarity protection. Incorrect connections at J112 may permanently damage the board.

Figure 7-7. MVIO Block Diagram

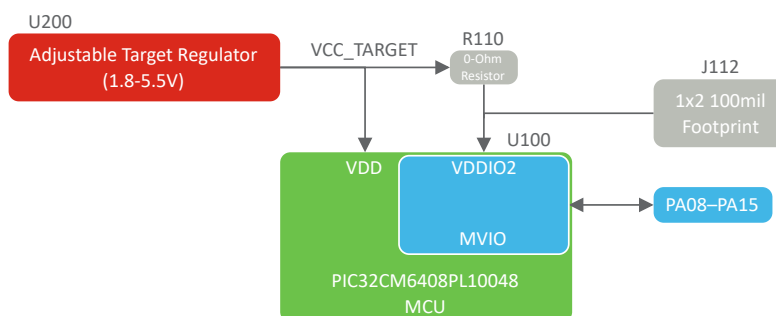
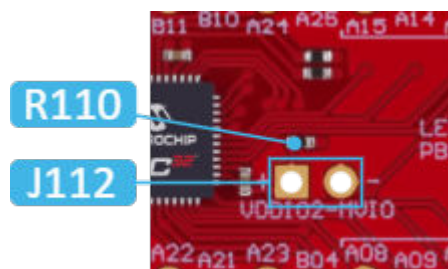


Figure 7-8. VDDIO2 Connections



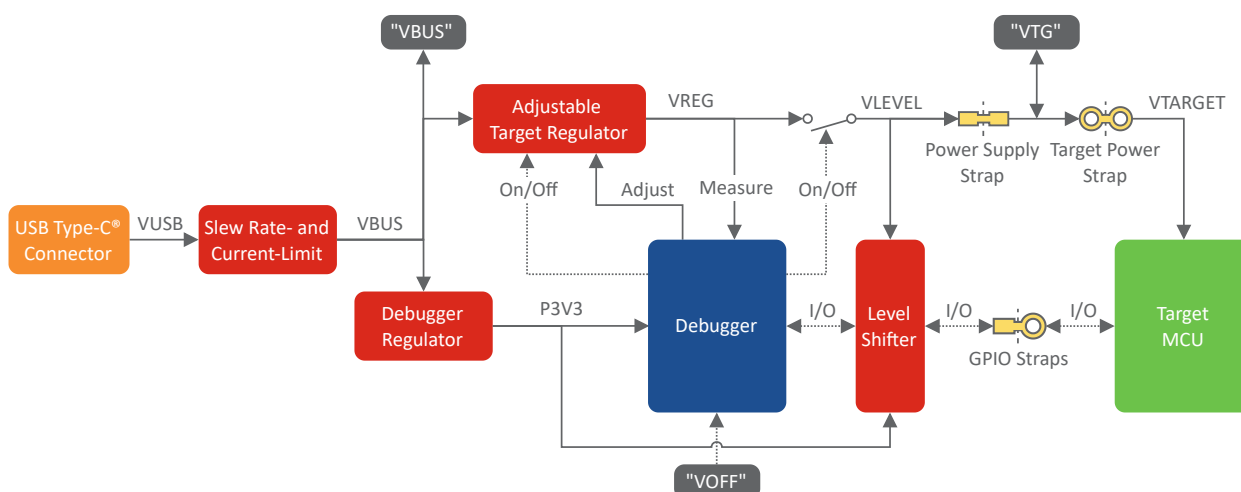
8. Power Supply

The USB port serves as the primary power source for the board. The power supply uses two LDO regulators: A fixed 3.3V regulator for the on-board debugger and an adjustable regulator for the target MCU and its peripherals.

When the USB is connected, there is a 1 ms start-up delay before power is applied, and a dedicated current-limiting IC restricts the supply current to approximately 500 mA to protect the board and connected devices. The figure below shows the full power supply design of the PIC32CM PL10 Curiosity Nano.

The maximum input voltage to the target MCU depends on both the USB input voltage and the on-board debugger's configuration. While the debugger can be set to allow up to 5.5V, the actual voltage will never exceed the USB input, which typically ranges from 4.4V to 5.25V. The lower of these two values determines the maximum voltage available to the target MCU.

Figure 8-1. Power Supply Block Diagram



8.1. Target Regulator

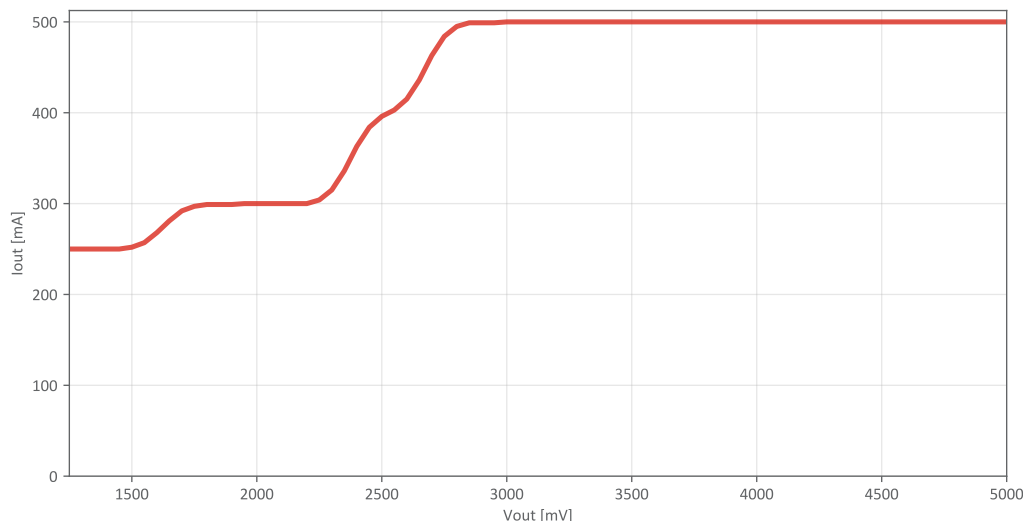
The [MIC5353](#) variable output LDO supplies power to the target section. The on-board debugger controls the regulator's output voltage by adjusting its feedback. The on-board debugger restricts the output voltage to the safe operating range of the PIC32CM6408PL10048 microcontroller (1.8–5.5V).

By default, the board is configured to run at 3.3V. This setting can be changed in Microchip IDEs, and any changes made will persist through power cycles. The board voltage can be adjusted using one of the following methods:

- **Microchip IDE:** Configure the voltage setting in the IDE. Voltage changes are applied when the debugger is accessed (e.g., during programming, reading memory, or refreshing tool status).
- **Drag-and-drop command files:** Set common voltages quickly using command files. For details, see [Nano Debugger Manual](#).
- **pymcuprog:** Use the [pymcuprog](#) tool to set the board voltage

The MIC5353 can supply up to 500 mA, but the actual maximum current may be lower due to thermal shutdown, which depends on input voltage, output voltage, and ambient temperature. The figure below illustrates the maximum output current limits of the regulator at a 5.1V input and 23°C ambient temperature.

Figure 8-2. MIC5353 Maximum Output Current vs. Output Voltage at 5.1V Input, 23°C Ambient



The on-board debugger monitors target voltage. If the voltage deviates by more than ± 100 mV from the set target voltage, or if external voltage is applied to VTG without VOFF pulled low, the on-board debugger disables the regulator and blinks the status LED rapidly. See the [Nano Debugger Manual](#) for more details.

8.2. External Supply

The PIC32CM PL10 Curiosity Nano can be powered by an external voltage through the VTG pin, as an alternative to the on-board target regulator.

To safely use external power, follow these steps:

- Pull the VOFF pin to GND to disable the on-board regulator
- Apply external voltage to the VTG pin



WARNING

- Never apply voltage to VOFF; leave it floating to enable the on-board supply
- Only apply external voltage to VTG after pulling VOFF to GND. Failing to do so may cause damage to the board

The on-board debugger monitors the supplied voltage. If VOFF is not pulled to ground and the external voltage differs by more than ± 100 mV from the regulator setting, the debugger disables the regulator and begins blinking the status LED rapidly. When the voltage returns to within ± 100 mV, normal operation resumes and the LED stops blinking.

Programming, debugging, and data streaming with external power are only supported when the USB cable is connected, as it supplies power to the debugger and level shifters. With the USB connected, about 100 μ A is drawn from the external supply for level shifters and voltage monitoring. If the USB cable is disconnected, the level shifters may draw up to 5 μ A (typically as little as 100 nA).

Table 8-1. Voltage Limits

Parameter	Value
PIC32CM6408PL10048 operating range	1.8–5.5V

Table 8-1. Voltage Limits (continued)

Parameter	Value
Absolute maximum external voltage	5.5V

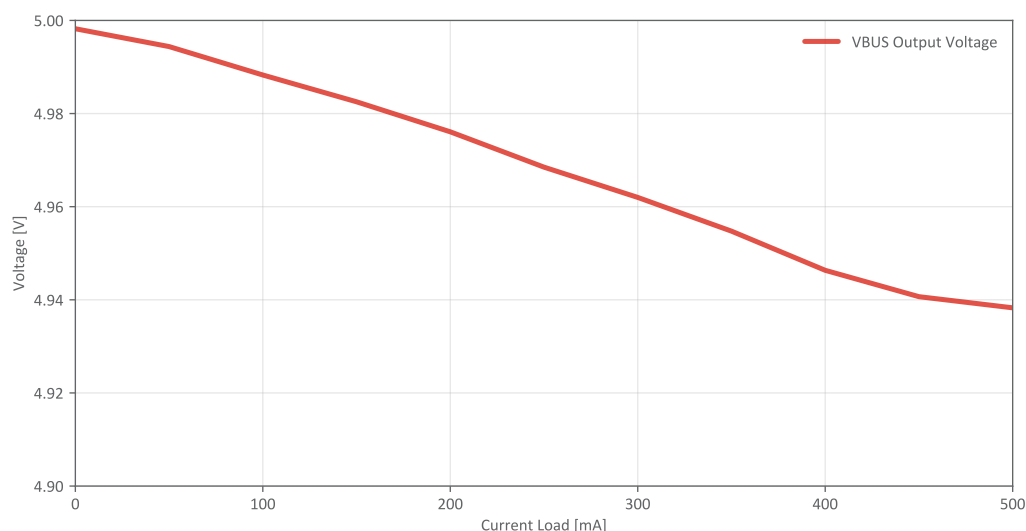


WARNING Exceeding these limits may result in permanent damage to the board.

8.3. VBUS Output Pin

The PIC32CM PL10 Curiosity Nano provides a VBUS output pin that supplies 5V for powering external components. The VBUS voltage is not regulated and directly follows the USB input voltage, which may vary depending on the USB source. VBUS is protected by the same start-up delay and current limiting described in the [Power Supply](#) chapter. Be aware that as the current load on the VBUS output increases, the output voltage may decrease. The chart below illustrates how the VBUS output voltage varies with different current loads.

Figure 8-3. Load Current Impact on VBUS Output Voltage at 5V USB



8.4. Cut Straps

Curiosity Nano boards feature two cut straps for power measurement and isolation:

J200 - Power Supply Strap:

Cutting this strap fully separates the target power from the level shifters and on-board power supply. This allows for accurate current measurements when using an external power supply.

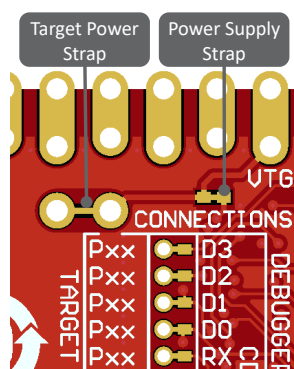


Info: Leakage back through the load switch is in the microampere range.

J201 - Target Power Strap:

For current measurements using the on-board power supply, cut this strap to measure the current drawn by the target. A 100 mil pin header can be mounted to J201 for easier connection of a measuring instrument.

Figure 8-4. Power Supply Cut Straps



8.5. Low-Power Measurement

Power for the target MCU is supplied via the on-board regulator or the VTG pin, routed through the Target Power Strap J201. To accurately measure the current consumption of the target MCU and any connected peripherals, cut the [Target Power Strap \(J201\)](#) on the bottom side and connect an ammeter across it.

To measure the minimum power consumption of the target MCU, follow these steps:

1. Cut the Target Power Strap (J201) with a sharp tool.
2. Solder a 1x2 100 mil pin header into the footprint.
3. Connect an ammeter across the pin header.
4. Write firmware that:
 - a. Tri-states any I/O connected to the on-board debugger.
 - b. Sets the microcontroller in its lowest power sleep mode.
5. Program the firmware into the target MCU.
6. Measure the current draw.

The five on-board level shifters can each leak up to 2 μ A, totaling up to 10 μ A. To reduce leakage, keep the I/O pins to the level shifters tri-stated. For full isolation, disconnect the level shifters as described [here](#). With the USB connected, the level shifters and voltage monitoring draw about 100 μ A; with the USB disconnected, leakage drops to 5 μ A or less.

8.6. Power Supply Exceptions

This section summarizes most issues that can arise with the power supply.

Target Voltage Shuts Down

If the target draws too much current, the MIC5353 regulator may trigger thermal shutdown. Reduce the load to restore operation.

Target Voltage Setting is Not Reached

The MIC5353 output is limited by the USB input voltage (4.4–5.25V). If the set voltage isn't reached, use a higher-quality USB source or supply external voltage via the VTG pin.

Target Voltage is Different From Setting

Applying external voltage to VTG without pulling VOFF low can cause voltage mismatch. If the voltage deviates by more than ± 100 mV, the debugger disables the regulator and the PS LED blinks rapidly. Remove the external voltage to restore normal operation.

No or Very Low Target Voltage and PS LED is Blinking Rapidly

A full or partial short circuit can cause this and is a specific case of the issue above. Remove the short circuit, and the on-board debugger will re-enable the on-board target voltage regulator.

No Target Voltage and PS LED is Lit (Case 1)

This situation occurs if the target voltage is set to 0.0V. To fix this, set the target voltage to a value within the specified voltage range for the target device.

No Target Voltage and PS LED is Lit (Case 2)

This situation can occur when cutting the Power Supply Strap (J200) and/or the Target Power Strap (J201) and leaving them open. Restore the connection by bridging or adding a jumper.

VBUS Output Voltage is Low or Not Present

Excessive current on VBUS triggers the [MIC2009](#) current limit, cutting off VBUS. Reduce the load to restore output.

9. Hardware Revision History and Known Issues

Provides information about the latest board revision, known issues, and differences from previous versions.

9.1. Identifying Product ID and Revision

There are two ways to find the revision and product identifier of the PIC32CM PL10 Curiosity Nano: the kit window in your Microchip development environment or the sticker on the bottom of the PCB.

The kit window appears in Microchip development environments when the PIC32CM PL10 Curiosity Nano is connected to the computer. In the VS Code® environment, the kit window is accessed through the tool window.

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 VS Code® using the Command Palette (**Ctrl + Shift + P**) and typing the command **MPLAB: Show kits view**.

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 02-01489, revision, and serial number.

The product identifier and revision are also printed in plain text as 02-01489/rr, where "rr" represents the revision. The serial number is printed on the following line.

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

```
nnnnnnnnrrfffsssss
```

n = product identifier

r = revision

f = fabrication code

s = serial number

9.2. Revision 2

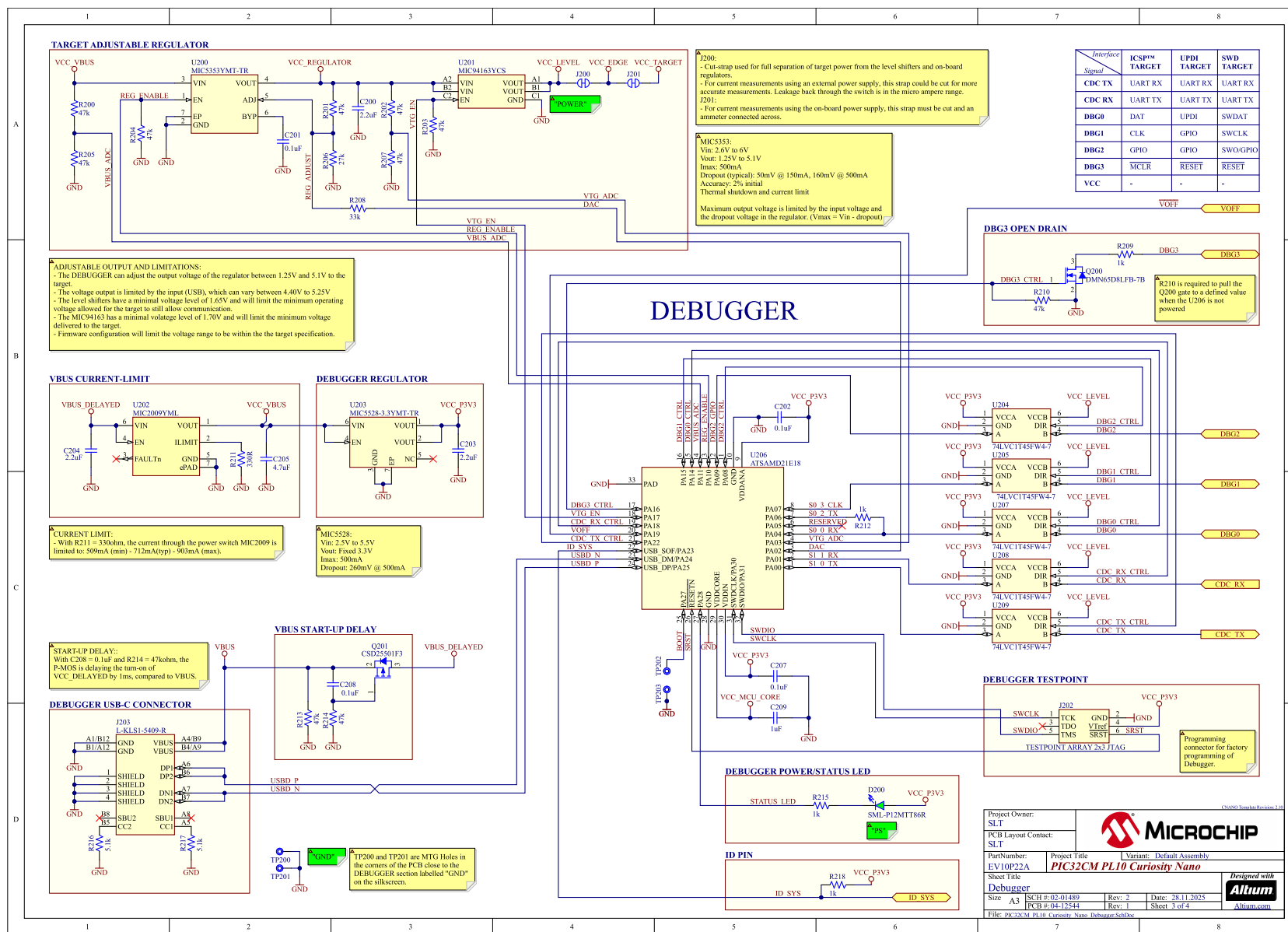
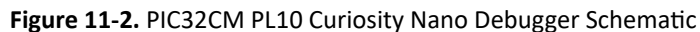
Revision 2 is the initially released board revision.

10. Document Revision History

Doc. Rev.	Date	Comments
A	12/2025	Initial document release

11. Appendix

Schematic, Assembly Drawing, Adapter Pinout, Programming External MCUs, External Debuggers



11.2. Assembly Drawing

Figure 11-3. PIC32CM PL10 Curiosity Nano Assembly Drawing Top

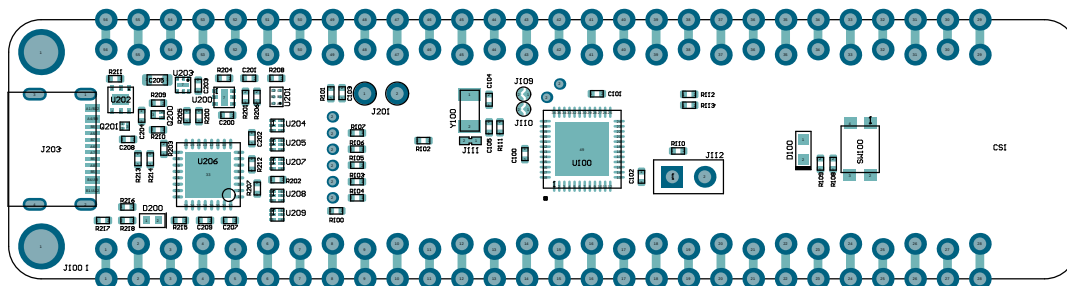
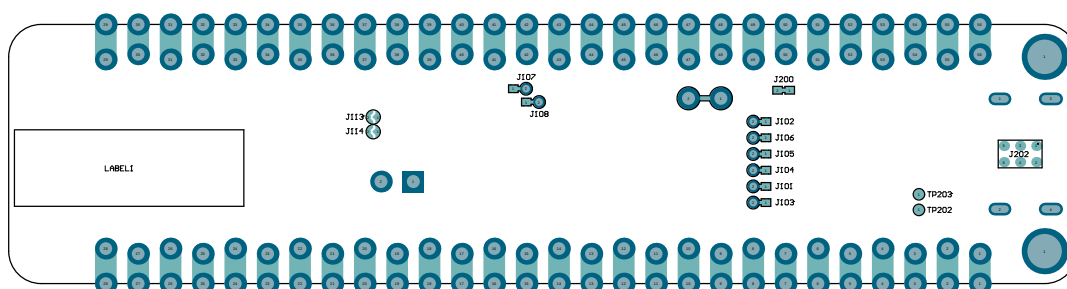
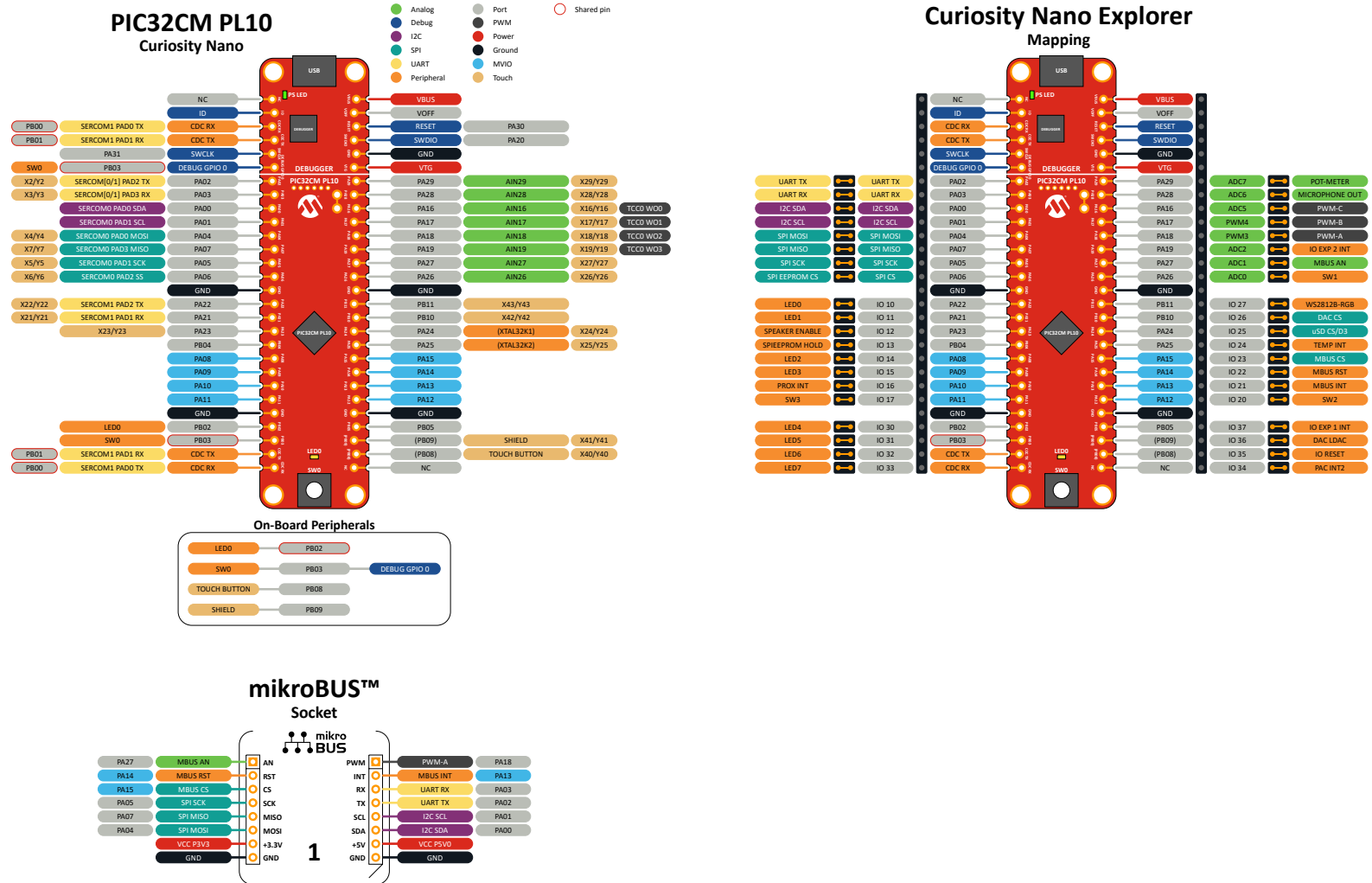


Figure 11-4. PIC32CM PL10 Curiosity Nano Assembly Drawing Bottom



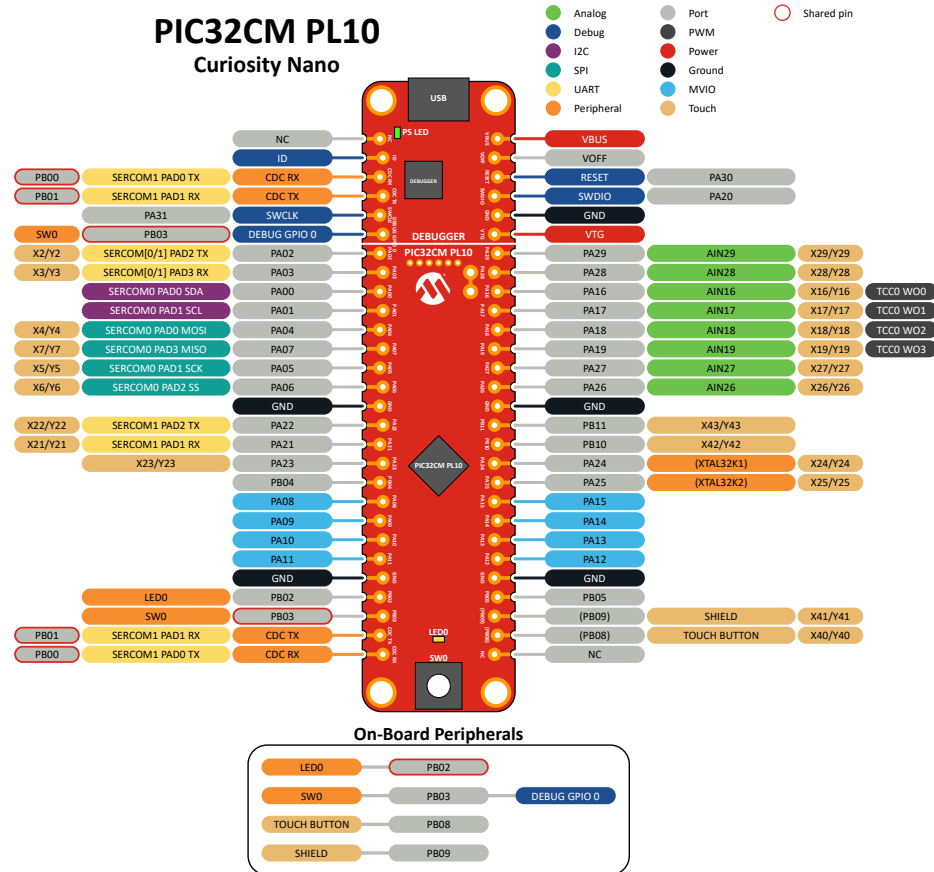
11.3. Curiosity Nano Explorer

Figure 11-5. Curiosity Nano Explorer Pinout Mapping

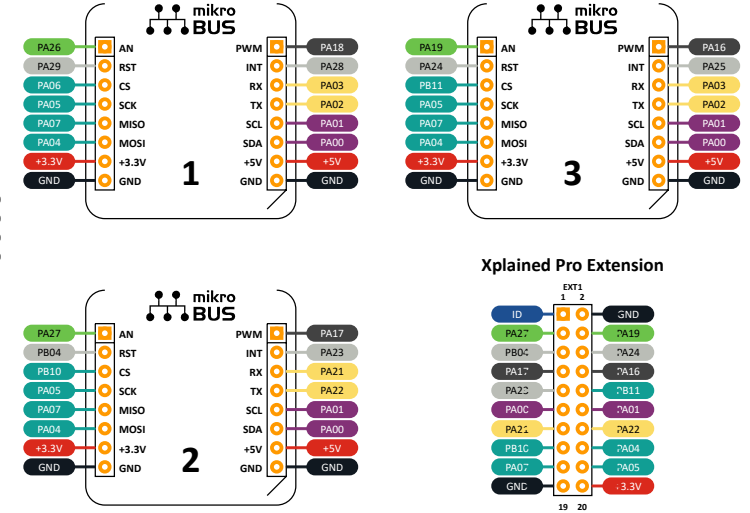


11.4. Curiosity Nano Base for Click boards™

Figure 11-6. PIC32CM PL10 Curiosity Nano Pinout Mapping



Curiosity Nano Base for Click boards™



11.5. Bill of Materials

Figure 11-7. PIC32CM PL10 Curiosity Nano Bill of Materials

Component list

PCBA Number:

02-01489

PCBA Revision:

2

Variant:

Default Assembly

Print Date:

29.10.2025

14:08:42

Fitted

Designator

Quantity

Value

Manufacturer 1

Manufacturer Part Number 1

Description

Fitted

C100, C101, C102, C201, C202, C207, C208

7

0.1uF

KEMET

C0402C104K4RAC7867

CAP CER 0.1uF 16V 10% X7R SMD 0402

Fitted

C103, C200, C203, C204

4

2.2uF

Murata

GRM155R61A225KE95D

CAP CER 2.2uF 10V 10% X5R SMD 0402

Fitted

C104, C105

2

18pF

Murata

GM1555C1H180JA16D

CAP CER 18pF 50V 5% COG SMD 0402

Fitted

C205

1

4.7uF

KEMET

C0603C475K8PAC7867

CAP CER 4.7uF 10V 10% X5R SMD 0603

Fitted

C209

1

1uF

KEMET

C0402C105K9PACTU

CAP CER 1uF 6.3V 10% X5R SMD 0402

Fitted

D100

1

Yellow LED

Rohm Semiconductor

SML-D12Y1WT86

LED YELLOW DIFFUSED 1608 SMD

Fitted

D200

1

LED SINGLE SML-PI2MTT86R YELLOW-GREEN

Rohm Semiconductor

SML-PI2MTT86R

DIO LED YELLOW-GREEN 2.2V 20mA 25mcd Clear SMD 0402

Fitted

J203

1

USB2.0 Type-C FEMALE

KLS Electronic

L-KLS1-5409-R

CON USB2.0 Type-C Female SMD R/A

Fitted

LABEL1

1

PCBA LABEL 18X6mm

ACT Logimark AS

505462

LABEL PCBA 18x6mm Datamatrix Assy# / Rev / Serial / Date

Fitted

Q200

1

DMN65D8LFB-7B

Diodes Incorporated

DMN65D8LFB-7

TRANS FET N-CH DMN65D8LFB-7B 260mA 60V 430mW X1_DFN1006-3

Fitted

Q201

1

CSD25501F3

Texas Instruments

CSD25501F3

TRANS FET P-CH CSD25501F3 -20V -3.6A 0.076R LGA

Fitted

R100, R101, R102, R200, R201, R202, R203, R204, R205, R207, R210, R213, R214

13

47k

Yageo

RC0402FR-0747KL

RES TKF 47k 1% 1/16W SMD 0402

Fitted

R103, R104, R105, R106, R107, R108, R109, R112, R209, R212, R215, R218

12

1k

Panasonic

ERJ-2RKF1001X

RES TKF 1k 1% 1/10W SMD 0402

Fitted

R110, R111

2

0R

Vishay

CRCW0402000020EDHP

RES TKF 0R 1/5W SMD 0402 AEC-Q200

Fitted

R113

1

10k

TE Connectivity

CRG0402F10K

RES TKF 10k 1% 1/16W SMD 0402

Fitted

R206

1

27k

Yageo

RC0402FR-0727KL

RES TKF 27k 1% 1/16W SMD 0402

Fitted

R208

1

33k

Yageo

AC0402FR-0733KL

RES TKF 33k 1% 1/16W SMD 0402

Fitted

R211

1

330R

Panasonic Electronic Components

ERJ-2RKF3300X

RES TKF 330R 1% 1/10W SMD 0402 AEC-Q200

Fitted

R216, R217

2

5.1k

Panasonic

ERJ-2RKF5101X

RES TKF 5.1k 1% 1/10W SMD 0402

Fitted

SW100

1

TACT SPST

KLS Electronic

L-KLS7-TS0304A-2-300-T

SWITCH TACT SPST 12V 50mA L-KLS7-TS0304A-2-300-T SMD

Fitted

Test1

1

TEST_PIC32CM6408PL10048-CNANO

Fitted

Test2

1

Debugger Firmware

FW_CNANO_DEBUGGER

Fitted

U100

1

PIC32CM6408PL10048

Microchip Technology

PIC32CM6408PL10048T-I6MX

MCHP MCU 32-BIT 24MHz 64KB 8KB PIC32CM6408PL10048-I6MX VQFN-48

Fitted

U200

1

MIC5353YMT-TR

Microchip Technology

MIC5353YMT-TR

MCHP ANALOG LDO ADJ 500mA MIC5353YMT-TR MLF-6

Fitted

U201

1

MIC94163YCS

Microchip Technology

MIC94163YCS-TR

IC LOAD SWITCH HI SIDE 3A 6WLCSP

Fitted

U202

1

MIC2009YML

Microchip Technology

MIC2009YML-TR

MCHP ANALOG POWER SWITCH 5.5V 2A MIC2009YML-TR MLF-6

Fitted

U203

1

MIC5528 3V3

Microchip Technology

MIC5528-3.3YMT-TR

MCHP ANALOG LDO 3.3V MIC5528-3.3YMT-TR 6-TDFN

Fitted

U204, U205, U207, U208, U209

5

74LVCL145FW4-7

Diodes Incorporated

74LVCL145FW4-7

IC VOLTAGE TRANSLATOR BI-DIR 1 CIRCUIT 74LVCL145FW4-7 X2-DFN1010-6

Fitted

U206

1

ATSAMD21E18

Microchip Technology

ATSAMD21E18A-MUT

MCHP MCU 32-BIT 48MHz 256Kb 32Kb ATSAMD21E18A-MUT QFN-32

Fitted

Y100

1

32.768kHz

Microchip Technology

VMK3-9005-32K7680000

MCHP CRYSTAL 32.768kHz 12.5pF VMK3-9005-32K7680000 SMD L3.2W1.5H0.9

Not Fitted

J112

0

HDR 2.54 Male 1x2

WCON

1125-1102S0S113CR01

CON HDR 2.54 MALE 1x2 GOLD FLASH TTN 6.50MM H TH-P VERT

69

Approved

Notes

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