GigaBlox Nano RJConn

Tiny 4 port Gigabit Ethernet Switch

MPN: BB-GNR-A-1

Datasheet

October 2023

Board revision A

Contents

1 General Information

1.1 Functionality and Features of GigaBlox Nano RJConn

GigaBlox Nano RJConn is a connector breakout board for the GigaBlox Nano four port ethernet switch. It is designed to stack directly onto GigaBlox Nano to provide access to all four ethernet ports on standard RJ-45 connectors through standard ethernet isolation transformers.

1.1.1 Features

- 4 x RJ-45 receptacles for 10BASE-T/100BASE-TX/1000BASE-T ethernet ports
- Onboard ethernet transformers provides transformer based solution for GigaBlox Nano
- 1 x Molex PicoBlade for power
- 45mm x 45mm board size
- Samtec RAZOR BEAM™ for power and ports

1.1.2 General Information

Weight	30 grams
Size	45 mm x 43.6 mm x 22.43 mm
Operating Temperature	0°C to +70°C
Storage Temperature	-30°C to +100°C

Table 1: General Information

1.1.3 General Operating Instructions

GigaBlox Nano RJConn has no functionality by itself because it is purely a connector breakout. It must be used with GigaBlox Nano to provide ethernet port connectivity on RJ-45 connectors.

To use GigaBlox Nano RJConn, first mate the board with GigaBlox Nano, then apply an input voltage from 5.1 to 60V. Then connect external devices using standard RJ-45 cables and GigaBlox Nano will begin functioning as an unmanaged 10/100/1000Mbit/s network switch.

1.1.4 Transformer based Ethernet

GigaBlox Nano RJConn uses RJ-45 connectors that contain integrated transformers. This means that using GigaBlox Nano RJConn with GigaBlox Nano provides an isolated transformer based ethernet system, compliant to IEEE 802.3

1.2 Safety Information

- This device can operate on voltages near and above 60V. Please read this manual before operating.
- This device is provided "as is". In-application testing prior to integration is recommended.
- This device is provided as an electronic circuit board, and requires integration into chassis for full ingress protection.
- Do not use this product in wet environments without integrating into a chassis.
- Do not operate this product beyond the rated temperature and voltages.

1.3 RoHS Certification of Compliance

The BotBlox GigaBlox Nano complies with the RoHS (Restriction of Hazardous Substances Directive) Certificate of Compliance.

2 Hardware Interfaces

2.1 Board Map

GigaBlox Nano RJConn puts the 4 ports onto traditional RJ-45 mag-jacks allowing use in systems with traditional RJ-45 cables.
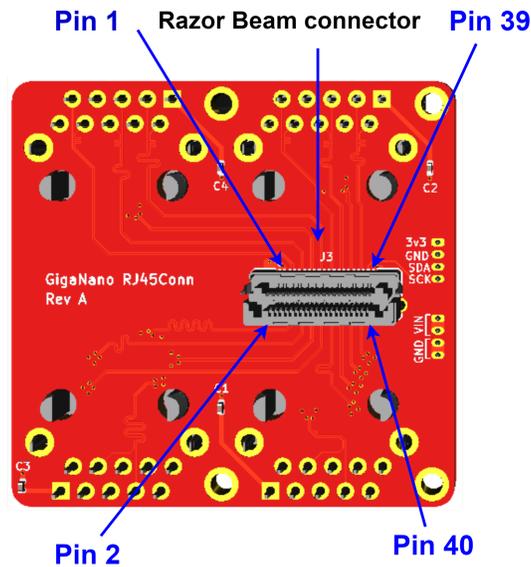
Figure 1: GigaBlox Nano RJConn Board Map (front)
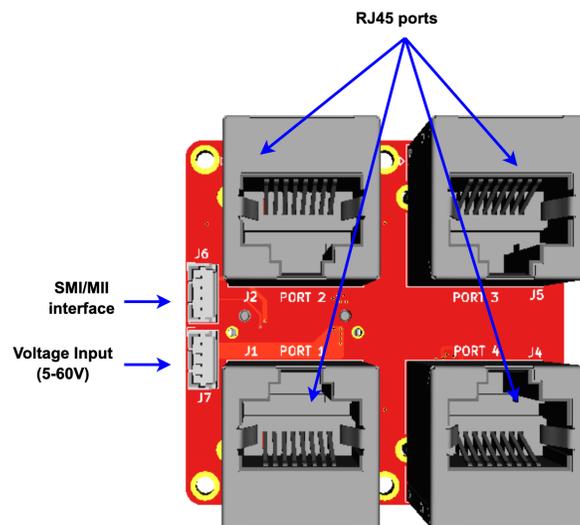
Figure 2: GigaBlox Nano RJConn Board Map (back)

The RJ-45 connectors used on this board house integrated transformers therefore this board allows GigaBlox Nano to be used as a standard IEEE 802.3 compliant switch.

Be careful! RJConn uses J7 for power connections, while PicoConn uses J6 for power connections. Plugging power into the wrong connector will break the GigaBlox Nano.

2.2 Reference design for the Razor Board connector on daughterboards

Figure 12 below shows the correct signal mapping to use on any daughterboard for GigaBlox Nano.
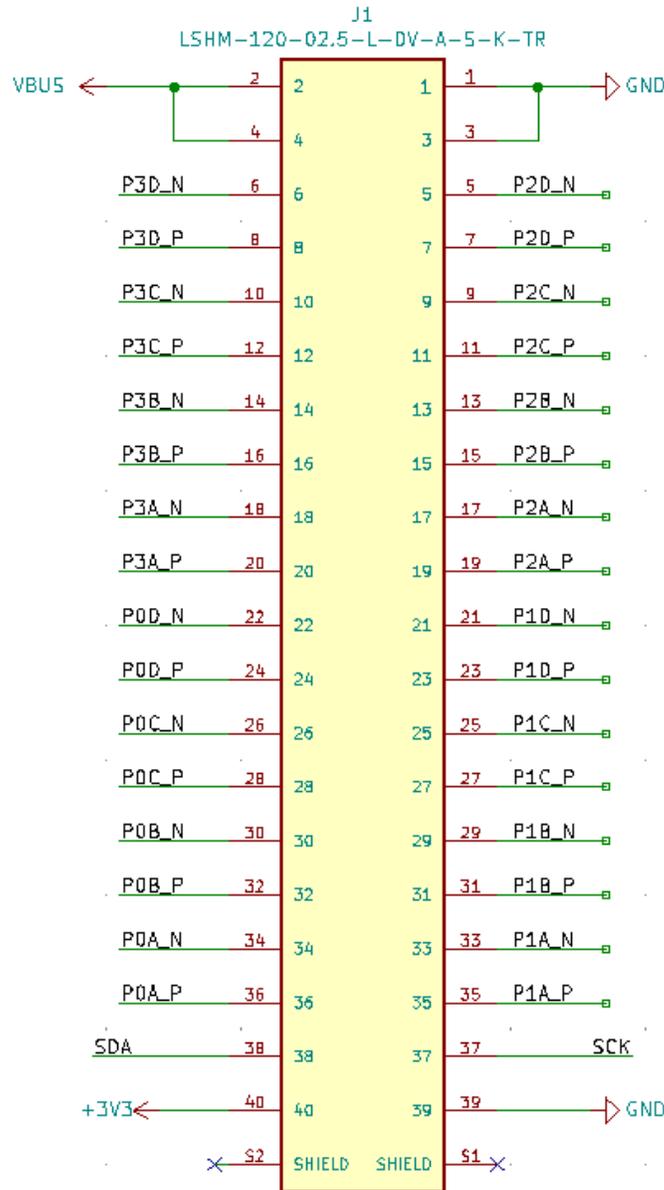
Figure 11: RAZOR BEAM connector on Daughterboards

3 Software Interfaces

GigaBlox Nano PicoConn is a passive board with no active electronics. Thus there is no software interface

4 Device Configuration

The device requires no configuration.

5 Device Characteristics

5.1 Operating Conditions

5.1.1 Absolute Maximum Ratings
Operating in these ranges will reduce the lifetime of the device.

Voltage Input Maximum	65V
Storage Temperature	-30°C +100°C
Operating Temperature	0 to 70°C

6 Datasheet Changelog

Date	Datasheet Version	Author	Notes
05/04/2022	A_A	Josh Elijah	Initial release
26/10/2023	A_B	Jaclyn Li	Updated size in Table 1.1.2 General Information and section 8.
19/11/2023	A_C	Josh Elijah	Fixed the incorrectly labeled power and signal (J6 and J7) labels in figure 2.

7 Contact

If you have any questions regarding this product, please contact us:

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8 Certificate of Conformity

The full text of the Certificate of Conformity of this product is available at the following web address. https://botblox.io/documentation/