



S2X-BXN-OEM

TECHNICAL REFERENCE MANUAL

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Disclaimer

Numurus LLC makes our best effort to ensure the accuracy and content in its entirety of this user manual yet there are continuous development improvements that are in progress. As such, consider the version of this document to be accurate at the time of printing. Numurus will make every effort to keep the most up-to-date version at www.numurus.com/library. Numurus is not subject to liability for errors, omissions or other differences between this document and future versions.

Warnings

1. Any attempt to disassemble or repair this electronic unit by anyone other than an authorized technician without prior authorization will void the warranty. Removal or modification of the serial number will void the warranty.

Warranty

The Numurus S2X is backed by a 12month parts and labor warranty policy that covers manufacturing and component defects. More information about Numurus warranties and terms of services can be found here:

https://www.numurus.com/numurus_terms_and_conditions_of_sale/

S2X System Overview

S2X smart system platforms provide developers a rapid turnkey solution for adding AI and automation to any robotic or smart sensing project.

Hardware Specifications

Hardware

GPU	NVIDIA Xavier NX
External Storage	2 TB M.2 Card

Communications

Ethernet Comms	2x Gigabit Ethernet
USB Interfaces	1x USB 2.0 and 1x USB 3.1
Misc I/O	UARTs, GPIO, I2C, CAN, SPI, and MIPI Ports

Electrical

Input Voltage Range	9-36 VDC
Power Estimates	10 W

Mechanical

Dimensions	90mm x 75mm x 53.25 (3.54" x 2.95" x 2.10")
Cooling	Active fan on GPU processor. Can be replaced with passive heatsink

See Appendixes A and B for more mechanical and connector details.

Software Overview

S2X systems come preloaded with Numurus' NEPI Engine, which includes a library of imaging sensor drivers plus onboard data, AI, automation, and IoT management solutions, local command and control through a well-documented Robotic Operating System (ROS) interface, and a web-browser supported Resident User Interface (RUI).

Software

NEPI Engine	2.1 Latest Version
NVIDIA Jetpack	5.1.2
Ubuntu OS	20.04

NEPI software documentation is available in Numurus' online document library located at:

<https://nepi.com/documentation/>

System Accessories

The system comes with everything you need to get up and running within minutes of receiving the system.

Accessory Kit

Item Description for S2X-BXN Accessory Kit (100968-00)	Quantity	Part Number
Assembly, Power Supply, 24VDC, 5A, With Sticker	1	100777-00
Cable, Assembly, Power Supply Adapter, Boson Power, 10in, 3.5mm, Female Jack	1	101002-00
Cable, Ethernet, CAT-6 Patch, 8 Pair, Stranded, 5ft., Black	1	100772-00
Cable, Whip, 4 Pin, Boson Carrier Board, Power	1	100790-00
Printed Document, D103582, Quickstart Guide, S2X-BXN, Laminated	1	100213-00
Assembly, Mounting Screw Kit, S2X-BXN	1	101008-00
USB Drive - S2X-BXN	1	101001-00

Optional Accessories

Item Description	Part Number
Cable, Whip, BOSON Misc I/O, 40 Pin, 18in Long	100610-00

Quickstart Guide

If you purchased the S2X-BNX accessory kit, this quickstart guide is intended to get you up and running on your S2X product in less than 15 minutes.

Setup

1. Connect an ethernet cable from your S2X Stack to a local LAN, switch, or directly to a PC.

YOU WILL NEED TO ENSURE THAT THE TARGET COMPUTER'S ETHERNET INTERFACE IS CONFIGURED WITH A STATIC IPV4 ADDRESS ON THE 192.168.179 SUBNETWORK. FOR EXAMPLE: IP Address: 192.168.179.5 Gateway: 255.255.255.0

2. (Optional) Connect a NEPI supported IP camera to either your NEPI-enabled hardware's main Ethernet port with a switch, or to a secondary Ethernet port if supported by the hardware

YOU WILL NEED TO ENSURE THAT THE CAMERA'S ETHERNET INTERFACE IS CONFIGURED WITH A STATIC IPV4 ADDRESS ON EITHER THE PRIMARY ETHERNET SUBNET ABOVE, OR SECONDARY ETHERNET PORT SHOWN BELOW.

- **192.168.179 SUBNETWORK if using the main ethernet port, or**
- **192.168.0 SUBNETWORK if using a secondary available ethernet port**

Accessing the NEPI Resident User Interface (RUI)

1. Power your NEPI-enabled hardware platform and allow 30-60 seconds for the system to boot.
2. On the computer attached to the NEPI via the ethernet connection, open a Chrome web browser and navigate to the URL: <http://192.168.179.103:5003>
 - a. The NEPI RUI application will initiate and display system dashboard user interface

Accessing the NEPI User Storage Drive

Access your NEPI device's onboard user storage drive by opening a File Manager application on your PC and navigating to the NEPI shared network drive at:

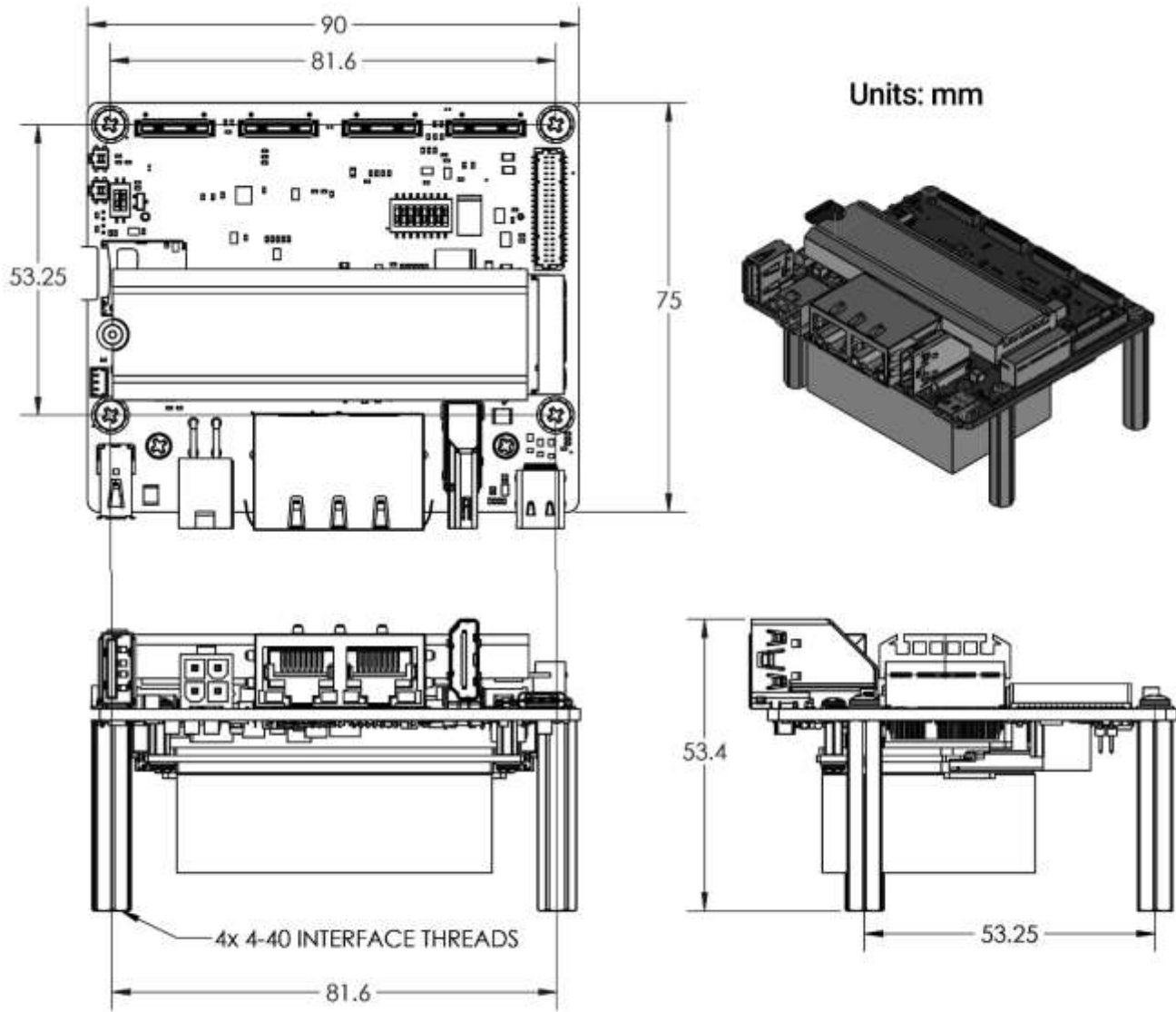
[\\192.168.179.103\nepi_storage\docs](http://192.168.179.103\nepi_storage\docs)

Learn More

NEPI software documentation including installation guides, user manuals, tutorials and more is available on the NEPI software website at:

<https://nepi.com/>

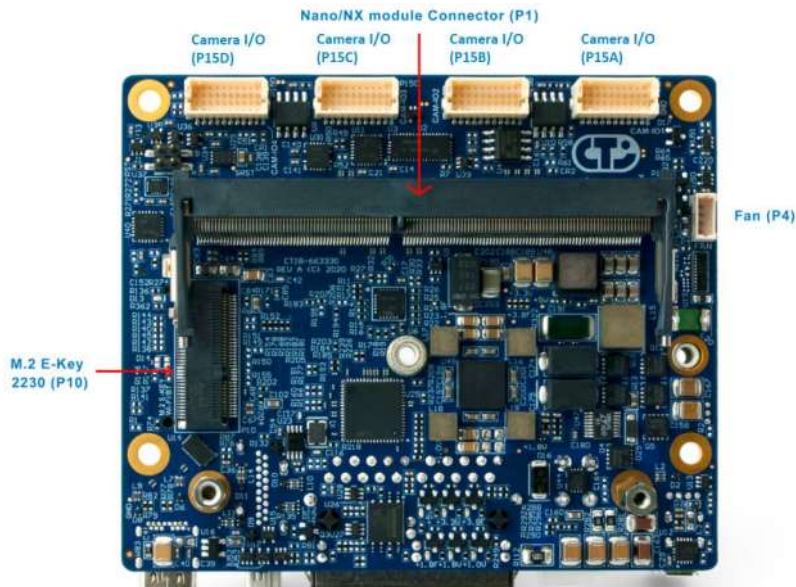
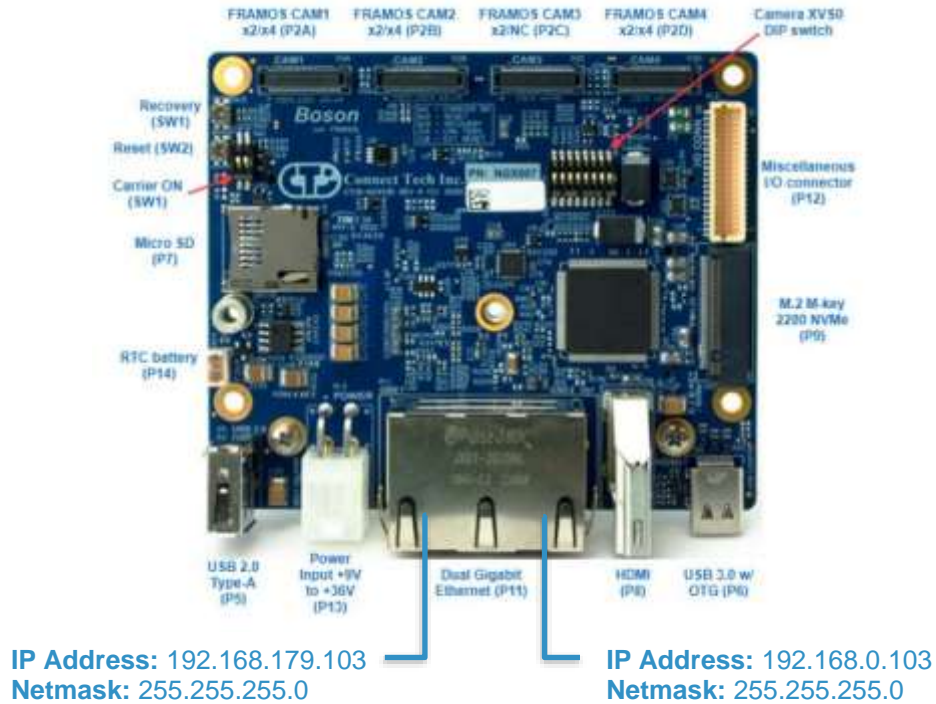
Appendix A: System Outline Drawing



Download the complete CAD package from Numurus' online document library located at <https://www.numurus.com/library/>

Filename: Numurus_100981-00_S2X-BXN_CAD_Package.zip

Appendix B: Connector Information



Download the complete carrier board manual with connector details from Numurus' online document library located at <https://www.numurus.com/library/>

Filename: Numurus_S2X-BXN_Carrier_Board_Manual.pdf