



S2X-SON603-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

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/](https://www.numurus.com/numurus%20terms%20and%20conditions%20of%20sale/)

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 Orin NX
Carrier Board	Seeed Studio's A603
External Storage	2 TB M.2 Card

Communications

Ethernet Comms	1x Gigabit Ethernet, 1x M2 WiFi Board
USB Interfaces	2x USB 3.0 Type A and 1x USB 3 Micro B
Misc I/O	UARTs, GPIO, I2C, CAN

Electrical

Input Voltage Range	9-19 VDC
Power Estimates	10 W – 30 W

Mechanical

Dimensions	87mm*52mm
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-SXN203-OEM Accessory Kit (101021-00)	Quantity	Part #
Power Supply, AC to DC, 19VDC, 4.74A, 1.25in X 2.25in X 5.625in, 90W	1	101042-00
Cable, Assembly, Power Supply Adapter, XT30 Power Plug, 10in, 3.5mm, Male Jack	1	101028-00
Cable, Ethernet, CAT-6 Patch, 8 Pair, Stranded, 5ft., Black	1	100772-00
Cable Whip, XT30U Plug, 18 AWG, Female Pins, 35mm, female	1	101025-00
Pack of 2x Dual Band WiFi Antennas	1	101073-00
Printed Document, D103599, Quickstart Guide, S2X-SXN203, Laminated	1	101034-00
USB Drive - Documents - S2X-SXN203-OEM	1	101001-00

Quickstart Guide

If you purchased the S2X-SXN203 accessory kit, this quickstart guide is intended to get you up and running on your S2X product in less than 15 minutes.

PC Side Setup

1. Connect an ethernet cable from your NEPI-enabled hardware to a local LAN, switch, or directly to a PC.

YOU WILL NEED TO ENSURE THAT THE HOST COMPUTER'S ETHERNET INTERFACE IS CONFIGURED WITH A STATIC IPV4 ADDRESS ON THE 192.168.179.0/24 SUBNETWORK. FOR EXAMPLE: IP Address: 192.168.179.5 Netmask: 255.255.255.0

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:

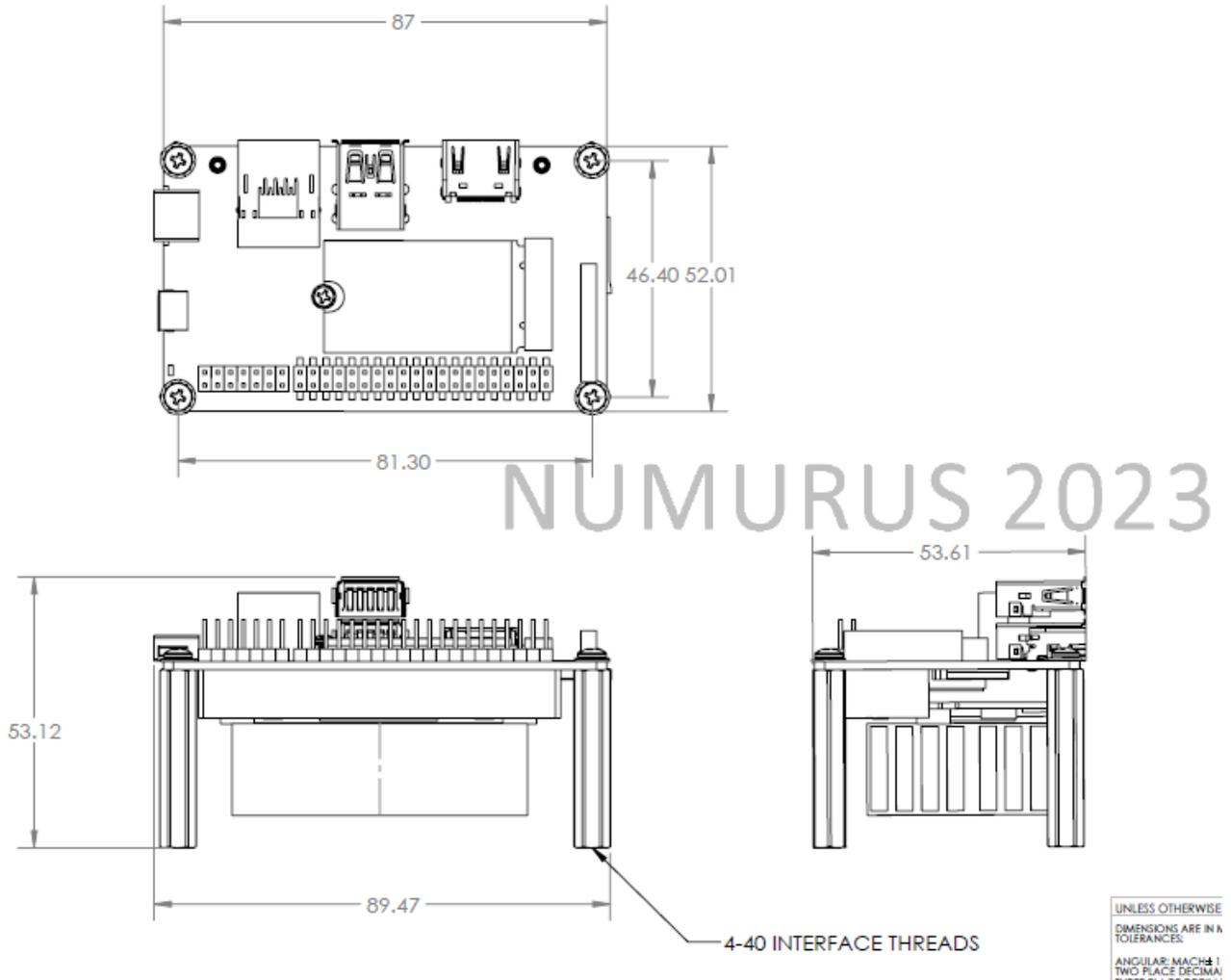
\\192.168.179.103\nepi_storage\docs

Learn More

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

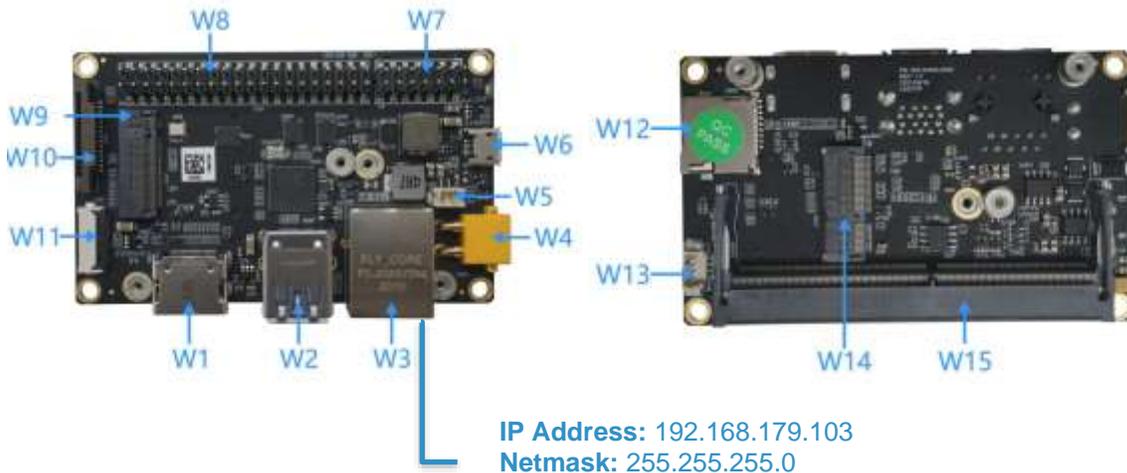
<https://nepi.com/>

Appendix A: System Outline Drawing



Appendix B: Connector Information

Seeed Studio's A603 Carrier Board



Label	Name	Description
W1	HDMI Port	HDMI Right Angle Vertical Connector
W2	USB 3.0 Type A	USB 3.0 Link 1 Type A Connector
W3	NVIDIA Gigabit Ethernet	RJ45 Gigabit Ethernet Connector (10/100/1000)
W4	DC Power	DC Input Power TE Connector
W5	3V LITHIUM BATTERY	3V Lithium Battery Connector
W6	USB 2.0	USB 2.0 Link 0 Micro-AB Connector
W7	Multifunctional port	2.54 PITCH 14 PIN
W8	Multifunctional port	2.54 PITCH 40 PIN
W9	M.2 KEY M Disk	Disk size 2240
W10	CSI CAMERA0 CONNECT	CSI-2
W11	USB 3.0 ZIF connect	0.5 PITCH 20 PIN
W12	SD Card	1x microSD Card Slot
W13	FAN CONNECT	PicoBlade Header
W14	M.2 KEY E	PCIE 2242 SIZE
W15	NVIDIA Jetson Nano/NX	Nano/NX 266 PIN Connector