JETBOX-FLOYD Jetson Nano / NX System

NVIDIA Jetson Nano / NX AI-at-the-edge computing platform

FEATURES

- Complete system with Jetson Nano or NX module and Linux OS installed
- 1 or 2 gigabit Ethernet ports
- Optional PoE+ support (with external power source)
- 2 HDMI 2.0a/b ports

- 1 USB 3.0 port with type A connector
- 2 USB 2.0 ports with type A connector; 1 port can serve as OTG
- 8 GPIO with 3.3V logic levels
- 2 serial ports with RS-232/422/485 (depending on model)
- 3 dual/quad lane MIPI/CSI camera ports
- 1 CAN port (NX module only)
- 1 Mini PCIe socket with PCIe and USB support
- 1 M.2 2280 PCIe x1 or x4 NVME socket
- Input voltage 7-28VDC; 12VDC universal AC adapter included
- Operating temperature -25 to +80oC
- Dimensions: 175mmW x 91mmD x 53mmH / 6.9"W x 3.6"D x 2.1"H

JETBOX-FLOYD is a compact Nvidia Jetson AI computing platform ready to deploy. It includes the Jetson Nano or NX module installed on our **FLOYD** carrier board with a Linux OS installed and preconfigured to support all the I/O on Floyd.

The system is available multiple standard configurations to meet a range of customer needs. The 01 full-feature models feature dual Ethernet ports with PoE support using an external power injector, two multi-protocol serial ports, dual HDMI displays, and a PCIe / USB minicard socket. The 02 low-cost models have fewer baseline I/O features but offer a faster-performance PCIe x4 NVME M.2 socket. Both models will support one channel of CAN 2.0B with the Xavier NX module installed.

Jetbox-Floyd features multiple expansion sockets for additional I/O and storage capacity to meet a wide range of application needs. Dual SMA antenna cutouts support the installation of wifi and cellular modem modules for network connectivity. The enclosure is DIN rail mountable or can be used in a "table top" scenario.
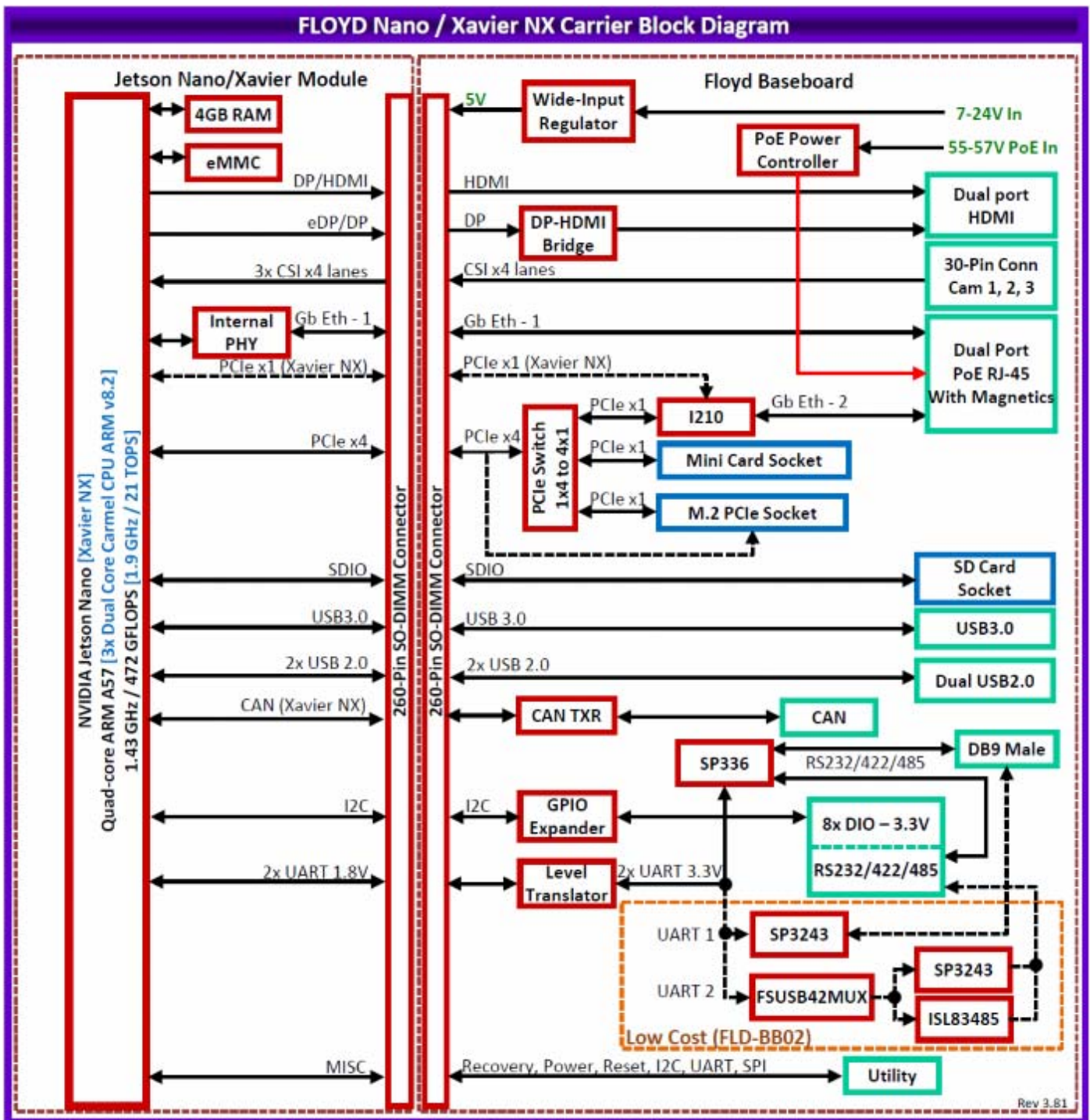
The system is compatible with both 12V and 24V DC power supplies. A 12VDC universal AC adapter is included with the system.

◆ Product Configurations

Jetbox-Floyd is available in four standard baseline configurations of Jetson module and baseboard features:

Feature	JB-FLD-NAO-01	JB-FLD-NAO-02	JB-FLD-XNX-01	JB-FLD-XNX-02
Jetson module	Nano	Nano	Xavier NX	Xavier NX
Gigabit Ethernet	2	1	2	1
PoE	Both ports	No	Both ports	No
HDMI	2	1	2	1
Camera CSI 4-lane	3	3	3	3
USB 3.0	1	1	1	1
USB 2.0	2	2	2	2
M.2 2280 socket	PCIe x1	PCIe x4	PCIe x1	PCIe x4
Minicard socket	Full size PCIe + USB	No	Full size PCIe + USB	No
SD card	Yes	Yes	Yes	Yes
GPIO 3.3V	8	8	8	8
Serial	2x RS-232/422/485	1x RS-232 1x RS-232/485	2x RS-232/422/485	1x RS-232 1x RS-232/485
CAN 2.0	No	No	1	1

◆ FLOYD Block Diagram

FLOYD Nano / Xavier NX Carrier Block Diagram

Jetson Nano/Xavier Module

NVIDIA Jetson Nano [Xavier NX]
Quad-core ARM A57 [3x Dual Core Carmel CPU ARM v8.2]
1.43 GHz / 472 GFLOPS [1.9 GHz / 21 TOPS]

- 4GB RAM
- eMMC
- DP/HDMI
- eDP/DP
- 3x CSI x4 lanes
- Internal PHY — Gb Eth - 1
- PCIe x1 (Xavier NX)
- PCIe x4
- SDIO
- USB3.0
- 2x USB 2.0
- CAN (Xavier NX)
- I2C
- 2x UART 1.8V
- MISC

260-Pin SO-DIMM Connector
260-Pin SO-DIMM Connector

Floyd Baseboard

- 5V Wide-Input Regulator — 7-24V In
- PoE Power Controller — 55-57V PoE In
- HDMI — Dual port HDMI
- DP — DP-HDMI Bridge
- CSI x4 lanes — 30-Pin Conn Cam 1, 2, 3
- Gb Eth - 1 — Dual Port PoE RJ-45 With Magnetics
- PCIe x1 (Xavier NX)
- PCIe x4 — PCIe Switch 1x4 to 4x1
  - PCIe x1 — I210 — Gb Eth - 2 — Dual Port PoE RJ-45 With Magnetics
  - PCIe x1 — Mini Card Socket
  - PCIe x1 — M.2 PCIe Socket
- SDIO — SD Card Socket
- USB 3.0 — USB3.0
- 2x USB 2.0 — Dual USB2.0
- CAN TXR — CAN
- SP336 — RS232/422/485 — DB9 Male
- I2C — GPIO Expander — 8x DIO – 3.3V — RS232/422/485
- Level Translator — 2x UART 3.3V
  - UART 1 — SP3243
  - UART 2 — FSUSB42MUX — SP3243 / ISL83485
  - Low Cost (FLD-BB02)
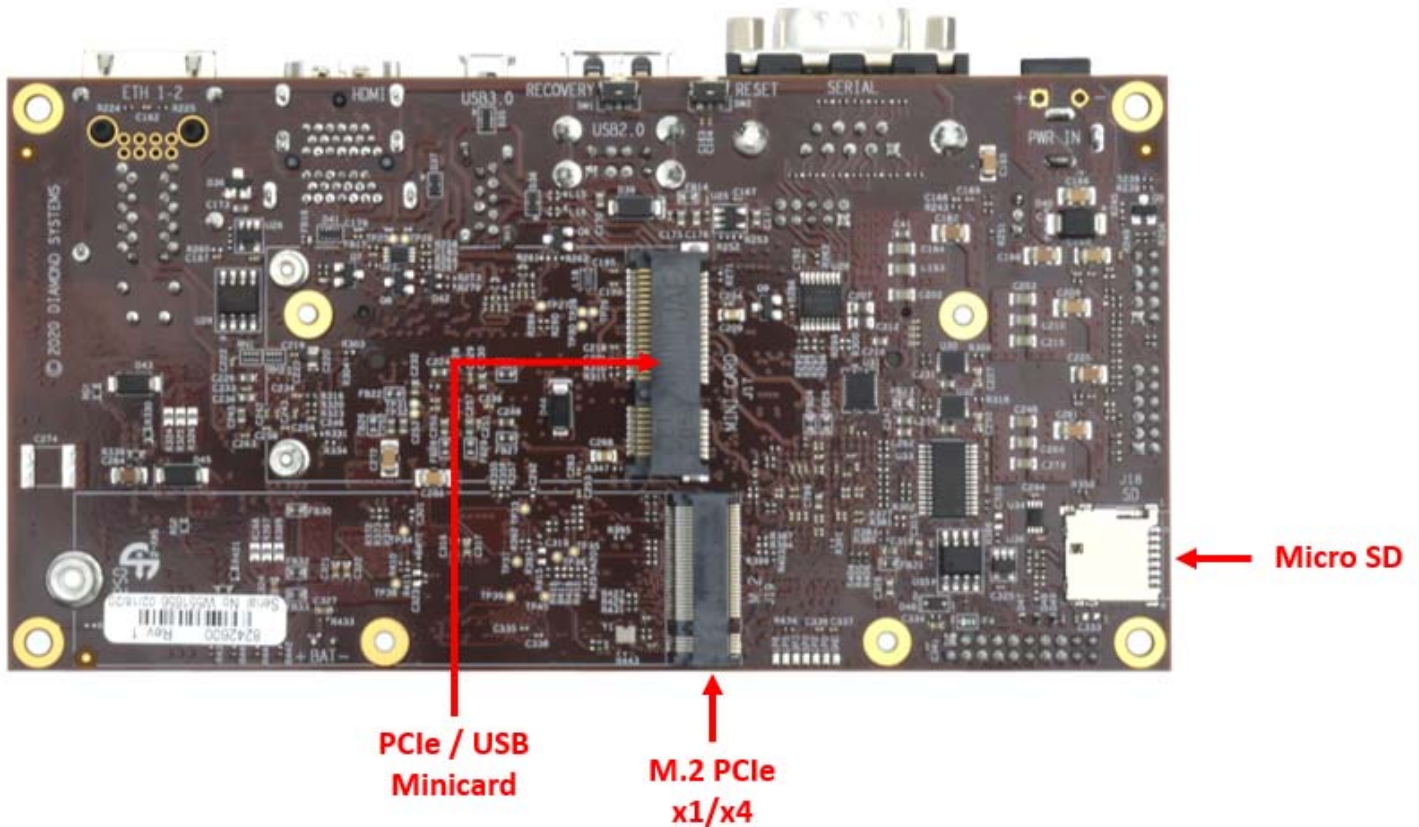- Recovery, Power, Reset, I2C, UART, SPI — Utility

Rev 3.81

◆ I/O Expansion

Jetbox-Floyd includes several options for I/o and memory expansion:

- The M.2 2280 socket may be used for additional flash storage using Diamond's flashdisks up to 2TB in capacity, or for I/O modules in M.2 2280 format. On 01 models the socket has a PCIe x1 interface, while on 02 models the interface is PCIe x4.
- The PCIe minicard socket accepts any full-size PCIe- or USB-based minicard. Check to be sure that drivers compatible with Nvidia Linux are available.
- A micro-SD card socket is also available for adding flash storage.

Note that all Jetson modules include built-in flash memory. Check the Jetson datasheets for specifics. This built-in flash contains Diamond's customized Linux based on Nvidia Jetpack for the installed Jetson module.

PCIe / USB Minicard

M.2 PCIe x1/x4

Micro SD

◆ Customization

Jetbox-Floyd can be customized to fit your application needs. Typical customizations include:

- Change of case size / shape to accommodate additional I/O or electronics
- Installation of flash memory or minicard I/O modules
- Branding with your color and logo
- Change in I/O connector assortment based on your I/O needs
- Conformal coating of internal electronics
- Customization of the Linux OS or loading of your custom software

Please contact Diamond Systems Sales for further information.

◆ Models and Accessories

JETBOX-FLOYD Jetson Nano / NX System

available models:

JB-FLOYD-NAO-01	Jetbox-Floyd complete Nano system based on Floyd BB01 full-feature carrier board; includes module, OS, and enclosure
JB-FLOYD-NAO-02	Jetbox-Floyd complete Nano system based on Floyd BB02 low-cost carrier board; includes module, OS, and enclosure
JB-FLOYD-XNX-01	Jetbox-Floyd complete NX system based on Floyd BB01 full-feature carrier board; includes module, OS, and enclosure
JB-FLOYD-XNX-02	Jetbox-Floyd complete NX system based on Floyd BB02 low-cost carrier board; includes module, OS, and enclosure

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