JNX43 Carrier Board

JNX43

AUVIDEA audio video media

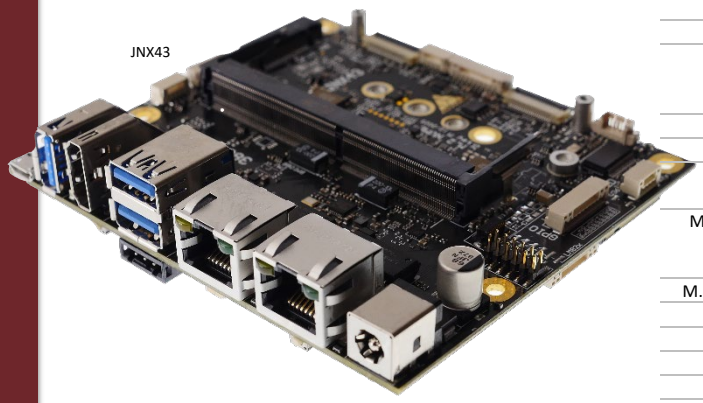
NVIDIA Orin Nano, Orin NX and Xavier NX

Overview

The JNX43 is specifically designed for the new Jetson Orin compute modules with 3 native USB 3.2 (10Gbit/s) ports and two RJ45 GbE. At your choice these systems can be equipped with the entire family of NVIDIA compute modules in the SO-DIMM form factor from the traditional Nano to the new Orin NX16.

Features

- Onboard M.2 NVME 2242 or 2280 SSD: mandatory for the Orin Nano/NX family
- M.2 key E for Wifi, GPS and more
- M.2 key B for LTE and 5G (optional: UART communications with MCU for low level system management independent of Linux system)
- industrial strength design
- extendable via USB 2.0 or PCIe x1



JNX43

Optional*

- IMU
- board EEPROM
- crypto chip
- RTC battery (rechargeable)

*Available with alternative and fully populated versions

System Management

On board MCU for watchdog and low level system management functions (via LTE). The MCU can receive text messages via an UART connection to compatible LTE M.2 cards (e.g. Simcom SIM7600) . With these messages low level system management can be performed. Please note that this requires an optional MCU firmware. The source code to this firmware may be licensed.

- power cycle or reset
- change of boot order

Build to order embedded systems

On request the Auvidea carrier boards can be integrated to build to order embedded systems. Normally these a passively cooled systems with standard or Auvidea custom extrusions.
The extrusion shown above is very compact and offers excellent thermal characteristics. For ease of mouting the carrier board can just slide into this enclosure. Optionally embedded systems can be populated with IP67 rated connectors.

Technical Specification

Feature	JNX43-LM	JNX43-M2
modules	Nano/ TX2 NX/ Xavier NX/ Orin Nano/NX	
Orin Nano/NX	3x (native) USB 3.0	
Nano/ Xavier NX	1x (native) USB 3.0 and 2x USB 2.0	
monitor	HDMI 2.0 (4kp60)	
UART	2x (1x when using LTE module)	
SPI	1x (1.8V)	
I2C	3x (3.3V)	
I2S	1x (1.8V)	
GPIO	I2C port extender	-
CAN	1x (with transceiver TJA1051)	
Buttons	PWR/Reset; No FR	PWR/ Force Recovery/ Reset
MIPI CSI-2	2x CSI-2 (22 pin with 4 lanes)	
MIPI CSI-2 Xavier NX	Only 1 Port (J5)	
Ethernet	2x Gigabit RJ45 (RTL8111)	
MCU	yes (for system management)	
micro-USB	OTG (for flashing) and host mode	
USB2	2x type A 1x(J8) shared with M.2 key E slot (do not use if M.2 card is inserted)	
USB3	1x (with Xavier NX)	
LM823 Wifi	Yes	-
M.2 Key B (3042/3052)	for LTE (with dual nano SIM)	
M.2 Key E (2230)	Xavier NX: no function Orin NX: PCIe x1 modules	Xavier NX: USB 2.0 modules Orin NX: PCIe x1 & USB 2.0 modules
M.2 Key M (2280)	PCIe x4 for NVME SSDs	
fan connector	5V for original NVIDIA heatsink/fan	
PoE	optional with power module	
power in	12V (with the 38515 addon module 12-48V)	
CM power	5V (8A max)	
size	94.7x104.6mm 94.7x112.6mm (with side wings)	

Compatible addons:

M.2 key E cards:

- Standard M.2 Wifi cards (PCIe+USB) like Intel AX200 (Orin only)
- USB only M.2 Wifi cards like Laird ST60-2230C-UU (Xavier and Orin)
- W200 RTL8111 (in development)
- W210 Ublox Lily (in development)
- W220 Ublox NEO-M8N GNSS module

USB addon modules (for J8 or J23):

- U100 USB 2.0 to 2x M.2 adapter (key E and key B)
- U110 Quad USB 2.0 to 100bT Ethernet (PoE+)
- U115 Quad USB 2.0 to 100bT Ethernet (PoE+) with 48V pushup PS
- U120 USB 2.0 to 4x USB 2.0 type A module

Please check the Auvidea website for further options.

Internal USB ports

J23 is located underneath the micro USB port. Both have the same USB 2.0 bus connected. With a DTB change this port can be converted to a host port, to be able to connect to any of the USB addon modules.

J8 is only available with the M2 version. It exposes the USB bus of the M.2 key E slot. Please only use one at a time. This can also connect to any of the USB addon modules.

Carrier Board Variations

SKU	Part
70790 -LM	JNX43-LM (on request only)
70790 -M2	JNX43-M2

Resources

Description	Link
3D Model	https://auvidea.eu/step/
Auvidea BSP package	https://auvidea.eu/firmware/

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