AstrOptix Orin Nano/NX Carrier Board V1

P/No: FC-OOR-LM

Product Technical Specification

Features

- Supports Super mode
- Supports Sony, Tamron, KT&C LVDS cameras
- Supports Sony MIPI block camera
- Supports Sony HDMI block cameras via optional bridge module
- Supports 1 Gbps Ethernet
- M.2 Key E expansion for Wi-Fi/BT modules
- M.2 Key M expansion for NVMe SSD storage
- Micro HDMI output for local video monitoring
- USB Type-C for flashing, debugging and data transfer (USB2 & USB3)
- On-board SPI interface via 1mm Molex Pico clasp connector
- On-board camera power switches.
- UART TTL/RS422, I2C and GPIO interface via 1 mm Molex Pico clasp connector
- CAN interface via 1mm Molex Pico clasp connector
- Dedicated UART channels for both Sony FCB block camera interfaces (VISCA protocol, 3.3 V CMOS)
- Onboard RTC battery (CR1216) holder
- Molex Micro fit plus power input connector
- Power LED
- Compact 90 × 60 mm PCB
- Weight: 38.3g
- RoHS compliant
- Operating temperature: –40 °C to +85 °C

Applications:

- AI Edge Computing and Vision Analytics
- Multi-Camera Networked Vision Systems
- Robotics and Autonomous Platforms
- Industrial & Machine Vision Systems
- Defense and Security Imaging
- UAV / ROV Payloads
- Smart Surveillance and Remote Monitoring
- Embedded Vision Research & Prototyping

Product description:

The AstrOptix Orin Nano/NX Carrier Board V1 is a high-performance embedded vision and compute platform engineered around NVIDIA's Jetson Orin Nano and Orin NX modules. The platform fully unlocks the capabilities of both modules — including Super Mode — to deliver maximum AI throughput for demanding real-time applications.

Designed for seamless integration, the board natively supports LVDS cameras from Sony (FCB-EV9520L, FCB-EV9500L), Tamron (MP3010M-EV), and KT&C (ATC-HZ5540T-LP). It also supports Sony's FCB-EV9500M MIPI camera via a secondary 4-lane MIPI interface over a 30-pin Kel connector. Additionally, support for 4K HDMI cameras—including the Sony FCB-ER8530, FCB-EW9500H, and FCB-ER9500—is available through optional bridge modules, enabling broad compatibility across diverse camera ecosystems and deployment scenarios.

The platform combines powerful AI inference, real-time video encoding, and flexible I/O interfacing in a compact, deployment-ready form factor. It is purpose-built for UAVs, defence imaging systems, robotics platforms, and edge AI vision applications where performance, reliability, and integration flexibility are mission critical.

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The board supports a 1 Gbps Ethernet stream through a compact Molex Pico clasp 1.0 mm connector, enabling efficient network-based video transmission and remote AI-assisted analytics. A micro-HDMI output allows convenient local monitoring when required. For expansion, the board includes both M.2 Key E and M.2 Key M slots, supporting Wi-Fi/Bluetooth modules and NVMe SSDs to provide high-speed wireless connectivity and onboard storage. Additional interfaces such as UART TTL/RS422, I²C, CAN, SPI, and GPIO offer extensive system-level control and customization options.

Dual UART channels with 3.3 V CMOS levels allow simultaneous VISCA protocol control of multiple Sony FCB cameras. A CR1216 RTC battery holder is included to maintain accurate timestamping in embedded or remote applications. Power input is provided through a Molex Micro fit plus connector, supported by onboard regulation and LED indicators for power status.

Featuring a compact 90 × 60 mm footprint, industrial-grade construction, and an operating temperature range of –40 °C to +85 °C, the AstrOptix Carrier Board offers rugged reliability and top-tier performance for next-generation intelligent vision systems.

Technical Specification

Parameter	Description
CPU/GPU Module	NVIDIA Orin NX/Nano
Storage	NVMe SSD via M.2 Key M 2242
Camera Interfaces	1 × LVDS (Sony, Tamron and KT&C LVDS cameras), 1 × MIPI CSI-2 four lanes (Sony FCB-EV series), and optional HDMI (Sony FCB-ER & FCB-EW series) via bridge board.
Network Interface	1 Gbps Ethernet via Molex Pico clasp 1.0 mm connector and M.2 Key E (Wi-Fi/BT) 2230
Expansion header	I²C, UART TTL/RS422, & GPIO via Molex Pico clasp 1.0 mm connector
Video Output	Micro HDMI
USB Interface	USB Type-C for flashing, debugging and data transfer (USB2 & USB3)
SPI Interface	Yes, 4-pin 1 mm Molex Pico clasp connector
CAN Interface	Yes, 4-pin 1 mm Molex Pico clasp connector
UART Channels	Independent dedicated channels for camera VISCA control via KEL connector
RTC	Onboard RTC battery connector CR1216
Power Input	Molex Micro fit plus connector, 12-19 V regulated, supports Super mode.
Fan	Yes, dedicated PWM-controlled onboard fan
Operating Temperature	–40 °C to +85 °C
Dimensions (L × W)	90 × 60 mm
Weight	38.3g approx.
Compliance	RoHS

Kit Contents

Item	Description
Carrier Board	AstrOptix Orin Nano/NX AI Carrier Board V1
Software	System image with V4L2 driver support for Sony (LVDS, MIPI, HDMI), Tamron (LVDS), and KT&C (LVDS) block cameras.
Power Cable	2-pin crimped 12-19V Molex Micro fit plus power cable
Interface Cable	IP - Molex Pico clasp 1.0 mm to RJ45 cable (optional) SPI - Molex Pico clasp 1.0 mm connector cable (optional) I2C, UART/RS422, & GPIO - Molex Pico clasp 1mm connector cable (optional) CAN - Molex Pico clasp 1.0 mm connector cable (optional)
Mounting Hardware	Screws and spacers for mounting (optional)
Documentation	Product datasheet and User manual (digital copy)

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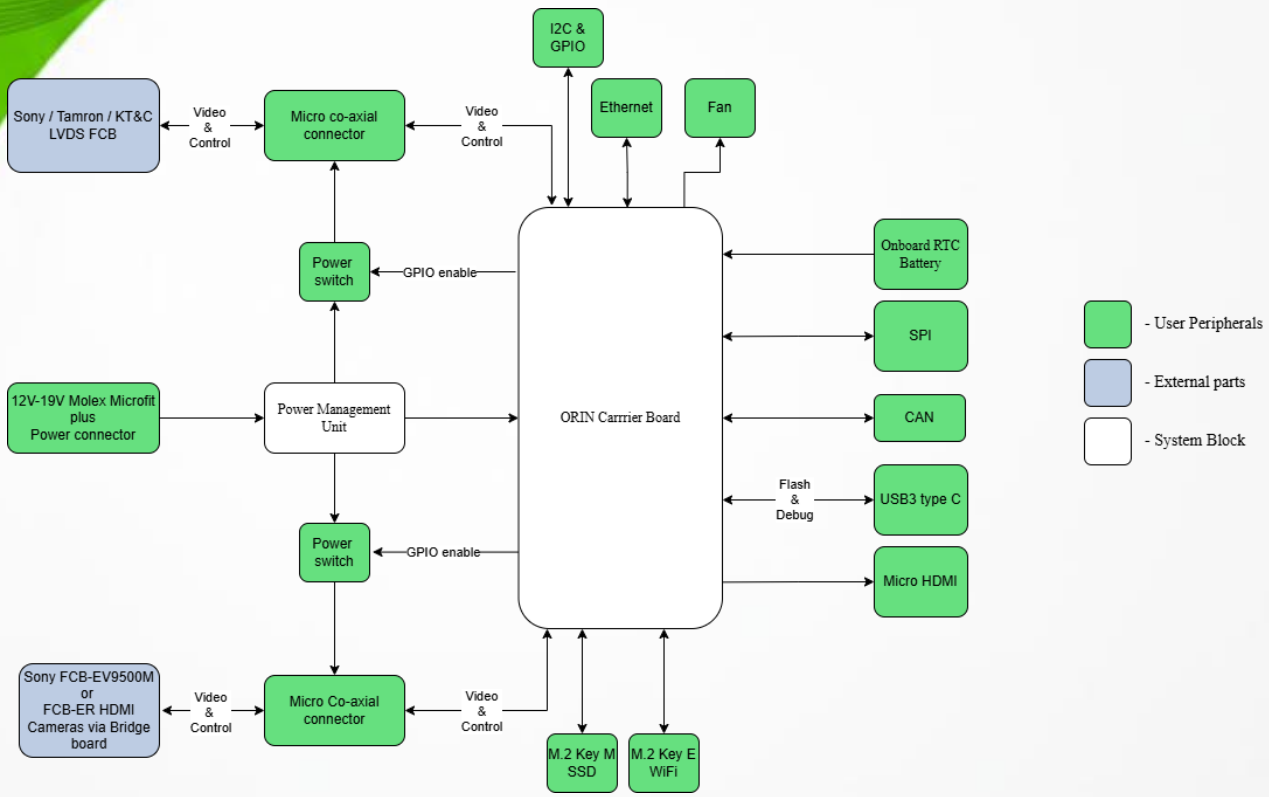
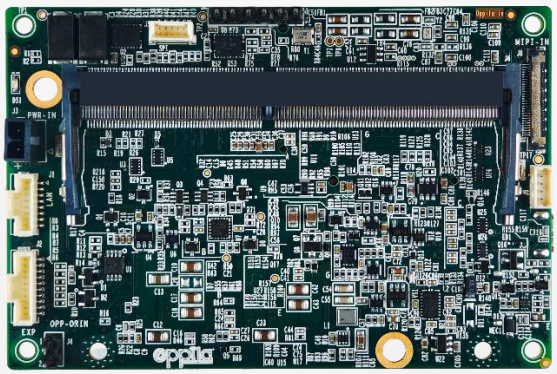
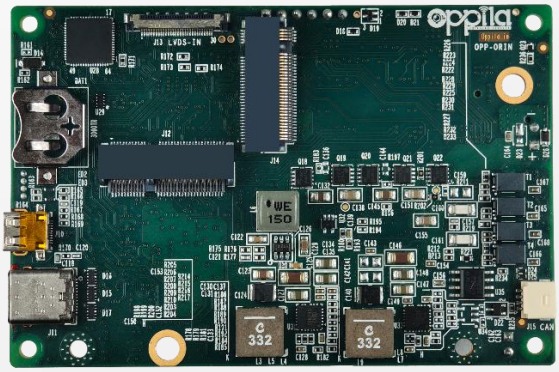
Board Block diagram



Product images





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