

Product Technical Specification



Features

- Supports Super mode
- Supports Sony, Tamron, KT&C LVDS cameras
- Supports Sony HDMI block cameras via optional bridge module through 22-pin MIPI CSI-2 connector
- Supports 1 Gbps Ethernet
- M.2 Key E expansion for Wi-Fi/Bluetooth 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 and USB3 via Samtec Tiger-eye connector
- I2C, UART, UART TTL/RS422, CAN, SPI and GPIO interface via 1 mm Molex Pico clasp connector
- Dedicated UART channel for LVDS block camera interfaces (VISCA protocol, 3.3 V CMOS)
- Onboard RTC battery and PWM fan connector
- Molex Micro fit plus power input connector
- Power LED
- Compact 90 × 60 mm PCB
- Weight: 38.1 g
- RoHS compliant
- Operating temperature: -20 °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 V2 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 camera integration, the board natively supports LVDS block cameras from Sony (FCB-EV9520L, FCB-EV9500L), Tamron (MP3010M-EV), and KT&C (ATC-HZ5540T-LP). Support for Sony's 4K HDMI block cameras — the FCB-ER8530, and FCB-EW9500H is available through an optional bridge module via the 22-pin MIPI CSI-2 connector, providing broad camera ecosystem compatibility across deployment scenarios. Dedicated UART channels at 3.3 V CMOS levels enable simultaneous VISCA protocol control of connected cameras.

The board offers 1 Gbps Ethernet connectivity via a compact Molex Pico clasp 1.0 mm connector, supporting efficient network-based video transmission and remote AI-assisted analytics. A Micro HDMI output enables convenient local video monitoring. For storage and wireless expansion, the board includes both M.2 Key M (NVMe SSD, 2242) and M.2 Key E (Wi-Fi/Bluetooth, 2230) slots.

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USB connectivity is provided via a USB Type-C port for flashing, debugging, and data transfer, as well as USB 2.0 and USB 3.0 ports via a Samtec Tiger-eye connector. Extensive system-level control interfaces — including I²C, UART TTL/RS422, CAN, SPI, and GPIO — are accessible through a 1 mm Molex Pico clasp connector. Power is delivered via a Molex Micro fit plus connector, supporting 12–19 V regulated input including Super Mode power requirements. An onboard PWM-controlled fan connector and RTC battery connector ensure reliable thermal management and accurate timestamping in embedded or remote deployments.

Featuring a compact 90 × 60 mm footprint, a weight of approximately 38.1 g, RoHS compliance, and an industrial operating temperature range of –20 °C to +85 °C, the AstrOptix Carrier Board delivers rugged reliability and top-tier performance for UAVs, defence imaging systems, robotics platforms, and edge AI vision applications where performance, integration flexibility, and mission-critical reliability are paramount.

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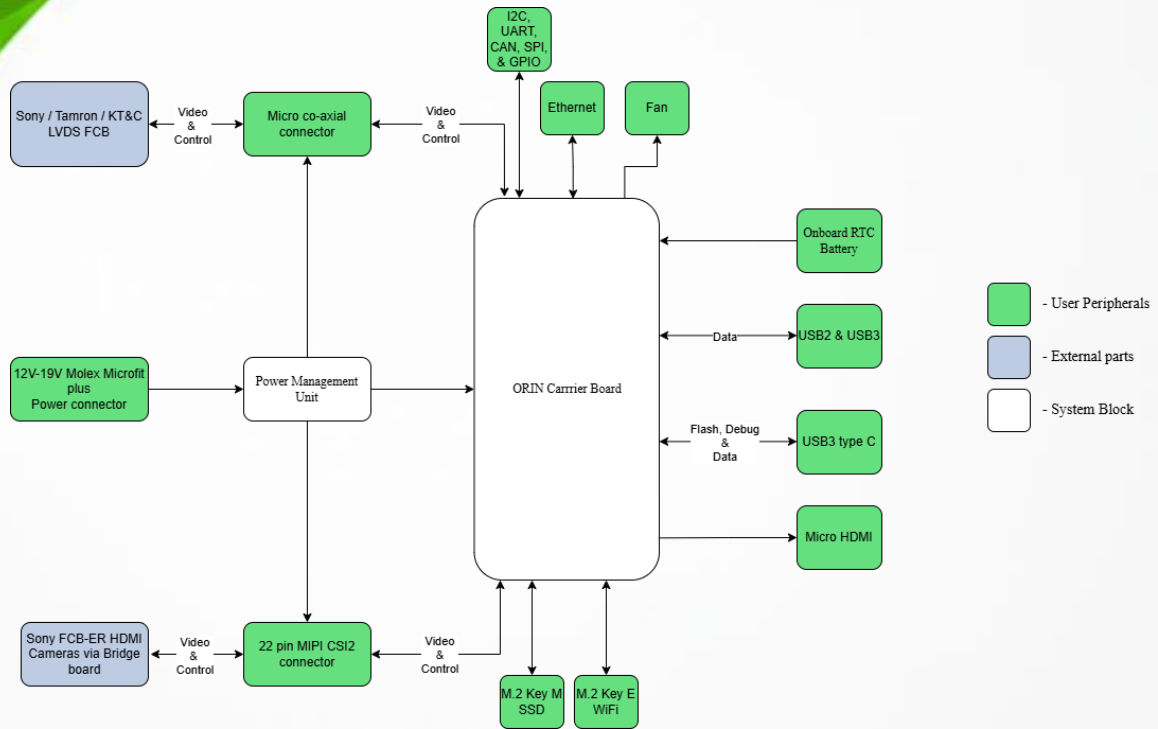
Parameter	Description
CPU/GPU Module	NVIDIA Orin NX/Nano
Storage	NVMe SSD via M.2 Key M 2242
Camera Interfaces	1 × LVDS (Sony FCB or Tamron or KT&C), optional HDMI (Sony FCB-ER series) via bridge board through 22pin MIPI CSI-2 connector
Network Interface	1 Gbps Ethernet via Molex Pico clasp 1.0 mm connector and M.2 Key E (Wi-Fi/BT) 2230
Expansion header	I ² C, UART/RS422 (Optional), CAN, SPI & GPIO via Molex Pico clasp 1.0 mm connector
Video Output	Micro HDMI
USB Interface	USB Type-C (USB2 & USB3) for flashing, debugging & data, and 1 x USB 2.0 & 1 x USB 3.0 via Samtec Tiger-eye connector
UART Channels	Independent dedicated channels for camera VISCA control via KEL connector, 2 x UART via 1 mm Molex Pico clasp connector.
RTC	Onboard RTC battery connector
Power Input	Molex Micro fit plus connector, 12-19 V regulated, supports Super mode.
Fan	Yes, dedicated PWM-controlled onboard fan
Operating Temperature	–20 °C to +85 °C
Dimensions (L × W)	90 × 60 mm
Weight	38.1 g
Compliance	RoHS

Kit Contents

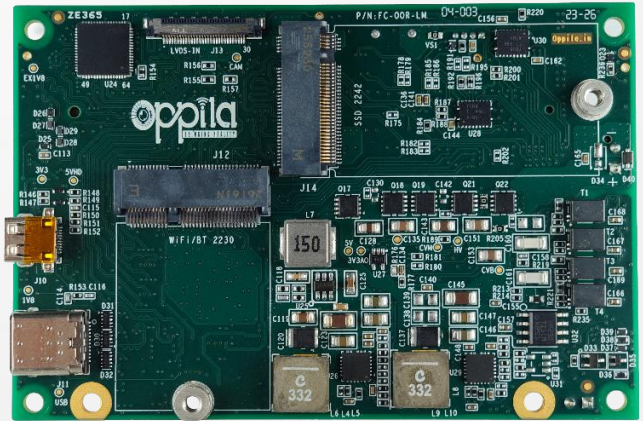
Item	Description
Carrier Board	AstrOptix Orin Nano/NX AI Carrier Board V2
Software	System image with V4L2 driver support for Sony (LVDS and HDMI), Tamron and KT&C LVDS block cameras (optional)
Power Cable	2-pin 19V Molex Micro fit plus power cable
Interface Cable	Ethernet - Molex Pico clasp 1.0 mm to RJ45 cable (optional), I2C, UART/RS422, CAN, SPI & GPIO - Molex Pico clasp 1.0 mm connector cable (optional), USB 2 and USB 3 – Samtec Tiger-eye 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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