

Product Technical Specification



Features

- Supports Super mode
- Supports Sony FCB-EV series LVDS cameras and Sony FCB-EV9500M MIPI cameras
- Supports Sony FCB-ER8530 and FCB-ER9500 block cameras via optional bridge module
- 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 and debugging
- On-board SPI interface via 1mm Molex Pico clasp connector
- On-board camera power switches.
- 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: -25 °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 Oppila's Orin AI Carrier Board is a high-performance embedded vision and compute platform built around NVIDIA's Jetson Orin Nano and Orin NX modules. It supports the full performance of these modules, including Super Mode, enabling maximum AI throughput for demanding real-time applications. The board is designed for seamless integration with Sony FCB-EV series LVDS cameras, FCB-EV9500M MIPI cameras, and it can also interface with FCB-ER8530, FCB-EW9500H and FCB-ER9500 4K HDMI cameras through optional bridge modules. This platform delivers powerful AI processing, real-time video encoding, and flexible interfacing, making it ideal for UAVs, defence imaging systems, robotics platforms, and edge-AI vision applications.

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 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

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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 –25 °C to +85 °C, the Oppila Orin Carrier Board offers rugged reliability and top-tier performance for next-generation intelligent vision systems.

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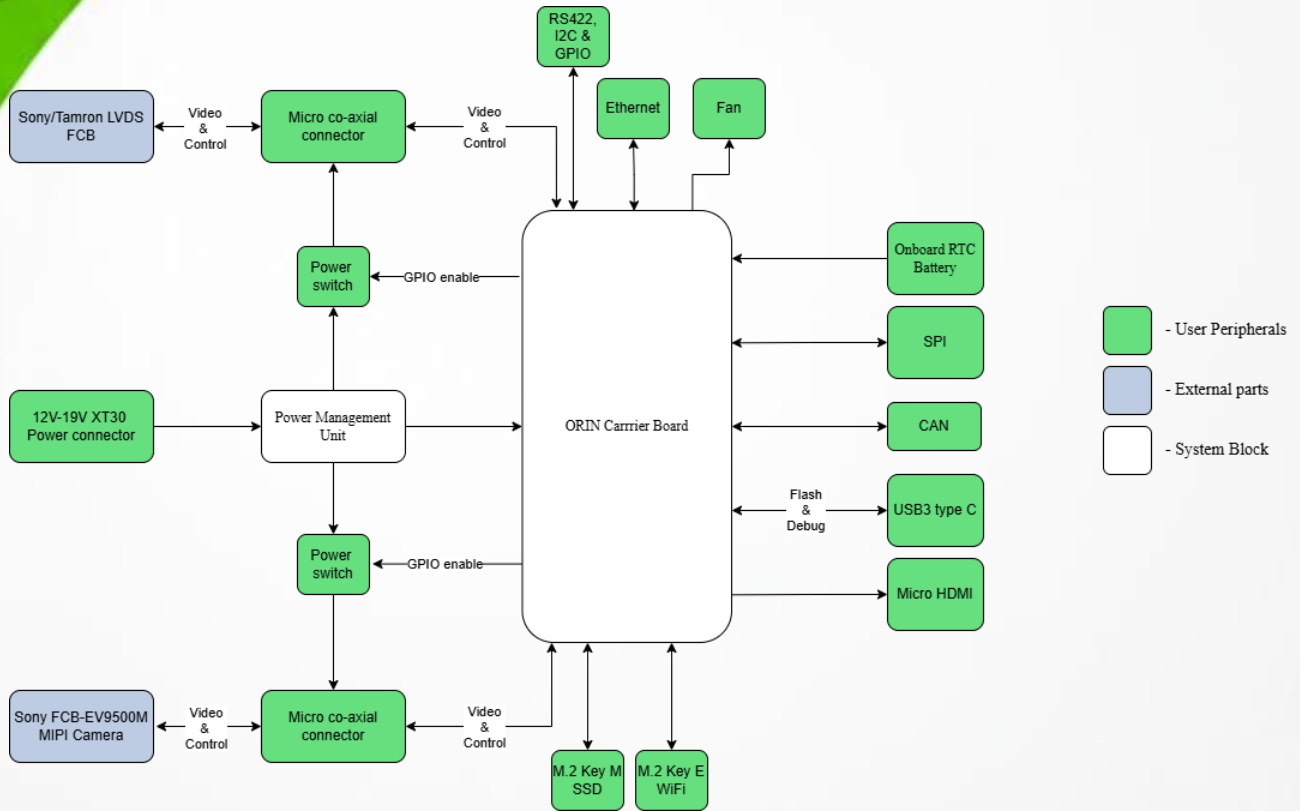
Parameter	Description
CPU/GPU Module	NVIDIA Orin NX/Nano
Storage	NVMe SSD via M.2 Key M 2242
Camera Interfaces	1 × LVDS (Sony FCB-EV series), 1 × MIPI CSI-2 four lanes (Sony FCB-EV series), optional HDMI (Sony FCB-ER series) via bridge board.
Network Interface	1 Gbps Ethernet via Molex Pico clasp 1.0 mm connector and M.2 Key E (Wi-Fi/BT) 2230
Power switch	GPIO-controlled load switches for LVDS and MIPI camera power rails
Expansion header	I ² C, & GPIO via Molex Pico clasp 1.0 mm connector
Video Output	Micro HDMI
USB Interface	USB Type-C for flashing & debugging
SPI Interface	Yes, 4-pin 1 mm Molex Pico clasp connector
CAN Interface	Yes, 4-pin 1 mm Molex Pico clasp connector
UART Channels	2 independent dedicated channels for camera VISCA control via KEL connector
RTC	Onboard CR1216 battery holder
Power Input	Molex Micro fit plus connector, 12-19 V regulated, supports Super mode.
Fan	Yes, dedicated PWM-controlled onboard fan
Operating Temperature	–25 °C to +85 °C
Dimensions (L × W)	90 × 60 mm
Weight	38.3g
Compliance	RoHS

Kit Contents

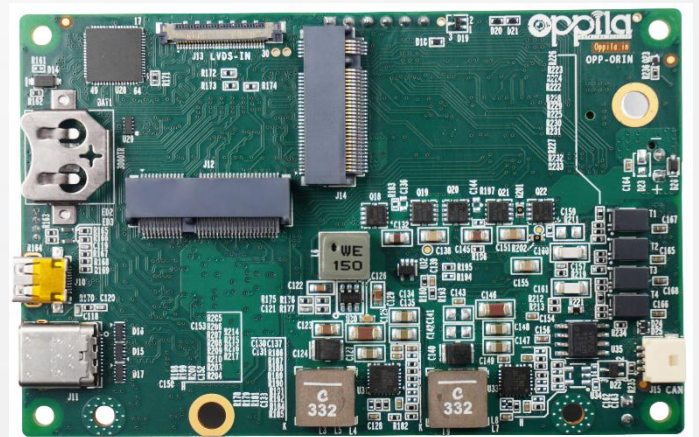
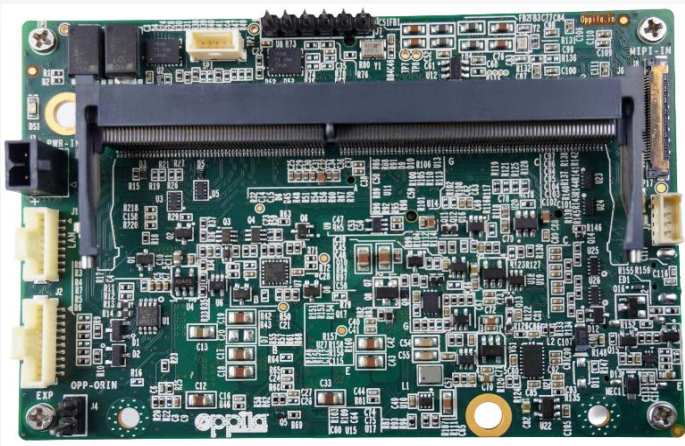
Item	Description
Carrier Board	Orin NX/Nano AI Carrier Board (90 × 60 mm)
Software	Image file with V4L2 driver compatible for Sony (LVDS, HDMI and MIPI) block cameras (optional)
Power Cable	2-pin 19V Molex Micro fit plus power cable
Interface Cable	IP - Molex Pico clasp 1.0 mm to RJ45 cable (optional), SPI - Molex Pico clasp 1.0 mm connector cable (optional), I2C & GPIO - Molex Pico clasp 1.0 mm 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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