oppila
BRINGING REALITY

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 JST connector
- RS-422, I2C and GPIO interface via 1 mm JST connector
- CAN interface via 1mm JST connector
- Dedicated UART channels for both Sony FCB block camera interfaces (VISCA protocol, 3.3 V CMOS)
- Onboard RTC battery (CR1216) holder
- XT30 power input connector
- Power and status LEDs
- Compact 90 × 60 mm PCB
- 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 Oppila's Orin Mini 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 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 JST 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, while a dedicated RS-422 interface ensures long-distance, noise-immune communication with external peripherals. A CR1216 RTC battery holder is included to maintain accurate timestamping in embedded or remote applications. Power input is provided through an XT30 connector, supported by onboard regulation and LED indicators for system and power status.

Featuring a compact 90 × 60 mm footprint, industrial-grade construction, and an operating temperature range of −20 °C to +85 °C, the Oppila Orin Carrier Board offers rugged reliability and top-tier performance for next-generation intelligent vision systems.

Contact Oppila for Custom product requirements
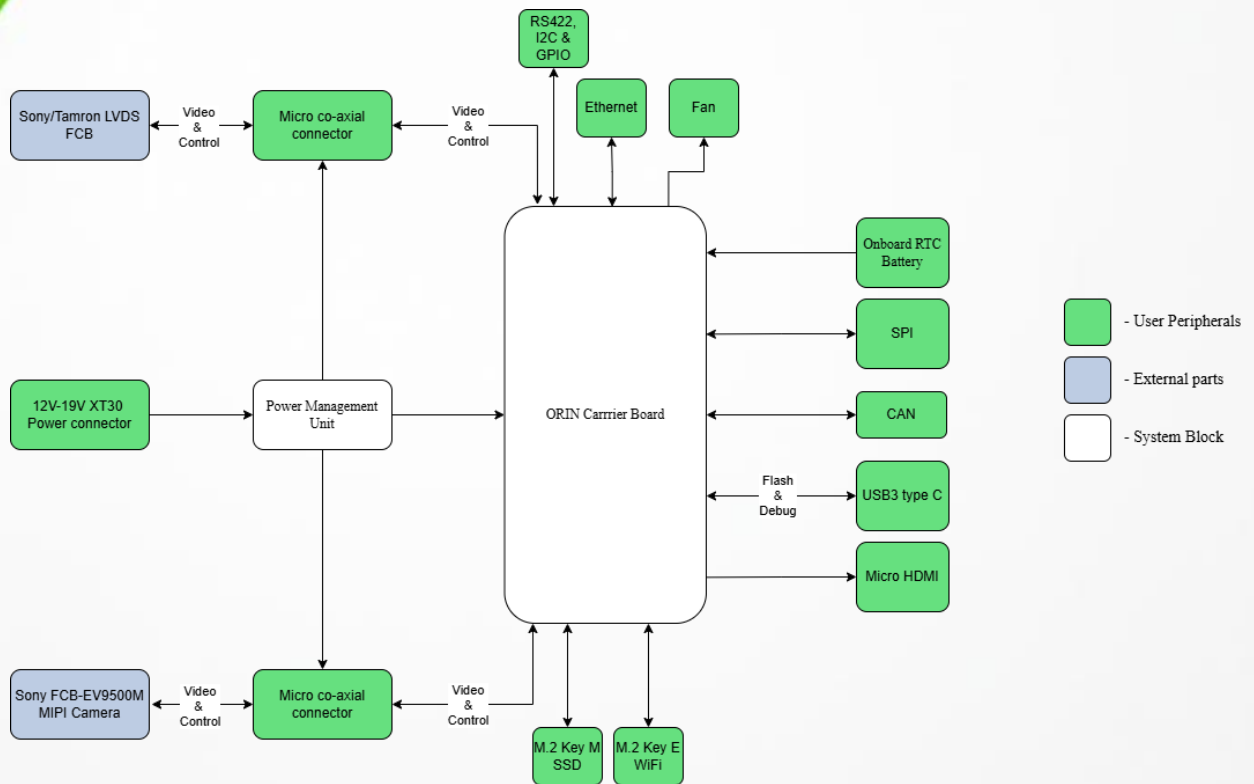info@oppila.in; www.oppila.in

Technical Specification

Parameter	Description
CPU/GPU Module	NVIDIA Orin NX/Nano
Storage	NVMe SSD via M.2 Key M
Camera Interfaces	1 × LVDS (Sony FCB-EV series), 1 × MIPI CSI-2 four lanes (Sony FCB-EV series), optional HDMI (Sony FCB-ER) via bridge board.
Network Interface	1 Gbps Ethernet via JST 1.0 mm connector and M.2 Key E (Wi-Fi/BT)
Expansion header	I²C, RS422 & GPIO via JST 1.0 mm connector
Video Output	Micro HDMI
USB Interface	USB Type-C for flashing & debugging
SPI Interface	Yes, 4-pin 1 mm JST connector
CAN Interface	Yes, 4-pin 1 mm JST connector
UART Channels	2 independent dedicated channels for camera VISCA control
RTC	Onboard CR1216 battery holder
Power Input	XT30 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
Compliance	RoHS

Kit Contents

Item	Description
Carrier Board	Orin NX/Nano Carrier Board (90 × 60 mm)
Software	Preloaded Image file with V4L2 driver compatible for LVDS, HDMI and MIPI block cameras (optional)
Power Cable	2-pin 19V XT30 power cable
Interface Cable	IP - JST 1.0 mm to RJ45 cable (optional), SPI - JST 1.0 mm connector cable (optional), RS422, I2C & GPIO - JST 1.0 mm connector cable (optional), CAN - JST 1.0 mm connector cable (optional)
Mounting Hardware	Screws and spacers for mounting (optional)
Documentation	Product datasheet and User manual (digital copy)

Contact Oppila for Custom product requirements
info@oppila.in; www.oppila.in

Board Block diagram

Sony/Tamron LVDS FCB → Video & Control → Micro co-axial connector

RS422, I2C & GPIO

Ethernet

Fan

Micro co-axial connector → Video & Control → ORIN Carrrier Board

12V-19V XT30 Power connector → Power Management Unit → ORIN Carrrier Board

Onboard RTC Battery

SPI

CAN

Flash & Debug → USB3 type C

Micro HDMI

Sony FCB-EV9500M MIPI Camera → Video & Control → Micro co-axial connector → Video & Control

M.2 Key M SSD

M.2 Key E WiFi

- User Peripherals
- External parts
- System Block