PAL → MIPI CSI-2 Bridge Board

P/No: CM-XOR-PM

Product Technical Specification

Features

- Converts PAL video signals to single lane MIPI CSI-2 output
- Compatible with **NVIDIA Jetson Orin Nano Super Developer Kit**, **AVerMedia D133 carrier board, Waveshare Jetson Orin IO-Base carrier board and Raspberry pi 5**
- 3 independent PAL video inputs
- Camera input switching via I2C from Jetson host
- Ultra-low latency
- Automatic PAL/NTSC detection
- Compact 50 × 50 mm PCB
- 12 V regulated input.
- Power LEDs for indication
- Industrial temperature range: –40 °C to +85 °C
- RoHS compliant

Applications:

- AI Edge Computing and Vision Analytics
- Robotics and Autonomous Platforms
- Industrial & Machine Vision Systems
- Medical & Diagnostic Imaging Instruments
- UAV / ROV Vision Payloads
- Security and Surveillance Cameras
- Broadcast and Multimedia Streaming
- Research, Development & Prototyping

Product description:

The Oppila PAL–MIPI bridge Board is a compact, high-performance camera interface bridge designed to convert PAL analog video output from cameras into a MIPI CSI-2 signal compatible with leading embedded AI computing platforms such as the **NVIDIA Jetson Orin Super Nano Developer Kit, AVerMedia D133 Carrier Board, Waveshare Jetson Orin IO Base Carrier Board and the and Raspberry pi 5.**

Built on a low-latency architecture, the adapter enables real-time video streaming while maintaining precise synchronization and signal integrity.

The board supports **three independent PAL composite video inputs**, allowing multiple camera sources to be connected simultaneously. Camera selection can be dynamically switched via I²C control from the Jetson host processor, enabling flexible multi-camera operation without additional switching hardware.

Engineered for embedded vision and AI applications, the PAL–MIPI Adapter features a single lane MIPI CSI-2 output, a 12 V regulated input with onboard power conditioning, and an industrial-grade EMI-optimized design for reliable operation in demanding environments. The board's ultra-compact 50 × 50 mm footprint make it an ideal solution for edge AI systems, robotics, machine vision, and defence imaging platforms where low-latency, high-fidelity video transfer is essential.

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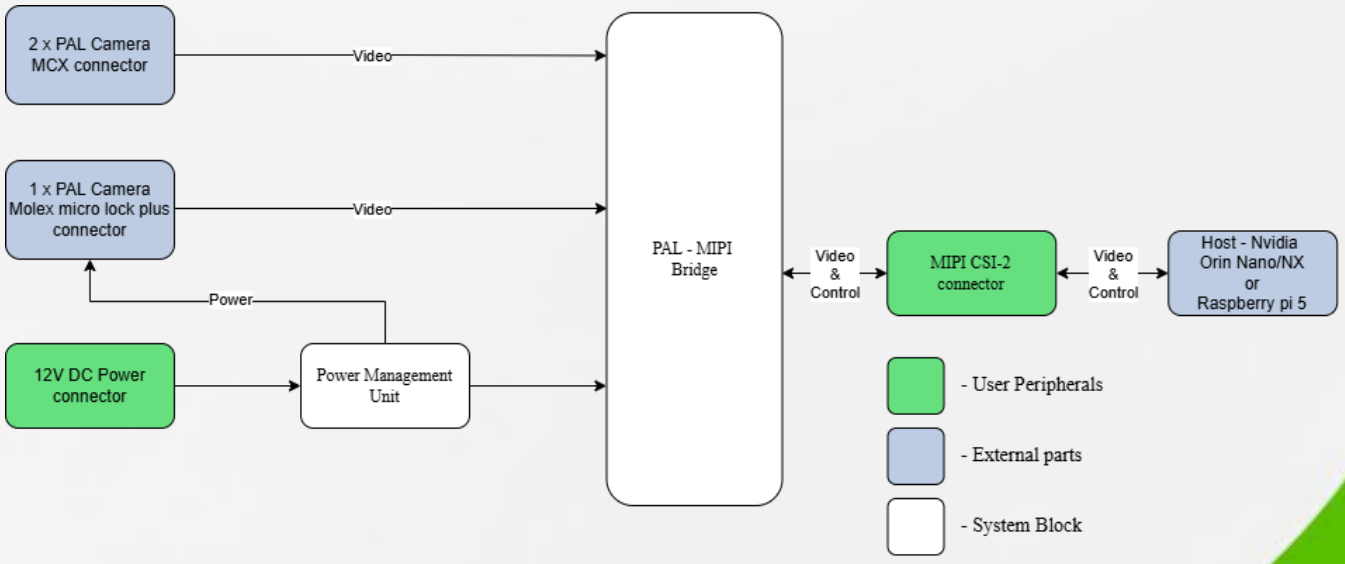
Technical Specification

Parameter	Details
Input Voltage	12 V DC regulated (via 2-pin connector)
Input Current	Approx. 1 A typical
Camera Interface	2 x MCX connector and 1 x Molex Micro-lock plus connector
MIPI CSI-2 Output	Single lane CSI-2 (FFC/FPC)
Supported Video Format	PAL / NTSC analog video up to 720 × 576 (PAL) / 720 × 480 (NTSC)
Video Switching	Selection through I^2C (host)
Indicators	Power LED (Green)
Board Dimensions (L × W)	50 mm × 50 mm
Weight	Approx. 20 g
Operating Temperature	–40 °C to +85 °C
Compliance	MIPI CSI-2 Specification, RoHS
Recommended Supply	12 V / 1 A regulated
Compatibility	Input: PAL / NTSC Video Input Output: Single lane MIPI CSI-2, YUV422
Host Platforms Supported	Nvidia's Jetson Orin Super Nano developer kit, AVerMedia's D133 carrier board, Waveshare's Jetson-Orin IO-Base carrier board and Raspberry pi 5

Kit Contents

Item	Description
Interface Board	PAL–MIPI Bridge Board
Power Cable	Crimped 2-pin DC Power cable
FFC Cable	22-pin MIPI CSI-2 cable (optional)
Documentation	Product datasheet (digital copy)

Board Block diagram



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