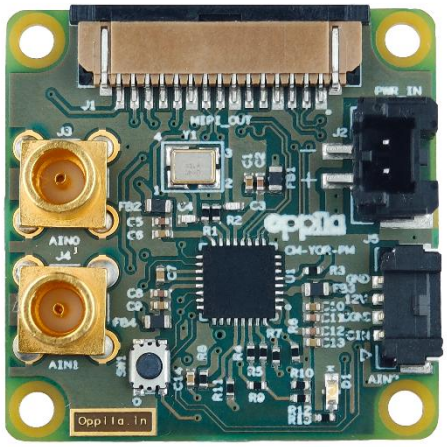
PAL - MIPI CSI-2 Pico Bridge Board

P/No: CM-YOR-PM



Compatible Cameras:

- PAL Cameras
- NTSC Cameras

Supported Host Platforms:

- AstrOptix Orin Super Carrier Board
- NVIDIA Jetson Orin Super Dev Kit
- Raspberry Pi 5
- Connect tech Hadron Carrier, AVerMedia D133 Carrier Board and Waveshare Jetson Orin IO Base carrier board
- Any host platform with Single-lane and 15 or 22-pin MIPI-CSI-2 FPC Connector through a compatible cable

SUPPORTED CONFIGURATIONS

1. Cameras: PAL Cameras and NTSC Cameras

2. Host platforms: AstrOptix Orin Super Carrier Board · NVIDIA Jetson Orin Super Developer Kit · Connect Tech Hadron Carrier · AVerMedia D133 Carrier Board · Waveshare Jetson Orin IO Base Carrier Board · Raspberry Pi 5

3. Software versions:

a. NVIDIA - Jetpack 6.2.2 / L4T 36.5
   i. PAL-MIPI CSI-2-NVIDIA Jetson ORIN NX/NANO-DRIVER

b. Raspberry Pi 5 – OS Trixie / Kernel - 6.12.75+rpt-rpi-2712
   i. PAL-MIPI CSI-2-RASPBERRY PI-DRIVER

Above are the default supported combinations. Customization is offered for other cameras, host platforms and software kernel versions.

KEY FEATURES

- Converts PAL video signals to single lane MIPI CSI-2 output
- 3 independent PAL video inputs
- Camera input switching via I2C from host
- Ultra-low latency
- Reverse voltage & Transient voltage protection
- 12 V regulated input
- Power LEDs for indication
- Operating temperature range: −20 °C to +85 °C
- RoHS compliant
- Compact 30 × 30 mm PCB
- Board weight: 7.6 g
- 4 x M2 mounting holes

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 Pico 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 AstrOptix Orin Super Carrier Board, 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. Camera selection can be dynamically switched via I²C control from the host processor, enabling flexible multi-camera operation without additional switching hardware.

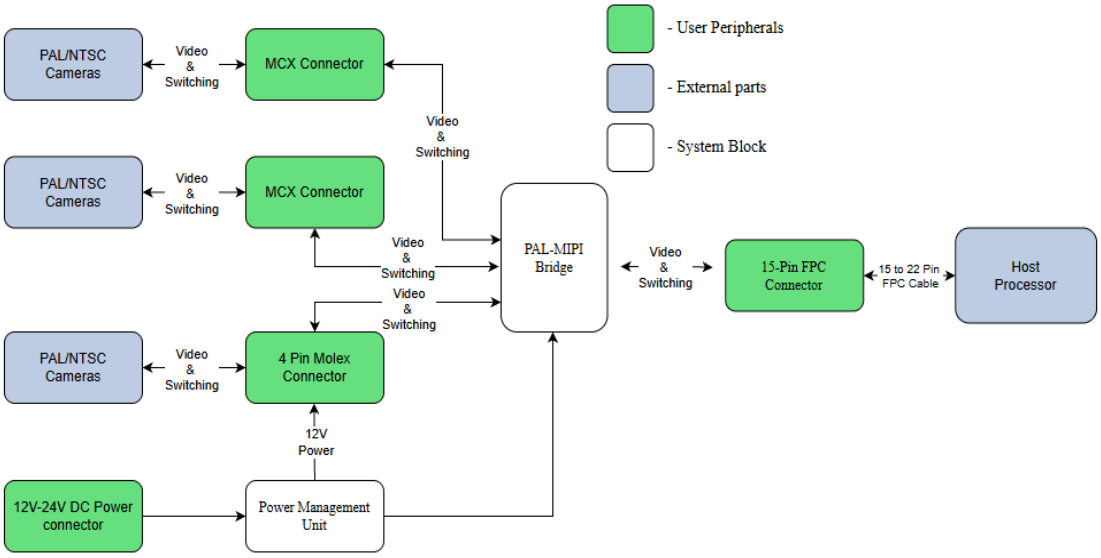
Engineered for embedded vision and AI applications, the PAL–MIPI Pico bridge board features a single lane MIPI CSI-2 output, a 12 V regulated input with onboard power conditioning, and an industrial-grade EMI-optimized design for reliable operation in demanding environments. The board's ultra-compact 30 × 30 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.

Technical specification

PARAMETER	DETAILS
Power Input	12 V DC regulated (via 2-pin connector)
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 I²C (host)
Indicators	Power LED (Green)
Board Dimensions (L × W)	30 mm × 30 mm
Board weight	7.6 g
Operating Temperature	−20 °C to +85 °C
Compliance	MIPI CSI-2 Specification, RoHS
Recommended Supply	12 V / 1.5A regulated
Compatibility (H/W pinout)	Input: PAL / NTSC Video Input Output: Single lane MIPI CSI-2, YUV422
Supported Host Platforms	AstrOptix Orin Super Carrier Board, NVIDIA Jetson Orin Nano Super Developer Kit, Connect Tech Hadron Carrier, AVerMedia D133 Carrier Board, Waveshare Jetson-Orin IO Base Carrier Board and Raspberry Pi 5

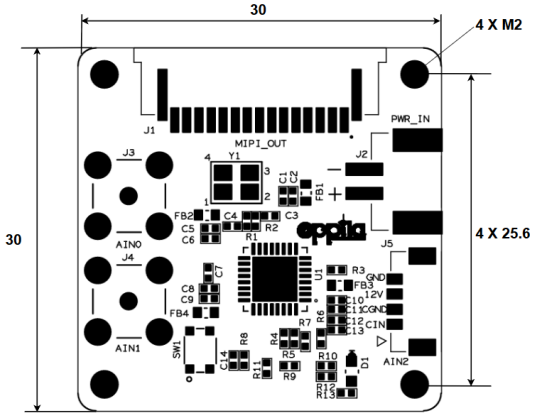
System Architecture

BOARD BLOCK DIAGRAM



Mechanical Dimensions

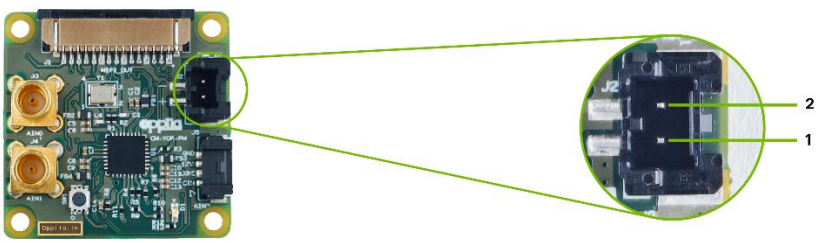
BOARD OUTLINE & MOUNTING



DIMENSION	VALUE
Board Length	30 mm
Board Width	30 mm
Board Weight	7.6 g

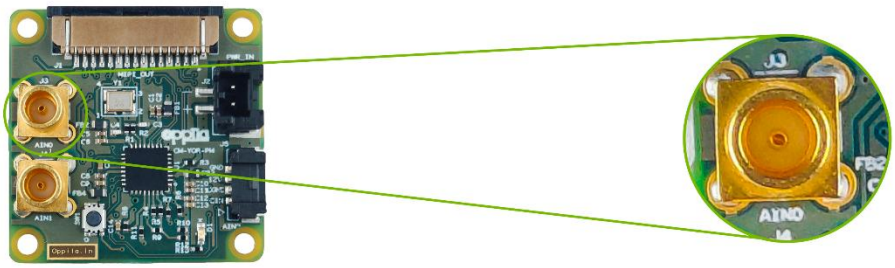
Pinout Descriptions

POWER CONNECTOR — J2



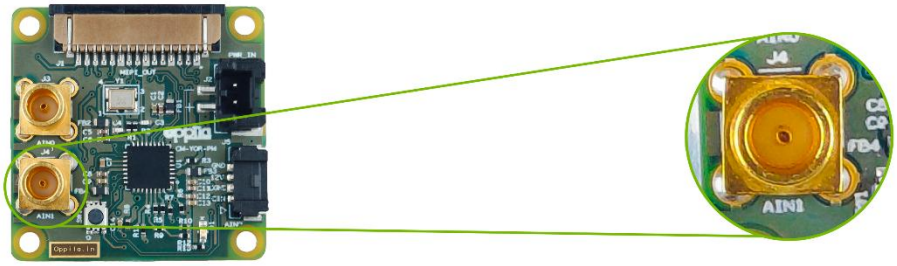
PIN	SIGNAL
PIN 1	+VIN (12 V DC)
PIN 2	GND

CVBS IN 1 — J3



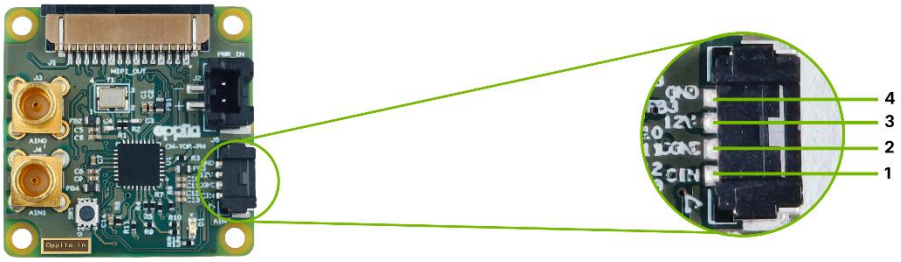
PIN	SIGNAL
PIN 1	CVBS INPUT [PAL/NTSC]

CVBS IN 2— J4



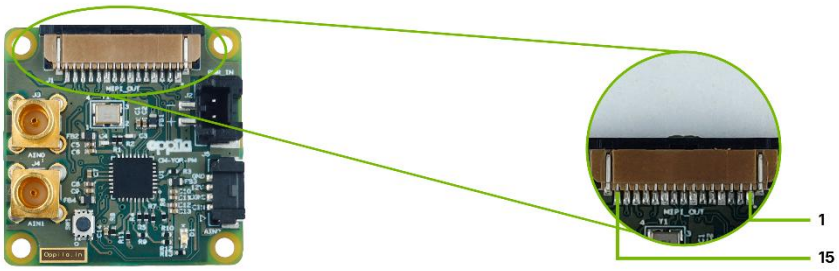
PIN	SIGNAL
PIN 1	CVBS INPUT [PAL/NTSC]

CVBS IN 3 — J5



PIN	SIGNAL
PIN 1	CVBS_INPUT [PAL/NTSC]
PIN 2	CVBS_GND
PIN 3	12V
PIN 4	GND

MIPI CSI-2 OUTPUT CONNECTOR — J1



PIN	SIGNAL
Pin 1	GND
Pin 2	CSI0_D0_N
Pin 3	CSI0_D0_P
Pin 4	GND
Pin 5	NC
Pin 6	NC
Pin 7	GND
Pin 8	CSI0_CLK_N
Pin 9	CSI0_CLK_P
Pin 10	GND
Pin 11	NC

PIN	SIGNAL
Pin 12	NC
Pin 13	I2C_CLK
Pin 14	I2C_DATA
Pin 15	NC

For more details: PAL-MIPI CSI-2 Pico Bridge Board Documentation

KIT CONTENTS

ITEM	DESCRIPTION
Bridge Board	PAL–MIPI Pico Bridge Board
Power Cable	Crimped 2-pin DC power cable
FFC Cable	15 to 22-pin MIPI CSI-2 cable (optional)
Mounting Hardware	Screws and spacers for mounting (optional)
Documentation	Product datasheet (digital copy)

CONTACT US

For custom product requirements, please reach out:

Purchase Support: info@oppila.in
Technical Support: support@oppila.in