Product Technical Specification

Features

- Converts HDMI video signals to 4-lane MIPI CSI-2 output for high-speed video transfer.
- Compatible with **NVIDIA Jetson Orin Nano Super Developer Kit**, **AVerMedia D133 carrier board, Waveshare Jetson IO-Base carrier board and Raspberry Pi 5.**
- Compatible with Sony FCB-ER HDMI cameras.
- Supports 4K @ 60 fps (camera-dependent).
- I²C-to-UART bridge for VISCA control (3.3 V CMOS level).
- Compact 50 × 50 mm PCB, RoHS compliant.
- 12 V regulated input.
- Power LEDs for indication.
- Industrial temperature range: –40 °C to +85 °C.

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 HDMI–MIPI Adapter Board is a compact, high-performance camera interface bridge designed to convert HDMI video output from Sony HDMI block cameras (FCB-ER8530, FCB-ER9500 and FCB-EW9500H) 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 Raspberry Pi 5.**

Built on a low-latency architecture, the adapter enables real-time 4K60 video streaming while maintaining precise synchronization and signal integrity.

The FCB cameras are controlled via a 3.3 V CMOS-level VISCA interface, connected to the Jetson module through an on-board I²C-to-UART bridge. This configuration enables comprehensive camera control — including zoom, focus, exposure, and other VISCA-supported functions — to be executed directly from the host platform through the same MIPI-CSI2 interface connector. As a result, no external serial adapters or additional control wiring are required.

Engineered for embedded vision and AI applications, the HDMI–MIPI Adapter features a 4-lane MIPI CSI-2 output, a 12 V regulated input with onboard power conditioning, and industrial-grade EMI-optimized design for reliable operation in demanding environments. The board's ultra-compact 50 × 50 mm footprint and plug-and-play electrical interface make it an ideal solution for AI edge systems, robotics, machine vision, and defence imaging platforms where low-latency, high-fidelity video transfer and embedded control are essential.

Technical Specification

Parameter	Details
Input Voltage	12 V DC regulated (via 2-pin connector)
Input Current	Approx. 0.5 A typical (1.5 A max with camera)
Camera Interface	30-pin micro-coax (Sony FCB-ER8530, FCB-ER9500 and FCB-EW9500H pinout)
MIPI CSI-2 Output	4-lane CSI-2 (FFC/FPC)
Supported Video Format	Up to Full HD 4k @ 60 fps (Camera dependent)
Camera Control	VISCA over UART (3.3 V CMOS) bridged to I²C (host)
Indicators	Power LED (Green)
Board Dimensions (L × W)	50 mm × 50 mm
Weight	Approx. 12.5 g
Operating Temperature	–40 °C to +85 °C
Compliance	MIPI CSI-2 Specification, RoHS
Recommended Supply	12 V / 1.5 A regulated
Compatibility	Sony FCB-ER HDMI Cameras
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	HDMI–MIPI Bridge Board
Power Cable	Crimped 2-pin DC Power cable
Co-axial Cable	30-pin micro-coax camera cable (optional)
FFC Cable	22-pin MIPI CSI-2 cable (optional)
Mounting Hardware	Screws and spacers for camera mounting (optional)
Documentation	Product datasheet (digital copy)

Board Block diagram