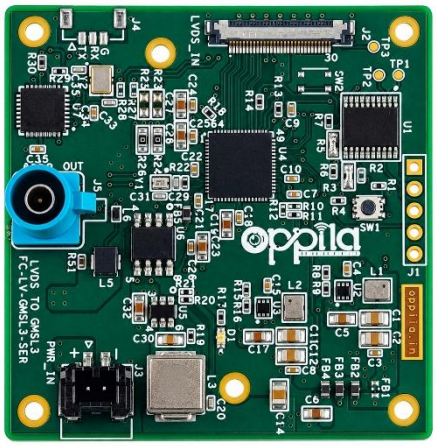
# LVDS TO GMSL3 SERIALIZER BOARD

P/No: FC-LV-GMSL3-SER



## Compatible Cameras:

- LVDS Cameras
  • Sony • Tamron • KT&C • Videology • Wonwoo • Skoopia

## Supported Host Platforms:

- AstrOptix Super Carrier Board, NVIDIA Jetson Orin NANO Super Developer Kit and Raspberry Pi 5 Through Compatible GMSL3 Deserializer Boards.

## KEY FEATURES

- **LVDS Camera Interface**
  1. Converts LVDS camera video output to GMSL3
  2. Supports bidirectional camera control through the GMSL3 link or with an external 3.3 V CMOS TTL UART interface for direct camera control.
- **GMSL3 Output**
  1. High-speed GMSL3 forward link for transmission of camera video over a single coaxial cable
  2. Bidirectional control communication between the Serializer and host/Deserializer side
  3. 12Gbps GMSL3 forward link, backward compatible with 6Gbps/3Gbps GMSL2
  4. Supports remote camera operation and configuration through the GMSL3 link
- **Camera Control**
  1. Remote camera control through the GMSL3 bidirectional control channel
  2. External TTL UART interface for direct camera control
- **Electrical & Protection**
  1. Wide-range 12–24V DC input
  2. Reverse-voltage and transient-voltage protection
  3. Power-status LEDs
- **Mechanical & Environmental**
  1. Compact 50 × 50 mm form factor
  2. Board weight: 14.9g
  3. Operating temperature: –20°C to +85°C
- **RoHS compliant.**

## APPLICATIONS

- AI Edge Computing and Multi-Sensor Vision Analytics
- UAV / ISR Multi-Camera Payloads
- Robotics and Autonomous Platforms
- Industrial & Machine Vision Systems
- Defense Surveillance and Reconnaissance Systems
- Medical & Diagnostic Imaging Instruments
- Security and Perimeter Surveillance Cameras
- Research, Development & Rapid Prototyping
- Security and Surveillance Cameras
- Broadcast and Multimedia Streaming

## PRODUCT DESCRIPTION

The LVDS-to-GMSL3 Serializer Board is a compact camera interface solution designed to integrate LVDS cameras into GMSL3-based video systems. The board receives the camera's LVDS video output, converts it to a high-speed GMSL3 serial stream, and transmits the video over a single 50 Ω coaxial cable to a compatible GMSL3 deserializers.

The board supports compatible LVDS cameras from manufacturers including Sony, Tamron, KT&C, Videology, Wonwoo, and Skoopia, providing a flexible interface solution for a wide range of existing LVDS camera platforms.

The camera can be controlled using either the GMSL3 control path or the external TTL UART interface. These interfaces are intended as alternative control methods and should not be operated simultaneously. With its combination of LVDS camera compatibility, high-speed GMSL3 video transport, and flexible camera-control options, the board enables existing LVDS cameras to be integrated into modern GMSL3-based embedded vision, industrial imaging, robotics, and remote-camera systems.

Built for demanding environments, the board runs on a wide-range 12–24V DC input, with reverse-voltage and transient-voltage protection guarding against field power faults, and power-status LEDs for at-a-glance diagnostics. Its compact 50 mm × 50 footprint and 14.9g weight suit space-constrained embedded enclosures, while a –20°C to +85°C operating range and RoHS compliance support deployment across industrial, defense, and outdoor vision systems.

Ideal for: Embedded vision, industrial machine vision, robotics, surveillance, UAV and transportation imaging applications requiring high-speed transmission of LVDS camera video over GMSL3, with remote camera control through the GMSL3 link or direct control through an external TTL UART interface.

## Technical specifications

| PARAMETER | DETAILS |
|---|---|
| **Input Voltage** | 12–24 V DC regulated, wide-input (Molex Micro Lock Plus 2-pin connector) |
| **Camera Interface** | Accepts LVDS video signals from compatible camera systems |
| **GMSL3/2 Output** | Rosenberger FAKRA – Z Coded connector compatible |
| **Supported Video Format** | Up to Full HD 1080p 60 fps (camera dependent) |
| **Camera Control** | VISCA camera-control communication over the bidirectional GMSL3 link or external TTL-level UART interface for direct camera control |
| **Indicators** | Power LED (Green) |
| **Board Dimensions (L × W)** | 50 × 50 mm |
| **Weight** | 14.9g |
| **Operating Temperature** | −20 °C to +85 °C |
| **Compliance** | RoHS compliant |
| **Recommended Supply** | 12 V / 2 A regulated (wide-input 12–24 V tolerant) |

## Camera Interface Specification

### LVDS Camera Connector

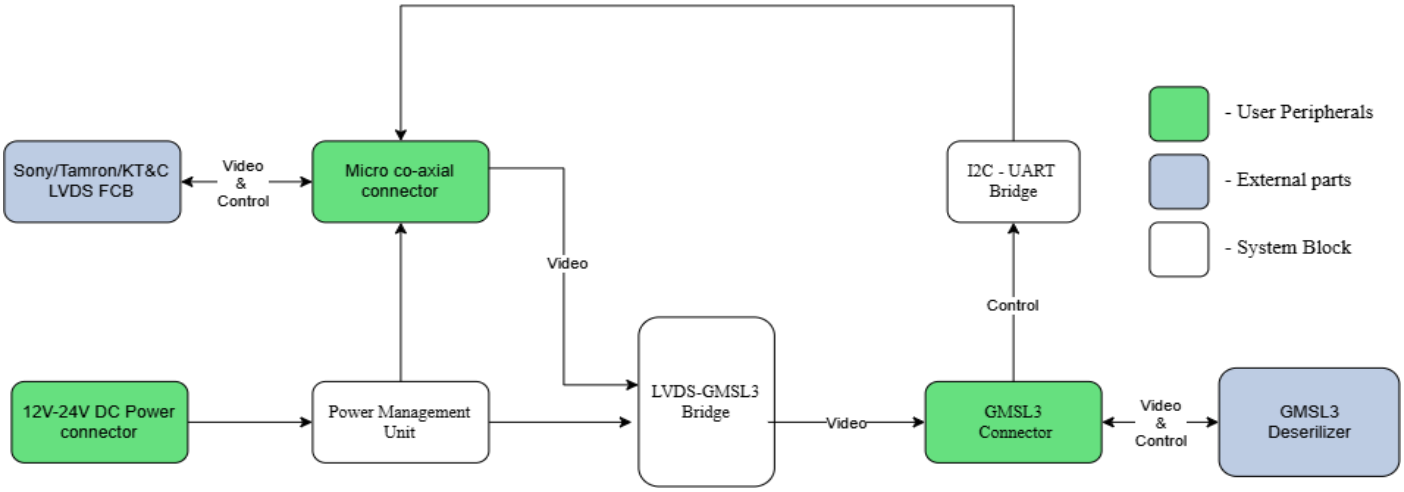
| PARAMETER | DETAILS |
|---|---|
| **Validated Cameras** | Sony FCB-EV9520L / FCB-EV9500L, Tamron MP3010M-EV, KT&C ATC-HZ5540T-LP, Videology 24Z2.1W-10XLVDS-462 |
| **Camera Interface** | 30-pin KEL, LVDS (Single mode) micro-coaxial interface |
| **Supported Video Format** | Up to Full HD 1080p 60 fps (camera dependent) |

## GMSL Connector

| PARAMETER | DETAILS |
|---|---|
| **Connector Type** | Rosenberger, Straight Mount |
| **Signal Path** | Transmits video and control data over a single coaxial link using 12 Gbps GMSL3 or 6 Gbps / 3 Gbps GMSL2 operation |
| **Compatibility** | FAKRA Z- Coded Plug |

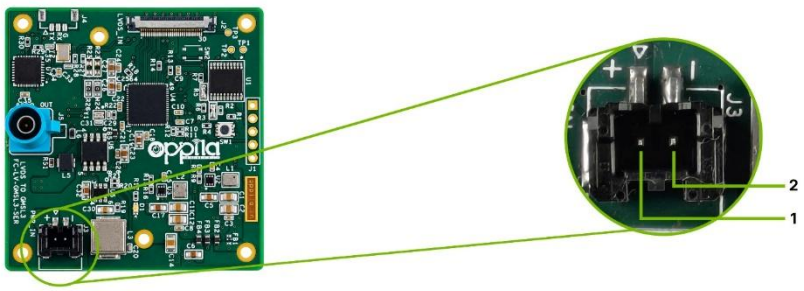
# System Architecture

## BOARD BLOCK DIAGRAM



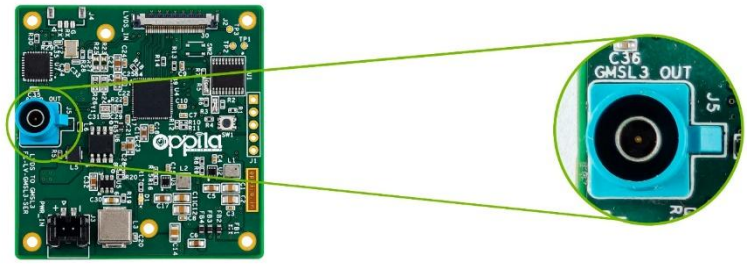

# Pinout Descriptions

## POWER CONNECTOR — J3



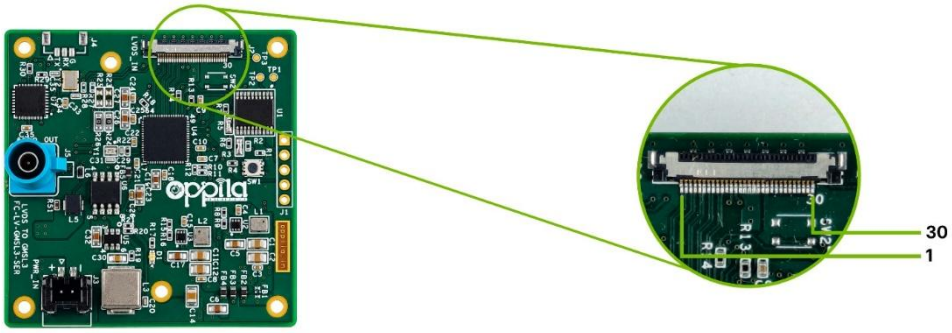

| PIN | SIGNAL |
|---|---|
| Pin 1 | +VIN |
| Pin 2 | GND |

## GMSL3 Camera Connector — J5




| PIN | SIGNAL |
|---|---|
| Pin 1 | GMSL3 OUT |

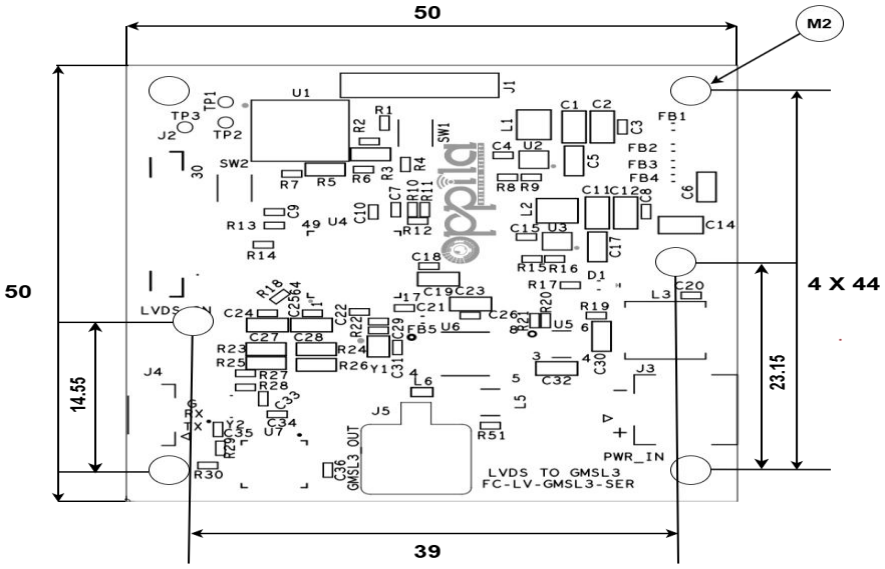
## LVDS CAMERA CONNECTOR — J2




| PIN | SIGNAL |
|---|---|
| Pin 1 | LVDS_D3_P |
| Pin 2 | LVDS_D3_N |
| Pin 3 | LVDS_CLK_P |
| Pin 4 | LVDS_CLK_N |
| Pin 5 | LVDS_D2_P |
| Pin 6 | LVDS_D2_N |
| Pin 7 | LVDS_D1_P |
| Pin 8 | LVDS_D1_N |
| Pin 9 | LVDS_D0_P |
| Pin 10 | LVDS_D0_N |
| Pin 11 | GND |
| Pin 12 | CAM_TXD |
| Pin 13 | CAM_RXD |
| Pin 14 | DC_IN |
| Pin 15 | DC_IN |

| PIN | SIGNAL |
|---|---|
| Pin 16 | DC_IN |
| Pin 17 | DC_IN |
| Pin 18 | DC_IN |
| Pin 19 | GND |
| Pin 20 | GND |
| Pin 21 | NC |
| Pin 22 | NC |
| Pin 23 | NC |
| Pin 24 | NC |
| Pin 25 | NC |
| Pin 26 | RESET |
| Pin 27 | NC |
| Pin 28 | NC |
| Pin 29 | NC |
| Pin 30 | NC |

## MECHANICAL DETIALS




## KIT CONTAINS

| CATEGORY | PARAMETER | DETAILS |
|---|---|---|
| Standard package | Serializer Board | LVDS to GMSL3 Serializer Board |
| | Power Cable | Crimped 2-pin DC power cable |
| | Documentation | Product datasheet (digital copy) |
| Optional accessories | Co-axial Cable | 30-pin micro-coaxial cable (optional) |
| | GMSL3 Cable | 50 Ω GMSL3 coaxial cable (optional) |
| | Mounting Hardware | Screws and spacers for camera mounting (optional) |

For more details: LVDS-GMSL3 Serializer Board Documentation

## CONTACT US

For custom product requirements, please reach out:

**Purchase Support:** info@oppila.in

**Technical Support:** support@oppila.in