

DATASHEET

CAPTURE MODULE SerDes Platform

General description

The Capture Module SerDes Platform is a versatile and powerful validation device for automotive camera and sensor applications, including ADAS, autonomous driving development. The platform is designed to support multiple automotive SerDes ecosystems while enabling a common validation workflow across sensor testing, ECU validation and vehicle integration environments.

The Capture Module SerDes Platform supports 4 SerDes link lines / 8 ports and provides high-speed Ethernet logging output through 4x SFP+ ports, supporting reliable data logging output of up to 10 Gbps each.

The platform can capture high-speed sensor data streams without influencing the communication path between the sensor and ECU. Sensor data is forwarded transparently from the sensor-side SerDes interface to the ECU-side SerDes interface, while the same data is captured and sent to the logging output as encapsulated Ethernet frames. Control data such as I2C and GPIO is also forwarded between the sensor and ECU while being captured by the Capture Module.

It is available for multiple SerDes variants:

Capture Module SerDes GMSL2/3 – In production
Capture Module SerDes FPD-Link III/IV – EAP
Capture Module SerDes ASA-ML – EAP
Capture Module SerDes A-PHY – EAP

Each variant shares a common platform concept, common mechanical form factor and common validation workflows, while adapting the SerDes interface pair to the respective camera connectivity ecosystem.

Designed with durability in mind, the Capture Module SerDes Platform uses a robust anodized aluminum housing and is compatible with typical automotive power environments. It integrates a galvanically isolated voltage input to eliminate ground loops and reduce common-mode noise on the SerDes interfaces. This durability, aluminum housing and galvanically isolated voltage input positioning is based on the existing datasheet description.

Application Areas

The Capture Module SerDes Platform is ideal for automotive engineers and developers who require logging high-speed camera data when developing and testing their AD/ADAS or infotainment applications.

It can be used across the complete validation lifecycle:

Vehicle Integration Testing

Capture high-speed camera and sensor traffic in prototype or fleet vehicles while maintaining transparent communication between sensors and ECUs.

Sensor Module Testing

Validate camera modules during development, bring-up and production testing without requiring a dedicated ECU.

ECU Validation and HIL Testing

Replay recorded or simulated sensor data into ADAS ECUs to validate ECU behavior and perception software under repeatable test conditions.

Configuration

Through an internal configuration website, the user can easily configure the device for their use cases, abstracting the complex underlying hardware. This includes SerDes link configuration, video logging, compression, GPIO mapping, bridging and logging.

Lossless Video Compression

The Capture Module SerDes Platform offers a significant advantage for AD/ADAS applications by employing real-time and lossless JPEG compression. This technology reduces storage requirements by up to 50% (depending on the environment) without compromising video quality and thus enabling efficient data handling and storage.

Technical Data

Operating Temperature	-40 °C to +75 °C
Supply Voltage (Isolated power connector)	6 to 30 Volt DC (typical 12 Volt DC)
Power consumption	15 Watts (depending on connected SFP Modules)
IP Protection Class	IP 20
Dimensions (incl. connectors) W × D × H	240 × 131 × 50 mm
Weight	1,7 kg (approx.)
Interfaces	8x ADAS SerDes ports (4x link lines) 4x 10Gbit Ethernet (SFP+) for Logging/Injektion 2x 1000BASE-T (RJ-45) for Config and Sync 1x Service Port 2x Wake-Up Line

Capture Module SerDes

Variant	Camera-side Serializer	ECU-side Deserializer
GMSL 2/3	MAX96793	MAX96792A
FDP-Link III/IV	DS90UB971	DS90UB9702
ASA-ML	VS775S	VS776Q
A-PHY	VA7031	VA7042



Capture Module SerDes

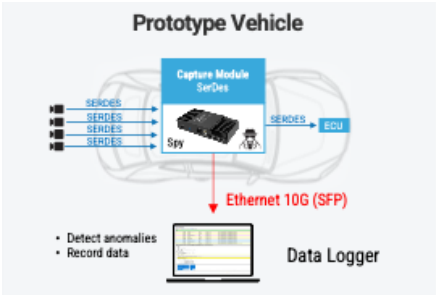
Characteristics of the CM Serdes Platform

Device Features	Configuration Webpage
	Wake-Up/Sleep
	Import/Export of Configurations
	Status LEDs
	Video data logging
	Control data logging (I2C and GPIO)
	Hardware Timestamping
	Time Synchronization (gPTP/802.1AS-2011 AVnu profile or PTPv2 subset)
	Serdes link diagnostics
	Power Over Coax (PoC) injection (12V)
	SerDes link configuration
	Galvanically isolated voltage input
Core Feature Package	GPIO configuration
	GPIO and I2C packetization
Advanced Feature Package*	Remote clock synchronization
	MIPI Datatype Overwrite
Compression Extension*	Lossless JPEG Compression
	Adaptative Lossless Video Compression
Data Replay & Injection Extension*	Data Replay / Injection
	I2C slave simulation

* Needs to be ordered separately

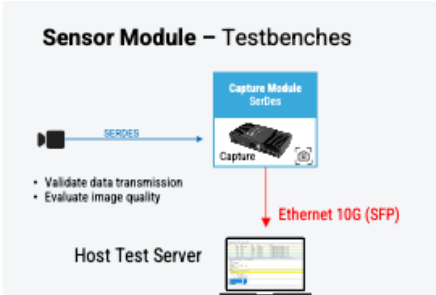
Use case

USE CASE #1: LOGGING



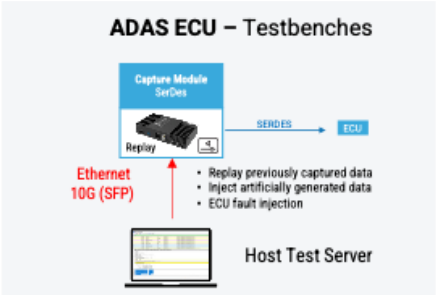
- Used for ▶
- Vehicle integration testing
 - Fleet car testing
 - Data recording plan for AI training

USE CASE #2: FRAMEGRABBER



- Sensor product validation plans
- Sensor image quality validation
- Sensor production test

USE CASE #3: INJECTION



- AI perception algorithms validation
- ADAS ECU product validation plans
- ADAS ECU fault injection tests
- ADAS ECU production test

Order Information

Name	Article Number	Cable set Number*	Adv. Feature Package*	Compression Extension*	Data Replay & Injection Extension
GMSL2/3	TE-1190	KS-1190	TE-1190-AF	TE-1190-EF	TE-1190IF
FPD-Link III/IV	TE-1193	KS-1190	TE-1193-AF	TE-1193-EF	Not available
ASA-ML	TE-1194	KS-1190	TE-1194-AF	TE-1194-EF	Not available
A-PHY	TE-1195	KS-1190	TE-1195-AF	TE-1195-EF	Not available

* Needs to be ordered separately