



Stand-Alone Module for Multi-Site Testing of MIPI Enabled Devices

The SV4D is a versatile, high-performance, ultra compact test module enabling **at-speed** production testing for MIPI interfaces. Capable of operating independently or within any ATE load board, the SV4D is ideal for deployment at wafer sort as well as final test or system-level test. With up to 4 MIPI transmit or receive ports each containing multiple data lanes, this module enables **multi-site** testing and results in significant cost-of-test savings for SOC, MCU, ASSP, image sensor, display driver IC, and ISP manufacturers.

FEATURES

- **Data rates:** up to 2.5 Gbps/Gsps fully-continuous operating range
- **Lanes:** 20 differential Tx lanes and 10 differential Rx lanes, each with integrated MIPI physical layers
- **Protocols:** built-in MIPI D-PHY, C-PHY, CSI-2, DSI, and DSI-2
- **Easy to Use:** Introspect ESP enables interactive operation or full automation

BENEFITS

- **Full MIPI coverage:** integrated physical layers offer complete at-speed test coverage for safety-critical applications
- **Mechanical flexibility:** innovative floating design to accommodate densely packed production test cells
- **Deployment flexibility:** software tools allow protocol-level operation during test development and rapid go/no-go testing during mass production

Typical Application: Image Sensor Testing at 2.5 Gbps

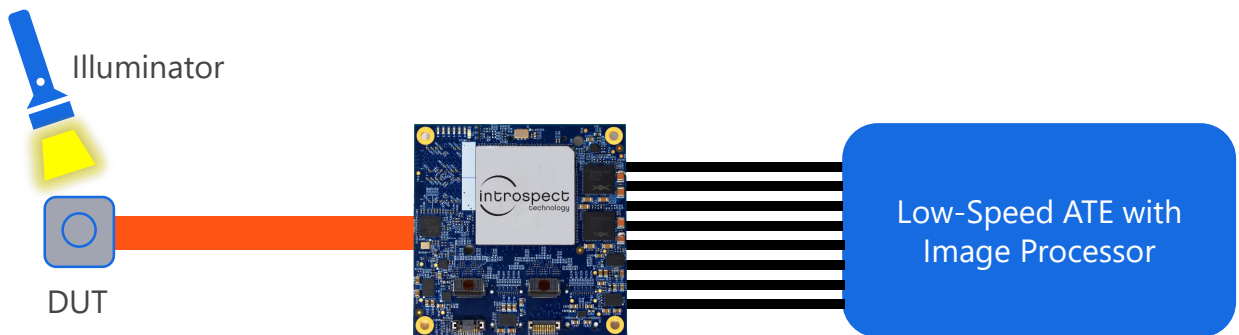


Figure 1. Block diagram of a typical application in which a low-speed digital ATE is retrofitted to enable 2.5 Gbps image sensor testing

Protocol and Signal Parameters

Feature	Description	Benefit
Application / Protocol Support	MIPI D-PHY, C-PHY CSI-2, DSI, DSI-2	Future-proof your investment. Use the same module for multiple device test applications.
Receive Pattern Support	Test pattern or arbitrary video stream	Use the test cell for design validation as well as production testing.
Transmit Pattern Support	Test pattern or arbitrary video stream	Use the test cell for design validation as well as production testing.

Transmitter and Receiver Parameters

Parameter	Value	Description
Tx Rise Time	120 ps	
Tx HS Voltage Range	150 mV – 360 mV	Peak to peak specification.
Rx HS Voltage Range	90 mV – 500 mV	Peak to peak specification.
Rx LP Threshold Range	20 mV – 1200 mV	

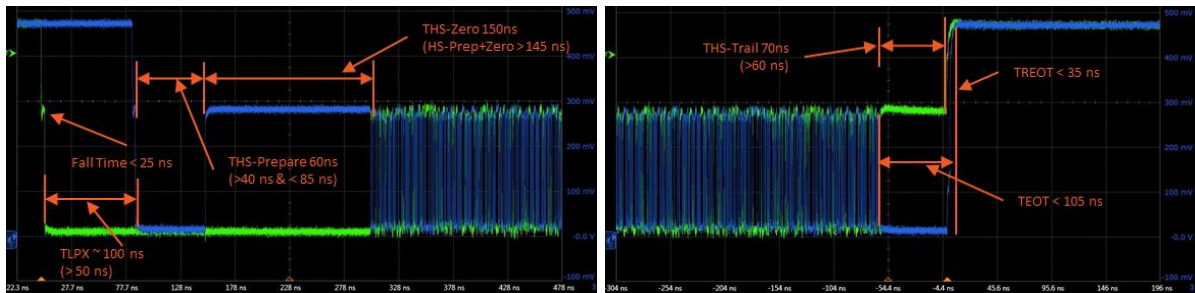


Figure 2. SV4D generator waveforms illustrating full compliance to MIPI global timing specifications

RELATED DOCUMENTS

Introspect Technology
MK-D027E-E-19081 SV4D Data Sheet

Introspect Technology
EN-G029E-E-18296 Reference Design Guide