

KT MIPI POD

The MIPI POD provides an FPD-LINK IV serializer and deserializer pair to transform data from MIPI CSI-2 to FPD-LINK IV and from FPD-LINK IV to MIPI CSI-2. Both the serializer and deserializer have input and output FAKRA and FFC (Flexible Flat Cable) connections. The MIPI POD can be powered externally or via PoC (Power over Coax).



Serializer

The TI Device DS90UB971-Q1 is used as the serializer. The device supports both FPD-LINK III and IV and delivers a 7.55 Gbps forward channel and an ultra-low latency 47.1875 Mbps bidirectional control channel. Designed to support ultra-high-speed raw data sensors including 8MP+ imagers, satellite RADAR, LiDAR, and Time-of-Flight (ToF) sensors. The single MIPI D-PHY Port can be used with up to 4 data lanes, at up to 1.5Gbps per lane. The serializer features advanced data protection and diagnostic features to support ADAS and automotive functional safety. With the companion deserializer, the DS90UB971-Q1 delivers precise multi-camera sensor clock and sensor synchronization.

Mode Configuration

The device can operate in 6 different modes. Mode 1 is selected in hardware on the MIPI POD as default for power up. The mode can be changed in the software configuration.

Mode	Name
0	Synchronous FPD-Link IV
1	Synchronous FPD-Link III, 50 Mbps BC Rate
2	---
3	Non-Synchronous FPD-Link III, 4.0 Gbps FC Rate
4	Non-Synchronous FPD-Link III, 4.16 Gbps FC Rate
5	Non-Synchronous FPD-Link IV, 4.16 Gbps FC Rate
6	---
7	Synchronous FPD-Link III, 25 Mbps BC Half-Rate

IDX Configuration (I2C Interface Configuration)

IDX configuration 1 is selected in hardware as default for power up. The configuration can be changed in the software configuration.

IDX	I2C 8-Bit ADDRESS	I2C 7-Bit ADDRESS	I2C I/O VOLTAGE
1	0x30	0x18	1.8V
2	0x32	0x19	1.8V
3	0x30	0x18	3.3V
4	0x32	0x19	3.3V

Deserializer

The TI Device DS90UB9722-Q1 is used as a deserializer. The device supports both FPD-LINK III and IV and delivers a 7.55 Gbps forward channel and an ultra-low latency 47.1875Mbps bidirectional control channel. The MIPI D-PHY v2.1 port can be used with up to 4 data lanes, up to 2.5 Gbps per lane. When coupled with the companion serializer, the deserializer receives video data from imagers supporting ultra-high resolutions (8MP+/ 40fps).

Mode Configuration

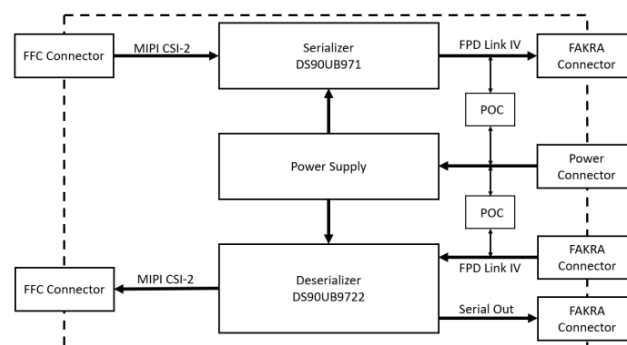
The device can operate in 8 different modes. Mode 2 is selected in hardware on the MIPI POD as default for power up. The mode can be changed in the software configuration.

Mode	Name
0	Synchronous FPD-Link IV
1	Non-Synchronous FPD-Link IV
2	Sync/Non-Synchronous FPD-Link III
3	Non-Synchronous DVP FPD-Link III
4	Synchronous FPD-Link IV
5	Non-Synchronous FPD-Link IV
6	Sync/Non-Synchronous FPD-Link III
7	Non-Synchronous DVP FPD-Link III

IDX Configuration (I2C Interface Configuration)

IDX configuration 7 is selected in hardware as default for power up. The configuration can be changed in the software configuration.

IDX	I2C 7-Bit ADDRESS	I2C 8-Bit ADDRESS
0	0x30	0x60
1	0x32	0x64
2	0x34	0x68
3	0x36	0x6C
4	0x38	0x70
5	0x3A	0x74
6	0x3C	0x78
7	0x3D	0x7A



MIPI POD Block Diagram

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