REFERENCE DESIGN GUIDE

SV4E-DPTXCPTX

SMPM Adapter Board

E SERIES

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Introduction

OVERVIEW

This document provides the information required to create an interface to use the SV4E-DPTXCPTX via the SV4E-DPTXCPTX SMPM Adapter Board. This adapter board contains two types of connectors to interface to a customer display or DUT: (1) a high speed MIPI link, either DPHY or CPHY, connected via Mini SMP (SMPM) type cables, and (2) a low speed general purpose I/O (GPIO) and power link, connected via ribbon cable. The SMPM Adapter Board connects directly to the SV4E via QTH/QSH connectors on the right side of SV4E module. A block diagram of the entire system connection is shown below in Figure 1. The manufacturer part numbers, pinouts and pin orientations for the two types of connectors on the board are provided in the following sections.

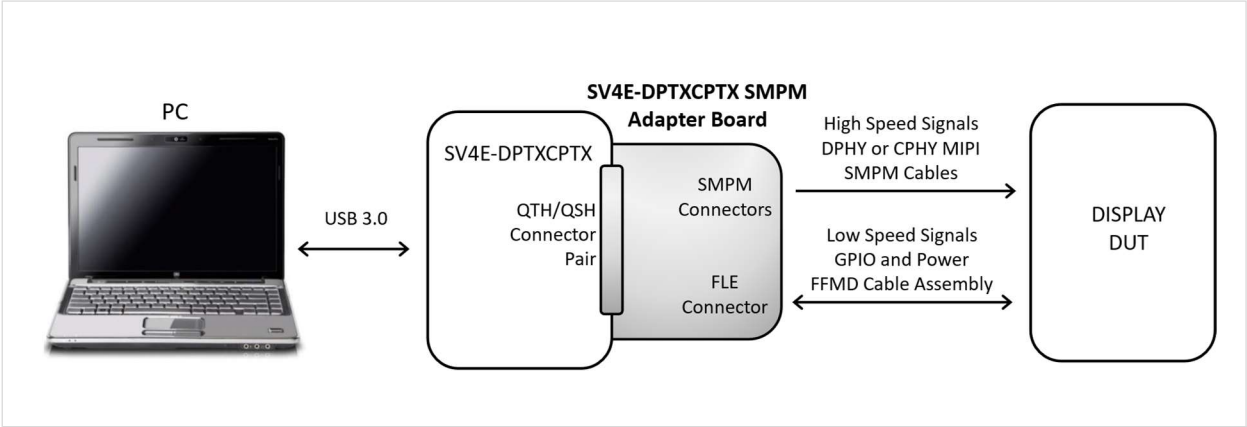


Figure 1: Block Diagram showing the SV4E-DPTXCPTX adapter board connections to a display or DUT

Mechanical Drawing

A 3D drawing of the SV4E SMPM Adapter Board is shown in Figure 2, with device dimensions in mm.

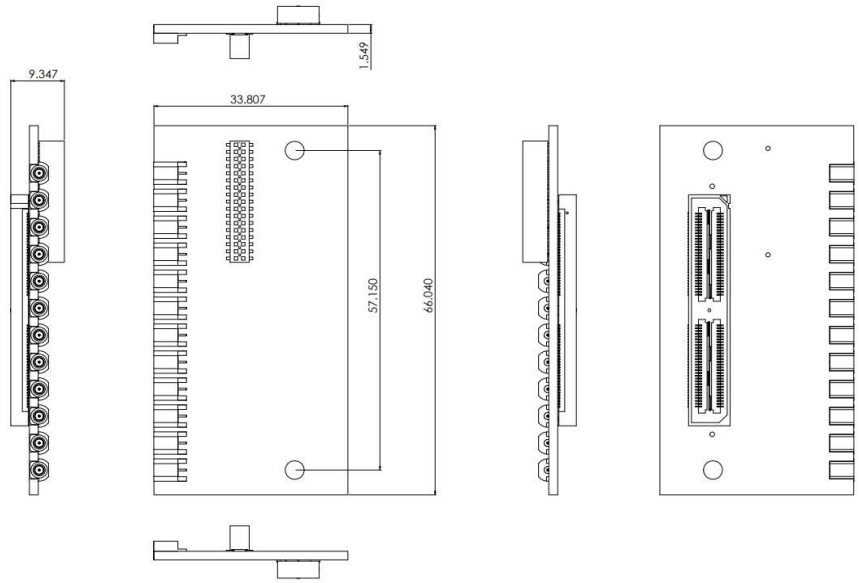


Figure 2: SV4E-DPTXCPTX SMPM Adapter Board mechanical drawing

SV4E-DPTXCPTX SMPM Adapter Board Connectors

SMPM HIGH SPEED CONNECTORS

The SV4E SMPM Adapter Board has twelve SMPM edge mount cable connections. The specifications and manufacturer parts on the adapter board are:

SMPM Connector Plug, End Launch Male
Part Number: Johnson SMPM 125-0701-801

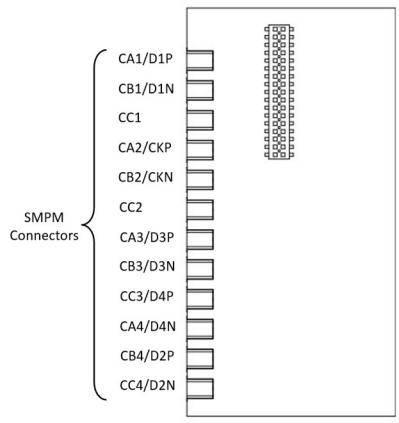
These are intended for connection to SMPM female cables. A recommended supplier for these cables is **Amphenol SV Microwave**.

Cable connections on the customer DUT board may be edge mount or surface mount. Recommended part numbers for these connectors is provided below:

Edge Mount Part Number: **Amphenol RF 925-126J-51P**
Surface Mount: Part Number: **Amphenol RF 925-143J-51P**

The pinout for the high-speed SMPM signals is given in Table 1. The orientation of the signals on the adapter board are as shown in the diagram in the first column.

TABLE 1: SMPM HIGH SPEED SIGNAL PINS

FOOTPRINT	SIGNAL NAME	CPHY SIGNAL DESCRIPTION	DPHY SIGNAL DESCRIPTION
SMPM Adapter Board Top View 	CA1 / D1P	CPHY TX Trio 1, A	DPHY TX Data 1, P
	CB1 / D1N	CPHY TX Trio 1, B	DPHY TX Data 1, N
	CC1	CPHY TX Trio 1, C	-
	CA2 / CKP	CPHY TX Trio 2, A	DPHY TX Clock, P
	CB2 / CKN	CPHY TX Trio 2, B	DPHY TX Clock, N
	CC2	CPHY TX Trio 2, C	-
	CA3 / D3P	CPHY TX Trio 3, A	DPHY TX Data 3, P
	CB3 / D3N	CPHY TX Trio 3, B	DPHY TX Data 3, N
	CC3 / D4P	CPHY TX Trio 3, C	DPHY TX Data 4, P
	CA4 / D4N	CPHY TX Trio 4, A	DPHY TX Data 4, N
	CB4 / D2P	CPHY TX Trio 4, B	DPHY TX Data 2, P
	CC4 / D2N	CPHY TX Trio 4, C	DPHY TX Data 2, N

FLE LOW SPEED CONNECTOR

The SV4E SMPM Adapter Board has a 34 pin FLE (ribbon cable) connector. The specifications and manufacturer part number for the FLE connector on the adapter board is:

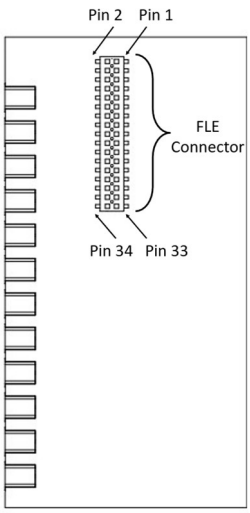
Samtec FLE-117-01-G-DV-K-TR
https://www.samtec.com/products/fle

This part is intended for use with an FFLM Cable Assembly. The part numbers the cable assembly is:

Samtec FFMD-17-D-04.00-01 (for a 4 inch cable length)
https://www.samtec.com/products/ffmd

The pinout for the FLE connector is given in Table 2. The orientation of the signals on the adapter board are as shown in the diagram in the first column.

TABLE 2: FLE LOW SPEED GPIO AND POWER PINS

FOOTPRINT	PINS	NAME	I/O	DESCRIPTION
SMPM Adapter Board Top View 	3	RESET_N	I	SV4E reset pin, active low ("0" = reset, "1" = not in reset)
	5	USER I2C SCL	O	General purpose I2C bus (SV4E is master)
	7	USER I2C SDA	I/O	General purpose I2C bus (SV4E is master)
	9	TE TRIGGER	I	Tearing effect input, rising edge triggered
	11	GPIO_4	I/O	User configurable, input or output
	13	GPIO_5	I/O	User configurable, input or output
	15	GPIO_6	I/O	User configurable, input or output
	17	GPIO_7	I/O	User configurable, input or output
	19	GPIO_8	I/O	User configurable, input or output
	21	GPIO_9	I/O	User configurable, input or output
	23	GPIO_10	I/O	User configurable, input or output
	25	GPIO_11	I/O	User configurable, input or output
	27	GPIO_12	I/O	User configurable, input or output
	29	GPIO_13	I/O	User configurable, input or output
	31	GPIO_14	I/O	User configurable, input or output
	33	GPIO_15	I/O	User configurable, input or output
	26, 28	PV1_OUT	O	Programmable Power Supply # 1 Output Pins
	20, 22	PV2_OUT	O	Programmable Power Supply # 2 Output Pins
	32, 34	PV3_OUT	O	Programmable Power Supply # 3 Output Pins
	1, 2	PV4_OUT	O	Programmable Power Supply # 4 Output Pins
	14, 16	PV5_OUT	O	Programmable Power Supply # 5 Output Pins
	8, 10	PV6_OUT	O	Programmable Power Supply # 6 Output Pins
	4, 6	GND	-	Ground
	12, 18, 24, 30	NC	-	No Connection

Additional Documentation

SV4E-DPTXCPTX Product Brief

- MK-D007E-E-19134 – SV4E-DPTXCPTX MIPI Transmit Device Emulator Product Brief

Revision Number	History	Date
1.0	Document release	March 1, 2022

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