

PM42100-KIT

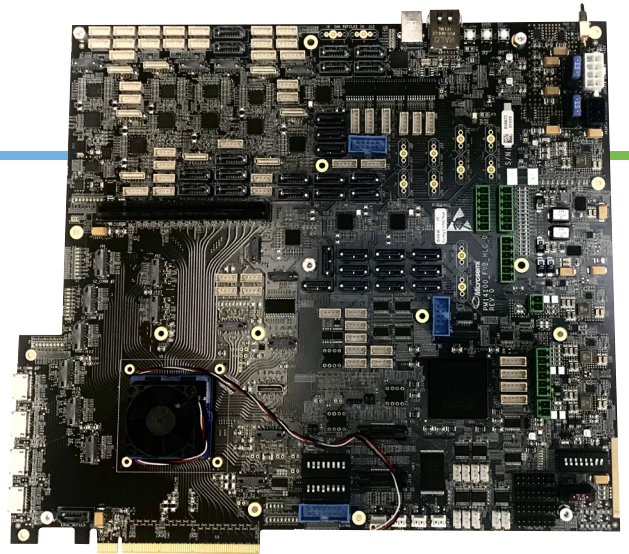
Switchtec™ Gen 4 PCIe® Switch Evaluation Kit

Summary

The PM42100-KIT Switchtec Gen 4 PCIe Switch Evaluation Kit is used to evaluate the Switchtec Gen 4 PCIe family of switches.

The kit contains an evaluation board, cables, turnkey firmware and ChipLink Diagnostic Tools software. ChipLink is a convenient and easy-to-use Windows®/Mac®/Linux®-based GUI that provides access to all hardware functions and status information.

The kit operates with a PCIe host and supports the connection of multiple host entities to multiple endpoint devices.



Highlights

PCIe Interface

- 1 ×16 edge connector for connection to a host
- 1 ×16 slot connector for add-in cards
- 16 ×4 PCIe OcuLink connectors to provide flexibility for a host or an end-point connection

PCIe Clock Interface

- Common reference clock with or without Spread Spectrum Clocking (SSC)
- Separate Reference Clock No SSC (SRNS)
- Separate Reference Clock With Independent SSC (SRIS)

Serial Peripheral Interfaces (SPI)

- 2 quad SPI buses
- 128 Mb on-board SPI Flash for bootup and initialization

Peripheral I/O Interfaces

- 11 two-wire (TWI)/SMBus interfaces
- 128-Kbps EEPROM for storage and PCIe switch configuration
- TWI bus access and connectivity to the temperature sensor, fan controller, voltage monitor, GPIO and TWI expanders, PCIe connectors, OcuLink sideband and FPGA
- 110 GPIOs with 3 dedicated as GPIOs; 106 GPIOs are multiplexed to provide TWI, SPI, SGPIO, Ethernet and UART interfaces
- UART access using USB type B and 3-pin connector header
- 14-pin EJTAG connector header for Green Hills Software probe connectivity (PSX only)
- 10/100 Mbps Ethernet supporting MII and RMII

FPGA Functionality

- Drive board status LEDs
- Monitor interrupts from I/O expanders and PCIe OcuLink cables
- Control and monitor power regulator output
- Manage board and switch reset

Local Bus Interface (LBI)—PSX Only

- 4 chip selects mapping to a unique 16 MB memory interface
- 128 Mb of on-board NOR Flash memory for storage of firmware image
- 16 Mb of on-board SRAM for extended command and data RAM

Power Supply

- 0.82V and 1.8V power rails supplied by on-board regulators
- PCIe switch sense points for monitoring and measuring power rail voltages
- 12V power provided through 8-pin CPU power connector or 6-pin PCIe connector or PCIe edge connector (add-in card)

PSX Software Development Kit

- The PSX software development kit allows development and test of custom PCIe switch functionality
- The PSX SDK relies on the Green Hills MULTI® development environment available directly from Green Hills Software
- The EJTAG debugger supports test and debug of custom PSX firmware

ChipLink Diagnostic Tools Features

- Access to registers in the PCIe switch
- Configuration of high-speed analog settings for signal integrity evaluation
- Monitoring of status and mode indicators

Kit Contents

The following contents are included with the PM42100-KIT:

Vendor	Part Number	Description
Microchip	PM42100-KIT	Switchtec PCIe Gen 4 evaluation board
Lynn	RADTY01 CBL-00128-01-A-R	3-wire to serial 1 m UART cable
Aten	UC232A	USB-to-serial converter
CS Electronics	B-6114	0.5 m SFF-8639 cable
CS Electronics	B-6136	0.5 m SASHD ext. cable
CS Electronics	B-6137	0.5 m 2xSASHD ext. cable
SerialCables	RSC42-0372	OCUlink X4 (SFF-8612) str. 42P to OCUlink X4 (SFF-8612) str. 42P, 32AWG, 24 Gbps, 0.5M
SerialCables	RSC42-0373	OCUlink X4 (SFF-8612) str. 42P to OCUlink X4 (SFF-8612) str. 42P, 32AWG, 24 Gbps, 1M
SerialCables	RSC42-0574	AX6 x4 OCUlink (SFF-8612) to *2x2 OCUlink (SFF-8612), 32AWG, 0.5M, rev AX7
SerialCables	RSC42-0575	AX6 x4 OCUlink (SFF-8612) to *4x1 OCUlink (SFF-8612), 32AWG, 0.5M, rev AX7
SerialCables	OCL-12X2MS4-0.5M	0.5 m x4 OCUlink to x4 OCUlink cable
SerialCables	OCL-12X2MS4-1M	1 m x4 OCUlink to x4 OCUlink cable
Molex	202143-1003	1 m x4 OCUlink to x4 OCUlink cable
Molex	202143-3002	1 m x4 OCUlink to x4 iPass internal cable
Molex	202143-1001	0.5 m x4 OCUlink to x4 OCUlink cable
Molex	88750-5318	SATA-to-SATA cable
EVGA	SuperNova 750 G3	ATX power supply
Keystone	8405	Aluminum stand-offs

Kit Requirements (Supplied Separately)

Required for operation of the kit and must be supplied separately:

- Personal computer running Windows, Linux, or Mac OS

Optional (Supplied Separately)

- NVMe/PCIe SSD
- High-speed oscilloscope for performing eye-diagram measurements
- Jitter analyzer for analyzing jitter components
- For PSX only: Green Hills MULTI® development environment and EJTAG debugger for firmware development

Optional Evaluation Kit Adapter Cards (Buy Separately)

- ADP_EDGE4: PCIe Gen 4 1x16 Edge to 4 x 4 OcuLink adapter card (Converts a x16 Edge PCIe interface to an OCUlink PCIe interface or vice-versa)
- ADP_SLOT4: PCIe Gen 4 1x16 slot to 4 x 4 OcuLink adapter card (Converts a x16 slot PCIe interface to an OCUlink PCIe interface or vice-versa)

Ordering Information

Part Number	Device	Ports	PCIe® Connector Interface			Max. USP NTB	Max. DSP
			PCIe Edge ×16	PCIe Slot Logical ×16	PCIe OCUlink ×4		
PM42100-KIT	PSX 100xG4	52	1	1	17	48	51