

# Switchtec™ PFX/PFX-I PCIe Gen3 Fanout Switch Families

## PM853x PFX and PM857x PFX-I 96/80/64/48/32/24xG3 PCIe Gen3 Fanout Switches

The Switchtec PFX/PFX-I PCIe Gen3 fanout switch families comprise high-reliability PCIe Base Specification 3.1-compliant switches supporting up to 96 lanes, 24 virtual switch partitions, 48 Non-Transparent Bridges (NTBs), hot- and surprise-plug controllers for each port, advanced error containment, and comprehensive diagnostics and debug capabilities. The PFX-I Gen3 PCIe Switch supports the full feature set available on the PFX\* and operates over an extended industrial temperature range of -40 °C ambient to 105 °C junction.

Typical applications include data center equipment, defense, industrial servers, workstations, test equipment, video production and broadcasting equipment, cellular infrastructure, access networks, metro networks, and core networking.

## Features

### High-Performance Non-Blocking Switches

- Up to 174 GB/s switching capacity
- 96-lane, 80-lane, 64-lane, 48-lane, 32-lane, and 24-lane variants
- Ports bifurcate from x2 to x16 lanes
- Up to 48 NTBs assignable to any port
- Logical Non-Transparent (NT) interconnect allows for larger topologies (up to 256 masters)
- Supports 1+1 and N+1 failover mechanisms
- NT address translation using direct windows and multiple sub-windows per BAR
- Supports multicast groups per port
- PFX-I supports an extended industrial temperature range  $T_A$ : -40 °C to  $T_J$ : 105 °C

### Error Containment

- Advanced Error Reporting (AER) on all ports
- Downstream Port Containment (DPC) on all downstream ports
- Poisoned TLP blocking
- Completion Timeout Synthesis (CTS) to prevent an error state in an upstream host due to incomplete non-posted transactions
- Hot- and surprise-plug controllers per port
- GPIOs configurable for different cable/connector standards

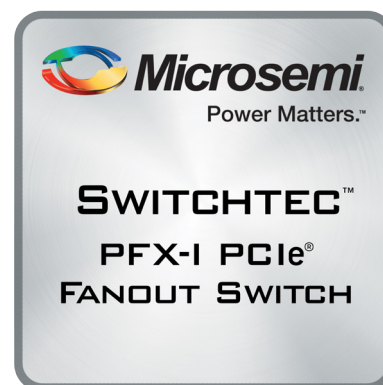
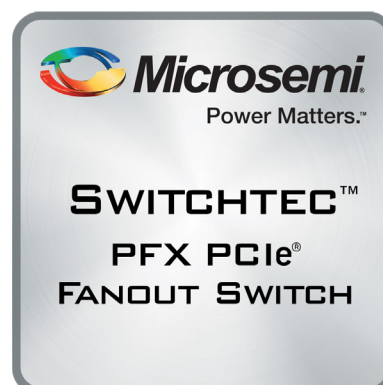
### PCIe Interfaces

- Passive, managed, and optical cables
- SFF-8644, SFF-8643, SFF-8639, OcuLink, and other connectors
- SHPC-enabled slot and edge connectors

### Diagnostics and Debug

- Transaction Layer Packet (TLP) generator for testing and debugging of links and error handling
- Real-time eye capture
- Any-to-any port mirroring for debug purposes
- External loopback at PHY and TLP layers
- Errors, statistics, performance, and TLP latency counters

\*Except for Adaptive Voltage Scaling (AVS).



## Highlights

- High-reliability PCIe: robust error containment, hot- and surprise-plug controllers per port, end-to-end data integrity protection, ECC protection on RAMs, high-quality, low-power SERDES
- Comprehensive diagnostics and debugging: PCIe generator and analyzer, per-port performance and error counters, multiple loopback modes, and real-time eye capture
- Significant power, cost, and board space savings with support for:
  - Up to 48 ports, 48 NTBs, and 24 virtual switch partitions
  - Flexible x2, x4, x8 and x16 port bifurcation with no restrictions on configuring ports as either upstream or downstream, or on mapping ports to NTBs

# Switchtec™ PFX/PFX-I PCIe Gen3 Fanout Switch Families

## PM853x PFX and PM857x PFX-I 96/80/64/48/32/24xG3 PCIe Gen3 Fanout Switches

### Peripheral I/O Interfaces

- Up to 11 Two-Wire Interfaces (TWIs) with SMBus support
- Up to 2 SFF-8485-compliant SGPIO ports
- Up to 109 parallel GPIO pins
- Up to 4 UARTs
- JTAG and EJTAG interface

### High-speed I/O

- PCIe Gen3 8 GT/s
- Supports PCIe-compliant link training and manual PHY configuration

### Power Management

- Active State Power Management (ASPM)
- Software controlled power management

### Chiplink Diagnostic Tools

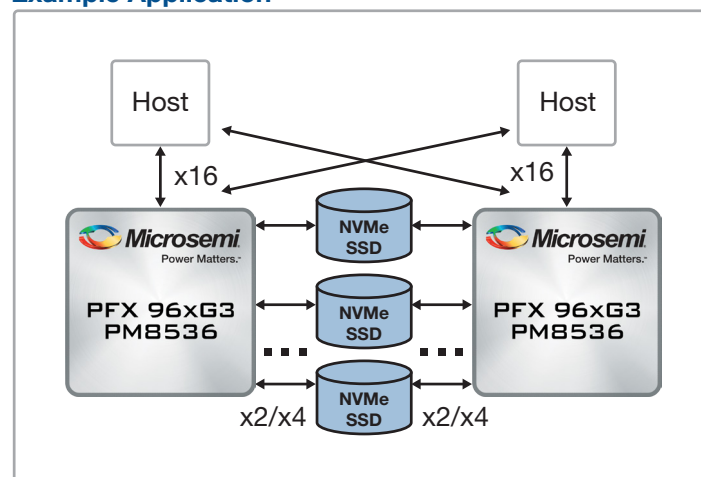
- Extensive debug, diagnostics, configuration, and analysis tools with an intuitive GUI
- Access to configuration data, management capabilities, and signal integrity analysis tools (such as real-time eye capture)
- Connects to device over in-band PCIe or sideband signals (UART, TWI, and EJTAG)

### Evaluation Kit

The evaluation kit is a device evaluation environment supporting multiple host and SSD interfaces. These kits can be used for evaluation of the Switchtec PCIe Fanout switches. Note that a 96-lane PCIe switch is populated on the evaluation kit. The following kit is available:

- PM5461-KIT — PFX/PFX-L/PSX/PAX 96/80/64xG3, 1-Slot, 16 HD Evaluation Kit (PMC-2151996)

### Example Application



### Ordering Information

Product	Lanes	Ports/NTBs	Partitions	Hot-plug Controllers	Package	PFX Ordering No.	PFX-I Ordering No.
96xG3 PCIe Fanout Switch	96	48	24	48	37.5 mm x 37.5 mm	PM8536B-FEI	PM8576B-FEI
80xG3 PCIe Fanout Switch	80	40	20	40	37.5 mm x 37.5 mm	PM8535B-FEI	PM8575B-FEI
64xG3 PCIe Fanout Switch	64	32	16	32	37.5 mm x 37.5 mm	PM8534B-FEI	PM8574B-FEI
48xG3 PCIe Fanout Switch	48	24	12	24	27.0 mm x 27.0 mm	PM8533B-F3EI	PM8573B-F3EI
32xG3 PCIe Fanout Switch	32	16	8	16	27.0 mm x 27.0 mm	PM8532B-F3EI	PM8572B-F3EI
24xG3 PCIe Fanout Switch	24	12	6	12	27.0 mm x 27.0 mm	PM8531B-F3EI	PM8571B-F3EI

**Note:** PFX T<sub>Junction</sub>: 0 °C to 105 °C. PFX-I T<sub>Ambient</sub>: -40 °C to T<sub>Junction</sub>: 105 °C. PFX-I doesn't support Adaptive Voltage Scaling (AVS).



**Microsemi Corporate Headquarters**  
 One Enterprise, Aliso Viejo, CA 92656 USA  
 Within the USA: +1 (800) 713-4113  
 Outside the USA: +1 (949) 380-6100  
 Fax: +1 (949) 215-4996  
 Email: sales.support@microsemi.com  
 www.microsemi.com

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California and has approximately 4,800 employees globally. Learn more at [www.microsemi.com](http://www.microsemi.com).

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [PCI Interface IC category](#):*

*Click to view products by [Microsemi manufacturer](#):*

Other Similar products are found below :

[PEX8508-AC25BIG](#) [CA91L8260B-100CE](#) [PI7C9X119SLFDE](#) [PM8561B-F3EI](#) [PI7C9X111SLBFDE-2017](#) [PEX8747-CA80FBC G](#) [SS17-0B00-00](#) [SS14-0B00-00](#) [PI7C9X2G304ELQZXAEX](#) [SS18-0B00-00](#) [PEX8648-BB50RBC G](#) [SS16-0B00-00](#) [PEX8606-BA50BIG](#)  
[PI7C9X110BNBE](#) [PI7C9X110BNBE](#) [89HPES3T3ZBBCGI](#) [PCA9617ADPJ](#) [XIO2213BIZAY](#) [XIO2001PNP](#) [XIO2001IPNP](#) [XIO2213BZAY](#)  
[PI7C8150BMAE](#) [PI7C9X111SLBFDEX](#) [89H32NT24AG2ZCHLG](#) [89H32T8G2ZCBLG](#) [89HPES16T4AG2ALGI](#) [89HPES12NT3ZBBCG](#)  
[89H32T8G2ZCBLGI](#) [89H32NT24BG2ZCHLG](#) [CA91L862A-50ILV](#) [89HPES8T5AZBBCG](#) [PI7C8150BNDIE](#) [PI7C9X2G308GPANJE](#)  
[PI7C8152BMAE](#) [89H32NT8AG2ZCHLGI](#) [89H48H12G2ZDBLG](#) [89HPES24T6G2ZCALGI](#) [89H32NT24AG2ZBHLGI](#)  
[89HPES4T4G2ZCALG](#) [89HPES10T4G2ZBBCG](#) [89HPES12N3AZGBCGI](#) [89HPES8T5AZBBCGI](#) [PEX8764-AB80BI G](#) [PI7C8150BMAIE](#)  
[89HPES4T4G2ZCALGI](#) [PI7C9X2G304SLBFDE](#) [PCI9056-BA66BI G](#) [PEX8615-BA50BI G](#) [PEX8617-BA50BC G](#) [PI3DBS16412ZHEX](#)