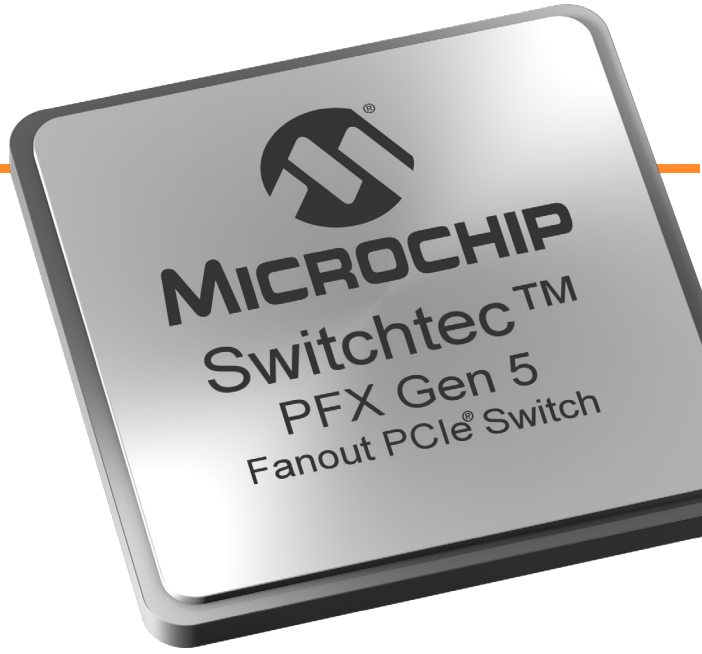
Switchtec™ PFX/PSX Gen 5 Fanout PCIe® Switch Family

PM50100, PM50084, PM50068, PM50052, PM50036, PM50028, PM51100, PM51084, PM51068, PM51052, PM51036, PM51028



Summary

The Switchtec PFX/PSX Gen 5 Fanout PCIe Switch Family comprises high-reliability PCIe switches supporting up to 100 lanes, 52 ports, 26 virtual switch partitions, 48 nontransparent bridges (NTBs), hot- and surprise-plug controllers for each port, advanced error containment and comprehensive diagnostics and debug capabilities, a wide breadth of I/O interfaces and an integrated MIPS processor. Typical applications for the PFX/PSX family include data center equipment, defense and industrial servers, workstations, test equipment, video production and broadcasting equipment, cellular infrastructure, access networks, metro networks and core networking.

Features

High-Performance Non-Blocking Gen 5 Switches

- 100-lane, 84-lane, 68-lane, 52-lane, 36-lane and 28-lane variants
- Up to 48 NTBs assignable to any port
- Logical non-transparent (NT) interconnect allows for larger topologies
- Supports 1+1 and N+1 failover mechanisms
- NT address translation using direct windows and multiple sub-windows per BAR

DMA Controller

- High-performance, ultra-low latency cut-through DMA engine
- Up to 64 DMA channels

Error Containment

- Advanced Error Reporting (AER) on all ports
- Downstream Port Containment (DPC) on all downstream ports
- 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

- Real-time eye capture
- External loopback capability
- Errors, statistics, performance and TLP latency counters

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
- Secure system solution with boot image authentication

Peripheral I/O Interfaces

- Two-Wire Interfaces (TWIs) with SMBus support
- SFF-8485-compliant SGPIO ports
- Parallel GPIO pins
- UARTs
- 100/GE MAC ports (RMII/GMII)
- JTAG and EJTAG interface

High-Speed I/O

- PCIe Gen 5 32 GT/s
- Supports PCIe-compliant link training and manual PHY configuration

Power Management

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

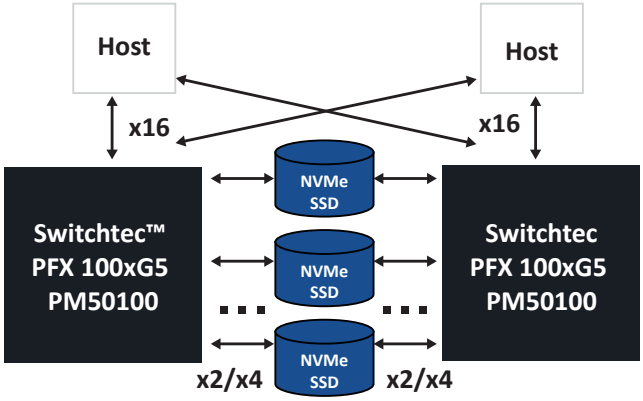
ChipLink Diagnostic Tools

- 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 PM52100-KIT Switchtec Gen 5 PCIe Switch Evaluation Kit is a device evaluation environment that supports multiple interfaces.

Example Application



Ordering Information

Product	Part Numbers	Lanes	Partitions	Hot-Plug Controllers
PFX 100xG5 Gen 5 Fanout PCIe® Switch	PM50100B1-FEI	100	26	52
PFX 84xG5 Gen 5 Fanout PCIe Switch	PM50084B1-FEI	84	22	44
PFX 68xG5 Gen 5 Fanout PCIe Switch	PM50068B1-FEI	68	18	36
PFX 52xG5 Gen 5 Fanout PCIe Switch	PM50052B1-FEI	52	14	28
PFX 36xG5 Gen 5 Fanout PCIe Switch	PM50036B1-FEI	36	10	20
PFX 28xG5 Gen 5 Fanout PCIe Switch	PM50028B1-FEI	28	8	16
PSX 100xG5 Gen 5 Fanout PCIe Switch	PM51100B1-FEI	100	26	52
PSX 84xG5 Gen 5 Fanout PCIe Switch	PM51084B1-FEI	84	22	44
PSX 68xG5 Gen 5 Fanout PCIe Switch	PM51068B1-FEI	68	18	36
PSX 52xG5 Gen 5 Fanout PCIe Switch	PM51052B1-FEI	52	14	28
PSX 36xG5 Gen 5 Fanout PCIe Switch	PM51036B1-FEI	36	10	20
PSX 28xG5 Gen 5 Fanout PCIe Switch	PM51028B1-FEI	28	8	16

The Microchip name and logo and the Microchip logo are a registered trademarks and Switchtec is a trademark of Microchip Technology Incorporated in the U.S.A. and other countries. All other trademarks mentioned herein are property of their respective companies.
© 2024, Microchip Technology Incorporated and its subsidiaries. All Rights Reserved. 6/24