

# PI7C9X2G304SV

## Gen2 PCIe<sup>®</sup> 3-Port/4-Lane ExtremeLo Packet Switch

### Features

- Integrated 100MHz Clock buffer for each downstream port
- Support Surprise Hot-Plug (DPC)
- Peer-to-peer Switching between any two downstream ports
- Reliability, Availability and Serviceability
  - Supports Data Poisoning and End-to-End CRC
  - Advanced Error Reporting and Logging
  - IEEE 1149.1 JTAG interface support
- 150ns typical latency for packet running through switch without blocking
- Supports up to 512-byte maximum payload size
- Advanced Power Savings: Empty downstream ports are set to idle
- Link Power Management
  - Supports L0, L0s, L1, L2, L2/L3<sub>Ready</sub> and L3 link power state
  - Supports PCI-PM L1.1 and ASPML1.1 of L1 PM Sub-state
  - Active state power management for L0s and L1 state
- Device State Power Management
  - Supports D0, D3<sub>Hot</sub> and D3<sub>Cold</sub> device power states
  - 3.3V Aux Power support in D3<sub>Cold</sub> power state
- Strapped pins configurable with optional EEPROM or SMBus
- Extended Virtual Channel capability
  - 2 Virtual Channels (VC) and 8 Traffics (TC)
  - Provides VC arbitration selection
  - Independent TC/ VC mapping for each port
- Port Arbitration: Round Robin (RR), Weighted RR, Time-based Weighted RR
- Programmable Driver Current and De-Emphasis Level at each individual port
- Supports “Cut-through”(Default) as well as “Store and Forward” mode for switching packets
- Supports Access Control Service (ACS) for peer-to-peer traffic
- Supports Address Translation (AT) packet for SR-IOV application
- Supports LTR, OBFF
- Power Dissipation: 0.3 W typical in L0 normal mode and 0.035W typical in L1.1 D3<sub>Hot</sub> mode
- Industrial Temperature Range: -40°C to 85°C
- MTBF: 50,927,360 hours
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)
- Package: 128-pin LQFP 14mm x 14mm

### Applications

- Wireless AP/ Router/ Gateway
- Networking/ Telecom
- Embedded system/ IPC/ Industrial control
- Set-top box and consumer devices
- NAS/ Storage
- Peripheral/ Printer/ MFP
- Surveillance/ Security and Combo cards
- IoT/ AI
- PC/ NB PCIe slot expansion

### Description

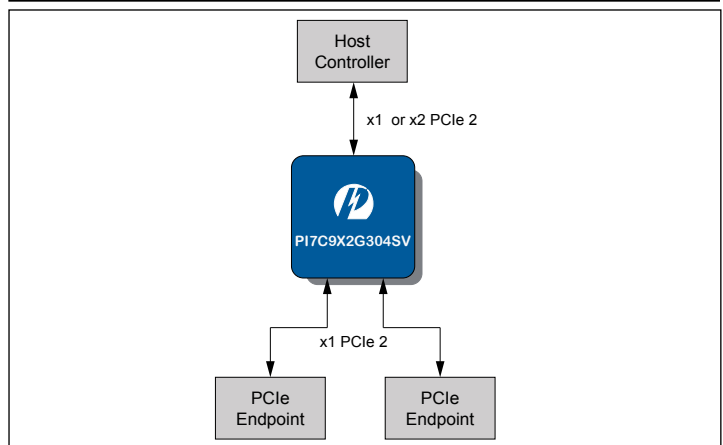
The PI7C9X2G304SV is a PCI Express<sup>®</sup> 2.1 3-port/4-lane PCI Express ExtremeLo Packet Switch specifically designed to meet the latest low-power, lead (Pb)-free and green system requirements. The PI7C9X2G304SV is a high-performance, cost-effective solution that can be implemented in systems such as Embedded system, AI, IoT, IPC, Wi-Fi router, Printer, NAS, HBA, STB, PC and other power-sensitive high performance platforms.

The PI7C9X2G304SV provides one x1 (or x2) upstream port and two x1 downstream ports. The PI7C9X2G304SV provides users the flexibility to expand or fan-out from a wide range of x86, ARM and MIPS based embedded SoC/ chipset, FPGA, and other Application Specific ICs.

### Industry Specifications Compliance

- PCI Express<sup>®</sup> Base Specification, Revision 2.1
- PCI Express CEM Specification, Revision 2.0
- PCI-to-PCI Bridge Architecture Spec., Rev 1.2
- Advanced Configuration Power Interface (ACPI) Specification

### Application Example



### Ordering Information

Part Number	Package	Description
PI7C9X2G304SVAFDEEX	FDE128	3-port/ 4-Lane PCIe 2.1 Packet Switch
PI7C9X2G304SVAEVB-X1U	Board	Evaluation kit for PI7C9X2G304SVA with x1 PCIe uplink
PI7C9X2G304SVAEVB-X2U	Board	Evaluation kit for PI7C9X2G304SVA with x2 PCIe uplink

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. E = Pb-free and Green
5. X suffix = Tape/Reel

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