PI7C9X2G404EV

Gen2 PCIe® 4-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$_{Ready}$ and L3 link power state
   ▫ Supports PCI-PM L1.1 and ASPM L1.1 of L1 PM Sub-state
   ▫ Active state power management for L0s and L1 state

➔ Device State Power Management
   ▫ Supports D0, D3$_{Hot}$ and D3$_{Cold}$ device power states
   ▫ 3.3V Aux Power support in D3$_{Cold}$ 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: 0.3W typical in L0 normal mode and 0.035W typical in L1.1 D3$_{Hot}$ mode

➔ Industrial Temperature Range: -40ºC to 85ºC

➔ MTBF: 50,927,360 hours

➔ Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)

➔ Halogen and Antimony Free. "Green" Device (Note 3)

➔ Package: 136-pin aQFN 10mm x 10mm

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 PI7C9X2G404EV is a PCI Express® 2.1 4-port/4-lane PCI Express ExtremeLo Packet Switch specifically designed to meet the latest low-power, lead (Pb)-free and green system requirements. The PI7C9X2G404EV 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 PI7C9X2G404EV provides one upstream port and three x1 downstream ports. The PI7C9X2G404EV 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® 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
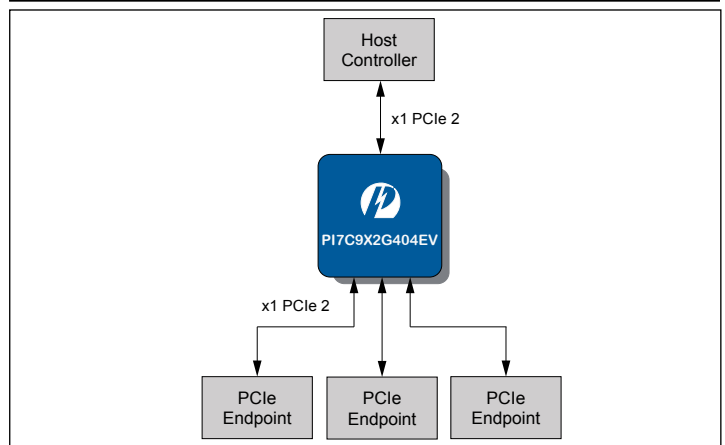
Ordering Information

Part Number	Package	Description
PI7C9X2G404EVAZXAEX	ZXA136	4-port/ 4-Lane PCIe 2.1 Packet Switch
PI7C9X2G404EVAEVB	Board	Evaluation kit for PI7C9X2G404EVA

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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