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**PRODUCT BRIEF** 

# **PI7C9X2G1616PR**

# PCIe2 16-Port/16-Lane Packet Switch, GreenPacket Family

The PI7C9X2G1616PR is a 16-lane PCI Express Gen 2 Switch with 16 PCI Express ports specifically designed to meet high performance and the latest GREEN low-power, lead (Pb)-free system requirements, such as Networking/ Telecom, Embedded, Server, Storage and other platforms. The PI7C9X2G-1616PR supports 4 DMA channels and Non-Transparent port apply for high Performance, dual-host and failover applications

The PI7C9X2G1616PR provides elastic configuration as below.

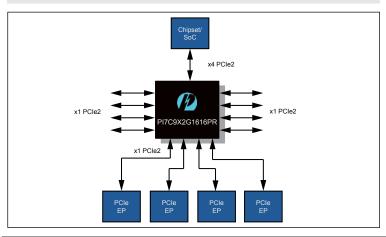
Upstream port	11 PCIe2  15 x1 PCIe2    44 PCIe2  6 x2 or 12 x1 PCIe2    44 PCIe2  1 x4 + 8 x1 PCIe2	
x1 PCIe2		
x4 PCIe2		
x4 PCIe2		
x4 PCIe2		
x8 PCIe2	x8 PCIe2 2 x4 or 1 x4 + 4 x1 PCIe2	
x8 PCIe2	8 x1 or 1 x8 PCIe2	

## **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
- ➔ SMBus interface support
- → I2C Slave interface support

#### **Applications**

- → Networking Switch Router
- → Wired/ Wireless Telecom/ data communication
- ➔ Control plane
- → NAS/ Storage
- → Server
- ➔ Embedded system
- → HBA / Combo cards
- → IPC/ Industrial control
- → Printer/ MFP/ Peripheral
- ➔ Surveillance/ Security
- ➔ Fail-Over system



# Features

- ➔ PCISIG PCI Express 2.1 certificated
- → Reliability, Availability and Serviceability
  - Supports Data Poisoning and End-to-End CRC
  - Advanced Error Reporting and Logging
- ➔ Device State Power Management
- Supports D0, D3Hot and D3Cold device power states
- → Advanced Power Savings
  - Empty downstream ports are set to idle
- ➔ Support programmable Non-Transparent mode
- ➔ Support Four DMA Channels
- ➔ Support Multicast
- ➔ Programmable driver current and de-emphasis level at each individual port
- ➔ Port Arbitration: Round Robin (RR), Weighted RR and Time-based Weighted RR
- → Extended Virtual Channel capability
  - Two Virtual Channels (VC) and Eight Traffic Class (TC) support
    Independent TC/VC mapping for each port
- ➔ Supports Isochronous Traffic
  - Isochronous traffic class mapped to VC1 only
- → Supports "Cut-through" (Default) as well as "Store and Forward" mode for switching packets
- → Supports up to 512-byte maximum payload size
- → Power Dissipation: 1.27 W typical in L0 normal mode
- → Industrial Temperature Range: -40°C to 85°C
- → MTBF: 50,927,360 hours
- → Package: 324-pin HSBGA 19mm x 19mm
  - □ Pb free and 100% Green

#### **Enhanced Features**

- 150ns typical latency for packet running through switch without blocking
- → Link Power Management
  - <sup>D</sup> Supports L0, L0s, L1, L2, L2/L3Ready and L3 link power states
  - Active state power management for L0s and L1 states
  - Supports PCI-PM and ASPM of L1.1 PM Sub-state
- Supports Device Specific PME Turn-Off Message for each downstream port
- ➔ Support Access Control Service (ACS)
- ➔ Support peer-to-peer traffic thru DMA
- → Support Address Translation (AT) packet for SR-IOV application
- → Support Alternative Routing ID Interpretation (ARI)
- ➔ Support Serial Hot Plug Controller

## Order Information

Part Number	Package	PB-Free& Green	Temperature	
PI7C9X2G1616PRBHSBE	324 HSBGA	YES	-40°C TO 85°C	
PI7C9X2G1616PRBEVB	Board	Evaluation kit for	PI7C9X2G1616PRB	