

## 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.

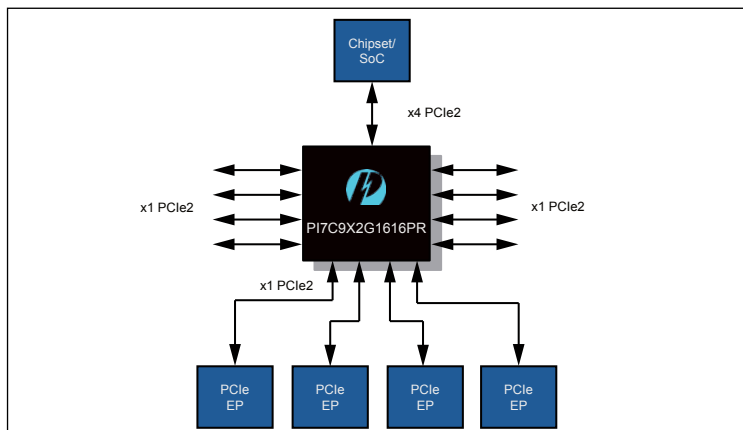
| Upstream port | Downstream port           |
|---------------|---------------------------|
| x1 PCIe2      | 15 x1 PCIe2               |
| x4 PCIe2      | 6 x2 or 12 x1 PCIe2       |
| x4 PCIe2      | 1 x4 + 8 x1 PCIe2         |
| x4 PCIe2      | 3 x4 or 2 x4 + 4 x1 PCIe2 |
| x8 PCIe2      | 2 x4 or 1 x4 + 4 x1 PCIe2 |
| x8 PCIe2      | 8 x1 or 1 x8 PCIe2        |

### 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
- ➔ 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
  - 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 |               |