



# QSpan II™ PowerQUICC-to-PCI Bridge Product Brief

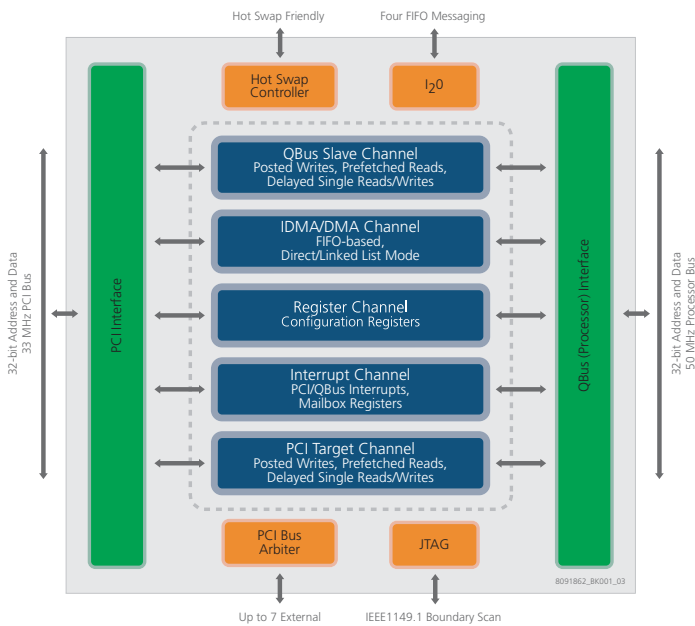
## Device Overview

The IDT QSpan II is a PCI-to-Host processor bridge for the Freescale PowerQUICC (MPC860/850/821), the QUICC (MC68360), and the MC68040. It has a growing customer list of tier-one communications vendors.

The QSpan II operates at speeds up to 50 MHz on the Host processor bus, with programmable parity and burst/prefetch capability. Its 32-bit/33 MHz PCI 2.2 support is ideal for embedded processor applications.

Another key feature of the QSpan II is its integrated PCI bus arbiter. This arbiter supports up to seven external bus masters and uses a fairness algorithm to prevent deadlocks on the bus.

## Block Diagram



The QSpan II also has a DMA controller for reliable, high-performance data transfer between the PCI bus and the Host processor bus. Two modes of DMA operation (Direct and Linked List) offer designers a greater level of flexibility.

The QSpan II further distinguishes itself by providing embedded systems designers access to CompactPCI Hot Swap, PCI v2.2 Vital Product Data (VPD), Power Management, and four, 32-bit mailbox registers.

The device is offered in two packages: a 17 x 17 mm package with a 1.0 mm ball pitch, and a 27 x 27 mm package with a 1.27 mm ball pitch.

## Features

- Integrated PCI Bus Arbiter
  - Supports up to seven external bus masters
  - Fairness algorithm for preventing deadlocks
- CompactPCI Hot Swap Friendly
- High-performance DMA controller with support for Direct and Linked List modes
- Mailbox registers for passing parameters between host and embedded environments
- PCI version 2.2 Enhancements
  - Vital Product Data: offers an improved method of communicating board-specific information to the system
  - PCI Power Management interface: enables operating systems to control the power supplied to QSpan II related hardware (for example, an add-in card)
- High-Performance PCI Bus Interface
  - Zero-wait state bursts, prefetch reads and writes on PCI
  - Serial EEPROM interface for Plug and Play compatibility on PCI
  - Universal PCI signaling (3.3 and 5V compliant)
- High-Performance Processor Interface
  - MPC860 interface supports prefetched reads and burst writes
  - Operates up to 50 MHz

## Benefits

- Industry-proven PCI System Interconnect device
- Reduces customer's design hours and time-to-market using QSpan II's design support tools

## Typical Applications

QSpan II's typical applications include the following:

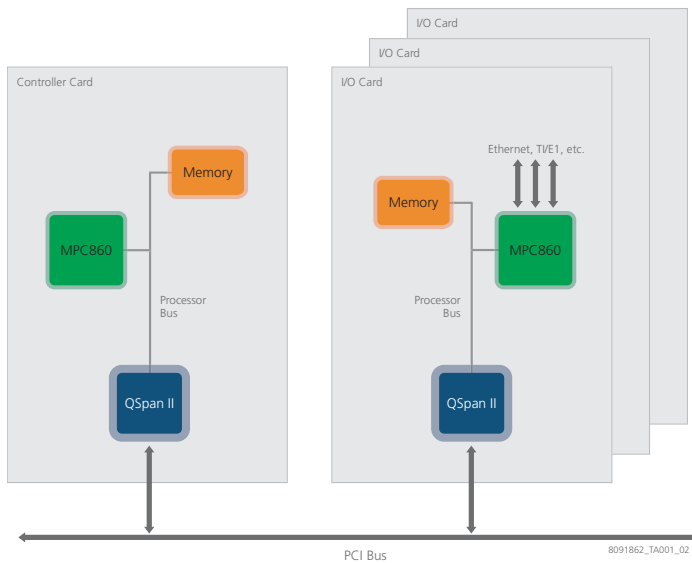
- LAN/WAN Infrastructure
  - Network interface cards
  - Routers (including SOHO applications)
  - Servers
- Remote and Local Access Equipment
  - xDSL concentrators
  - VoIP gateways
- CPE Equipment
  - Process control equipment
  - Data acquisition systems

## QSpan II Product Brief

- Other
  - PMC cards
  - Set-top boxes
  - Any 68K-based or PowerPC-based system migrating to the PCI bus

The following diagram shows a QSpan II router application. In this example, one QSpan II is used as a system host bridge and the other is used on a peripheral adapter card.

### Router Application



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