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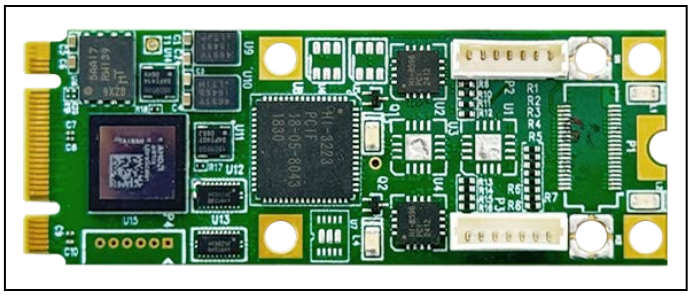
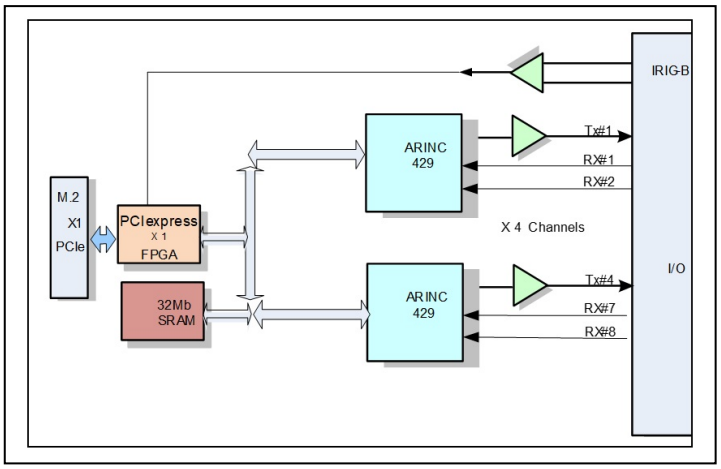
M.2-ARINC429-4/8

M.2 Module

M.2 22X60 B & M Key PCIe x1
ARINC 429 Controller up to 4 TX and 8 RX





Features

- ARINC 429-based M.2 card ARINC controller
- M.2 PCI Express x1 lane interface
- M.2 2260 support Key B & M
- Up to 4 transmitter and 8 receiver channels for ARINC controller
- Programmable label recognition for 256 labels per channel
- 32 x 32 Receive FIFOs and priority-label buffers
- Dependent data rates for transmit and receive
- Meets the ARINC 429 specifications for loading, level detection, timing, and protocol
- Software selected data rate of 12.5kb/s or 100kb/s with automatic slew rate adjustment
- Burst and continuous mode available
- Programmable word length selection, with the parity bit generated automatically
- Programmable interrupt support
- Differential IRIG B input

Block Diagram and Operational Overview

The **M.2-ARINC429-4/8** (M.2 22mm x 60mm) board has an ARINC controller that supports ARINC 429 specifications. ARINC 429 (Aeronautical Radio Incorporated) is a specification that defines how avionics equipment and systems should communicate with each other. ARINC 429 employs a unidirectional data bus standard known as Mark 33 Digital Information Transfer System (DITS). Messages are transmitted and received at a bit rate of either 12.5kb/s or 100kb/s.

The receiver input circuitry and logic are designed to directly meet the ARINC 429 specifications.

The transmitter section provides the ARINC 429 communication protocol.

The SPI data bus on the ARINC controller exchanges the 32-bit ARINC data word in two steps when either loading the transmitter or interrogating the receivers.

The SRAM stores received data and transmitted data.

ARINC429 Device Specifications:

- Eight receivers and four independent transmitters per device
- Label matching for all receiver channels
- Derives internal clock from system clock input, 16MHz or higher, with 10x oversampling for ARINC bit rate recovery
- Receiver data stream monitoring with 10x sampling rate over data rate
- Software selectable ARINC data rates of 12.5/100kb/s with automatic slew rate adjustment
- Each transmit and receive channel includes 32-word FIFO buffer
- Automatic parity bit generation and checking for fixed 32-bit ARINC words
- Automatic word gap timer ensures ARINC-compliant inter-word spacing
- Parity error detection and reporting
- Repeater operation supported (receive-to-transmit forwarding)
- Programmable interrupt generation for FIFO thresholds, label match, parity errors, etc.

Telephone: 480.838.2428 Fax: 480.838.4477
Contact Email: sales@alphitech.com Website: www.alphitech.com