mPCIe-H009-RT   H009 RT Mini-PCIe Board

Mini-PCI Express H009 Board

Sital Technology miniPCIe has several optional configurations. Optional support for MIL-STD-1553, IRIG-B reception & message time tagging, F16 Weapon Bus 16PP194, F-15 H009, MIL-STD-1760 physical layer, SPI interface instead of PCIe, ARINC708, RS485 and additional capabilities.

Compact, Robust, Reliable, Low-Energy Consumption

Specifications

Compatibility

- F15 H009 Remote Terminal
- Gen. 2 PCI Express Bus Interface, one lane (X1)
- miniPCIe form factor

Environmental

- Automotive temperature range: -40^0 to $+100^0$ C
- 5% to 90% relative humidity (non-condensing)

Power

- 3.3 VDC power input
- Power consumption less than **100m**W per channel.
- Power dissipation at 100% H009 transmission is less than 350mW.

Available Configurations

- H009-RT Mini-PCI Express board.
- Other H009 physical layer standards.

Software Provided

- DDC© EMA® Memory and Registers architecture
- API/library/drivers for Peta Linux and Windows
- Includes API/library source code
- Other RTOS support is available.

More products from Sital

- MIL-STD-1553 IP, Components, Transceivers, Transformers and Transceiver/Transformer

Sital Technology USA
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Key Features and Benefits

- Integrated F15 – H009 Remote Terminal
- PCI Express Gen 2 x1 standard miniPCIe connection OR
  50 MHz SPI or Dual SPI Slave Interface capable of endless read and write burst.
- Standard Mini-PCIe form factor. Opposite side connector for 1553 signals.
- Register/memory architecture and functionality compatible with DDC® Enhanced Mini-ACE®. (EMA).
- Modified EMA for 4-bit RT addressing.
- Modified EMA for 6-bit RT Sub-address
- Options for single, double and circular sub-address data buffering
- 64K x 16 RAM.
- Support for dynamic termination as per H009 standard.
- Available in -40 to +100° C temperature range.

Description

Sital's mPCIe-H009-RT a PCIe GEN2 controller, local bus interface, H009 RT protocol logic, memory, Speciallized H009 transceivers and internal clock oscillator.

To support a variety of H009 RT application requirements, the mPCIe-H009-RT provides programmable options for single, double and circular sub-address buffering, along with a global circular buffer option that can be used for multiple (or all) receive sub-addresses. To further offload the host, the circular buffer options provide interrupts for 50% and 100% rollover conditions.

The mPCIe-H009-RT has two host interface options, either mini-PCI express Gen 2, or SPI slave interface that can be user-configured for either single or dual SPI operation and operates at clock speeds up to 30 MHz, and support continuous bursts of read or write data.

The mPCIe-H009-RT comes in a standard miniPCIe shape of 30mm on 50.2 mm.

The mPCIe-H009-RT includes 64K x 16 of shared RAM.

The mPCIe-H009-RT integrates H009 transceivers, each with dynamic termination resistors as per H009 standard. The mPCIe-H009-RT has been tested and verified to operate in rough and challenging flight conditions, and gained 100s of flight hours with no failures.

More information is available at **www.sitaltech.com**
Email: **info@sitaltech.com**

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Mini-PCI Express F15-H009-RT Board

Part Numbers

- **mPCIe-H009-RT**
  - mPCIe air-cooled
  - 1X H009-RT channel
- **BRDH009mPCIE**
  - Supports dedicated F15 H009 RADAR bus protocol
  - Supports initiate signal discrete.

Connections

- Standard 5 Gbps Gen. 2 PCIe Interface
- H009 Clock and Data Signals brought out through separate connector

Software

- Software **drivers and API** for Windows and PetaLinux. Consult Sital for other operating system drivers.
- Luthier GUI software for test and simulation

Warranty and Support

- 3-year limited hardware warranty
- 1-year technical support including free software upgrades

Mini-PCI Express Board Functionality

Sital's Mini-PCI Express is based on Sital's proven MIL-STD-1553 IP core instantiated on an FPGA, along with discrete component transceivers. The board can also be supplied to provides other types of interfaces, including 1553, EBR-1553 and 16PP194.

The board can be used for on-board avionics systems or for lab testing equipment.

The board can be supplied with either one of two dual redundant MIL-STD-1553 channels.

Other configurations and protocols are available upon request.

The board can also serve as a fully-functional tester with 1 or 2 MIL-STD-1553 channels providing concurrent BC, Multi-RT and enhanced monitoring operation, along with error injection for BC or RT.

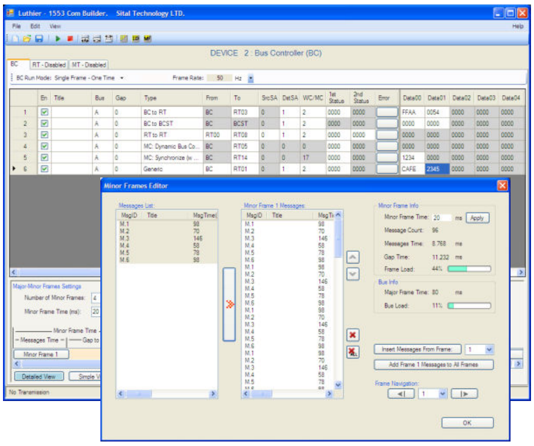
The board also includes an IRIG-B input and output enabling externally synchronized time-tagging.

The H009 standard requires dynamic termination capability. Each LRU that needs to transmit to the bus, first attaches a termination resistor at its port, and holds it engaged until after the transmission is finished.

The miniPCIe card was built with this capability which is not part of the MIL-STD-1553 standard for which the miniPCIe card was originally intended.

Software Drivers, API

All Sital boards are provided with drivers for the OS that the customer requires, typically most users require Windows or Peta Linux. The boards include a high-level API/library.



Luthier

For Windows, a GUI software called Luthier is supplied. Luthier is able to support BC RT and MT modes for the DDC© EMA© architecture.

About Sital

Sital Technology provides world-class products and expertise for communication bus applications in the avionics, aerospace and automotive industries. Sital embeds its vast experience and proficiency in its products which include Mil-Std-1553 and other avionics IP cores, components, boards and testers, as well as CAN bus devices and applications. With its highly-experienced staff of experts, the company's Projects Division undertakes design, integration and turn-key engagements on behalf of the world's leading commercial and military avionics companies, space agencies, and automobile designers and manufacturers. Sital's bus technologies and expertise improve robustness and efficiency as they lower cost, space and resource utilization.

Sital's formidable customer list includes leading military and commercial organizations throughout the world among them: NASA, Boeing, Lockheed-Martin, Honeywell, Raytheon, General Motors, British Aerospace, Orbital Science, Thales, ECIL(India), Aselsan, Elbit, Rafael and IAI.

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- Sital may change the specifications and functionality of the board without notice.