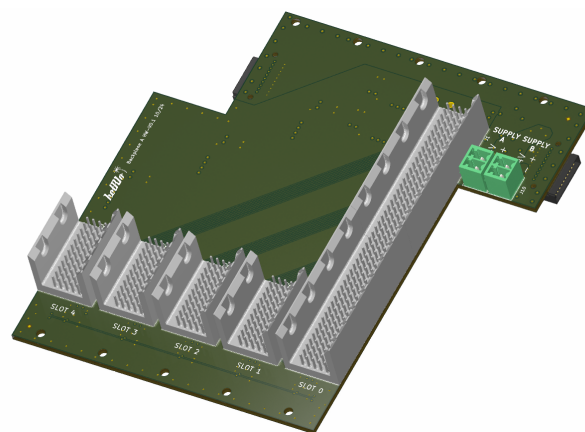


F-HEA-BA4

HotRIO Eurocard Aggregator board

- Aggregates up to four HotRIO expansion boards and one controller in a Eurocard chassis.
- Provides high-speed, low-noise point-to-point LVDS and LVTTL signal connections.
- Integrated CAN bus for board management and configuration with selective slot control.



The F-HEA-BA4 is a HotRIO Eurocard backplane designed to aggregate and interconnect up to four HotRIO expansion boards and one controller board within a Eurocard chassis. Serving as the backbone of the HotRIO Eurocard system, this backplane enables seamless communication, power distribution, and management for all installed boards.

The backplane is equipped with five connectors: four expansion slots and one master (controller) slot. Each expansion slot provides a 60-pin interface supporting 16 LVDS pairs and 6 LVTTL single-ended lines, while the master slot offers a 240-pin interface with 64 LVDS pairs and 24 LVTTL lines. All signal connections between the master and expansion slots are implemented as point-to-point links, ensuring high-speed, low-noise communication across the system.

Integrated into the backplane is a dedicated CAN bus, featuring five transceivers—one per connector. This CAN bus is reserved for board management, status monitoring, and configuration, and is not used for data acquisition. The master slot includes four LVTTL control lines, each connected to the disable pin of a CAN transceiver on the expansion slots. This allows the controller board to selectively inhibit CAN communication on any expansion slot, enabling advanced features such as backplane-wide autonegotiation and coordinated management.

Power distribution is robust and redundant: the backplane accepts 24 V DC input, supplying all connected boards directly. An onboard DC-DC converter provides regulated 5 V power to the slots as needed, eliminating the need for individual board power supplies.

Technical Specifications

Form factor	Eurocard chassis
Number of slots	4 expansion slots, 1 master (controller) slot
Master slot interface	240-pin: 64 LVDS pairs, 24 LVTTL lines
Expansion slot interface	60-pin: 16 LVDS pairs, 6 LVTTL lines per slot
Signal topology	Point-to-point LVDS/LVTTL between master and expansions
CAN bus	Integrated, 5 transceivers (1 per slot), selective control
Power input	24 V DC
Onboard power	DC-DC converter for 5 V supply to slots
Chassis compatibility	Up to 4 backplanes per Eurocard chassis (20 boards total)

A Eurocard chassis can accommodate up to four F-HEA-BA4 backplanes, supporting a total of 20 HotRIO boards in a single enclosure. While 24 V power is shared across all backplanes, data and CAN bus domains remain isolated within each backplane, ensuring electrical and logical separation between groups of boards.



Warning: This document exclusively describes the hardware detailed herein. Any reference to software or firmware used to operate this hardware is outside the scope of this document.

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