EE Digital Electronics:

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Title:	EXPLODER2C, specification

EXPLODER2C is a third version of an interface between different I/O combinations (on daughter boards) and multi gigabit fiber optical link. Optimized for White – Rabbit applications.
Main and daughter board size is 100mm x 124 mm case size is 120 x 140 x 32 mm. The two boards are connected over high speed, high density connectors.

View of EXPLODER2C, (power supply side).

Main board features:

- FPGA based (ARRIA GXII 125).
- Two high speed Board to board connectors to daughter board.
- 12V/2A and 3.3V/2A power supply outputs for daughter board.
- Four fiber optic transceivers (2 Gbps SFP) implemented, (max. 3.2 Gbps).
- Power supply input connector, 10V-15V DC.
- JTAG connector, two logic analyzer connectors (32 signals).
- USB interface based on Cypress CY7C68013A controller.
- Eight user programmable LEDs.

Trigger Distribution Daughter Board Features:

- Connected to main board over 60 LVDS signals two differential clocks and 16 single ended connections.
- 8 LVDS inputs, 8 LVDS outputs, 8 ECL outputs, 8 TTL and NIM inputs, 8 TTL or NIM outputs.
- 2 MLVDS connectors with 8 differential I/O pairs.
- Liquid Crystal Display.

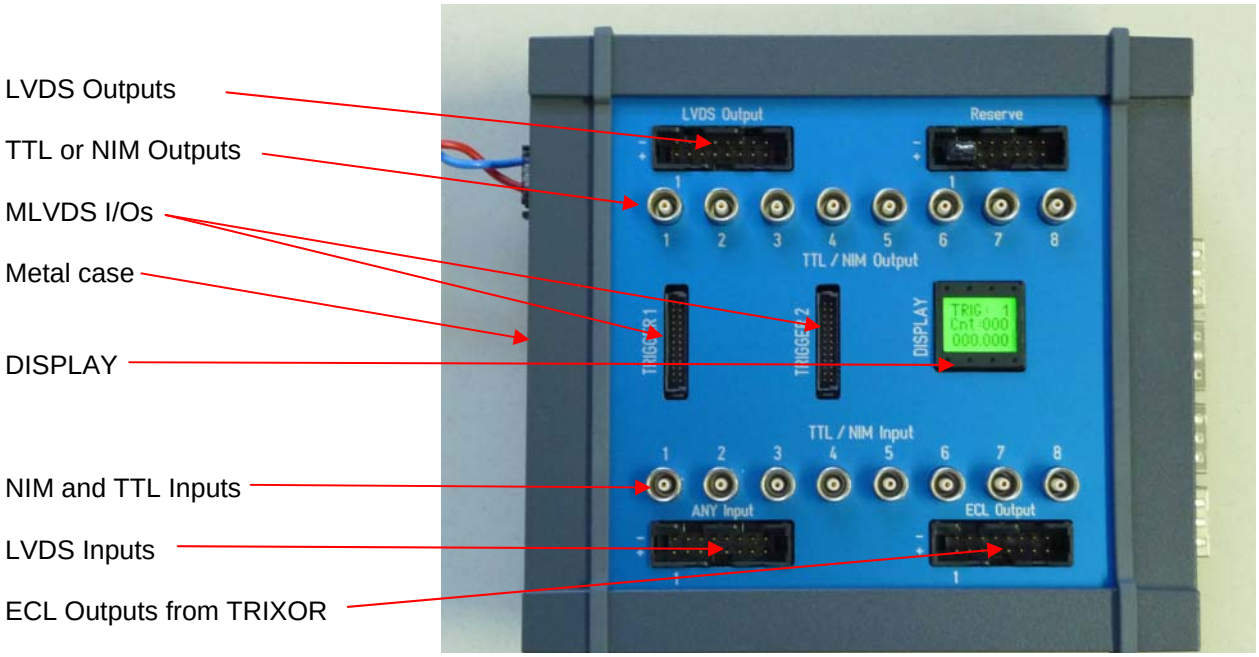
Component Parts:

- EP2AGX125DF25C5N FPGA with 125K Logic Blocks.
- Two low jitter, 20ppm 125MHz and 100 MHz oscillators.
- Configuration FLASH for FPGA.
- LCDisplay and 8 user programmable LEDs.

View of EXPLODER2C (SFP and auxiliary power supply side).

EXPLODER2C Module Applications:

No	Description of application	Form
1	Trigger distributor (for FEBEX, GEMEX systems)	100x120 in box
2	White – Rabbit timing distribution	100x160 board or box



Top view of EXPLODER2C with trigger distribution function for FEBEX and GEMEX based systems.

Technical Data:

- Supply voltage 10V to 15V.
- Supply current (at 12 V supply) is c.a. 0.6A (depending of FPGA design and output load).