

Libera

EvRx Timing module in AMC form factor

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Overview

- **Background**
- **Event Receiver Module**
 - **Architecture**
 - **Capabilities**

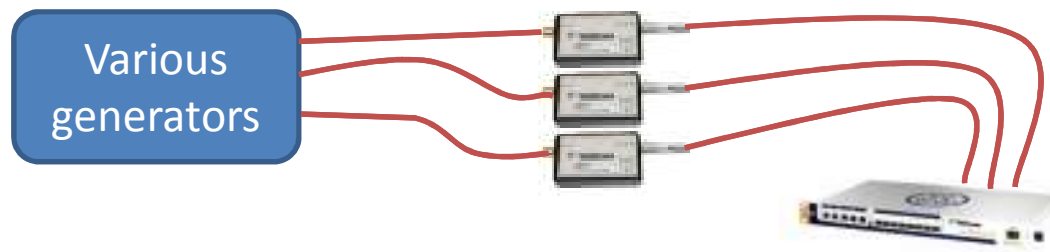
Platforms



Timing topologies used with our products (1/5)

Small installations:

- Various generators → SDC (single ended to differential signal converter) → Libera Platform A



Timing topologies used with our products (2/5)

Large installations:

- **EVG → EVR → Clock splitter → Libera Platform A**



Timing topologies used with our products (3/5)

Small installations:

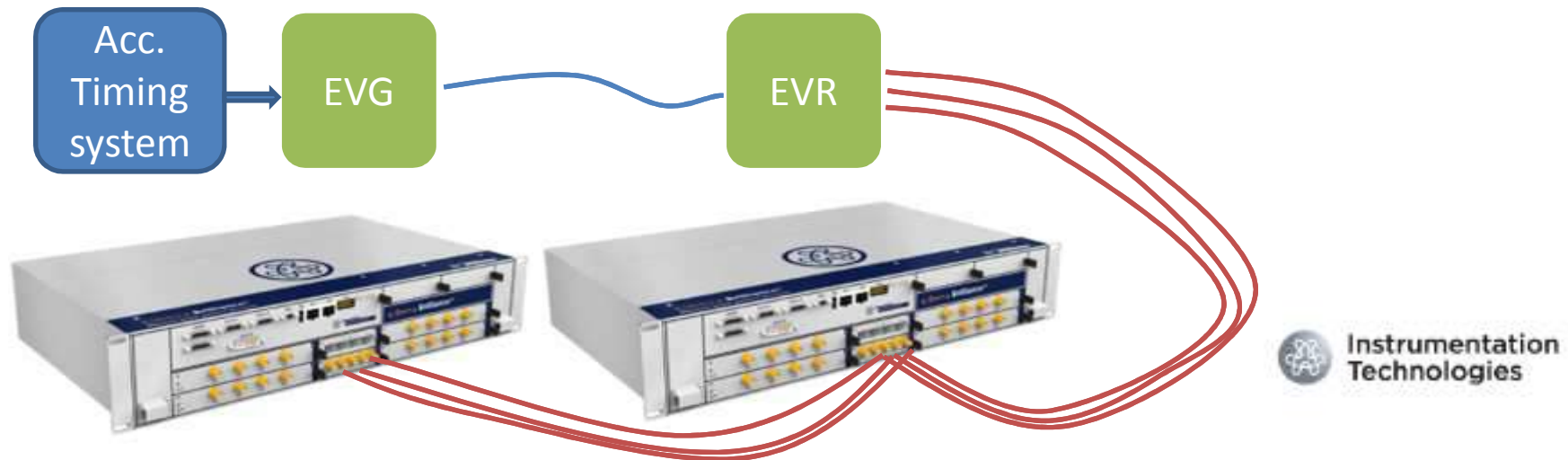
- **Various generators → Libera Platform B timing module → Libera Platform B application**



Timing topologies used with our products (4/5)

Large installations:

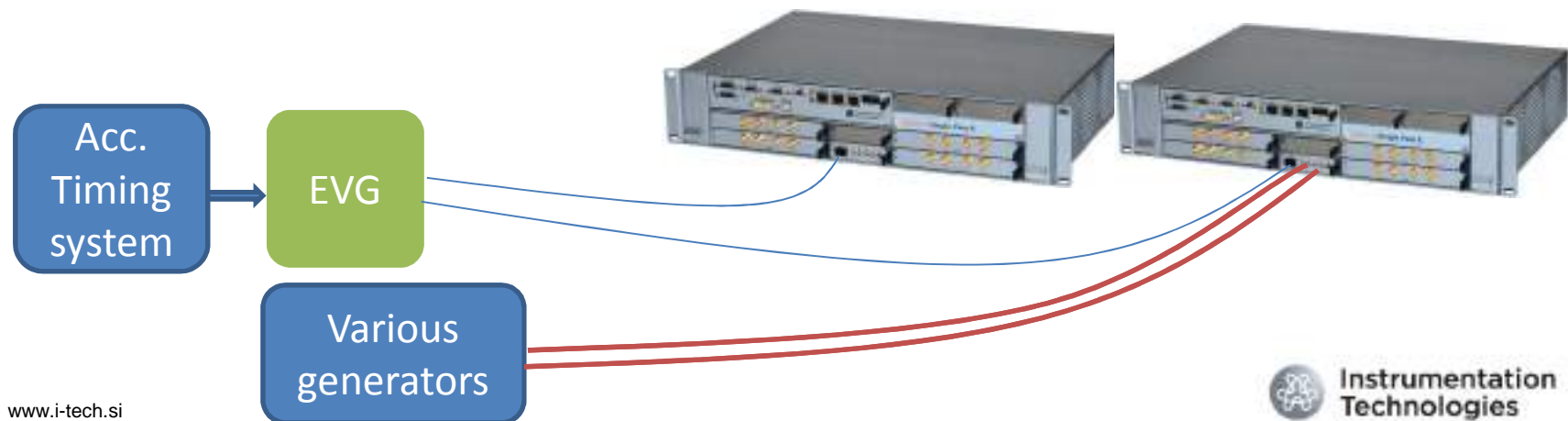
- **EVG → EVR → Libera Platform B timing module → Libera Platform B application**



Timing topologies used with our products (5/5)

Small or large installations:

- Various generators → EvRx plugged into Libera Platform B or
- EVG → EvRx plugged into Libera Platform B

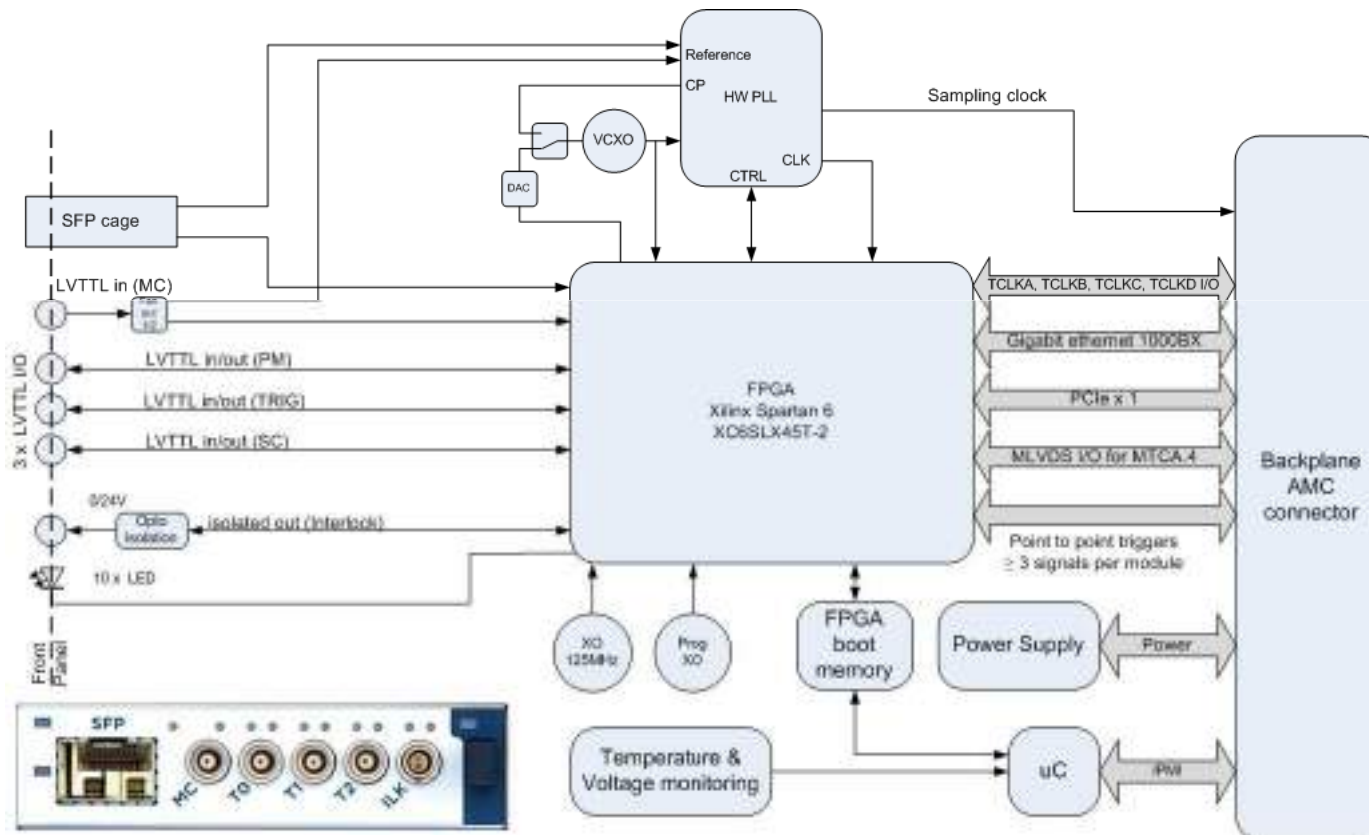


EvRx Module



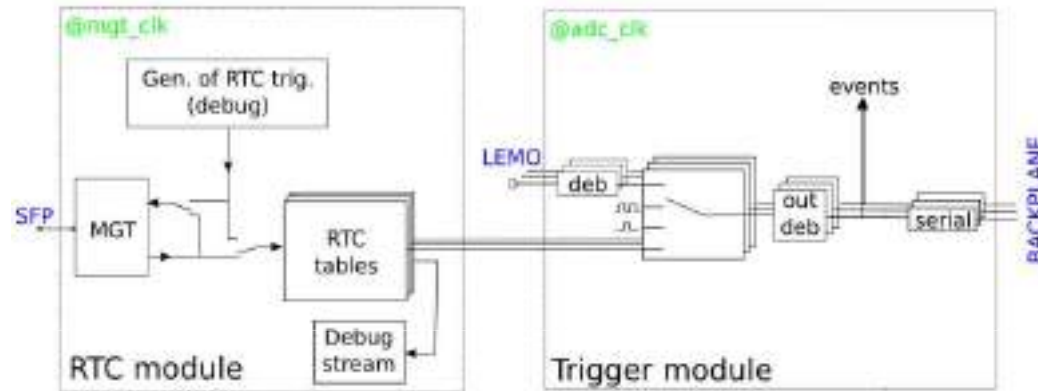
- AMC single width - mid height form factor

HW block diagram



- High performance clock generator – up to 160 MHz
- SW or HW PLL
- Designed to work in Platform A or MTCA.4
- Isolated open collector or driven interlock output

Functional block diagram



- MGT (Multi-gigabit transceiver) up to 2.7 Gbps
- Decoding tables
- Debug trigger generator (internal)
- Stream of received events (SW linked)
- External trigger source (LEMO connectors)
- Hard real time event distribution



Implementations

Libera Single Pass H:

- LANSCE units are the first with EvRx modules
- Single optical fiber is used for setting different processing flavors and distribution of the synchronization signals/triggers

Libera Single Pass E:

- Units for KEKB are also using EvRx module
- Over optical fibre the type of the next bunch is announced and the attenuators are then set according to the bunch type

Features

- **Combines the functionality of timing module and event receiver card**
- **Tested to work with MRF-EVG**
- **White Rabbit ready (not tested yet)**
- **Can generate also events**
- **Capable to receive a lot of different triggers not just few as previous solutions**
- **Reference for HW or SW PLL can be fed from front panel LEMO or SFP module**
- **Works in Libera Platform B and in MTCA.4 crates**
- **Hard real time event distribution**
- **Flexibility!!!**

Thank you!