

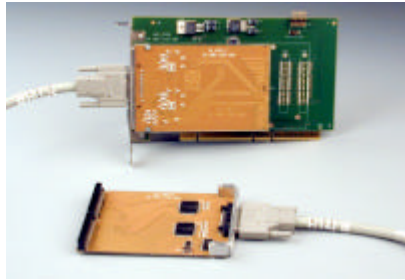
FED-KIT rules to correctly use the SLINK sender mezzanine

Here are explained some rules to follow to work correctly with the FED-kit.

The FED-kit can have multiple configuration (GenericIII as FED emulator, mezzanine, FRL emulator, etc...).

The which one we consider here is the configuration used by many FED developers :

Mezzanine transmitter → cable → mezzanine receiver and GenericIII (see picture 1)



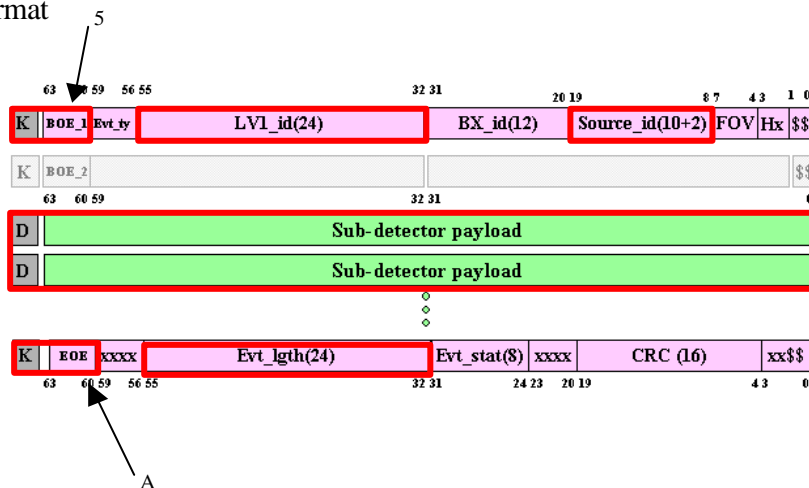
Picture 1: FED-kit

Rules:

1: The write enable.

From the FED side , data flow is controlled via the WEN signal. If WEN is low during a rising edge of the user clock (provided by the FED comprise between 0MHz and 100 MHz), the data at the input of the mezzanine (UD[63..0] UCTRL) are assumed to be valid, and are written into the FED-kit. This rule holds for Header, Trailer and data-words. As long as the WEN signal is high no data or control words are written into the FED-kit (this corresponds to a FED including wait state). The FED can change the WEN signal anytime, respecting the setup time of 5ns before the rising edge of the user clock.

2: the data format



The first header word must have bit[63..60] equal to “5” and the last trailer word must have bit[63..60] equal to “A”. At the same time the signal UCTRL must be low (WEN low to validate the header and trailer).

NB:

If between an end of event and a start of event data are written to the FED-kit , they will be discarded automatically by the FED-kit logic. (These data haven't a header and trailer, by the way is not an event)

3: The backpressure

The LFF signal indicates that no more data may be written to the FED-kit.

If the signal is high data can be written to the FED-kit

When LFF signal goes low, the FED may write **up to 32 more words**. This should give FED designers enough time to pause the state machines which control the writing into the FED-kit.

4. The LDOWN signal

The LDOWN signal goes low :

- if the FED does a reset (reset signal LOW)
- if the link is not set-up.
- if the Test mode is set (not yet implemented)