Micro-Research Finland Oy
Välitalontie 83 C, FI-00660 Helsinki, Finland

VME-FOUT-12 12-Way VME Fan-Out

cPCI-FOUT-12 12-Way cPCI Fan-Out

Technical Reference

Contents

Introduction 2
Jumper Configuration 2
FOUT-12 Front Panel 3
Power Sequencing/Power Consumption 4

Introduction

The main function of the fan-out modules is to distribute the event stream generated by an event generator to a network of event receivers in star configuration. The fan-outs are available in VME and cPCI form-factor.

Main features include:

- Small form factor pluggable (SFP) transceivers with LC connectors, by default short wavelength (850 nm) transceivers for multimode fibre are provided.
- 6U 4 HP module which only takes power from the host bus

The 12-way fan-out receives the optical event signal through a fibre connected to port 1 RX or port 2 RX. In the SFP transceiver this signal is converted to a differential electrical signal which is fanned out to all twelve SFPs. Here the differential electrical signal is converted to an optical signal and sent out through a fibre.

The input port 2 RX provides a clock and data recovery chip that regenerates the signal and removes inter symbol interference distortions caused by the optical to electrical conversion and vice versa. This slightly increases jitter but nevertheless it is recommended to use input port 2 RX for all fan-out levels.

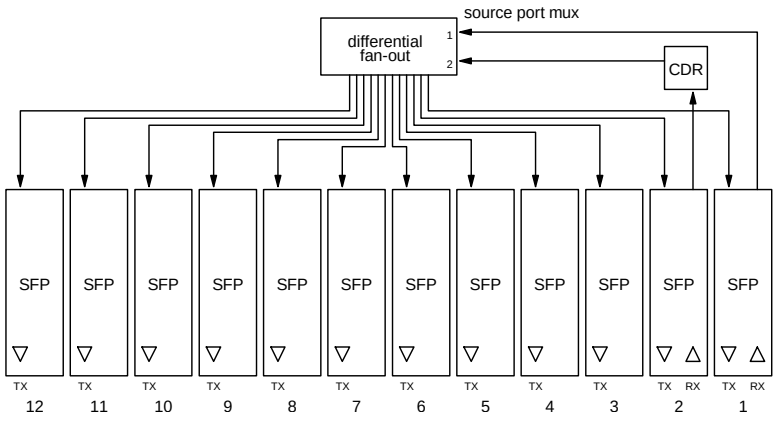

Figure 1: FOUT-12 block diagram

Jumper Configuration

The source input port is selected by a number of jumpers: JP4 in the middle of the board controls the source select multiplexer whereas JP2 and JP5 select the input port for the front panel RX port status led indicators and also allow enabling all the laser transmitters of the SFP modules when jumper JP1 is in the ‘Optical LOS’ position. The transmitters can be forced to be enabled always also when there is no source signal available by moving the jumper into the ‘force’ position.

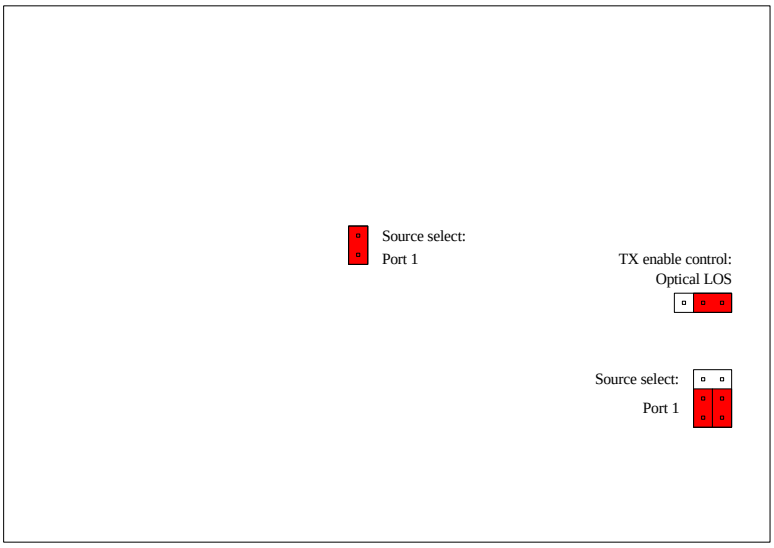

Figure 2: Jumper configuration for port 1 RX

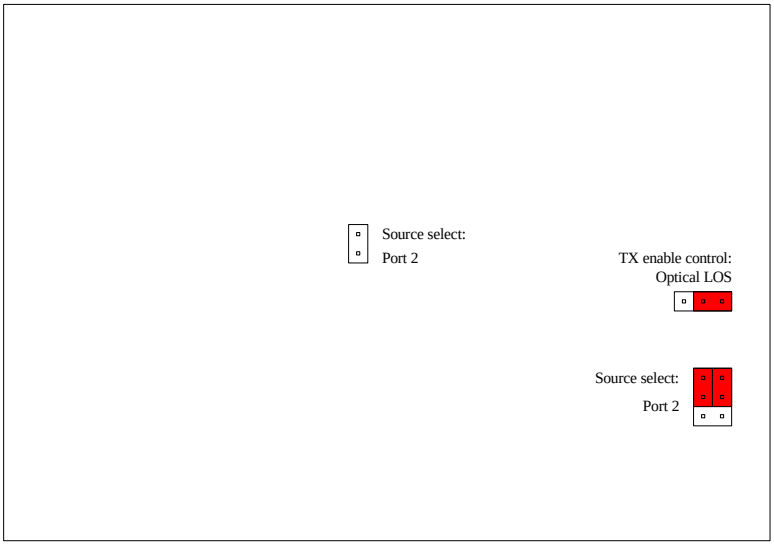

Figure 3: Jumper configuration for port 2 RX (default)

FOUT-12 Front Panel

The front panel of the 12 way fan-out is shown in Figure 4. The front panel shows twelve SFP transceivers with two LEDs on top of each transceiver. Port 1 with the RX input is on the right hand side.

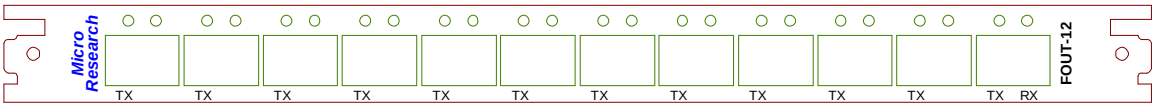

Figure 4: FOUT-7 Front Panel

The LEDs on top of each transceiver have following functionality:

Port	Left LED	Right LED
1 (right hand side)	off: transmitter OK on (red): transmitter FAIL	green: RX signal detected red: no RX signal
2 – 12	off: transmitter OK on (red): transmitter FAIL	off: transceiver not plugged in on (green): transceiver plugged in

RX Port select	RX port led 1	RX port led 2
1	green: RX signal detected on port 1 red: no RX signal on port 1	off
2	off	green: RX signal detected on port 2 red: no RX signal on port 2

Power Sequencing/Power Consumption

The fan-out boards have been designed hot-swappable with crates supporting hot-swapping e.g. VME64x. Power sequencing is controlled by the handle switch located in the upper/left handle.

Supply Voltage	Power Consumption
+5 VDC	approx. 20 W