FL3X Interface-PMC

www.flex-product.com

BENEFITS

- 4 bus connectors which can be flexibly equipped via pluggable transceivers
- Up to 8 bus channels with 1-2 bus channels on each bus connector
- Physical Layer available for CAN (-FD, -HS), FlexRay and 100BASE-T1
- Synchronous timestamp generation for all of the 8 channels (resolution 1 us)
- PMC-Adapter available for: PCI, PCIe
- Driver available for: Windows, Linux, Xenomai
- Numerous triggering capabilities
- Switchable on-board bus termination
- Trigger 2x in/out configurable
- Configurable bus termination
- Analyzing software FlexAlyzerV2 included
- Bosch E-Ray IP core FlexRay controller
- Bosch D_CAN IP core CAN controller
- Bosch M_CAN IP core CAN-FD Controller
- MorethanIP 10/100/1000 Mbit/s Ethernet controller
- V2.1 A FlexRay protocol specification
- V2.0 A/B CAN protocol specification
- ISO 11898-1:2015 CAN protocol specification
- Bosch CAN-FD specification 1.0

FL3X INTERFACE-PMC — OVERVIEW

The FL3X Interface-PMC is a bus interface for automotive bus systems in PMC design. The card's 8 bus interfaces can be configured for different bus systems via Physical Layer (FL3X Tiny2) slots.

- PMC interface (PCI Mezzanine Card)
- FL3X Tiny2 exchangeable Physical Layer slots
- 4x M9 connector
- 3,3 V DC and 5 V DC compatible PCI power supply
- LEDs signal the state of the network

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FL3X Interface-PMC

ETHERNET

- Synchronous hardware timestamps for all bus interfaces (CAN, FlexRay, Ethernet)
- Resolution of the timestamp 1 us (32-bit)
- FL3X Interface-PMC with Ethernet will be detected as standard Ethernet interface
- Access to the Ethernet packets by NDIS driver (raw sockets possible)
- Special WinPcap version allows access to the hardware timestamps of the Ethernet packets
- Access to the CAN and FlexRay packets by standard FCBASE API
- 100BASE-TX and 100BASE-T1 Physical Layer available
- External synchronization by trigger input possible

FLEXRAY

- Asynchronous monitoring mode allows listening without FlexRay synchronicity
- Combined asynchronous and synchronous monitoring mode (the procedure of a bus startup can be monitored and registered exactly)
- Configurable TX-acknowledges
- Network synchronicity will be reported immediately (with timestamp)
- Chronological correlation of bus messages with one timestamp base
- Firmware update directly at the user PC possible
- Extensive filter configuration available
- Significant bus error messages
- Triggering on the precise slot and cycle

CAN / CAN-FD SIC

- Silent mode useable for listening without bus interference
- Transmit FIFO up to 512 messages
- Configurable TX-acknowledges
- Significant bus error messages

PC INTERFACES

- Native PMC (PCI Mezzanine Card) interface
- PCI adapter available
- PCIe adapter available

DRIVER

- Uniform FL3X API (Same API for FL3X Interface-PMC, FL3X Device-PCIe and FL3X Device-PXIe)
- CPU load reduction through DMA
- Driver Windows 64-bit (Windows 10)
- Driver Xenomai 32 bit/ 64 bit (Xenomai 3)
- Driver Linux 64-bit (5.15)

ADDITIONAL MODULES

The FR/FR-Syncmodule is a special FPGA image, which allows the synchronization of two independent FlexRay networks. After the startup of the master network at slot 1, the slave network at slot 2 will be started with the defined time offset. When both networks are synchronized, the defined time offset will be held constant by a control algorithm.

- Allows the realization of synchronized FlexRay/FlexRay gateways
- All FL3X API functions can be used

PHYSICAL LAYER FL3X TINY2

You can use the following FL3X Tiny2 combinations with FL3X Interface-PMC.

Slot 1	Slot 2	Slot 3	Slot 4
2x CAN-HS	2x CAN-HS	2x CAN-HS	2x CAN-HS
2x CAN-FD	2x CAN-FD	2x CAN-FD	2x CAN-FD
FlexRay A/B (*)	2x CAN-HS	2x CAN-HS	2x CAN-HS
FlexRay A/B (*)	2x CAN-FD	2x CAN-FD	2x CAN-FD
FlexRay A/B	FlexRay A/B	2x CAN-HS	2x CAN-HS
FlexRay A/B	FlexRay A/B	2x CAN-FD	2x CAN-FD
FlexRay A/B	FlexRay A/B	FlexRay A/B	2x CAN-HS
FlexRay A/B	FlexRay A/B	FlexRay A/B	FlexRay A/B
100BASE-TX	FlexRay A/B (*)		2x CAN-HS
100BASE-TX	FlexRay A/B (*)		2x CAN-FD
100BASE-T1	FlexRay A/B (*)		2x CAN-HS
100BASE-T1	FlexRay A/B (*)		2x CAN-FD

(*) SelfSync — Allows autonomous start of the bus without further sync nodes

ORDER INFORMATION FL3X INTERFACE-PMC

Product	Description	Order number
FL3X Interface-PMC	The FL3X Interface-PMC is a PMC bus interface card.	3-V0550A01

ORDER INFORMATION ACCESSORIES

Product	Description	Order number
FL3X Tiny2 1*100BASE-T1	Pluggable transceiver module with one 100BASE-T1 transceivers (BC-M89810A2AMLG, Broadcom)	3-V0550I01
FL3X Tiny2 1*100BASE-TX	Pluggable transceiver module with one 100BASE-TX transceivers (DP83640TVV, NSC)	3-V0550E01
FL3X Tiny2 2*FlexRay	Pluggable transceiver module with two FlexRay transceivers (TJA1080ATS, NXP)	3-V0550M01
FL3X Tiny2 2*CAN-FD	Pluggable transceiver module with two CAN-FD/HS transceivers (TJA1044GT, NXP)	3-V0550H01
BusCable 200 8M9m 9SUBDf UNIVERSAL	1. End: 8-pole M9 male connector, type 712 2. End: 9-pole SubD female connector Length: approx. 2 m	3-00342Z01
BusCable 2Way 200 8M9m 9SUBDf CAN&FR	1. End: 8-pole M9 male connector, type 712 2. End: 2 x 9-pole SubD female connector Length: approx. 2 m	3-00341L02
BusCable 200 8M9m 9SUBDf OABR	1. End: 8-pole M9 male connector, type 712 2. End: 9-pole SubD female connector Length: approx. 2 m	3-00342P01
BusCable 100 8M9m 9SUBDf CAN&FR	1. End: 8-pole M9 male connector, type 712 2. End: 9-pole SubD female connector Length: approx. 1 m	3-00342J01
BusCable 4Way 60 9SUBDf 9SUBDf	1. End: 9-pole SubD female connector 2. End: 4 x 9-pole SubD female connector Length: approx. 0.6 m	3-00342J01
BusCable 2Way 200 8M9m 9SUBDf OABR	1. End: 8-pole M9 male connector, type 712 2. End: 2 x 9-pole SubD female connector Length: approx. 2 m	3-00342Q01
PMC-to-PCI-Adapter	Adapter for using the FL3X Interface-PMC with PCI slots.	10016463
PMC-to-PCIe-Adapter	Adapter for using the FL3X Interface-PMC with PCIe slots.	10016484

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