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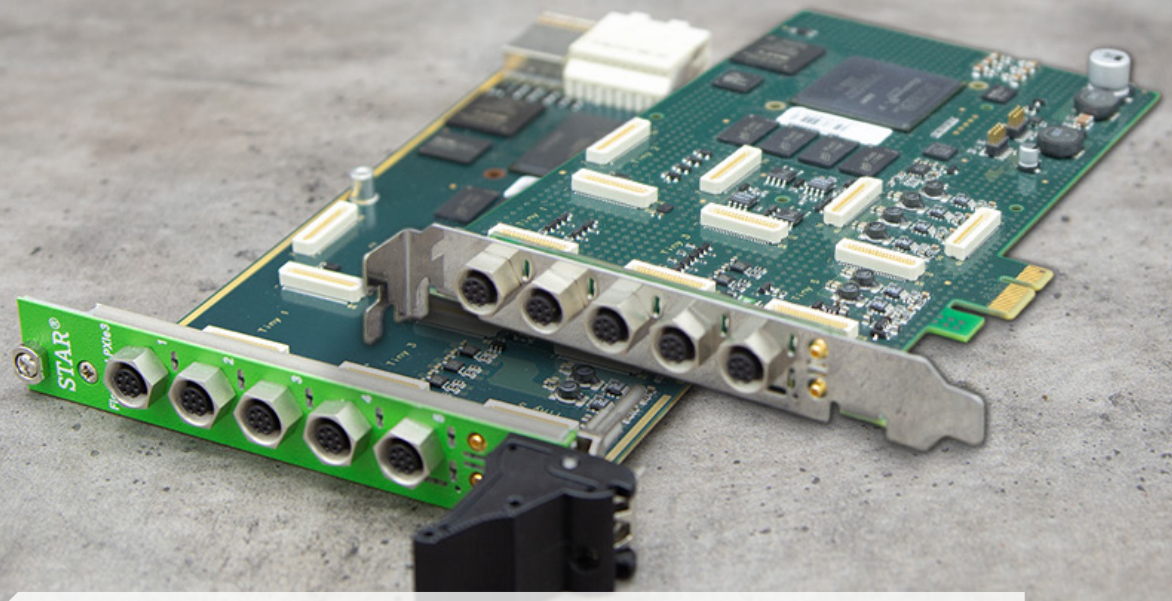

SENSOR- / ACTUATOR TECHNOLOGY

ENERGY TECHNOLOGY

NETWORK TECHNOLOGY

FlexCard PXIe3 & PCIe3

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BENEFITS

- 5x pluggable transceiver modules (2-6 channels per module depending on the bus system)
- Pluggable transceiver modules available for CAN-HS, CAN-FD, FlexRay, 100BASE-TX, LIN, SENT, 100BASE-T1, 1000BASE-T1
- Available in PCIe and PXIe form factor
- Execution of real time gateways/ remaining bus simulations and parallel streaming of all communication channels to the PCIe host system
- Synchronous timestamp generation for most of the bus interfaces (resolution up to 1 us)

DRIVER

- Uniform FlexCard API (same API for FlexCard PMC-II, FlexCard USB-M and FlexCard PXIe3/PCIe3)
- CPU load reduction through DMA
- Driver Windows 64-bit (Windows 7, 10)

SOFTWARE SUPPORT

- The device is supported by FlexConfig RBS starting with version 4.6 and the FlexCard API starting with S6V7-F

SCOPE OF DELIVERY

- FlexCard PCIe3 or FlexCard PXIe3
- Documentation
- FlexCard API driver

FLEXCARD PXIE3 & PCIE3

The FlexCard PXIe3/PCIe3 combines a high-performance platform for real-time capable remaining bus simulations or gateways and a 7-30 channel* measuring interface for automotive bus systems in one device. This powerful combination provides manifold solutions for:

- gateways between different automotive bus systems
- interfacing of automotive bus systems
- remaining bus simulation
- signal manipulation
- data logging
- rapid prototyping

The FlexCard PCIe3/PXIe3 supports current and upcoming bus systems and has numerous variable interfaces, thus covering most of the application fields where bus interfaces are required. This device is appreciated by automotive developers since it facilitates the implementation and testing of even very tricky gateway applications and prototyping functionalities. Together with the comprehensive FlexConfig software family, the developers are enabled to set up and control their bus systems and ECU environment in a smart way.

*The number of channels depends on the used bus systems

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FlexCard PXIe3 & PCIe3

TECHNICAL FEATURES

- PCIe Gen 1
- Integrated Altera Cyclone V SOC (ARM Cortex-A9 Dual Core CPU)
- 5 bus connectors that can be allocated flexible via pluggable transceivers
  - 2-6 bus interfaces are available on each bus connector
- Up to 4 FlexRay controllers (4 Bosch E-Ray Cores)*
- Up to 8 FlexRay channels (4 channel A and 4 channel B) available on the bus connectors*
- In any case, 2 FlexRay cores can be connected internally (SelfSync)
- Up to 10 CAN-HS bus interfaces*
- Up to 10 CAN-FD bus interfaces*
- Up to 7 separate 100BASE-T1 bus interfaces or 15 internally connected (switched) 100BASE-T1 channels*
- Switchable on-board bus termination
- Wake-up/sleep mode support (wake-up possible via FlexRay or CAN)
- Synchronous timestamp generation for all of the bus interfaces (resolution up to 1 us)
- 2 Trigger inputs or -outputs
- 3 different operating modes:
  - Pure FlexCard mode. Sending/receiving of bus data at the PCIe host system via the Windows driver
  - Pure FlexDevice mode. Execution of real time remaining bus simulations and gateways
  - Mixed mode. Execution of real time remaining bus simulations on the integrated ARM Cortex-A9 CPU and receiving of all bus data at the PCIe host system (PC)
- Gateway and/or remaining bus simulations executed on the integrated ARM Cortex-A9 CPU without influencing the PCIe host system (PC)
- Streaming of the bus data to the PCIe host system without influencing the gateways/remaining bus simulations executed on the ARM Cortex-A9 CPU

*several bus combinations are possible, please contact us regarding your desired bus configuration.

ABILITIES IN FLEXCARD MODE
(STREAMING OF BUS DATA TO THE PCIE HOST SYSTEM)

ETHERNET

- FlexCard PXIe3/PCIe3 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 timestamps
- of the Ethernet packets
- External synchronization by trigger input possible

CAN-HS / CAN-FD

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

Physical characteristics

Connector	4 x Binder series 702/712 – 8pol.

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
- Extensive filter configuration available
- Significant bus error messages
- Triggering on the precise slot and cycle

ORDER INFORMATION FLEXCARD PXIE3 & PCIE3

Product	Description	Order number
FlexCard PXIe3	The FlexCard PXIe3 is a PXIe bus interface card.	3-V00940A01
FlexCard PCIe3	The FlexCard PCIe3 is a PCIe bus interface card.	3-V00950A01

ORDER INFORMATION ACCESSORY PARTS

Product	Description	Order number
FlexConfig RBS runtime	Runtime license for RBS execution. Required once per device.	3-00700J01
FlexConfig Gateway runtime	Runtime license for gateway execution. Required once per device. (Requires “FlexConfig RBS runtime”)	3-00701E01
FlexConfig Control runtime	Runtime license for signal manipulation. Required once per device. (Requires “FlexConfig RBS runtime”)	3-00701G01
FlexConfig Analyzing runtime	Runtime license for analyzing bus data. Required once per device.	3-00701J01
FlexTiny3 1000BASE-T1	Pluggable transceiver module with two 1000BASE-T1 transceivers (88Q2112-A2-NYD2A000, Marvell)	3-00882H02
FlexTiny3 100BASE-T1	Pluggable transceiver module with two 100BASE-T1 transceivers (BC-M89810A2AMLG, Broadcom)	3-00882C02
FlexTiny3 100BASE-T1 switch	Pluggable transceiver module with one 100BASE-T1 switch (BCM89500BQLEG, Broadcom)	3-00882D01
FlexTiny3 100BASE-TX switch	Pluggable transceiver module with one 100BASE-TX switch (88E6350RA1-TFJ2I000, Marvell)	3-00882B01
FlexTiny3 FlexRay	Pluggable transceiver module with two FlexRay transceivers (TJA1081BTS, NXP)	3-00880A01
FlexTiny3 2x CAN-FD/HS	Pluggable transceiver module with two CAN-FD/HS transceivers (TJA1145T/FD, NXP)	3-00881E01
FlexTiny3 4x LIN & 2x SENT	Pluggable transceiver module with four LIN (TJA1021T, NXP) and two SENT transceivers	3-00884A02
FlexTiny3 K-Line & UART & SPI	Pluggable transceiver module with one K-Line (TJA1021T, NXP), one UART and one SPI transceivers	3-00884B01
Standard Binder bus cable (2 m)	8 pole Binder male to 9 pole D-Sub female connector	10016468
Standard Binder 2x Y-bus cable (2 m)	8 pole Binder male to 2 x 9 pole D-Sub female connector	10016469
BASE-T1 Binder bus cable (2 m)	8 pole Binder male to 9 pole D-Sub female connector - PIN 1,2 & 4,5	3-00342P01
BASE-T1 Binder 2x Y-bus cable (2 m)	8 pole Binder male to 2 x 9 pole D-Sub female connector - PIN 4,5	3-00342Q01

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