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TECHNICAL NOTE 4009

SL100/SL240 Front Panel Data Port (FPDP) Cards

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Introduction

Systran's FibreXtreme SL100/SL240 cards provide fast, low latency point-to-point or limited broadcast connections between sensors and processing devices. The SL100/SL240 family of products includes PCI, PCI Mezzanine (PMC), CompactPCI® (CPCI) and Front Panel Data Port (FPDP) solutions. Furthermore, the FPDP carrier cards come in five variations to meet a variety of applications. This technical note explains the differences between the FPDP carrier cards and provides some simple application examples.

Discussion

The FPDP versions are split into two categories—a 6U VME- or PCI-based solution with standard FPDP connectors and a rehostable Common Mezzanine Card (CMC). Each FPDP card provides an interface through a simple unidirectional parallel port. This port can be connected to existing FPDP equipment or can be integrated into new products (CMC). All of these variations interoperate completely on the link interface, providing seamless integration between diverse platforms. The FibreXtreme FPDP cards allow data transfers between an FPDP bus and a Serial FPDP link. This extends the maximum separation of FPDP nodes from five meters to ten kilometers. Each of the carrier cards has features that are advantageous to particular applications. The major features of the various FPDP cards are listed below.

FibreXtreme Simplex Link (FXSL) is Systran's first-generation Serial FPDP product line. FibreXtreme SL100/SL240 is Systran's second-generation Serial FPDP product line. The NGSL (Next Generation Simplex Link) VME FPDP card and the PCI FibreXtreme Carrier card can only be used with SL100/SL240 CMC cards.



NOTE: The FPDP bus speeds are derived from the reference clock (53.125 MHz or 125 MHz) divided by 2, 3, 4, or 6. This reference clock originates from an oscillator on the CMC card.

NGSL VME FPDP Card

Sample Application: Useful for applications where it is desired to change the FPDP port data direction via software control.

Features:

- 6U VME form factor
- One FPDP port configurable for input or output
- Accepts one SL100/SL240 CMC card
- Configurable using a microcontroller interface via an RS-232 port
- Offers access to SL100/SL240 CMC card's register set
- Supports the following FPDP transmitter bus speeds

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Reference Clock Division Factor	SL100 (53.125 MHz)	SL240 (125 MHz)
2	26.5625 MHz	62.5 MHz
3	17.7083 MHz	41.6667 MHz
4	13.2813 MHz	31.25 MHz
6	8.8542 MHz	20.8333 MHz

CAUTION: SL100 and SL240 CMC cards should not be interchanged between Single FXSL and Modified Single FXSL VME FPDP cards.

An SL100 CMC installed on a Single FXSL VME FPDP card may operate slower than expected (only 17.7083 MHz and 8.8542 MHz FPDP transmit bus speeds are available).

An SL240 CMC installed on a Modified Single FXSL VME FPDP card will not work. This carrier will not support FPDP bus speeds exceeding 41.6667 MHz.

NOTE: The Single FXSL VME FPDP card can be identified by the silkscreen on the printed circuit board that reads "FPVMSLXC." See Figure 1 for the location of this silkscreen.

NOTE: The Modified Single FXSL VME FPDP card can be identified by the decal on the printed circuit board that reads "FRVMSLXC" or a short between pins 51 and 53 on the P3 connector. See Figure 1 for the location of this decal and pins.

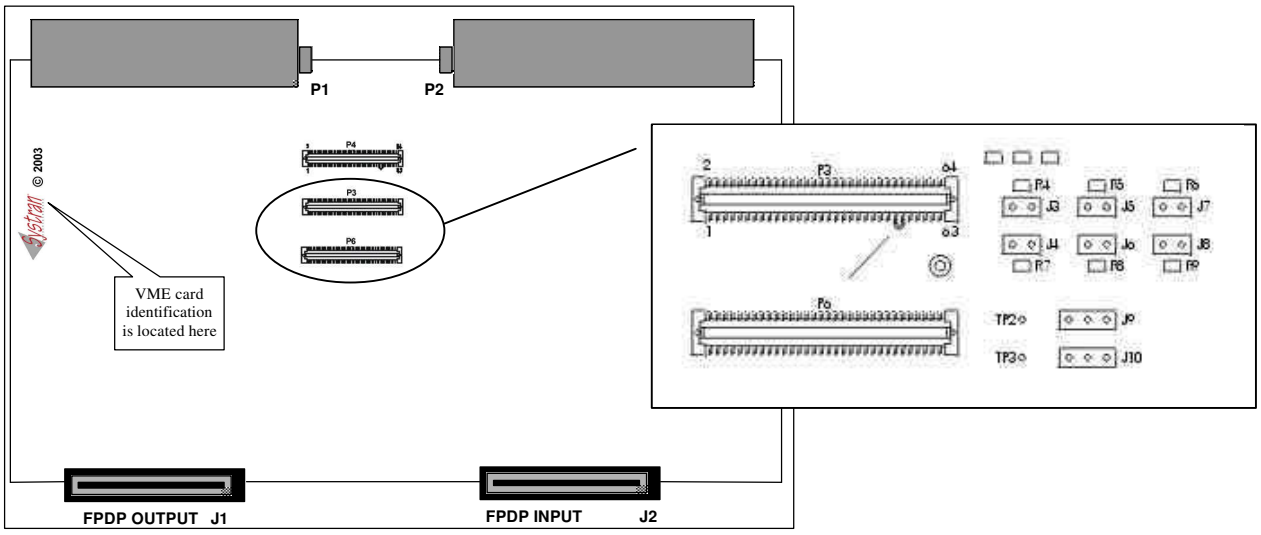


Figure 1 FibreXtreme Single FXSL and Modified Single FXSL VME FPDP Cards

Single FXSL VME FPDP Card

Sample Application: Useful for applications requiring bi-directional data flow on the link interface and two channels of FPDP data.

Features:

- 6U VME form factor
- Two FPDP ports (one input and one output)
- Accepts one SL100/SL240 CMC card
- Configurable using jumpers
- Does not offer access to SL100/SL240 CMC card's register set
- Supports the following FPDP transmitter bus speeds

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Reference Clock Division Factor	SL100 (53.125 MHz)	SL240 (125 MHz)
3	17.7083 MHz	41.6667 MHz
6	8.8542 MHz	20.8333 MHz

Modified Single FXSL VME FPDP Card

Sample Application: Useful for applications requiring bi-directional data flow on the link interface and two channels of FPDP data.

Features:

- 6U VME form factor
- Two FPDP ports (one input and one output)
- Accepts one SL100 CMC card
- Configurable using jumpers
- Does not offer access to SL100 CMC card's register set
- Supports the following FPDP transmitter bus speeds

Reference Clock Division Factor	SL100 (53.125 MHz)
2	26.5625 MHz
4	13.2813 MHz

Dual FXSL VME FPDP Card

Sample Application: Useful for applications requiring two channels of FPDP data but having a limited number of available VME slots.

Features:

- 6U VME form factor
- Two independent FPDP ports configurable for input or output (one FPDP port per CMC card)
- Accepts one or two SL100/SL240 CMC cards
- Configurable using jumpers
- Does not offer access to SL100/SL240 CMC card's register set
- Supports the following FPDP transmitter bus speeds

Reference Clock Division Factor	SL100 (53.125 MHz)	SL240 (125 MHz)
2	26.5625 MHz	62.5 MHz
3	17.7083 MHz	41.6667 MHz
4	13.2813 MHz	31.25 MHz
6	8.8542 MHz	20.8333 MHz

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PCI FibreXtreme FPDP Card

Sample Application: Useful for applications where it is desired to change the FPDP port data direction via software control and a PCI form factor is required.

Features:

- PCI form factor
- One FPDP port configurable for input or output
- Accepts one SL100/SL240 CMC card
- Configurable using a microcontroller interface via an RS-232 port
- Offers access to SL100/SL240 CMC card's register set
- Supports the following FPDP transmitter bus speeds

Reference Clock Division Factor	SL100 (53.125 MHz)	SL240 (125 MHz)
2	26.5625 MHz	62.5 MHz
3	17.7083 MHz	41.6667 MHz
4	13.2813 MHz	31.25 MHz
6	8.8542 MHz	20.8333 MHz

A summary of the FPDP carrier card features is shown in the following table.

Features	Carrier Card				
	NGSL	Single	Modified Single	Dual	PCI
Number of FPDP Ports	1	2	2	2	1
Number of CMC Cards	1	1	1	2	1
Configuration Method	Microcontroller	Jumper	Jumper	Jumper	Microcontroller
Form Factor	6U VME	6U VME	6U VME	6U VME	PCI
CMC Cards Supported					
SL100	Yes	Yes	Yes	Yes	Yes
SL240	Yes	Yes	No	Yes	Yes
Register Set Access					
Carrier Card	Yes	No	No	No	Yes
CMC Card	Yes	No	No	No	Yes
FPDP Transmitter Bus Speeds Supported					
SL100					
26.5625 MHz	Yes	No	Yes	Yes	Yes
17.7083 MHz	Yes	Yes	No	Yes	Yes
13.2813 MHz	Yes	No	Yes	Yes	Yes
8.8542 MHz	Yes	Yes	No	Yes	Yes
SL240					
62.5000 MHz	Yes	No	No	Yes	Yes
41.6667 MHz	Yes	Yes	No	Yes	Yes
31.2500 MHz	Yes	No	No	Yes	Yes
20.8333 MHz	Yes	Yes	No	Yes	Yes

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