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SL100 Series Short Form Catalog

PRELIMINARY PRODUCT DATA

FibreXtreme™

Second-Generation SL100 SERIES Now Available!



- **105 MB/second Sustained Data Rate – The Fastest, Most Efficient Way to Transfer Anything!**
- **Dedicated Point-to-Point, Broadcast Chaining, or Single and Multiple Master Ring Topologies**
- **Extends Front Panel Data Port (FPDP) Connections Up To 10 Km**
- **Supports Shortwave and Longwave Fiber Optic Connections**
- **Compatible with Mercury RACEway and Sky Computers' SKYchannel™ architectures**

Introduction

Systran Corporation introduces the next wave in high-bandwidth, low-latency data communication — it's the FibreXtreme SL100 Series! Based on the technology pioneered in our original Simplex Link series, FibreXtreme SL100 blasts data at a sustained 105 MB per second with microsecond data latency – up to 25% faster than other technologies. You won't find a faster, more efficient, easier-to use data link for your data-intensive application:

- Digital Signal Processing
- High-speed data acquisition
- Medical imaging
- Range and telemetry systems
- Simulation systems
- Video production

FibreXtreme SL100 is a 1.062 GHz serial data link which utilizes a highly specialized communications protocol optimized for maximum data throughput. Data transfers occur without the CPU overhead and non-deterministic latencies associated with many layers of complex communication protocols. The FibreXtreme on-board DMA engine handles single transactions up to 64 MB for maximum data throughput without processor intervention. DMA and register byte/word swapping provide additional system flexibility.

Industry Standard Architecture

FibreXtreme Serial FPDP technology (VITA 17.1p) is fast becoming the industry standard for high-speed serial communication in today's advanced DSP systems. It is fully compatible with both Mercury's RACEway Interlink Standard and Sky Computers' SKYchannel, two of the leading DSP communications architectures. It's field-tested technology that produces real-world results.

Powerful and Flexible

Each SL100 board features programmable bi-directional communication capability. There's no need for specialized source and destination cards – you have more communication flexibility with FibreXtreme SL100. For even more flexibility in system design, SL100 cards support a variety of system topologies. Choose from point-to-point, broadcast chaining, or single and multiple master ring topologies that enable a single SL100 card to simultaneously send data to multiple destinations.

FibreXtreme offers flexibility in software support with drivers for today's popular operating systems. With support for Windows NT, SGI IRIX, VxWorks, Sun Solaris, Red Hat Linux, and Lynx OS, you can choose the best OS solution for your application.

The flexibility offered by FibreXtreme doesn't stop there. With media options for both short-wave and long-wave fiber, FibreXtreme links can extend Front Panel Data Port (FPDP) connections up to 10 Km with no significant impact on performance. System designers have the flexibility to distribute system components across the building, across the campus, or even across town!

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Unique Design Characteristics

With support for 1 Gbit/sec transmission rates between interconnected subsystems separated by as much as 10 kilometers and low-latency performance to match, FibreXtreme data link technology is ideal for many of today's high-throughput Digital Signal Processing (DSP) applications like those shown in Figure 1.

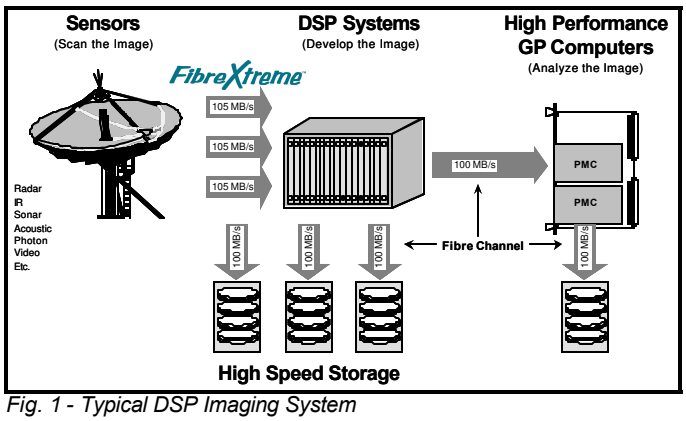


Fig. 1 - Typical DSP Imaging System

FibreXtreme employs hardware-based insertion of data into fixed frames with flow control to keep the data connection open and operating at full speed. There's no need for complex communication protocols that cause data latency and reduce system performance as they establish and arbitrate the connection.

Extend Front Panel Data Port Connections

The Front Panel Data Port (FPDP) was specifically invented to address the high speed connection between the Analog-to-Digital Converter (ADC) of a Sensor Subsystem and the Digital Signal Processors (DSP) of advanced DSP based image processing systems. FPDP can be either an 80 or 160 MB/sec parallel connection made via ribbon cable across the VME front panel. The FPDP provides the simplicity, bandwidth, and reliability necessary to support these types of DSP systems. This concept is summarized in Figure 2.

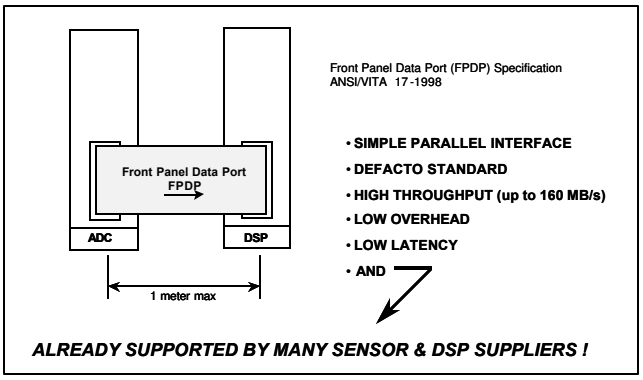


Fig. 2 - Industry-standard FPDP Connections

However, FPDP has one major limitation, the ADC must be located within the one meter maximum cable length of FPDP. For many reasons, it is often desirable to locate the ADC as close as possible to the sensing unit, which may be located more than one meter from the DSP system(s). FibreXtreme SL100 extends the reach of FPDP up to 10 kilometers while retaining its simplicity, bandwidth, and reliability. This concept is illustrated in Figure 3 below.

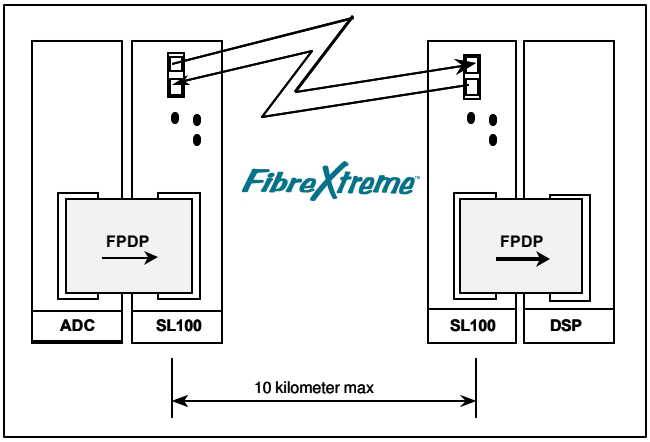


Fig. 3 - FibreXtreme Extends FPDP to 10 Km

The link is implemented on standard 6U VME cards with a sending card at the sensor and a receiving card at the DSP. PCI and PMC FibreXtreme cards allow data to flow from FPDP directly into the computer backplane and also provides high speed computer to computer connections.

In demanding high-throughput applications, even the smallest delay can mean the difference between success and failure. FibreXtreme SL100 offers the speed, power, flexibility, and reliability to ensure that your application succeeds!

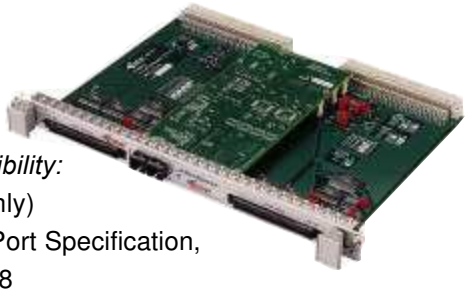
Features & Specifications

- Programmable bi-directional boards for provide more configuration flexibility
- Built-in data synchronization with minimal impact on overall data throughput
- Integrated interrupt controller to report link failure, transaction completion, or buffer space request
- Loop operation with out-of-band arbitration or point-to-point operation
- Watchdog timer for failover operation
- Proven 8B/10B encoding for data transmission
- Memory: 1 MB receive buffer
- Electrical Requirements: +5 VDC ±5%, 2 Amps
- Operating Environment:
  Temperature Range: +0° to +50°C
  Humidity Range: 5% to 95% (noncondensing)
- Storage Environment:
  Temperature Range: -40° to +85°C
  Humidity Range: 0% to 95% (noncondensing)

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FibreXtreme SL100 Series Products

6U VME FPDP



Hardware Compatibility:
6U VME (power only)
Front Panel Data Port Specification, ANSI/VITA 17-1998

Physical Dimensions:
6.690” x 10.320” (169.926 mm x 262.128 mm)

CMC FPDP



Hardware Compatibility:
Front Panel Data Port Specification, ANSI/VITA 17-1998
IEEE Draft Standard for CMC Family, P1386/Draft 2.0

Physical Dimensions:
2.913” x 5.866” (74.000 mm x 149.000 mm)

PMC



Hardware Compatibility:
PCI Local Bus Specification, Rev. 2.1

Physical Dimensions:
2.913” x 5.866” (74.000 mm x 149.000 mm)

PCI



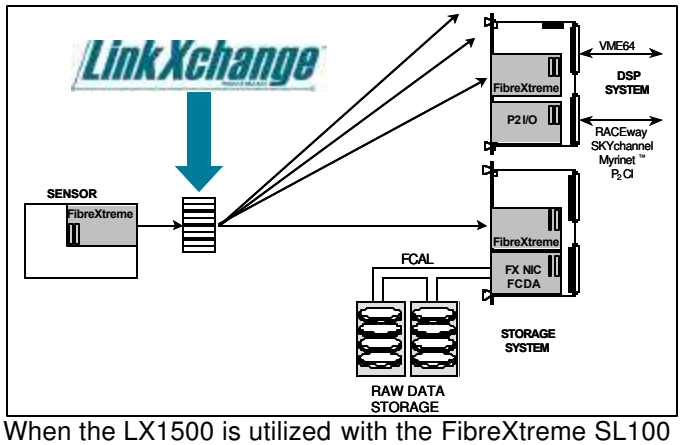
Hardware Compatibility:
PCI Local Bus Specification, Rev. 2.1

Physical Dimensions:
4.725” x 4.200” (120.015 mm x 106.680 mm)

LinkXchange LX1500 Modular Hub



The LinkXchange LX1500 Modular Hub is a 32-port crosspoint matrix switching device that supports a variety of digital signals at baud rates up to 1.5 GB/second. It supports up to eight “port cards” with up to four I/O ports per card. Different types of port cards provide the specific media connectors, signal conversion, and conditioning required for a specific type of network or digital signal to be switched.



When the LX1500 is utilized with the FibreXtreme SL100 data link, high-speed digital signals from a single sending card can be instantly copied and distributed to multiple receiving cards. This provides the capability for simultaneous parallel processing of identical data streams.

FibreXtreme SL100 Series Software



The FibreXtreme SL100 Series data link system interfaces with various computing platforms typically utilized in data-intensive high bandwidth applications such as DSP. Specific software packages are covered under our Software Maintenance Service, which offers free, automatic software and documentation upgrades when new versions are released during the maintenance term.

Operating System Support

Windows NT®	VxWorks®	LynxOS®
Red Hat Linux	Sun Solaris™	SGI IRIX®

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