

# PSA200

# PCI to LSN Controller

## FEATURES

- PCI to Lextel Serial Network for high speed intersystem links
- Multiple Operating Modes:
  - Transparent Bus to Bus Adapter
  - Shared Memory Network
  - High Speed Block Data Mover
- Fiber Optic or Copper Cable, distances up to 1Km
- Up to 80 MBytes/sec throughput
- Up to 16MB on-board memory
- Point-point, string, loop topologies

## SUMMARY

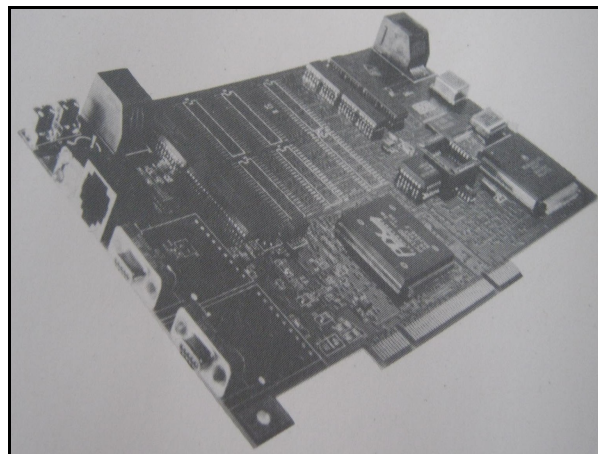
PSA200 is a PCI to LSN (Lextel Serial Network) controller. LSN is a 20MB/sec serial link that enables high speed communication between devices over point to point, string, or loop topologies.

PSA100 includes one dual port LSN node, for a total of 2 LSN ports. Each port has a maximum bandwidth of 20MB/sec in each direction. A maximally configured PSA100 has theoretical LSN bandwidth of 80MB/sec.

The three operating modes of PSA200 provide three programming models frequently used in real time systems, eliminating the need for three or more separate boards to provide these functions.

An on board processor and RS232 line is used for configuration and diagnostics. This allows for very flexible configuration options, without requiring host software. The on board processor is also used to perform some of the operating functions.

Multiple PSA200's may be connected via the LSN in point to point, loop, or string topologies. Many systems can be connected with only one PSA200 per system. Dual, or redundant networks can be constructed for fault tolerance.



## OPERATING MODES

### Bus to Bus Adapter

PSA200 will map bus cycles from a Local PCI to up to 16 Remote busses connected in an LSN network. Only one PSA200 is required per system. The Remote bus may be another PCI, or a VMEbus when using Lextel's VSA100. Interrupts may pass between systems. Remote resets can be generated. Configuration does not require any host programming.

### Shared Memory Network

Up to 256 Systems each with a PSA200 are connected in a loop topology. The PSA200 in each system contains up to 16MB of dual ported memory. When a local PCI master writes into the dual ported memory on it's local PSA200, the data is repeated in the dual port memories on all PSA200's in the network. The update occurs in real time, giving the appearance of a single shared memory to all processors in the network.

### High Speed Block Data Mover

Data blocks in either local PCI memory or on-board buffer memory are moved at high speed from one system to another. Up to 64 Systems may be connected. Dual or Quad Channel connections between systems can provide up to 40MB/sec bandwidth in each direction on the intersystem link. Redundant paths may be implemented for high availability.



## APPLICATIONS

PSA200 can be used to solve these kinds of problems:

<b>BUS EXTENSION:</b>	When equipment needs to be connected up to 1Km apart without loss of throughput
<b>BUS EXPANSION:</b>	When more bus slots are needed
<b>BUS CONNECTIVITY:</b>	When up to 256 PCI chassis need to be connected, or when PCI needs to be connected to VMEbus
<b>SIMULATORS:</b>	When multiple systems must share data in real time, using a shared memory network
<b>HIGH SPEED DATA:</b>	When a standard LAN isn't fast enough, PSA200 can be used to move data between systems at up to 80 MB/sec
<b>NOISE IMMUNITY:</b>	When EMI, RFI, and crosstalk are concerns, Fiber Optic cabling can be used to eliminate these issues

## SPECIFICATIONS

### PCI

Power	15W Max
Form Factor	Short Card + 1" (L) 7.9" x (H) 4.2"
Compatibility	PCI Local Bus Specification 2.1
Interface Chip	PCI9080-3
PCI Signalling	Universal (5V or 3.3V)
Master Features	Write posting, Burst transfer, programmable byte swapping.
Slave Features	Programmable slave windows, burst transfer, write posting, delayed transactions.
Slave Registers	Standard PCI Configuration Space, Interprocessor Communication Registers, Programmable Slave Windows to on-board buffer, remote bus, and remote buffers
Interrupts	Can be repeated between chassis (subject to motherboard), forced under program control, or asserted by PSA200 under various operating conditions.

### LSN (Lextel Serial Network)

Maximum Number of Ports	2
Data Rate per Port	20 Megabytes per second in each direction
Encoding Method	8B/10B
Raw Bit Error Rate	1 in 10 to the -12
Error Detection	32 bit CRC polynomial
Error Recovery	Retry operations and Link ERP (Error Recovery Procedure)
Node Addressing	Each PSA200 has a separate Node ID user selected via the RS232 port
Cabling Topologies	Point-Point, String, or Loop with fairness algorithm. Multiple links in the network may be active simultaneously for high bandwidth.

### COPPER CABLE

Connector	Micro DB9
Cable	4 wire Shielded, special construction for high speed links
Length	25 meters max

### FIBER CABLE

Connector	SC Duplex
Cable	62.5/125 um multi-mode
Length	1Km. max

### ENVIRONMENT

Temperature	5 to 50 degrees C
Humidity	20% to 80% Noncondensing

## ORDERING INFORMATION

### PSA200 CONTROLLER

Part number: PSA200-wx-b

w =	Operating Mode
	1: Bus to Bus Adapter
	2: Shared Memory Network
	3: Block Data Mover
	4: Modes 1-3, above
x =	Cable termination
	1: Copper, Micro DB9
	2: Fiber, SC Duplex for each port, 1Km max
	3: 1 Copper Port, 1 Fiber Port
b =	Buffer Size
	4MB: 4 Megabytes
	8MB: 8 Megabytes
	16MB: 16 Megabytes
	(leave blank for no buffer)

### CABLE ASSEMBLIES

PSTPxx	Micro DB9 Cable Assembly, xx = meters
PSTPCONV	Micro DB9 to Standard DB9 Converter
PFIBxxx-SC	Duplex SC Fiber Assembly, xxx = meters
PFIBxxx-SCST	Duplex SC-ST Fiber Assembly, xxx = meters

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