VSA100 VMEbus to LSN Controller

FEATURES

· VMEbus 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

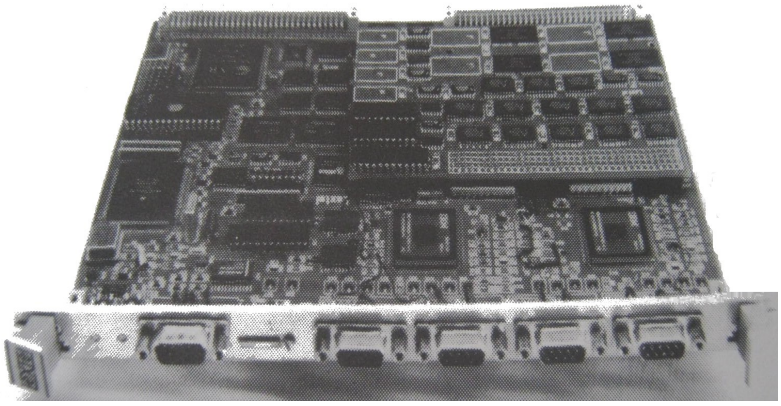
· Fiber Optic or Copper Cable, distances up to 1Km

· Up to 80 MBytes/sec throughput

· Up to 16MB on-board memory

· Optional VME64 Interface

· Point-point, string, loop topologies



SUMMARY

VSA100 is a VMEbus 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.

VSA100 includes one or two dual port LSN nodes, for a total of 4 LSN ports. Each port has a maximum bandwidth of 20MB/sec in each direction. A maximally configured VSA100 has theoretical LSN bandwidth of 160MB/sec.

The three operating modes of VSA100 provide three programming models frequently used in real time systems, eliminating the need for three or more seperate 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 VSA100's may be connected via the LSN in point to point, loop, or string topologies. Many systems can be connected with only one VSA100 per system. Dual, or redundant networks can be constructed for fault tolerance.

OPERATING MODES

Bus to Bus Adapter

VSA100 will map bus cycles from a Local VMEbus to up to 16 Remote busses connected in an LSN network. Only one VSA100 is required per system. Response and regeneration of address and address modifier codes is flexible. 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 VSA100 are connected in a loop topology. The VSA100 in each system contains up to 16MB of dual ported memory. When a local VMEbus master writes into the dual ported memory on it's local VSA100, the data is repeated in the dual port memories on all VSA100'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 VMEbus 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 80MB/sec bandwidth in each direction on the intersystem link. Redundant paths may be implemented for high availability.

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APPLICATIONS

VSA100 can be used to solve these kinds of problems:

BUS EXTENSION:	When equipment needs to be connected up to 1Km apart without loss of throughput
BUS EXPANSION:	When more bus slots are needed
BUS CONNECTIVITY:	When up to 256 VMEbus chassis need to be connected
SIMULATORS:	When multiple systems must share data in real time, using a shared memory network
HIGH SPEED DATA:	When a standard LAN isn't fast enough, VSA100 can be used to move data between systems at up to 80 MB/sec
NOISE IMMUNITY:	When EMI, RFI, and crosstalk are concerns, Fiber Optic cabling can be used to eliminate these issues

SPECIFICATIONS

VMEbus

Power	3.0A @+5VDC
Form Factor	6U
System Control	Programmable timeout, Sysclk, 4 Level Arbiter configurable as PRI, SGL, and RRS
Address/Data Path	16/24/32 Bit Address, 8/16/32/64 Bit Data
Master Features	Fair requesting, Write posting, Block transfer, programmable AM generation.
Slave Features	Programmable slave windows, block transfer, write posting
Slave Registers	Interprocessor Communication Registers, Programmable Slave Windows to on-board buffer, remote bus, remote buffers
Interrupts	Can be repeated between chassis, forced under program control, or asserted by VSA100 under various operating conditions.

LSN (Lextel Serial Network)

Maximum Number of Ports	4
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 VSA100 has a seperate 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	DB9
Cable	4 wire Shielded, special construction for high speed links
Length	25 meters max

FIBER CABLE

Connector	ST 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

VSA100 CONTROLLER

Part number: VSA100-wxyz-b

w = Operating Mode
- 1: Bus to Bus Adapter
- 2: Shared Memory Network
- 3: Block Data Mover
- 4: Modes 1-3, above

x = Number of LSN ports installed, 2 or 4 valid

y = Cable termination
- 1: Copper, DB9
- 3: Fiber, ST Duplex for each port, 1Km max
- 4: 1/2 of installed ports Copper, 1/2 Fiber ST

z = VMEbus Interface Data Width
- 1: 8/16/32
- 2: 8/16/32/64 (VME64)

b = Buffer Size
- 4MB: 4 Megabytes
- 8MB: 8 Megabytes
- 16MB: 16 Megabytes
- (leave blank for no buffer)

CABLE ASSEMBLIES

VSTPxx	Copper Cable Assembly, xx = meters
VFIBxxx-ST	Duplex ST Fiber Assembly, xxx = meters

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