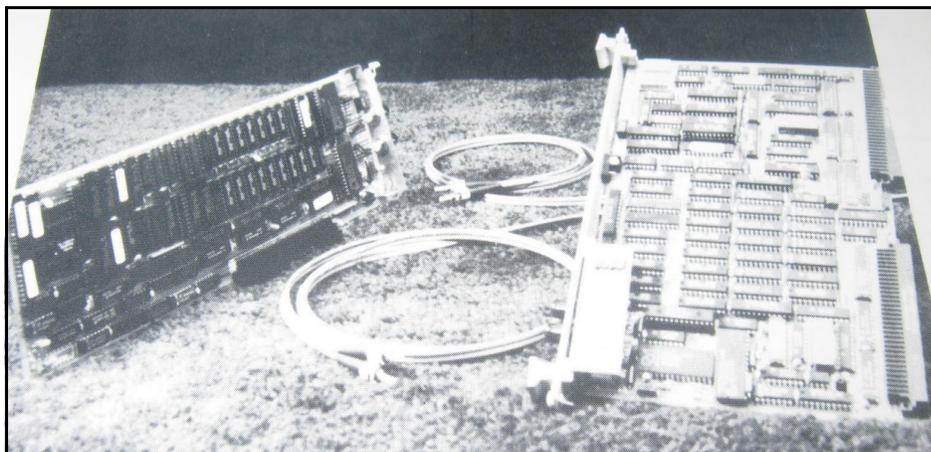


## FEATURES

- High speed bus to bus link
- Fiber Optic or Coax Cable
- Up to 2Km system separation
- Programmable address windows
- Symmetrical Master/Slave operation
- Both busses run independently
- Remote Reset Function
- 16/24/32 Bit VME, 24 Bit ISA addresses
- Programmable byte swapping
- VMEbus system controller functions



## SUMMARY

LL5200 is an ISA to VMEbus link that allows the physical address space of an ISA bus based computer (PC/AT) to be mapped into that of the VMEbus, and vice-versa. Bus masters on either bus can have direct, random access to the other bus. Remote memory and IO devices appear to be within the local machine, even though they may be physically located up to 2Km away.

Up to 4096 VMEbus address segments, or 'windows', can be mapped into the ISA Bus address space. A single window of ISA address space can be mapped into the VMEbus. The size and base address of the ISA window is programmable. In addition, the addresses can be translated as they pass across the link.

Unlike a simple bus repeater, the LL5200 does not tie up both systems when one is in use. Only when a local bus cycle is destined for the remote bus is the remote bus acquired.

The LL5200 links the systems over a pair of high speed fiber optic or coax cables. Fiber may span up to 2Km. The fiber cable provides the benefits of longer distance, ease of installation, and high noise immunity.

## APPLICATIONS

LL5200 and other Lextel Bus Links are being used to solve these kinds of problems:

- |                  |  |
|------------------|--|
| BUS EXTENSION:   | When equipment needs to be connected up to 2Km apart without loss of throughput. |
| BUS CONVERSION:  | When one bus architecture needs to be used with another.                         |
| BUS EXPANSION:   | When more bus slots are needed   |
| NOISE IMMUNITY:  | Fiber optics are immune to EMI, RFI and crosstalk.                               |
| HIGH SPEED DATA: | When a standard LAN isn't fast enough.   |

Example Application areas are Test and Measurement, Control Systems, Factory Floor, and Image Transmission.



## DESCRIPTION

### Fiber Cable

Data is transmitted at 125Mhz on 62.5/125 um fiber cable. The fiber link may span up to 2Km, providing noise immunity, security, light weight and ease of installation.

### Coax Cable

A lower cost alternative over distances up to 200ft. is Coax cable, which uses Dual conductor cable and Dual-BNC type connectors

### VMEbus Address Translation Map

Up to 4096 individual VMEbus address windows can be mapped into the remote ISA bus. The address can be translated prior to transmission to the remote bus.

### ISA Bus Address Window

From 4KByte to 1MByte of ISA Bus address space can be mapped to VMEbus, through a single Window with a programmable base address and size. ISA addresses are translated and extended prior to transmission to the VMEbus.

### Byte Swapping

To accomodate different byte-ordering conventions between the ISA Bus and VMEbus devices, programmable byte swapping allows various placements of bytes and words within longwords.

### Symmetrical Link

All operations are allowed from both ends of the link. This includes acquiring bus mastership, asserting interrupts, resetting the remote bus, and setting up programmable IO registers on the link boards.

### Interrupts

VMEbus interrupts may be passed to the ISA Bus interrupt lines. An ISA bus master can then generate the VMEbus IACK cycle. Also, the ISA processor can assert any of the VMEbus interrupt lines.

### Data Throughput

Maximum data throughput is 2MBytes/sec. Typical throughput will depend on the system and application software.

### Block Data Transfer and Write Queing

These two performance enhancement features help speed data across the link, especially useful on long cable runs, where cable delay becomes a factor.

### VMEbus Address Modifier Generation

Four standard AM Codes can be generated and responded to. Other codes can be provided by a modified PAL device.

### VMEbus System Controller Functions

The system clock, timeout mechanism, and single level arbiter are provided.

## SPECIFICATIONS

### VMEbus

Power	4.0A @+5VDC
Form Factor	6U Eurocard
System Control	Single Level Arbiter, Sysclk and Timeout
Address Modifiers	09, 29, 39, 3A Standard, others optional
Address,Data	A32/A24/A16, D16/D8 (limited by ISA Bus)
Requestor	RWD
Slave Registers	4 registers, 12KBytes Map/Comm Ram

### ISA (PC/AT) BUS

Power	2.0A @+5VDC
Form Factor	PC/AT, 16 Bit slot
Addressing	24 Bits to Remote VME (extended to 32), I/O Registers jumper selectable
Data Size	8 and 16 bit
Slave Registers	16 bytes reserved
Other	Interrupt/DMA level jumperable

### FIBER CABLE

Connector	ST Bayonet
Cable	62.5/125um
Length	2Km max

### COAX CABLE

Connector	Dual BNC
Cable	RG-108A/U
Length	200ft. max

### ENVIRONMENT

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

## ORDERING INFORMATION

### BUS LINKS

LL100x	NuBus-NuBus
LL200x	VMEbus-VMEbus
LL300x	NuBus-VMEbus
LL500x	ISA-ISA
LL510x	ISA-NuBus
LL520x	ISA-VMEbus

x =	1:Coax, 200ft max
	3:Fiber, 2Km max
	4:Fiber, 1000ft max

All Links include 2 circuit boards, user manuals, and sample software. Cable is ordered separately.

### CABLE ASSEMBLIES

LC0xxx	Duplex Coax Cable Assembly, xxx = ft.
LFxxxx	Duplex Fiber Cable Assembly, xxxx = ft.

LEXTEL, Inc. · 131 Main St., B475 · North Andover, MA 01845  
(781) 245-5017 FAX (781) 245-6369 WEB [www.lextel.com](http://www.lextel.com)

Lextel, Lextel logo and 'LL' series product names are Trademarks of Lextel, Inc.

NuBus is a Trademark of Texas Instruments, Inc; Mac-II is a Trademark of Apple Computer, Inc.