

INTRODUCTION

The Serial **TRAM** from Alta is designed to provide a simple interface between RS-232 signals and transputer links. Serial devices can be easily accessed from transputer links. Full Duplex communication on four channels can be accommodated. Conversion and configuration are done in hardware so software drivers and initialization are not necessary on the **TRAM**. The Serial TRAM does not provide hardware handshake or modem control signals. The Serial TRAM is ideal for robotic control and connecting terminals, printers and a mouse to transputer links.

The module is a standard size-4 TRAnsputer Module (TRAM) designed to be used in the 4 slots nearest the edge connector of the Alta SuperLink/XL TRAM board. The RS-232 signals on the TRAM are brought to pins for connection to the personality area of the TRAM board which are routed to the 37-pin edge connector. The RS-232 signals for each channel for each channel are: data in, data out and ground power (+/- 12V) for the RS-232 drivers is supplied from the personality area.

CONFIGURING THE SERIAL TRAM

There are 8 switches on the SERIAL TRAM that must be set for proper operation. Refer to Figure 1 for the location of the switches. The following tables describe the function and values of each of the switches. The switch settings apply to all four serial channels.

NOTE: IN ALL OF THE FOLLOWING SWITCH SETTINGS , ZERO MEANS "OFF" OR "CLOSED" AND ONE MEANS "ON" OR "OPEN".

BAUD RATE

The baud rate for ALL the RS-232 receivers and transmitters is set using switches 1-4. The values for the switch settings range from 50 baud to 19,200 baud as follows:

SWITCH				BAUD RATE
4	3	2	1	
0	0	0	0	50
0	0	0	0	75
0	0	1	0	110
0	0	1	1	134.5
0	1	0	0	150
0	1	0	1	300
0	1	1	0	600
0	1	1	1	1200
1	0	0	0	1800
1	0	0	1	2000
1	0	1	0	2400
1	0	1	1	3600
1	1	0	0	4800
1	1	0	1	7200
1	1	1	0	9600
1	1	1	1	19200

PARITY SELECT

Parity may be set to either odd, even, or NONE. The values for the switch settings are as follows:

Switch		
6	5	Parity Select
0	0	odd parity
0	1	even parity
1	X	no parity (default) X = don't care

STOP BIT SELECT

One or two stop bits may be selected. The values for the switch setting are as follows.

Switch		
7		Stop Bits
0		1 (default)
1		2

DATA BITS PER CHARACTER SELECT

Seven or eight data bits per character may be selected. The values for the switch setting are as follows:

Switch		
8		Data Bits
0		7
1		8 (default)

LINK SPEED SELECTION

The link speed for the tram may be set to either 10 or 20 Mbits/second using the 3-pin jumper, J1.

Jumper Position	Link Speed
Near "10"	10 Mbits/sec
Near "20"	20 Mbits/sec (default)

INSTALLATION ON THE SUPERLINK/XL

Installation is simple - plug and play

Care must be taken when installing the TRAM to avoid bending any of the connecting pins. (HINT: line up the pins on the end of the SERIAL TRAM first - over P6! Then align the other pins into the green SIP connectors).

Install the XL board into the PC and plug the cable (supplied by Alta) into the 37-pin connector. You will need to connect the links for the SERIAL TRAM with links from the TRAM's in the configuration area. (An example of the XL configuration area is provided at the end of this document).

SOFTWARE CONSIDERATIONS

The SERIAL TRAM is not programmable - it is a simple interface that converts between RS-232 signals and TRANSPUTER LINKS. Bytes sent and received on the transputer link are converted to RS-232 characters. If 7 data bits are selected, the most significant bit in a byte will be zero when read on the transputer.

To write out to SERIAL link, simply write the data out the appropriate link using a CHANNEL OUTPUT. Similarly, to read data in from the serial connection, simply perform a CHANNEL INPUT on the transputer link. No buffering beyond one character is provided on the SERIAL TRAM. If a received RS-232 character is not read by a channel input on the transputer before the next character is received, it will be overwritten. A multi-byte channel input will ensure that overrun does not occur for the length of the message. A channel output from a transputer is immediately serialized on the RS-232 transmitter.

Flow control can be implemented with XON, XOFF protocol, but is not provided by Alta at this time.

Serial TRAM

Installation Guide

and

User Manual

