

TC-3518 SERIAL I/O CONTROLLER FUNCTIONAL DESCRIPTION

REV 1.03 03/30/93 WJS

The TC-3518 I/O Controller is a 4.5" x 6.5" card which contains eight serial I/O ports with input and outputs at TTL levels. When used in conjunction with the TC-642 (4 x RS-232) or the TC-644 (4 x RS-422) level translator/buffer boards, up to eight RS-232 or RS-422 communication channels may be configured.

Baud rates from 110-38,400 are possible for normal serial communication typically used in a LDC (Laser Disc Controller)/SCU frame, in addition to the 250K baud rate used for data transmissions between CTU (Central Terminal Unit) and DTU/RTU/STU I/O frames within the system.

The baud rate, parity, and stop bit configuration for each serial port is software selectable and is configured in the battery-backed RAM of the TC-3550 Processor card. An eight way dip switch is provided that can be used for port mode selection under software control.

One handshake line is available for each port, and can be jumper selected as a CTS (Clear to Send) output inhibit or DTR (Data Terminal Ready) for hardware communications flow control.

An optional on-board RS-232 level translator and modular style connector may be used in applications that require front panel access to a serial port, although this is normally handled by the TC-3550 Processor card.

There are two clock sources available, a 3.6864 meg crystal for the "standard" baud rates, and a 4.0000 meg oscillator for high speed/custom applications, such as TRX (Triad proprietary format) or DMX (USITT DMX-512 lighting format).

The TC-3518 normally occupies the second slot of a TC-636 Backplane, and is buss compatible with other Triad TC-35xx series cards. I/O on the TC-636 Backplane appears on a 26 pin (13x2) dual header, which is used to interconnect the interface adapter cards.

Physical Dimensions:

4.5" x 6.5" printed circuit board
28/56 .125 center gold edge connector

Power Requirements:

+5VDC @ 350 MA. (+/-12 VDC for RS-232 operation generated on-board)

Related Documents:

PIN3518.TXT Pin assignments and application information
TC3518.ASM Assembly diagram
TC3518.OCD Schematic diagram

JUMPERS/SWITCHES

SW1: Determines if the DCD pin on each of the eight serial ports is at ground or pulled up to VCC. When each switch is CLOSED or ON, the corresponding DCD will be at ground. In the future this DCD input may be used for port configuration under software control.

- Pin 1-8. Connects to ground
- Pin 9. Connects to pin 8 (DCD2) of U5 port 8
- Pin 10. Connects to pin 32 (DCD1) of U5 port 7
- Pin 11. Connects to pin 8 (DCD2) of U3 port 6
- Pin 12. Connects to pin 32 (DCD1) of U3 port 5
- Pin 13. Connects to pin 8 (DCD2) of U2 port 4
- Pin 14. Connects to pin 32 (DCD1) of U2 port 3
- Pin 15. Connects to pin 8 (DCD2) of U1 port 2
- Pin 16. Connects to pin 32 (DCD1) of U1 port 1

JP1: Determines the hardware handshake method. Input vs. Output handshake. Serial port #1. Jumper pins 3 to 4 (CTS to ground Normal Strapping).

- Pin 1. Connects to pin 30 (RTS1) of U1
- Pin 2. Connects to pin 8 (HS1) on the edge connector
- Pin 3. Connects to pin 31 (CTS1) of U1
- Pin 4. Connects to ground

JP2: Determines the hardware handshake method. Input vs. Output handshake. Serial port #2. Jumper pins 3 to 4 (CTS to ground Normal Strapping).

- Pin 1. Connects to pin 10 (RTS2) of U1
- Pin 2. Connects to pin 7 (HS2) on the edge connector
- Pin 3. Connects to pin 9 (CTS2) of U1
- Pin 4. Connects to ground

JP3: Determines the hardware handshake method. Input vs. Output handshake. Serial port #4. Jumper pins 3 to 4 (CTS to ground Normal Strapping).

- Pin 1. Connects to pin 10 (RTS2) of U2 (65C52)
- Pin 2. Connects to pin 13 (HS4) on the edge connector
- Pin 3. Connects to pin 9 (CTS2) of U2 (65C52)
- Pin 4. Connects to ground

JP4: Determines the hardware handshake method. Input vs. Output handshake. Serial port #3. Jumper pins 3 to 4 (CTS to ground Normal Strapping).

- Pin 1. Connects to pin 30 (RTS1) of U2 (65C52)
- Pin 2. Connects to pin 14 (HS3) on the edge connector
- Pin 3. Connects to pin 31 (CTS1) of U2 (65C52)
- Pin 4. Connects to ground

JP5: Determines the hardware handshake method. Input vs. Output handshake. Serial port #6. Jumper pins 3 to 4 (CTS to ground Normal Strapping).

- Pin 1. Connects to pin 10 (RTS2) of U3 (65C52)
- Pin 2. Connects to pin 19 (HS6) on the edge connector
- Pin 3. Connects to pin 9 (CTS2) of U3 (65C52)
- Pin 4. Connects to ground

- JP6: Determines the hardware handshake method. Input vs. Output handshake. Serial port #8. Jumper pins 3 to 4 (CTS to ground Normal Strapping).
- Pin 1. Connects to pin 10 (RTS2) of U5 (65C52)
 - Pin 2. Connects to pin 28 (HS8) on the edge connector
 - Pin 3. Connects to pin 31 (CTS2) of U5 (65C52)
 - Pin 4. Connects to ground
- JP7: Determines the hardware handshake method. Input vs. Output handshake. Serial port #7. Jumper pins 3 to 4 (CTS to ground Normal Strapping).
- Pin 1. Connects to pin 30 (RTS1) of U5 (65C52)
 - Pin 2. Connects to pin 26 (HS7) on the edge connector
 - Pin 3. Connects to pin 31 (CTS1) of U5 (65C52)
 - Pin 4. Connects to ground
- JP8: Determines the hardware handshake method. Input vs. Output handshake. Serial port #5. Jumper pins 3 to 4 (CTS to ground Normal Strapping).
- Pin 1. Connects to pin 30 (RTS1) of U3 (65C52)
 - Pin 2. Connects to pin 20 (HS5) on the edge connector
 - Pin 3. Connects to pin 31 (CTS1) of U3 (65C52)
 - Pin 4. Connects to ground

I/O PORTS

JP9: Modular connector for RS-232 to access serial port #1

- Pin 1. Connects to R2 (10 ohm) which connects to VCC
- Pin 2. Connects to ground
- Pin 3. Connects to pin 14 (T10) of U10 (MAX232)
- Pin 4. Connects to pin 13 (R11) of U10 (MAX232)
- Pin 5. Connects to ground
- Pin 6. N/C

**Free Edge Buss Connector
Rear View**

SOLDER SIDE				COMPONENT SIDE
+5VDC	2	1		+5VDC
TX1	4	3		TX2
RX1	6	5		RX2
HS1	8	7		HS2
TX3	10	9		TX4
RX3	12	11		RX4
HS3	14	13		HS4
TX5	16	15		TX6
RX5	18	17		RX6
HS5	20	19		HS6
TX7	22	21		TX8
RX7	24	23		DATA 0 (BUFFERED)
HS7	26	25		DATA 1 (BUFFERED)
SPARE	28	27		DATA 2 (BUFFERED)
RX8	30	29		DATA 3 (BUFFERED)
SPARE	32	31		DATA 4 (BUFFERED)
SPARE	34	33		DATA 5 (BUFFERED)
BSEL	36	35		DATA 6 (BUFFERED)
RES-	38	37		DATA 7 (BUFFERED)
SPARE	40	39		ADDRESS 0
SPARE	42	41		ADDRESS 1
SPARE	44	43		ADDRESS 2
RX2	46	45		ADDRESS 3
TX2	48	47		PHASE 2 02
SPARE	50	49		R/W -
SPARE	52	51		IRQ
SPARE	54	53		ADDRESS 4
GROUND	56	55		GROUND

VCC = +5VDC @ 350 ma.