ADDENDUM FOR
INSTALLATION INSTRUCTIONS
(Cat. No. 26-5164)

The mounting method for this option board has been improved. Please disregard references to the nylon locking devices. Two #12 X 3/8 screws are supplied for the purpose of securing the option board assembly in place. When installing the assembly, follow all directions given in the installation instruction guide for selecting the proper expansion slot, then proceed as follows:

1. Be sure the assembly is properly aligned in the guide rails and gently slide toward the front of the computer.
2. The assembly will stop when the mating connectors contact each other. At this point a "snap" action should be used to properly seat the connectors. This action should leave the holes at each side of the assembly properly aligned to receive the #12 screws.
3. Using a standard Phillips screwdriver (not the small one), install the two screws to a snug fit. **DO NOT OVERTIGHTEN.**

If later removal of the assembly is necessary, first remove the two #12 screws and then follow the instruction guide for removal of the assembly.

TBP 4/85

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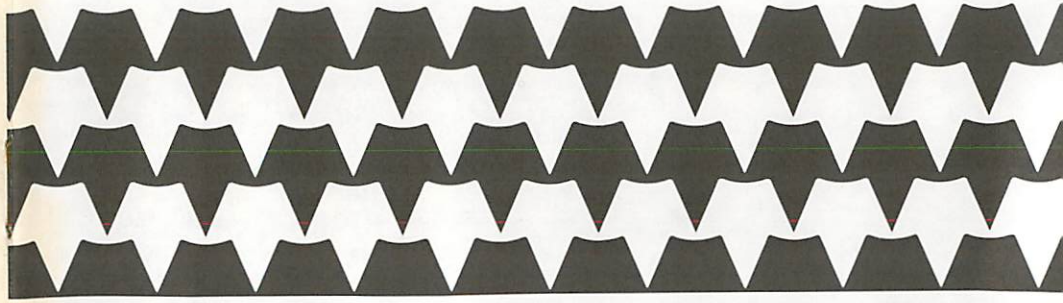
Cat. No. 26-5164

Tandy 2000

Serial Expansion Board

Installation Instructions



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Write Control 2

Bit	Signal Name	
DØ	EXTXCKENA*	EXternal TXClK ENable Channel A
D1	EXTXCKENB*	EXternal TXClK ENable Channel B
D2	EXTXCKENC*	EXternal TXClK ENable Channel C
D3	EXTXCKEND*	EXternal TXClK ENable Channel D
D4	DMADEVSELØ	DMA DEVice SELect Ø
D5	Not Used	
D6	DMACHANENl	DMA CHanel ENable 1
D7	DMACHANEN2	DMA CHanel ENable 2

Write Control 1

Bit	Signal Name	
DØ	DTRA*	Data Terminal Ready Channel A
D1	DTRB*	Data Terminal Ready Channel B
D2	DTRC*	Data Terminal Ready Channel C
D3	DTRD*	Data Terminal Ready Channel D
D4-D7	Not Used	

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Port and Register Definitions

The addresses and programming information for the input/output ports on the serial board and the addresses for the SCC registers are listed below. For SCC programming information, see the AMD programming manual.

Board Number

1	2	
82CØ	82D8	Read Status 2 (read only)
82C2	82DA	Read Status 1 (read only)
82C4	82DC	Write Control 2 (write only)
82C6	82DE	Write Control 1 (write only)
82C8	82EØ	SCC1-Channel B Control
82CA	82E2	SCC1-Channel B Data
82CC	82E2	SCC1-Channel A Control
82CE	82E6	SCC1-Channel A Data
82DØ	82E8	SCC2-Channel B Control
82D2	82E8	SCC2-Channel B Data
82D4	82EC	SCC2-Channel A Control
82D6	82EE	SCC2-Channel A Data

Read Status 2

Bit	Signal Name	
DØ	Board 1 - INT 1	The status of the interrupt depends on jumper options J29 and J30
D1	Board 1 - INT 2	
D2	Board 2 - INT 1	
D3	Board 2 - INT 2	
D4-D7	Not Used	

Read Status 1

Bit	Signal Name	
DØ	RIA*	Ring Indicator Channel A
D1	RIB*	Ring Indicator Channel B
D2	RIC*	Ring Indicator Channel C
D3	RID*	Ring Indicator Channel D
D4	DSRA*	Data Set Ready Channel A
D5	DSRB*	Data Set Ready Channel B
D6	DSRC*	Data Set Ready Channel C
D7	DSRD*	Data Set Ready Channel D

The 4 channels on this board (A, B, C, D) connect to devices through a DB-25. The pinouts of the DB-25 are listed below:

Pin Number	Sig-DTE	Sig-DCE
1	GND	GND
2	TXD	RXD
3	RXD	TXD
4	RTS	CTS
5	CTS	RTS
8	DCD	DTR
20	DTR	DCD
6	DSR	DSR
7	GND	GND
15	EX CLK	EX CLK
17	EX CLK	EX CLK
22	RI	RI
24	CLK OUT	CLK OUT

The selection of DTE versus DCE is done with jumper plugs for each channel. With all six jumper plugs in the 1-2 position, the channel is configured for DTE operation. In the 2-3 position, the channel is configured for DCE operation.

Installation

Thank you for purchasing the Tandy 2000 Serial Expansion Board. If this is your second board, some modifications will be necessary to the Main Logic Board; therefore, the second Serial Expansion Board **MUST** be installed by the service technicians at your Radio Shack Service Center.

1. **Warning: Turn off all equipment.** If it is on, you could damage the central processing unit, as well as the option board.

2. To avoid possible static charge buildup, touch a metal object to ground yourself before you begin.

3. If you have a monochrome Graphics Option board (Catalog #26-5140), do not install the expansion board in the lowest slot. The graphics board must go there. If you have a Hard Disk Controller board (Catalog #26-5125), do not install the expansion board in the top slot. After selecting a slot, "unlock" the panel covering it. Do this by pulling the buttons on either side of the panel. (See Figure 1. Do not try to remove the buttons.) Remove the panel.

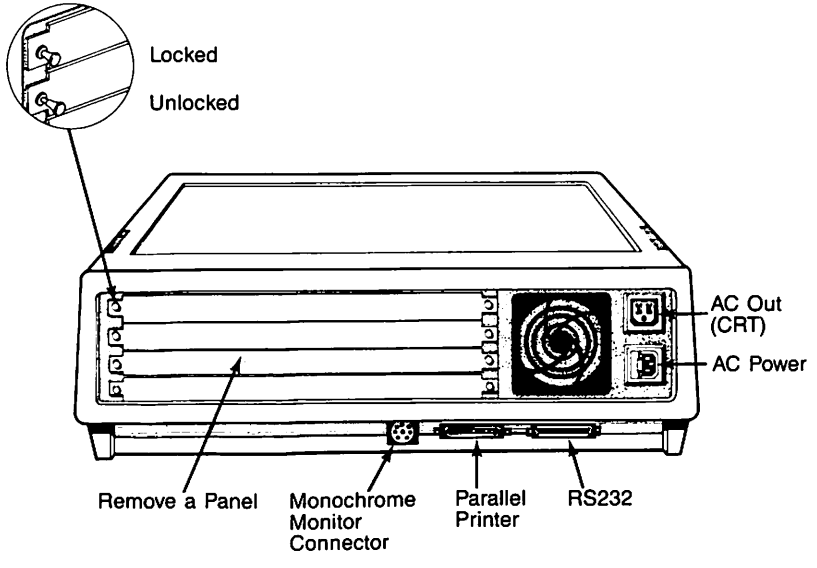
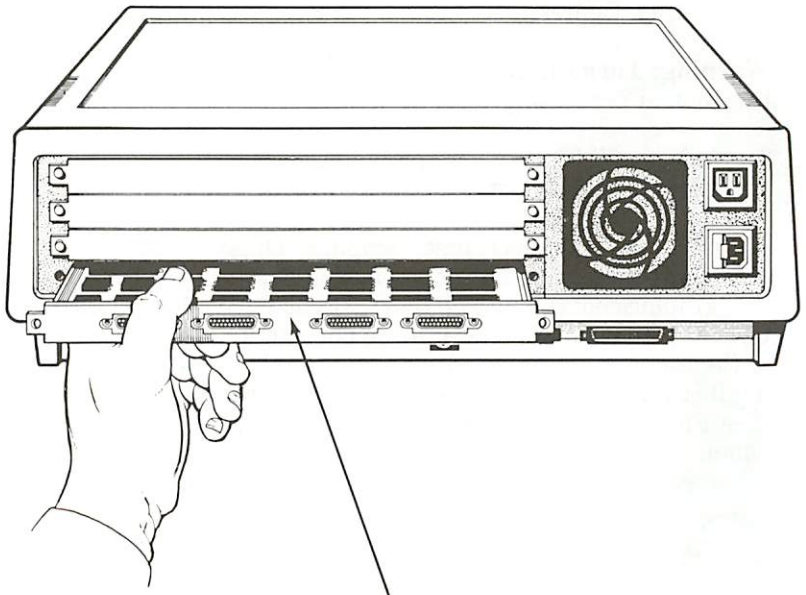


Figure 1

4. Unlock the buttons on the Serial Expansion Board's panel. (Note: Handle the pan containing the board, **not** the board itself.) Slowly slide the pan between the guides along the sides of the card slot until the board meets the connector. (See Figure 2.)



Serial Expansion Board
Figure 2

5. Then apply steady, equal pressure to both edges of the panel (near the buttons) to push the pan all the way in and "seat" the connector. Push the buttons in to lock the board into position.

The Tandy 2000 Serial Expansion Board has many user selectable options. The next few pages will describe these options. If you have any questions concerning these, please contact your nearest Radio Shack Service Center.

Serial Communications Chip

Data Lines—The internal 8-bit data bus connects directly to the data lines of the SCC.

Control Lines—IORD*, IOWR*, RESET*, CE1*, and CE2* connect to a PAL (U28). The C1RD*, C1WR*, C2RD*, and C2WR* outputs are tied to the respective read and write inputs on SCC1 and SCC2. Addresses A1 and A2 drive the D/C* and A/B* inputs. CE1* and CE2* connect to CE* on its respective SCC. The vectored interrupts feature is not used, so IEI, IEO, and INTNAK* are ignored. The INT* output is pulled up and fed to a LSØ8.

DMA Control Lines—The W/REQ* outputs are fed to the LS153 as receive requests and the DTR/REQ* outputs as transmit requests.

Clocks—The 8 MHz input from the bus is divided by two and fed to the PCLK (Peripheral Clock) input.

Channel Data and Control—The TXD, RXD, RTS*, CTS* and DCD* lines connect through 1488 and 1489 (E1A buffers) to the channel input/output connector.

Channel Clocks—The RXC and TXC connect through 1488 and 1489 (E1A buffers to the channel input/output connector).

Jumper Options

E1-E2	Enables DMA TX requests to bus. (Channels A and B only)
E3-E4	Enables DMA RX requests to bus. (Channels A and B only)
E5-E6	Selects board as first board in system.
E6-E7	Selects board as second board in system.
E8-E9	High active BUSINTØ3.
E8-E1Ø	Low active BUSINTØ3.
J5-J28	Jumper channel for DTE or DCE. Jumper 1-2 for DCE Jumper 2-3 for DTE
J29-J3Ø	Selects Data bits that Interrupt Status will appear on: J29 & J30 1 to 2 for the first board J29 & J30 2 to 3 for the second board