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Super Serial Card: Description (12/96)

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TOPIC -----

This article describes the Super Serial Interface Card.

DISCUSSION -----

Overview

The Apple II Super Serial Card provides a configurable RS 232 interface, allowing an Apple II, Apple II Plus, or Apple IIe computer to exchange data with other computers, modems, printers, terminals, and accessories employing a bidirectional RS-232-C interface in serial format (one bit at a time).

The Super Serial Card features an on-board switch allowing the operation of a printer, modem, or other serial device. This switch also eliminates the need for special connection cables such as modem eliminators.

System Requirements

To use the Apple II Super Serial Card, you need:

- * an Apple II, Apple II Plus, or Apple IIe computer system with an available expansion slot; and
- * a printer, modem, or other serial device.

Technical Specifications

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- * Single Level: EIA RS-232-C
 - * Connector Type: DB-25 socket
 - * On-Board ROM: 2K x 8 bit (2316 or equivalent)
 - * ACIA: S6551 or equivalent
 - * Baud Rate Selection: via on-board DIP switches (default) or via software

commands

- * Data word format: 1 start bit, 1 or 2 stop bits, 7 or 8 data bits; odd, even, or no parity
- * Available baud rates: 50, 79, 110, 134.6, 150, 300, 600, 1200, 1800, 2400, 3400, 9600, 19200
- * RS-232-C Signals Supported: RTS (Request to Send), CTS (Clear to Send), DTR (Data Terminal Ready), DSR (Data Set Ready), DCD (Data Carrier Detect), RXD (Receive Data), TXD (Transmit Data), (SG) Signal Ground.

Internal Cable Pinout

10 Pin Connector	25 Pin Connector	Signal Name
pin 1	pin 1	Frame Ground
pin 2	pin 2	Transmit Data
pin 3	pin 3	Receive Data
pin 4	pin 4	Request to Send (RTS)
pin 5	pin 5	Clear to Send (CTS)
pin 6	pin 6	Data Set Ready (DSR)
pin 7	pin 19	Secondary CTS
pin 8	pin 7	Signal Ground
pin 9	pin 20	Data Terminal Ready
pin 10	pin 8	Data Carrier Detect

Pin Explanation

FRAME GROUND: Provides electrical connection to give both devices connected a common frame ground. Usually tied to Signal Ground inside the cabinet of one of the devices.

TRANSMIT DATA: This pin conveys serial data sent from the Super Serial card. This is one of the pins that may need to be crossed over if the peripheral device is a DTE. The MODEM/TERM plug can perform this crossover.

RECEIVE DATA: This pin receives serial data sent from the device the Super Serial card connects the computer to. This is one of the pins that may need to be crossed over if the peripheral device is a DTE. The MODEM/TERM plug can perform this crossover.

REQUEST TO SEND (RTS): This signal is used by the computer to ask the peripheral device if it is ready to receive computer data. Often a device such as a printer will ignore this signal (will not have a pin connected to it) because the signals primary use is to control half duplex modems.

CLEAR TO SEND (CTS): This pin receives the peripheral's ready to receive data response to an RTS from the computer. Again this pin is used most often by modems.

DATA SET READY (DSR): This pin receives the signal generated by the peripheral that indicates that the peripheral is turned on and ready to communicate. This

is one of the pins that may need to be crossed over if the peripheral device is a DTE. The MODEM/TERM plug can perform this crossover.

SECONDARY CTS: Some modems can transmit and receive on two channels (that is two separate communications on the same line). The Secondary CTS pin would be used to receive the peripheral's ready to receive data response to an RTS for the second channel from the computer.

SIGNAL GROUND: When this pin is connected between two RS232 devices it provides a common electrical level that the devices can reference the RS232 signals to.

DATA TERMINAL READY: This pin becomes active when the computer and SSC are ready to go on line. This is one of the pins that may need to be crossed over if the peripheral device is a DTE. The MODEM/TERM plug can perform this crossover. Also this pin can be used for flow control protocol handshaking.

DATA CARRIER DETECT: This pin receives the signal generated by a modem when it senses a carrier on the telephone line. The SSC would then respond by telling the computer that data was going to be coming from the modem.

Jumper Block

The jumper block has two positions, Terminal and Modem. The jumper block eliminates the need for special connection cables such as modem eliminators.

Switches

The fourteen switches, split into two banks named SW1 and SW2, are diagonally opposite the slot contacts. Holding the card so that the switches are at the top left, the two banks are arranged like this:

SW1 1 2 3 4 5 6 7	SW2 1 2 3 4 5 6 7
ON	ON
OFF	OFF

The markings SW1, SW2, ON, and OFF may not appear exactly as shown. If the lever on a switch is pointing towards the top of the card, the switch's contact is closed and the switch is ON. Use a sharp but soft point, like a pencil point, to move the levers.

Switch 1

	1	2	3	4
Baud Rate:				
50	On	On	On	Off
75	On	On	Off	On
110	On	On	Off	Off
135	On	Off	On	On
150	On	Off	On	Off
300	On	Off	Off	On

600	On	Off	Off	Off
1200	Off	On	On	On
1800	Off	On	On	Off
2400	Off	On	Off	On
3600	Off	On	Off	Off
4800	Off	Off	On	On
7200	Off	Off	On	Off
9600	Off	Off	Off	On
19200	Off	Off	Off	Off

Switch 2

5 6

Auto linefeed after CR:

Enabled	On
Disabled	Off

Passage of interrupts from ACIA to CPU:

Enabled	On
Disabled	Off

Mode Switches

The setting of the Mode switches (SW1 5 and 6) determines the function of the remaining switches in one of two modes, Communications mode or Printer Mode. Printer Mode includes two modes for printer PROM emulation.

Switch 1

5 6

Mode:

Communications	On	On
Printer	Off	On
SIC P8 Emulation	On	Off
SIC P8A Emulation	Off	Off

Communications Mode

The remaining switches have the following functions:

Switches SW1-7 and SW2-7

SW1 7 SW2 7

Protocol:

RS-232C	On	Off
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Switches SW2-1, SW2-2, SW2-3, SW2-4

SW2 1 2 3 4

Data format:

8 data/1 stop	On	On
7 data/1 stop	On	Off
8 data/2 stop	Off	On
7 data/2 stop	Off	Off

Parity:

None	N/A	On
Odd	On	Off
Even	Off	Off

Printer and Printer PROM Emulation Mode

The remaining switches have the following functions:

Switches SW1-7 and SW2-7

	SW1	7	SW2	7
Protocol:				
Normal Clear to Send (RS-232C)		On		Off
Secondary Clear to Send		Off		On

Switches SW2-1, SW2-2, SW2-3, SW2-4

	SW2	1	2	3	4
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Data format:

8 data/1 stop	On
8 data/2 stop	Off

Delay after carriage return:

32 milliseconds	On
None	Off

Line Width (Printer mode has no parity):

40	On	On
72	On	Off
80	On	Off
132	Off	Off

Important Information

There is a problem with using the Super Serial Card (SSC) terminal firmware at 1200 baud on an unenhanced IIe. The IIe 80-column card can't keep up with the data stream and eventually loses characters. Avoid this problem with faster, more sophisticated programs that can handle interrupts, such as Access II or third party terminal software. The proper terminal software also will allow use of the Extended Text Card with a modem at 1200 baud.

Article Change History:

16 Dec 1996 - Reviewed for technical accuracy, revised formatting.

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