

<p style="margin: 0;">S. P. I.</p> <p style="margin: 0;">SAM PARALLEL INTERFACE</p> <p style="margin: 0;">USER INSTRUCTIONS</p>
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S.P.I. BRIEF TECHNICAL DESCRIPTION

The S.P.I. is a dual purpose interface designed for the SAM Coupe computer. The two modes of operation are:

1. A straight forward centronics printer interface.
2. A switchable bi-directional parallel data transfer device.

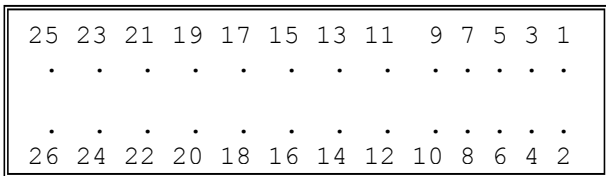
At switch-on the interface is set to the printer mode. In this mode the LPRINT and LLIST commands work as detailed in the SAM Basic Manual, DUMP will also work if you have SAMDOS loaded. Any commercial software written to use the MGT/SAMCO printer interfaces (like FLASH of TASWORD 2) will work with the S.P.I. without modification.

The second use of the interface is as a bi-directional parallel data transfer device. The transfer is carried out using two S.P.I. interfaces for full duplex operation. Simplex operation (one direction only; may be accomodated by using the centronics port of - for example - a DISCIPLE or PLUS D.

PRINTING FROM YOUR S.P.I.

The S.P.I. is connected to the expansion port of your SAM Coupe. Make sure you switch OFF power to your computer before you connect or remove the S.P.I.

To connect a printer you need a standard 26way (BBC) printer cable which is available through FORMAT or in most local computer stores. This is the same cable that was used for the DISCIPLE and PLUS D disc systems on the Spectrum. For those of you who wish to make your own cable the connections ions at the S.P.I. end are given below. This is viewed from the back of the interface.



<u>Pin</u>	<u>Signal Name</u>	<u>Pin</u>	<u>Signal Name</u>
1	Printer Strobe	17	Data Bit 7
3	Data Bit 0	19	No Connection
5	Data Bit 1	21	Busy
7	Data Bit 2	23	No Connection
9	Data Bit 3	25	No Connection
11	Data Bit 4	2 to 22	(all bottom line) 0 volts (ground)
13	Data Bit 5	24	No Connection
15	Data Bit 6	26	No Connection

DATA INPUT VIA THE S.P.I.

RECEIVING the transmitted data is accomplished by switching the PRINT operation off and the INPUT circuitry on. Port address 234 is used for this operation. The signal lines used for the STROBE and BUSY are now reversed. This means that only a simple double ended cable is needed for two-way operation, there is no need to swap wires over in the ribbon cable. Almost any computer equipped with a Centronics printer interface can be used to send data to your SAM via the S.P.I.

SUMMARY OF PORTS USED BY THE S.P.I.

- 232 - transmit print/transfer data
- 233 - OUT send STROBE
- 233 - IN read BUSY
- 234 - IN read data appearing across connector pins
- 234 - OUT switch between transmit and receive modes.

For optimum results machine code routines should be used. But the examples given here in SAM Basic work as would similar routines in any other language which gives access to the i/o ports.

1. In output mode:

```
100 LET BUSY=IN 233: REM get BUSY status
110 IF BUSY THEN GOTO 100
120 OUT 232,"A": REM send the letter 'A'
130 OUT 233,1: REM }
140 OUT 233,0: REM } Toggle STROBE signal
```

This could of course simply be replaced with the one instruction:

```
100 LPRINT "A"
```

which will do exactly the same job using the machine code routines contained in the SAM Coupe's ROM.

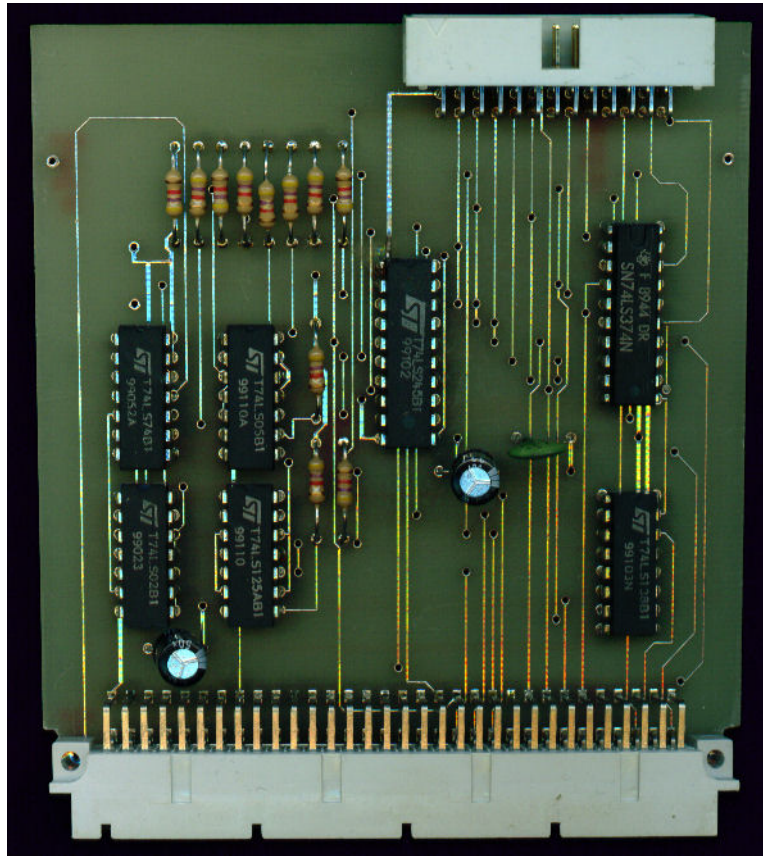
2. In input mode:

```
200 OUT 234,1: REM select input mode
210 LET DAT=IN 234: REM collect data
220 LET STROBE= IN 233: REM test valid data on bus
230 IF NOT STROBE THEN GOTO 220
240 OUT 234,0: rem revert to print mode
```

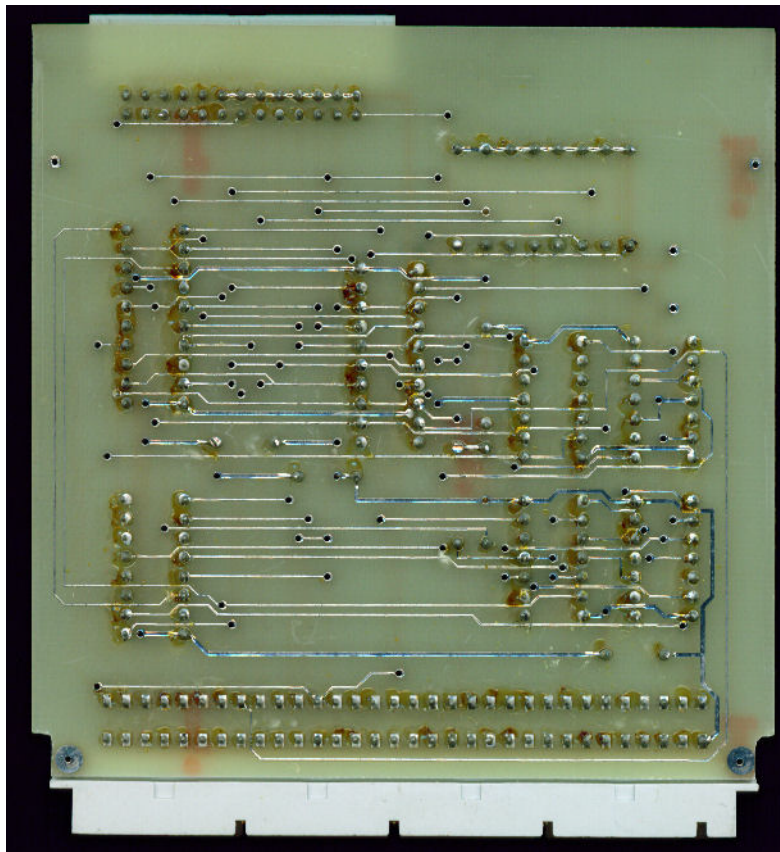
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Produced by:- FORMAT Publications. 34 Bourton Road, Gloucester, GL4 OLE.

Your S.P.I. is guaranteed against faulty materials or workmanship for a period of twelve(12) months from the date of purchase. In the event of any fault developing please return the interface, correctly packed, to the address given above. Please give your name and address, the date of purchase (enclose proof of purchase if bought from a dealer) and give full details of the fault. While every effort is made to ensure accuracy and quality in our product we can not be held liable for any loss or damage, however caused, other than for the repair or replacement of the S.P.I. interface.



Board details





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This pdf by Steve Parry-Thomas

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For Sam Users everywhere

www.samcoupe-pro-dos.co.uk