AT
PL
ADVANCED TECHNOLOGY PRODUCTS LIMITED

SIDEWISE PLUS USER MANUAL

SECTION 1 - WHAT ARE SIDEWAYS ROMs?

The BBC PLUS COMPUTER incorporates facilities whereby a number of applications programs may be resident in the machine in firmware, (e.g. ROM or EPROM memory) and which may be called upon by the user via the operating system to perform specific tasks such as word processing, floppy disc manangement and so on. The memory is organised in such a way that only one such SIDEWAYS ROM may be active at any instant in time and all communication between such ROMs must be performed via the operating system.

Each SIDEWAYS ROM occupies the same physical area of the BBC COMPUTER memory map - namely 8000-BFFF HEX.

SIDEWAYS ROMs therefore provide a convenient method of expanding the memory of the BBC PLUS COMPUTER.

The BBC PLUS COMPUTER OPERATING SYSTEM (OS) requires that all software for SIDEWAYS ROM application be written to obey specific rules regarding communications with the OS. This aspect may become quite complicated, but a useful application note is available from:-

       CUSTOMER SERVICES DEPARTMENT
       ACORN COMPUTERS LTD.
       FULBOURN ROAD
       CHERRY HINTON
       CAMBRIDGE
       CB1 4JN

       TELEPHONE 0223 210111

and is entitled "BBC MICROCOMPUTER SIDEWAYS ROMs".

Fortunately, many of the more serious applications software packages are available in ROM form which greatly enhance the facilities offered by the machine.

SECTION 2 - ROM FILING SYSTEM

A special application of the SIDEWAYS ROM is the ROM FILING SYSTEM, referred to but not explained in the USER GUIDE on page 272. It is possible to generate EPROMs, again formatted in a specific way, containing your favourite programs, allowing you to have them instantaneously available in the firmware of the machine.

The data is stored on the EPROM in a form very similar to the cassette file format.

This specific application of SIDEWAYS ROMs does not however save you any memory, as the programs must be downloaded into RAM to execute, unlike SIDEWAYS ROMs such as BASIC, DFS, and others. However, the ability to have programs and data stored in ROM in this form is very useful in many applications.

SECTION 3 - INTRODUCING SIDEWISE PLUS

The ATPL SIDEWISE PLUS divides the sideways ROM sockets provided on the BBC PLUS COMPUTER into 10 sockets, which have ROM numbers No2 to No11. Each of the 10 sockets will accept a 16K or 8K ROM and links are provided so that a 32K ROM may be fitted in place of 2 x 16K ROMs. The board design also includes an access hole so that the BASIC priority link S13 can be changed with the SIDEWISE PLUS fitted to the computer.

The SIDEWISE PLUS is easily installed by simply plugging it into the sideways sockets on the BBC PLUS COMPUTER - no soldering required.

SECTION 4 - CONNECTION TO THE BBC PLUS COMPUTER

(1) Ensure that the computer is switched off and that the mains plug is removed.

(2) Remove the lid of the machine by releasing the four screws on the case marked FIX.

(3) Remove any ROMs from the sockets marked IC35, IC44, IC57, IC62 and IC68 being careful not to bend any pins.

(4) Set the links S18, S15, S12, S11 and S9 with the shorting link in the right hand or east position.

(5) Insert the pins on the flying leads into their respective IC sockets.

ENSURE THAT EACH PIN IS CONNECTED TO THE PIN 20 POSITION.

RED   lead goes to IC35 pin 20 GREEN lead goes to IC44 pin 20 BLUE lead goes to IC68 pin 20

(6) Position the SIDEWISE PLUS connector pins directly over the sockets marked IC57 and IC62 on the computer. Starting with IC62 and ensuring that the pins are correctly alligned, push the pins firmly into the socket to ensure good contact. When IC62 is connected do the same for IC57.

(7) The board is now fitted so the DFS ROM and any other ROMs may be installed in the board.

SECTION 5 - LINK SELECTABLE OPTIONS

Each of the pairs of sockets No2/No3, No4/No5, No6/No7, No8/No9 and No10/No11 have 2 links associated with them which are used to configure the sockets for either a 16K or 8K ROM in each socket, or a 32K ROM in the first of the two sockets.

The board is supplied with the links set so that each socket will accept 16K or 8K ROMs. The links will only have to be changed if a 32K ROM is to be fitted to the SIDEWISE PLUS.

TABLE 1

LINKS		ROM	SOCKETS
S1	S2	No2	No3
WEST	EAST	16K or 8K ROM	16K or 8K ROM
EAST	WEST	32K ROM	NOT USEABLE
S3	S4	No4 No5	
WEST	EAST	16K or 8K ROM	16K or 8K ROM
EAST	WEST	32K ROM	NOT USEABLE
S5	S6	No6 No7	
WEST	EAST	16K or 8K ROM	16K or 8K ROM
EAST	WEST	32K ROM	NOT USEABLE
S7	S8	No8 No9	
WEST	EAST	16K or 8K ROM	16K or 8K ROM
EAST	WEST	32K ROM	NOT USEABLE
S9	S10	No10 No11	
WEST	EAST	16K or 8K ROM	16K or 8K ROM
EAST	WEST	32K ROM	NOT USEABLE

* DENOTES the default link setting supplied by ATPL.

SECTION 6 - ROM PRIORITIES - THE BASIC LINK

The BBC PLUS MICROCOMPUTER is supplied with ROM numbers 14 and 15 allocated to BASIC thereby giving it the highest priority. The BASIC ROM cannot be moved physically to another ROM socket so to change the priority of BASIC a hardware link S13 is provided on the main PCB. Moving the link to the north position will change the BASIC ROM numbers to 0 and 1 thus giving BASIC the lowest priority. This change must be made if the computer is required to power up in a ROM based language other than BASIC.

With SIDEWISE PLUS installed in the computer the S13 link can be altered by using a pair of snipe nosed pliers or tweezers to remove the link via the access hole which is between sockets No7 and No10 on the expansion board.

```
ROM NUMBER
0            BASIC          SIDEWAYS RAM    Y *
1            BASIC          SIDEWAYS RAM    Z *
2            BBC PLUS       SIDEWISE PLUS   No2
3            IC 35          SIDEWISE PLUS   No3
4            BBC PLUS         "        "    No4
5            IC  44           "        "    No5
6            BBC PLUS         "        "    No6
7            IC 57            "        "    No7
8            BBC PLUS         "        "    No8
9            IC 62            "        "    No9
10 (A)       BBC PLUS         "        "    No10
11 (B)       IC 68            "        "    No11
12 (C)                      SIDEWAYS RAM    W
13 (D)                      SIDEWAYS RAM    X
14 (E)                      SIDEWAYS RAM    Y
15 (F)       BASIC *        SIDEWAYS RAM    Z
```

1)* DENOTES default (South) setting of link S13.

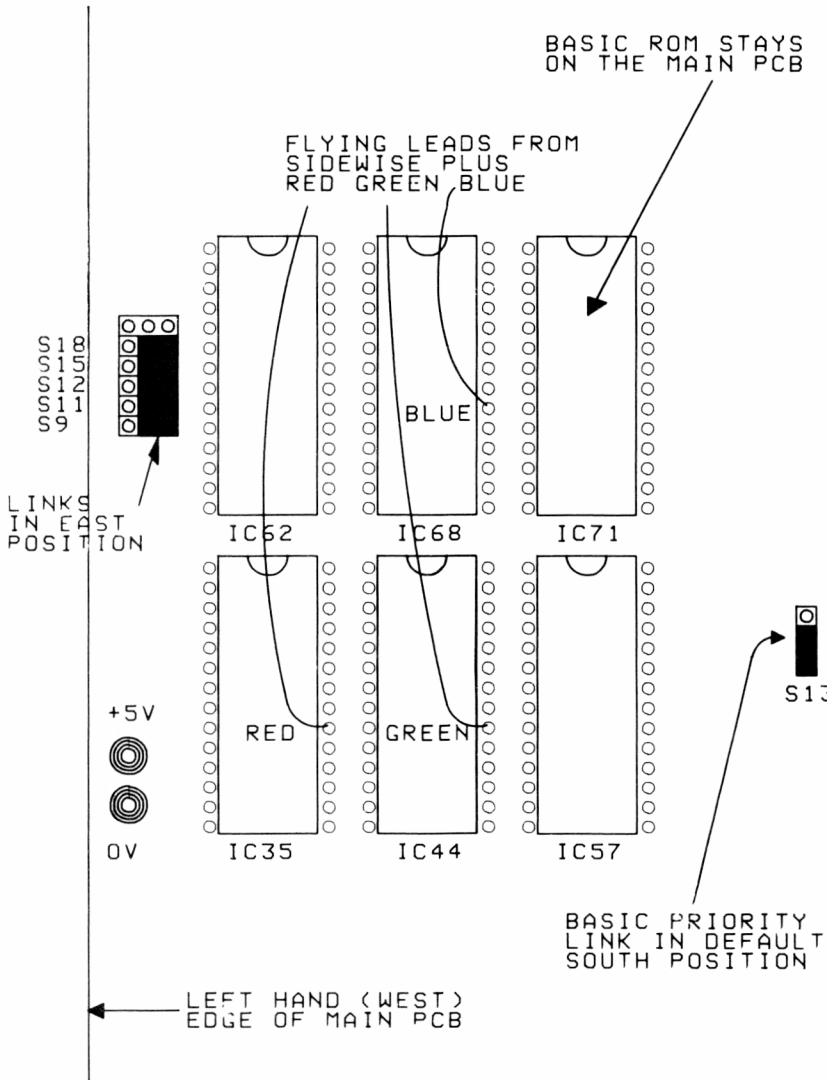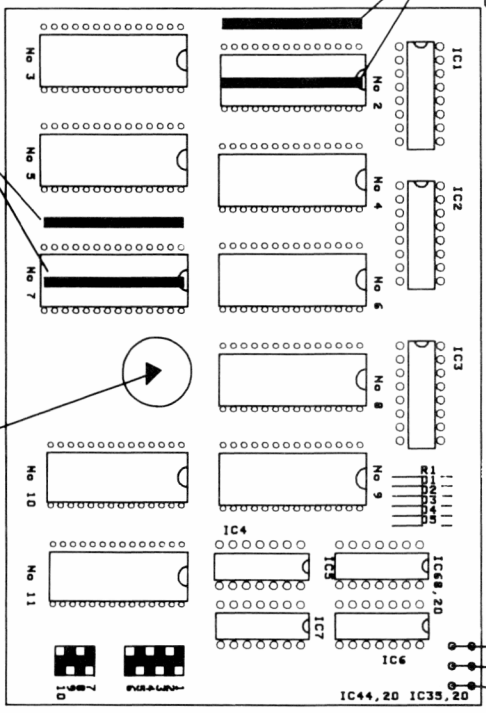2) SIDEWAYS RAM is only available on BBC PLUS 128K machines.

BASIC ROM STAYS
ON THE MAIN PCB

FLYING LEADS FROM
SIDEWISE PLUS
RED GREEN BLUE

S18
S15
S12
S11
S9

BLUE

LINKS
IN EAST
POSITION

IC62

IC68

IC71

S13

+5V

RED

GREEN

0V

IC35

IC44

IC57

BASIC PRIORITY
LINK IN DEFAULT
SOUTH POSITION

LEFT HAND (WEST)
EDGE OF MAIN PCB

FIG 1 LINK POSITIONS AND CONNECTION
DETAILS FOR SIDEWISE PLUS FITTING.

FIG 2 SIDEWISE PLUS LAYOUT DIAGRAM

TWO ROWS OF STAKES WHICH FIT INTO THE SOCKET MARKED IC62 ON THE BBC PLUS

TWO ROWS OF STAKES WHICH FIT INTO SOCKET MARKED IC57 ON THE BBC PLUS

ACCESS HOLE FOR BASIC PRIORITY LINK S13

No 3

No 5

No 7

No 10

No 11

No 2

No 4

No 6

No 8

No 9

IC1

IC2

IC3

IC4

IC5

IC6

IC7

IC68, 20

R1
R2
R3
R4
R5

IC44,20 IC35,20

FLYING LEADS
RED GREEN BLUE

LINKS S1 TO S10 SHOWN IN DEFAULTS POSITIONS

Note - All prices are excluding VAT

SYMPHONY - 105.70 (+3.50 p+p)

The SYMPHONY 4 octave electronic keyboard turns your BBC into a versatile musical instrument taking full advantage of the sound generation capabilities of the computer.

SYMPHONY OPTIONS

SUSTAIN FOOTSWITCH - 6.95 (+50p p+p)
Complete with cable and Jack plug.
5 WATT AMPLIFIER - 39.50 (+3.00 p+p)
In robust vinyl covered cabinet. Phones and Input sockets. Tone and volume controls. 340x290x210 mm.
AMPLIFIER INTERFACE KIT - 5.89 (+50p p+p)
1/4" Jack socket mounts through ECONET hole. Pre-wired for installation without soldering.
SYMPHONY/ACORN MUSIC 500 SOFTWARE - 14.95 (+50p p+p)
Allows the SYMPHONY keyboard to be used in conjunction with the MUSIC 500 Synthesiser. Now with Sequencer

SIDEWISE - 38.00 (+1.00 p+p)

Sideways ROM/RAM expansion board for the BBC microcomputer provides for an expansion of an additional 12 Sideways ROMs.

SIDEWISE OPTIONS
8K LOW POWER CMOS RAM - 8.00 per pair (+50p p+p)
BATTERY BACK-UP KIT FOR ABOVE - 17.00 (+50p p+p)

AUTOPROM - 98.00 (+2.00 p+p)

EPROM programmer for BBC with facility for the contents of a ROM to be downloaded and run from on-board on power up.

INSIDE-OUT - 13.00 (+50p p+p)

Allows extension of one Sideways ROM socket out of the BBC allowing ROMs to be exchanged without opening the case.

BREAK-LOCK - 8.53 (+50p p+p)

This is a two position lockable keyswitch which is mounted in the "ash-tray" which allows the BREAK key to be isolated, thereby preventing accidental loss of data. In addition, the machine may be locked in a disabled state, thereby rendering it unusable by unauthorised persons.

DISC SOFTWARE FROM ATPL

SPOOLIT - 10.00 +(50p p+p)

Allows Sideways RAM on SIDEWISE to be used as a printer buffer.

TURBOPROM1 - 10.00 +(50p p+p)

Uses a fast programming algorithm to greatly reduce programming time of EPROMs when used in conjunction with AUTOPROM.

DFS-SHIFT - 10.00 +(50p p+p)

Available for ACORN 0.90 and 1.2 DFS only, moves the workspace required by the DFS into Sideways RAM allowing reclamation of DFS workspace. Note, either ACORN DFS 0.90 or 1.2 MUST be resident in ROM in your system.

SIDESWIPE - 10.00 +(50p p+p)

Allows Sideways ROM/RAM contents to be transferred to disc direct from the computer.