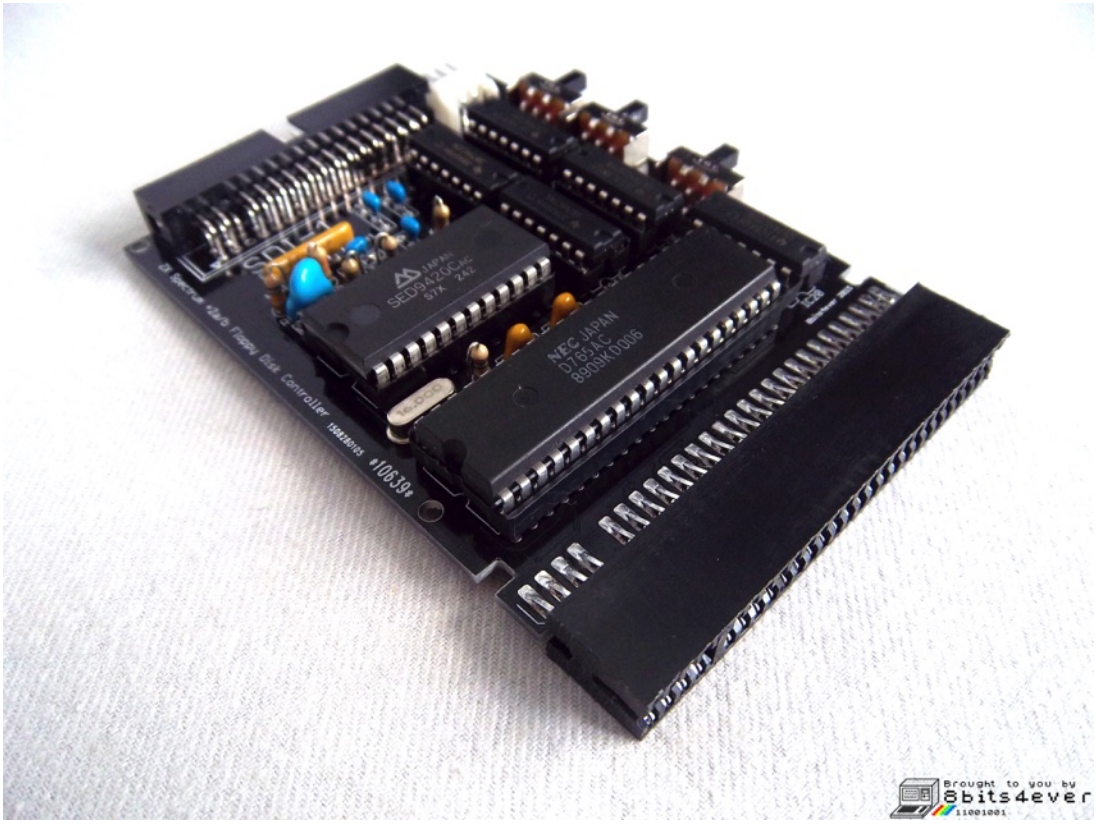
SDI-1

ZX Spectrum +2a/b Floppy Disk Interface

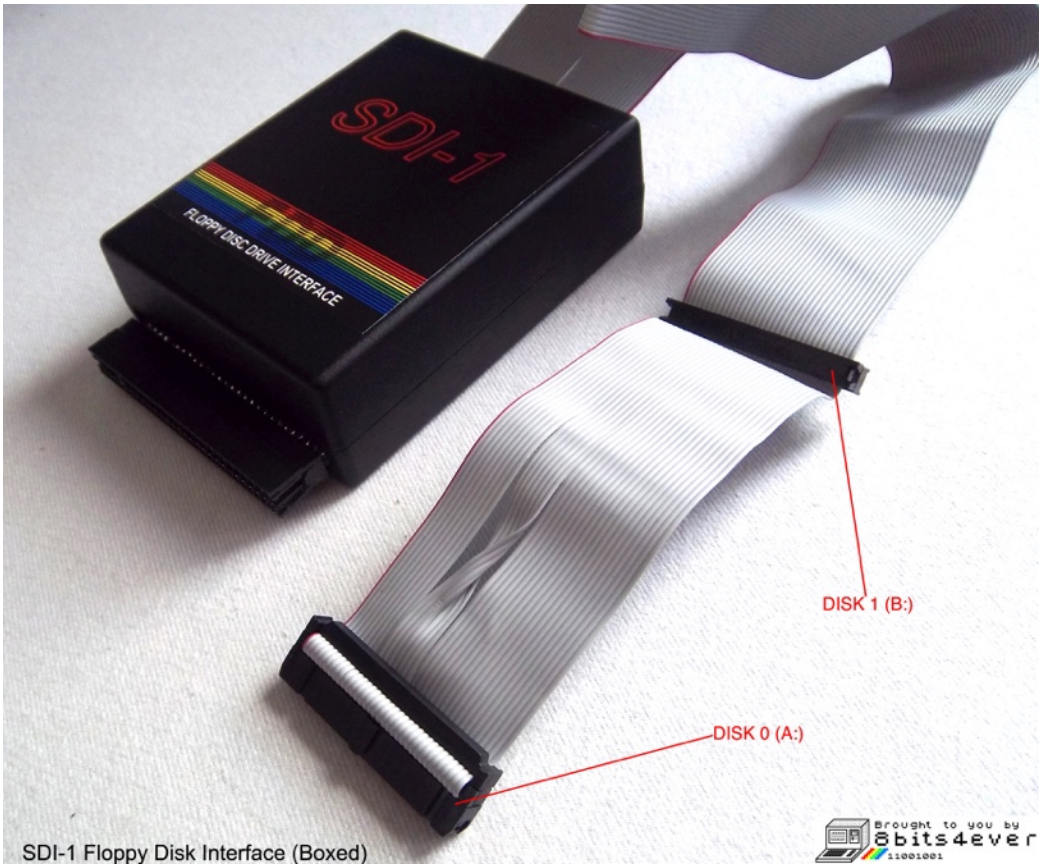


The SDI-1 Disk Interface is specially designed to be used with the Sinclair Spectrum +2a/b computers. It is not compatible with any other models on the Sinclair Spectrum line.

The SDI-1 connects to the Spectrum +2a/b expansion port and adds all the functions from a ZX Spectrum +3. Once connected all usual +3DOS commands will be available and 100% functional. Also the computer will be identified as a Spectrum +3 on the startup menu.

The interface does not require the use of any specific ROM. Its is compatible with Amstrad stock ROMs as well as with the +3e project ROMs.

The SDI-1 supports one or two 3.5” disk drives in DD (double density) mode. An standard PC ribbon cable, with a twist on one end, is used to connect the drives, both configured as DS1. In this way the drive connected before the twist becomes “B:” and the one after the twist becomes “A:”. If only one drive is available it can be connected in either one or the other connector and it will be recognized as “A:” o “B:” respectively.

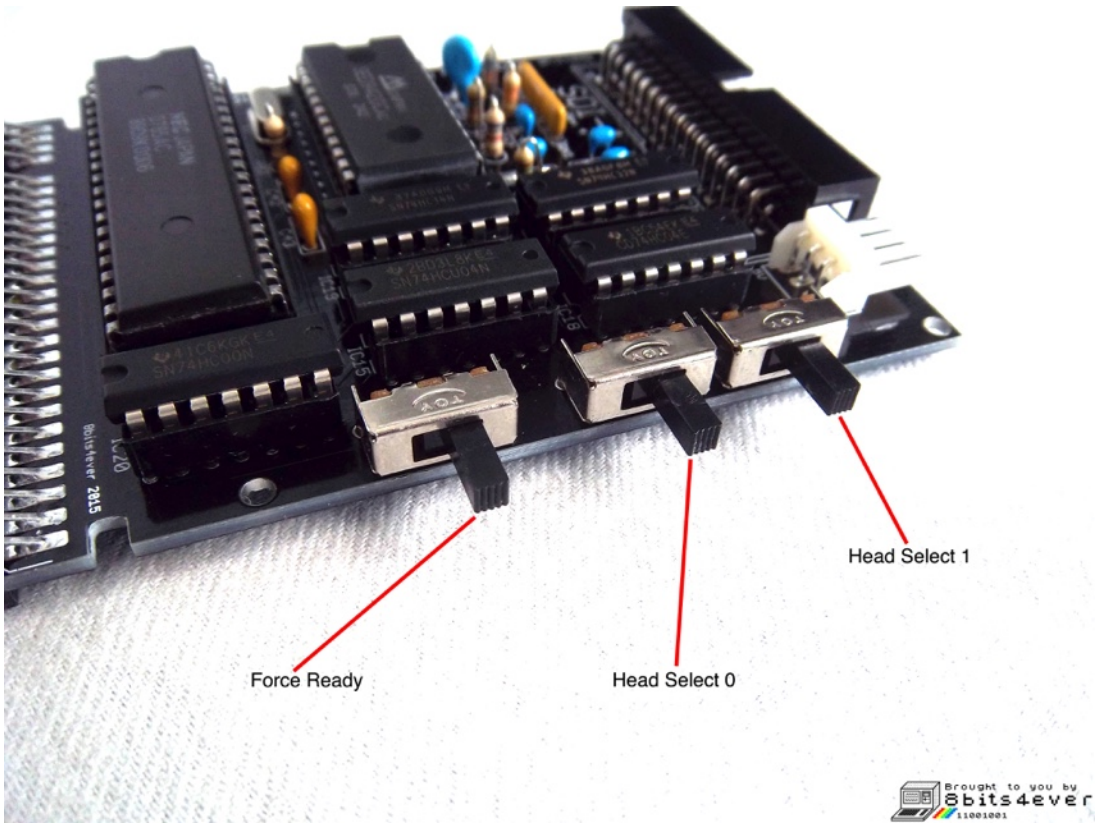


SDI-1 Floppy Disk Interface (Boxed)

With a special ribbon cable (not included) the SDI-1 will also allow to connect 3” disk drives, like the ones included on the Spectrum +3 for example. This option is very useful if one wants to run software from original 3” disks.

Notice the 3.5” drives will work in DOUBLE DENSITY mode only, thus double density diskettes are needed. It is possible to use HD (high density) disks as DD by covering the density detection hole on the disk (with a piece of adhesive tape) or by modifying the disk drive forcing it to work in DD with all disks.

When using 3.5” drives, is recommended to use those which can output a READY signal. In the case the disk drive cannot output this signal, the SDI-1 has a “FORCE READY” switch to force this signal. When this switch is “ON” makes the drives to appear as READY even when there are no disks



inserted. It this particular situation, if a disk access command is issued, the computer will block until a disk is inserted or the “FORCE READY” switch is put back to “OFF” position.

The interface also has two head-selector switches (one for each drive) to select the side of the disk to use . While using 720k formatted disk this switches should be kept on “OFF-AUTO” position.

Attention! Units purchased from January 2018 on please check Appendix 1 for modifications.

The Spectrum will only format 172K per side.To get alternative, more capacity formats, we need to use 3rd party utilities.

Multiformatter (Garry Lancaster). Runs on the Spectrum itself:

http://www.worldofspectrum.org/zxplus3e/software.html#mformat

CPCDiskXP (PC/Windows):

http://www.cpcmania.com/cpcdiskxp/cpcdiskxp.htm

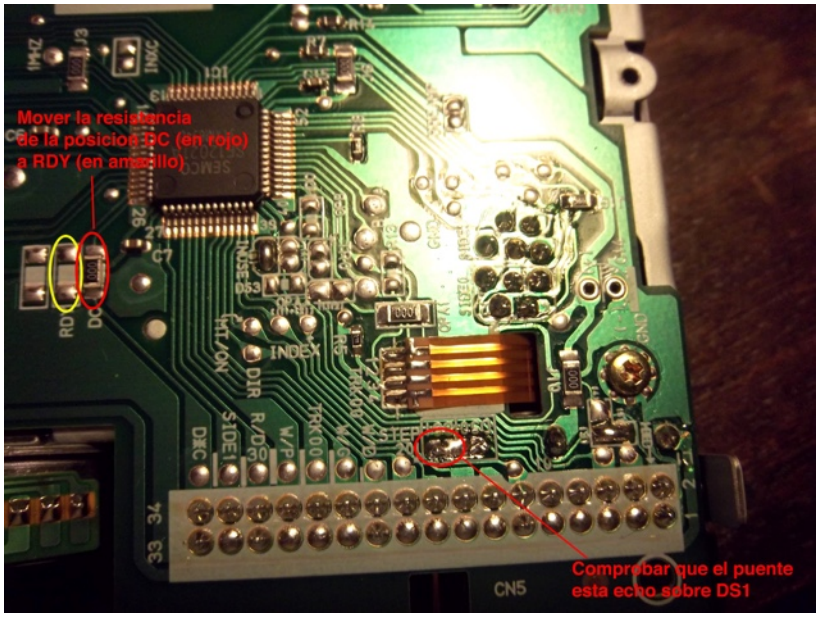
Once formatted the disks could be used with the Spectrum +3DOS to store and read files as normally.

For more details about the +3DOS commands please see the Spectrum User Guide (pag. 221).

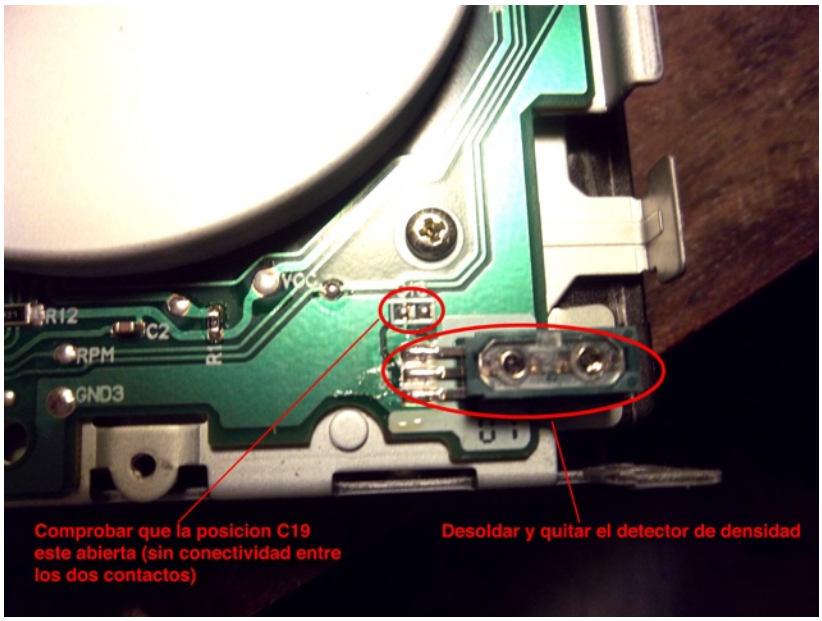
Attention! To avoid damage the contacts on the edge connector, please ensure the interface is well aligned (vertically and horizontally) before applying force. If you notice theres resistance to plug just take the interface out and start again. Do not use excessive force as probably you will bend some of the pins on the connector. Be gentle.

Samsung SFD-32B1 Disk Drive Modification
to be used together with the SDI-1

As an example we can see how to modify a Samsung drive to output the READY signal. We need to move the resistor on position DC to position RDY. We also need to ensure the DS1 bridge is done (usually it is a factory default).



We could also desold the density detector to be able to use any disks without the need of adhesive tape. In this case we need to make sure position C19 is open (no connectivity).



Although the procedure will be mostly the same, some components may be located in a slightly different place, depending on the board revision.

Appendix 1

Boards produced from January 2018 on use a new circuit board. The size is a bit smaller than older versions thanks to SMD components being used. The external switches are arranged as follows: