

ZX <-> PC Interface

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1) The ZX <-> PC Interface

1.1) What is it?

The ZX <-> PC Interface is designed for the ZX Spectrum to communicate with any PC via its LPT (printer) port. The interface has its own ROM that holds the new possibilities.

1.2) What does it do?

Through a server program run on your PC the Spectrum can load and save directly on ANY media available on your PC. Saved files will have the format of a universal .TAP-file, which is recognized by almost every Spectrum-emulator for the PC.

The serverprogram will load .Z80, .SNA and .TAP files directly to the ZX Spectrum.

The speed of loading will be at least 30 times faster than tape.

2) Installation

2.1) The software for the PC.

On your PC you need to run a serverprogram. Under Windows this will run in a DOS-box. The serverprogram can handle a number of commands sent by the ZX Spectrum.

This program will default choose LPT1 for communication, but you can change the port number by the following command:

Syntax: PC-ZX [n] where n is the number of your com-port.

2.2) The hardware for the ZX Spectrum and PC-cable.

Connect the interface to the edgeconnector on the backside of your ZX Spectrum like all interfaces designed for the ZX Spectrum.

Connect a cable (2x 25p D-type) between the LPT-port on your PC and the connector on your ZX<->PC interface.

Use the switch on the interface to select the normal ZX Spectrum ROM or the EPROM.

Note: Switching while the Spectrum is working may cause a crash.

3) Commands

3.1) The following new commands are available on the ZX Spectrum when the EPROM is switched on.

The normal tape commands like **LOAD ""** and **SAVE "name"** will automaticly work with the PC. So there is no need for making changes in software that normally works with tape. Fast loading and saving is available for all programs that use the standard load and save routines.

PRINT USR 14500;D

This will show on the Spectrum screen a DIR of all .TAP-files in the current directory on the PC.

PRINT USR 14500;D;"".*"

This will give you a DIR of all files in the current directory.
The string may hold all the parameters that are valid for the DIR command on PC.
This option is added in the ROM for load-options from .Z80-files and .SNA-files.

PRINT USR 14500;O;"NAME.TAP"

This command will either select an existing file (in the current directory on PC) as active file, or will open a new file and make it the active file. Activating a file can be considered as the equivalent of inserting a tape in the cassetterecorder.

Loading and saving will always act on the active file, saved data is added to the end of the current active file.

The name of the current active file will show up INVERTED following a PRINT USR 14500;D command.

PRINT USR 14500;O;"NAME.Z80"

This will activate the given .Z80 file, which then can be loaded by the command LOAD"". Note that files that are not a 48K Z80-file will generate a LOAD-error.

PRINT USR 14500;O;"NAME.SNA"

This will activate the given .SNA file, which then can be loaded by the command LOAD"".

PRINT USR 14500;E;"name.tap"

This command will ERASE the file "NAME.TAP" from the PC (hard)disk.

PRINT USR 14500;C;"CD A:"

Makes station A the current station and the root directory current.

PRINT USR 14500;C;"CD mydir"

Makes subdirectory 'mydir' the current directory.

PRINT USR 14500;C;"MD newdir"

Creates the subdirectory 'newdir'.

PRINT USR 14500;C;"RD newdir"

Removes the subdirectory 'newdir' from the current directory.

PRINT USR 14500;X

This command tells the PC to end the serverprogram.

3.2) Syntax checking

The code in EPROM will do a syntax check on the PRINT-instruction.
The part following an USR 14500 command however is not checked. So invalid command characters will be accepted but will fail to run due to lack of command-definition in the serverprogram.

Note that a string must follow the E,O and C commands!

4. Technical info

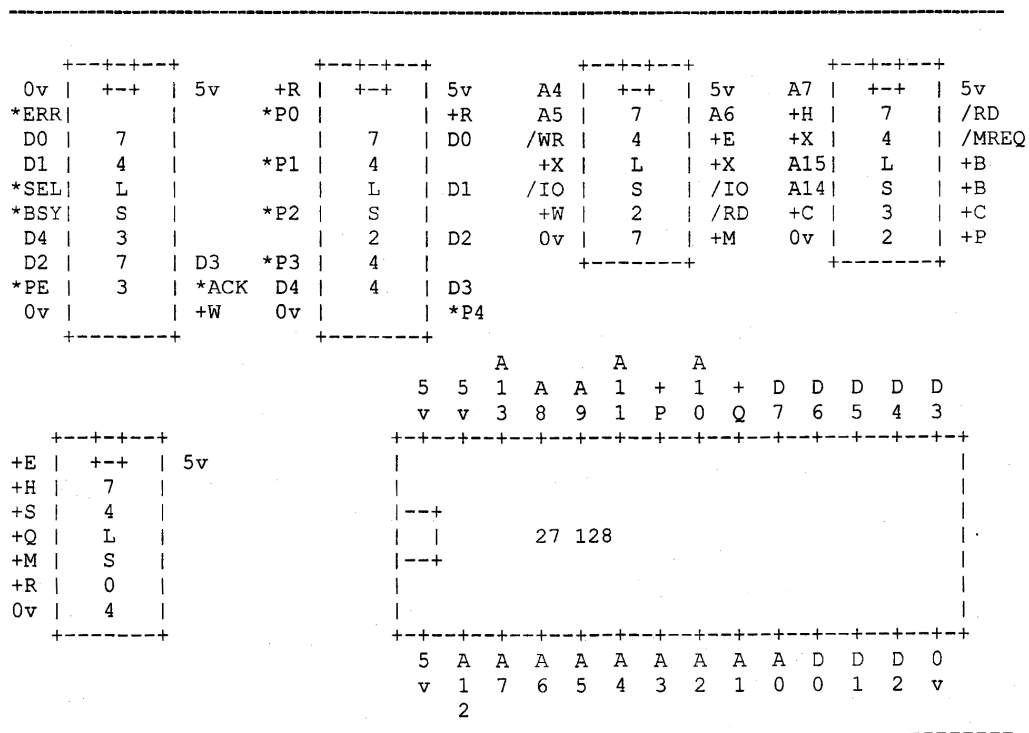
4.1) Schematics

This is not a real schematic, but the connections on every IC are displayed. Three kind of connections can be found:

1. connections to the spectrum edgeconnector, under their usual names.
 2. connections to the printerport of the PC, the names preceded by a '*'
 3. connections between chips, indicated by characters preceded by a '+'
- Just connect all equal named points to get the interface.

Pin +S goes to a switch, connected to 5V and also to /ROMCS. This is used to switch between standard ROM and EPROM.

P0 to P5 are DO to D5 at the printerport.



4.2) Altered ROM-routines in the EPROM

The EPROM holds the normal SINCLAIR ROM with a few patches. The communication routines are placed in the unused part at the end. The blockload and blocksave routines at #556 and #4C2 are adapted. However the result of loading/saving is the same as gotten from the original ROM, which makes beaderless loading still possible. As long as your own routines are calling #556 or #4C2 the results will be the same as saving to tape.

RST 8 is also changed, but will work in a normal way.
You now can make RST 8 to call to your own routines by poking 23659,0 and 23728 and 23729 with your own startadres.
The adaptation is made to make a new ZX81 Emulator run faster than the one from 1997.

4.3) PC-software

The software for the PC is written in Turbo Pascal. The source-code is freeware. You can add new commands using the strings following the 'C' command, writing your own routines in the software under the C-choice.

5) Copyright! Patent of the interface / Distribution

5.1) ROM

The copyright of the ZX ROM belongs to Amstrad. The EPROM may therefore NOT be sold.

5.2) Interface

The interface, designed by Dr.Beep, may be built freely for non-commercial purposes.

5.3) Software

The software for the PC is written by Dr.Beep in Turbo Pascal. The source-code is freeware.

6) Info

6.1) Questions

For questions concerning the interface, sent a Private Message to Dr. Beep on [HTTP://WWW.WORLDOFSPECTRUM.ORG](http://WWW.WORLDOFSPECTRUM.ORG).

6.2) Problem solving

Should the PC stop responding to commands, then RESET the Spectrum (or POWER ON/OFF) and enter the following program:

```
1 OUT 1,16 : OUT 1,0 : LET a = INT (IN 1/8) : IF a/2 = INT (a/2) THEN RUN
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The PC should now react again.