

# Tape player audio port

## Specification sheet

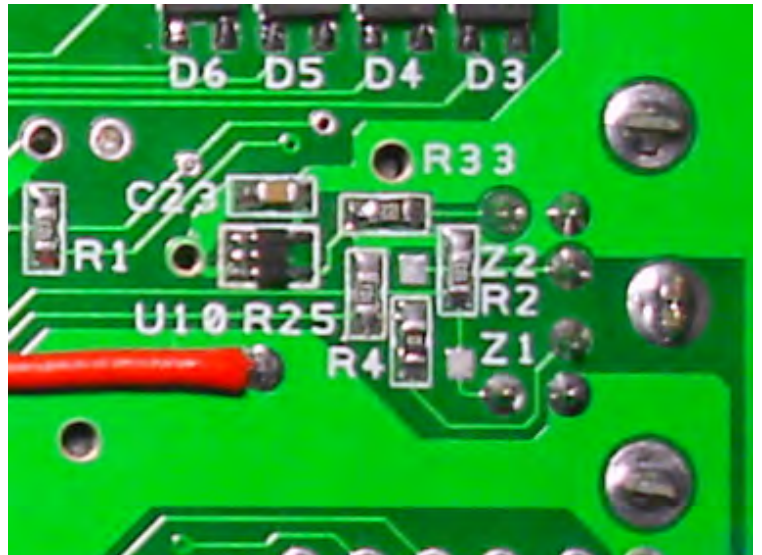
Monday, 02 May 2016

### 1. Hardware

An audio port, suited for driving the ZX Spectrum's 'EAR' input, was added to the 'Interface 1bis', starting with lot 5 of version C.

The output signal, with a level not exceeding 4V against the ground (pin 5), over a 1k $\Omega$  resistive load, is available on pin 6 of the PS/2 socket.

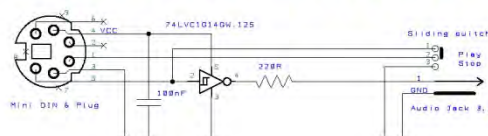
A passive cable, with a 6-pin mini-DIN plug at one end and a 3.5mm audio jack at the other, as shown in the schematic below, is required for connecting to the ZX Spectrum.



### Passive cable

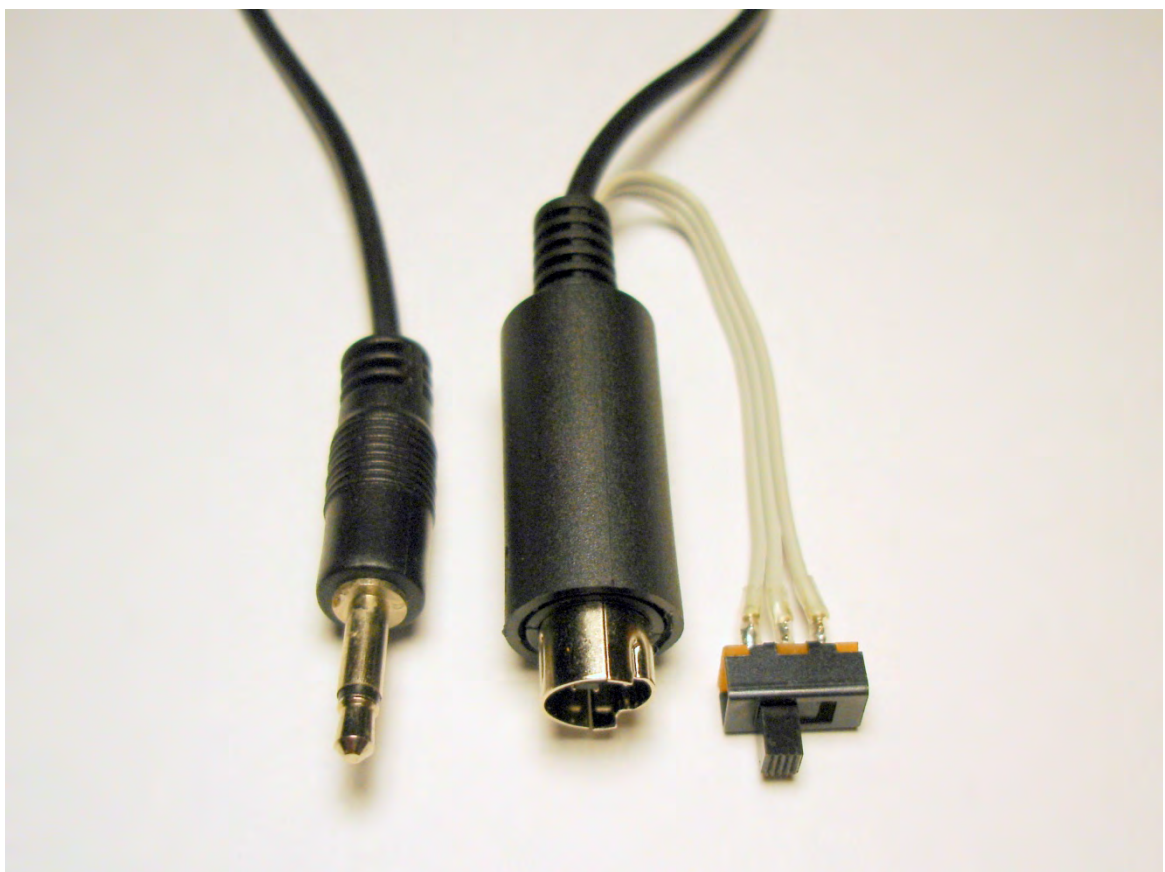
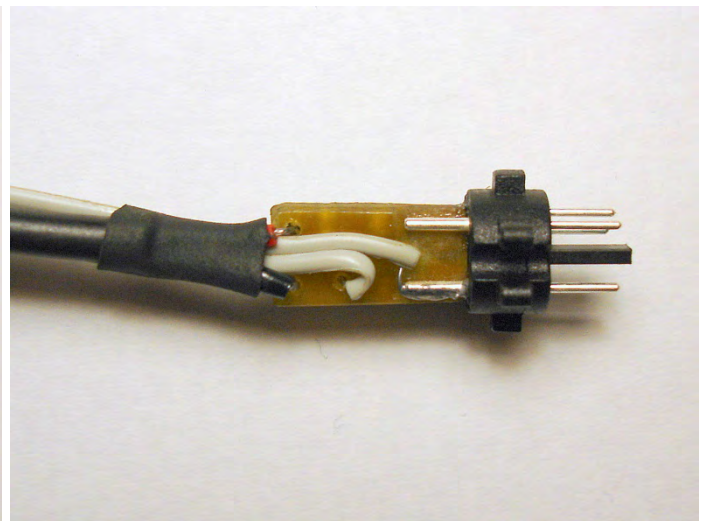
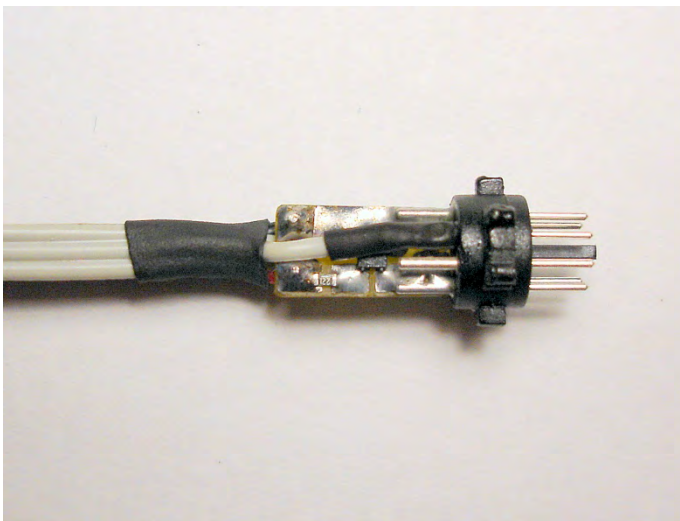
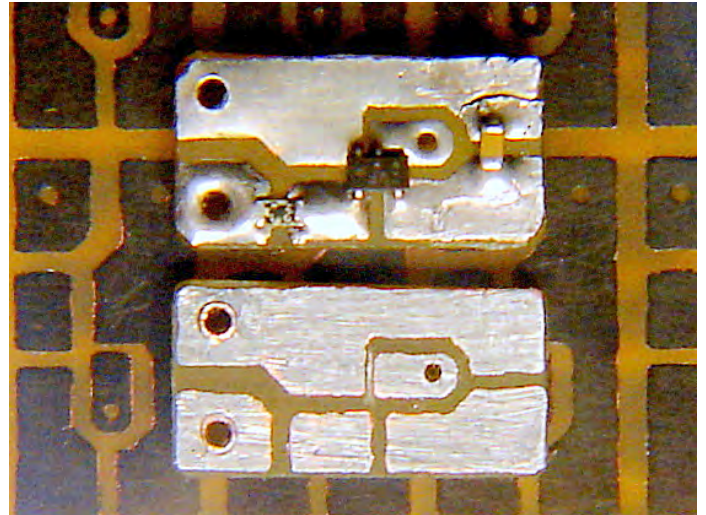
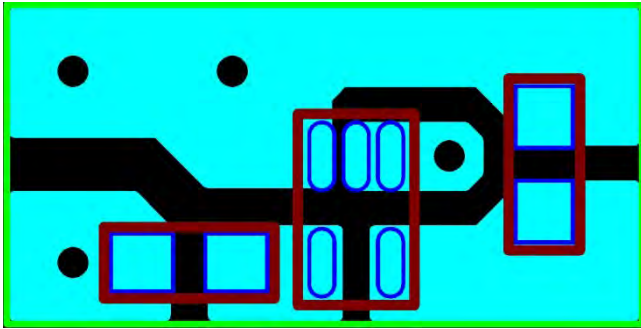


### Active cable



Projection Do Not Scale		Project <b>Interface 1bis for the Sinclair ZX Spectrum</b>
Client		Title <b>EAR cable</b>
Filename		Date 29 May 2015
		Sheet 1 of 1

Older 'Interface 1bis' models need an 'active' cable, containing a small PCB in the mini-DIN plug housing.



## 2. Software

In order for the EAR cable to be recognized by the operating system, it must be plugged in, with its 'Play-Stop' switch in the 'Play' position, before the ZX Spectrum is powered on.

The audio port driver implemented in the interface's microcontroller firmware can produce standard ZX Spectrum, as well as custom speed audio signals, with a timing accuracy better than  $\frac{1}{2}$  T-states. The function is invoked via the block device command #F3: 'Play tape file', with the file's first sector block address, the file length and the file type as arguments.

Tape files, in .TAP and .TZX format, stored on the interface's onboard SD card, can be 'played' to the EAR port of the ZX Spectrum, from the 'extended BASIC', using device: "E" or the short form: @:

```
LOAD * "E"; 6; "file.t"
```

```
LOAD @2; "file.x"
```

The operating system can be restored, in case it was totally erased, like after exchanging battery, issuing the commands:

```
OUT 159, 243 : LOAD ""
```

while the interface is in 'ON-inactive' mode. This instructs the interface's microcontroller to read the LD5 system loader from the SD card, and play it to the ZX Spectrum's EAR port.