

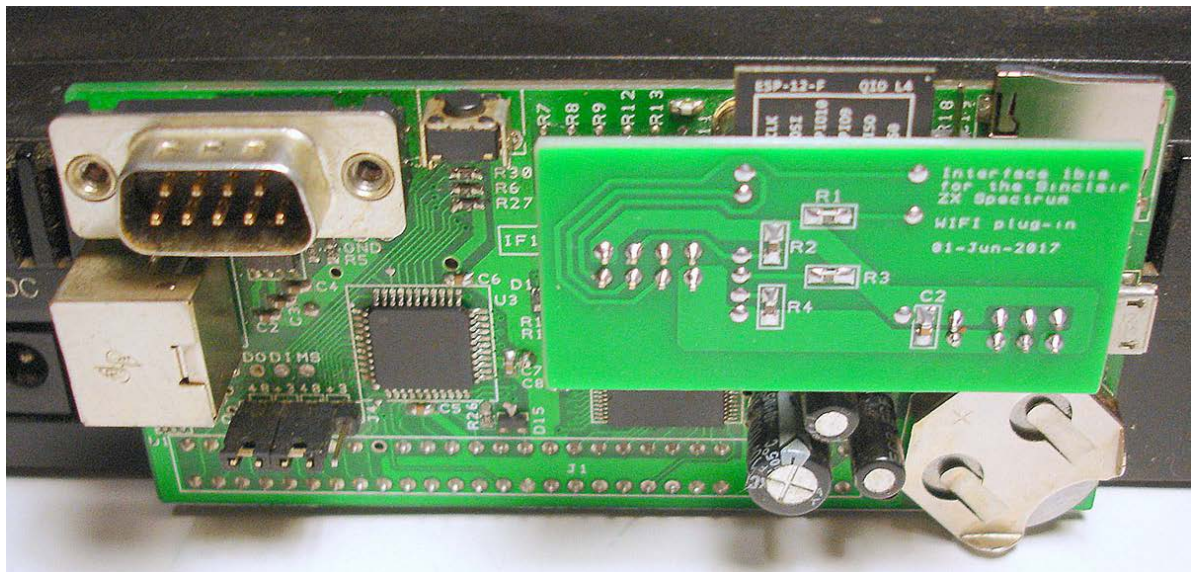
The 'Interface 1bis' Wi-Fi plug-in

Specification

17 August 2017

Hardware

An ESP-12 Wi-Fi module, mounted on a plug-in daughter board, can be attached to 'Interface 1bis' units Lot C 04 and later, as a convenient and inexpensive alternative to the Ethernet port.



When the Wi-Fi module is connected, the 'C' and 'M' LEDs of the 'Interface 1bis' indicate: 'Transmit' and respectively 'Receive', while their regular functions are multiplexed with the one of LED 'U'.

Seven seconds after power-up, the ESP-12 turns its blue LED on until the connection to the wireless access point succeeds, after which the interface's 'U' LED lights up, indicating that the Wi-Fi module is operational.

Setup

As a first step, before attaching the Wi-Fi module it is necessary to store the wireless access point name and password on the SD card, by issuing an extended BASIC command like:

```
CAT 0;"ew ssid password"
```

Each 'Interface 1bis' unit has a unique host name that can be viewed by issuing the extended BASIC command:

```
CAT 0;"ei"
```

All network communication occurs over **UDP** port **41772**, which has to be opened and forwarded to a server PC or 'Interface 1bis' unit behind a NAT firewall if this needs to be accessed from the internet.

Software

The 'extended BASIC' designates the network port as: device "N", just like for the original ZX Interface 1.

The operating system of the 'Interface 1bis' supports communication over an IP network with up to seven 'stations', which can be file devices: PCs running a suitable server applet, or block devices: other 'Interface 1bis' units.

Before it can be accessed, a station has to be 'linked', using the command:

```
FORMAT "n"; <s> ; "<n> "
```

where <s> is the **station** number, in the range: 1-7, and <n> its host **name** or IP **number**. If successful, this creates a record in the 'stations table', which can be viewed by issuing the command:

```
CAT 0;"es"
```

The procedure for buffered data exchange over the network between 'Interface 1bis' units, using the **OPEN#**, **PRINT #**, **INPUT #**, **INKEY\$** and **CLOSE#** statements is strictly compatible with the original ZX Interface 1 'extended BASIC', including relevant hook codes and structure of the "N" channel.

Incoming data, from up to four different 'client' stations is buffered internally and can be retrieved at a later stage to the "N" channel.

Unlike the original ZX Interface 1, the 'Interface 1bis' can handle block device requests in the background, independently of the host machine, so that file oriented network operations do not require any manual intervention at the target station. The syntax of the 'network' **CAT**, **ERASE**, **LOAD**, **MERGE**, **MOVE**, **SAVE** and **VERIFY** statements is the same as for regular storage devices, excepting a non-zero 'station number'.

```
LOAD * "m0";24;"prog"
```

loads from the current directory of the on-board SD card's drive 24, while

```
SAVE * "v3";1;"prog"
```

saves to the current directory of the server machine linked as station 3.