WiFi 6 click

From MikroElektonika Documentation

WiFi 6 click is a mikroBUS™ add-on board with Bluegiga's WF121-A self-contained Wi-Fi module. With a fully integrated radio and 32-bit microcontroller, this module is ideal for embedded applications.

The module's 2.4GHz band radio is fully compliant with IEEE 802.11b/g/n and offers excellent radio performance. Allows end user applications to be embedded onto the integrated PIC32MX695H, a 32-bit 80MHz microcontroller with 128KB RAM and 512KB Flash memory, for development of lower-cost and smaller sized products. Also integrated on-board is a single power supply.

WiFi 6 click communicates with the target MCU through the mikroBUS™ UART (TX, RX), SPI, or IC2, with additional functionality provided by CTS pin (in place of default mikroBUS™ INT pin); a mikroProg connector allows to update the firmware of the internal PIC32. SPI interface can be accessed by jumpers on the click board. The board is designed to use a 3.3 power supply only.

WiFi 6 click

Features and usage notes
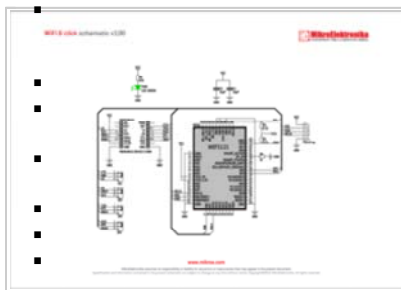
Schematic also available in PDF
(http://docs.mikroe.com/File:WiFi_6_click_schematic)

The integrated firmware provides Wi-Fi and networking stack services (TCP/IP, UDP, DHCP, DNS).
BGAPI host protocol for modem like usage.
BGScript scripting language or native C-development for self-contained applications.
On-board 32-bit embedded PIC32MX695H 80MHz, 128kB RAM and 512kB Flash memory MCU.
TX Power: +17dBm
RX Sensitivity: -97 dBm
Automatically powers on RF circuitry only when needed for power saving functionality.
PIC32-series 32-bit MCU on module can reach a performance of 125 DMIPS while keeping low power consumption.

- Bluetooth coexistence system allows co-located WiFi and Bluetooth devices to be aware of each other, WF121-A supports sharing the integrated antenna or antenna connector with a Bluetooth device through the BT_RF pad.
- I2C, SPI and UART interfaces.
- mikroProg connections for updating firmware for the on-board PIC32.

WiFi 6 click	
IC/Module	WF121-A (http://www.silabs.com/Support%20Documents/RegisteredDocs/WF121-DataSheet.pdf)
Interface	UART (TX, RX), I2C (SCK, SDA), SPI (SCK,CS,MISO,MOSI), CTS
Power supply	3.3V
Website	www.mikroe.com/click/wifi-6 (http://www.mikroe.com/click/wifi-6)

Programming

This snippet shows how easy it is to connect to the WiFi 6 click and begin communication.

```
1  void main ()
2  {
3
4      //TFT display output initialization.
5      init_TFT();
6
7      //USB UART initialization.
8      UART1_Init(115200);
9      show_status("\r\n*************************",1);
10     show_status("UART1 initialized",1);
11
12     //WF121 UART initialization.
13     init_WF121_UART();
14
15     //Initialize BGLIB with our output function for sending messages.
16     BGLIB_INITIALIZE(uart_output);
17
18     //Send a Hello command to verify the serial port is working.
19     goto_state(wlan_state_hello);
20  }
```

Code examples that demonstrate the usage of WiFi 6 click with MikroElektronika hardware, written for mikroC for ARM is available on Libstock (http://libstock.mikroe.com/projects/view/1910/wifi-6-click-library).

Resources

- WF121-A datasheet (http://www.silabs.com/Support%20Documents/RegisteredDocs/WF121-DataSheet.pdf)

- WiFi 6 click code examples on Libstock (http://libstock.mikroe.com/projects/view/1910/wifi-6-click-library)

- mikroBUS standard specifications (http://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf)