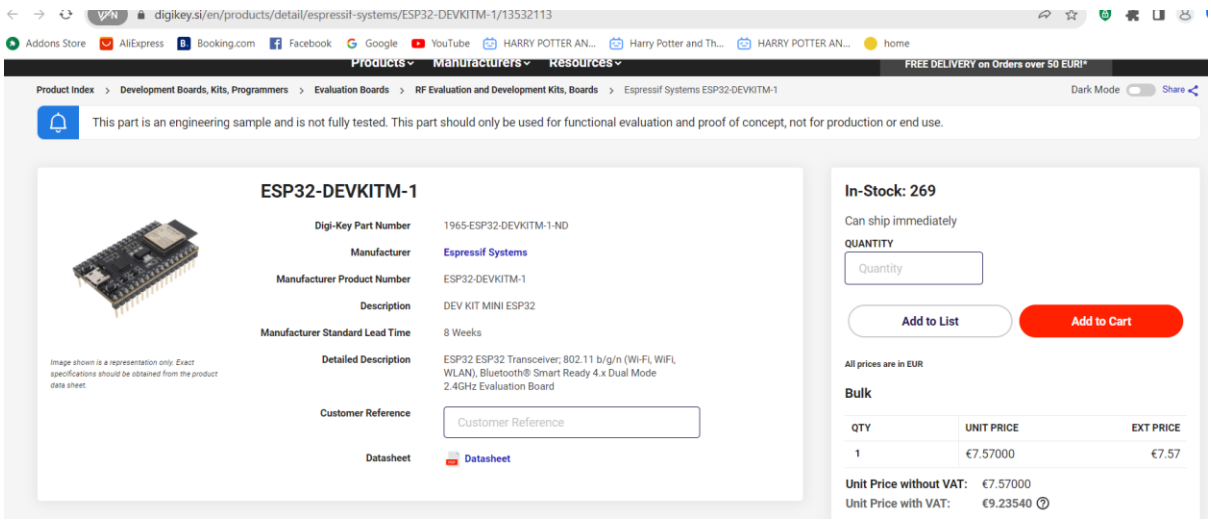
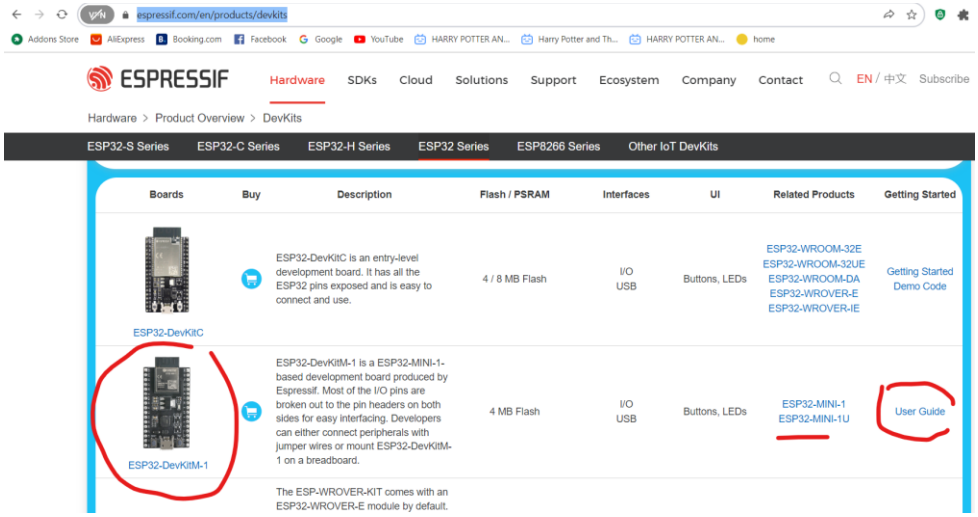
Uporaba modula ESP32-DEVKITM-1 – “hitri začetek”

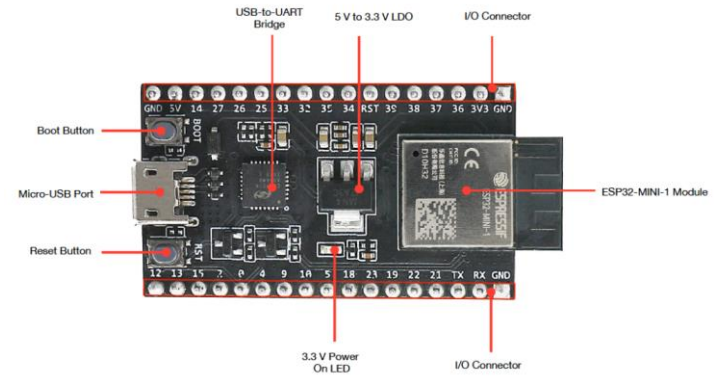
Izdelek dobavljen na DigyKey:
https://www.digikey.si/en/products/detail/espressif-systems/ESP32-DEVKITM-1/13532113



Dokumentacija za dobavljen modul ESP32-DevKitM-1 se nahaja na uradni strani proizvajalca:

https://www.espressif.com/en/products/devkits





ESP32-DevKitM-1 - front

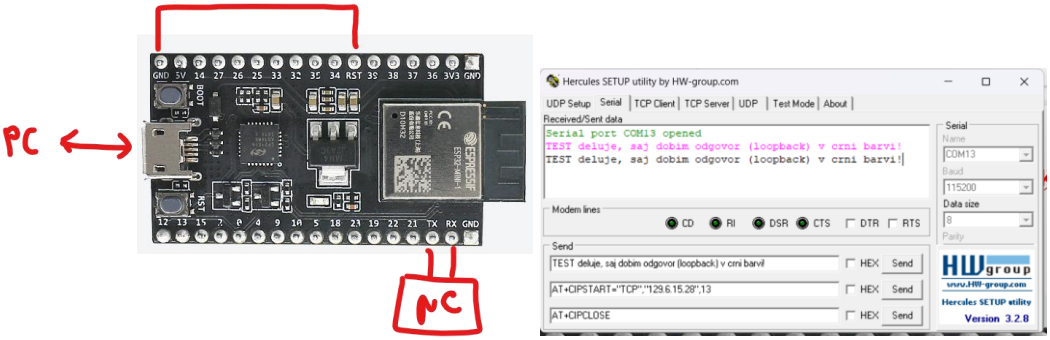
ESP32-DevKitM-1 kot “USB to RS232 (TTL) doungle” vmesnik

Onemogočim oglašanje modula ESP32 (povežem GND z RST)

Testiram delovanje:

Tx povežem z RX (loop back)

Modul priključim na PC (preverim dodeljeni virtualni serijski port) in testiram s programom za serijsko komunikacijo (npr. Putty, Herculles, ReaTerm,…)



Omogočitev in testiranje ukazov AT

Downloading Guide

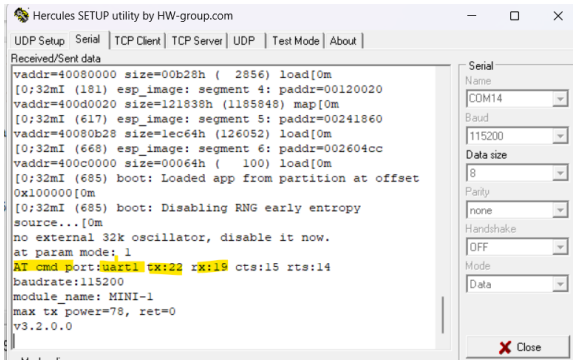
https://docs.espressif.com/projects/esp-at/en/latest/esp32/Get_Started/Downloading_guide.html

ESP-AT Firmware Differences (pini za AT commands)

https://docs.espressif.com/projects/esp-at/en/latest/esp32/Compile_and_Develop/esp-at_firmware_differences.html

Privzete nastavitve modula: UART0 -> debug port, UART1-> AT commands

Prek USB vrat povežem modul na PC (omogočim modul ⇔ odstranim povezavo GND-RST), zaženem npr. “Hercules Utilitty” in resetiram modul. Preko UART0 (“debug” port) modul sporoči uporabljene pine za UART1 (AT commands):

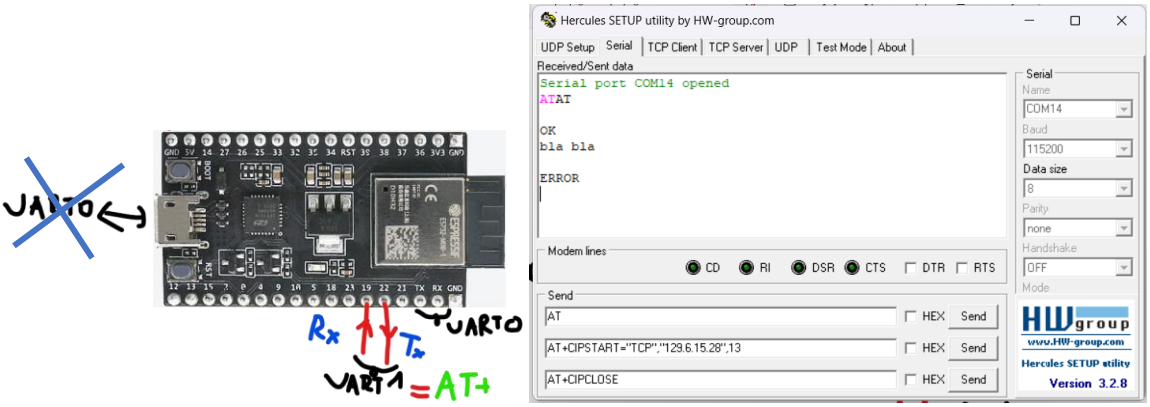


Izvajanje ukazov AT:

Hitra in učinovita navodila za delo z ukazi AT (Espressif ESP8266EX: AT COMMAND EXAMPLES), so v spletni učilnici (naloga iz UART), lahko pa jih pod tem naslovom najdete tudi na spletu.

1. NAČIN

Preko vrat USB je privzeto omogočena komunikacija z UART0 (debug port), kjer ne moremo izvajati ukazov AT. Ukaze AT je mogoče izvajati preko vrat UART1, ki se nahajajo na priključkih 22 (TX) in 19 (RX). Za komunikacijo s PC-je, lahko uporabim zunanji „doungle“ (USB- to UART pretvornik). Če pa želim izvajati ukaze AT kar iz mikrokrmilnika (uC), povežem UART1 (pina 19, 22 in GND) na uC (npr. UART STM32). Modul se odziva na ukaze AT.



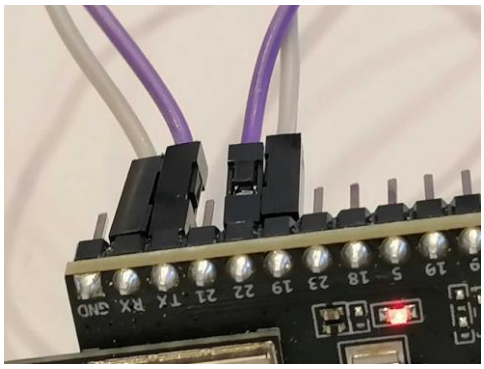
Hardware Connection (Connection of Components for ESP-AT Testing)

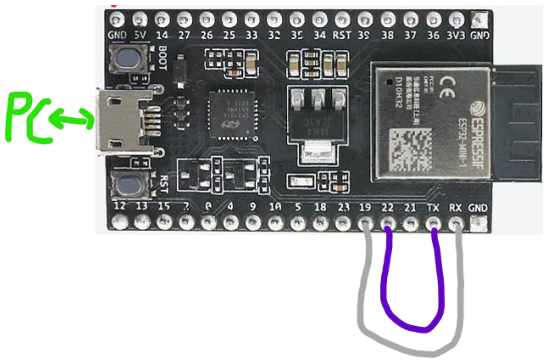
https://docs.espressif.com/projects/esp-at/en/latest/esp32/Get_Started/Hardware_connection.html

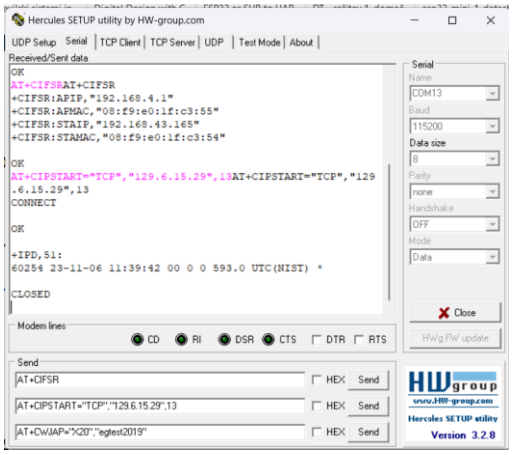
2. NAČIN

V trem načinu premostim tok podatkov iz UART0 (AT commands) na UART1 (povezan na USB konektor ⇔debug port). Na PC-ju zaženem npr. „Herculess Utility“ in izvajam ukaze AT.

Slabost: Možnost mešanja “AT sporočil” iz UART1 z “debug” sporočili izUART0.







<- Test delovanja

3. *NAČIN*

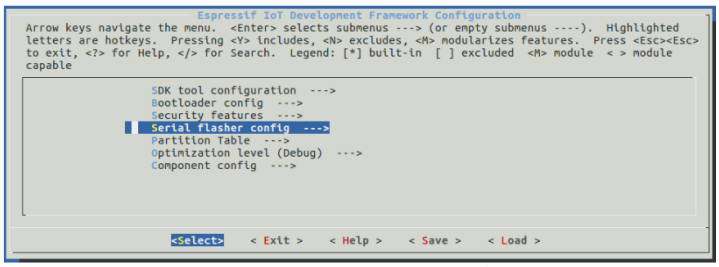
Spremenim konfiguracijo modula ESP32, ki omogoči izvajnje ukazov AT prek vrat UART0 (USB vrata).

How to Set AT Port Pins (To modify the AT port pins of your ESP32)

https://docs.espressif.com/projects/esp-at/en/latest/esp32/Compile_and_Develop/How_to_set_AT_port_pin.html

Compile ESP-AT Project Locally

*"It comes in handy when the official released fimware cannot meet your needs, for example, to customize the **AT port pins**, Bluetooth LE services, and partitions, and so on."*



Project configuration - Home window

You are using this menu to set up project-specific configuration, e.g. changing AT port pins, enabling Classic Bluetooth function, etc. If you made no changes, it will run with the default configuration.

https://docs.espressif.com/projects/esp-at/en/latest/esp32/Compile_and_Develop/How_to_clone_project_and_compile_it.html#esp-at-get-at-sdk

OSTALO:

Uporaba vezja za programiranje ESP8266 kot "USB to UART doungle". Druga slika spodaj (levo) prikazuje vezje z na vrhu nataknjenim modulom ESP8266-01.

Tretja /četrta/S slika prikazuje priključke ***TX, RX, GND*** uporabljenega vezja, ki jih lahko uporabimo za „virtualni port ⇔ doungle".

Glej tudi naslov zgoraj: *„ESP32-DevKitM-1 kot “USB to RS232 (TTL) doungle” vmesnik“*