Introduction to eYFi-Mega Board

e-Yantra Team

Embedded Real-Time Systems (ERTS) Lab
Indian Institute of Technology, Bombay

IIT Bombay
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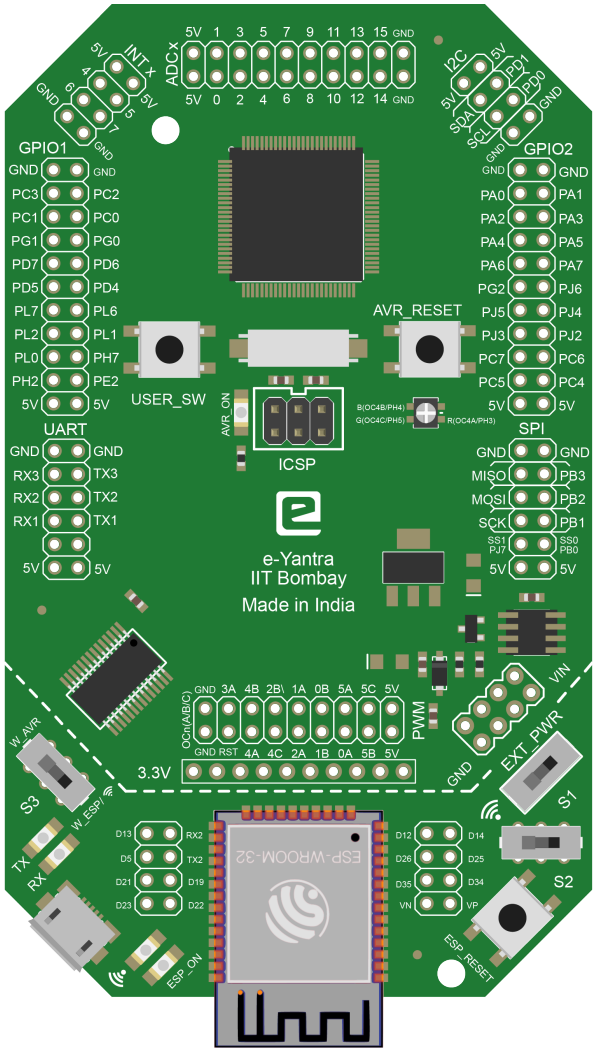
eYFi-Mega dev board



https://products.e-yantra.org/eyfi-mega/

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  - 8-bit ATmega 2560
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- **Arduino Programming Language:** Both micro-controllers can be programmed using Arduino API

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- **RoHS status:** Compliant

Block Diagram (ATmega 2560)

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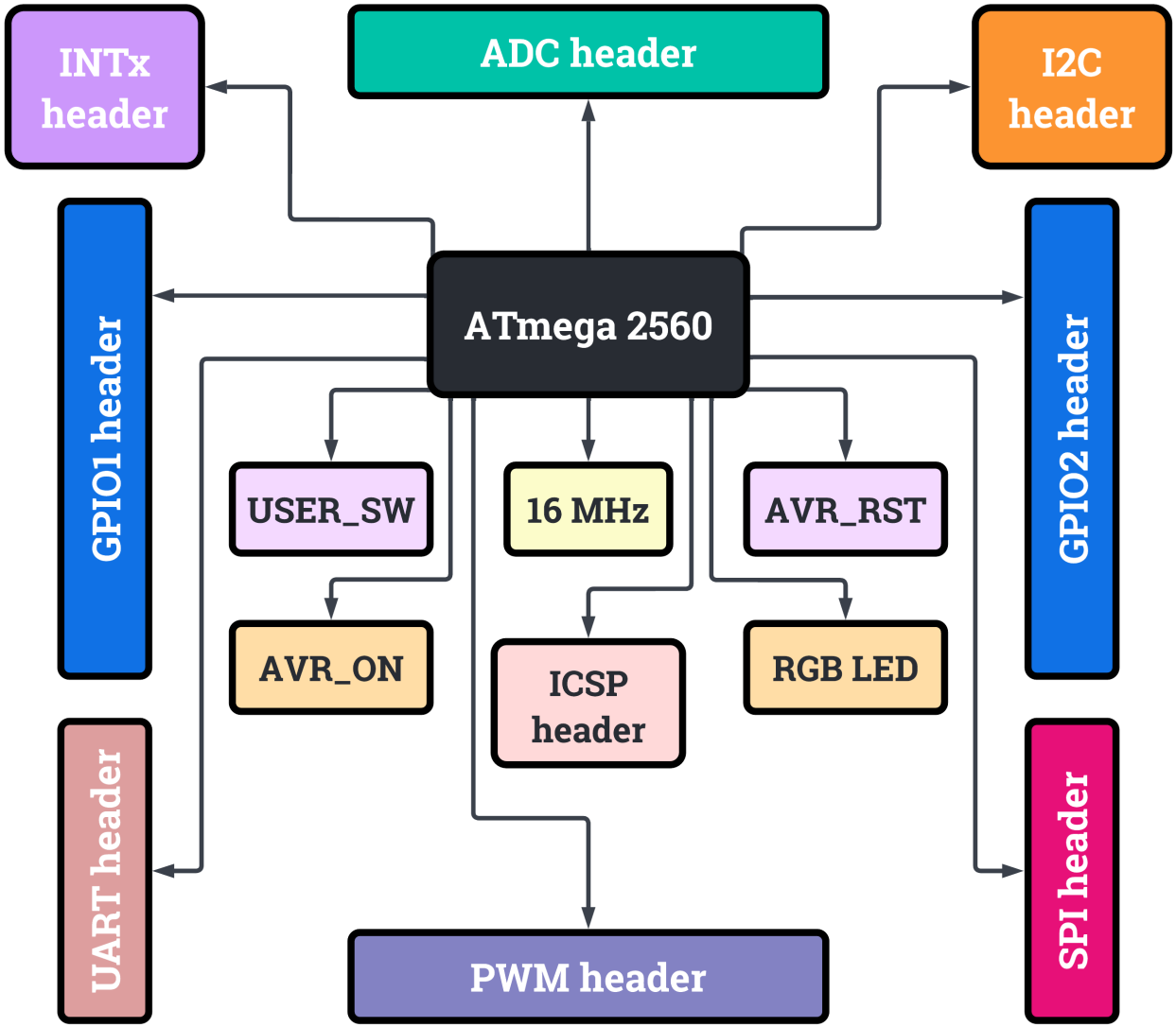

Block Diagram (ESP32)

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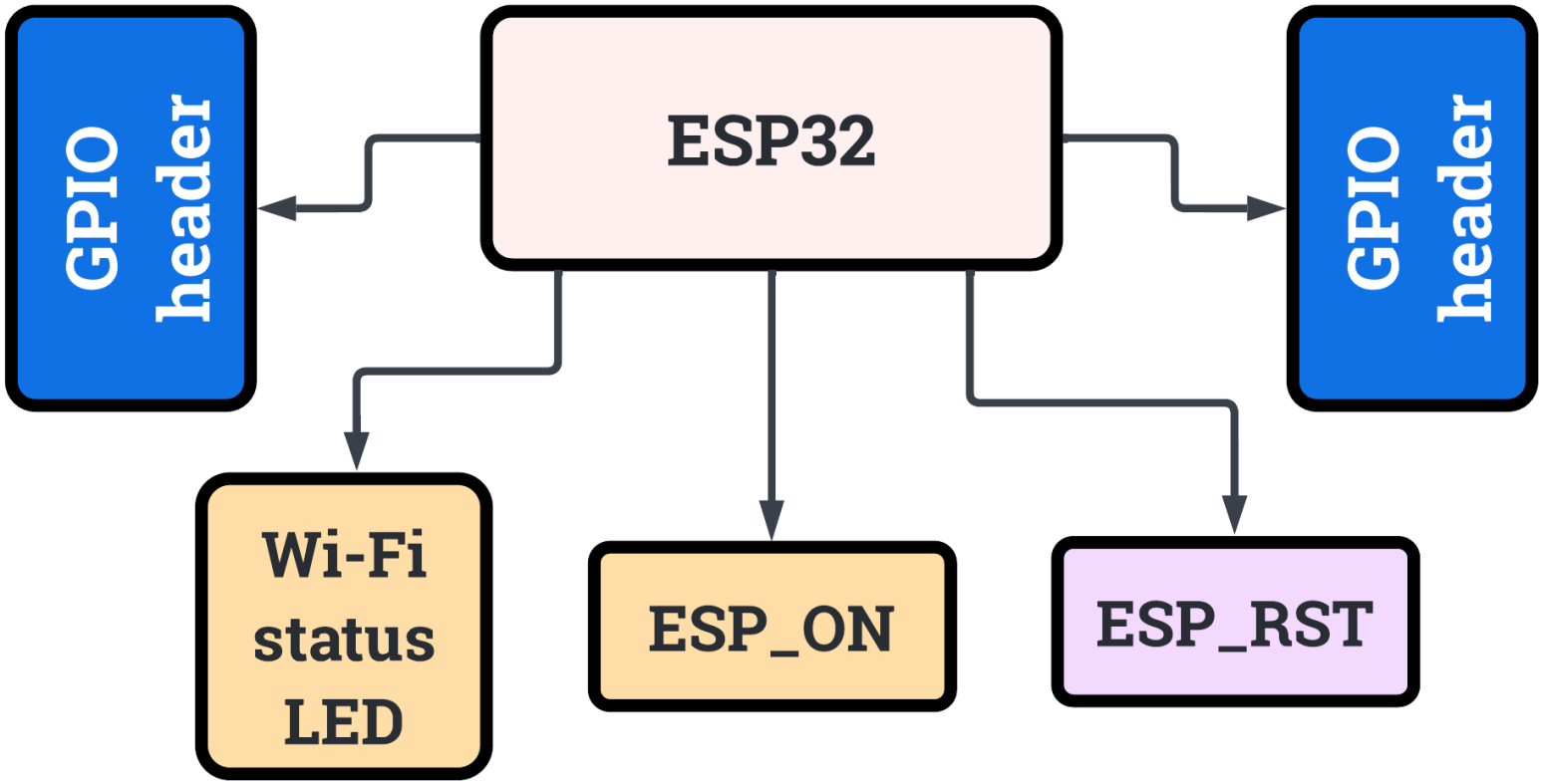

ESP32 Partition Table

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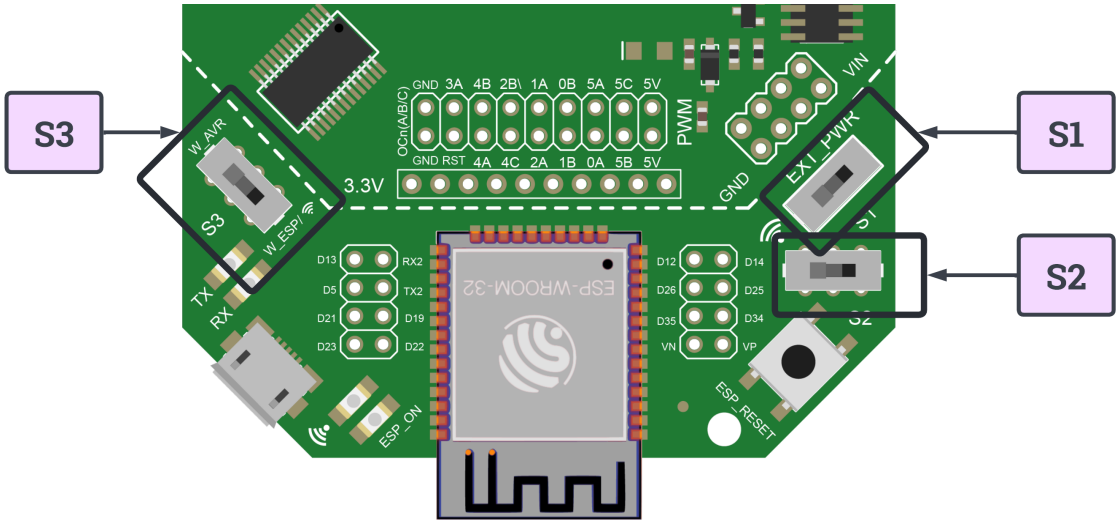
Partition Name	Start Address	Size
reserved area (nvs, otadata, phy_init)	–	300 KB
factory (ota-app)	0x10000	1 MB
app1 (user-app)	0x110000	2 MB
storage (spiffs)	0x310000	700 KB

Switches S1, S2 and S3



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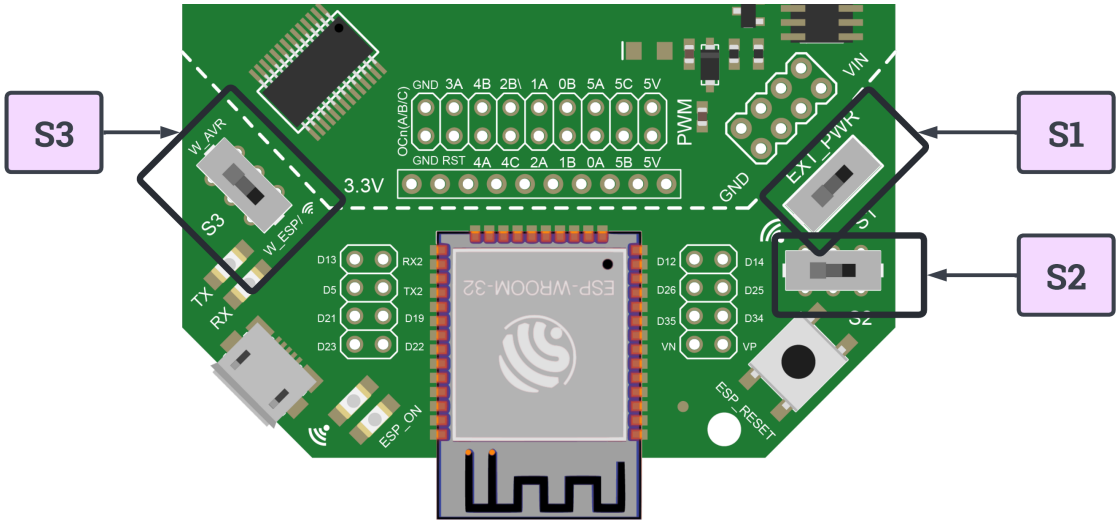

- **Switch S1**
  - ESP32 Partition Selection Switch (OTA-App / User-App selection)

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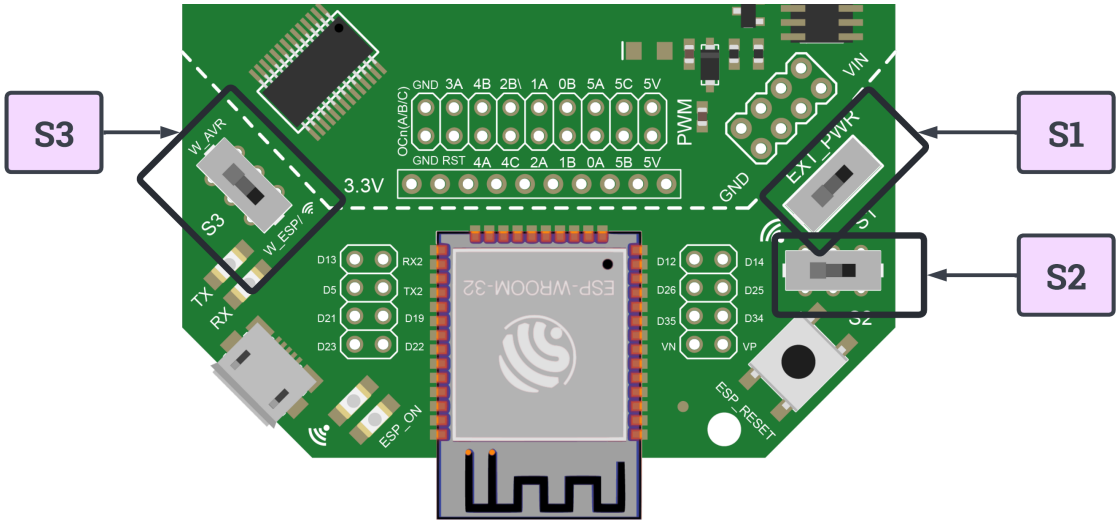

- **Switch S1**
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- **Switch S2**
  - Toggle ESP32 UART1 connection with ATmega2560 UART0

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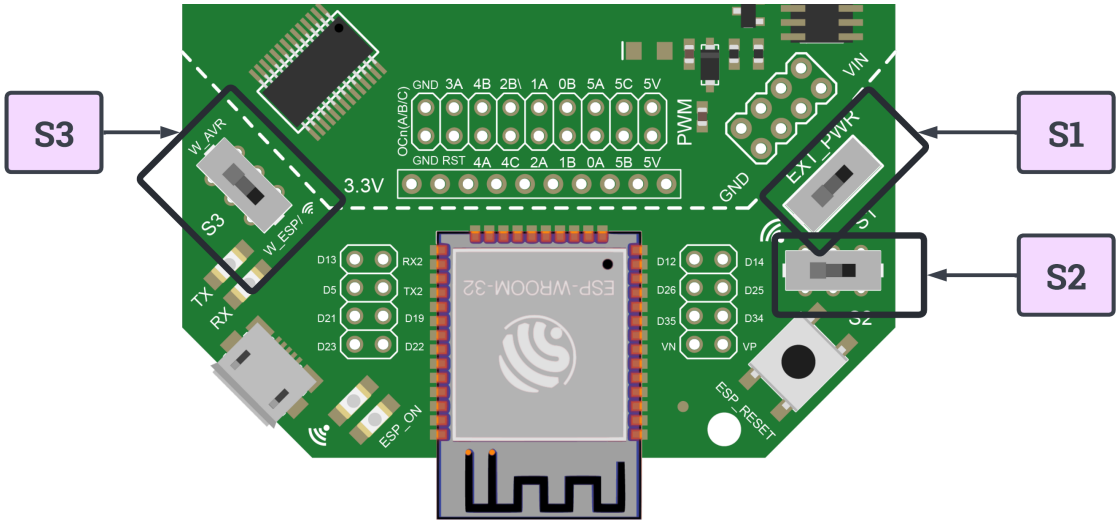

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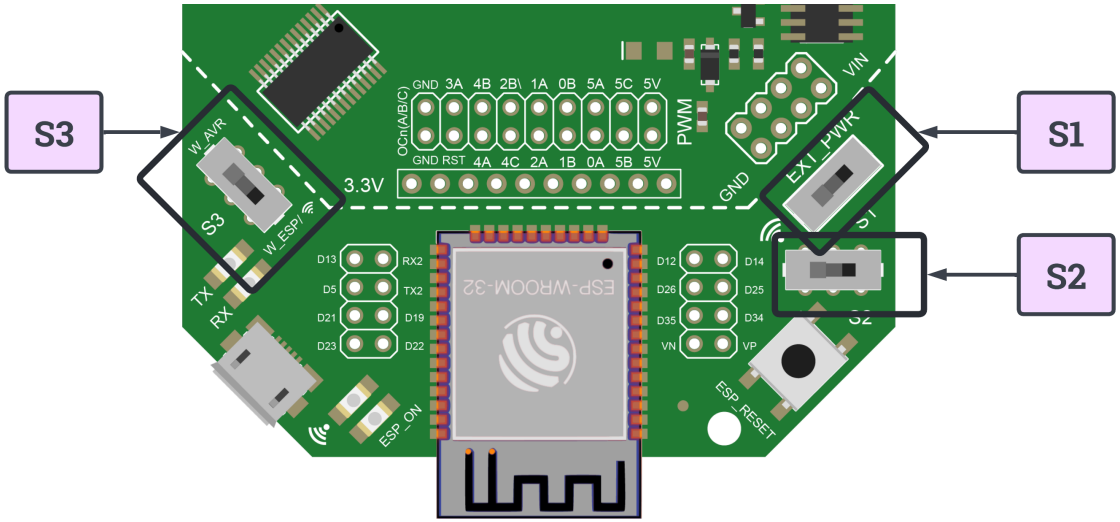
  - Toggle ESP32 UART1 connection with ATmega2560 UART0
- **Switch S3**
  - Wired flashing of ATmega 2560 *OR* ESP32

Switch positions for Programming



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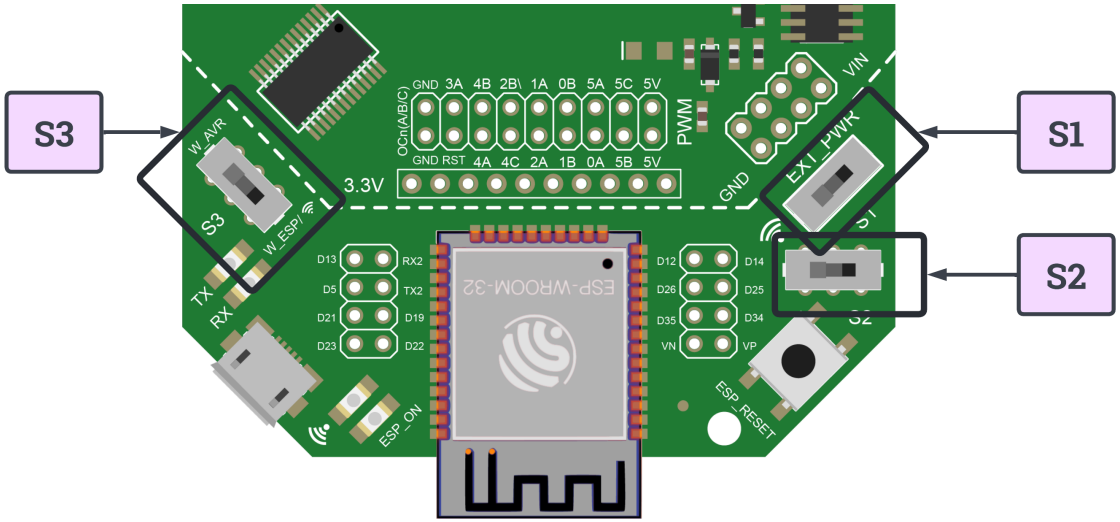
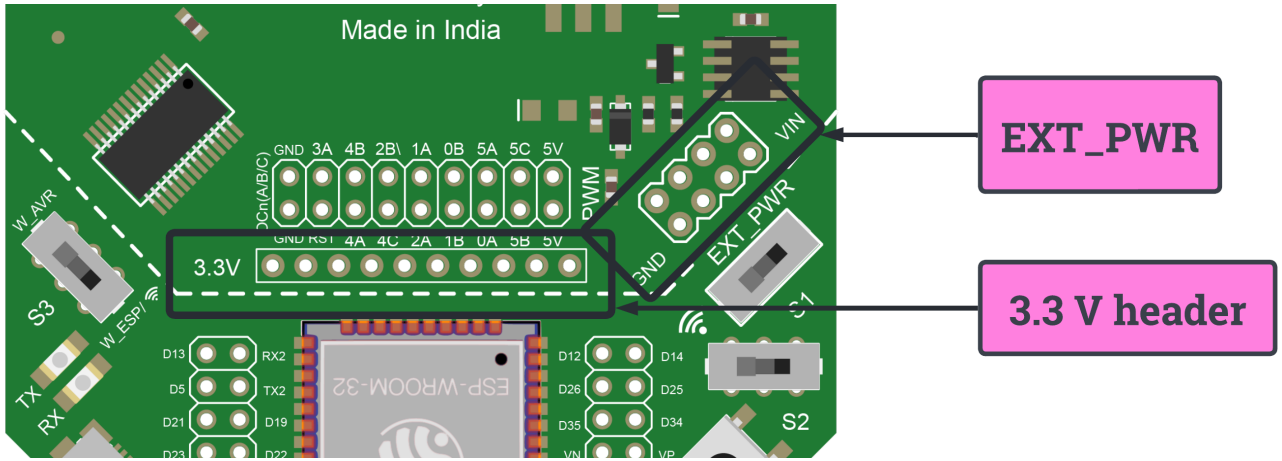


Programming Mode	S1 Position (towards)	S2 Position (towards)	S3 Position (towards)
ATmega2560 Wired	–	–	W_AVR
ATmega2560 Wireless	Wi-Fi symbol	Wi-Fi symbol	W_ESP / Wi-Fi symbol
ESP32 Wired	–	–	W_ESP / Wi-Fi symbol
ESP32 Wireless	Wi-Fi symbol	Wi-Fi symbol	W_ESP / Wi-Fi symbol

Wi-Fi Status LED Patterns

State	Wi-Fi Status LED Pattern
Wi-Fi client is connected to ESP32	ON
Wi-Fi client disconnected from ESP32	OFF
File Upload Start	OFF
File Upload End	Blink Fast for 100 ms
Firmware Flash Start	Blink Fast
Firmware Flash End - AVR	Blink Slow for 5 sec
Firmware Flash End - ESP32	Blink Slow till S1 switch is toggled

Power headers



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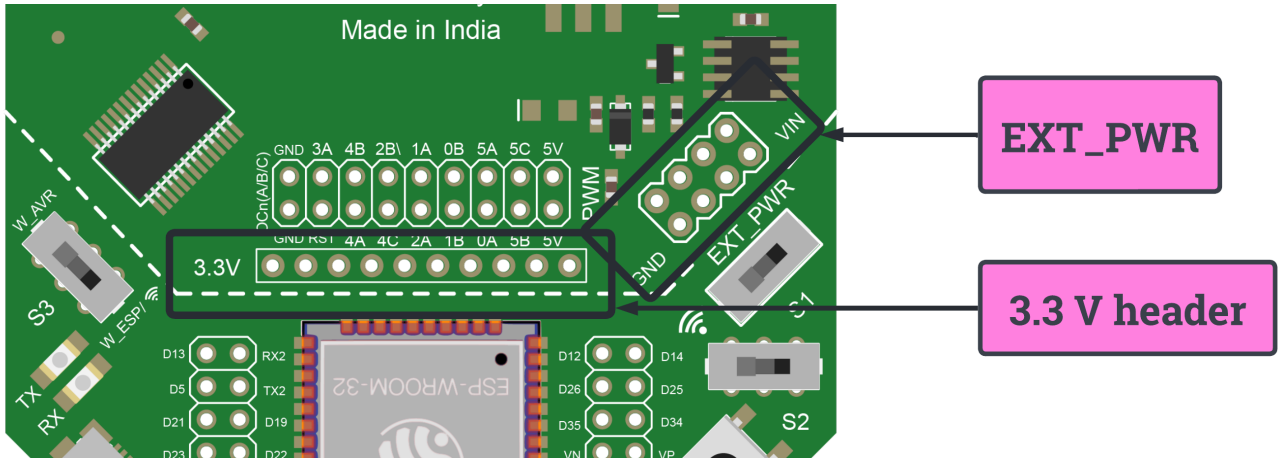

- **5 V**
  - Multiple 5 V supply available around the board

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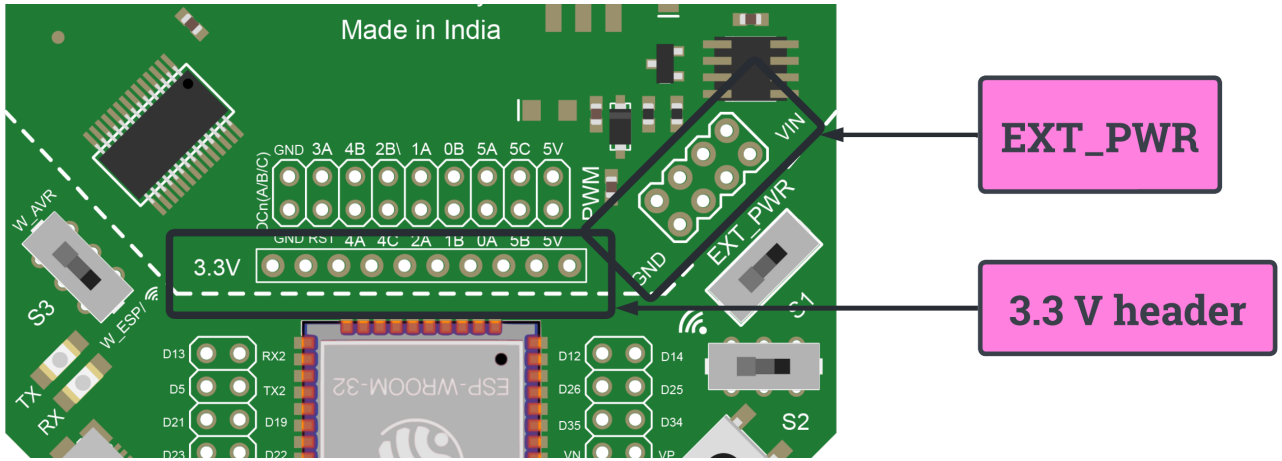

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  - Max. 800 mA can be drawn
  - Drawing high current not advisable

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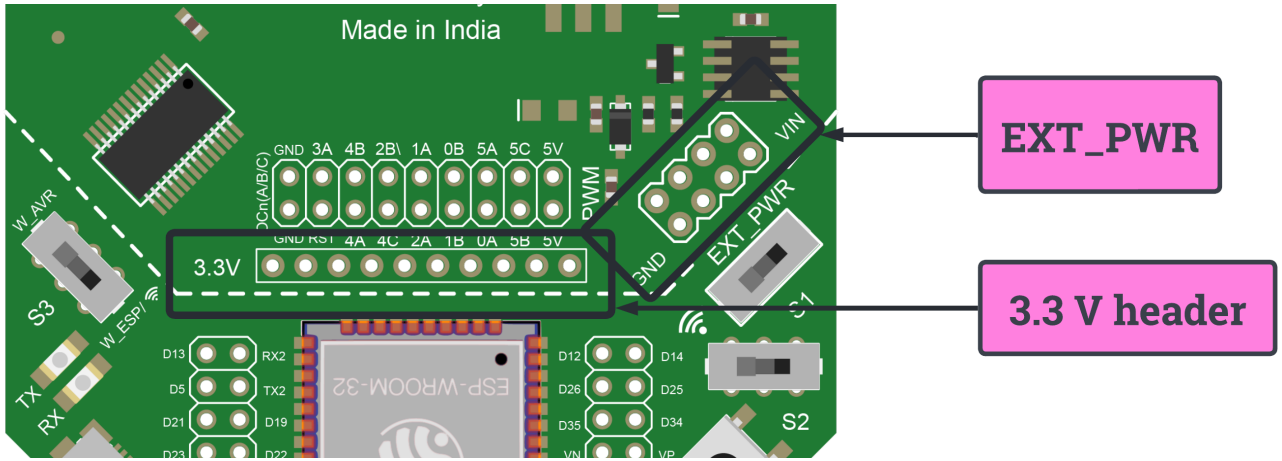

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- **3.3 V**
  - Max. 800 mA can be drawn
  - Drawing high current not advisable
- **External Power**
  - Ext. Supply strictly in range 7.0 V to 21.0 V
  - Typically 1 A and max. 2.5 A can be drawn

Thank You!

Post your queries on: helpdesk@e-yantra.org