ByteBoi Anatomy Guide

ByteBoi's anatomy

Explore the board

Welcome to ByteBoi's anatomy guide!

Whether you have already assembled your ByteBoi or not, this is going to be a helpful guide where you'll learn a bit more about the soldered components, small connections, LED lights, and drivers.

We'll start with bigger components and cover smaller components later in the guide.

Exploring the board

Starting with anything else but the PCB board itself would be wrong. Therefore, we present you the star of the night...

PCB stands for a printed circuit board. Basically, this fiberglass board has copper traces on it, some protective paint, and insulating material.

Thanks to the copper leads on the board, all the connected or soldered components can communicate with each other.

Without it, ByteBoi couldn't play its games, and the display wouldn't react after any input from the buttons.

Just like with other CircuitMess devices like Nibble or Spencer, we want our components not only to work wonders but to look cool as well! Therefore, we designed some pretty fun patterns that you can see on the back of the board.

ESP-WROOM-32

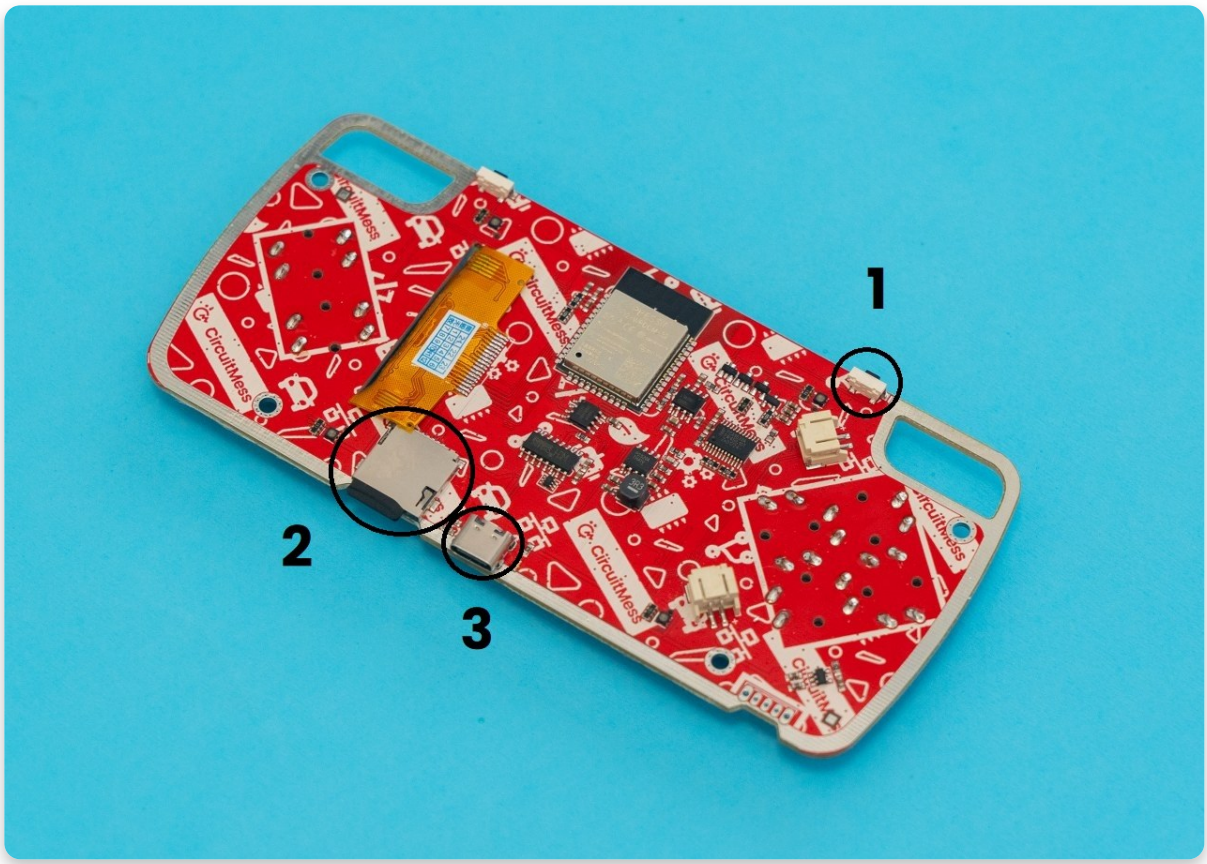
This microcontroller runs everything, and you could say that this is ByteBoi's brain. ESP-WROOM-32 is a powerful module mainly used for sound encoding and streaming music. It is reasonably priced considering all its abilities.

ESP-WROOM-32 also controls pictures on display and LED lights.

Due to its complexity and sensitivity, this module is already connected to ByteBoi's main board.

- ESP-WROOM-32 Data sheet

Let's check a few main things!



1. Reset Button

This one's pretty self-explanatory - the reset button is used for resetting your ByteBoi. You can find this useful in case something gets frozen (which is hopefully never).

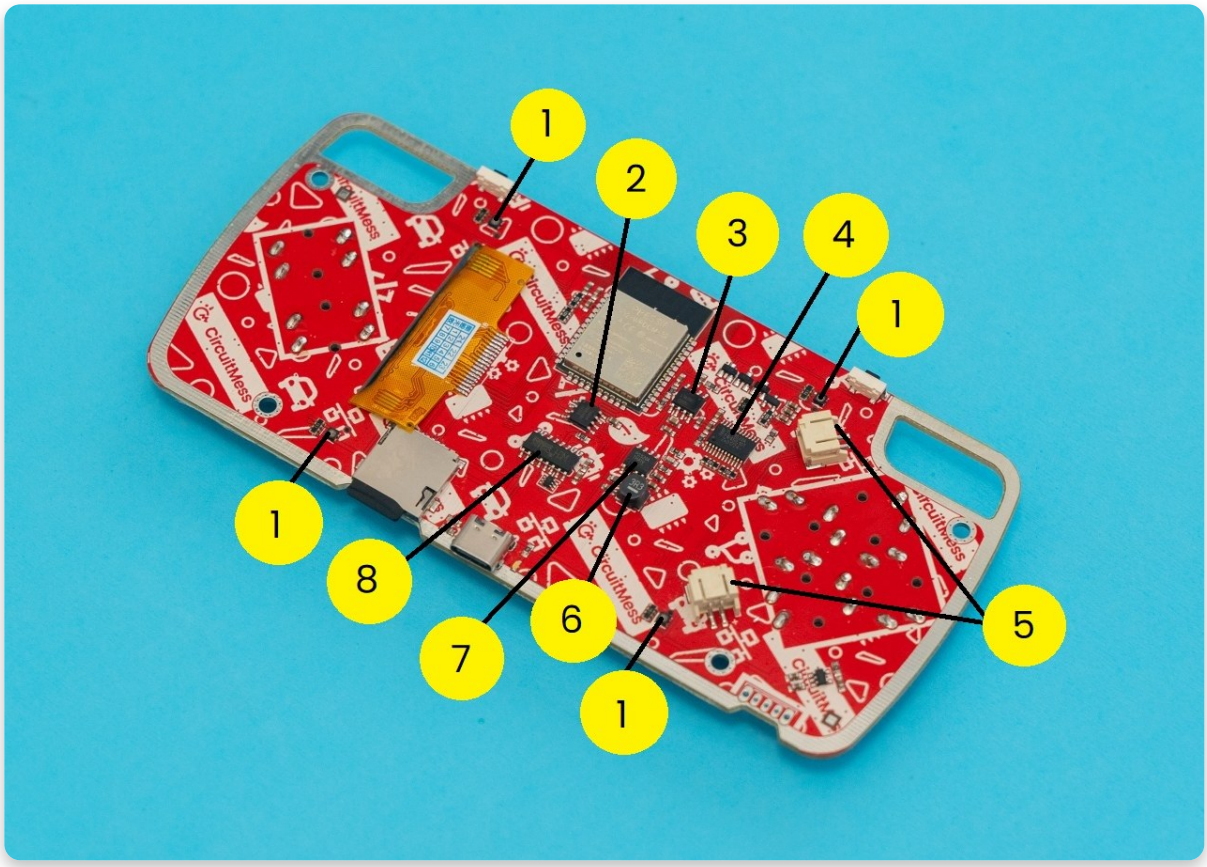
2. SD card holder

SD card holder (SD slot) with an actual SD card inside is located at the bottom side of the board. You can store all your games on this SD card. If all the memory is used, you'll be able to replace this one with any microSD card and continue playing games.

3. USB-C connector

This connector on the bottom side of the board is used for charging and connecting ByteBoi to the computer. Once you connect it to your PC, you'll be able to program it in CircuitBlocks - a graphical programming interface that helps newbies get into embedded programming.

Explore the chips



1. RGB LEDs

Those four RGB LEDs will make sure your ByteBoi is lightning up in three different colors!

As their name says, they will light up in **R**ed, **G**reen, and **B**lue.

2. LY68L6400 RAM chip

This chip is called LY68L6400SLIT, and it handles any extra-quick tasks that the main process, ESP-WROOM-32, needs to be done!

3. TC8002D chip

TC chip is used as an audio power amplifier.

4. PCA9539APW chip

PCA chip controls push buttons and make sure the the information from input (pushbuttons) come to PCB.

5. JST-2P connectors

Those two connectors are used for manually connecting the battery and speaker to the main board.

6. G3035 Mosfet

This component is like a little switch that we can control. This allows the processor to turn on/off our Chatter's pushbuttons automatically!

7. PAM2320BECADJR chip

PAM 2320 is a Voltage Regulator outputting 3.3V to be used in the circuit!

8. CH340C chip

ByteBoi can communicate with your computer over USB, thanks to this little guy!

Capacitors and resistors

The rest of the small components are called capacitors and resistors. These are the main parts of pretty much every electronic device in the world. They are used to control the flow of the current in a circle. There are a few locations on the board

where these components are located, mainly around the ESP-WROOM-32 module, the display, and the important chips.

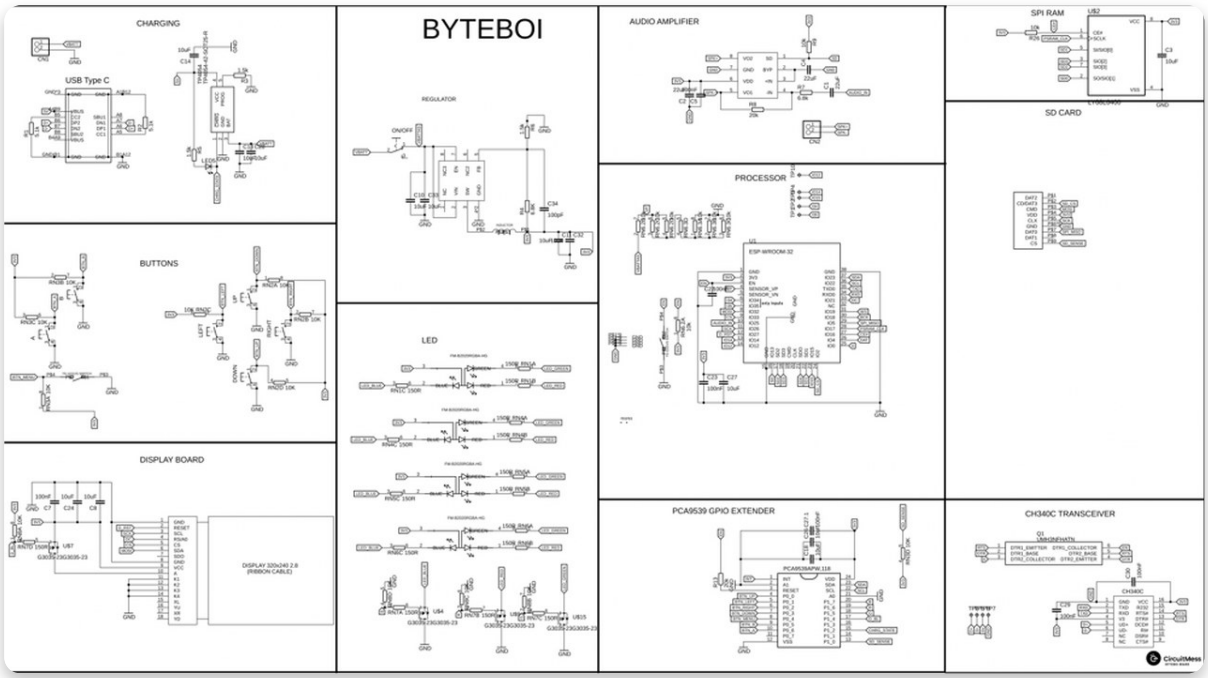
Blocks... and more blocks

ByteBoi's block diagram

This is ByteBoi's block diagram.

Take a look at the scheme below, and feel free to investigate in detail.

It shows how the components like EPS-WROOM-32, display, LEDs, SD slot are connected. It also explains how different inputs are accepted and processed by different drivers and how they affect the outputs.



Now that you know what each component on the mainboard is, you're ready to build your ByteBoi.

Check out the **ByteBoi build guide** here:

- ByteBoi build guide