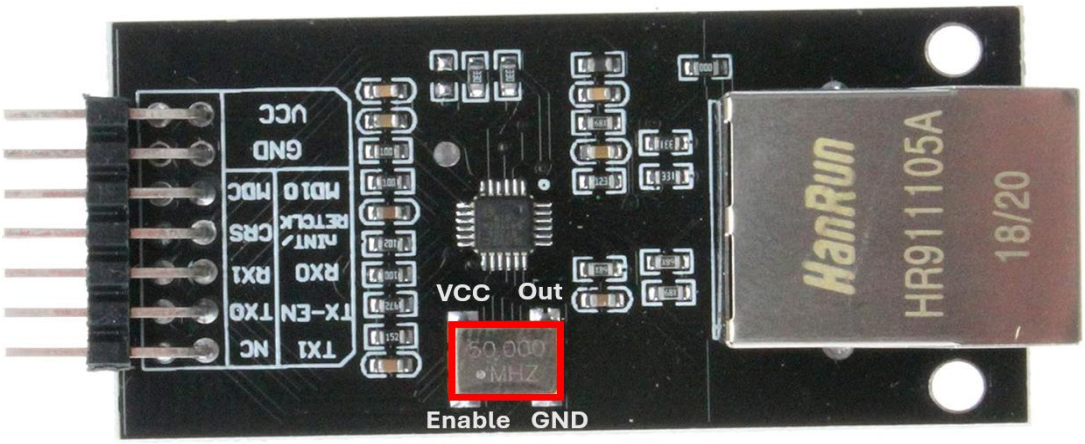
I've been trying to connect a LAN8720 ethernet board on a ESP32 Dev module and everywhere I look, I just can't seem to get all the info to get it to work first shot!

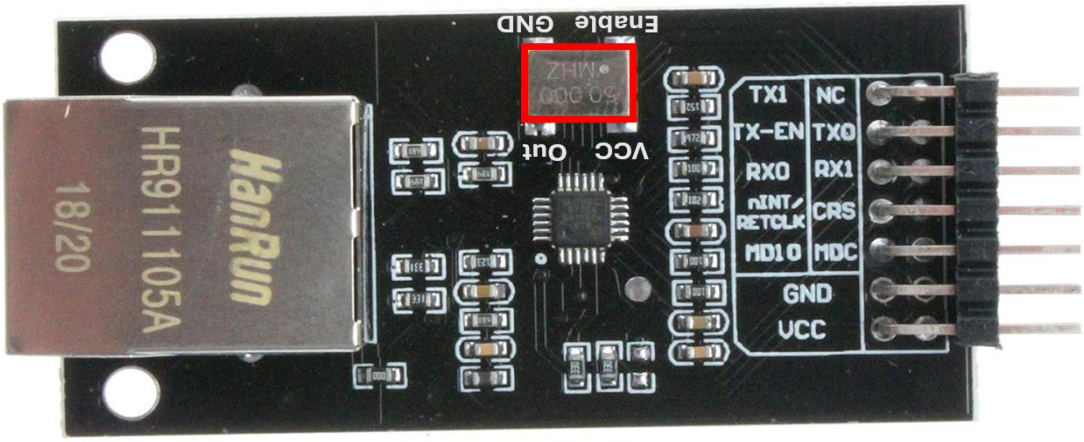
There's the physical plugging of them together, using the onboard 50 MHz oscilator or using the ESP32 to generate the 50 MHz clock, using the GPIO 0 or another, and I've tried almost all of them including using a transistor to isolate the clock out of the LAN8720 board connecting to GPIO0 of the ESP32 and using another GPIO with a delay to activate the transistor so that the ESP32 will boot up normally at every boot or reboot.
Here's what I found to be the simplest solution that I managed to make work and it works every time I boot or reboot the ESP32.
I hope this will help someone else!

- On the LAN8720 ethernet board, find the the onboard oscilator and place a jumper between the Enable pin and the GND pin.



- Connect these pins of the LAN8720 to the GPIO of the ESP32

| Lan8720 | ESP32 |
|---|---|
| Int/retclk | Gpio 17 |
| MDIO | Gpio 18 |
| TxD0 | Gpio 19 |
| TxEN | Gpio 21 |
| TxD1 | Gpio 22 |
| MDC | Gpio 23 |
| RxD0 | Gpio 25 |
| RxD1 | Gpio 26 |
| CRS | Gpio 27 |
| VCC | 3.3v |
| GND | GND |



Using these values in my code is how I got it to work:

<ETH.h>
ETH_TYPE ETH_PHY_LAN8720
ETH_ADDR 1
ETH_POWER_PIN -1
ETH_CLK_MODE ETH_CLOCK_GPIO17_OUT
ETH_MDC_PIN 23
ETH_MDIO_PIN 18

Here's the complete code:

```
#include <ETH.h>
#define ETH_TYPE ETH_PHY_LAN8720
#define ETH_ADDR 1
#define ETH_POWER_PIN -1
#define ETH_CLK_MODE ETH_CLOCK_GPIO17_OUT
#define ETH_MDC_PIN 23
#define ETH_MDIO_PIN 18

// Configure static IP
IPAddress IP(192, 168, 1, 100);
IPAddress GW(192, 168, 1, 1);
IPAddress SN(255, 255, 255, 0);
IPAddress DNS(192, 168, 1, 10);

void setup() {
  Serial.begin(115200);

  // Initialize Ethernet with custom PHY
  if (!ETH.begin(ETH_PHY_LAN8720, ETH_ADDR, ETH_MDC_PIN, ETH_MDIO_PIN, ETH_POWER_PIN, ETH_CLK_MODE)) {
    Serial.println("Failed to initialize Ethernet");
    return;
  }
  ETH.config(IP, GW, SN, DNS);
  Serial.println("Ethernet initialized");
}
void loop() {
  if (ETH.linkUp()) {
    Serial.print("IP Address: ");
    Serial.println(ETH.localIP());
    Serial.print("Subnet Mask: ");
    Serial.println(ETH.subnetMask());
    Serial.print("Gateway IP: ");
    Serial.println(ETH.gatewayIP());
    Serial.print("DNS IP: ");
    Serial.println(ETH.dnsIP());

  } else {
    Serial.println("Ethernet link down");
  }
  delay(1000);
}
```