

Assembly and testing

How to build your Pluggy McPlugface Reloaded

Preliminary Instructions

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The current Pluggy McPlugface Reloaded (PMPR) interface is largely composed of assembled sub-modules, so assembly is fairly straightforward. Generally, we assemble components in order of height. The MCU requires a firmware installation to operate. Your board may have been pre-loaded with this firmware, or see the instructions later in this document.

- 1.** Install the diode (d1) paying attention to the orientation. The stripe on the diode should be lined up with the silkscreen on the PCB. You will need to bend the lead of the diode, and they may be a tight fit.
- 2.** Next install the reset button. This is a surface mount part so holes to guide you. Just line up the legs of the button with the pads on the PCB, roughly centering them, then solder each of the pads to the PCB. Exact location is not critical.
- 3.** Install the MCU Controller board. Note that there are two sets of holes on the PCB to accommodate variations of the MCU board. Be sure that you are using the correct holes. We typically support the PCB from below, install the header pins (long side down) and then place the MCU board on the pins. Solder the MCU board to the pins. Then, flip over the PCB and solder the other end of the pins to the PCB. You can trim the pins with flush cutters after if you like.
- 4.** Install the SD Card board. Installation is similar to the MCU board. Your SD Card board may already have the header pins soldered to it. From the supplier, they have an incorrect header installed, which must be removed and replaced with straight header pins.
- 5.** Install the male and female 9 pin connectors. The female connector (all black) is near the button, the male connector is near the PS/2 keyboard connector.
- 6.** Install the PS/2 keyboard connector.
- 7.** Finally, solder the 6 pin expansion header. This header is currently unused and is optional.

Arduino Pro Micro Firmware Installation

Prerequisites:

- Arduino IDE
- USB A to USB Micro cable
- BabelFish source code (https://github.com/kervinck/gigatron-rom/tree/master/Contrib/at67/hw/SDCard_NO_ROM/BabelFish)

1. Configure the Arduino IDE build environment:

- Install the Arduino SD Card Library
- Install the Sparkfun Pro Micro board support pack (https://github.com/sparkfun/Arduino_Boards)

2. Build the firmware:

- Connect the USB cable to your computer and the Pro Micro USB port
- Select the COM port that the board attaches to
- Open the BabelFish.ino file
- Select Sparkfun Pro Micro at the top of the window
- Under the "Tools" Menu make the following selections
 - o Board: Spark Fun Pro Micro
 - o Processor: ATmega 32U4 (5V, 16 MHz)
- Select Sketch -> Verify/Compile
- If any errors, double check that the required libraries are installed and the IDE is configured correctly

3. Upload Firmware

- Sketch -> Upload

4. Verify

- With the Pro Micro still connected, select Tools – Serial Monitor
- Set baud rate to 115200
- Sending the letter V or the letter H should give response from the Pro Micro with version and help information respectively

5. Congratulations, Your PMPR interface is now complete.

PMPR Operation

Format a micro SD Card with the FAT32 file system, and load with your favorite Gigatron .GT1 files.

Connect a PS/2 keyboard to the PMPR

Insert the SD Card into the PMPR and power up the Gigatron.

From the Menu screen, press CTRL-F2 to access the SD Card Loader