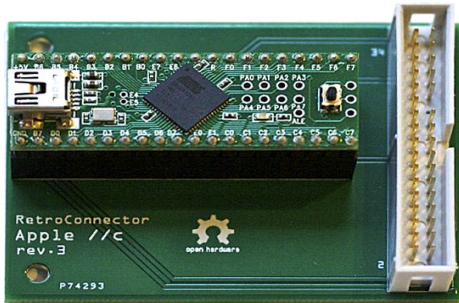


RetroConnector

Keyboard Shield for Apple IIc



Thank you for purchasing this RetroConnector by Option8.
Please refer to this site for updates and documentation:

<https://github.com/option8/RetroConnector/tree/master/IIc-USB>

If you have questions, please contact us via:

<http://retroconnector.com/contact>

Overview

The RetroConnector Shield turns the built-in keyboard of an Apple IIc or IIc Plus into a standard USB keyboard that is recognized by any modern computer. Type on your iPad, Mac, PC or Raspberry Pi with the keyboard of your youth.

Setup

The RetroConnector requires a working IIc or IIc Plus keyboard with its corresponding 26-pin ribbon cable, and the computer you intend to plug it into via a Mini USB cable.

Usage

Upper and lower case character input works as you would expect from a modern keyboard, as do modifier keys like Shift, Control, and Caps Lock.

The left “Open-Apple” key is the Command key on a Mac, Windows key on a PC. The right “Closed-Apple” key is Alt.

Function keys F1 to F10 are accessed by pressing CAPS-LOCK and the corresponding number key. These default mappings can be changed by editing the Arduino sketch running on the Teensy board attached to the shield.

Can I Hack It?

Yes. All the software and hardware are open source. Everything needed is on GitHub.

These boards are shields that plug into the PJRC Teensy Arduino clone. The Teensy provides the USB HID (human interface device) code and is easily programmable to match different keyboard layouts, remap broken or custom keys, or add additional functionality.

To update or modify the firmware on the Teensy, you will also need:

- RetroConnector firmware: github.com/option8/retroconnector
- Arduino software: arduino.cc/en/Main/Software
- teensyduino library: www.pjrc.com/teensy/td_download.html
- keypad.h library: playground.arduino.cc/Code/Keypad

Download and install the Arduino IDE software.

Download and install the Teensy Arduino libraries (Teensyduino).

Download the keypad.h library. Put the unzipped Keypad folder in “arduino\libraries\”.

Download the updated Arduino sketch for your RetroConnector IIc, and open the .INO file with the Arduino IDE. In the Arduino application, select Tools > Board > Teensy++ 2.0 and Tools > USB Type > Keyboard + Mouse + Joystick

Verify and upload the new sketch.

How Does It Work?

The board is basically a breakout for the Teensy pins to connect to the proper pins on the Apple II keyboard connector. The rest is software, sending the right signal down the different pins based on keystrokes. The Teensy does all the heavy lifting, and includes the USB HID functionality out of the box.

Special Thanks To

[Fritzing.org](https://fritzing.org) for their excellent circuit layout software and the Fritzing Fab prototyping service.

David Schmidt (of [ADTPro](https://adtp.com) fame) for early testing, debugging and advice.

[Brian Wisner](#) for editing and enhancing this manual.