PsNee modchip installation guide

Many thanks to William Quade, who allowed me to use his work as the foundation for this guide https://quade.co/.

The PsNee modchip is a newer chip that has been developed over the last few years and is still under active development. PsNee modchips should work with all versions of the PlayStation 1. They can be made using many AVR processors, including,

- ATmega328/168 (Arduino Uno, Arduino Mini/Mini Pro)
- ATmega32u4 (Arduino Leonardo, Arduino Micro/Micro Pro)
- ATtiny25/45/85

Quick summary of compilation and installation.

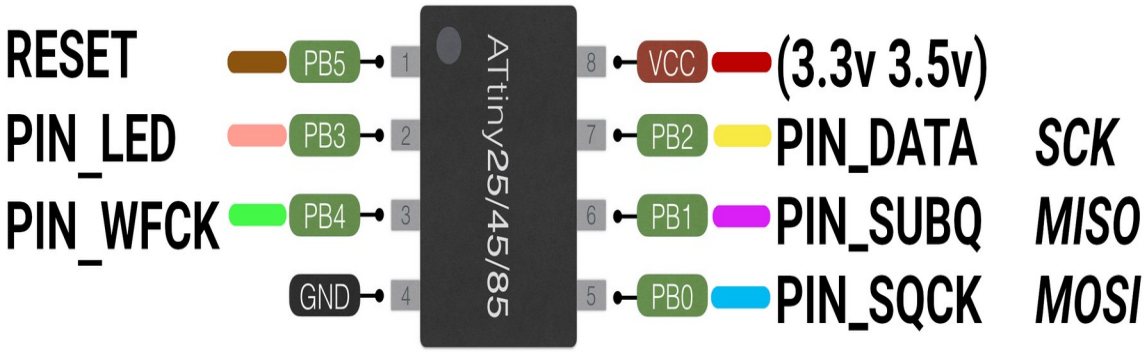
- Choosing your compilation options.
- Compilation.
- Configure fuses.
  - ATmega, H: DF, L: EE, E: FD
  - For ATtiny, H: DF, L: E2, E: FF
- Injecting the code into the target via ISP.

- Soldering mode according to the diagrams.

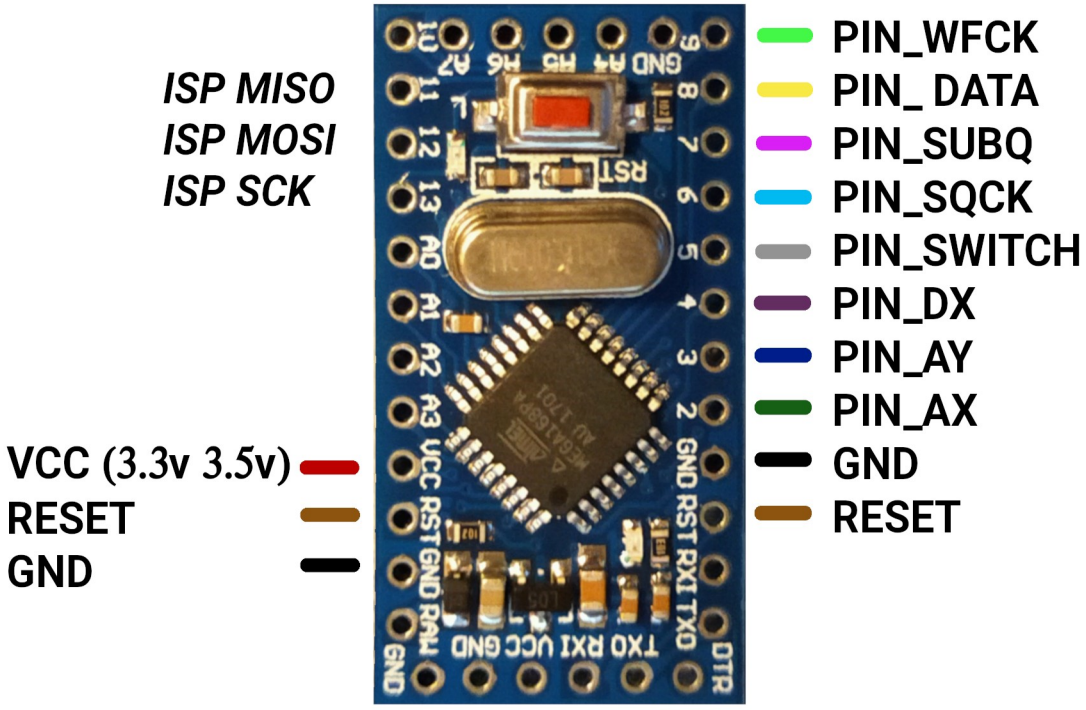
For a complete tutorial please see the wiki available in the repository

PSNee installation diagrams & pinout

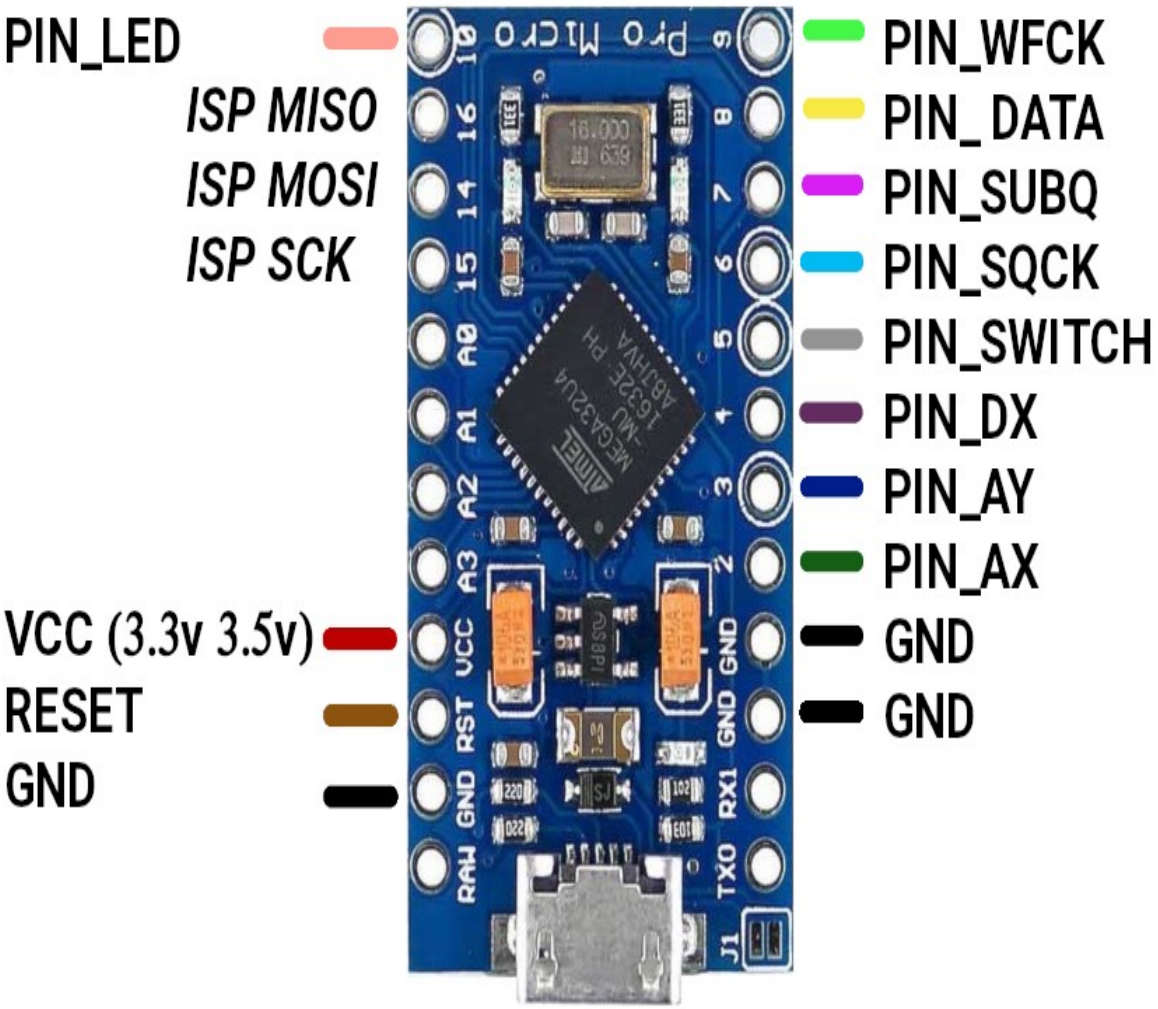
ATtiny25/45/85 pinout



Arduino Pro Mini Pinout
ATmega328_168



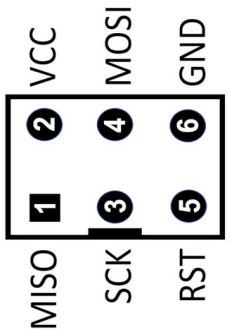
Arduino Pro Micro pinout
ATmega32U4_16U4



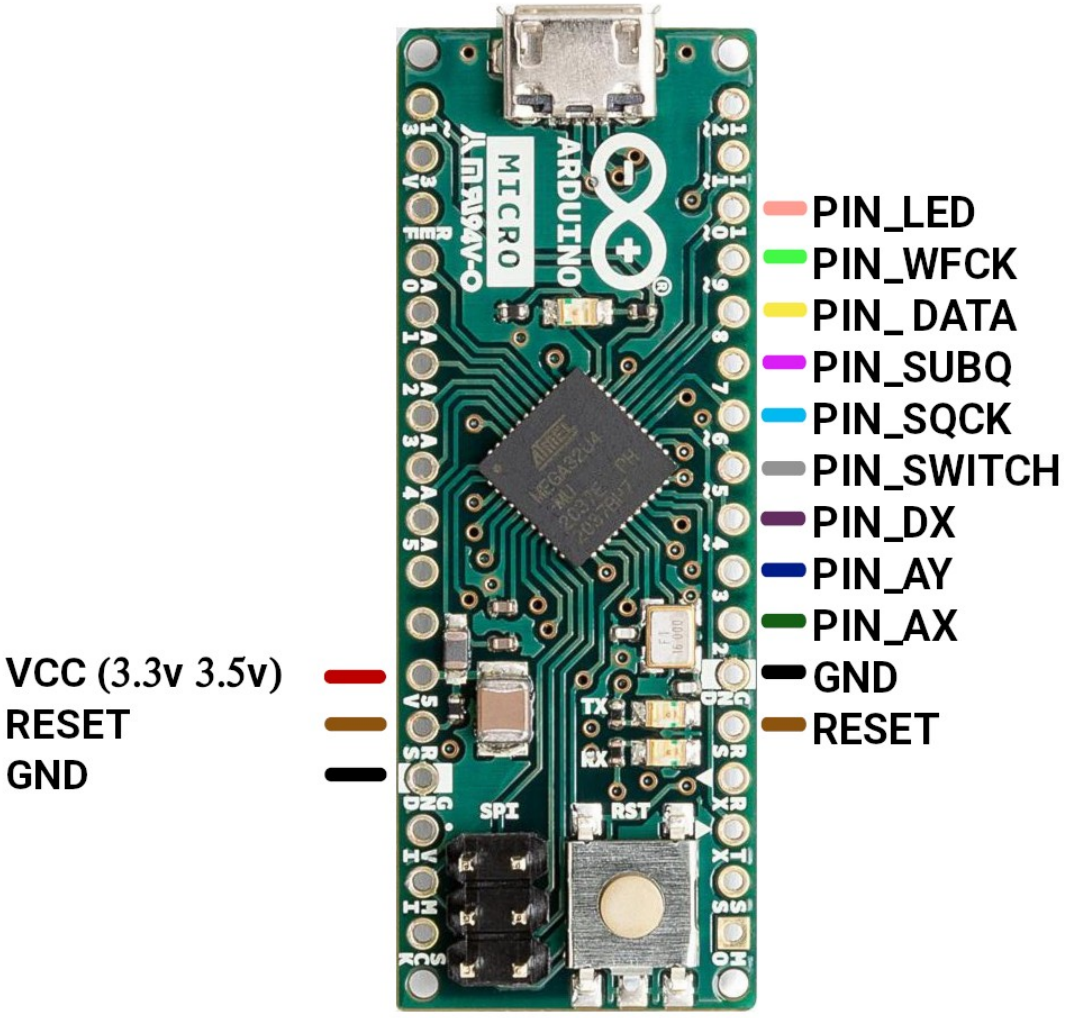
Arduino Nano Pinout
ATmega328_168

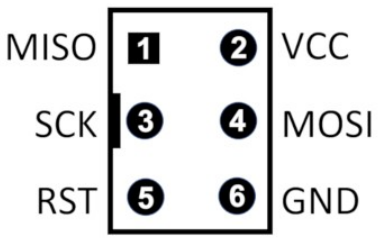
VCC (3.3v 3.5v)
RESET
GND

PIN_WFCK
PIN_ DATA
PIN_SUBQ
PIN_SQCK
PIN_SWITCH
PIN_DX
PIN_AY
PIN_AX
GND
RESET



Arduino Micro pinout
ATmega32U4_16U4



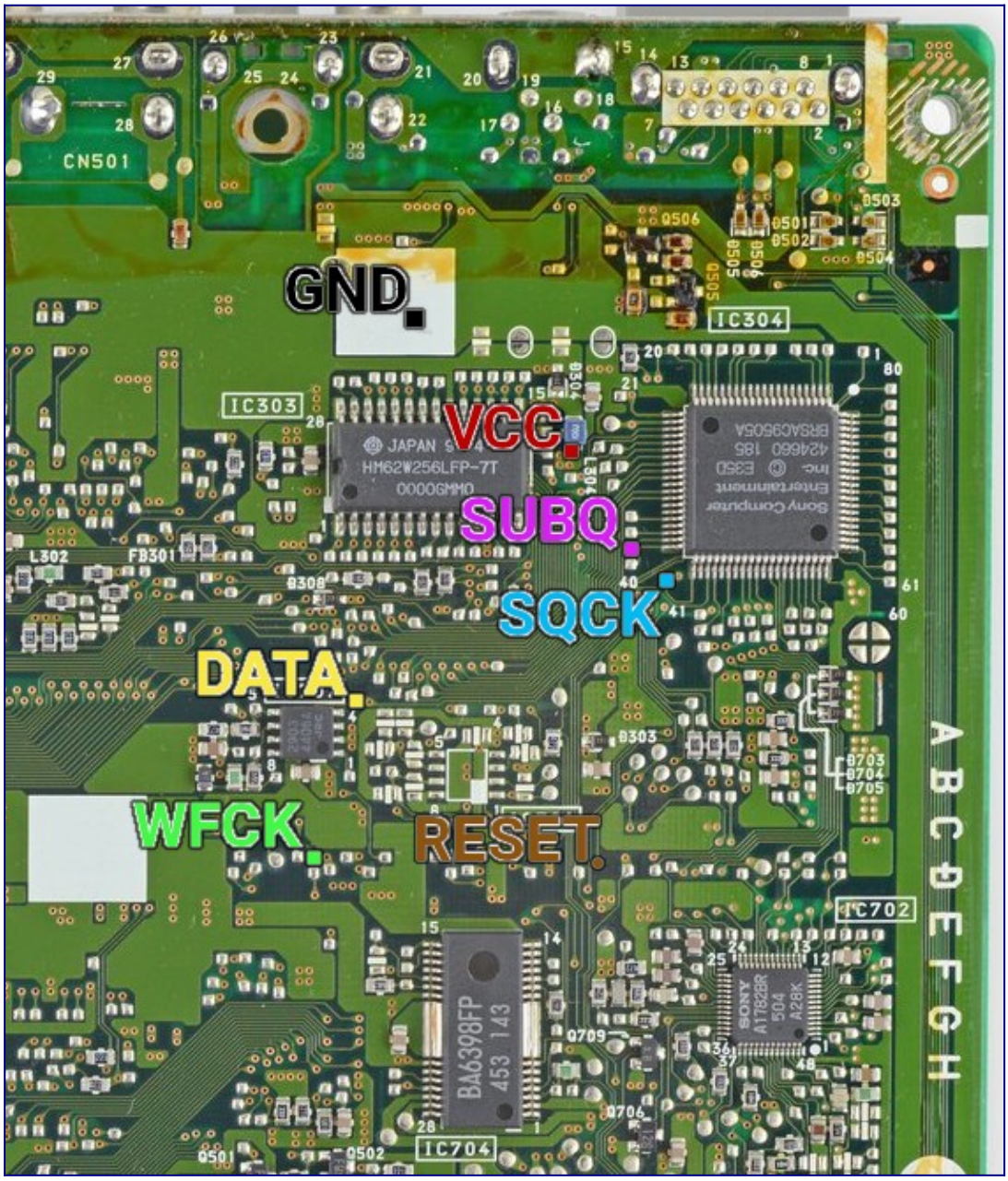


PU-7 PsNee modchip installation diagram

The PU-7 was the very first PlayStation 1 board that was released. It is found on all Japanese SCPH-1000's, along with some SCPH-1001's, SCPH-1002's, SCPH-3000's, and SCPH-3500's.

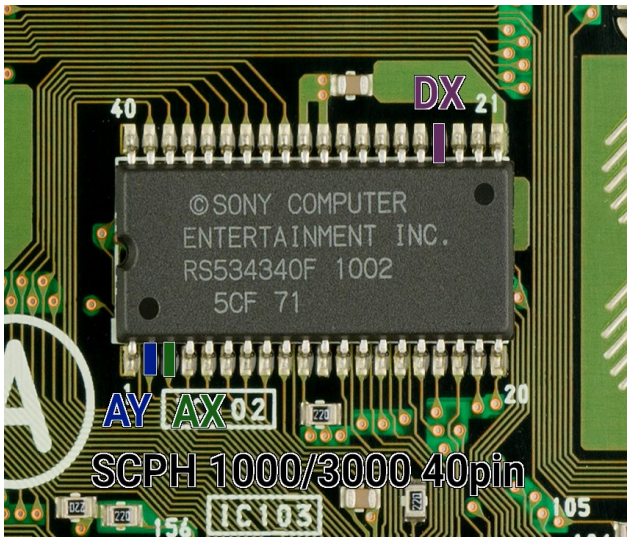
This board is unique because it has the pins for S-Video video output along with the RCA video output ports. The S-Video port was only available on the Japanese SCPH-1000, but the pins are still on other systems with the PU-7 board.

PU-7 PsNee modchip installation diagram



Above is the diagram for the PU-7.

On the side you have the diagram for the BIOS of the pu-7.



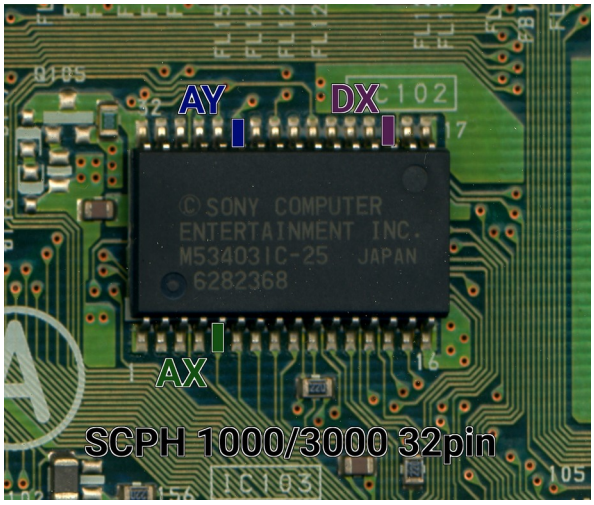
About the points

For models SCPH-xxx1, SCPH-xxx2, all the points are on the back, and you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.

Installation tips

Here are some tips I have for you when you are soldering your chip into the PU-7.

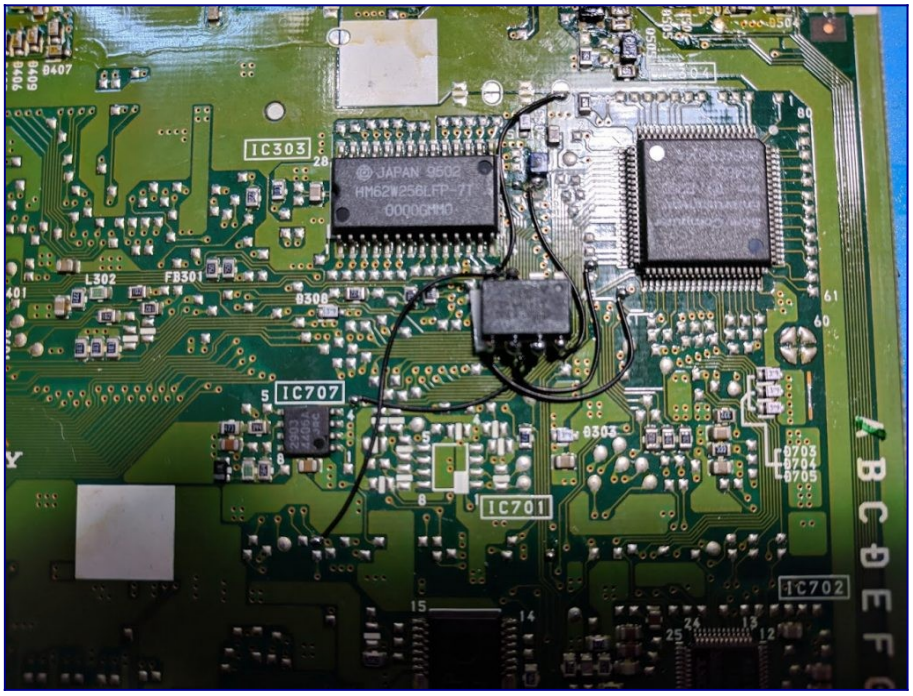
- **Cut your wires to be as short and direct as possible.**
- You don't need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- Try to position your chip towards the middle of where all the wires need to go, to minimize wire length.



Example installations

This section has photos of some successful installations which you can use to get a better understanding of how everything is wired and positioned.

This is an installation I did on an SCPH-1000:

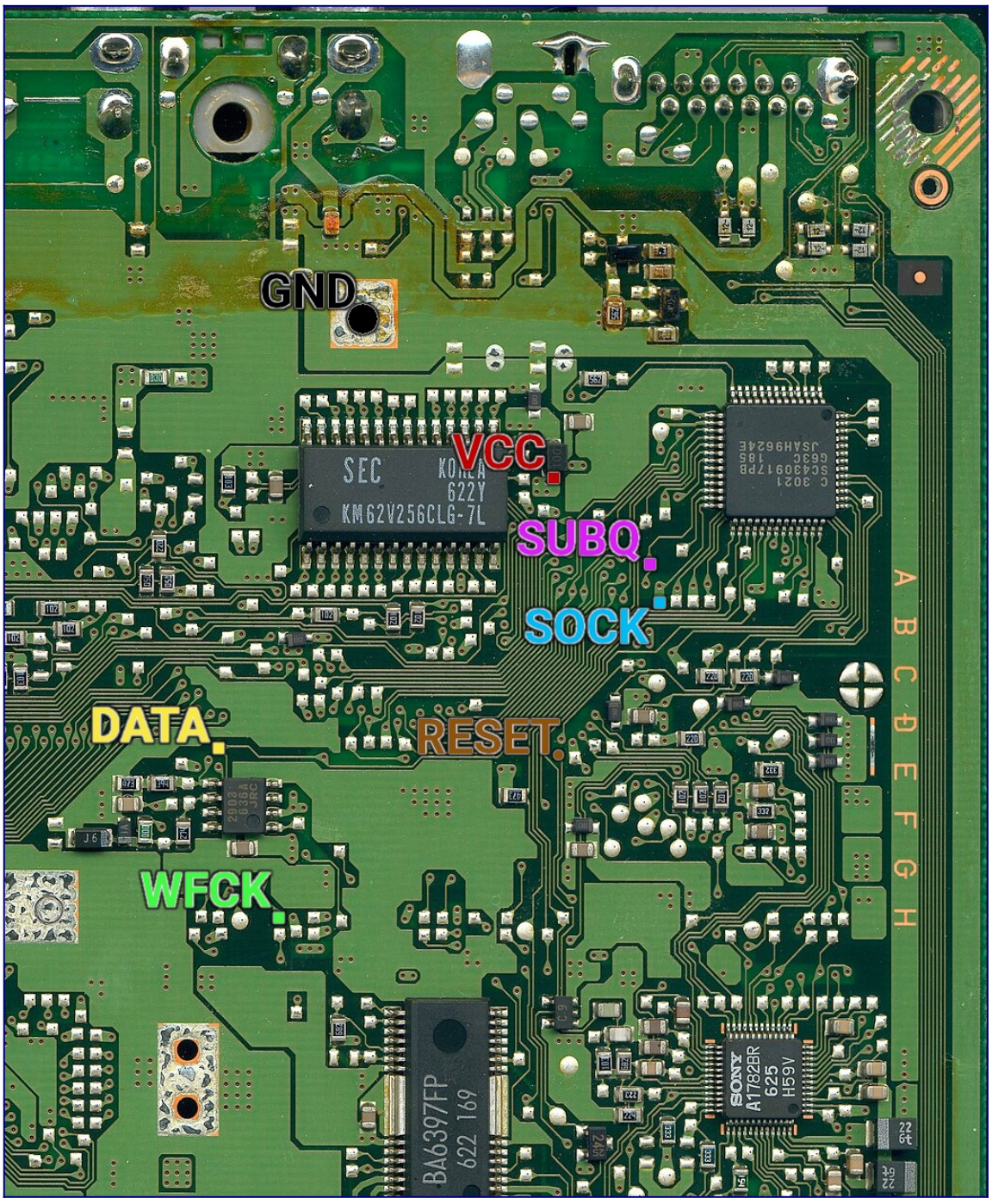


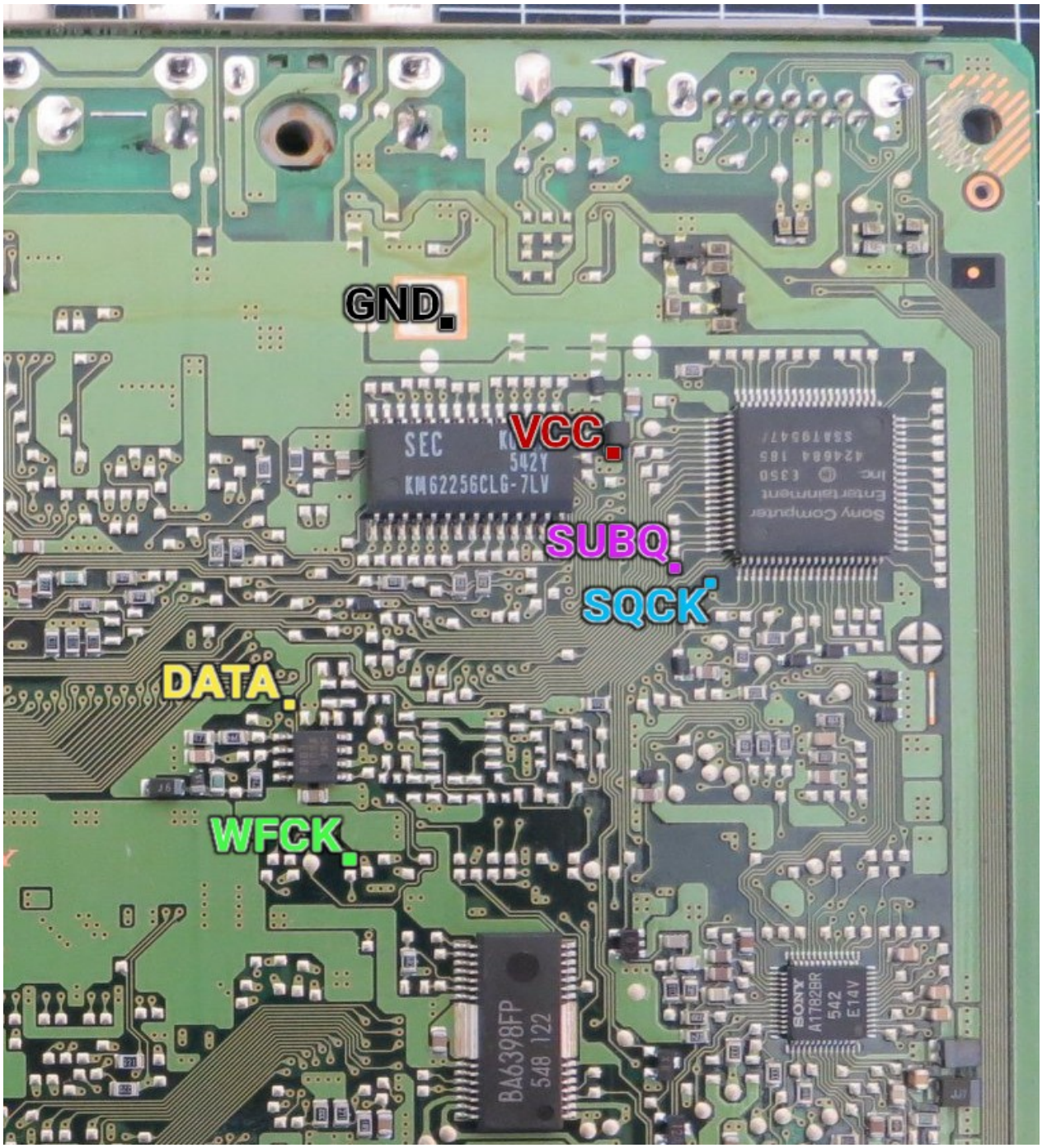
PU-8 PsNee modchip installation diagram

This was one of the earlier PlayStation 1 board designs that included RCA composite video output ports on the back. Most SCPH-1001’s here in the United States had this board inside.

Additionally many Japanese systems had this board including many SCPH-3000, SCPH-3500, and SCPH-5000’s.

PU-8 PsNee modchip installation diagram



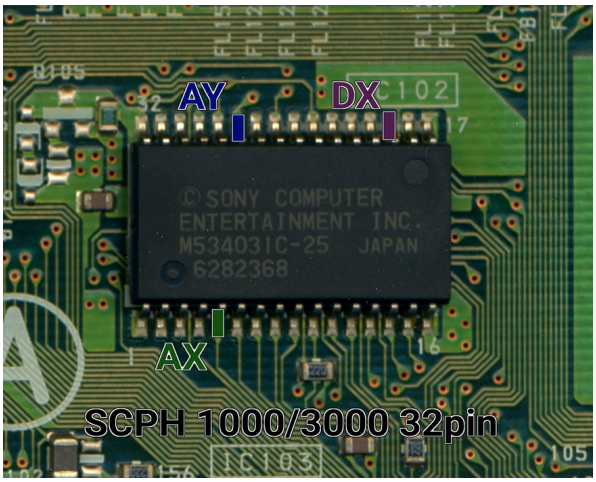


Above are two installation diagrams for two different versions of the PU-8. The easiest way to know which you have is to look at the size of the Mechacon controller chip (next to SUBQ and SCLK/SQCK). If it’s large, use the bottom diagram, if it’s small, use the top diagram.

On the side the points for the BIOS of the pu-8

About the points

For models SCPH-xxx1, SCPH-xxx2, all the points are on the back, and you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.



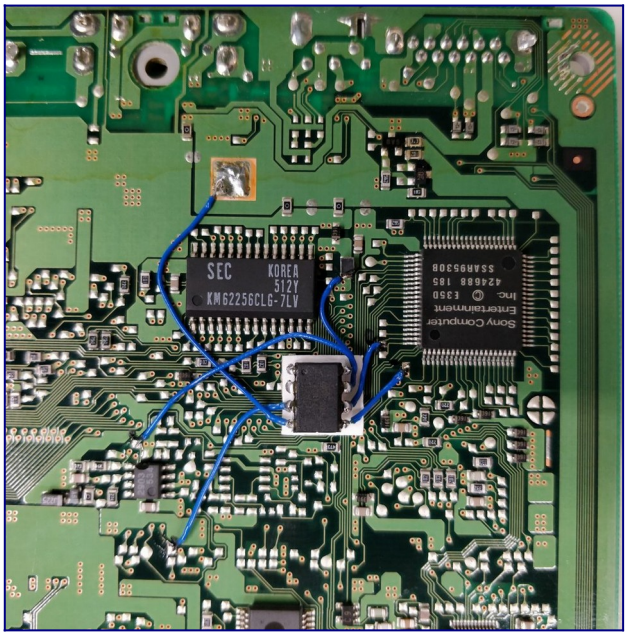
Installation tips

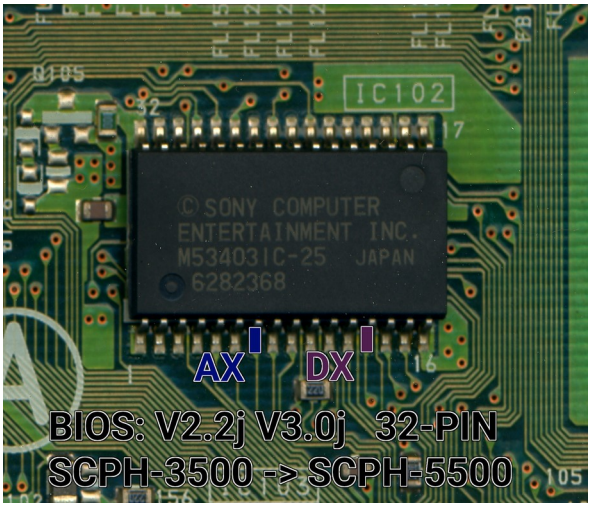
Here are some tips I have for you when you are soldering your chip into the PU-8.

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- Try to position your chip towards the middle of where all the wires need to go, to minimize wire length.

Example installations

This section has photos of some successful installations which you can use to get a better understanding of how everything is wired and positioned.





PU-16 PsNee modchip installation diagram

According to Wikipedia the PU-16 was only found in the SCPH-5903. This is a very unique board in that it was only released for the Asian market, and was only in a single model, and it was colored white instead of grey.

The SCPH-5903 is the only PS1 model that can play video CD movies. The system also has the RCA video plugs like the original SCPH-100x models did.

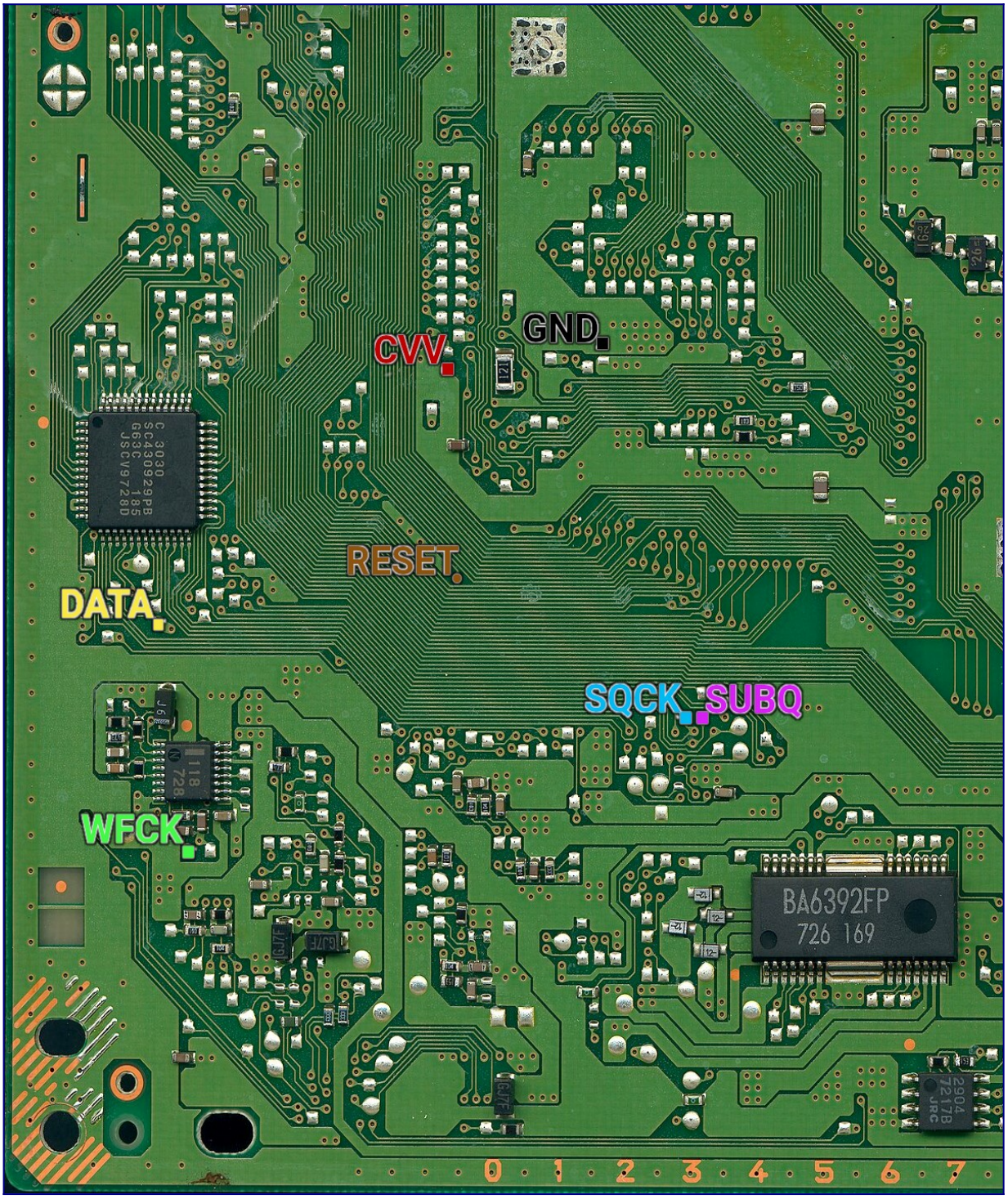
Apparently there were only around 10,000 of these made, and they were primarily in Hong Kong. So they’re fairly rare. Because of this I can’t find any PsNee installation diagrams for the system.

Based on what I can find online the board most resembles the SCPH-1000. If you have one of these I’d look at PsNee diagrams for the SCPH-1000 and other earlier boards and try to figure out where things go through trial and error. In other words take a look at the PU-7 and PU-8 diagrams.

PU-18 PsNee modchip installation diagram

This board was used with a wide range of consoles from the SCPH-5000’s, and SCPH-5500’s, to even some SCPH-7000’s and SCPH-7500’s.

PU-18 PsNee modchip installation diagram



Above is the diagram for the PU-18.

On the side the points for the BIOS of the PU-18

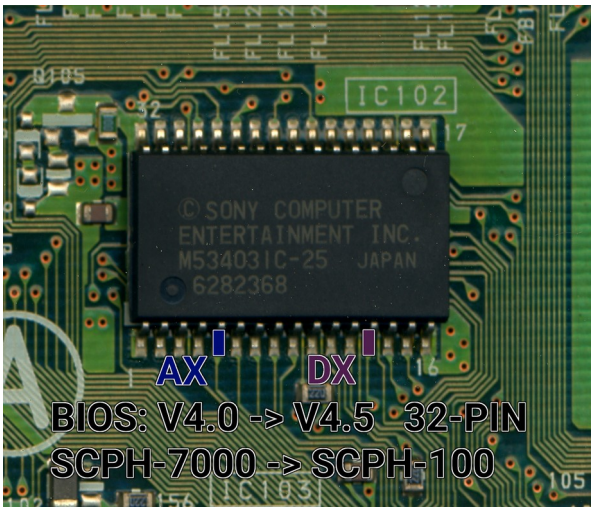
About the points

For models SCPH-xxx1, SCPH-xxx2, all the points are on the back, and you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.All of the points are fairly easy to solder to.

Installation tips

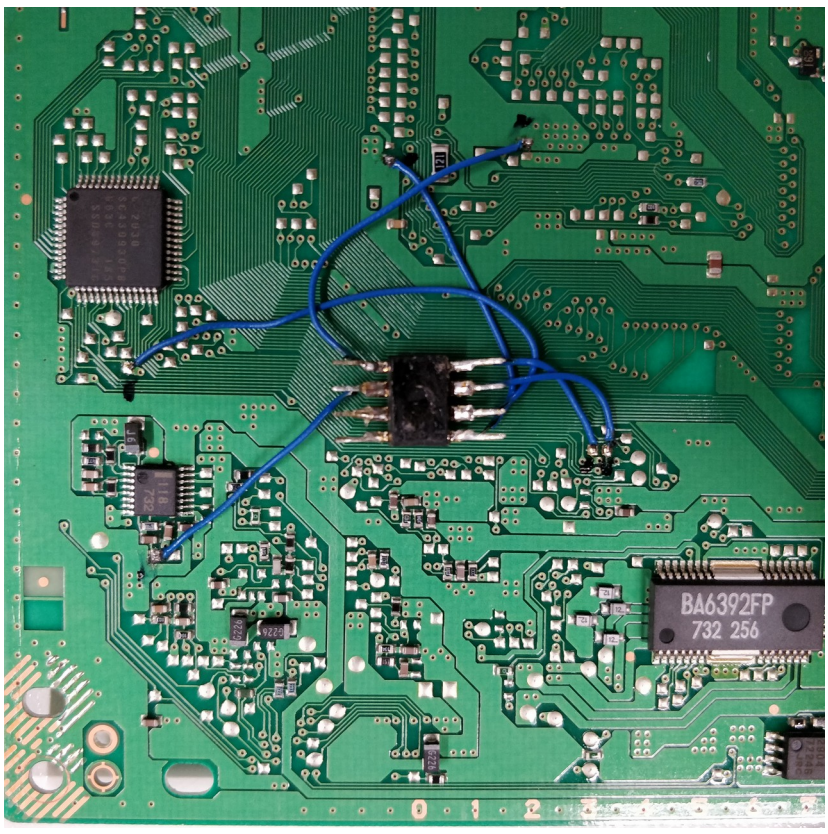
Here are some tips I have for you when you are soldering your chip into the PU-18.

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- A good place to put the chip is underneath where the legend is, towards the middle of everything.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.



Example installations

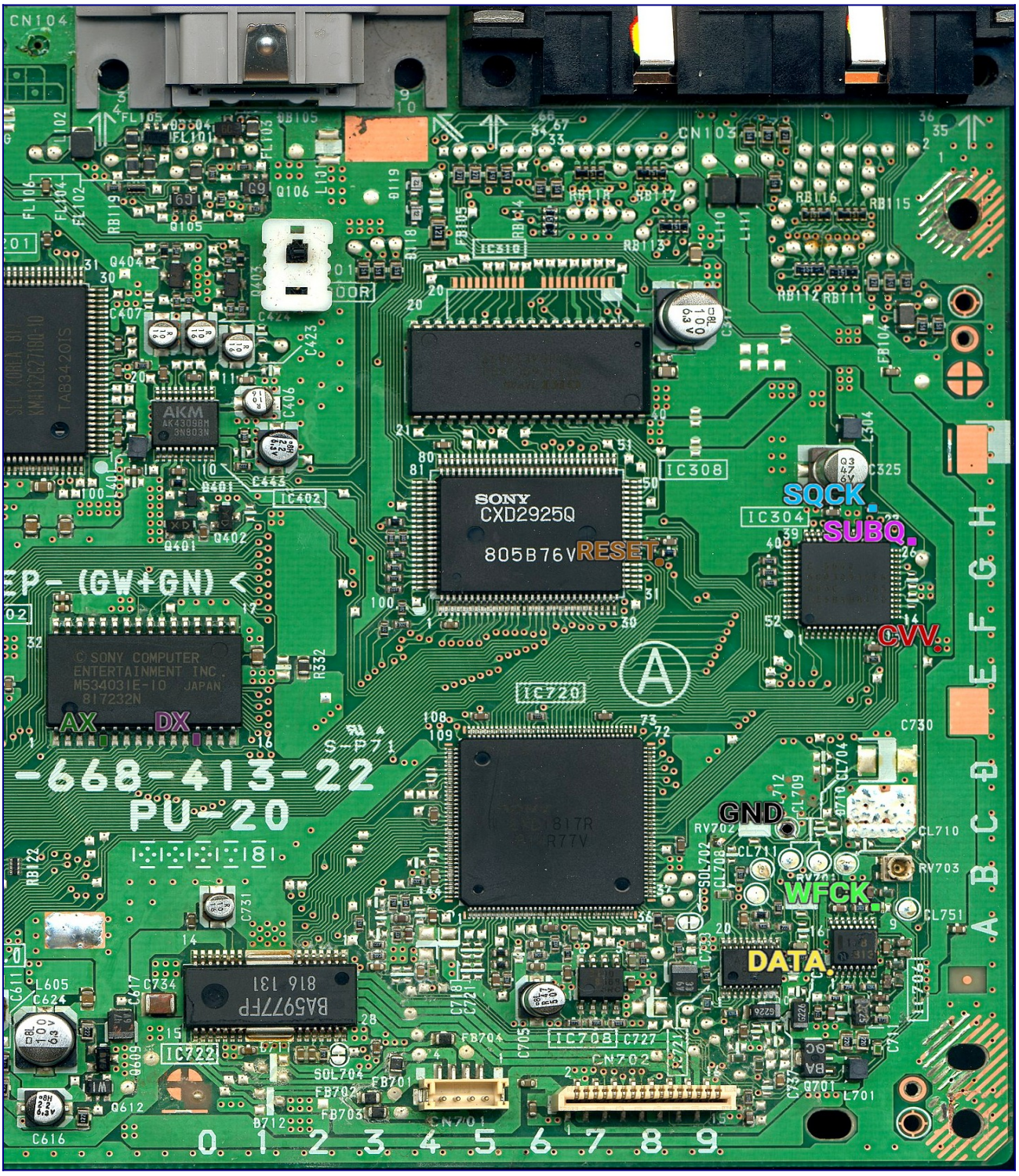
This section displays example installations to help you get a better understanding what a successful installation looks like.



PU-20 PsNee modchip installation diagram

This board was used exclusively with the SCPH-7000 series of consoles.

PU-20 PsNee modchip installation diagram



Above is the installation diagram for the PU-20. Just match each colored pin label in the diagram with any matching colored point on the board.

About the points

For models SCPH-xxx1, SCPH-xxx2, you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.All of the points are fairly easy to solder to

Installation tips

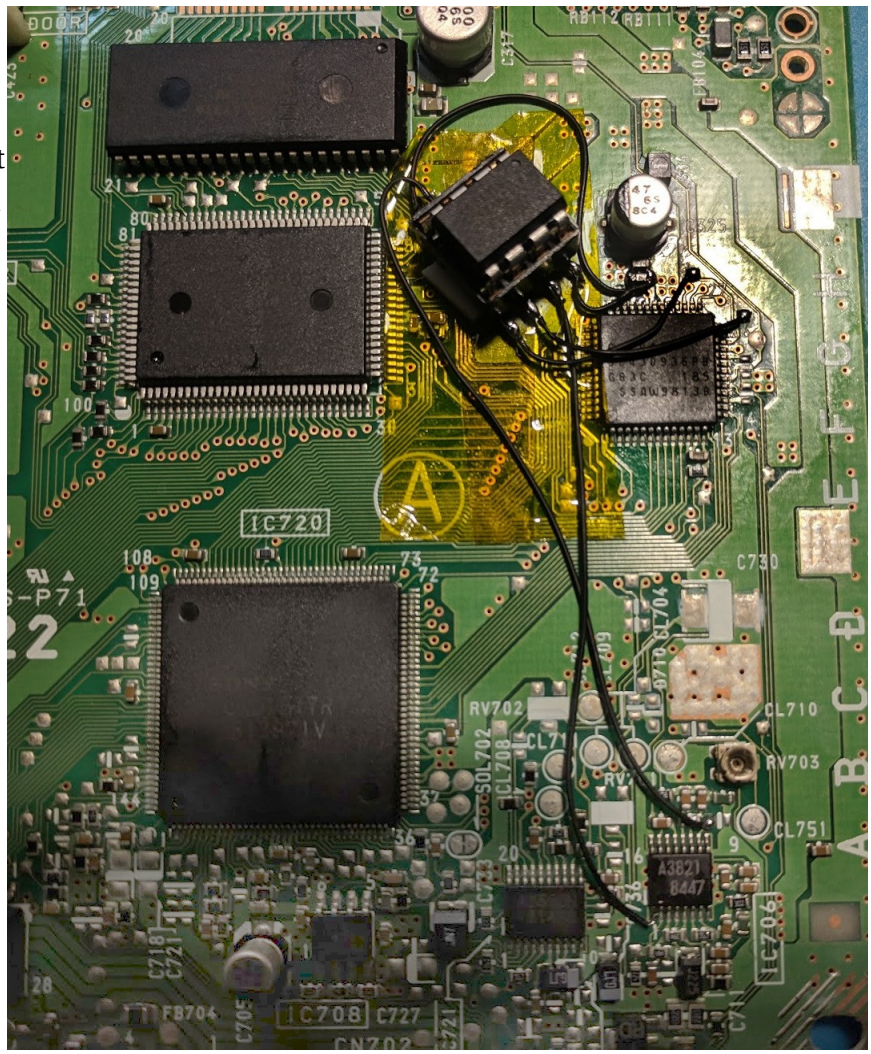
Here are some tips I have for you when you are soldering your chip into the PU-20.

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- The DATA pin can be trickier to solder, make sure you don’t use too much solder or you risk bridging pins on the chip.

Example installations

This section has photos of successful installations which you can use to get a better understanding of how everything is wired and positioned.

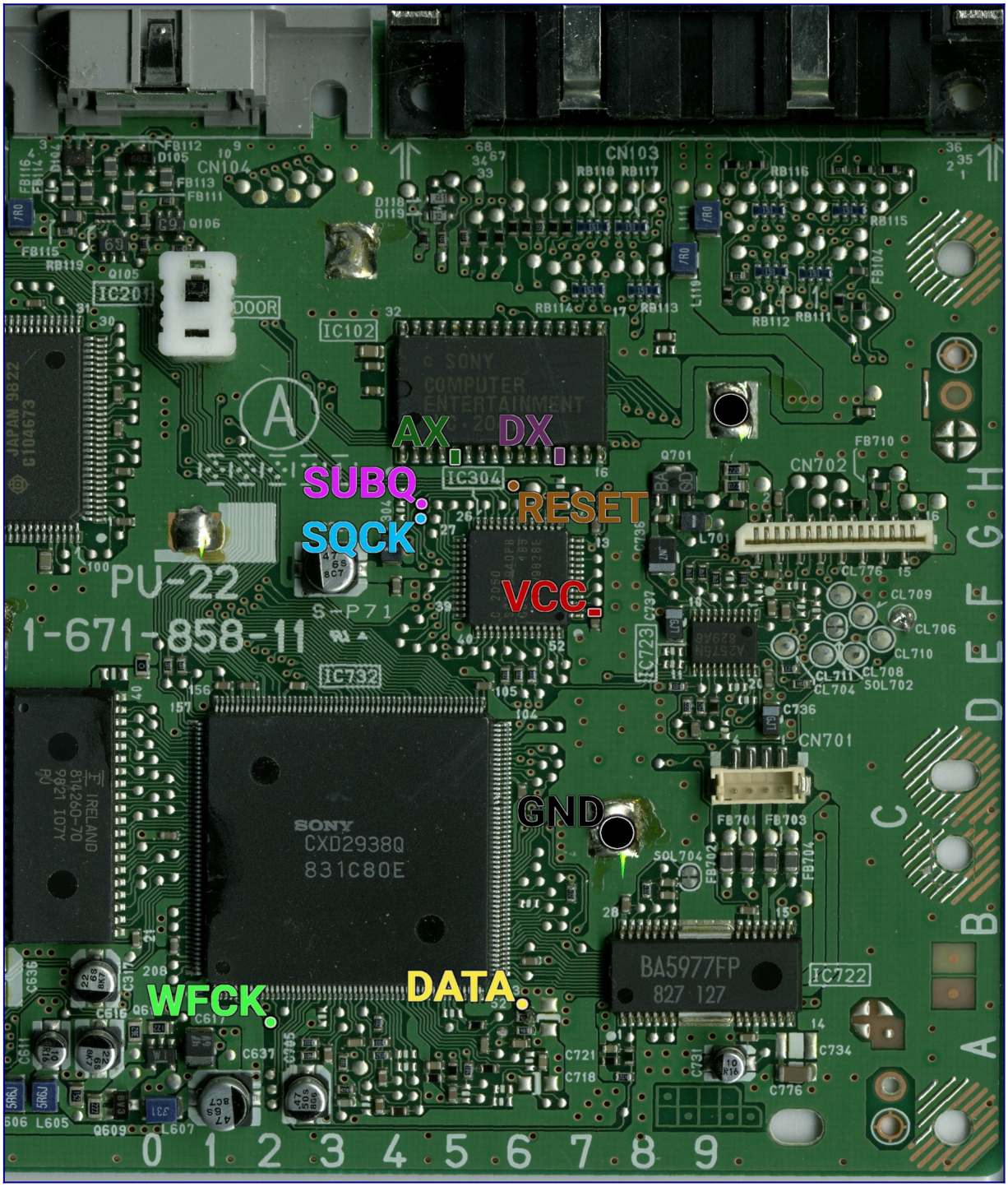
This is an example of an installation I did in a PU-20 using a socket. Using the socket allows me to test chips, and test new PsNee code. Note that the chip is a little too tall and prevents the top metal shield from going on all the way.



PU-22 PsNee modchip installation diagram

This is my favorite version of the PlayStation 1. It’s in newer systems, so the lasers are more likely to still be in good condition, but the system still has both the serial and parallel ports on the back. This board was used primarily with the SCPH-7500 series of systems.

PU-22 PsNee modchip installation diagram



Above is the diagram for the PU-22.

About the points

For models SCPH-xxx1, SCPH-xxx2, you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.

All of the points are fairly easy to solder toThis diagram is fairly straightforward. Be careful when soldering to the capacitor that connects to VCC and GND. In particular, the GND point can easily be bridged to nearby pins/pads.

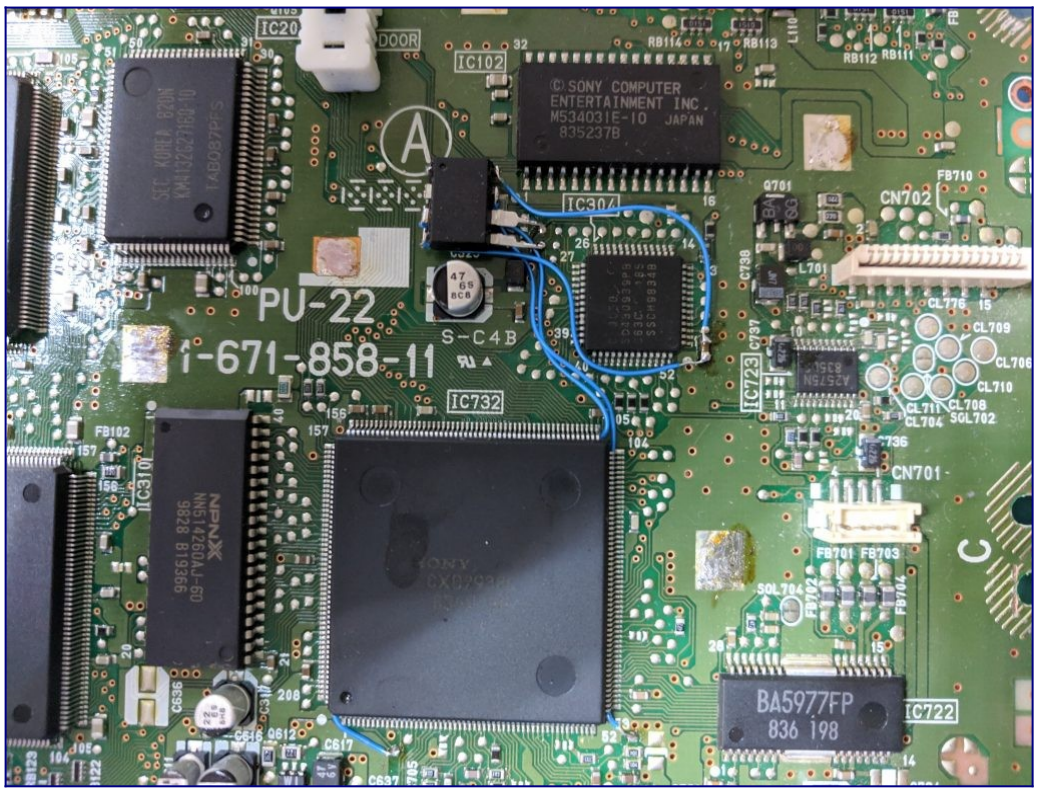
Installation tips

Here are some tips I have for you when you are soldering your chip into the PU-22.

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- Placing the chip on top of the chip in between SUBQ, SQCK, GND, and VCC is a good spot.
- Watch out for solder splatter when you are desoldering the metal shield on top of the board. It isn’t necessary to put it back on, but I always do.

Example installations

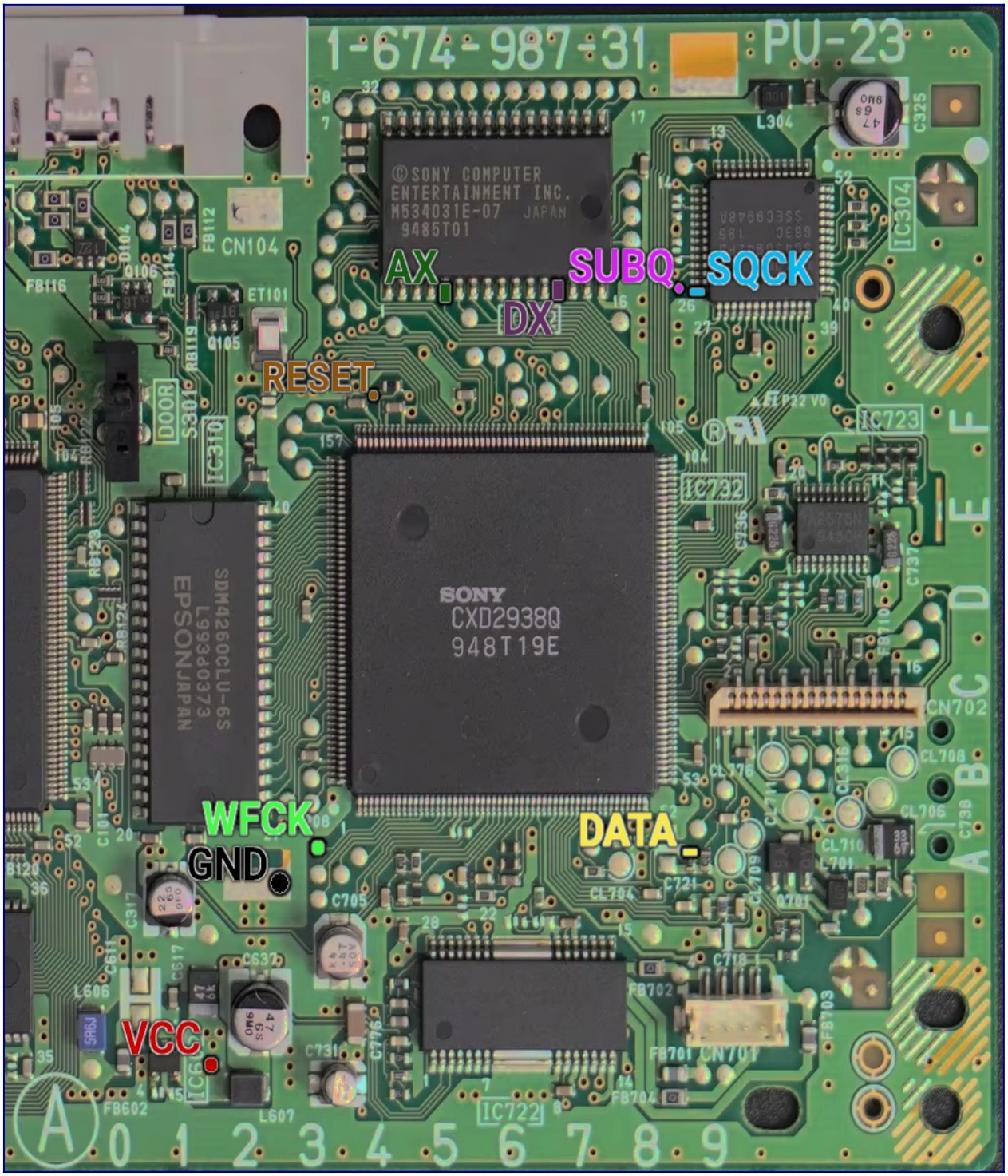
This section has photos of some successful installations which you can use to get a better understanding of how everything is wired and positioned.

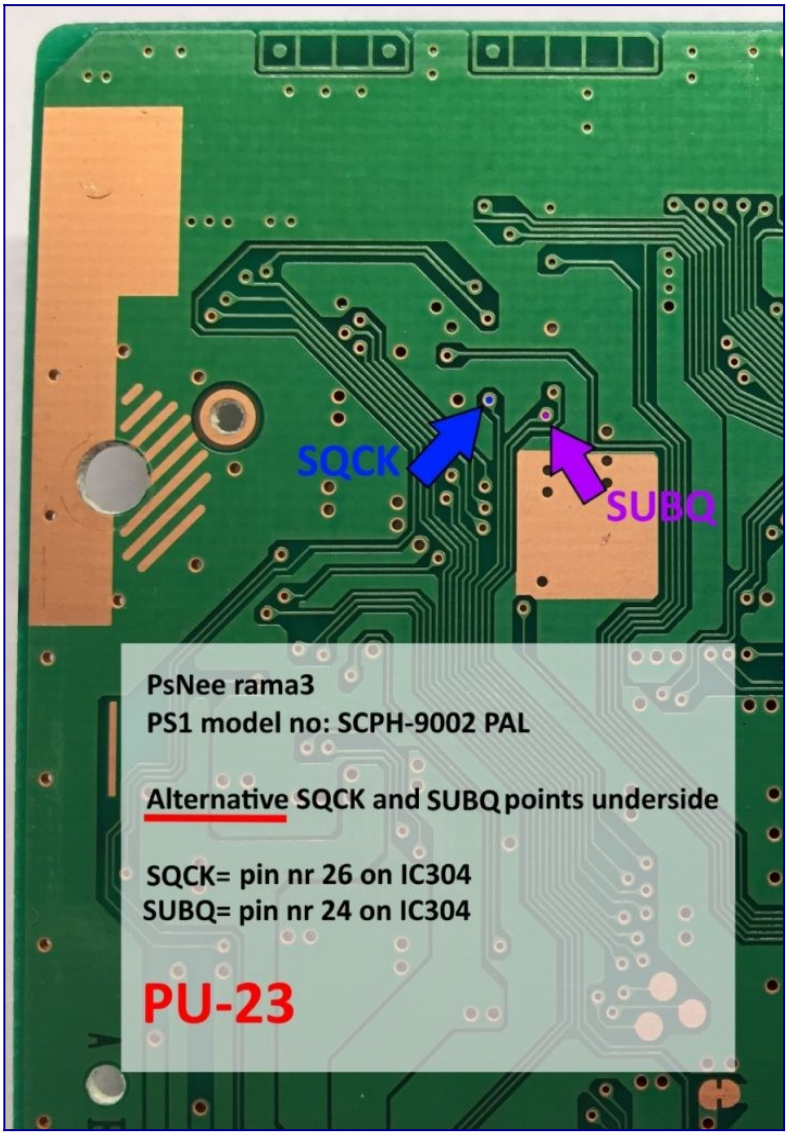


PU-23 PsNee modchip installation diagram

The last version of the original PlayStation 1 design was the SCPH-900x. Most of these consoles have PU-23 boards inside. The most notable difference between the 9000 series and earlier consoles is that Sony removed the parallel IO port on the back. They also shrunk down the size of the board significantly.

PU-23 PsNee modchip installation diagram





Above are some diagrams for installing the PsNee into a PU-23. The second shows some alternative points.

About the points

For models SCPH-xxx1, SCPH-xxx2, you can ignore the RESET. On the other hand, the model and SCPH_xxx0, you will have to use the RESET point, and the BIOS points.All of the points are fairly easy to solder to

Installation tips

Here are some tips I have for you when you are soldering your chip into the PU-23.

- **Cut your wires to be as short and direct as possible.**

- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- For DATA, be careful not to bridge the connection to the other resistor next to the one you are soldering to.
- Don’t apply too much solder to SQCK, or you’ll bridge the pins on the chip.
- For the wires that go into the holes, or vias, of the board: it’s easiest to stick a small 30 AWG wire through the hole, then heat the wire and hole while adding solder.
- Placing the chip on top of the chip above SUBQ and SQCK is a good spot.

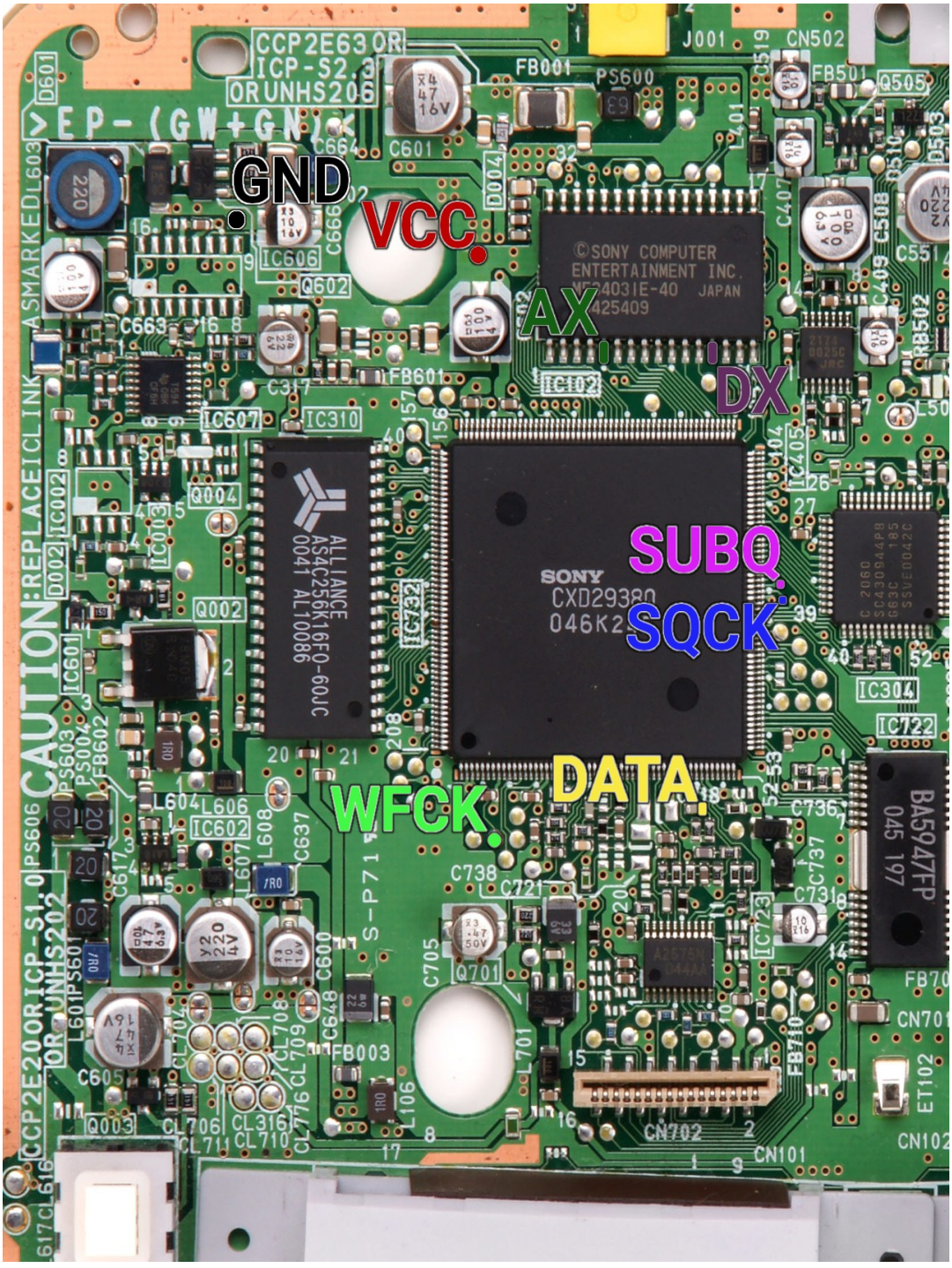
Example installations

This section has photos of some successful installations which you can use to get a better understanding of how everything is wired and positioned.

PM-41 PsNee modchip installation diagram

.Towards the end of the PlayStation 1's life Sony released a slim model called the PSone, or SCPH-10x. Many of these systems have PM-41 boards inside, which is what this page covers. Some of the boards are PM-41 (2) and require you to use a different diagram. The model is printed on your board if you take apart your console.

PM-41 PsNee modchip installation diagram



About the points

For models SCPH-101,SCPH-103, you can ignore the RESET. On the other hand, the model SCPH-102and SCPH-100, you will have to use the RESET point, and the BIOS points.All of the points are fairly easy to solder to

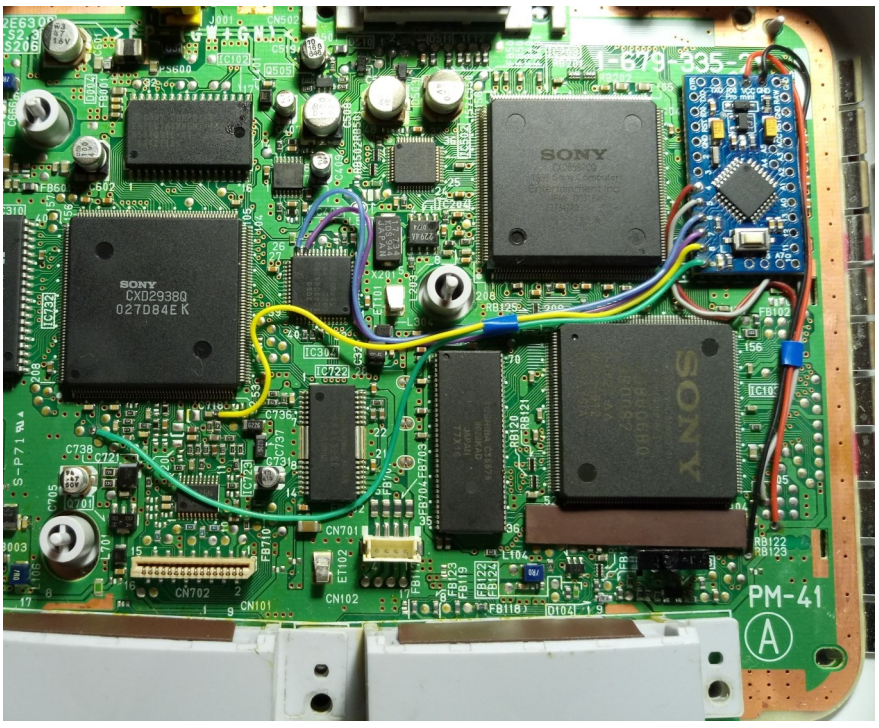
Installation tips

Here are some tips I have for you when you are soldering your chip into the PM-41.

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- If you are using an ATtinyX5, or have a SCPH-101, then ignore pins A18 and D2.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- For the wires that go into the holes, or vias, of the board: it’s easiest to stick a small 30 AWG wire through the hole, then heat the wire and hole while adding solder.
- For DATA, be careful not to bridge solder to a nearby component, or knock the capacitor off the board.

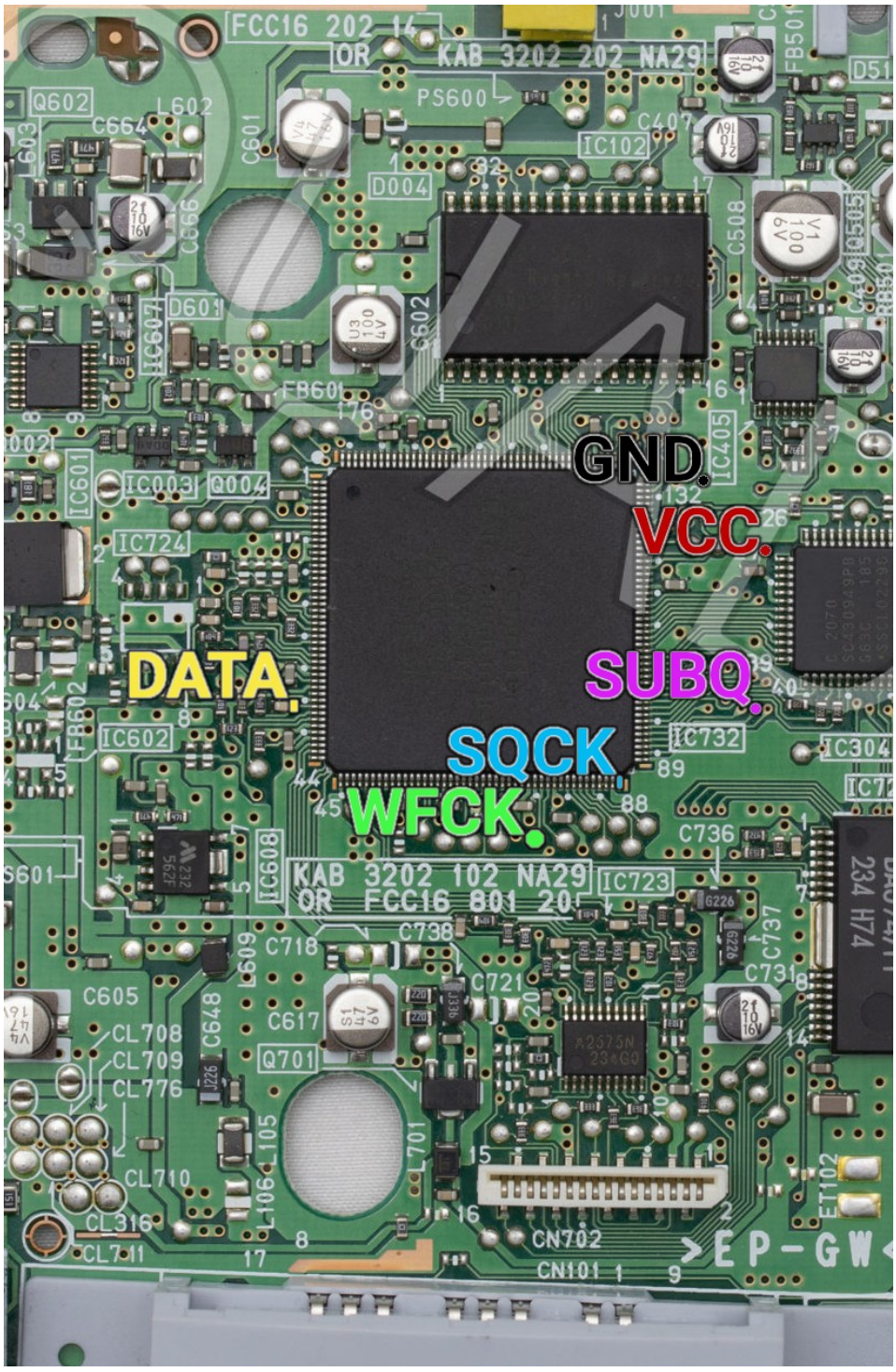
Example installations

This section has photos of some successful installations which you can use to get a better understanding of how everything is wired and positioned.



PM-41 (2) PsNee modchip installation diagram

Towards the end of the SCPH-10x PSone production Sony revised the board slightly and released the PM-41 (2) board. This page covers the installation diagram for installing a PsNee chip into the PM-41 (2).



PM-41 (2) PsNee modchip installation diagram

Above is the installation diagram. Just match each colored pin label in the diagram with any matching colored point on the board.

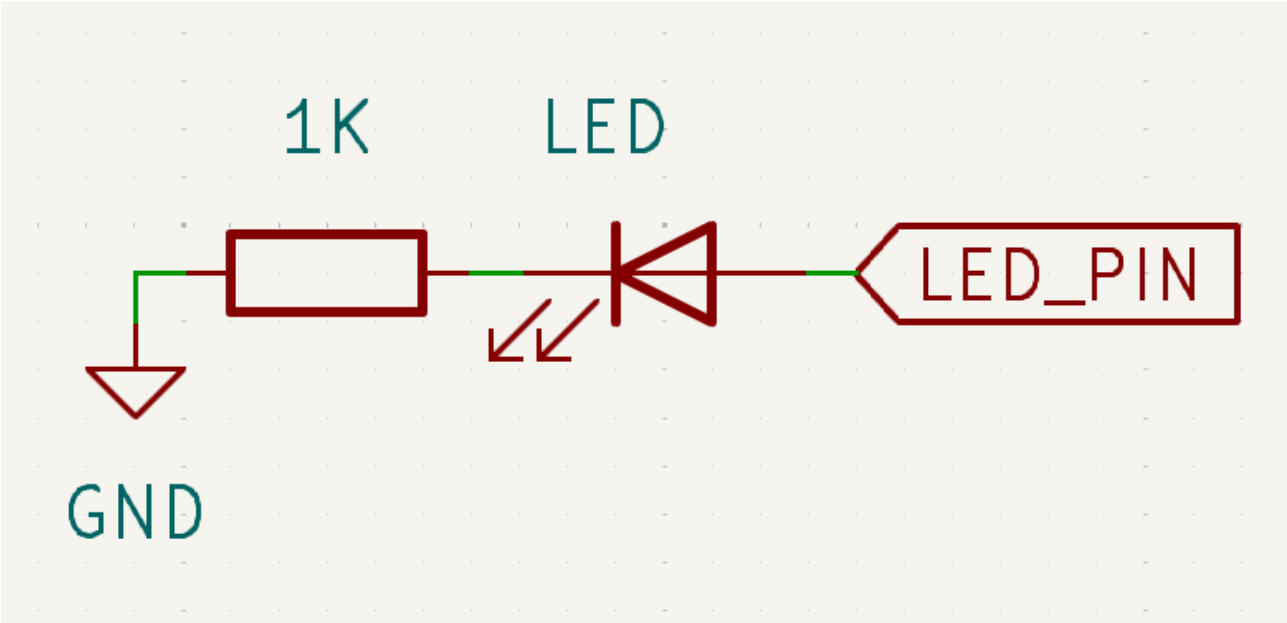
Installation tips

Here are some tips I have for you when you are soldering your chip into the PM-41 (2).

- **Cut your wires to be as short and direct as possible.**
- You don’t need to connect pins one and two of the ATtinyX5 chip. Just desolder the wire.
- Use a multimeter to probe around for alternative VCC and GND points closer to where you position your chip for a cleaner installation.
- There may also be easier to solder to points for SQCT and SUBQ.
- Be super careful when soldering SQCT and SUBQ. It’s easy to bridge pins if you aren’t careful.
- Be careful with the DATA connection, it’s easy to accidentally knock the capacitor off the board.

PIN_LED

If your MUC is not equipped with an LED, you can follow the following diagram, and thus allow you to see the time of the injections.



PIN_SWITCH

If your console uses a bios patch and you have problems playing original games, you can add this switch according to the diagram, which will allow you to disable the BIOS patch injection.

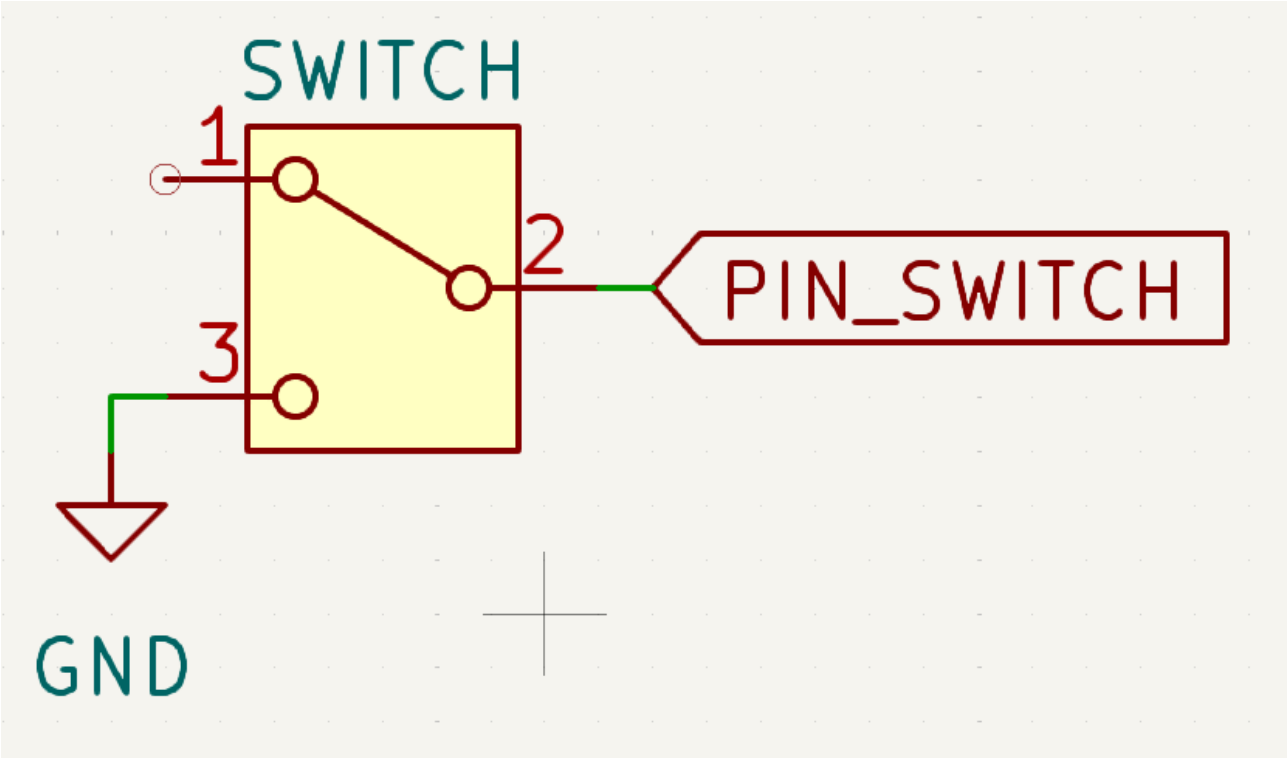


Table of Contents

Quick summary of compilation and installation....1
For a complete tutorial please see the wiki available in the repository....2
PSNee installation diagrams & pinout....3
PU-7 PsNee modchip installation diagram....7
PU-7 PsNee modchip installation diagram....7
About the points....8
Installation tips....8
Example installations....8
PU-8 PsNee modchip installation diagram....9
PU-8 PsNee modchip installation diagram....9
About the points....11
Installation tips....11
Example installations....11
PU-16 PsNee modchip installation diagram....12
PU-18 PsNee modchip installation diagram....13
PU-18 PsNee modchip installation diagram....13
About the points....14
Installation tips....14
Example installations....14
PU-20 PsNee modchip installation diagram....15
PU-20 PsNee modchip installation diagram....15
About the points....16
Installation tips....16
Example installations....16
PU-22 PsNee modchip installation diagram....17
PU-22 PsNee modchip installation diagram....17
About the points....18
Installation tips....18
Example installations....18
PU-23 PsNee modchip installation diagram....19
PU-23 PsNee modchip installation diagram....19
About the points....20
Installation tips....20
Example installations....21
PM-41 PsNee modchip installation diagram....22
PM-41 PsNee modchip installation diagram....22
About the points....23
Installation tips....23
Example installations....23
PM-41 (2) PsNee modchip installation diagram....24
PM-41 (2) PsNee modchip installation diagram....24
Installation tips....25
PIN_LED....26
PIN_SWITCH....27