



<http://www.mod-chip.com>

HOW TO INSTALL YOUR DMS4 SE Lite/Pro MOD-CHIP For PS2's (FOR VERSIONS 12 – 14)

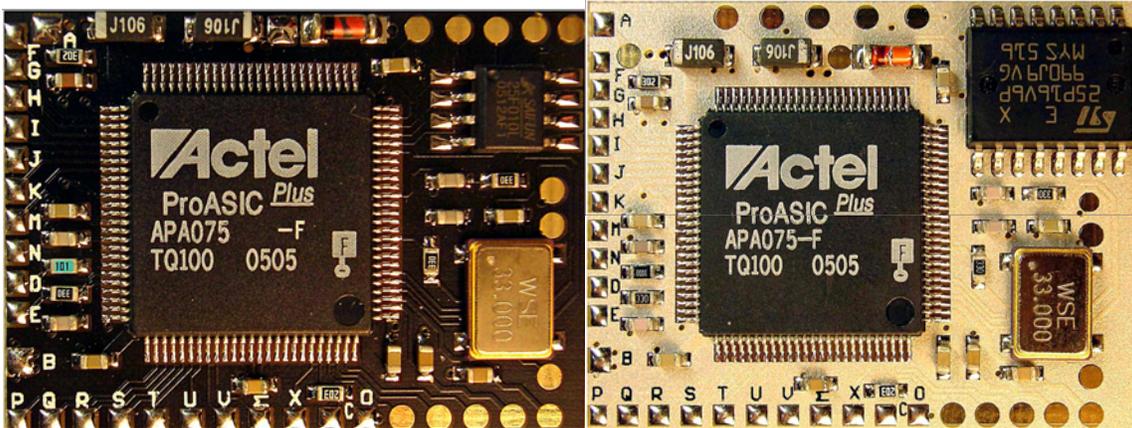


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RECOMMENDED TOOLS:



WIRE STRIPPERS



#1 Slotted Screwdriver

- 1) #1 Slotted screwdriver (used for prying, [Radio Shack Catalog #: 64-2970](#))
- 2) Wire Strippers ([Radio Shack Catalog #: 64-2979](#))



- 3) 15 Watt soldering iron ([Radio Shack Catalog #: 64-2051](#))



- 4) (Optional) Digital volt meter ([Radio Shack Catalog #: 22-811](#))
- 5) Mini hot glue gun ([Do-It-Yourself Center SKU# 6113476](#))
- 6) (Optional) Solder Flux Cleaner ([Buy Reliant Catalog #E1637](#))
- 7) (Optional) Small soft bristle brush (to clean tinned locations)

NOTE: Having the right tool for the right job will make all the difference between a pleasant experience vs. a nightmare!!!

NOTE: There are a lot of rumors regarding PS2 versions 15 & 16 which are false. The latest PS2 version is 14 with slight modifications and they are known as: **14b, **14c** and **14d**. Look at the [wire diagrams](#) to determine which PS2 version 14 you have before you begin!!!**

BEFORE YOU BEGIN:

Make sure you are grounded before you begin installing your mod chip; you must ground yourself by either using a grounding strap ([Radio Shack Catalog #: 276-2370](#)) or by touching something metal. Make sure that you are working on a non-conductive surface (i.e. wood, glass...etc.). **NOTE: ALL TEXT IN BLUE IN THIS DOCUMENT ARE URL LINKS FOR YOUR REVIEW!!!**

Be sure to sharpen the tip on your soldering iron to a very fine point using a hand file or a grinder wheel, the end result should look like the picture below in figure #1, this will aid you when soldering to those tiny areas.



FIGURE #1

SOLDERING

If you are a novice when it comes to soldering, then you should review the [soldering tips](#) web site first. The main thing to remember before you begin your project is to:

- 1) Use a low wattage soldering iron
- 2) Never hold the tip of the soldering iron against any electronic device for more than 3 seconds (too much heat can cause irreparable damage to electronic components).
- 3) Always tin what you are soldering to before attempting to solder a wire to it
- 4) Keep your soldering iron tip clean at all times

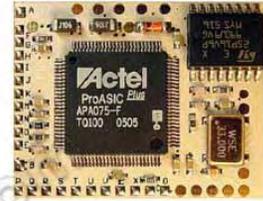
IMPORTANT THINGS TO REMEMBER

- 1) **Never route wires over/under IC chips, always route your wires around them**
- 2) **Never cross any wires more than once (this should happen only by the mod-chip)**
- 3) **Keep your ground wire as short as possible (2cm)**
- 4) **Use the 22AWG wire (supplied) for both power and ground signals**

Your mod-chip comes shipped to you with all the necessary supplies (i.e. solder, wire, mod-chip...etc.) needed to complete your installation as shown below in figure #2.



DMS4 SE MOD-CHIP



V12 - V14 LASER DIODE FIX PCB



SOLDER



22 AWG & 30AWG WIRE



FIGURE #2

PLEASE NOTE: ANY MODIFICATION TO YOUR PS2 GAME CONSOLE IS CARRIED OUT AT YOUR OWN RISK!!!

STEP #1: Mod-Chip Location

Your game console should already be disassembled as shown below in figure #2. First choose a site to place your mod-chip board (see figure #3), There are different places you can put the mod-chip. Every version of PS2 motherboard is different so you will have to refer to the appropriate installation [wire diagrams](#) for your PS2 model you have (i.e. V12, V13, V14...etc.) to locate where each wire belongs. Next, place three long beads of hot glue to the bottom of your mod chip and quickly place it down to the game console motherboard.



FIGURE #3 (DMS4 SE Lite example)

NOTE: notice the position of the DMS4 SE Lite chip and its orientation; this is important for making room for the wires route and where they connect to the mod-chip (the DMS4 SE Pro chip should be orientated the same way as in figure #3). Also the metal shield plate tabs will not touch the top of the chip when you reassemble your PS2!!!

NOTE: read the entire manual before you begin your mod-chip install!!

NOTE: this manual is not to show where each wire is placed for every PS2 model; that is what the [wire diagrams](#) are for, instead this manual is designed to show you how to install your mod-chip.

STEP #2: Solder BIOS wires to mod-chip

Now that you have reviewed the "[installation view](#)" diagrams for the PS2 version you have (if a finished install picture exists); its time to prepare the solder pads for soldering wires to them. Although this manual illustrates a **V14 PS2 installation (GH-040-52)**, the same rules apply for ALL PS2 slim models; just the solder pad locations for each wire may vary.

PREPARE THE BIOS IC

Locate the BIOS IC pads; it may or may not exactly look like the one in figure #4 below since there are now three slim models (V12, V13 & V14) and variations of the V14 (B, C & D).

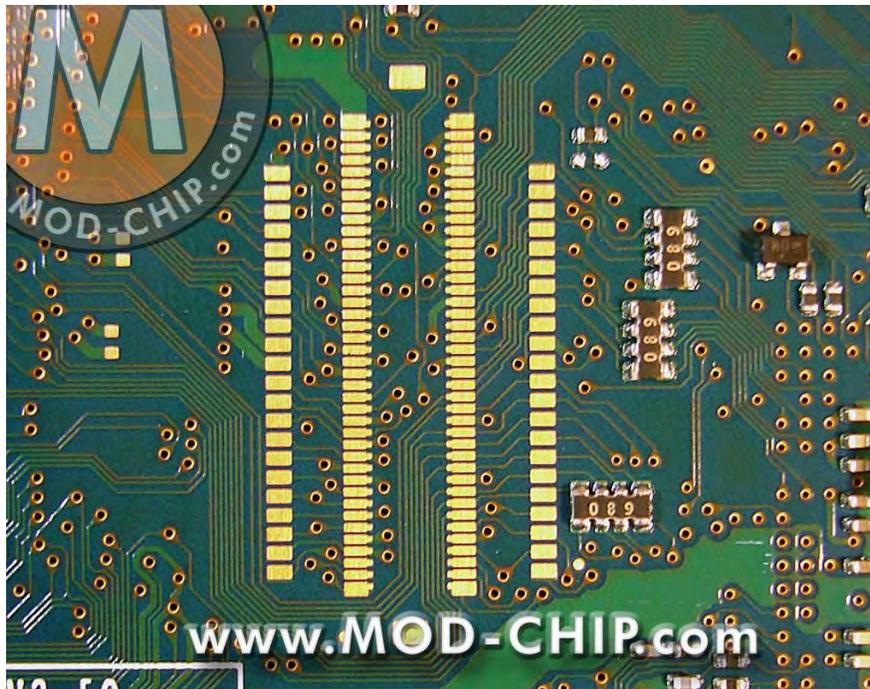


FIGURE #4

Tin the BIOS pads as shown below in figure #5. **NOTE: be careful when tinning the BIOS pads so that you don't get the chip too much heat to a VIA pad will cause it to lift off the motherboard, do not hold your soldering iron tip against it for longer than 3 seconds!!!**

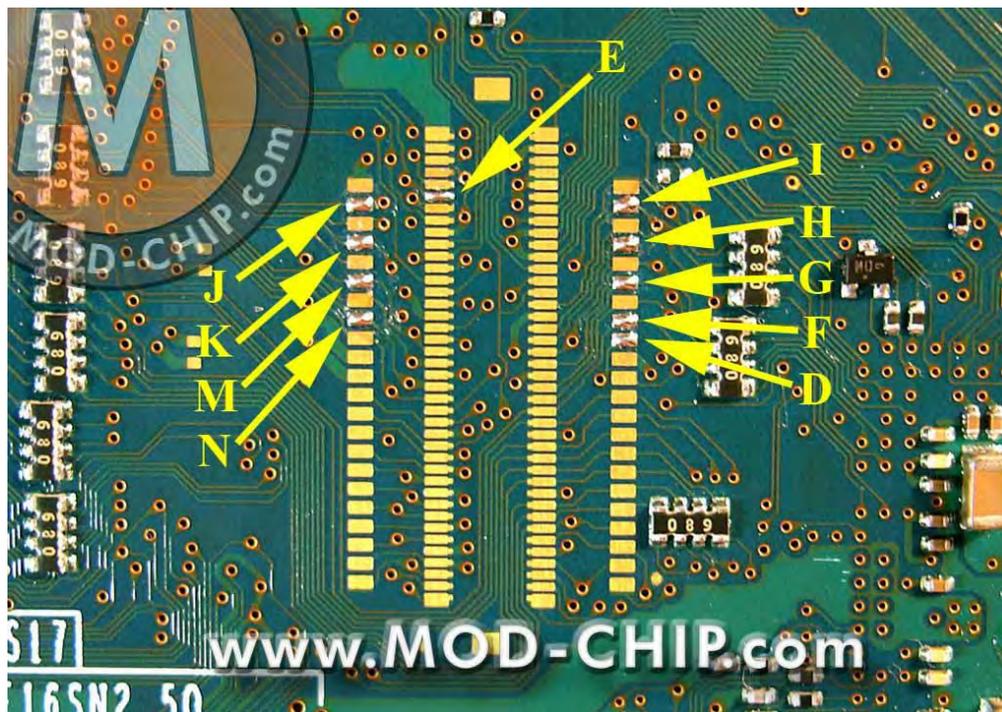


FIGURE #5

Make sure that there is no solder bridging between the BIOS pads. Use a multi-meter and test the continuity (set it to beep so you can hear it) between each pad; there shouldn't be any solder touching the adjacent pads. Now that your pads are tinned, you are ready to solder wires to them.

PREPARE THE WIRES

Next tin each of your wires for soldering; there are two ways to do this:

- 1) Strip the wire insulation, then apply the solder to tin it
- 2) Apply a generous amount of solder to melt the wire insulation and to tin it at the same time as shown below in figure #6

Trim back the exposed wire to reveal only a very small piece of wire (too much exposed wire can touch to adjacent wires or electronic components). Now you are ready to solder your wire to the motherboard. **NOTE: Do this step for one wire at a time!!!**

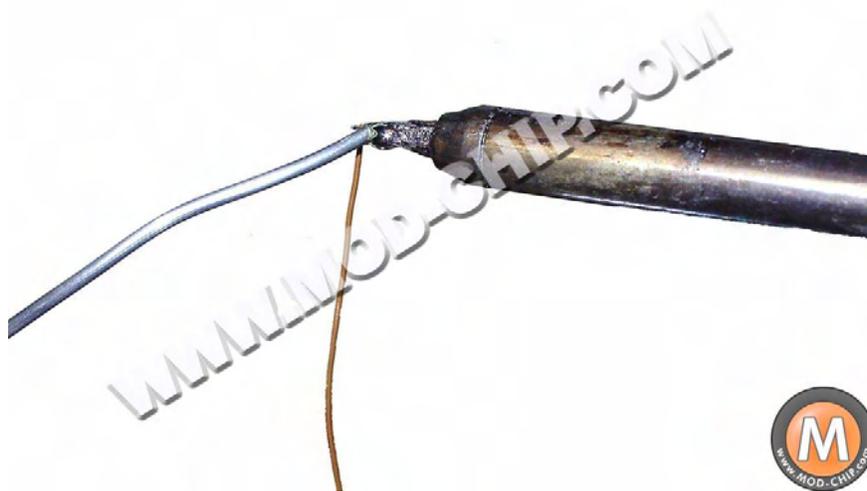


FIGURE #6

ROUTE THE WIRES

Let's begin with the left side of the BIOS chip (top pads shown in figure #7) which is the mod-chip wires **J, K, M & N** that solder directly to the BIOS pads. Solder each of the four wires to the BIOS pins as shown below. Use a multi-meter and test the continuity (set it to beep so you can hear it) between each pin; there shouldn't be any solder touching the adjacent pads. After the first wire is attached to the BIOS chip, carefully determine its length by loosely routing the wire along the motherboard to the mod-chip terminal and add an inch or two (now you can make the other three wires the same length).

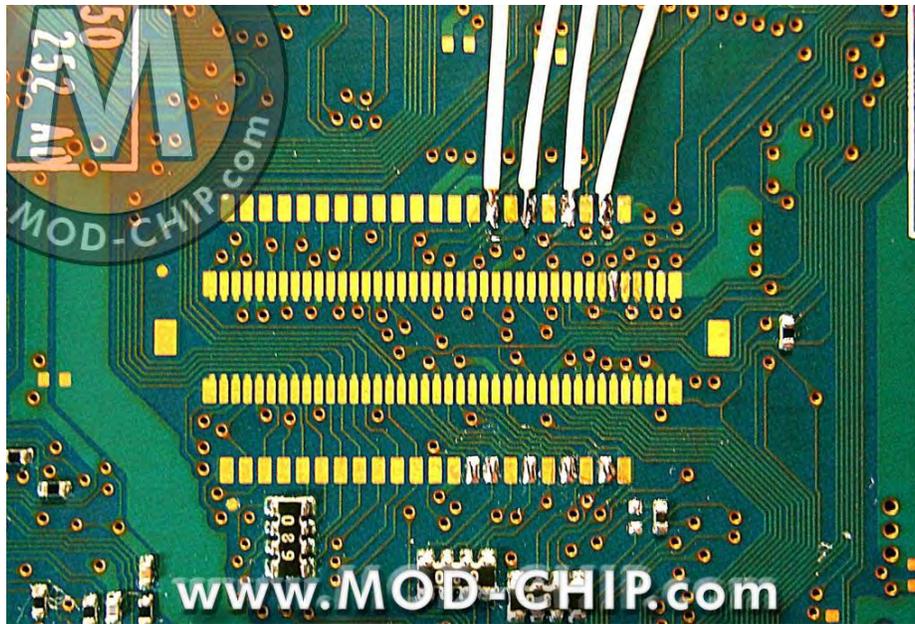


FIGURE #7

Once all four wires are soldered and tested for solder bridging, you now are ready to route the wires to the mod-chip. Neatness counts if you don't want to experience electrical interference problems caused by either crossing your wires or routing them over electrical components or IC chips on the motherboard. Use a small slotted screwdriver and gently pull the wire to make each of the corner bends as shown below. **NOTE: do not pull too hard on the wire or it may come off or damage the BIOS pad!!!**



FIGURE #8

Now hot glue the wires into place as shown below in figure #9. Wait until the glue has dried before you continue. **NOTE: double check the wires so that they are not touching the adjacent pads using your multi-meter.**

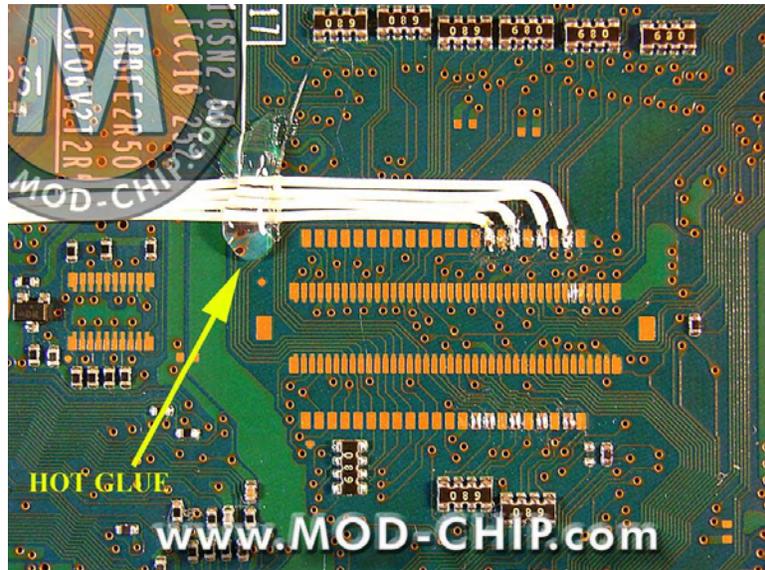


FIGURE #9

Now pull the four wires along and hot glue them down on location at a time. Notice that the wires are side-by-side and they never go over any electrical component. **NOTE: notice that the hot glue is NOT covering any electrical components; this is an important rule to follow in case you ever have to remove the wires so that the electrical component doesn't come off too when you lift the glue off!!!**

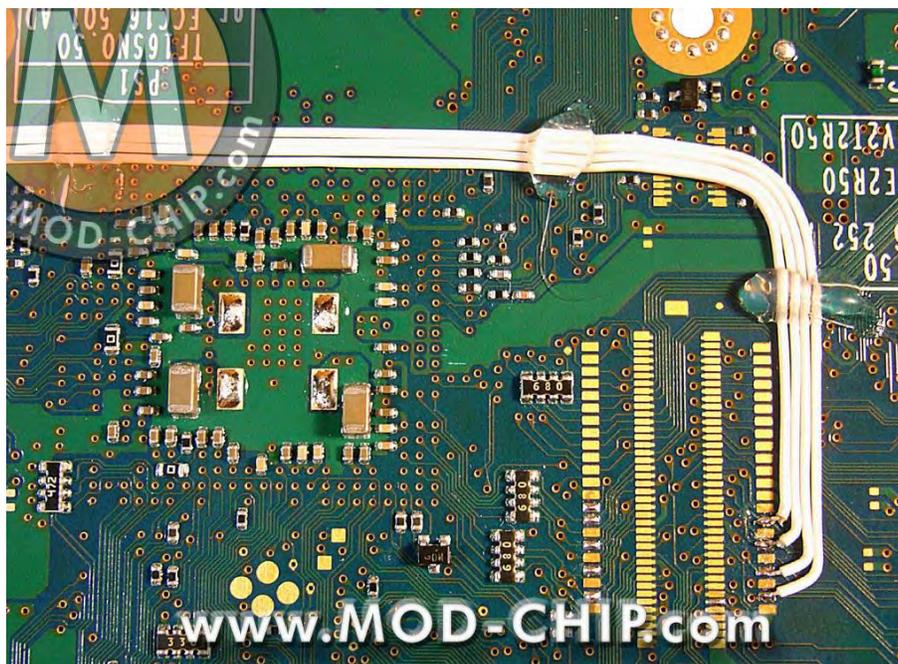


FIGURE #10

Route your four BIOS wires as shown below in figure #11; now you are ready to connect these wires to the mod-chip.

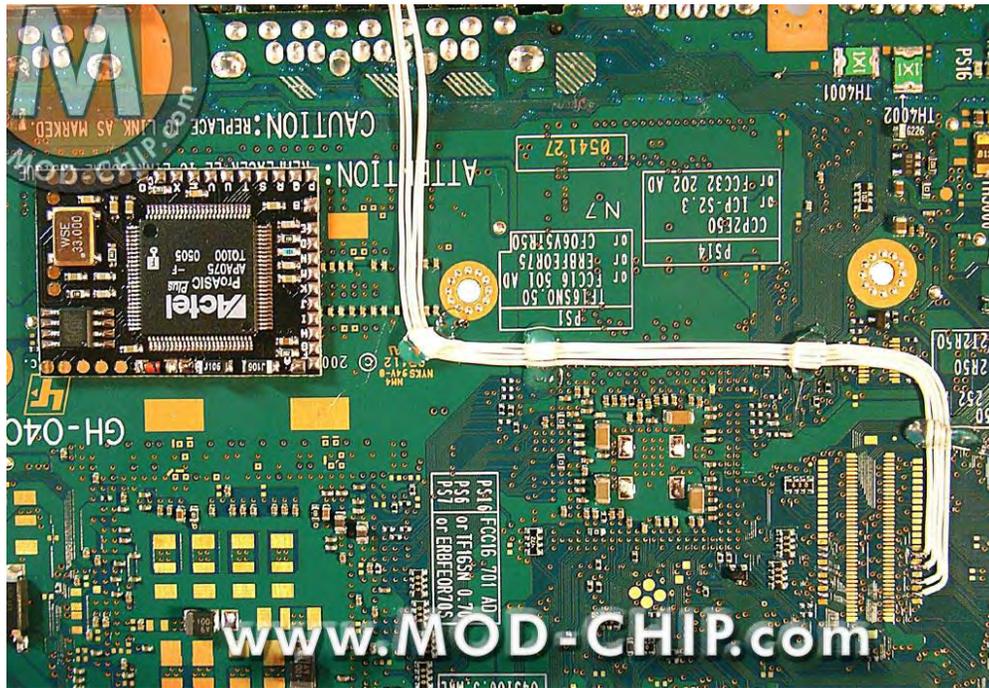


FIGURE #11

Now using a small slotted screwdriver, gently pull the first wire needed to be soldered to the mod-chip as shown below in figure #12. Cut the wire to length to the mod-chip pad.

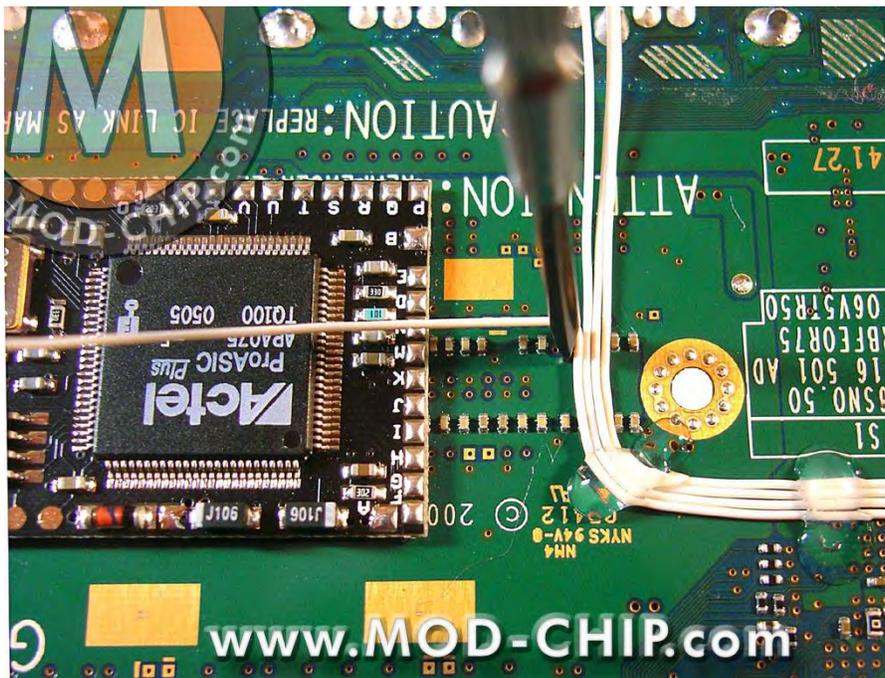


FIGURE #12

It's a good idea to use the de-solder wick to remove the solder from the chip pads before you attempt to solder the wire to it; just like the motherboard, this chip too was covered in a lacquer finish and soldering the wire to it without tinning the pad first with new solder will make it difficult to get a good solder joint.

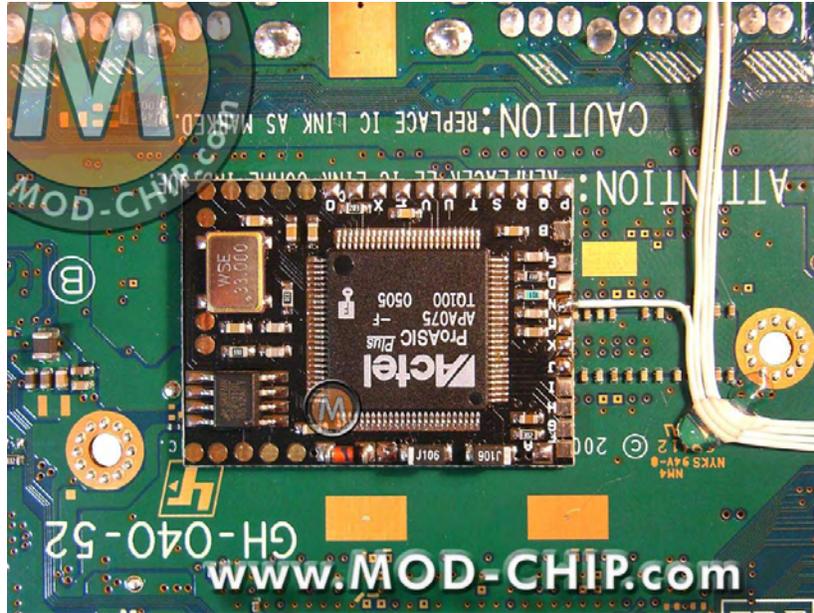


FIGURE #13

Solder the other three wires to the mod-chip as shown below in figure #14. **NOTE: it's ok to overlap a wire as long as it is perpendicular to the wire beneath it and that you cross it only once.**



FIGURE #14

Your wires should look something like figure #15 below.

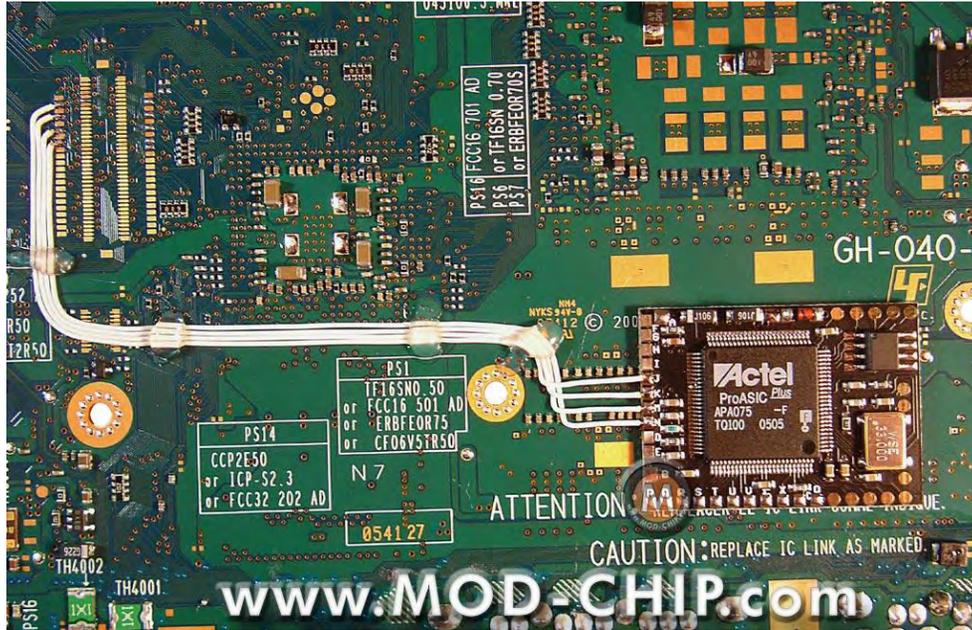


FIGURE #15

Next solder the rest of the BIOS wires to the tinned pads which are the mod-chip wires **D**, **E**, **F**, **G**, **H** & **I** as shown below in figure #16. **NOTE: make sure that each wire is the correct length to reach the mod-chip pads. Notice that wire “E” is pointed in the opposite direction of the other five wires; the reason for this will become apparent (see figure #20).**

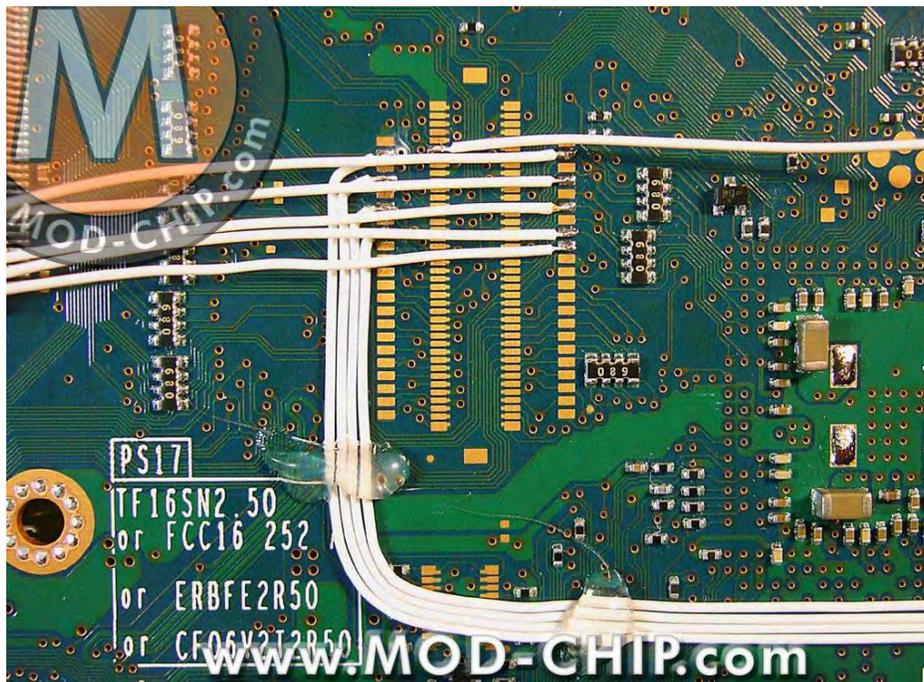


FIGURE #16

Before you route the other BIOS wires, it would be a good idea to solder and route the PS1 signal wire (wire “X” on the mod-chip) so it can be grouped with the other BIOS wires (the X wire is the same location for PS2 models V12 – V14). Tin the edge of the component first before you attempt to solder a wire to it. **NOTE: Be careful not to get this electrical component too hot or it will come off the motherboard; apply heat for one or two seconds at the most when tinning this component.**

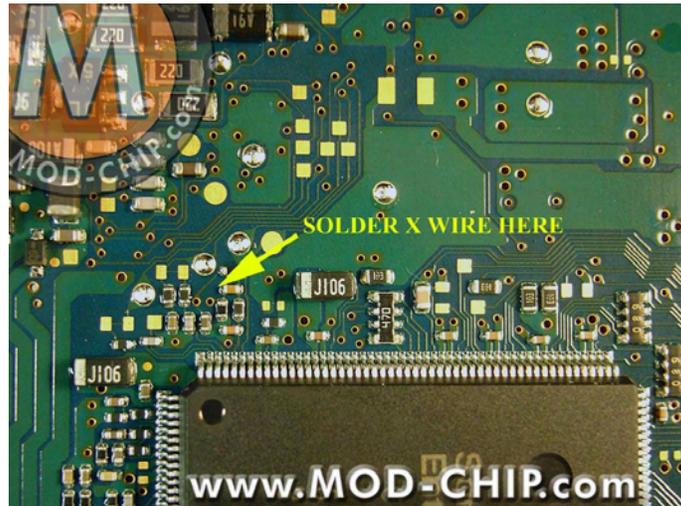


FIGURE #17

Now route the “X” wire as shown below so that it can be grouped with the other BIOS wires.

NOTE 1: make sure that this wire is the correct length to reach the mod-chip pad.

NOTE 2: Be careful not to get this electrical component too hot or it will come off the motherboard; apply heat for one or two seconds at the most when soldering this wire to it. If your first attempt to solder a wire to it fails then wait for it to cool down before you try again!!!

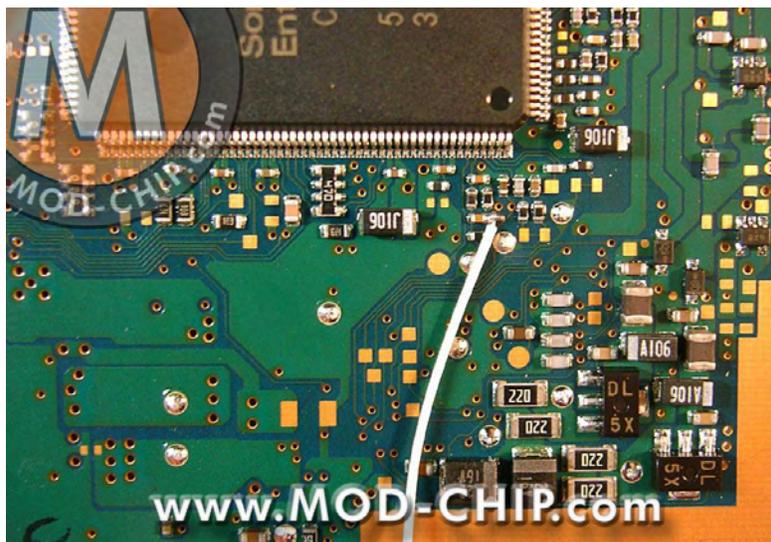


FIGURE #18

Now route the “X” wire and hot glue it down into place and stop by the BIOS pads as shown below in figure #19.



FIGURE #19

Now group the rest of the BIOS wires with the “X” wire and hot glue them down into place as shown below in figure #20.

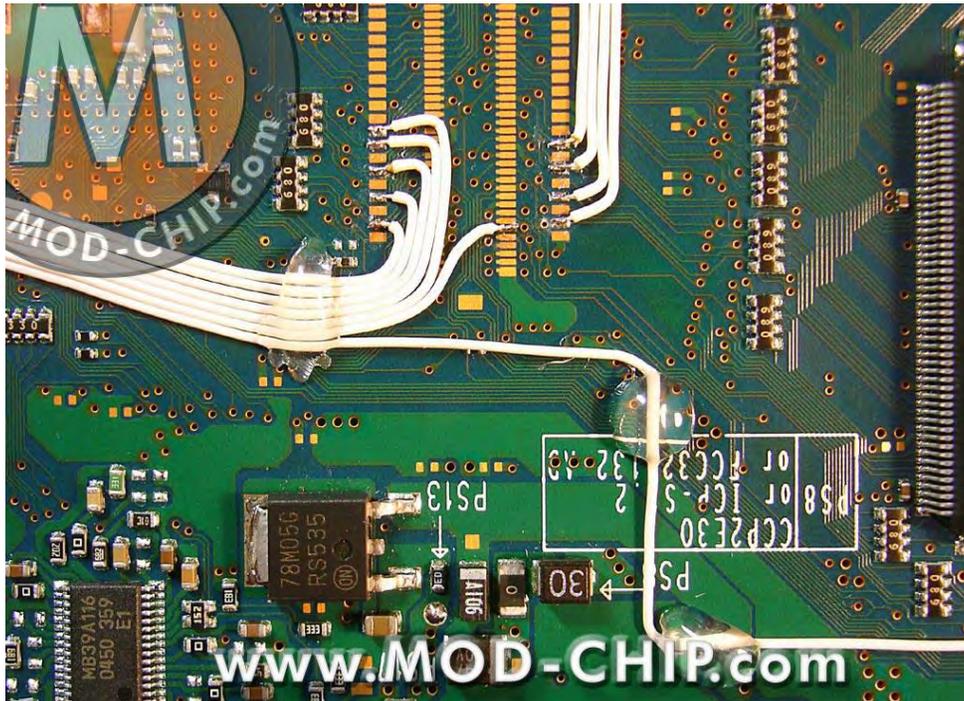


FIGURE #20

Your BIOS wire install should look like figure #21. **NOTE:** notice that some wires are covering some small electrical devices next to the mod-chip; this is ok and you should avoid covering any IC's.

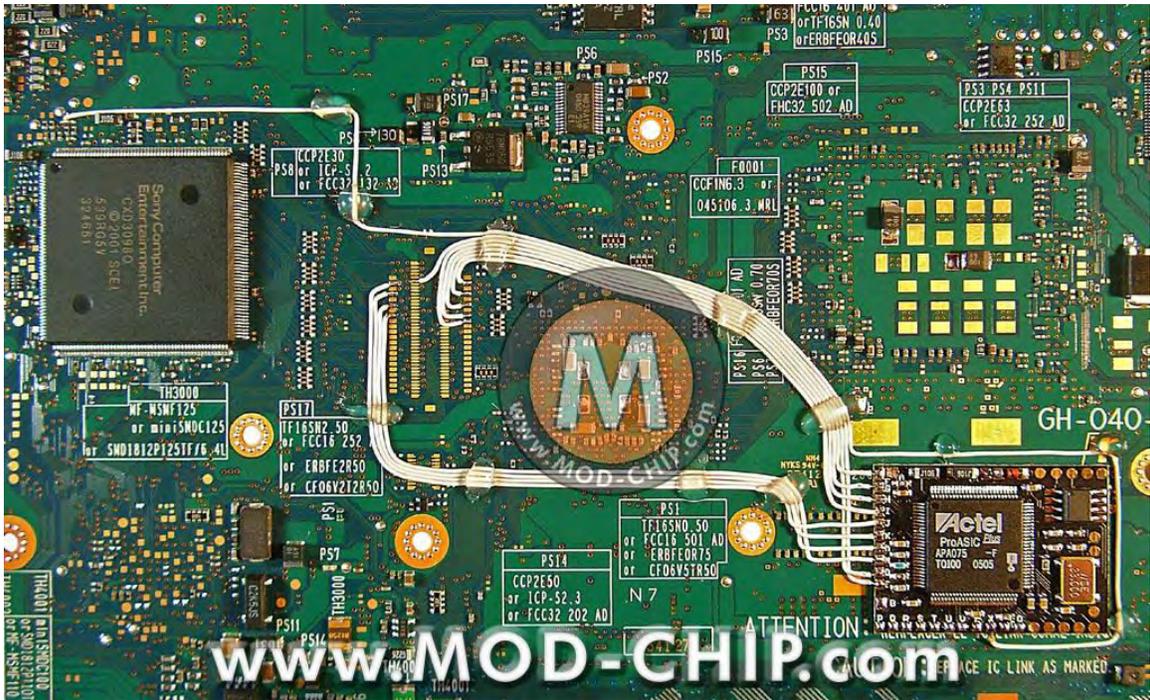


FIGURE #21

Next solder the power wire using the heavier 22 AWG green wire as shown below in figure #22. **NOTE:** this wire location may vary depending on which PS2 version you have.

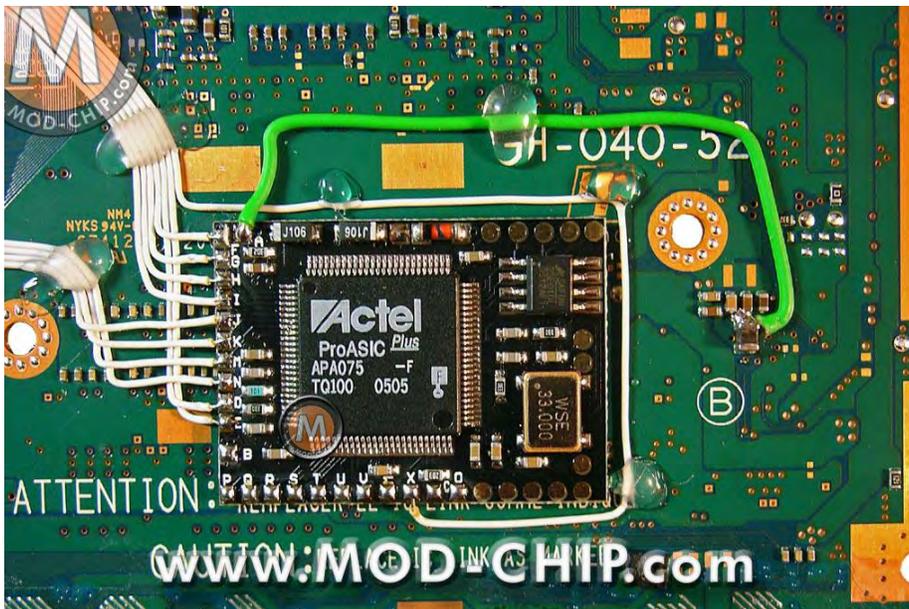


FIGURE #22

Now solder the ground wire to the ground plane as shown below in figure #23. **NOTE: tin the ground plane first before trying to solder the ground wire to it. It's also a good idea to solder another ground wire to another location (see alternate grounds and power location section of this manual for more information).**

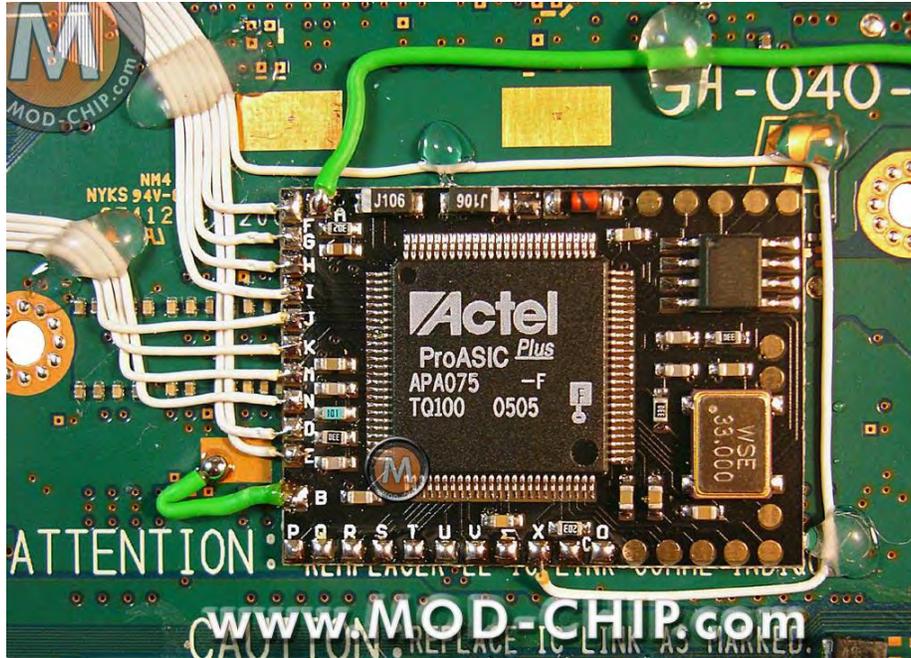


FIGURE #23

STEP #3: Preliminary mod-chip install test

If you have never installed a mod-chip before, then you will want to test your install at this point which you can avoid trying to debug all the wires at once when your chip is completely installed. Reassemble your PS2 with only the metal shield plates on both sides of the motherboard, install the power button and plug-in the CPU cooling fan; **YOU DO NOT NEED THE DVD DRIVE INSTALLED FOR THIS TEST!!!** Now plug in the AVI cable and the power cord and turn it on; the power LED should illuminate green. Since the eject wire (pin C on the mod-chip) is not installed yet, you will have to boot your PS2 **EXACTLY** as stated in order to test the BIOS wire installation:

- 1) Hit the reset/power button and wait two or three seconds until the CPU fan stops spinning.
- 2) Hit the reset/power button again and quickly hold-down the “Square Key” button on your #1 controller (this loads the DMS4 configuration menu).

Your TV set should display the following text message “DMS4 Disabled please reset your console now” as shown below in figure #24, this means that your mod-chip BIOS wires are properly installed!!! If you do not see this message or worse, recheck your wires for connections between the motherboard points and the mod-chip and for cold solder joints.

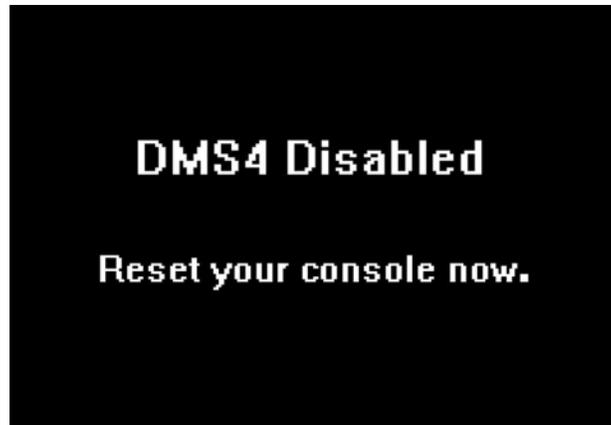


FIGURE #24

STEP #4: Installing the rest of the mod-chip wires

After you have passed the BIOS wire install test, you can rest assure that part of the install is good and you won't have to troubleshoot those wires in the future. The other wires needed to be installed control and read from the DVD player. If you have problems trying to flash your chip because the DVD drive doesn't read your CD disk then you can be sure the problem is caused by one or more of these wires.

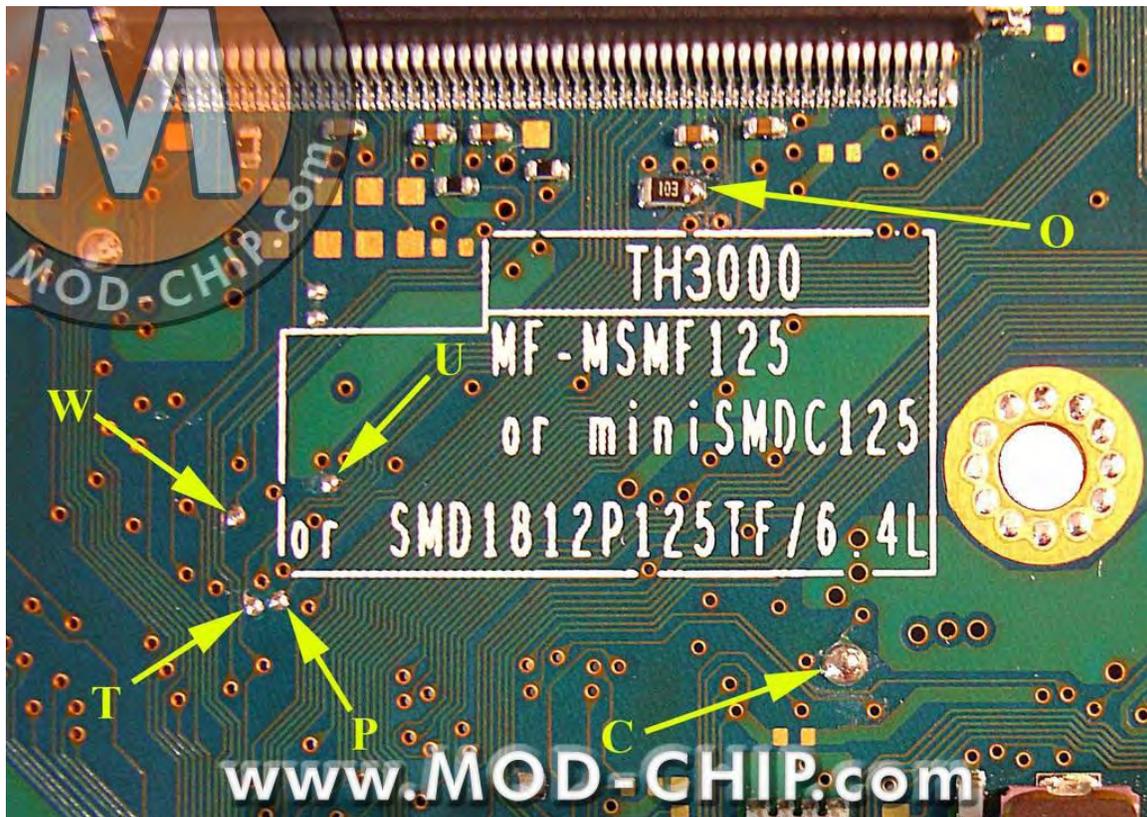


FIGURE #25 (V14 example)

Located the DSP pads on your motherboard and tin these pads; this example is a V14 (GH-040-52) shown in figure #25 which have very tiny pads to solder wires O, P, T, U, W and C (V is for Japanese models only). **This step will take a few tries and a lot of patience to complete.** First apply heat to a pad for a few seconds and use a tiny slotted screwdriver (because it is not too sharp) and gently scrape a little at the pad. Repeat this step a few times until you can see the pad change gold in color. Now try to tin the pad; the solder will bead on the pad as shown above in figure #25. If the solder doesn't bead then repeat the steps until it does. Other PS2 models require that you solder wires to other pads similar to ones mentioned above; refer to the [wire diagram](#) for where these wires go for the PS2 model you have. Next solder a wire to a pad and loosely run the wire to the mod-chip pad and again add an inch or two to be sure the wire is long enough. Now solder the rest of the wires and cut them to length.

NOTE 1: for the wire “O”, first tin the side of this electrical component being careful not to get this electrical component too hot or it will come off the motherboard. Next apply heat for one or two seconds at the most when soldering this wire to it. If your first attempt to solder a wire to it fails then wait for it to cool down before you try again!!!

NOTE 2: the location of the “O” wire may vary depending on the PS2 version you have.

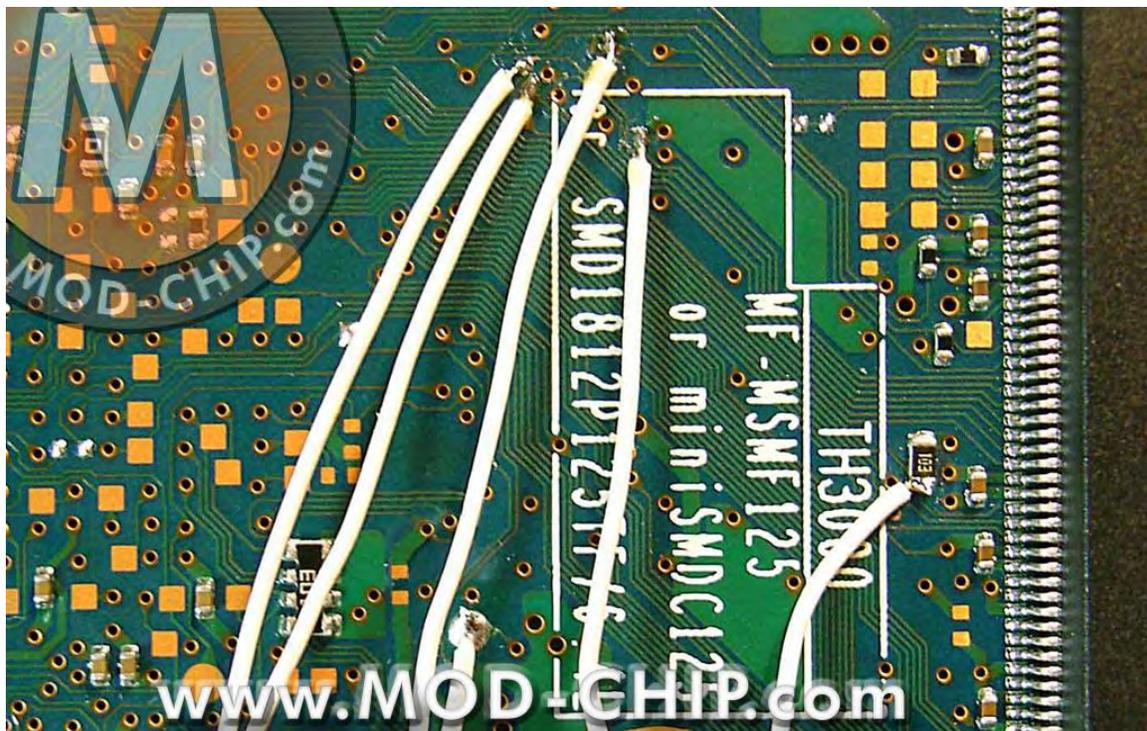


FIGURE #26 (V14 example)

Now route those wires side-by-side each other to the mod-chip like you did for the BIOS wires making sure to go around electrical components. Solder each of these wires to its corresponding pad on the mod-chip. **NOTE: use the copper wire braid to remove the solder from each pad on the mod-chip BEFORE tinning it!!**



FIGURE #27

Once you have soldered each of the DSP wires to the mod-chip, now would be a good time to check the continuity of each wire between the DSP IC pins and its corresponding pad on the mod-chip. Use a multi-meter and test the continuity (set it to beep so you can hear it) and touch one probe to a mod-chip pad (say “P”) and with the other probe, gently drag it across one side of the DSP pins until you hear a beep (see figure #27 above). You may have to try all four sides until you hear the continuity for some of the wires (the pin location on the DSP will vary between PS2 versions which is why we are not showing them here). If a wire does not pass this test then re-solder it and try again. Repeat this test for all the DSP wires (O, P, T, U, and W).

STEP #5: Installing the laser fix PCB

The slim PS2’s is notorious for laser burnout is why you need to install the laser fix PCB. Your chip comes with a Neofix PCB XIII or XIV; we will show the version XIII install in this manual. First tin the pads on the Neofix PCB as shown below in figure #28.

NOTE: do not tin pad “J1” on the Neofix PCB version XIV; it is not used.

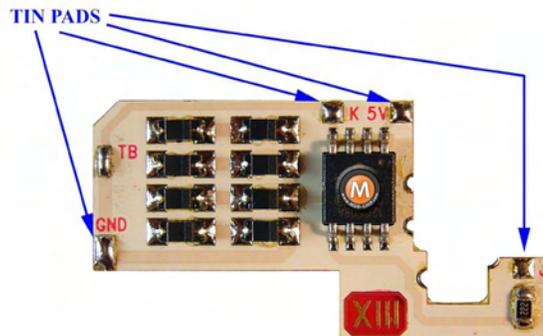


FIGURE #28 (Neofix XIII example)

Solder the ground pad to the outer edge of the motherboard ground plane as shown below in figure #29 below. Solder the “J” wire to its location on the motherboard (its location will vary depending on which PS2 version you have).

NOTE 1: it’s the “J2” wire for the version XIV Neofix PCB. Notice the location of the Neofix PCB in relation to the surrounding electrical components. Keep the outer edge (right side) of the laser fix PCB from making contact with adjacent electrical components (for V14 only). It’s recommended that you place tape or fold a piece of paper and slide it underneath the PCB. **DO NOT REMOVE THE “TB” SOLDER BRIDGE AT THIS TIME (it’s located at the left edge of the Neofix PCB)!!**

NOTE 2: for V12 & V13 PS2’s installs, refer to the Neofix PCB [wire diagrams](#).

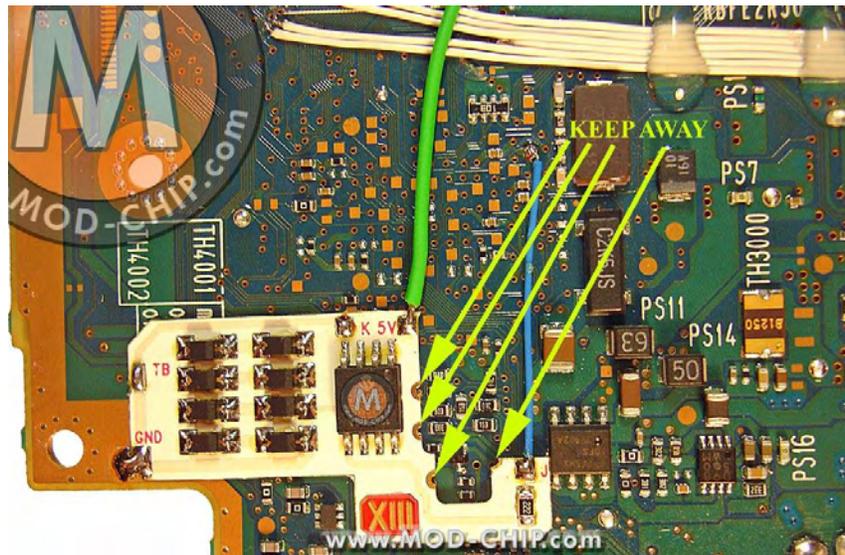


FIGURE #29 (V14 example)

Now solder the 5V power wire to the Neofix PCB pad using the 22AWG green wire to the voltage regulator pin (located to the right of the DSP chip – this is the same location for ALL PS2 slim consoles) as shown below in figure #30. **NOTE: make sure that this wire is the correct length to reach the mod-chip pad. DO NOT SOLDER WIRE “K” AT THIS TIME!!!**



FIGURE #30

Your Neofix PCB install should look like figure #31 below. **NOTE: notice that wire “K” is not installed and the “TB” solder bridge has not been removed yet.**

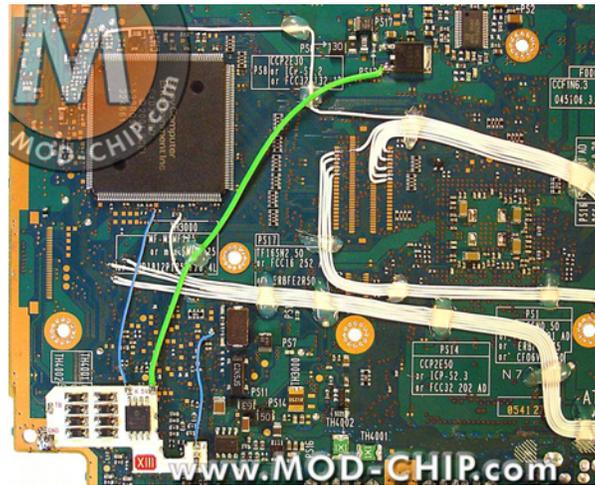


FIGURE #31

STEP #6: Preliminary laser fix PCB install test

Before you go any further with the Neofix laser PCB installation, now would be a good time to test its installation at this point. All you need to do is install the power button and plug-in your PS2 motherboard and turn it on (**you do not need to install the metal shields or the DVD drive**). Hit the power button and it should turn off after 3 seconds; if not then you need to check your wires (**for V14's only – also make sure no electrical component is touching the outer edge of the laser fix PCB**). **It's recommended that you place tape or fold a piece of paper and slide it underneath the PCB!!!**

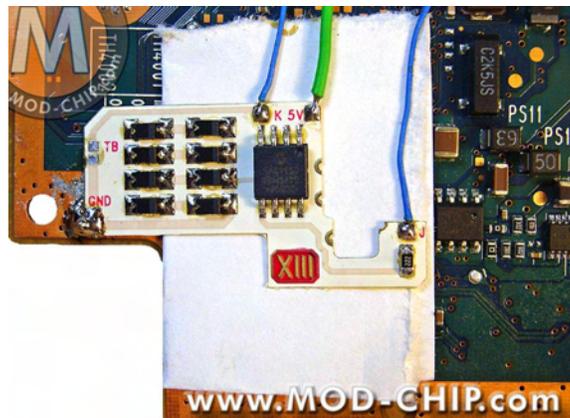


FIGURE #32 (Neofix PCB XIII)

Once you have passed the install test, its time to install the “K” wire (**this location will vary depending on which PS2 version you have**). Use the copper wire de-solder wick to remove the solder bridge at pad “TB” (located on the left of the PCB). Your final PCB install should look like figure #32 or figure #33 depending on which Neofix PCB you have.

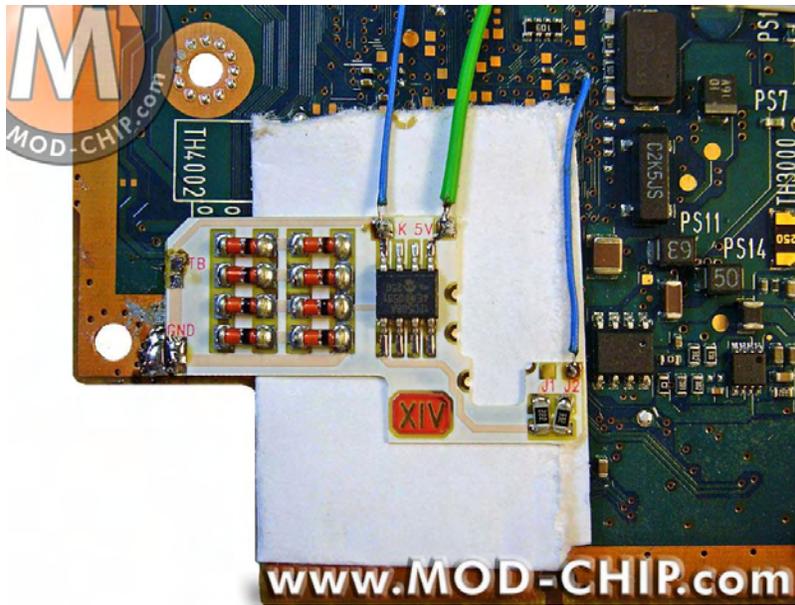


FIGURE #33 (Neofix PCB XIV)

Figures #34 below illustrates the full wire installation.

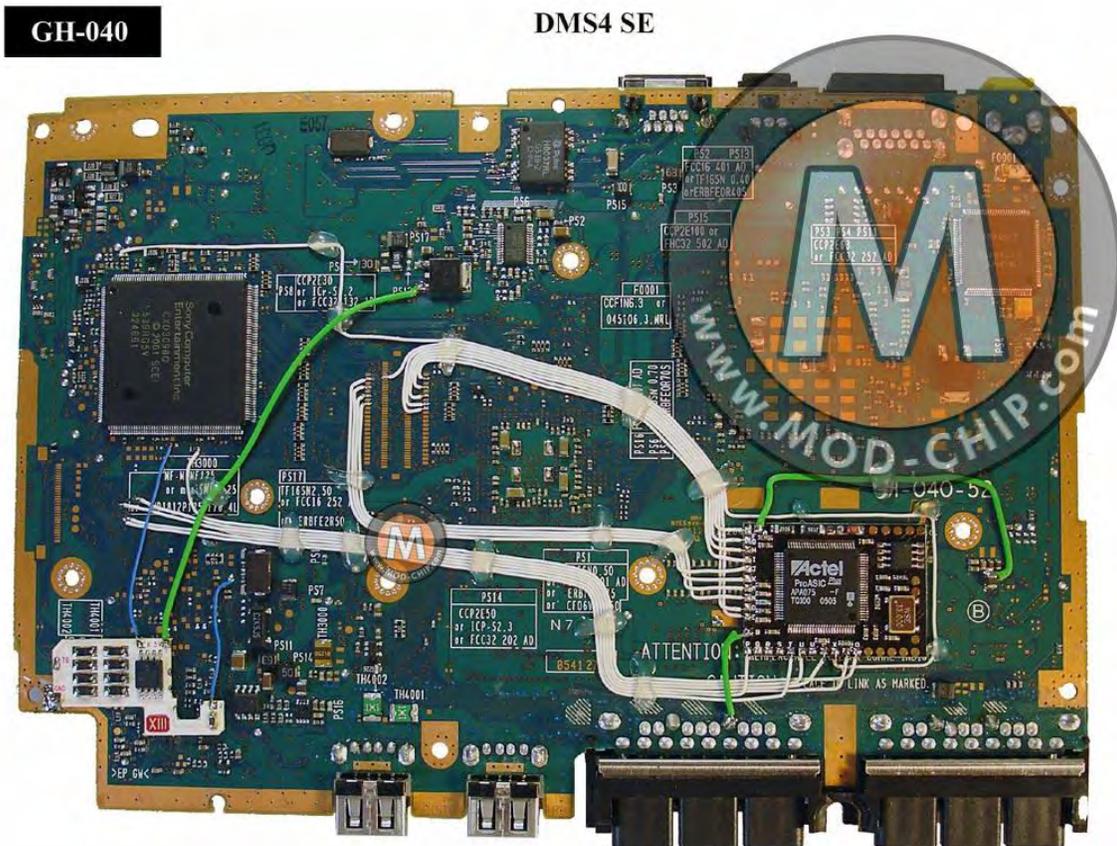


FIGURE #34 (V14 example)

STEP #7: Alternate Grounds and Power Locations

A proper power and ground wire is one of the most important wires to connect to your mod-chip. Problems will arise if your mod-chip is not properly grounded: Failed Flashing, intermittent game playback errors...etc. The best way to avoid this potential problem is to add an additional ground wire (2 ground wires). Depending on your PS2 model, the extra ground may be located in a different area on your motherboard. Figure #35 below illustrates the common power and ground locations that are available (some or all power and ground areas may be available depending on what PS2 model you have). **NOTE: always keep your power and ground wires as short as possible!!!**

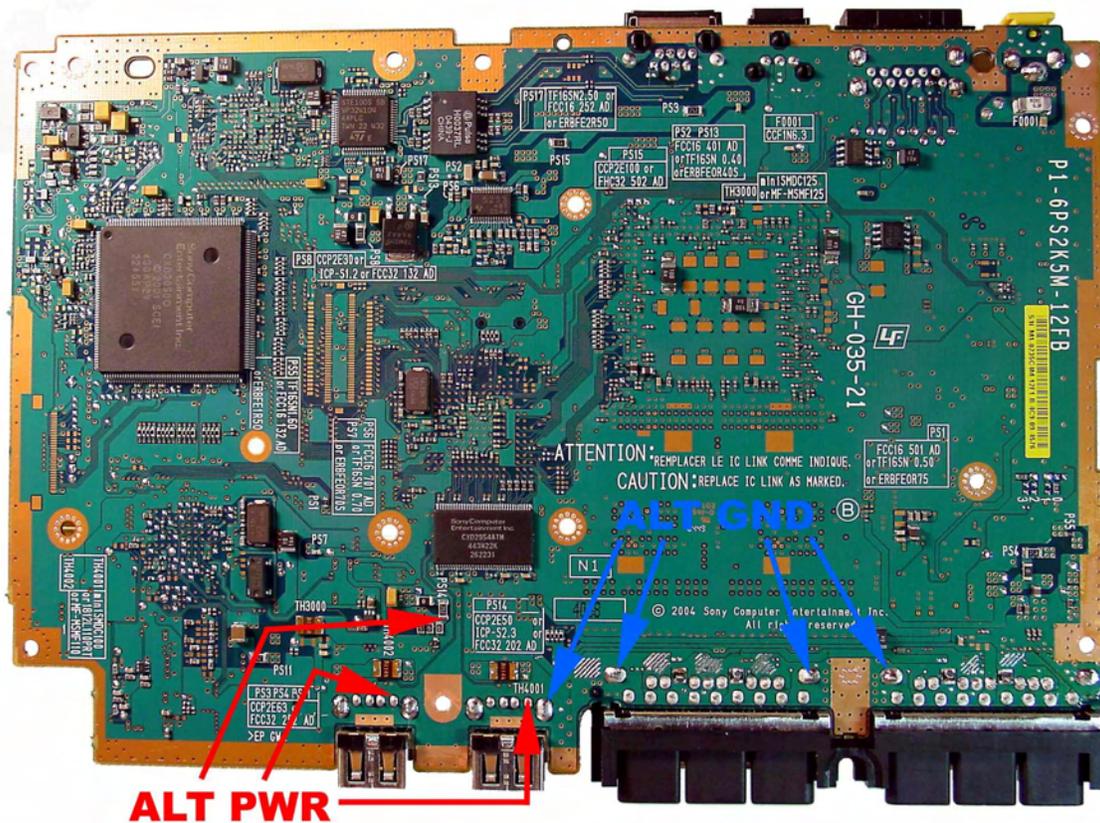


FIGURE #35

STEP #8: Flashing your mod-chip

Congratulations on your mod-chip installation now reassemble your PS2. You are ready to flash your mod-chip!!! Please read the [Toxic install manual](#) on how to flash your mod-chip.

TROUBLESHOOTING

If you have followed these directions to the letter, then you probably will not need to read this section. Here are a few tips to help you troubleshoot your mod-chip installation.

1) I can see the DMS disable message when I hold down the square key but I cannot load the third party software

- a) Was the third party software recorded at 4X speed?
- b) The CD image may be corrupted
- c) The laser may need adjusting or it has gone bad
- d) Check wires M thru W.

2) PS2 randomly fails to boot (black screen)

- a) Check your ground wire, you may want to solder an additional ground wire to another location on the motherboard.

3) PS2 fails to boot (black screen)

- a) Check points D thru N
 - b) Check your power and ground wire connections
 - c) Ensure that ALL wires are laid flat against the motherboard
 - d) Make sure you haven't solder bridged any adjacent pins or pads
- If the problem persists, try removing the mod-chip to see if the PS2 console is OK, try re-soldering mod-chip again.

4) PS2 games fail to authenticate (Sony red screen)

- a) Check points M thru W
- b) Check your power and ground wire connections
- c) Ensure that ALL wires are laid flat against the motherboard

5) PSX games fail to authenticate (Sony red screen)

- a) Check point X
- b) Check your power and ground wire connections

6) PS2 acts as though no chip were installed (Sony red screen)

- a) Check point C (this wire connects to the disc eject keypad on the console). If this wire is not connected, the chip may think you are holding down the eject button and go in to sleep mode. The same will happen if C is solder bridged with a ground pad, but in that case you will not be able to turn the PS2 on from the stand-by mode using the eject button.
- b) Check your power and ground wire connections

7) PS2 does not power up when the reset button is selected

- a) Check the eject/reset ribbon cable for damage, you can purchase a replacement at mod-chip.com.
- b) Check the power supply fuse or the motherboard fuse, you can purchase a motherboard fuse at mod-chip.com (see web site for picture of fuse).

c) Check eject/reset ribbon cable connection at both endpoints.

Additional help can be found at the following [manufactures web site](#).

Mod-Chip Wire Definitions:

A = 3.3v

B = Ground

T, P, W, U, V = CDVD data points (T is only needed on PS2 if you want to use DVD-RW).

O = CDVD OE signal, one of the more sensitive wires. If this is too long then your disc media authentication may fail.

C = Eject

D thru N = These are the PS2 BIOS points. D and E are the more sensitive out of these. If D or E is too long it may result in black screen.

X = SCEX line, needed for booting PSX backups only.

NOTE: It seems that more often than not, when there is a problem with a DMS4 install it comes down to its installation rather than a faulty chip. Please, if you are experiencing problems then double-check your installation before blaming the mod-chip. If you think that you have a damaged DMS4 chip then the best way to verify this is simply to swap it for a different (if possible, known working) DMS4 chip without changing anything about the installation such as shortening wires etc. If the console starts working normally once the new chip has been swapped in then you can be fairly certain that the chip is at fault and not its installation.

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