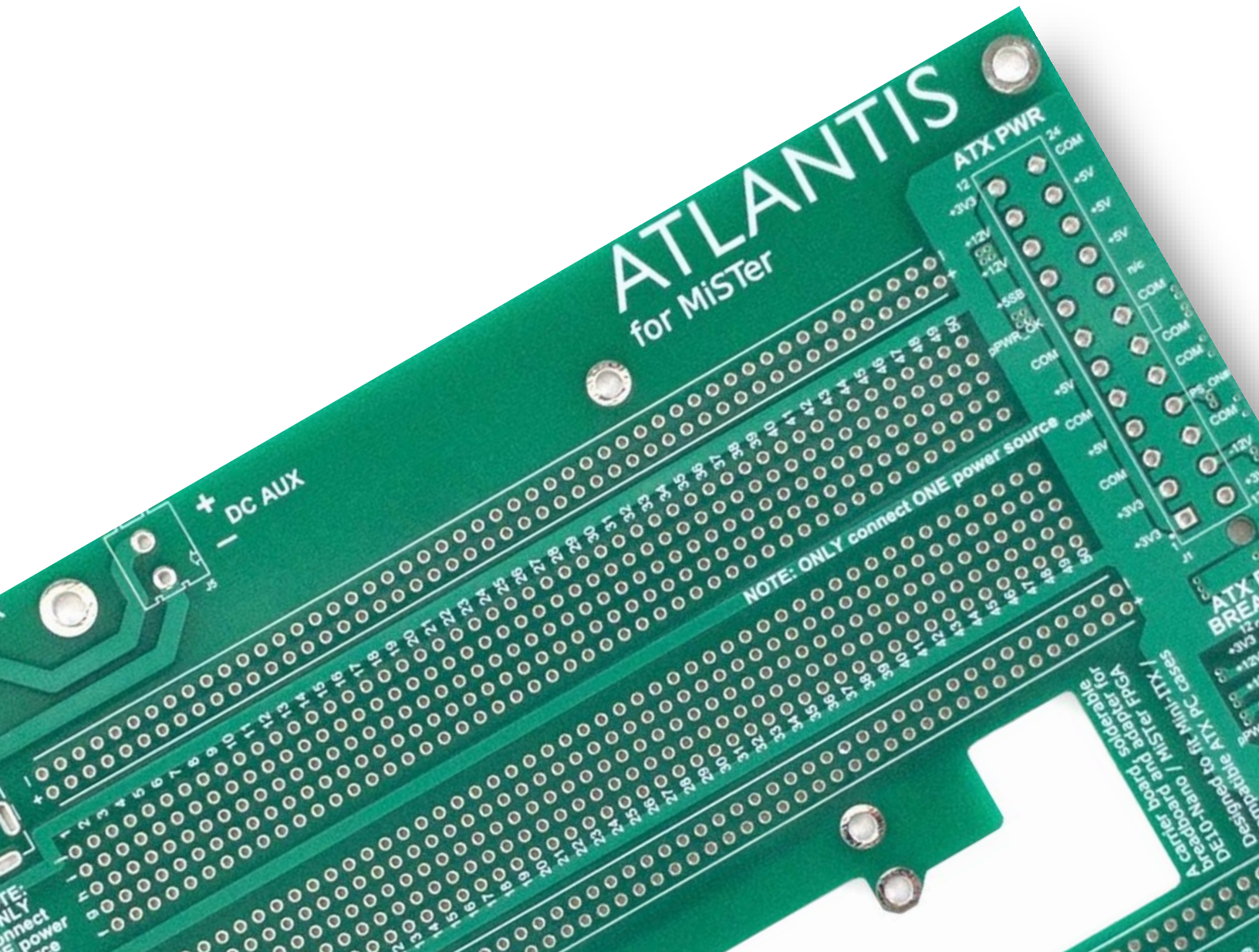


ATLANTIS

NEW USER GUIDE AND INFORMATION

December 2023



CONTENTS

ATLANTIS FOR MISTER.....	3
PRE-ASSEMBLED ATLANTIS FOR MISTER.....	5
SIDE BY SIDE KIT FOR ATLANTIS.....	8
BACKPLATES FOR ATLANTIS FOR MISTER	10
USB HUB FOR ATLANTIS	12
Figure 1	4
Figure 2	5
Figure 3	6
Figure 4	6
Figure 5	7
Figure 6	8
Figure 7	8
Figure 8	9
Figure 9	10
Figure 10	10
Figure 11	11
Figure 12	11
Figure 13	12
Figure 14	12
Figure 15	14

Please follow any recommended setup steps carefully and contact us before proceeding if you have any questions or concerns.

For technical support you can also:

- reply to your purchase order confirmation email.
- send a message through our website contact form.
- post a help request on our private Discord server “Support” channel.

Request a link to join the ATLANTIS private Discord server by replying to your purchase order confirmation email.

ATLANTIS FOR MISTER

ATLANTIS for MiSTer is intended to simplify powering your MiSTer FPGA by utilising a PC case power button for power on/off.

Options include (See Figure 1):

- **Powering from an external DC plug**
 - Soldering a DC jack to J7, Pololu 2808 module to M1 and a terminal block to J3; outputting power via a DC power pigtail into your MiSTer whenever the PC case triggers the 2808 switch.
- **Powering from an internal ATX PSU 5V standby source**
 - Soldering an ATX connector to J1, Pololu 2808 module to M1 and a terminal block to J3; outputting power via a DC power pigtail into your MiSTer whenever the PC case triggers the 2808 switch.

The ATX +5Vsb is connected by default to the Pololu Vin and many modern ATX power supplies will carry 3-4A on this line; sufficient to power most MiSTer setups

Compatible parts:

- **ATX connector**
 - TE Connectivity AMP Connectors 1-1775099-3 or similar
- **DC jack**
 - Cliff electronics DC10A 224959 or similar
- **2pin terminal block 5mm**
- **Pololu mini pushbutton module 2808 LV**

PRE-ASSEMBLED ATLANTIS FOR MISTER



Figure 2

Before proceeding, decide whether you will power your MiSTer from your usual DE10-Nano DC power supply or with an internal PC case ATX supply. If you decide on the latter, ensure your ATX supply has a current rating of at least 2A on the 5V standby line (usually displayed on a printed table on the ATX power supply casing). Some MiSTer setups may require a higher current rating but in general 3A will be adequate for most setups.

If you intend to power from an external DC supply with a barrel connector, such as an original DE10-Nano power supply; you must first connect the DC AUX to ATX harness (Figure 2). Ensure the orientation is correct with mating of the latch. This arrangement is intended to reduce the risk of users accidentally connecting both an external DC supply and internal ATX supply simultaneously.

NEVER connect more than one power supply to the ATLANTIS board.

PRE-ASSEMBLED ATLANTIS FOR MISTER



Figure 3

If you purchased a backplate, unscrew the DC cable from the terminal block labelled J3 using a 3mm flat head screwdriver (Figure 3). Feed the cable through the backplate. It is usually easier to install the ATLANTIS board inside your PC case before mounting the backplate and reconnecting the DC cable. Ensure you reconnect the cable with the red end connected to + and the black end connected to – in the terminal block. Note that when looking at an ATLANTIS board from above, with the label text oriented correctly, all red leads sit above the black leads (Figure 4).

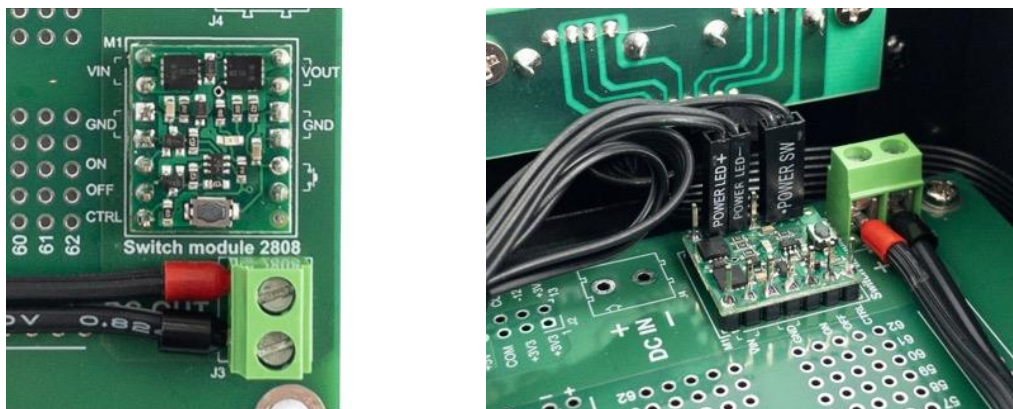


Figure 4

Connect PC case jumpers to the Switch module using the header pins toward the edge of the ATLANTIS (Figure 4). Use either VOUT pin for a case LED light + and a GND pin for - lead. Use the two pins next to the button symbol for the PC case power switch. The jumpers may be made more secure with adhesive tape or hot glue, if required.

PRE-ASSEMBLED ATLANTIS FOR MISTER



Figure 5

The external DC supply connects to J6 and the internal DC cable from J3 connects to the DE10-Nano.

SIDE BY SIDE KIT FOR ATLANTIS

The ATLANTIS fastener kit includes fasteners for a typical side by side MiSTer FPGA and IO board (or other DE10-Nano sized accessory board) setup. Not all fasteners may be necessary depending on the board arrangement you choose.



Figure 6

An example of one fastener installation is shown in Figure 7. This arrangement allows a DE10-Nano and accessory board to be secured side by side in a PC case. **The ATLANTIS Thin Mini ITX backplate is intended to support this layout.**

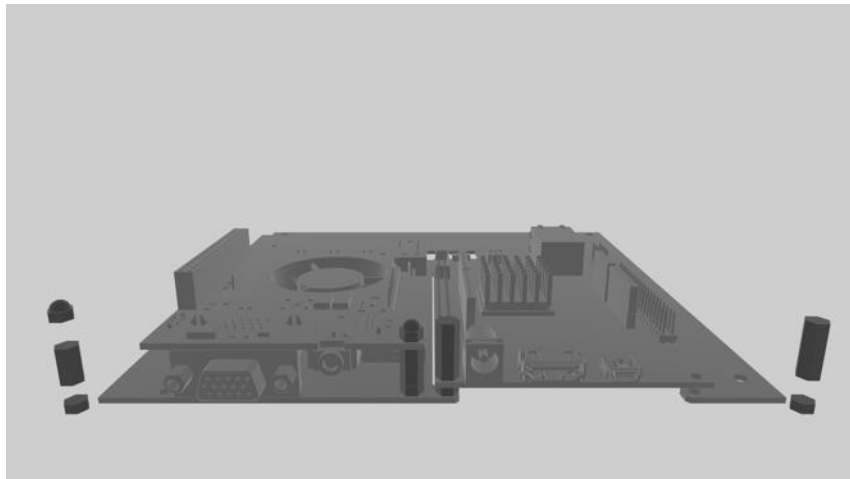


Figure 7

Using the 8x 20mm M3 bolts; start with one nut on top of the ATLANTIS to secure each bolt in position. On the IO board side, a 10mm hex spacer is fastened on top of this nut. By placing a nut below each board, easy removal of either board from within the PC case is possible, while the ATLANTIS remains fixed in place.

SIDE BY SIDE KIT FOR ATLANTIS

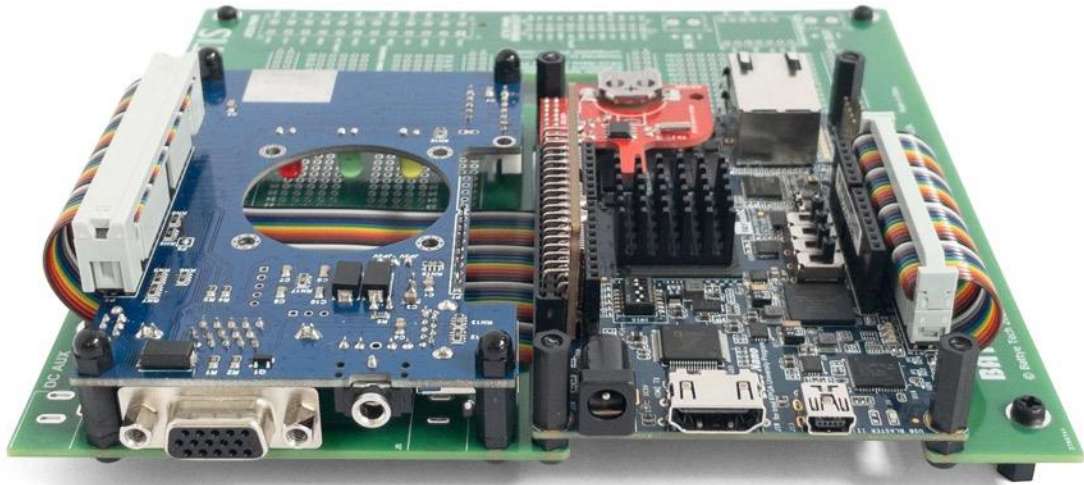


Figure 8

Prepare your MiSTer plus or minus IO board. If you purchased a GPIO ribbon cable, ensure the orientation of the cable such that wires mate with the correct matching pins and ensure the connectors align with ALL pins as shown above (Figure 8).

Cap nuts or other nuts can then go on top to secure each board in place (a 15mm spacer is used on the DE10-Nano side in this example).

BACKPLATES FOR ATLANTIS FOR MISTER

The ATLANTIS for MiSTer backplates provide a degree of physical protection for the contents of your PC case as well as making a neat finish.



Figure 9

Plan which ports you will require and gently twist the cover plates to snap the small joints holding them in place (Figure 10). Any residual plastic fray can be carefully flattened off with a craft knife if desired.



Figure 10

If you purchased a Pre-assembled ATLANTIS for MiSTer, follow the installation instructions for the board first (See PRE-ASSEMBLED ATLANTIS FOR MISTER).

BACKPLATES FOR ATLANTIS FOR MISTER

Feed any cables you intend to use through the backplate before installing the backplate in the PC (Figure 11).



Figure 11

Two sets of tabs are included; the blue tab is for thin cases and works well with the TX06 or M06 cases. The grey tabs have a subtly thicker standoff which may be more suitable for cases from brands including InWin and Fractal Design.

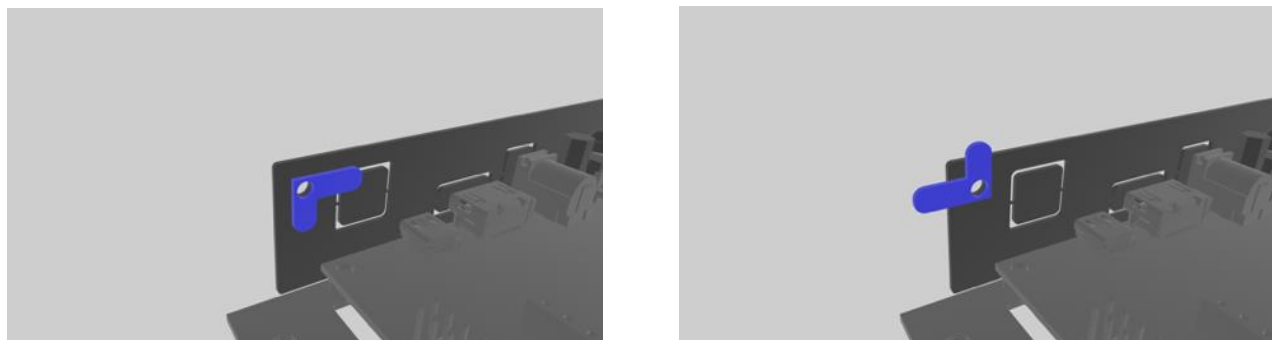


Figure 12

The backplate is secured using the two rotating locking tabs on the inside. Loosen the fastener slightly to rotate to the open position (Figure 12). Tighten again once the tab is in the locking position inside the case. The wall of the PC case is slotted between the tab and the backplate.

USB HUB FOR ATLANTIS

The new modified USB hub for ATLANTIS incorporates 9pin headers for internal PC case USB connections as well as a mounting plate for either DE10-Nano location on the ATLANTIS board.



Figure 13

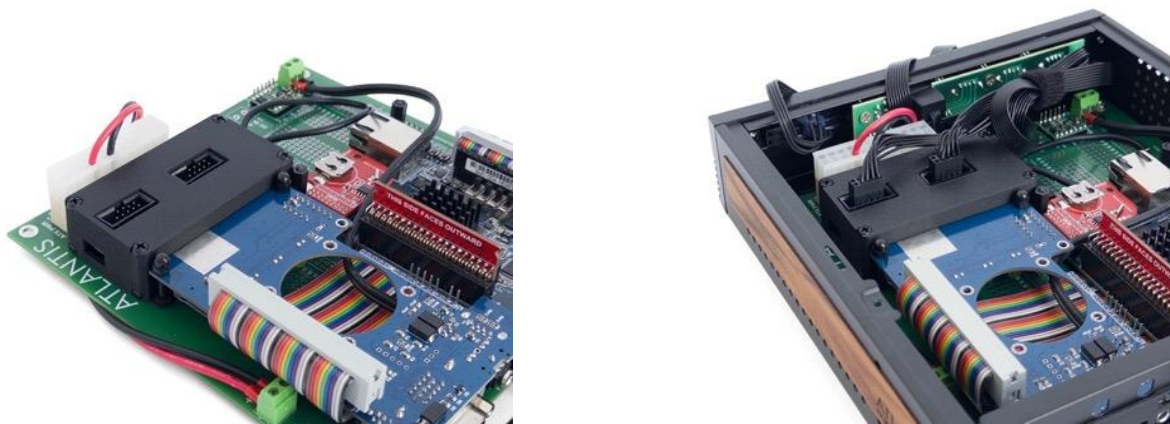


Figure 14

It can also be mounted inverted for easier access to the type A USB ports should daisy chaining or direct access be needed.

USB HUB FOR ATLANTIS

In general, our MiSTer setup utilises a 5V 3A power source and we find this adequately supplies power to multiple connected USB devices on our four port USB hub, without the need for external power to the hub itself.

In fact, with this four port USB hub we've simultaneously connected multiple USB gamepads, an optical mouse, RGB keyboard, an active Bluetooth dongle and daisy chained a passive USB hub with additional controllers and an external hard disk - all without the need for additional external USB hub power!

However, in circumstances where additional power is needed, a 5V supply can be connected to this hub through the Micro-B power input port located on one edge.

BUT doing this is not without a significant caveat.

Like many rudimentary USB hubs, the power input on this hub is directly connected to the VCC input line on the other side (which connects to the host device). USB hub manufacturers do this because it simplifies the board design and means the device will function with either host device power input or external power input to the hub.

The problem is that it exposes the host device to the second external power supply if there is any degree of voltage differential - a phenomenon known as "back-feeding". And while some host devices may incorporate back-feeding protection, the DE10-Nano does not.

USB HUB FOR ATLANTIS

USB hub back-feeding has the potential to damage or destroy your DE10-Nano but this problem can be avoided by;

a) ensuring only one power source is used to power both the DE10-Nano and the hub (ie splitting power from a single source)

or,

b) physically cutting the VCC wire inside the hub so external hub power can not enter the DE10-Nano.

This means opening the hub case and cutting the red VCC wire. The hub will no longer function without an external power supply but your DE10-Nano is protected as back-feeding can not occur.

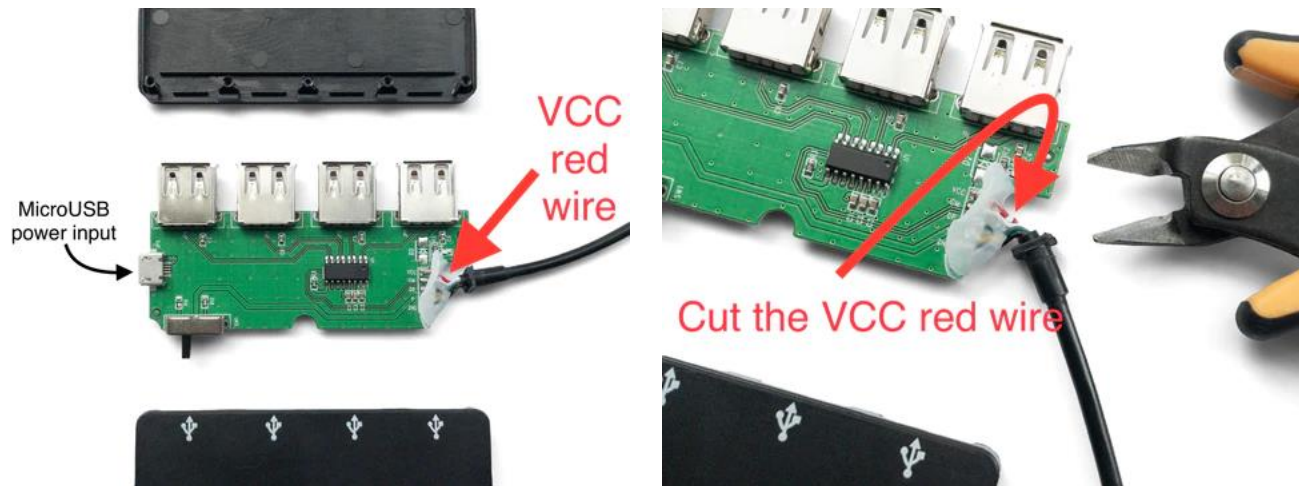


Figure 15

Snip the VCC wire and secure the end so it does not risk contacting the pad or wire stump (Figure 15). With this step complete your DE10-Nano is safe and you can power the hub from any 5V external input you like.

Even with closely matched power supplies, any difference has the potential to result in back-feeding which at the worst end destroys your expensive hardware, or at the best case results in unusual behaviour.