

Virtua Via PCIe to PCI expansion box PSU upgrade guide

This modification enables the VirtuaVia PCIe to PCI expansion chassis to supply up to 4 UAD-1 cards with sufficient power (5V/2,8A/14W per card). It should also work with other 5V/3.3V high power consumption PCI cards.

WARNING!!!

You are working with high voltages which can kill. Always unplug the mains cable when working on the PSU unit. I am not responsible for any damages on equipment or injuries on persons. Warranty will be void when modifying the unit.

Things you need:

- an ATX computer Powersupply with 200W or more (you don't have to buy a new one – there is so much computer crap around and you will test it before using it)
- a soldering station with a fine tip (I soldered with quite a high temperature (480°C) thanks to ROHS conformity and lead-free solder used on the board)
- solder wire (I don't recomend the use lead-free solder – it'll drive you crazy and you'll end up with messy solder joints)
- screwdrivers (PH 2 and a small one for bending up some legs)
- pliers
- a cutter or dismantling pliers
- a multimeter
- heatshrinking tube 10 to 15mm diameter
- cable ties
- a hot air gun or a lighter
- self welding adhesive tape (would be nice)
- a can of black paint for the powersupply case
- guts and patience (for frying around on a f%\$?+*# SMD circuit board)



Preparing the Powersupply:

The PCI interface standard requires the following DC voltages: +12V, -12V, +5V, +3.3V
There are many different brands of ATX powersupplies available which have different board layouts so I focus on a general description here.

There are 20 wires going to the mainboard connector and usually 2x4 wires to the harddrive/DVD/fan supply connectors. The wires are color coded and the voltages should also be printed somewhere on the component side of the PSU board. For the use in the expansion chassis you need just 8 of the 28 wires. 7 leading to the box and one (green) is connected to ground on the PSU board.

- Cut all wires as close as possible to the connectors
- Open the Powersupply
- Disconnect the fan and the internal mains connector (can be tricky, you may have to unsolder the mains connection depending on the PSU manufacturer)
- Take the PSU board out of the case
- You can clean and paint the case if you want
- You can exchange the fan for a extra silent one (I did) if you are concerned about fan noise
- Unsolder all wires on the board except the following 8:

1x Yellow: +12V

1x Blue: - 12V (not the purple wire as showed on the picture on page 4&5)

2x Red: + 5V (2 wires because of approx. 11,2A current draw when using 4 UADs)

1x Orange: +3.3V

2x Black: GND

1x Green PSU ON

- the grey, purple and white wires are not needed
- Connect (solder) the green wire (PSU ON) to GND on the PSU circuit board.
(this is usually for the remote power switch on the front of a PC)
- Twist the other wires (7) together and put a 12 inch long shrinking tube over them and shrink it using the hot air gun or lighter, leaving about 2 inches blank. At the cable spout I used some self-welding adhesive tape to increase the diameter of the cable isolation for proper strain relief.
- Dismantle the wires about 1/8 inch twist the strands and put some solder on it
- Put the PSU board back into the case and connect the fan and internal mains connector
- Close the PSU chassis, connect it to the mains power and check the voltages between Black (GND) and the other colors with a multimeter. Be careful not to short-circuit any of the wires!

If the voltages are correct the PSU is ready for connection.

Virtua Via PCB preparation:

- Open the expansion box
- Unplug the connector of the power switch
- Remove the four screws holding the PCB and take it out of the case

When soldering: Keep clean your soldering tip! Don't fry around on the board longer than a few seconds!

With the component side up and the DVI connector facing to you there is a +3.3V voltage regulator (1084) on the left side of the board.