



AAA Battery Board Kit for Retro and Vintage Computers.

Undefined Systems, LLC dba PC-Resto.

<https://pc-resto.com>

<https://www.ebay.com/str/pcrestoration>

Note: The solder on the back of the board has clear conformal coating applied for extra insulation. This is not flux residue! Please do not try and clean it off.

Note: A cable tie has been placed around the board to retain batteries during shipping. You can choose to leave this in place or remove it. It's up to you :)

Mounting the Battery Board

I recommend three mounting options (in this order):

1. M3 hardware (included)
2. Velcro
3. Double-sided tape.

When using Velcro or double-sided tape: I STRONGLY recommend you place a layer of Kapton tape on the case metal where you will affix the board. For extra insulation. Then adhere the velcro/double-sided tape to the layer of Kapton. If you don't have Kapton tape, clear packing tape will also work well.

When using double-sided tape: You must use the foam type double-sided tape that has some thickness to it. I STRONGLY recommend you put two layers of foam double-sided tape on top of each other to further raise the board away from the chassis.

Connecting to Motherboard

Only install when certain of correct polarity for your motherboard. Please double and triple check that the polarity is correct before installing. Reverse polarity connections will likely blow the fuse.

Many vintage motherboards with an external battery header will also have a jumper to disable the on-board battery circuit. Please check with your motherboard documentation. If this jumper is present, please set it to the external battery position before connecting this battery board.

Need help finding documentation for your motherboard? Please visit the excellent "The Retro Web" project website: <https://theretroweb.com>

When all else fails, you can determine the polarity of your motherboard's battery header using a multimeter.

1. Put your meter in continuity mode (beeps when you touch the test leads together).
2. Connect one lead to a ground point.
3. Test the left-most and right-most pins of the 4-pin battery header on the motherboard with the other lead. When your meter beeps, it means you have found the ground (negative) pin. The positive pin will be on the opposite side.

Troubleshooting

Problem: Fuses keep blowing

This is usually the result of three potential problems.

1. Cable to motherboard is connected in reverse polarity.
2. Back of battery board is making contact with the metal case of the computer.
3. There is a short in the RTC circuit on your motherboard. Often, this indicates a bad RTC chip.

The fuse used is a standard 5mm x 20mm 100mA fuse. Voltage rating doesn't matter as this is a very low voltage application. These can be readily found on sites like eBay.

Problem: Batteries die quickly

This battery board should last a minimum of 6 months on most computers. Usually it will last for upwards of multiple years.

If the batteries must be changed often, it indicates a problem on the motherboard. A faulty RTC chip can have excessive current draw.

If you have a multimeter with a microamps setting (μA), you can put it in series between the battery board and the motherboard header to measure the current draw. With the computer turned off, the current draw by the RTC chip should be less than 200 μA . Even 150 μA is a little high and might deserve investigation. But I have seen some Motorola RTC chips pull ~160 μA when the computer is off.

Do not hesitate to contact me if you have any questions!
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