Macintosh II: Power Supply Pinouts and Power Fail Circuitry

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TOPIC ---

This article discusses the pinouts for the Macintosh II's 15-pin, power connector from the power supply to the motherboard. It also includes information about the Power Fail circuitry, in case you must use an alternative power supply.

DISCUSSION ---

Pinouts

Pin #	Function
1	+12V
2	+5V
3	+5V
4	+5V
5	+5V
6	+5V
7	Ground
8	Ground
9	Ground
10	Ground
11	Ground
12	Ground
13	N/C
14	-12V
15	/PFW

The Power Fail circuitry in the Macintosh II power supply senses a level transition from the logic board, initiated by pressing either the button on the back of the machine or the reset key on the ADB keyboard. If this transition does not occur, the power-up sequence does not start. If a steady voltage is applied to the Power Fail signal line into the power supply, the sequence will not start. The power supply must see the

transition to begin the power-up cycle. A modified power supply that would power up with a voltage applied steadily, instead of level-shifted, would work in this case.

When the Reset key is pressed, pin 4 (Ground) of the ADB port is connected to pin 2 (PwrOn*) of the ADB port through a 1N914 diode. This applies a ground to the input of a CMOS chip on the logic board, which turns on a transistor and applies approximately +6VDC to the /PFW signal line (Power Fail Warning*), pin 15. This level shift on the PFW* signal line initiates the power-up sequence in the power supply. Once the power supply comes up, +5VDC is applied through another diode to the same line to keep the power supply up.

A power-fail-type circuit is necessary in the current power supply, because there is a thermal sensor on the Macintosh II logic board, which shuts down the system in the event of too-high temperatures. The same circuit shuts off the power supply in response to the Shut Down menu command.

There is also logic in the power supply that generates a Power Fail Warning signal to the system in the event of an AC input voltage failure. Additionally, if AC power is removed from the system, the power fail circuit pulls /PFW low at least 2 ms before the DC outputs fail. There is further information on the operational restrictions of the power fail circuitry in "Designing Cards and Drivers for the Macintosh II and Macintosh SE" from Addison Wesley.

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