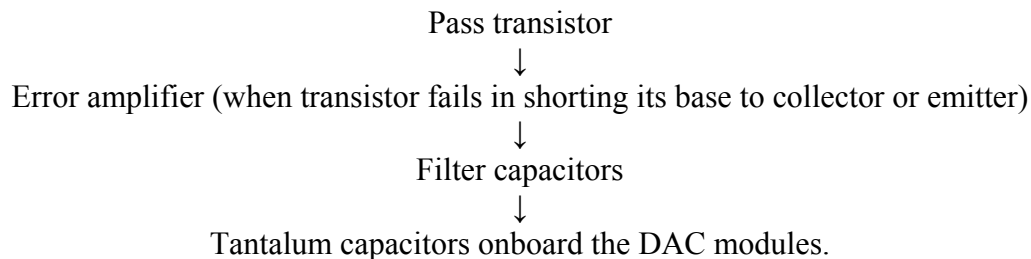


Instructions for Troubleshooting the analog power supplies for the Platinum, Platinum Plus, Platinum 2

The Platinum, Platinum Plus, CD II and DAC II products use several motherboard versions all with similar circuitry. The reference designators may not exactly match your motherboard version but the circuit is the same, the analog power supplies consist of a voltage reference, an error amp, two pass transistors and associated power filtering. As this power supply has NO current limiting and operates at extremely high bandwidth it is very easy to destroy the pass transistors resulting in a cascade of failed components. Common failures are caused by disconnection of the DAC modules before power has drained from the power supplies, incorrect DAC module installation, loose test leads and static electricity damage (either of the motherboard or modules). In order to restore a failed power supply to full operation it is imperative to track down all failed components at once.

Order of common failures



Order of repair:

Power up DAC with the cover removed (do not remove DAC modules). First test the voltage on the case of the transistor Q6 it should be between 20V-28V, this is the raw positive analog power if you do not have the correct voltage check the 110V-220V switch on the rear of the platinum, D1, C1 and F1. Next test the voltage on the case of transistor Q5 (-20V) to (-28V) failure may indicate bad components at the locations D2, F2 or C2. Next test the two positive analog supply voltages at the following locations, the end of R32 closest to C23, the end of R38 closest to C51, both of these locations should read between 15V and 16.5V depending on model. If both are operating then move to the negative supplies (the negative supplies use the positive supply as a voltage reference so they will not work if the positive supplies are not operating.) Test the end of R34 nearest C49 and the end of R40 nearest C58 both locations should read (-15V) to (-16.5V) the inverse of the positive supply voltage.

Remove all 4 DAC modules. Test all 4 DAC modules for shorts. Place all 4 DAC modules upside down with the 7 pin and 4 pin connectors in a line along the narrow dimension of the module nearest you. With a digital multi-meter set for Ohms test the 6 pin connector near the upper right hand corner. Place the negative probe of the tester on the metallic strip running along the left side of the DAC module and test all 6 pins

starting with the rightmost pin. On Second Generation DACs replace any shorted Tantalum Capacitors with 20V (or greater) 15uF or 20uF Tantalum Electrolytic Capacitors. First Generation DACs do not have user replaceable capacitors so they must be returned to MSB for repair.

The Pins should read: (First Generation DACs do not have user replaceable capacitors so a failed DAC module will have to be returned to MSB for repair)

Pin 1 0 Ohms

Pin 2 greater than 1000 Ohms, if not replace Capacitor C21 and retest (located in the upper left hand corner)

Pin 3 greater than 1000 Ohms, if not replace Capacitor C20 and retest (located in the upper left hand corner)

Pin 4 0 Ohms

Pin 5 greater than 1000 Ohms, if not replace Capacitor C19 and retest (located nearest this connector)

Pin 6 0 Ohms

Next repair the power supplies by replacing in order, any electrolytic capacitor that may be bulging or shorted, the error amplifier U13 or U15 (older Platinums may use the LT1364 it is recommended that all amplifiers be replaced with the LT1126), the pass transistor associated with the broken power supply Q6 or Q8 are 2N3053 and Q5 or Q7 are 2N4033. After all parts have been replaced test the power supplies WITHOUT plugging in any modules. The analog and digital grounds are separate on the Platinum without the DAC modules installed so be sure to use the correct ground reference for your measurements. Failed components such as capacitors may be difficult to detect so you may destroy the power supply several times before it is fully repaired.

After BOTH the power supplies and DAC modules are repaired you may reassemble the platinum. After assembly check the power supplies for failure. Troubleshooting is difficult with the platinum because of the tendency of components to fail in a cascade from a single source such as a static discharge, incorrect assembly or disassembly with the power supplies active. Many iterations of repair are sometimes necessary if any failed components are left in the circuit during a partial repair.