

Mark 5 power supply upgrade

In order to meet the increasing hard drive power needs, the following is a procedure to change the Conduant Mark5 and TK200 chassis power unit from Antec to PC Power and Cooling. The PC Power and Cooling model needed is:

Turbo-Cool 510XE

Input: 100-240 VAC 10 A 50-60 Hz

5V rating 40 A (red wire)

12V rating 34 A (yellow wire)

3.3V rating 30 A (orange wire)

The ATX power unit must be modified as follows before installing in a Conduant Chassis. Tools and supplies needed are:

1. One PC Power and Cooling Turbo-Cool 510ATX, T51X-XE ATX power supply
2. One 8 pin power terminal block, DigiKey# ED1723-ND (normally, old one can be re-used)
3. Five Closed end connectors, 18 gauge, crimp type (to terminate unused wire ends)
4. One cable-tie tension and cutting tool
5. Wire cutters
6. Wire Stripper (for 18 gauge wire)
7. Basic Crimping tool
8. Ruler or tape measure
9. Small cable-tie wraps, such as 4 inch long
10. Medium cable-tie wraps, such as 8 inch long

Whenever a cable-tie wrap is used, secure with the tension and cutting tool and discard the cuttings. Do not over tension the cable-tie wraps. They are for cable bundling only and should not damage wire insulation.

1. 1 P7 System CD power cable

Take the P6 connector and fold it back along the supply wires so that the beveled opening is against the wires coming from the power unit and secure with a small cable-tie wrap. Place the flat, non beveled, edge of P8 against the flat edge of P6 and secure with a small cable-tie wrap leaving P7 effectively at the end of the wire run. See Figure 1



Figure 1: CD power cable

2. P13 System Hard Drive power cable

Fold back P12 along the power supply wires and secure with a small cable-tie wrap. Place P14 against or near P12, pull its wires taut along the P13 wire bundle, and secure with a small cable-tie wrap. Bundle the last segment of wires with one small cable-tie wrap at the mid point leaving P13 at the end of the cable. See Figure 2.



Figure 2: Hard Drive power cable

3. Unused Connectors P9, P10, P11

Secure P9 to P11 with a small cable-tie wrap. Secure P10 to cable wires with a small cable-tie wrap, making a tight wire bundle. See Figure 3.



Figure 3: Unused connectors

4. ATX power cable preparation

Separate connectors and associated wires for P1 and P2, which are the main ATX and aux 12V. Bundle them together leaving the back of the power unit going up, bending down along the inside of the mounting flange at the right rear edge of the power unit. Secure the bundle with a medium cable-tie wrap to the top screw hole of the rear mounting flange. Place two medium cable-tie wraps under the bundle evenly spaced between the two screw holds of the rear mounting flange. Secure the bundle to the lower screw hole with a medium cable-tie wrap. See Figure 4.

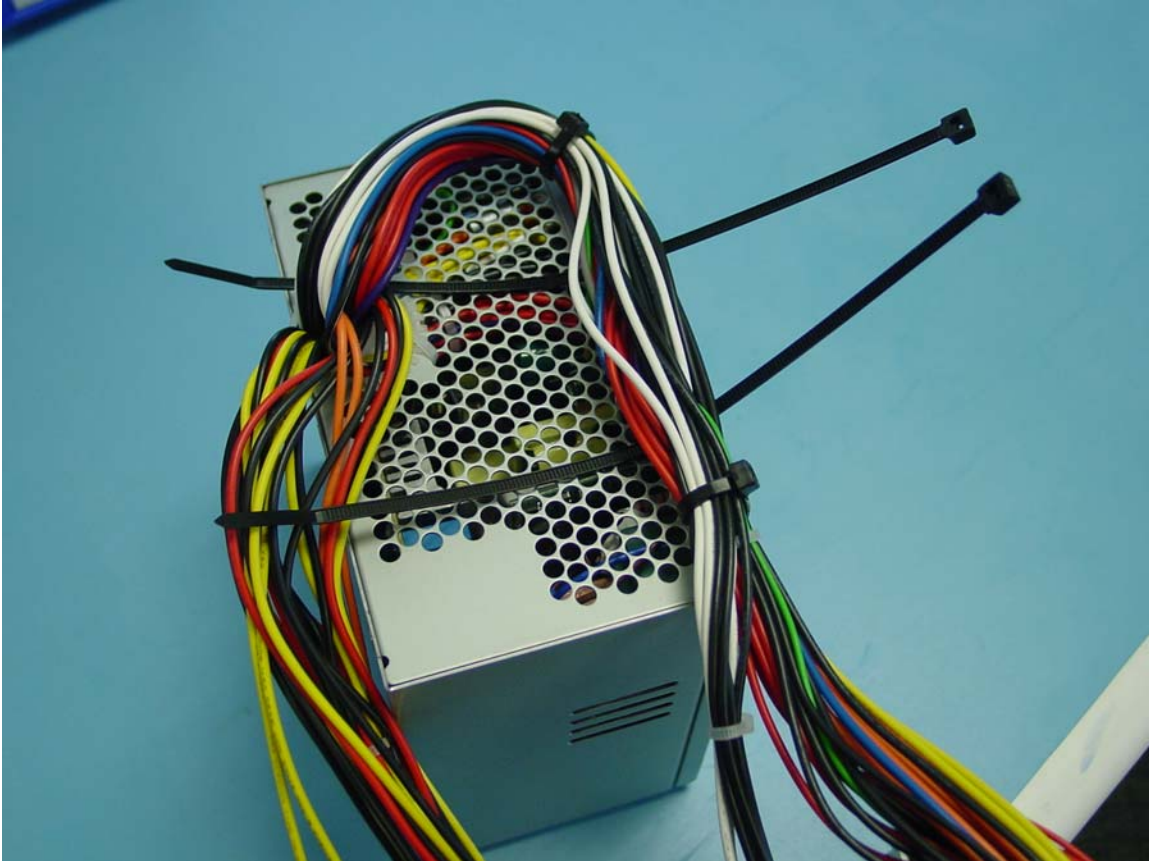


Figure 4: Power cable preparation

Take the P9 and P13 cable bundles and add them to the inside edge of the ATX cable bundle, following that cable bundle as it leaves the power unit up, to the right, then down. Secure the bundles together with a medium cable-tie wrap above the vertical run along the mounting flange. Fold the P13 bundle back up about ½” from the bottom and thread under the ATX bundle leaving approximately 9” sticking out above the power unit. See Figure 5.

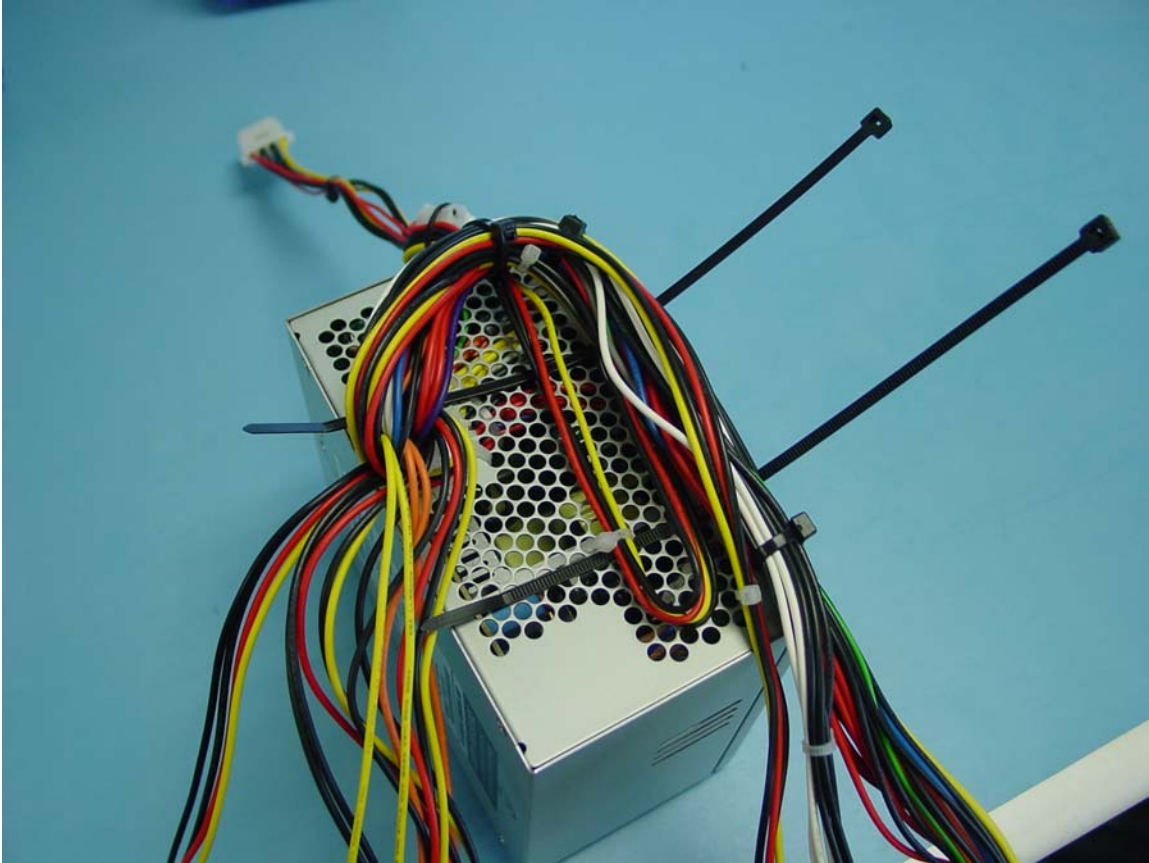


Figure 5: Cable dressing

Fold the P9-unused cable bundle back on itself over the vertical inside region of the back of the power unit. [For Mark5 only, place the 12V aux power connector (white and black wires) along the P9 unused cable bundle and treat as part of the P9 unused group.] Secure the P1-ATX, P13-Hard Drive, and P9-unused cables together by tightening the two medium cable-tie wraps along the rear mounting flange. See Figure 6 [does not show Mark5 option].

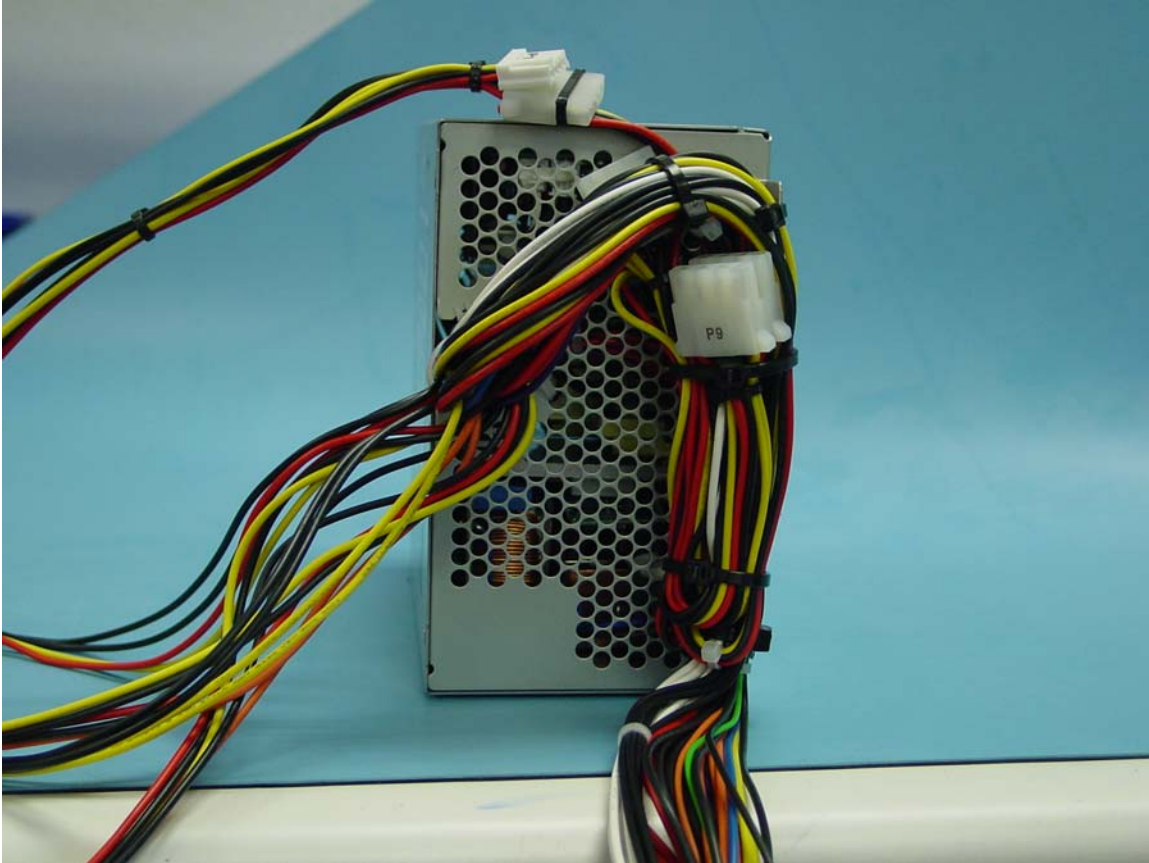


Figure 6: Cable dressing

5. Backplane terminal block

Digikey # ED1723

The three remaining cables are P3 and two unmarked SATA cables which will be used for backplane power through a terminal block. Take P3 and measure 13 inches from the power unit case and cut off the connector at 13". Do not remove small cable tie before cutting. Measure and cut off the two SATA connectors at 13" from the power unit case. Remove the factory installed cable ties from these wire stub bundles. Separate out three 12V yellow wires, two 5V red wires, and 4 ground black wires. Pull taut and secure these nine wires into a new wire bundle cable-tie wrapped to the P7 wires at the base, next to the power unit. Pull this nine-wire bundle taut and trim them to be the same length as the shortest wire, near the maximum of 13". Strip the black and yellow wires to ¼". Strip the red wires to 5/8". Twist the two red wires together and install a ½" long heat shrink over the first ½" of insulation.

Cut the remaining 5 unused wire stubs [2 black, 2 orange, and 1 yellow] at approximately 3" length from the base. Terminate each wire end with an 18 gauge, crimp type, closed end connector, crimping them on. Do not use twist-on wire nuts/caps. Secure these wire stubs to the rear screen with a cable tie. See Figure 7.

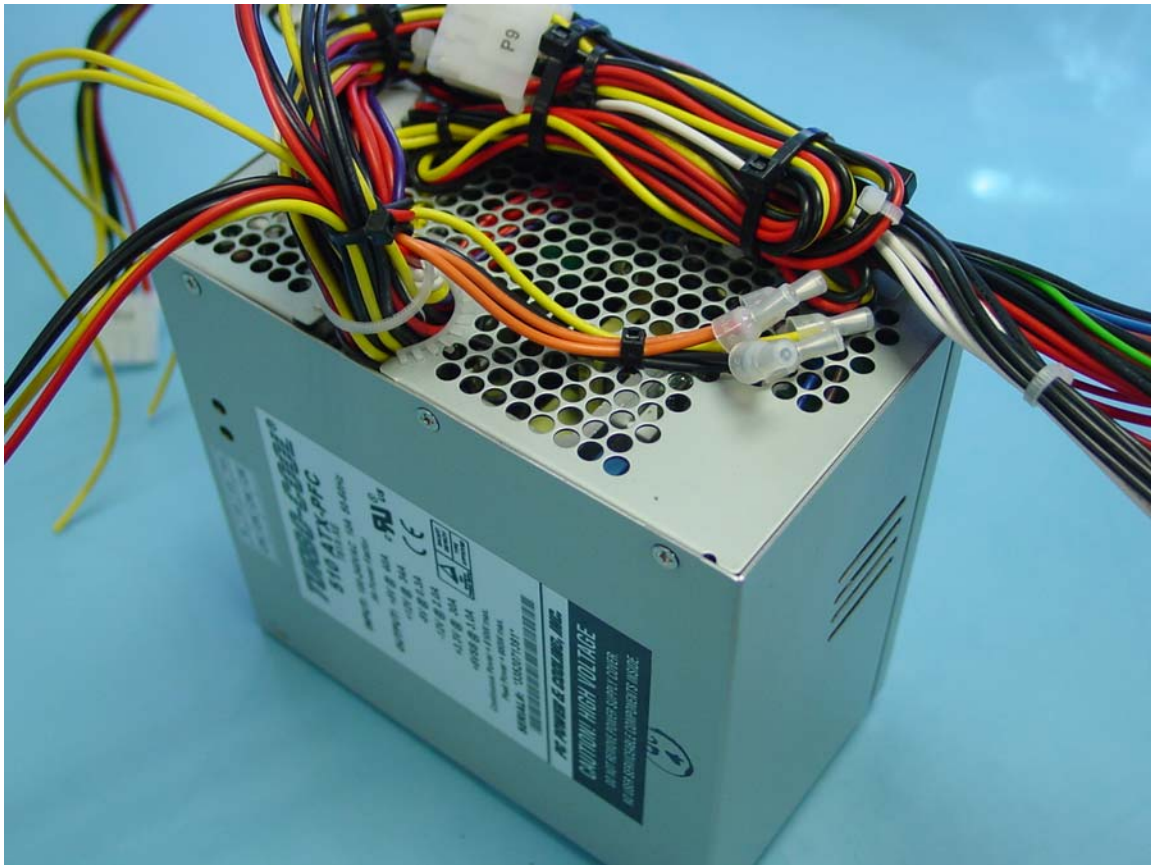


Figure 7: Termination of unused wires

Position the terminal block as it will be installed, with pin 1 at the bottom. Insert and screw tight the three yellow wires to terminal block pins 6, 7, and 8. Install the red wire pair into terminal block pin 5. Install the four black wires into terminal block pins 1 through 4. Secure the nine wire cable bundle at 4" and 2" from the terminal block with small cable-tie wraps. Secure the P7 cable bundle to the terminal block power bundle folding over extra P7 length to achieve a P7 length adequate to reach the CD drive of your chassis. This length is typically 21" from the power unit.

See Figure 8, Figure 9 and Figure 10; note that the black and white 12V aux power will be secured to the back of the unit with the other unused wires for a Mark5 (optional).

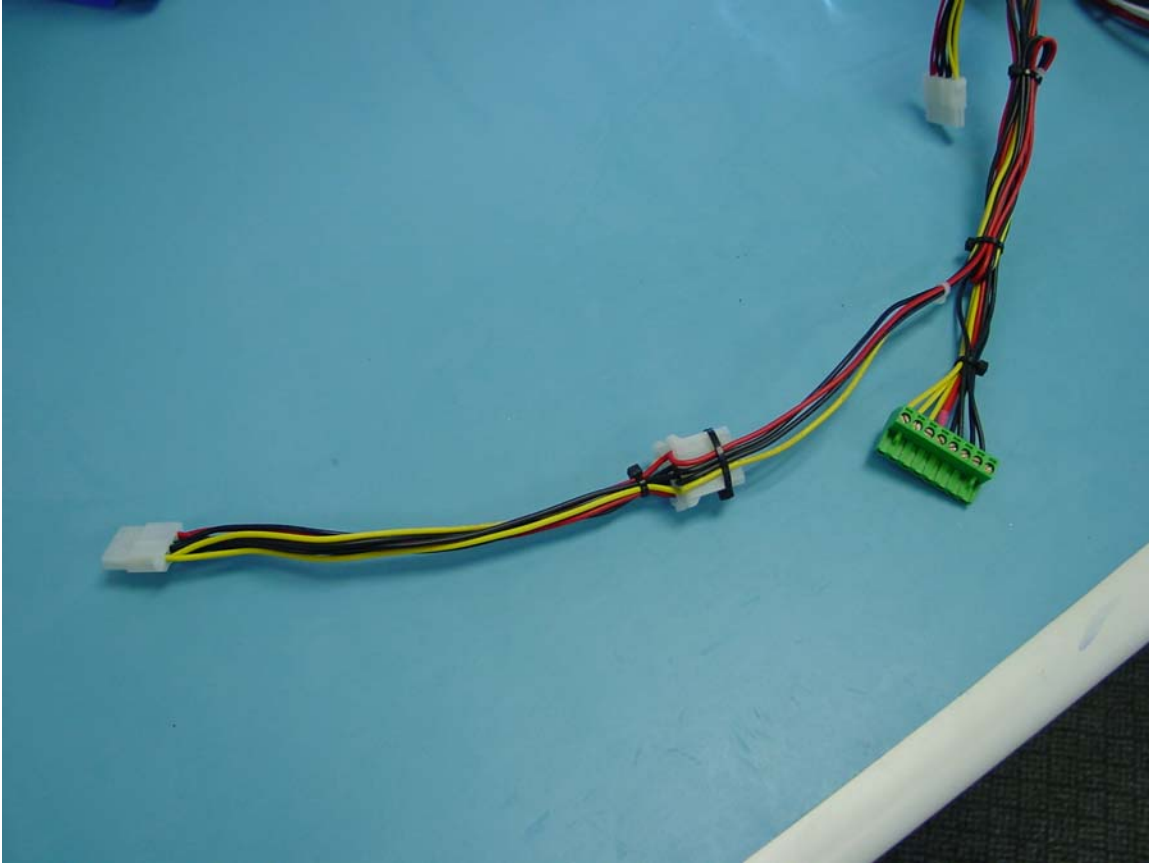


Figure 8: Backplane terminal block

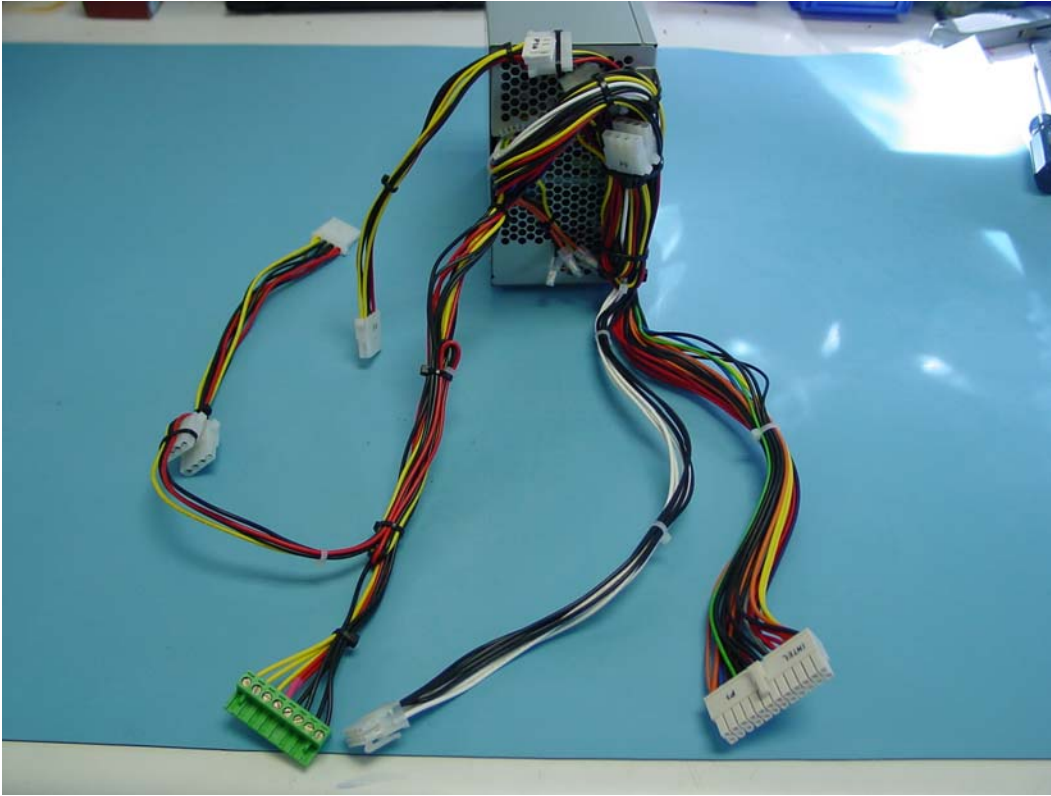


Figure 9: Before final cable dressing

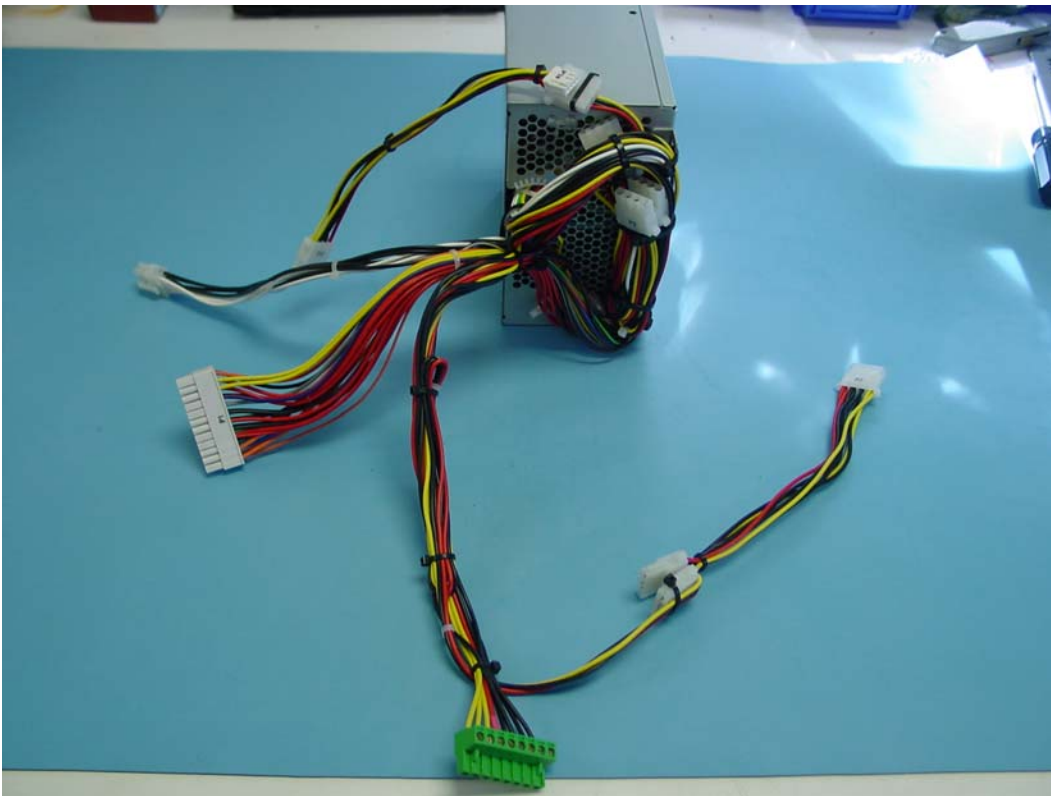


Figure 10: After final cable dressing

6. Install into the Chassis

Remove the top plate from the chassis. Remove the old power supply by disconnecting the power cables and removing the four back panel screws that hold the power supply to the mounting plate, the inner set of four as viewed from the back of the chassis. Lift the old power supply out the top and replace with the new assembly. Replace the four screws that mount the power supply to the rear chassis mounting plate. Reconnect the system power connections identically to how the old power supply was connected.