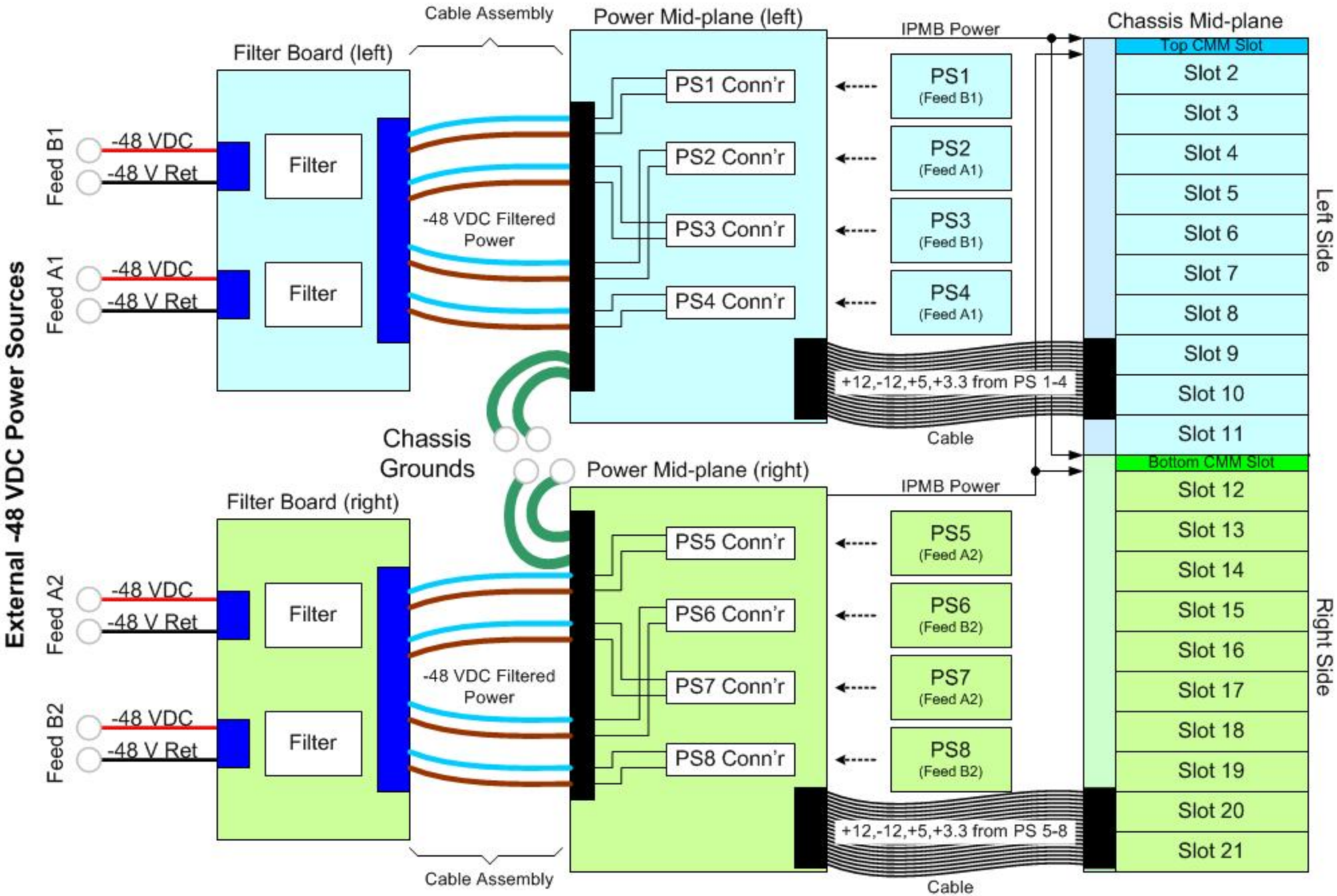
MPCHC5089DC Power Routing



The attached diagram shows how power is routed in the MPCHC5089DC system. This is a brief explanation to make it easier to understand. All left and right references to boards, power supplies, and the chassis are as viewed looking at the front of the chassis.

1. Four -48 VDC power feeds (A1, B1, A2, B2) enter the chassis at the left side of the diagram. Power flows from left to right across the diagram.

2. Feeds A1 and B1 are filtered through a filter board on the left side of the chassis. Feeds A2 and B2 are filtered through an identical filter board on the right side of the chassis.

3. The left filter board connects to the left power mid-plane through a large cable assembly. The right filter board connects to the right power mid-plane through an identical cable assembly.

4. Power supplies 1 to 4 plug into a power mid-plane on the left side of the chassis. Power supplies 5 to 8 plug into an identical power mid-plane on the right side of the chassis.

5. Because of the way the power mid-planes are wired, each of the four -48 VDC power feeds supplies power to only two power supplies as follows:
A1: PS2, PS4 B1: PS1, PS3 A2: PS5, PS7 B2: PS6, PS8

6. +12V, -12V, +5V, and +3.3V power from the left power mid-plane are connected to node slots 2 through 11 on the chassis mid-plane by a large cable. An identical cable connects power from the right power mid-plane to node slots 12 through 21.

7. Each of the two CMMs (Chassis Management Module) receives power from all eight power supplies through the IPMB_PWR. Therefore, if only one power supply is installed, in any slot, both CMMs will be powered. Other than the CMMs, the MPCHC5089DC has two completely independent power systems--one on the left side of the chassis and one on the right.

8. The top CMM only monitors the +12V, -12V, +5V, and +3.3V of the left four power supplies (PS1-4). The bottom CMM only monitors these voltages from the right four power supplies (PS5-8).

In summary, feeds A1 and B1 power only the left four power supplies and the left half of the node slots (slots 2-11). Feeds A2 and B2 power only the right four power supplies and the right half of the node slots (slots 12-21). For example, if you hook up -48V power to only one feed, only two power supplies and half the node slots will be powered.

Another key point is that if only the bottom CMM is installed, and up to four power supplies are installed in the left side of the chassis, the CMM will report that +12V, -12V, +5V, and +3.3V are all near 0V. Similarly, if the top CMM is installed, and the only installed power supplies are on the right side of the chassis, the four voltages will be reported as near 0V.