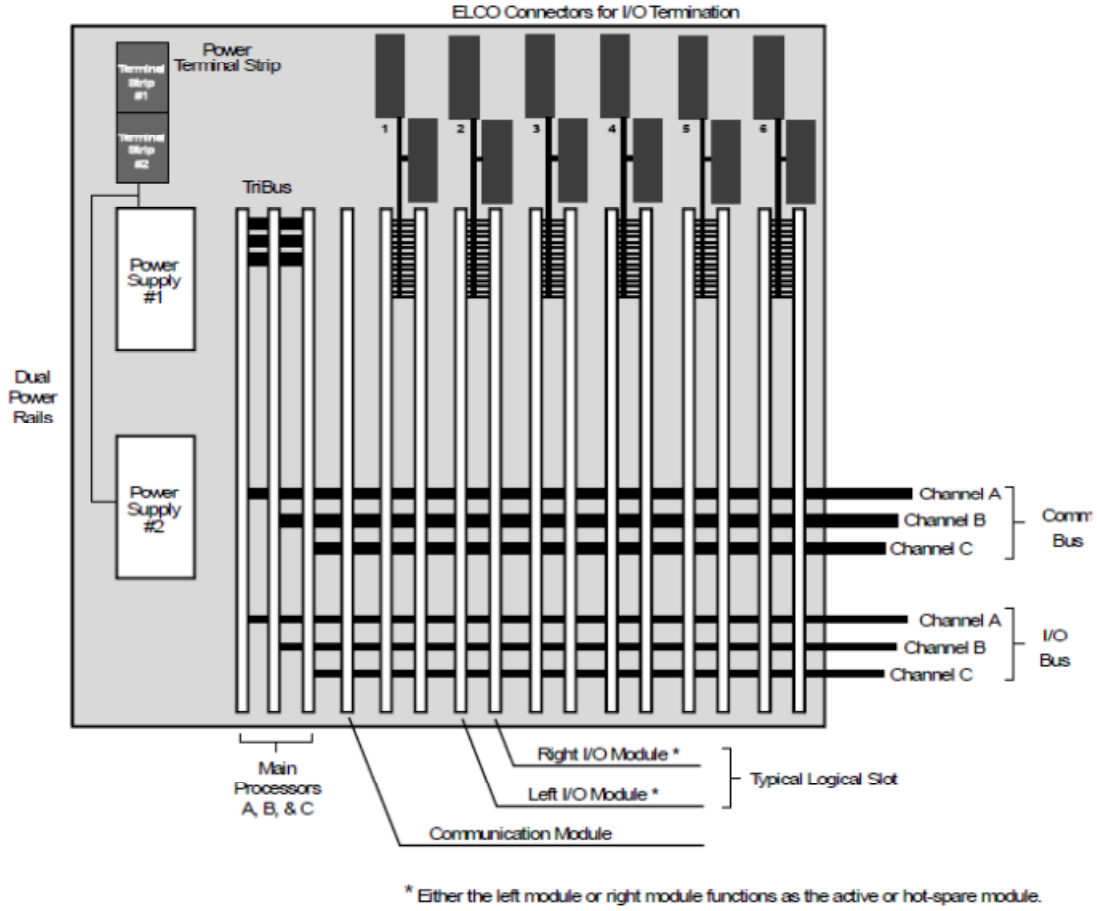

Figure 2-3 – Tricon V10 Chassis Backplane Configuration

3.1.2.3 8112N REMOTE EXPANSION CHASSIS

The remote expansion chassis are similar to the expansion chassis, but are used for remote locations, rather than locally. As such, each remote expansion chassis has remote extender modules (RXMs) that serve as repeaters or extenders of the Tricon V10 I/O bus to allow communications with the main chassis and expansion chassis within a channel or a division. A single remote RXM chassis or module would not be configured to communicate with more than one channel/division.

The Tricon V10 remote extender chassis uses the same type of power supplies as the main chassis, and has the same dual and redundant power bus arrangement. The 8112N remote expansion chassis was approved with the Tricon V9 and is unchanged as qualified with the Tricon V10.

3.1.2.4 4200N PRIMARY & 4201N REMOTE EXTENDER MODULES

RXMs are multi-mode fiber optic modules that allow expansion chassis to be located up to 1.2 miles away from the main chassis. An RXM connection consists of three identical modules, serving as repeaters/extenders of the Tricon I/O bus that also provide ground loop isolation.

Each RXM has single channel transmit and receive cabling ports. Each of the three 4200N Primary RXMs is connected to the 4201N remote RXMs housed in the remote chassis. Each pair of RXMs is connected with two fiber optic cables operating at a communication rate of 375 Kbaud. The interfacing cabling is unidirectional for each channel. One cable carries data transmitted from the primary RXM to the remote RXM. The second cable carries data received by the primary RXM from the remote RXM. The RXMs provide immunity against electrostatic and electromagnetic interference. The fiber optic cables provide Class 1E to Non-Class 1E isolation between a SR main chassis and a non-safety-related (NSR) expansion chassis.

The Tricon V9 was qualified with the 4210N and 4211N primary and remote RXM set which used single mode fiber optic cable. The V10 was qualified with the 4200N Primary and 4201N remote RXM set which uses multimode fiber optic cable. Both use the same software (see Table 2 above) and differ in the type of fiber optic cable that is supported. The V10 supported multimode fiber optic cable is capable of a 1.2 mile span while the V9 supported single mode version is capable of a 7.5 mile span. Though both RXM sets have been qualified, they are not interchangeable across the platforms because they were not qualified as interchangeable.

3.1.2.5 EXTERNAL TERMINATION ASSEMBLIES

The external termination assemblies (ETAs) are printed circuit board panels used for landing field wiring. The panels contain terminal blocks, resistors, fuses, and blown fuse indicators. The standard panels are configured for specific applications (e.g., digital input, AI, etc.). The thermocouple input termination panel provides cold-junction temperature sensors and upscale, downscale, or programmable burnout detection. The resistance temperature device (RTD) termination panels include signal conditioning modules. Each termination panel includes an interface cable that connects the termination panel to the Tricon V10 chassis backplane. The following ETAs were qualified with the Tricon V10 platform: 9794-110N PI, 9782-110N AI, 9561-810N DI, 9561-110N DI, 9664-810N DO, 9663-610N DO, 9563-810N DI, 9662-810N DO, 9662-610N DO, 9668-110N RO, 9667-810NDO, 9562-810N DI, 9795-610N AI, 9790-610N AI, 9860-610N AO, 9764-310N AI, and 9783-110N AI.

3.1.2.6 8310N2, 8311N2, AND 8312N2 POWER SUPPLY MODULES

All power supply modules are rated for 175 watts, which is sufficient to supply the power requirements of all configurations expected in SR applications. Two different power supply modules can be used in a single chassis. Three models are available to support different power sources: 120 VAC/DC (alternating or direct current), 230 VAC, and 24 VDC.

The power supply modules possess built in diagnostic circuitry to check for out-of-range voltages and/or over temperature conditions. Indicator light emitting diodes (LEDs) on the front face of each power module provide module status as follows:

Indicator	Color	Description
PASS	Green	Input Power is OK
FAULT	Red	Power Module is not OK
ALARM	Red	Chassis Alarm Condition
TEMP	Yellow	Over-temperature Condition
BATT LOW	Yellow	Battery Low Condition