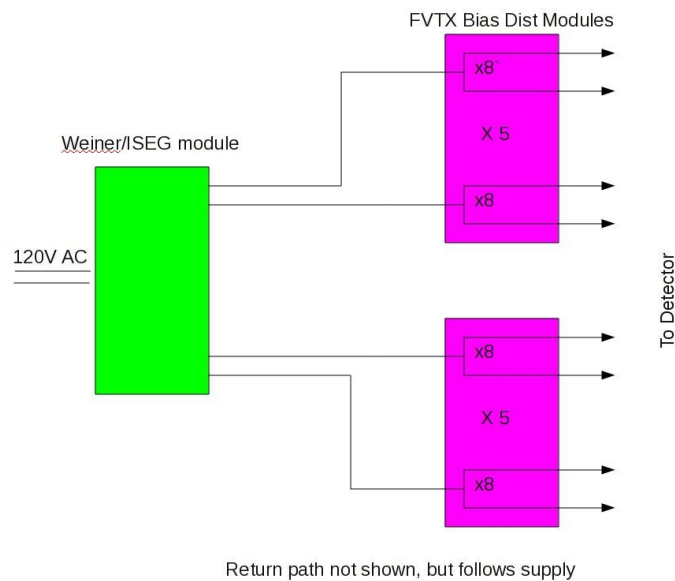


FVTX Power Distribution Overview:

The FVTX power distribution can be generally subdivided into 3 subgroups, bias power for the silicon detectors, wedge low voltage for the front end readout chips located on the silicon detector and low voltage for the Read Out Cards (ROCs).

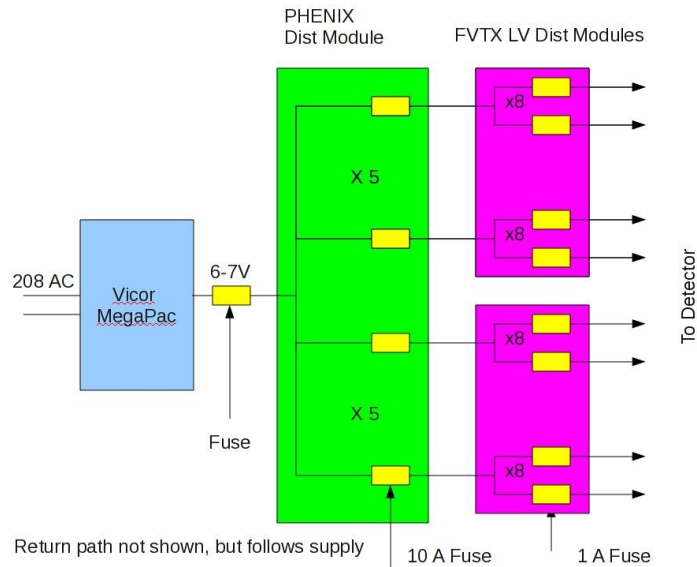
Bias Power:

Bias power is typically $< 100V$ at low current, $< 500nA$, per wedge. The bias power is provided by a commercial Wiener/ISEG system which provides 64 channels of bias current. Since the VTX requires of order 400 bias channels, each channel of the Wiener/ISEG system is split into 8 channels to provide the required number of channels on the FVTX bias distribution board. A block diagram of the distribution system is shown below. In addition to the 1-to-8 channel split, the FVTX bias distribution card also provides AC noise isolation and individual channel switching.



Wedge Low Voltage

Each FVTX wedge requires two voltages designated analog and digital voltage to operate. Both voltages are nominally 5V at $< 1A$ each. This power is derived from a commercial Vicor MegaPak bulk supply. It is then split into 10 channels, using the PHENIX standard LV distribution cards. In order to achieve the large number of channels required, 2×400 , each output of the PHENIX distribution card is split into 8 channels using the FVTX LV distribution card. A block diagram of the FVTX LV distribution is shown below. In addition to the 1-8 channel split, the modules also provide AC isolation channel switching, and fusing.



ROC Power:

Since the ROCs require relatively high power LV compared to the wedge LV, all LV for the ROC cards is provided using PHENIX standard LV distribution cards.

We are asking for a preliminary review of the FVTX distribution modules in order to proceed with fabrication of the boards. For your reference I have attached documentation on the PHENIX Standard LV distribution system and the Wiener/ISEG Bias power system. We understand that a full safety review will still be required prior to operation which will include all cabling fusing and components.