



Figure 11-3: A Cut-Away View of the PEPSSI FOV

11.1.3 PEPSSI Electronics Description

Extensive uses of miniaturization and custom electronic⁵ in the design allow PEPSSI to weigh less than 1.5 kg and consume less than 1.4 W. PEPSSI is made up of six modular 4"x4" slices. They consist of:

- 1) Energy board;
- 2) High Voltage Power Supply (HVPS);
- 3) TOF board;
- 4) Digital processing board;
- 5) Common event processor board; and
- 5) Low Voltage Power Supply (LVPS) board.

Figure 11-4 shows the exploded view of PEPSSI with each board labeled. A brief description of the functionality of each board is highlighted below.

Energy board:

The energy board is the interface between the SSDs and the signal conditioning electronics. It houses the sensor, MCP anodes, charge amplifiers, pulse shapers, etc. In addition, it also outputs the pulse signal from the 6 start anodes and 1 stop anode.

HVPS board:

The HVPS board contains the high voltage (HV) drive circuitry, HV transformer, and its control circuitry. It provides HV up to -2900 V for the sensor electrostatic lens and MCP bias. In addition, the HVPS also needs to provide bias voltage over the range of 0 to -200 V with <10 mV ripple.