The Initial Design of Digital Electronics and Software of FIMS

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The initial design of digital electronics and software of FIMS (Far-ultraviolet Imaging Spectrograph) has been accomplished for developing the electrical test bed. Electrical and data interfaces are designed to meet the specifications between the spacecraft, which includes the Node Controller 4, Mass Memory System (MMS), and Global Positioning System (GPS), and FIMS. The microprocessor, DSP32C, satisfies the requirements for detector and housekeeping electronics: the MIPS analysis proves that the maximum photon input rate, which is assumed to be 2800 photons per seconds, can be acquired by DSP32C and be transferred to MMS. To provide the precise time information, the time synchronization with GPS is implemented in the design. We use FPGA chip to optimize the size, mass, and power of the circuit. The ETB is under manufacturing at this moment and is preparing for the integration test with other systems in according to the development schedule of KAISTSAT-4.