



FG-1

Frame Grabber

Satellite Payload & Data Acquisition

The FG-1 is a state-of-the-art Cubesat satellite board, specifically designed for capturing high-quality images from a CameraLink camera in a Cubesat satellite. This device embodies the latest advancements in space technology, ensuring optimal performance even in the harsh conditions of space.



Reliability and Efficiency

The FG-1 is built to withstand the rigors of space travel, providing consistent performance throughout its lifespan. It operates efficiently within a temperature range of -40 to 85 degrees Celsius and adheres to the launch vehicle shocks and vibrations.



Core Architecture

At the heart of the FG-1 lies the Actel/Microsemi Flash-based FPGA, immune to Single Event Upsets (SEUs). It supports Power Over CameraLink (PoCL) with an onboard On/OFF switch and CameraLink UART configuration. The FG-1 is capable of handling complex computations and data processing tasks, making it an invaluable asset for any imaging Cubesat mission.



1. Actel/Microsemi Flash-based FPGA immune to SEUs
2. Supports Power over CameraLink (PoCL) with onboard On/OFF switch
3. CameraLink UART configuration support
4. High-Speed QSPI LVDS Data interface to OBC/Master/Communication Link
5. Configurable CAN, UART(RS422/RS485/RS232) and I2C Serial Interfaces on Cubesat connector
6. Direct UART connection to GPS for Location Tag, Up to 430bytes of Custom Tag per image
7. Can source up to 5A to Camera



Budget

Input Voltage:

Single 12V or 5V and 12V

Power Consumption:

<1W for FG-1 Board

Mass:

75gr

Dimension:

Cubesat standard



Environment

Temperature:

-40 °C to +85 °C @ 10⁻⁸ bar

Radiation Hardness:

30Krad (Si)/yr, SEE @ 60MeV

Latch-up Immune

Shocks:

ISS CubeSat Deployer Compatible

Random Vibrations:

ISS CubeSat Deployer Compatible



Interfaces

CAN2.0

High Speed QSPI LVDS Payload

Configurable UART and I2C

Optional Micro-D for Control

SDR26 Medium/Full Camera Interface



Memory

NAND Flash:

Up to 64Gbit SLC with ECC and EDAC protection

Serial Memory:

FRAM/MRAM

DRAM:

1Gb with optional ECC and EDAC