ibeos

EDGE Payload Processor

OVERVIEW

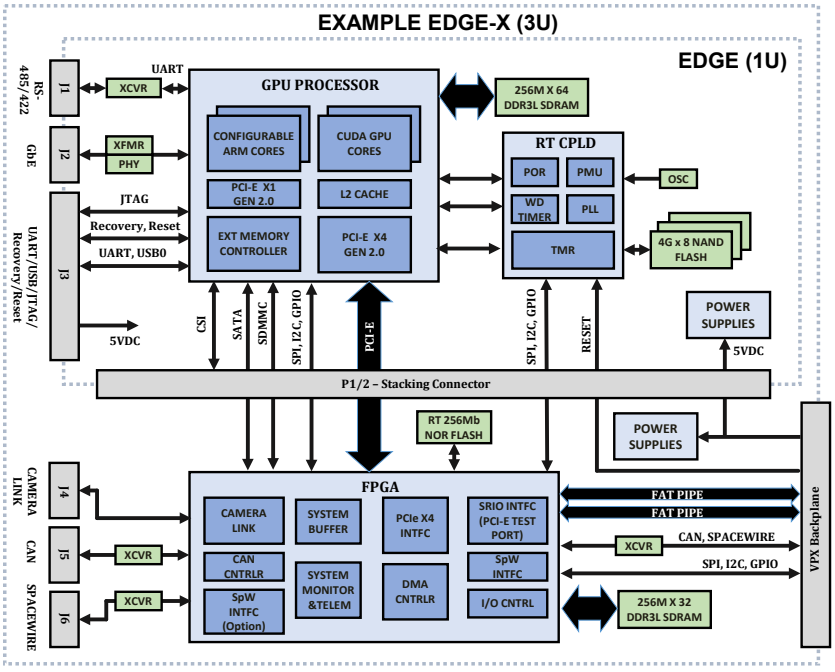
Ibeos' EDGE Payload Processor is a radiation tolerant, high performance, and flexible platform capable of order-of-magnitude processing improvements over state-of-the-art spacecraft computers. The EDGE's architecture is built around highly parallelizable graphics processing unit (GPU) technology. The card provides a 192-core GPU as its primary compute engine, within a radiation tolerant architecture, providing on-orbit computational throughput that is unrivaled at the EDGE's size, weight, and power. The EDGE enables a new generation of highly capable and affordable on-orbit processing in a package suitable for most spacecraft.

POTENTIAL MISSION APPLICABILITY

- Image manipulation, comparison, acquisition, and processing
- RF signal processing
- Computer vision for proximity and remote docking ops
- Software defined radio and channelizing
- Synthetic aperture radar (SAR) data processing
- Data packetization and compression

EDGE EXPANDER OPTION (EDGE-X)

Ibeos' EDGE Processor is available in a 1U form factor to be easily used in a CubeSat architecture. The base EDGE card is also available with a customizable 3U expansion card for easy integration into a 3U SpaceVPX chassis. The 3U expansion card enables a selection of additional high-speed data interfaces to the backplane, broken out through a radiation-tolerant FPGA.



Common Specification

Input Voltage	+5.0V
Max Clock Speed	2 GHz
Comp. Throughput	> 300 GFLOPS
Operating Temp.	-40 to 105 °C
Radiation Tolerance	> 30 kRad (Si)

Available Form-Factors

- EDGE-1U: 1U Standard CubeSat
- EDGE-X: 3U Customizable SpaceVPX carrier card

Primary Processing

- 192 CUDA GPU cores
- Quad-core ARM CPU configurable for low power applications

Memory

- 2GB DDR3
- 4GB TMR NAND Flash

Software

- 32-bit Linux for Tegra (R21.6)
- CUDA 6.5 Supported
- UART and Ethernet GSE Development Interfaces Available
- Trusted operating systems and hypervisors available on request

Inquiries

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1U EDGE

Overview

The 1U form-factor EDGE provides state-of-the-art processing capability in a size, weight, and power envelope that is compatible with CubeSat standards.

High-speed data, command, and control interfaces further enable integration flexibility. The EDGE card's expansion header provides for custom carrier card development and even greater mission applicability and interface flexibility.

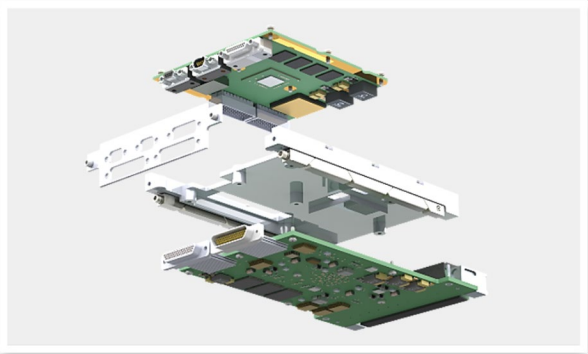
Standard Interfaces

- Gigabit Ethernet
- RS-485, RS-422
- PCIe x4
- UART, SPI, I²C, GPIO
- Camera Serial Interface
- SATA 2.0
- SDMMC

Unique Specifications

Mass	150g
Typ. Operating Power	<15W

3U EDGE-X



Overview

The 3U VPX form-factor EDGE-X provides significantly enhanced processing capability in a marginally larger size, weight, and power footprint. The EDGE-X is designed to seamlessly integrate into a SpaceVPX processing architecture.

Additional high-speed data interfaces are provided standard and are available via the VPX backplane and faceplate.

Fully customized EDGE-X carrier cards, specific to your mission needs, are available upon request.

Additional Interface Options (

- 10 Gigabit Ethernet
- 2x SRIO Fat Pipes
- CameraLink Full/Deca
- 2x SpaceWire
- CAN

Unique Specifications

Mass	400g
Typ. Operating Power	<25W

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