Airborne Innovations LLC

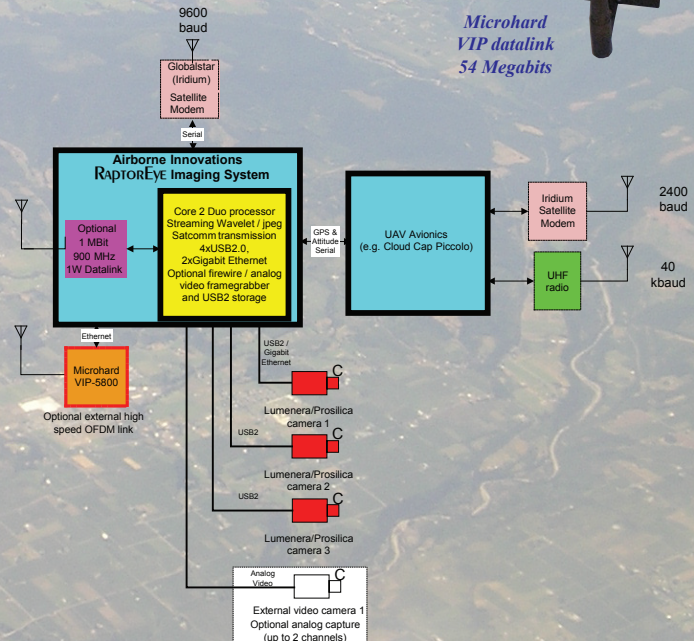## RaptorEye Multi-Megapixel UAV Imaging System

Rapid realtime image and metadata transmission

High Performance Imaging System with integrated or external UHF broadband datalink, transmits high performance streaming multi megapixel large format images and metadata, also supports low bandwidth Iridium / Globalstar satcomm image transmission for beyond line of sight missions.

RaptorEye is a UAV imaging solution capable of transmitting multi megapixel rapid streaming images over an optional integrated 1 megabit 900 MHz / 2.4 GHz link, or over other broadband datalinks such as the 54 megabit Microhard OFDM VIP900/2400/5800 links, and over the Globalstar and Iridium satcomm systems. It integrates well with the Cloud Cap Piccolo avionics, or can function standalone. It can provide rapid compression, transmission, and onboard archiving of imagery from multiple high performance digital cameras optionally mounted in the Cloud Cap TASE family of gimbals.

Supports 2 to 16 megapixel families of Prosilica, Lumenera, and other user configurable cameras
Compression and resolution selectable so the user can trade off quality and transmission time

- Dual Gigabit ethernet / 4 USB2, Firewire / analog video inputs possible
- optional internal megabit datalink
- Supports external Microhard VIP datalink
- Iridium satcomm image transmission option
- up to 32GB+ onboard image storage
- Wavelet / JPEG / Raw / TIFF image formats
- Integrated support for the Prosilica and Lumenera families of multi megapixel cameras, other USB2/gigabit ethernet/firewire/analog cameras possible
- Hardware and flight plan based image acquisition triggering
- Extremely high computing performance, scalable to available power (also with low power options to tune requirements to your system)
- Optional firewire / analog video capture, 2xRS232/RS422, GPIO
- High compression performance capable of supporting realtime image downlink of very large format images (i.e. 2 to16 megapixel)
- Multiple camera support, user customizable cameras
- Cloud Cap Piccolo Ready
- Integrates with Cloud Cap TASE gimbal family
- Piccolo / NMEA metadata
- Supports satcomm (Iridium and Globalstar ready) or other transparent serial or ethernet UHF datalinks
- Video output available for video processing, WUXGA and composite/component out
- Optional encryption (non-export version)
- Supports a wide variety of off-the-shelf multi-megapixel industrial and consumer-level digital cameras (standard cameras + user configurable)
- Ready to use camera and compression module, or customizable to a variety of camera and image capture solutions.
- GPS and aircraft attitude metadata input
- Onboard image storage available, USB2.0 storage options available
- EMI Shielded Carbon Fiber Box
- Open imaging platform for custom applications
- Source code licensing available

Prosilica 16 megapixel camera

courtesy Arcturus

CCT TASE gimbal with 5 megapixel Prosilica / Lumenera

Lumenera 2 megapixel camera

Microhard VIP datalink 54 Megabits

Block diagram labels

9600 baud

Globalstar (Iridium) Satellite Modem

Serial

Airborne Innovations RaptorEye Imaging System

Optional 1 MBit 900 MHz 1W Datalink

Core 2 Duo processor Streaming Wavelet / jpeg Satcomm transmission 4xUSB2.0, 2xGigabit Ethernet Optional firewire / analog video framegrabber and USB2 storage

GPS & Attitude Serial

UAV Avionics (e.g. Cloud Cap Piccolo)

Iridium Satellite Modem — 2400 baud

UHF radio — 40 kbaud

Ethernet

Microhard VIP-5800

Optional external high speed OFDM link

USB2 / Gigabit Ethernet

Lumenera/Prosilica camera 1

USB2

Lumenera/Prosilica camera 2

USB2

Lumenera/Prosilica camera 3

Analog Video

External video camera 1 Optional analog capture (up to 2 channels)

Specifications:
Power: 9-36V input, power scalable to requirements, configurations available as low as 5W, up to 24W avg / 34W peak at highest performance (Core 2 Duo) Optional internal Microhard megabit link adds ~12W
Weight: ~545 grams with integrated 1 megabit radio, ~400 grams without radio
Size: 1.93"x4.59"x6.6" (49x117x168mm)

Some of our customers:

INL Idaho National Laboratory · advanced ceramics research · aerosonde · RAVEN

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