



Rocket Systems Test Platform

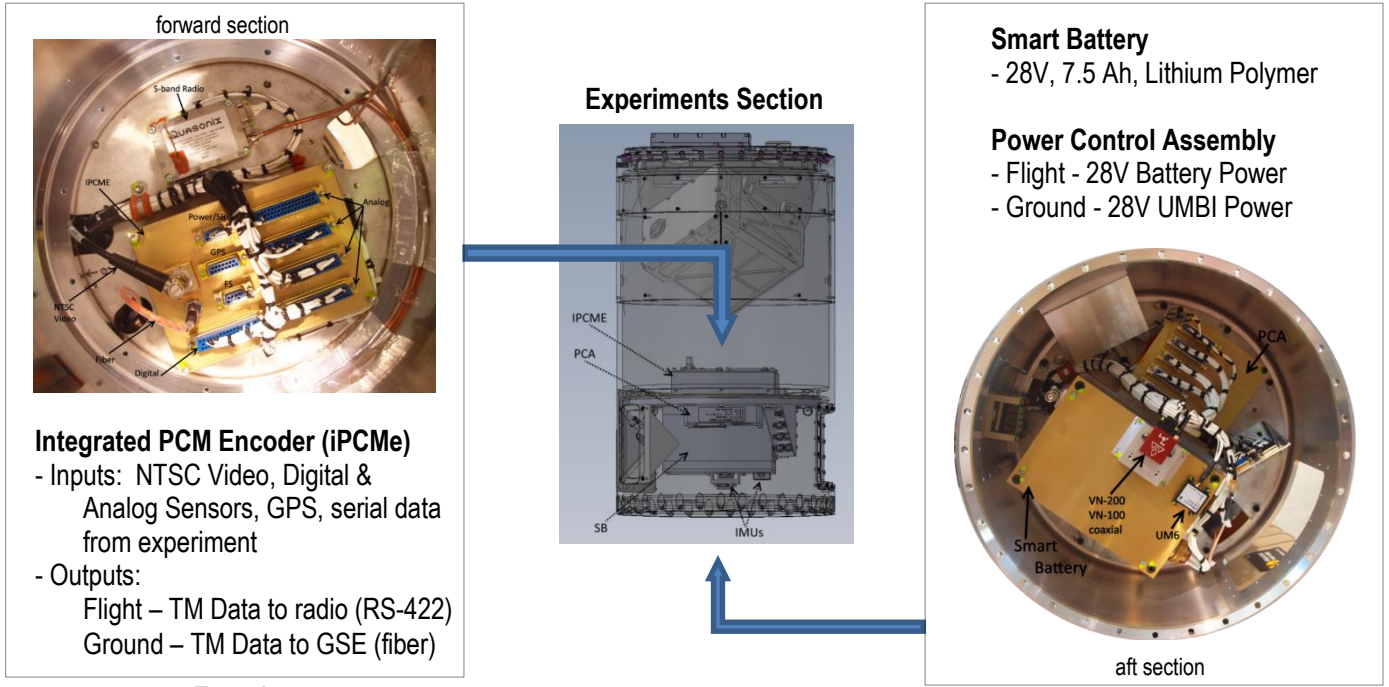
CTREX

Telemetry, PCM Encoder, Power Control, Smart Battery

INVOCON, INC.

TECHNOLOGY PROFILE 0815

CTREX is a rocket systems flight test platform. The vehicle's initial flight was used to test and compare the performance of a new C-Band telemetry concept alongside the standard S-Band telemetry used on most flight test ranges. The Invocon equipment on this flight was responsible for both internal and external power, power control, data collection from various sensors and video, telemetry, and radio transmissions for the Experiment section.



Integrated PCM Encoder (iPCMe)

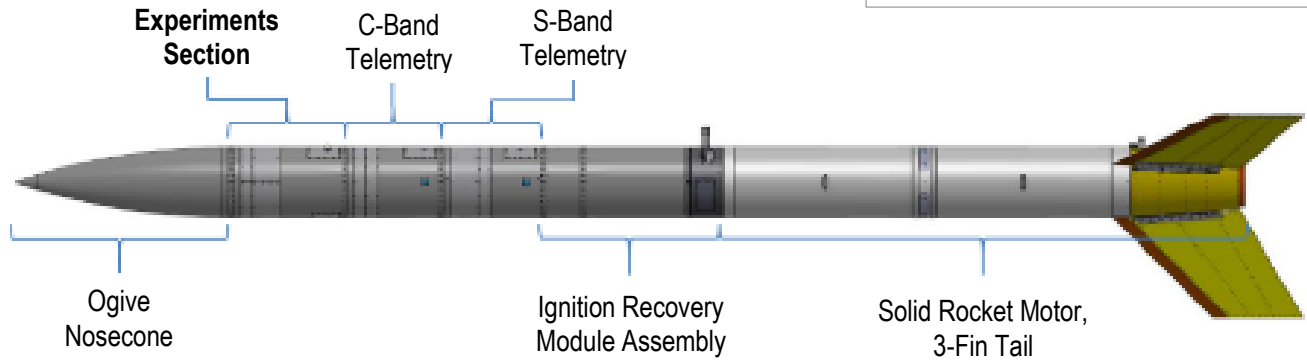
- Inputs: NTSC Video, Digital & Analog Sensors, GPS, serial data from experiment
- Outputs:
 - Flight – TM Data to radio (RS-422)
 - Ground – TM Data to GSE (fiber)

Smart Battery

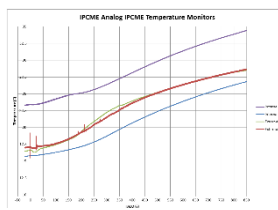
- 28V, 7.5 Ah, Lithium Polymer

Power Control Assembly

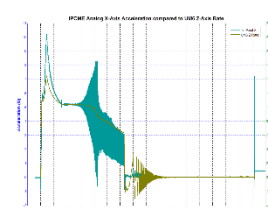
- Flight - 28V Battery Power
- Ground - 28V UMBI Power



Video Output (curvature of earth)



iPCMe Analog Temp Data



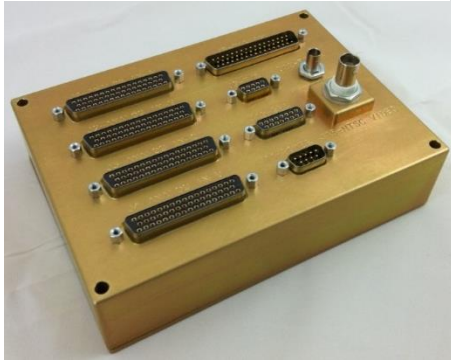
iPCMe Synchronized Vibration Data



Invocon Rocket / Missile Systems

iPCMe

Integrated PCM Encoder



- PCM Encoder – 100+ Channels
 - Analog, Digital, Video
- Digital Inputs & Outputs:
 - Configurable inputs: RS-422, RS-232, LVDS, and TTL
 - Serial UARTS
 - Dedicated TM output to radio or encryptor
 - Dedicated PCM output with *Capture Link*TM
 - digital and fiber
 - hit detection systems interface

Lithium Ion Polymer Smart Battery



- Rechargeable Lithium Ion Polymer Battery Technology
- High Energy Storage and Power Delivery Density
- Documented History of State of Health & State of Charge
- Benefits:
 - Longer Operation Between Charging
 - Dependable Operation with High Inrush Currents
 - Direct Replacement of Simple Older Batteries
 - Small Size, Lightweight
 - 10 year Shelf Life

PCA

Power Control Assembly



- Switched & Unswitched 28V Outputs
- 5V Auxiliary Output
 - Configurable Source (switched, unswitched)
- Battery Power Input
- UMBI/Lanyard connection
- Health and Status output
 - Voltages and currents connected to iPCMe analog channels
- 4.9 x 4.4 x 1.4 inches
- Weight: 1.5 pounds