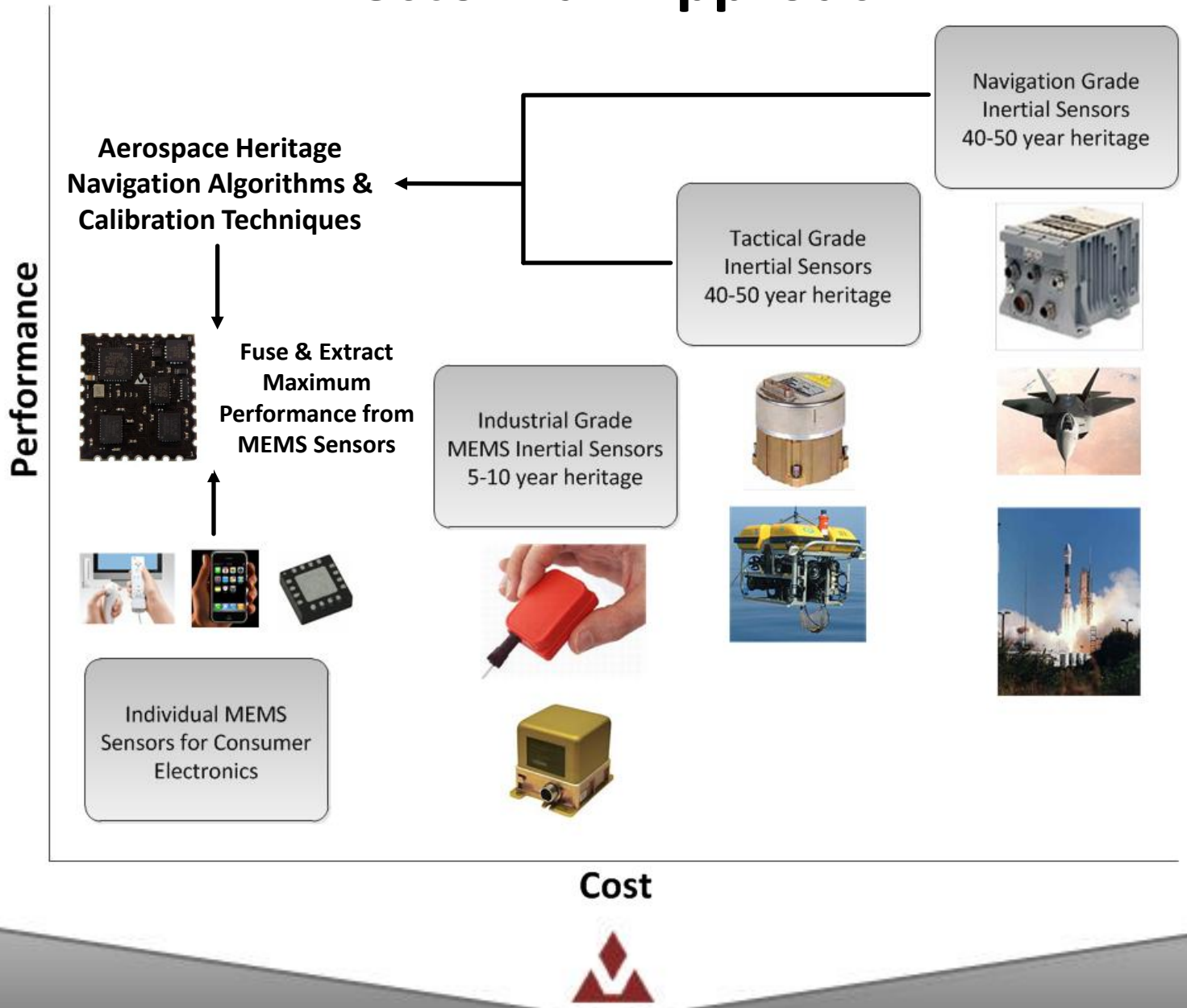

VECTORNAV
Embedded Navigation Solutions

VectorNav Company Profile

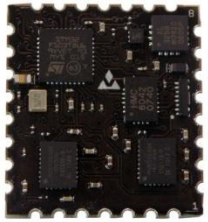
- Founded in 2008
- Specialize in MEMS Inertial Sensors
  - Sensor Fusion Algorithms
  - Calibration
  - Integration & Customized Sensors
- Expertise in Inertial Navigation & Controls
- Customers in Over 50 Countries
  - Robotics
  - Consumer Electronics
  - Medical
  - Aerospace
  - Marine
  - Entertainment
- Located in Dallas, Texas USA

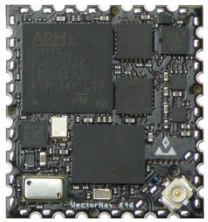
VectorNav Approach

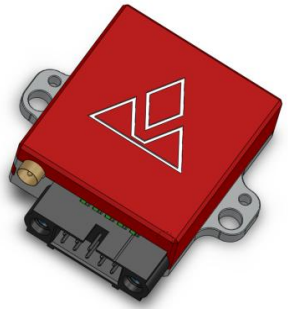


VectorNav Products

- VN-100 & VN-100 Rugged
  - Industrial Grade Attitude Sensor
  - Surface Mount and Aluminum Enclosed Versions
  - Fully Calibrated Over Industrial Temperature Range (-40C to +85C)
- VN-200 & VN-200 Rugged
  - GPS-Aided Inertial Navigation System (INS)
  - Onboard Commercial GPS Receiver
  - INS filter Compatible with Internal or External GPS & Pressure Measurements
- VN-100/VN-200 Wireless (Q3 2012)
  - Bluetooth & Wi-Fi Options
  - Li-Ion Battery for 3-5 Hours of Operation
  - Extended Data Logging Capability
- Vector Processing Engine
  - Sensor Fusion Software

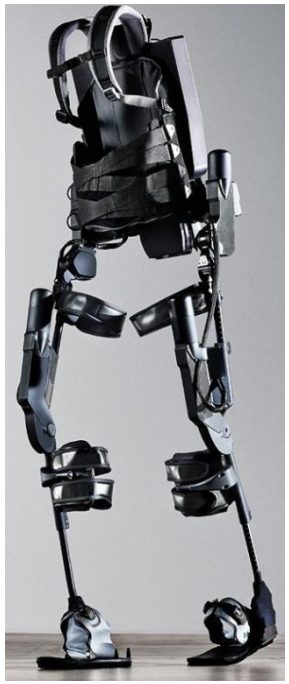






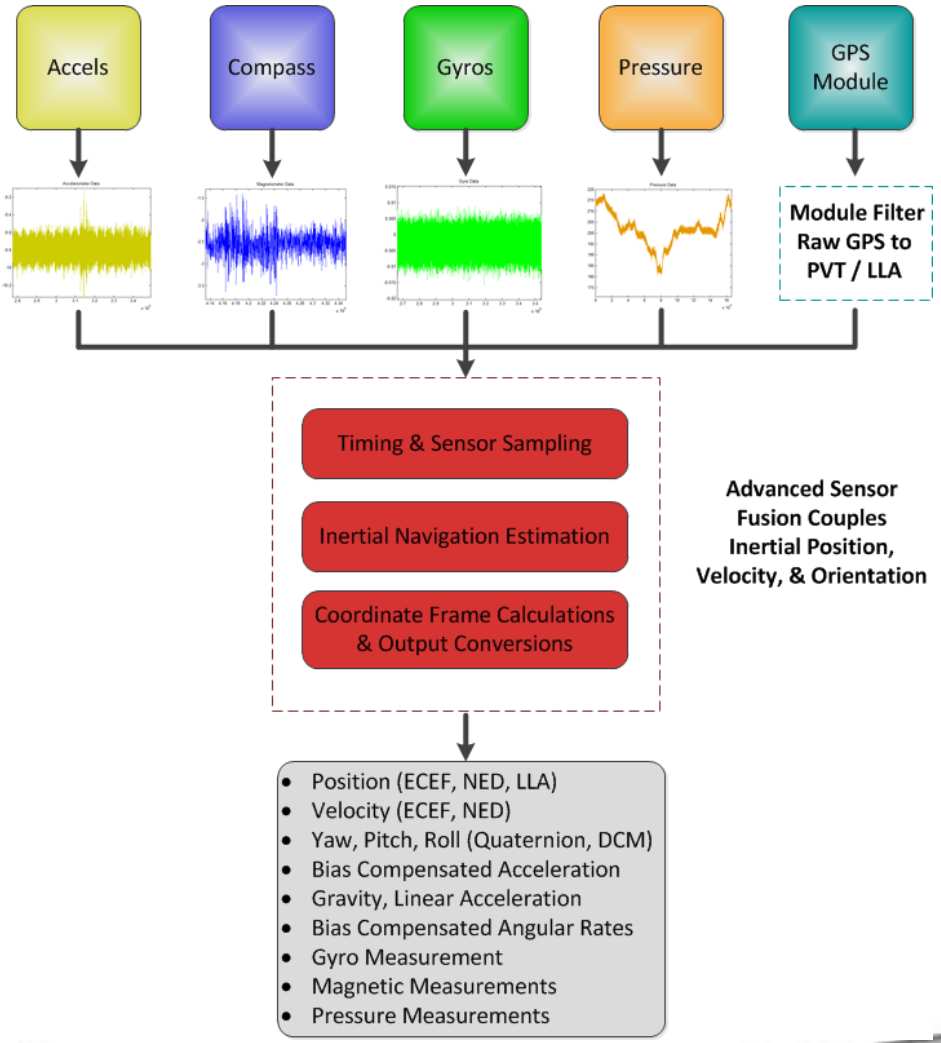
Application Examples

- Consumer Electronics
  - Augmented Reality
  - Virtual Reality
  - Pedestrian Navigation
  - Image Stabilization
- Robotics & Unmanned Vehicles
- Ground Vehicles
- Human Applications
  - Navigation HUD
  - Body Motion Capture
  - Human Exoskeletons
- Camera & Antenna Stabilization
- Surveying & Mining

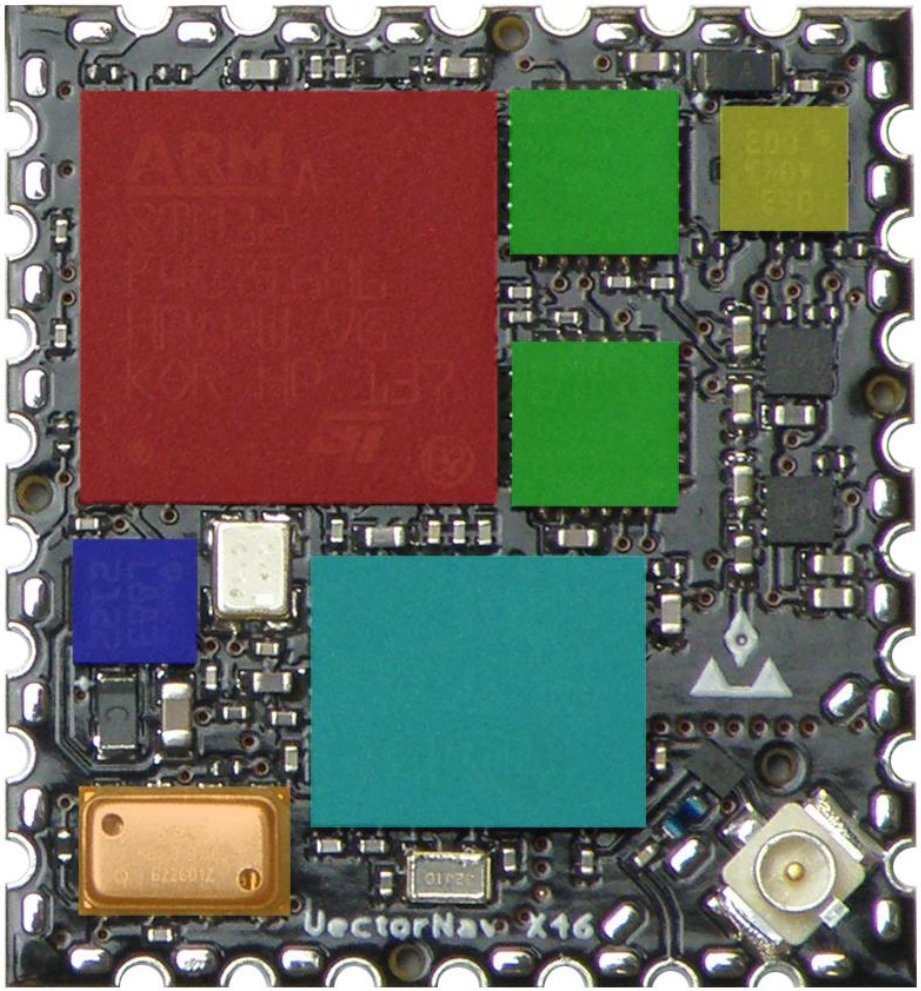


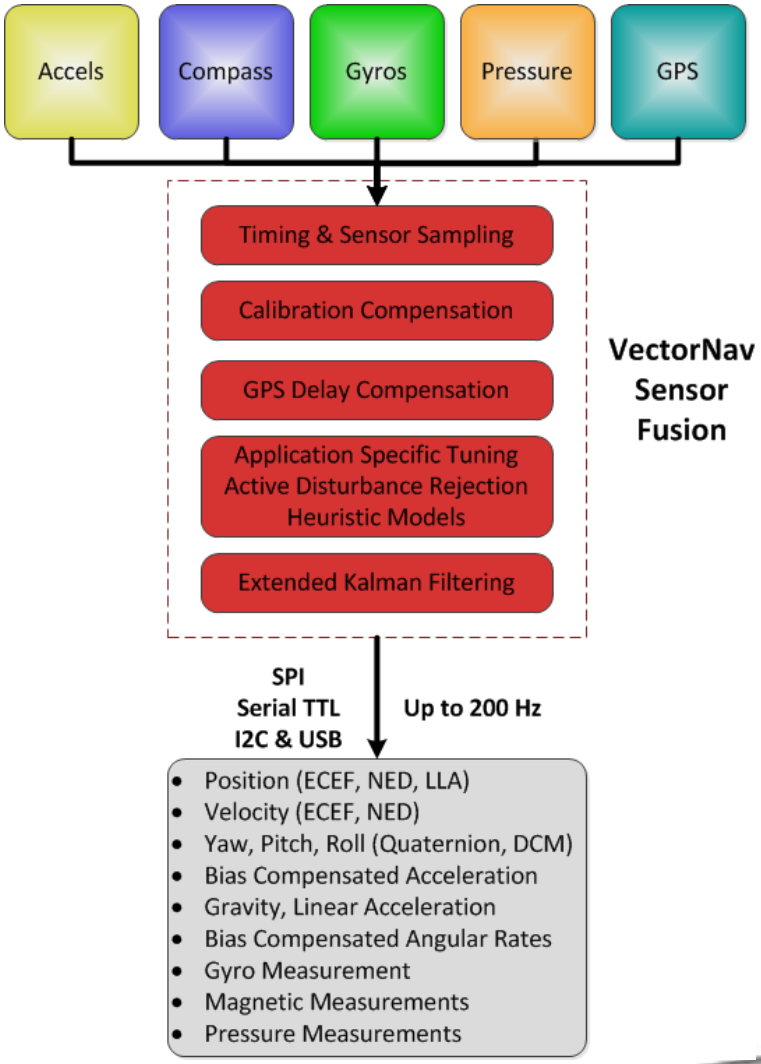
Advanced Sensor Fusion

- Inertial Navigation Systems
  - Incorporates Additional GPS & Pressure Measurements
  - Couples Position, Velocity, & Orientation Estimates
  - Provides More Robust Orientation Estimates Under Dynamic Operating Conditions
  - Provides Additional Observability of MEMS Sensor Biases, Scale Factor, & Other Error Sources



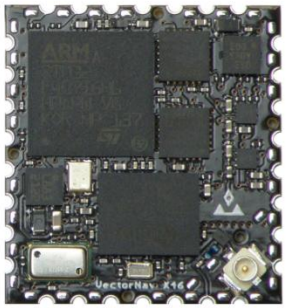
Vector Processing Engine 2.0

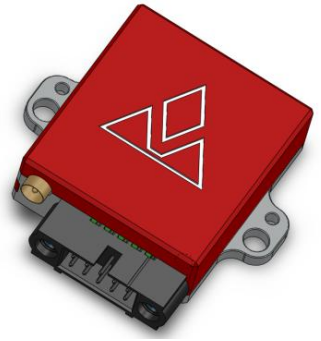




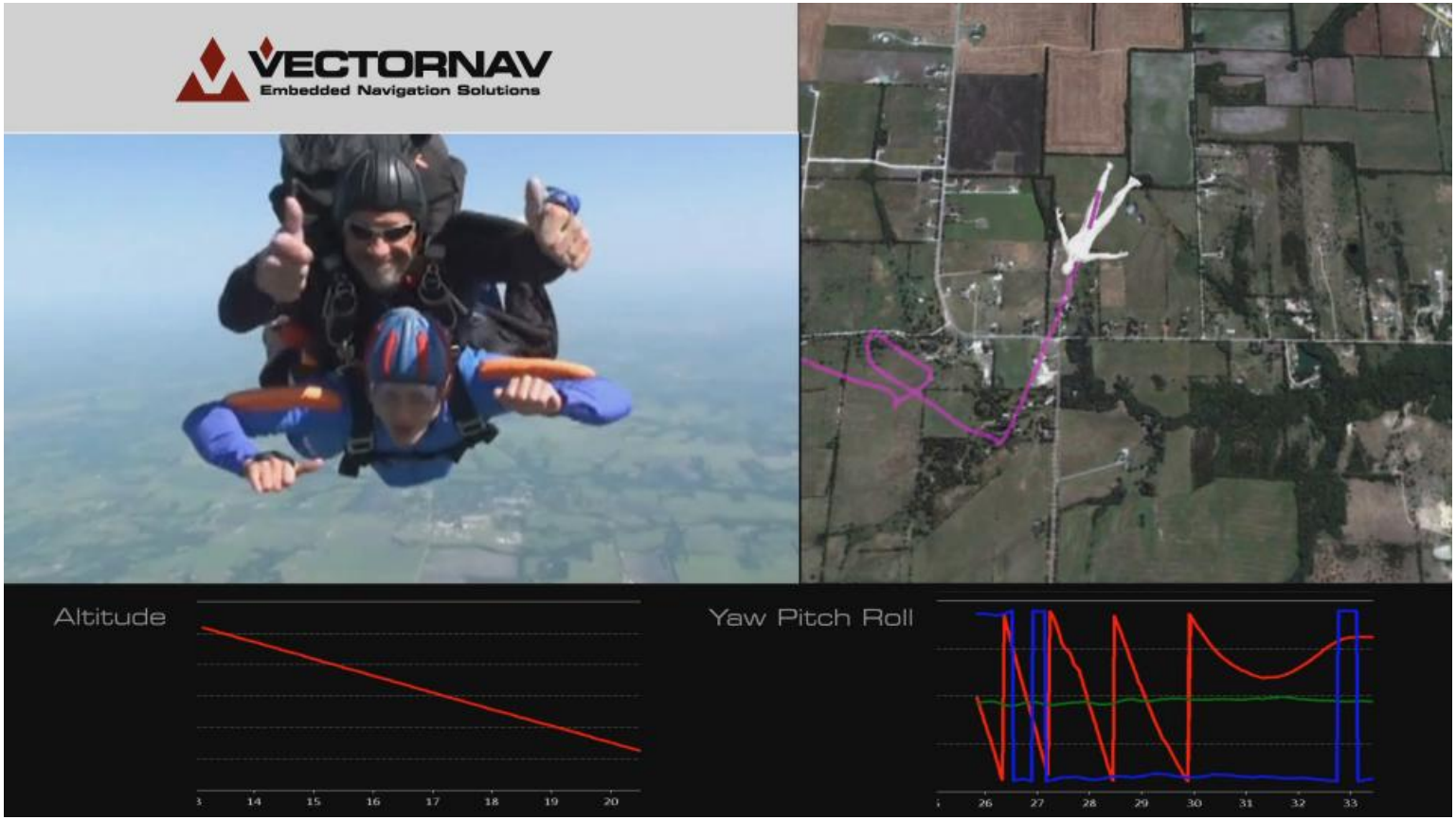
VN-200 GPS/INS: Features

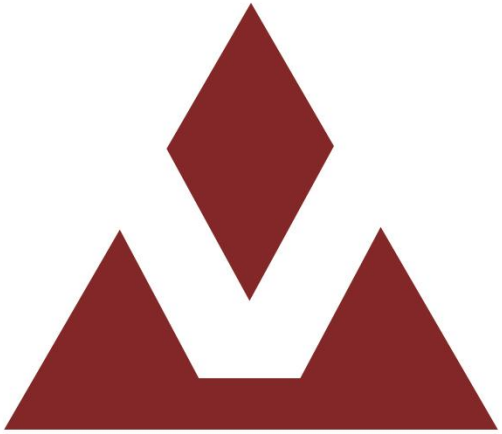
- Incorporates VN-100 AHRS Features Including:
  - Real-Time Sensor Bias Compensation
  - Active Filter Tuning
  - Disturbance Rejection Algorithms
  - Individually Calibrated Sensors
  - Filtered Attitude at 200 Hz
- Onboard Pressure Sensor and U-Blox Commercial GPS Receiver
- Onboard Extended Kalman Filter Fusing GPS and Pressure Sensors with Accelerometers, Gyros, Magnetometers
- Compatible with External GPS, Pressure, or Magnetic Measurements





Application: Skydiving





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