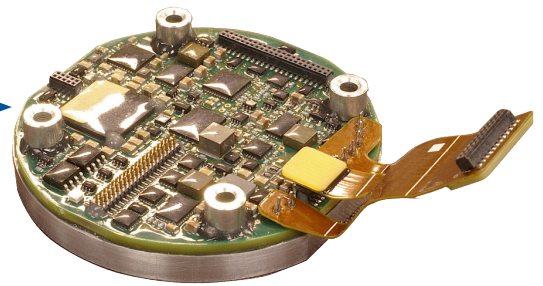


Guidance Electronics Unit (GEU)



**Guidance
Electronics
Unit (GEU)**



GEU CCA

Designed for harsh environments &
20-year shelf life

Prevents accidental firing when severe
shock is encountered

Operational after extreme flight vibration
levels up to 300Hz

Protects against centrifugal force damage

Ruggedized platform that mitigates risk of
electrical shorts

Overview

Precision Guided Munitions have become an essential dimension in warfare. Our Guidance Electronics Unit (GEU) provides an integrated hardware and software solution designed to deliver a reliable 'Compute and Control' platform for data fusion and algorithm implementation. Developed by General Dynamics Missions Systems, the GEU is designed to be resilient even in the most austere environments. Regardless of the munitions used today, the GEU is a customizable solution designed for the technology of tomorrow's warfighter.

Key Features

- Single board solution without DDR
- Two board solution supports DDR and Magnetometer options
- Information Assurance (IA) & Security Features
 - Trusted boot sequence upon loading the Boot Image
 - HMAC/AES design for local authentication and encryption
 - Hardware partitioning for mission critical data
- Testability
 - Accessible test interfaces and user serial ports via the Microcontroller and the SoC
 - Extensive test-point coverage on back of board to enable high level of factory test automation; 177 accessible test-points
 - On-board recording used to collect performance data

Guidance Electronics Unit (GEU)

Technical Specifications

Mission Ready

- **Passive Clearing:** Mission Data stored in volatile memory and removed when transitioned to an OFF State
- **Zeroization for Temporary Key Storage:** GPS crypto variables cleared using an overwrite algorithm in accordance with GPU-PRD-105-A1

Dimensions & Weight

- Dimensions:
 - Board Thickness .082"
 - Board Thickness with components .512"
 - Board Width 2.375"
 - Weight: .87 oz

Environmental Specifications

- Operating Temperature: -25°F to +145°F
- Operating Altitude: -2,000' up to 70,000'
- Transportation Shock and Vibration
- MIL-STD-810G with Change 1, Method 514.7, Procedure I – General Vibration, Transportation, Category 4 Common Carrier Compliance

Performance

- Power-up to operational time in less than 1000 ms
- Data Hold Solution provides 3.3V to the GEU and subsystems beyond 7:45 minutes

Customizable Subsystem Interfaces

- CAS 40-pin Interface
- External/Setter Interface via the CAS Interface
 - Single interface for all maintenance activities and loading setting data
 - RS422 to RS232 conversion
 - Autopolarity correction
 - 10PPS Timing Pulse used to create a timing reference for the system
- HOB/TM via the CAS Interface
- IMU 10-pin Interface
- GPS 40-pin Interface
- Fuze 12-pin Interface
- Thermal Battery 6-pin Interface
- Super Capacitor 2-pin Interface



Processor

- Single Core Processor
- Up to 768KB of Memory (L2 Cache 512KB & On-Chip Memory 256KB)
- JTAG Debugging Mode

Microcontroller/Power Manager

- Up to 40 I/Os
- Operating Supply Voltage 1.8 V to 3.6 V
- Power sequencing to distribute inrush power demand
- JTAG Debugging Mode

Power

- GEU draws 18-24VDC up to 40W from the External/Setter interface when connected

Electromagnetic Interference (EMI)

- Provides EMI/ESD protections External/Setter interface
- External/Setter interface is de-energized in less than 10 seconds after being disconnected from the socket

Lightning and Grounding

- Complies MIL-STD-464 Near Strike Lightning
- Board design is electrically isolated from chassis
- Single point ground architecture back to the External/Setter interface

Structural Criteria

- Designed to perform following exposure up to 20,000 RPMs peak spin acceleration during firing
- Setback and Spin:
 - Board Max Stress 15306 psi
 - Support Max Stress 29792 psi

Reliability MTBF (Hours), 25°C

- Controlled Storage: 1,409,375
- Stockpile Surveillance: 1,497,160
- Uncontrolled Storage: 421,039
- Transportation & Prepare, mobile: 1,585,332
- Fuze Setting/Initialization, outdoors: 881,921
- Data Hold, outdoors: 881,921
- Launch: 667,405
- Flight: 862,550

GENERAL DYNAMICS

Mission Systems

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