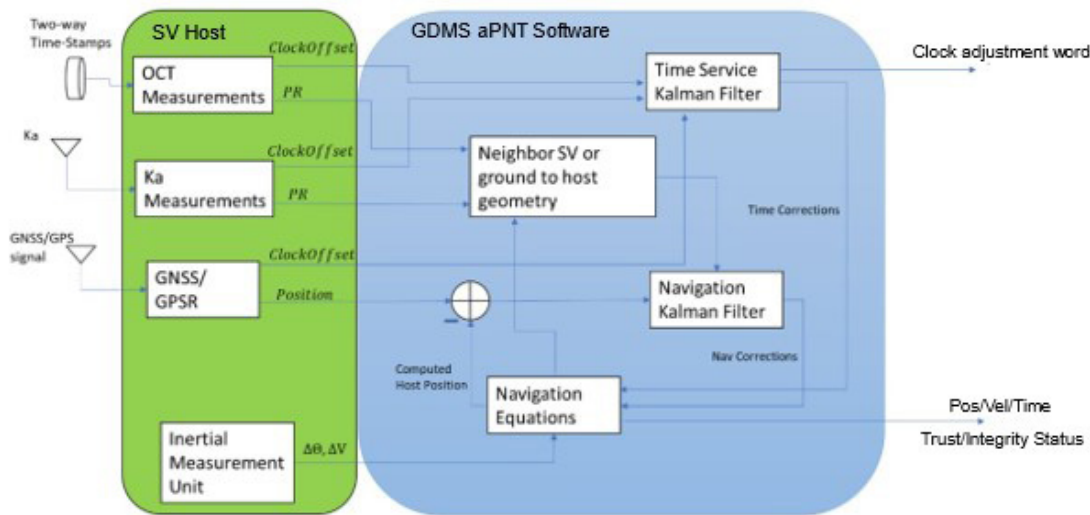


aPNT Software

Alternate Position, Navigation and Timing (aPNT) Space, Time, Attitude and Range Software for Proliferated Constellations

Typical Implementation on Host SV



Mature GNSS-Independent TWTT Solution

Performance: Position < 5 m, Velocity < 0.3 m/s, Timing < 3 ns

Adaptable, Easy-to-Integrate Software Executable

Hardware and Operating System Agnostic

Container-Based Software Configuration Item

Initiated for SDA T0 Transport SVs, Baselined for several SDA T1 Layers & SV Designs

Mature and Ready for Flight 2022 Already Base lined for Several Small Sat. Contracts

Overview

General Dynamics' alternate Position, Navigation and Timing (aPNT Software) provides resilient position, velocity, and time information when GPS is not available. aPNT Software utilizes two-way/time transfer (TWTT) measurement and other Space Vehicle sensor/clock inputs (See Diagram) to provide PNT solutions. These solutions benefit from Global Navigation Satellite Systems (GNSS) data (if available), but do not rely upon GNSS data to meet requirements. Communication terminals (e.g. optical, Ka, etc.) and other input data are leveraged for ranging and angular measurements, which are used to produce an independent, refined PVT solution.

Key Features and Benefits

- Provides Position, Velocity, and Timing (PVT) solutions in the event of GPS outage
- Trust engine/integrity audit capability
- Validates GNSS-derived PVT solution using Intra-Satellite Links (ISLs) time transfer and training information
- Configurable via input parameter selection and can operate with a selectable combination of optical communication terminal input data and Ka-Band input data