



# ***AERO SIMULATION, INC.***

## ***PRODUCT INFORMATION REPORT***

### ***STIMULATION AND SIMULATION OF MISSION/NAVIGATION COMPUTERS***

#### **Description:**

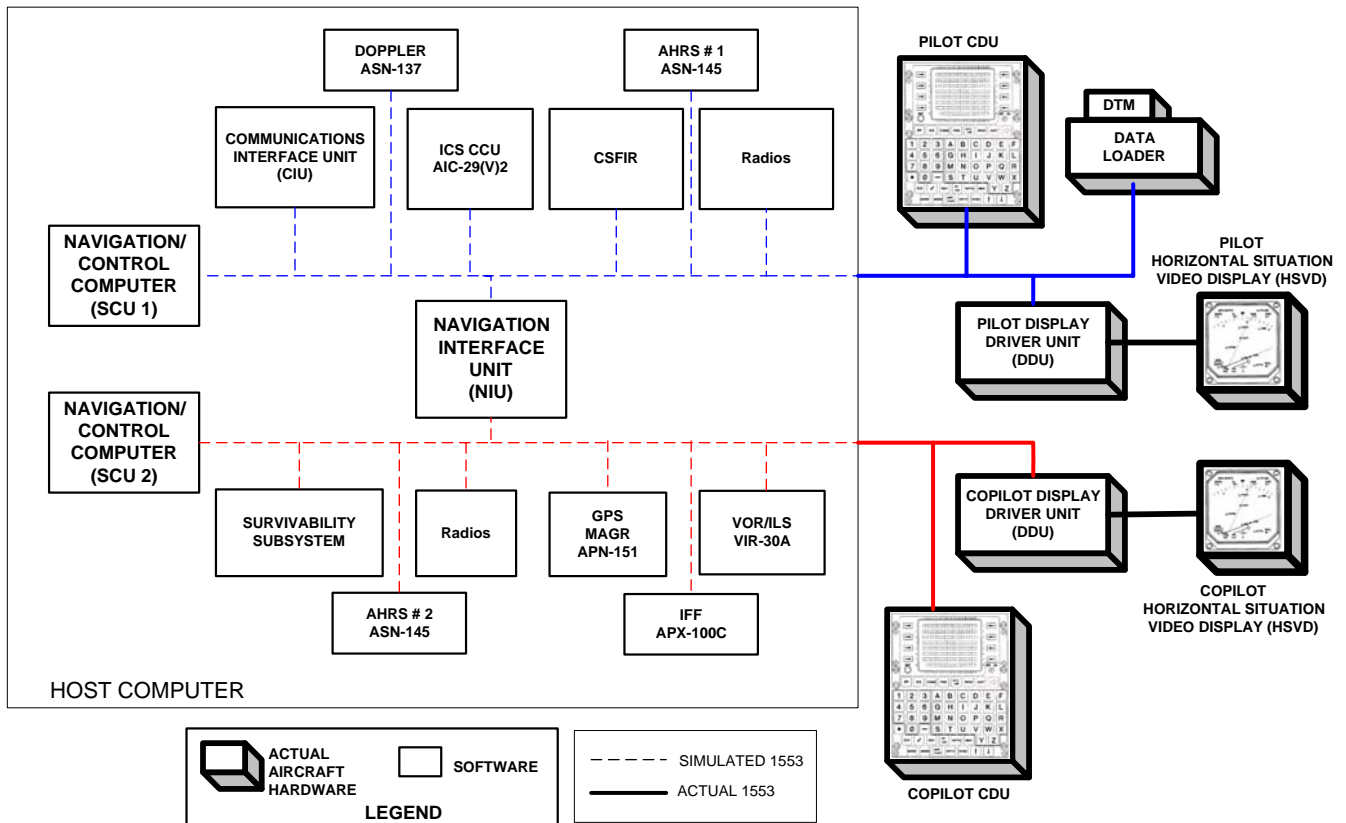
A mission/navigation computer is present in many military aircraft. These computers perform navigation, flight management, and coordination of many systems in the aircraft. These computers either interface to or are a part of a Control Display Unit (CDU). The CDU provides the primary human/machine interface for data entry and information display to the computer and to other aircraft systems. ASI has successfully simulated and stimulated the mission/navigation computer from a number of aircraft in various simulators.

#### **Stimulated :**

ASI has stimulated the mission/navigation computer on the EA-6B, KC-130, C-2A and CH-46E flight simulators. The mission/navigation computer on these aircraft is part of the CDU. The stimulation of the CDU includes interface such as Digital Inputs/Outputs, ARINC-429, and MIL-STD-1553B. This stimulation also includes simulating the aircraft systems that interface to the mission/navigation computer. In the trainers mentioned above ASI has simulated radios (ARC-210 and ARC-182), GPSs, Inertial Navigation Systems (INS), Embedded

GPS/INSs (EGI), Interface Control Units, Digital Signal Data Converters (DSDC), an AYK-14 mission computer, and Air Data Computers. ASI has provided this stimulation in new simulators and as part of a modification kit to existing simulators.

As part of the stimulation, ASI has provided all necessary modifications to the Operational Flight Program (OFP) of the mission/navigation computer, which allows the CDU to operate in a training environment. These modifications included adding functionality for trainer slew, freeze, and reset along with the capability to save and download IC data such as flight plans, and initial aircraft position. The OFP is modified becoming an Operational Trainer Program (OTP) on a development station and written to an actual aircraft Data Transfer Module (DTM) or "brick". The development station and download capability are provided with the upgrade.



### VH-60N / VH-3D Avionics Management System

#### Simulated:

ASI has simulated the mission/navigation computer on the VH-60N and VH-3D flight simulators. The computer and CDU are separate units on the VH-60N and VH-3D aircraft. The aircraft mission/navigation computer is rehoused to the simulator's host computer running the Linux operating system and interfaced to an aircraft CDU. In this simulation the mission/navigation computer is the Bus Controller on the MIL-STD-1553 data bus and interfaces to the aircraft Mission Data Loader, Display Driver Units, and CDUs, and interfaces to other simulated systems including radios, GPS, VOR/ILS, AHRs, and counter measures.

ASI has also simulated the flight management system (FMS) on the T44A simulator. The FMS simulation included

a simulated FMS computer and simulated display. The FMS simulation provides the primary navigation, flight planning, optimized route determination, en route guidance, Standard Terminal Arrival Route (STAR) management and Standard Instrument Departure (SID) management for the aircraft and is comprised of the following interrelated functions: navigation flight planning, performance computations, and guidance. To accomplish these functions the FMS interfaced to other avionics systems including navigation sensors, the Horizontal Situation Indicator (HSI) and the autopilot.

**Aero Simulation, Inc.**  
**4450 East Adamo Drive**  
**Suite 501**  
**Tampa, FL 33605-5941**  
 Voice: (813) 628-4447  
 FAX: (813) 628-8404

E-Mail: [asi@aerosimulation.com](mailto:asi@aerosimulation.com)