SPAWAR
Systems Center
San Diego

Control Display Navigation Unit (CDNU)

The CDNU system provides the control, display, processing, and interface capability required to integrate the GPS avionics system into rotary- and fixed-wing aircraft platforms as the sole means of navigation in the national air space. Using deviation, range, and bearing displays, the CDNU provides all navigation and pilot-steering functions for enroute, terminal (departure and arrival), and approach (including mission phases of flight).

The primary purpose of the CDNU is to control the plaform's navigation suite, GPS (3A, MAGR, EGI), INS (CAINS IA and CAINS II), Mission Data Loader, AHRS, and flight instruments. Also, the CDNU is/will be utilized to control/configure other devices such as radios (ARC-182, ARC-210, and DCS-2000), weapons (HARM), and safety equipment (GPWS, and TCAS) and perform various other functions (Fuel Performance Advisory System, mission specific search patterns, etc.)

Space and Naval Warfare Systems Center (SSC San Diego) has extensive experience in developing, integrating, and testing CDNU software. The SSC San Diego CDNU Center of Excellence (COE) has expertise and facilities to:

- Provide system engineering to develop system requirements to support platform specific functionalily and analysis of technical solutions
- Develop platform specialized CDNU software to integrate additional subsystems
- Perform complete Functional Qualification Testing (FQT) of platform software
- Perform Independent Verification and Validation (IV&V) of developed platform software
- Develop Computer Based Training (CBT) systems for CDNU aircraft platforms
- Maintain complete software support activities

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SSC San Diego specializes in modifying currently available modules and integrating the resultant software into platform OFPs. Utilizing this technique generally saves the platform up to 85% of the development cost.

SSC San Diego CDNU supporting facilites include:

- Simulated and production avionics hardware
- Simulated (DCDI, BDHI, HSI, ADI, Hover Indicator (HHSI), HHSI MAP MODE, EFIS MAP MODE, and EFDS) and real flight instuments
- Software debugging capability with a Kontron In-Circuit-Emulator
- Tools to generate and load Flight Plans, Primary Waypoint Database files, Reversionary Waypoint Database files, MAGVAR, and GPS Almanac onto a Data Transfer Module
- A scenario-driven satellite simulator connected to a GPS receiver

Successful CDNU projects and software available for reuse:
UH-1N, HH-1N, C-2A, EA-6B, F-14B, CH-46, C-130

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Approved for public release; distribution is unlimited.