Invocon Flight Computer (IFC)

Flight Computer

DESIGNED FOR MISSION CRITICAL APPLICATIONS
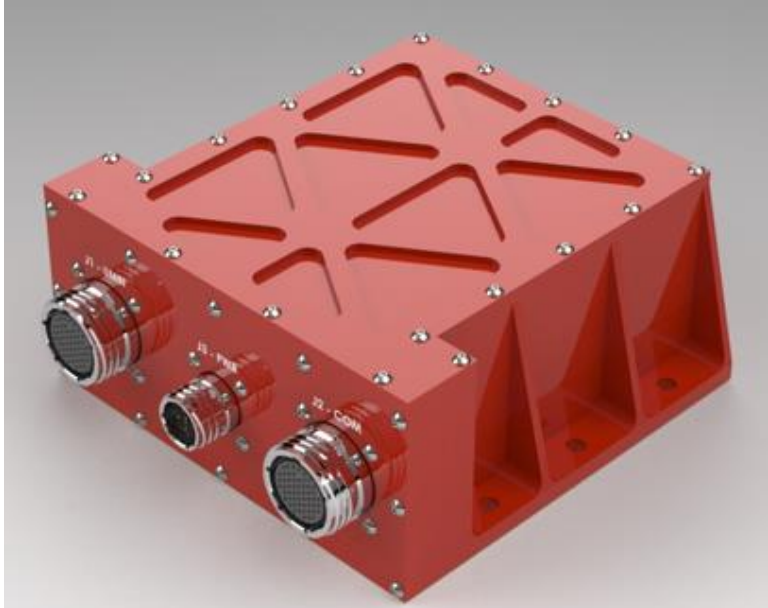
The Invocon Flight Computer (IFC) is designed around Invocon's Next Generation Processing Platform (XGPP) combining multiprocessor performance with programmable logic flexibility. The IFC includes a dedicated EMI filtered power connector along with <u>two</u> 66 contact I/O connectors for interfacing to common launch vehicle functionality including: IMU/INS, GPS/GNSS, Thrust Vector Conroller (TVC), Reaction Control System (RCS), Engine Control, Telemetry, and more.

Key IFC Features:

- Rugged aircraft-grade aluminum enclosure with 38999 connectors.
- Open system architecture with fully user programmable multi-core processor system.
- Processor System (PS):
  - Quad-core Arm® Cortex®-A53 MPCore™ up to 1333 MHz.
    - 32 KB L1 Instruction (I) & Data (D) Cache, 1 MB L2 Cache, Floating Point Unit (FPU), & 256 KB On-Chip Memory (OCM).
  - Dual-core Arm® Cortex®-R5F up to 533 MHz capable of lockstep operation.
    - 32 KB I & D Cache, FPU, & 128 KB per core Tightly Coupled Memory (TCM).
  - Mali™-400 MP2 GPU up to 600 Mhz
    - 64 KB L2 Cache
  - Security: RSA, AES, & SHA
  - PS System Monitor & Real-Time Clock (RTC)
- Factory Configurable Programmable Logic (PL):
  - System Logic Cells: 256 K
  - Block RAM: 23.1 Mb
  - DSP Slices: 1248
  - H.264/H.265 Video Codec Unit
  - PL System Monitor
  - Free-running second, millisecond, and microsecond synchronized timers.
- Memory
  - 64-bit DDR4 RAM: 4 GB at 2400 Mbps
  - QSPI Flash: 64 MB up to 40 MHz
    - Boot, factory and user configuration files
  - eMMC Flash: 16 GB up to 50 MHz
    - OS, Customer files and data recordings
- Operating Systems & Drivers:
  - Standalone / Bare metal
  - FreeRTOS
  - Linux
  - RTEMS
  - VxWorks
- Power: 15 to 50 Vdc, 0.54 A @ 28 Vdc (15 W)
- Dimensions: (not including connectors)
  - 6.2-inchs wide x 6-inches long x 2.9-inches tall

- Configurable Input / Output:
  - Dual Gigabit Ethernet
  - Dual Diagnostic/Debug UARTs
  - Electrical Standards:
    - RS232, RS422, LVDS, Open-Drain, 5VTTL, CMOS
  - Base Features:
    - 10 UART
    - 17 GPIO
    - 1 GPS 1PPS Input
  - Advanced Features:
    - 1 SDLC Input
    - 1 Dual Output IRIG106 PCM
  - Supported Applications:
    - IMU/INS
    - GPS/GNSS
    - TVC
    - RCS
    - Engine Control
    - Telemetry