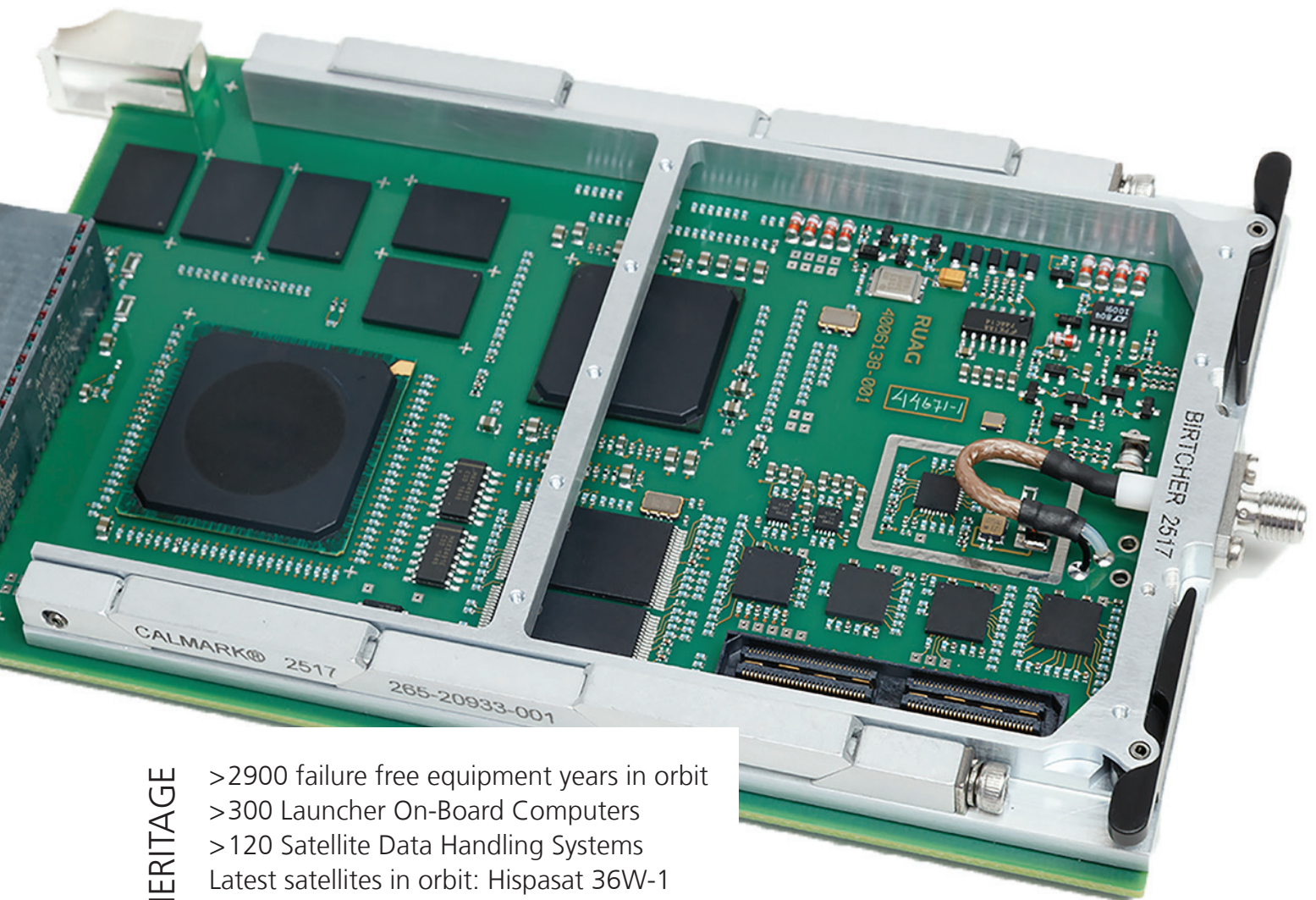


Constellation Single Board Computer (cSBC)

The Constellation Single Board Computer is one of the high quality products that offer a cost effective solution for applications deployed in larger quantities. The computer offers a high performance processor and a powerful FPGA for flexibility in terms of communication, interface and processing capability. It can be used for any on board computer on the platform or in the payload.



HERITAGE

- >2900 failure free equipment years in orbit
- >300 Launcher On-Board Computers
- >120 Satellite Data Handling Systems
- Latest satellites in orbit: Hispasat 36W-1
- Göktürk 1A, ExoMars Trace Gas Orbiter

KEY FEATURES

- 3U conduction cooled SpaceVPX
- Power Architecture © e500Core
 - 1800DMIPS @ 800MHz
 - 800MFLOPS @ 800MHz
 - 32 KiB L1 instruction cache with parity
 - 32 KiB L1 data cache with parity
- 256 KiB L2 cache with ECC
- 512 MiByte DDR processing memory with ECC
- 4 GiByte non-volatile storage with ECC
- 256 MiByte communication memory with ECC

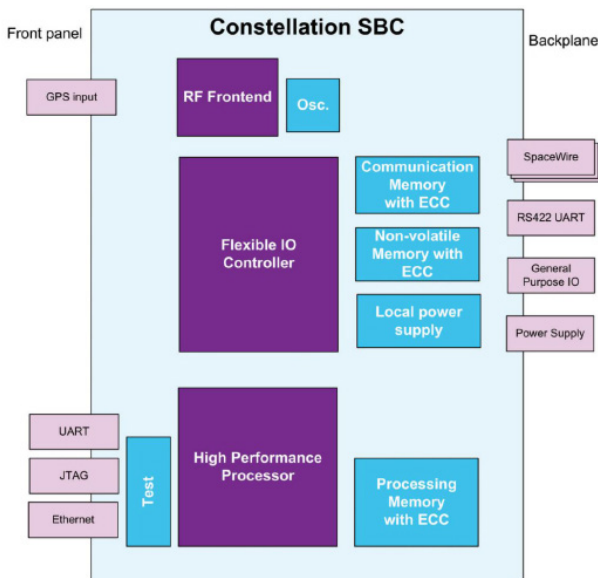
INTERFACES

Front

- RF input
- Test & debug
 - Gigabit Ethernet
 - UART

VPX Backplane in GNSS (GPS/Galileo) variant

- 1 × RS422 UART
- 1 × RS422 PPS out
- 1 × SpaceWire
- Power supply +5V



Mechanical & Power

Form factor	3U 100 × 160mm
Power consumption	<20W
Mass	225g incl. frame

Radiation Tolerant

- Latch Up protected
- All memories with ECC
- Sustain total dose up to 10 years in LEO orbit

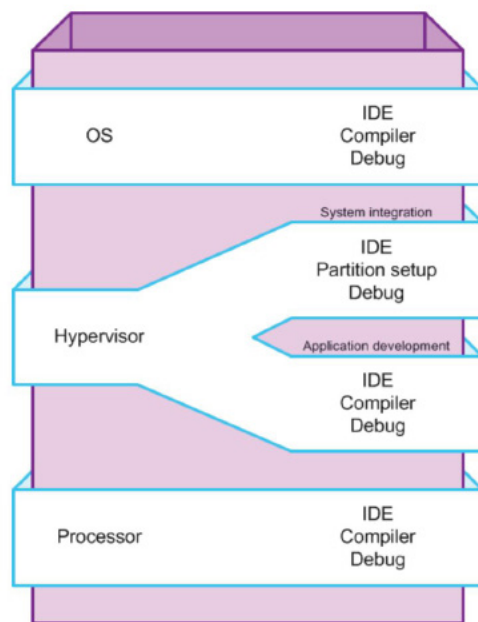
- Gigabit Ethernet Debug Link
- Support for hypervisor software
- Hardware Driver Software
- Software Development Environment
- SmartFusion2 SoC FPGA
 - 86000DFF and 84 math block
 - Hard PCIe
 - 2 Mbit memory
 - Many IO types
- GNSS receiver, GPS/Galileo

VPX Backplane general signals

- 32 × LVDS
- 44 × Single ended IO
- Power supply +5V

Software & Development Environment

- Integrated development environment
- Operating system independent boot and driver software
- Cross compiler suite
- Board support packages for operating systems and hypervisors
- Advanced software debug tool chain



Environment

- Temperature -20 to +65 °C
- Vibration Level 0.1 g2/Hz in the range 20–2000Hz
- Shock Level 1400g @ 2000Hz

Hypervisor and Operating System

- VxWorks
- RTEMS
- PikeOS