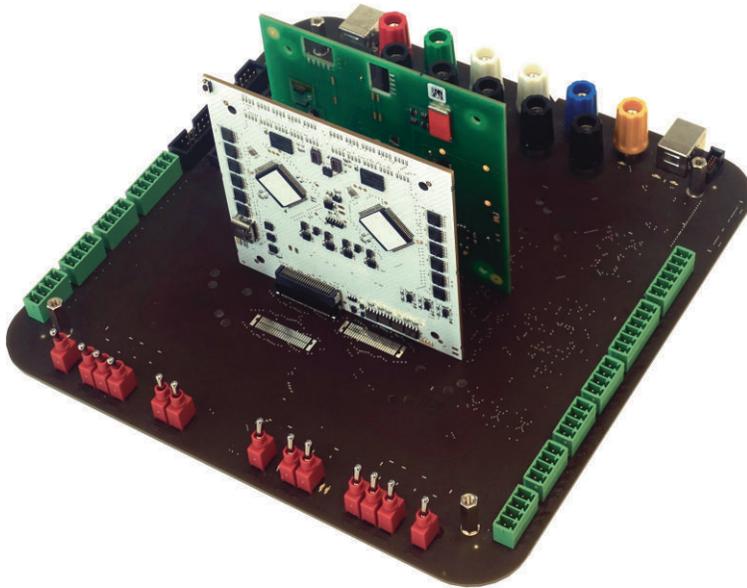


Satellite Development Board – UNISEC Europe Bus



Unique Features:

- supports flexible and efficient satellite development
- allows rapid system assembly for efficient functional integration testing
- compatible to UNISEC Europe subsystem interface definition (CSID)
- provides comfortable access to all relevant interfaces on the bus for efficient measuring and testing
- integrates UNISEC umbilical line specification providing a USB interface and various programmer interfaces
- can serve as electrical ground support equipment (EGSE) after launch

Description:

The Satellite Development Board is an efficient prototyping platform which supports the implementation of the standardized UNISEC Europe Satellite Bus in an efficient and flexible way. In particular, it supports all development phases by maintaining a comprehensive FlatSat test environment with continuously increasing complexity.

Providing a generic backplane with various standardized connectors the platform allows rapid reconfiguration from a prototyping test setup of individual subsystems to a functional flight-like configuration of the entire satellite. For efficient hardware-in-the-loop testing and electrical debugging the development board provides comfortable access to all relevant power, control and digital communication signals on the standardized bus interface by dedicated connectors and configuration switches.

The satellite development board can be ordered in different configurations, such as for different connector sizes supported by the UNISEC standard. Optional delivery items include a prototype satellite backplane with umbilical line and an ECAD software template of a reference subsystem interface design, allowing rapid custom satellite and subsystem development.



The UNISEC Europe CubeSat Subsystem Interface Definition (CSID) defines a standardized electrical and mechanical subsystem interface for CubeSats. The interface is based on a backplane that implements the entire harnessing of the CubeSat with one connector. It enables rapid development, integration and testing while increasing the robustness of the system. The specifications are available at

<http://unisec-europe.eu/standards/bus/>

The bus interface includes support for power distribution and control such as different regulated and unregulated power buses, as well as redundant high- and low speed digital communication lines such as I²C and USART. Further, it comprises dedicated interfaces for debug, test and maintenance such as JTAG, SWD, etc. which can also be accessed via the umbilical line in order to access and re-program any subsystem attached to the bus. Systems implementing the CSID overcome limitations of current approaches (e.g. PC104) that lack concepts for subsystem synchronization, redundancy, scalability and robustness.

UNISEC Europe Bus – Starter Kit



Unique Features:

- ships with satellite development board, subsystem prototype, software starter kit, cables and manual – everything you need to explore UNISEC Bus features and start developing your own subsystems within just a few minutes
- enables fast and reliable satellite development based on the standardized UNISEC Europe Bus
- implements all UNISEC Bus features which significantly increase efficiency, flexibility and robustness of your system

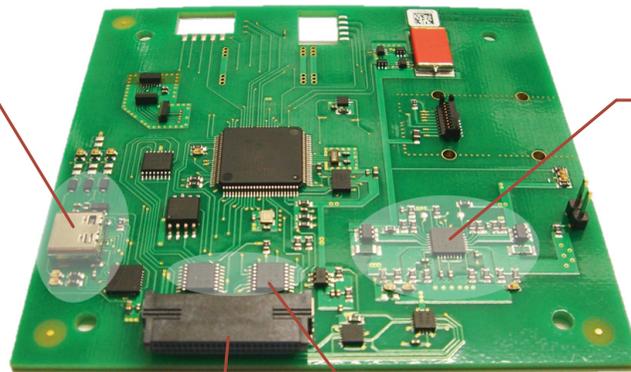
UNISEC Bus Features:

External Debug Interface

- easy stand-alone operation of subsystem
- debug communication (UART via USB bridge)
- microcontroller programming and in-system-debugging (JTAG, SBW, SWD)
- supply by USB power (5V, 3.3V, unregulated bus)

Satellite Bus Connector

- compact and robust backplane
- redundant power, high-speed and low-speed digital buses
- dedicated signals for reset, time sync, deployment logic
- internal debug interface (communication, programming, and debugging after integration and in-orbit)



Power Control Circuit

- controlled by OBC via redundant I²C bus
- power switch
- power monitoring (voltage, current)
- power protection optimized for specific subsystem (over-voltage, under-voltage, over-current, i.e. latchup)

Interface Control Circuit

- selective bus isolation
- prevents current leakage for partial power down
- allows bus routing, redundancy selection controlled by OBC