

# SatRevolution UniBus



<b>Overall description and features</b>	<p>3U Cubesat SatRevolution platform with flight heritage.</p> <p>Equipped with SatRevolution all necessary subsystems to provide service to payloads:</p> <ul style="list-style-type: none"> <li>· Power system with up to 50W of peak power</li> <li>· Advanced attitude determination and control system with 0.2 degrees of pointing accuracy (magnetorqs and reaction wheels)</li> <li>· Redundant UHF for commend telemetry communication system</li> <li>· S-band communication system for data downlink</li> <li>· All current payload interfaces available</li> <li>· 36 months of mission lifetime</li> <li>· Range of innovative payload and data services available</li> </ul>
<b>Structure</b>	<p>Space-proven UniBus structure:</p> <ul style="list-style-type: none"> <li>· CNC manufactured of Aluminium 6061, 5083, 6082 alloy</li> <li>· Hard anodized and oxidized</li> <li>· Up to 2 safety deployment switches and 1 RBF pins</li> <li>· Two separation springs</li> </ul>
<b>Interfaces</b>	<p>Platform can accept both standard PC104 and platform proprietary design mechanical payload interfaces. Proprietary design allows for smooth payload integration process.</p> <p>Interfaces available: I2C, SPI, UART, RS485, RS422, CAN, USB, Ethernet, DAC/ADC.</p> <p>Other interfaces are available on request.</p>
<b>Power</b>	<p>Power management system is based on complex of Energy Harvesting System; Battery Management System; Auxiliary Power System (payload power supply).</p> <ul style="list-style-type: none"> <li>· Peak power 75W</li> <li>· System redundancy, autonomous fault handling and recovery</li> <li>· Battery supervisory circuit</li> <li>· Hardware protection from excessive discharge</li> <li>· Hardware MPPT implementation</li> <li>· User programable up to 6A maximum battery pack load current</li> </ul> <p>Available Power Supply: 1.8V, 3.3V, 5V, 12V and unregulated Battery Voltage</p>
<b>On-board computing</b>	<p>A Space-proven Command and Data Handling module with following capabilities:</p> <ul style="list-style-type: none"> <li>· Main processor: up to 216MHz, 2MB FLASH</li> <li>· Storage memory: from 1GB up to 16GB NAND FLASH</li> <li>· External program memory: up to 3MB with hardware Forward Error Correction (possible TMR)</li> <li>· Possible payload interfaces: I2C, SPI, UART, RS485, RS422, CAN, USB, Ethernet, DAC/ADC</li> </ul>

	<ul style="list-style-type: none"> <li>· Multiple temperature sensors</li> <li>· Working temperatures: -30°C to 65°C</li> <li>· Power Supply: independent DC/DC converter</li> </ul> <p>Over The Air update</p>
<b>Communication</b>	<p>Redundant Low frequency communication module include:</p> <ul style="list-style-type: none"> <li>· Two independent radio transceiver</li> <li>· Frequency range: 400-440 MHz (possible reconfiguration on request [120-500 MHz])</li> <li>· Transmission data rate 9,6 kb/s</li> <li>· RF output power: 30dBm (possible reconfiguration on request)</li> <li>· External program memory: up to 1MB with hardware Forward Error Correction</li> <li>· Radio Sensitivity: -120dBm</li> <li>· Over The Air update</li> </ul> <p>S-band communication module include:</p> <ul style="list-style-type: none"> <li>· S-band operational frequency 2200 - 2290 MHz, 2400-2450 MHz</li> <li>· RF output power: 30dBm</li> <li>· S-band transmission rate 0,5 Mb/s</li> <li>· External program memory: up to 1MB with hardware Forward Error Correction</li> <li>· Over The Air update</li> </ul>
<b>Accuracy</b>	<p>Platform is equipped with following attitude determination and control subsystems:</p> <ul style="list-style-type: none"> <li>· Space-proven advance flight computer</li> <li>· 3x magnetorquers</li> <li>· Possible 3x reaction wheels</li> <li>· Coars sun-sensors</li> <li>· Fine sun-sensors</li> <li>· 1x magnetometer 3-axis</li> <li>· 1x gyroscope 3-axis</li> <li>· 1x GPS receiver</li> </ul> <p>Platform allows for the following accuracy:</p> <ul style="list-style-type: none"> <li>· &lt;1 degree of positioning accuracy</li> <li>· &lt;1 degree of pointing accuracy</li> </ul>
<b>External payload capacity</b>	<p>Available payload slots:</p> <ul style="list-style-type: none"> <li>· 6x of 0,25U slots</li> <li>· 3x of 0,5U slots</li> <li>· 2x of 0,75U slots</li> <li>· 1x 1.5U slot</li> <li>· 1x tuna-can external slot</li> </ul>