



SPACEMANIC



Corvus

12U Nanosatellite Bus

ALSO 1-12U NANOSATELLITES AS A SERVICE

Built with flight proven Plug&Play components

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Service overview

MISSION SATELLITE AS A SERVICE

Solution for our customers.

MISSION DESIGN

- Mission requirements analysis
- Satellite configuration
- Technology tailoring
- Orbit prediction and determination

DEVELOPMENT

- Conceptual design
- Systems engineering
- CAD drafting
- PCB design
- Onboard SW development

TESTING AND GSE

- Integration
- Vibration tests
- T-VAC tests
- Radiation testing
- Antenna characteristics measurement
- Magnetometer calibrations
- Ground station services



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Service overview

READ MORE

LAUNCH CAMPAIGN MANAGEMENT

- Defining mission parameters
- Defining launch schedule and window
- Paperwork administration
- Satellite frequency coordination

WE HAVE THE ANSWERS TO ALL YOUR QUESTIONS

- Where is my CubeSat right now?
- What observations happened today?
- What was the signal received during a particular observation?
- What are the actual data received (result of signal interpretation)?

GROUND STATION SERVICES

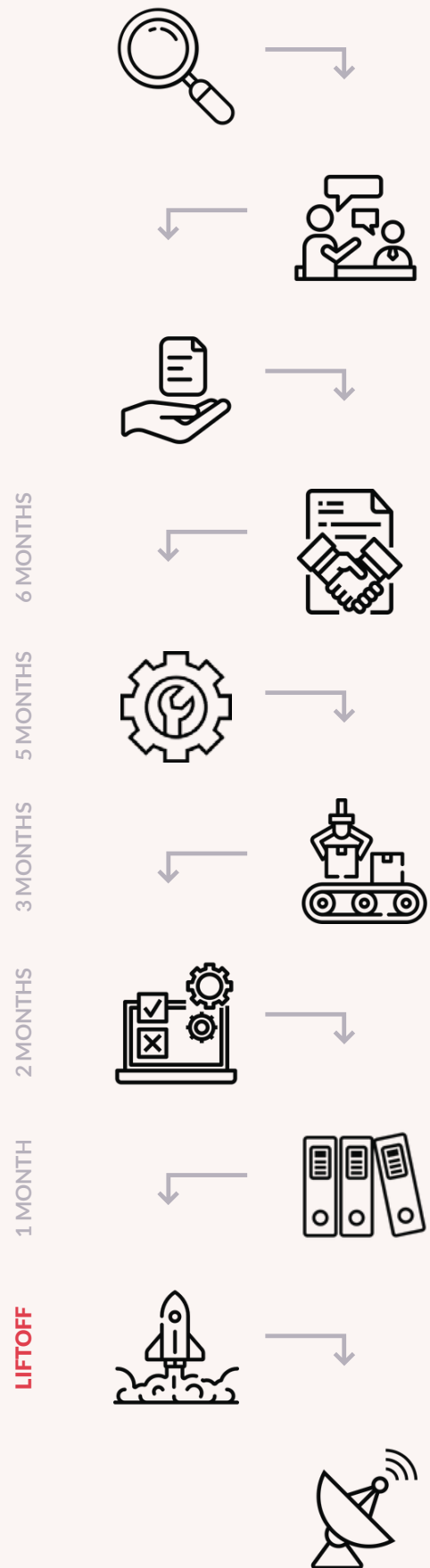
- We are running our own ground stations in Central Europe and operate several others.



How to book a mission?

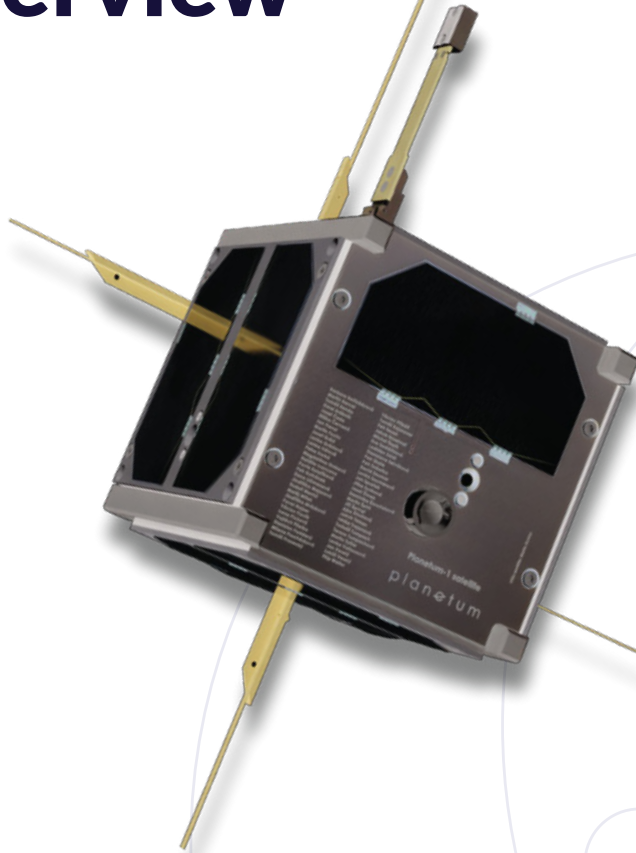
- 1. INITIAL INQUIRY**
When you are ready to embark on your satellite mission, the first step is to reach out to us.
- 2. REQUIREMENTS GATHERING**
We will schedule a consultation to understand your mission requirements.
- 3. PROPOSAL AND QUOTATION**
Based on your requirements, we will provide a detailed proposal with cost estimates and options.
- 4. CONTRACT AND AGREEMENT**
Contract covering all aspects of the project for your review and signature.
- 5. DESIGN AND ENGINEERING**
Collaborate with our experts to finalize the CubeSat's design, subsystems, and specifications.
- 6. PRODUCTION AND ASSEMBLY**
We will begin the production process, keeping you updated on major milestones and progress.
- 7. TESTING AND QUALITY ASSURANCE**
Rigorous testing ensures your CubeSat meets all requirements.
- 8. DOCUMENTATION COMPLIANCE**
We will assist you in obtaining necessary licenses and provide comprehensive documentation.
- 9. DELIVERY AND LAUNCH**
We will handle logistics and launch of your CubeSat.
- 10. SATELLITE OPERATION**
We offer ongoing support for on-orbit operations, troubleshooting, and maintenance services.

SPACEMANIC ROADMAP [T MINUS]



Platform overview

**MOST ADVANCED
NANOSATELLITE
PLATFORM
ON THE MARKET**



DESIGNED FOR

- Complex tasks like in orbit object tracking
- Scientific research missions
- Technology IOD and IOV missions
- Commercial constellation missions
- Weather and climate monitoring
- Military purposes

CUBESAT STRUCTURE

- Designed for easy integration and versatility
- Multiple PCB stack configurations
- Flexible payload volume
- Compatible with modern CubeSat deployers



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CORVUS Specifications

GENERAL FEATURES

- Total empty bus mass: below 12 kg depending on configuration
- Payload volume: up to 10U (+ 4x TunaCan)
- Corvus bus is already pre-integrated and qualified. The platform is ready to be immediately used for payload Integration.

CDHS

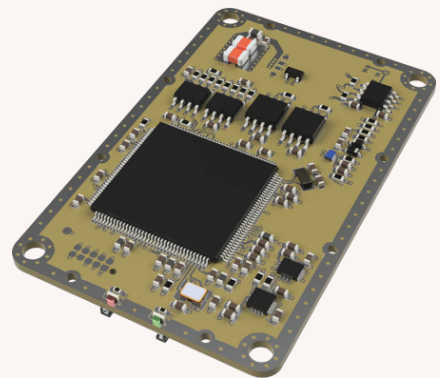
DEEP THOUGHT + EDDIE

Deep Thought

- ARM 32-bit Cortex™ M7 CPU with clock speed up to 300 MHz (configurable)
- 128 MB Flash data storage, 1.5MB FRAM data storage
- Multiple sensor interfaces (SPI, I2C, UART, etc.)
- Procedure planning and scheduling

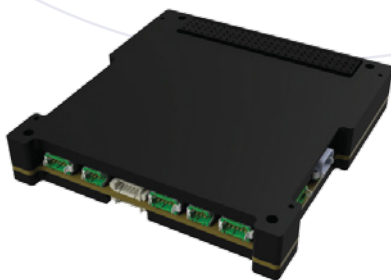
Eddie

- MSP430 16-bit RISC based MCU
- 3 MB FRAM data storage
- Platform telemetry logging
- Multiple sensor interfaces (SPI, I2C, UART, etc.)
- Procedure planning and scheduling



PAYLOAD CONTROLLER

- Zynq® featuring ARM Cortex™-A9 processor mated with Artix®-7 based programmable logic
- 2x Cortex-A9 CPU core (up to 1GHz)
- 1GB RAM
- 16GB internal storage
- Optional external storage up to 480GB
- PC/104; 2x CAN, 2x I2C, power, PPS, SpaceWire (up to 200 Mbps), 2xLVDS (5 pairs, 4 pairs); USB 2.0 with OTG support, 3x RS-422, 3x RS-485, SPI, UART

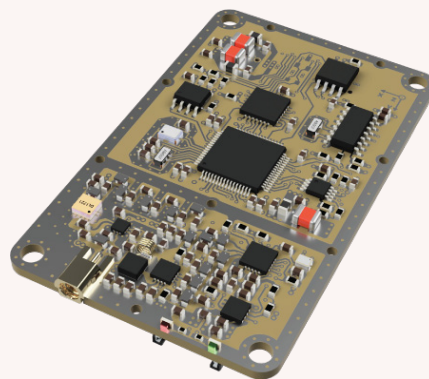


CORVUS Specifications

COMMUNICATION

Murgas

- UHF/VHF Transceiver 400 MHz Band (amateur 430-440MHz and 144-146MHz)
- Bit rate: 0.1-38.4 kbps
- Receiver sensitivity -120 dBm
- Modulation: GFSK, CW
- Regulated power output up to 1.0 W

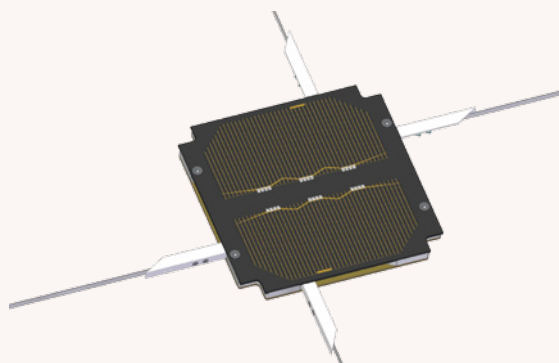


Antenna Board

- UHF Antenna
- Low-profile Antenna Board (compact and lightweight)
- Type - Omnidirectional

Full-Duplex S-band Transceiver

- RX frequency range: 2025 - 2110 MHz TX
- frequency range: 2200 - 2290 MHz RX bit
- rate: 128 kbps
- TX bit rate: 512 kbps
- TX power output regulated from 0.1W to 1W
- Receiver sensitivity -104 dBm (<1% PER)
- Modulation: GMSK
- Full-duplex transmit and receive: 5.0 W
- High-speed downlink



POWER SUPPLY UNIT

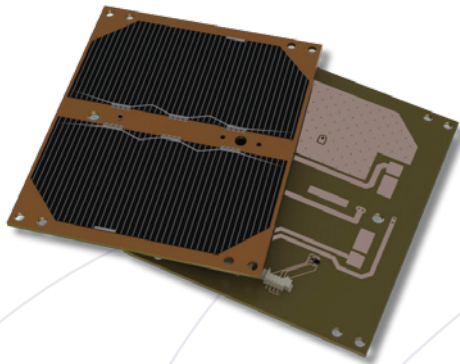
Outputs (over-current protected):

- Up to 9 regulated configurable: 3.3 V / 5 V / 12 V
- Typical output channel current: 4 A

Batteries:

- 16.4 V, 40 or 80 Wh

CORVUS Specifications



SOLAR PANELS RA

Triple Junction GaAs Solar Cell

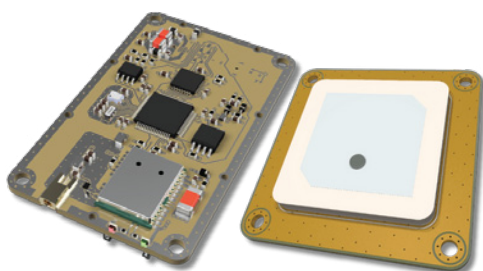
- 30% efficiency
- Options for sensor and interface tailoring
- LEO rated at 2.3 Watts (1U side panel)
- Up to 14 cell 6U configuration
- Custom design with different cell layout, sensor mounts

AOCS

- Inertial and Magnetic Sensors System
- Sun Sensors
- Star Tracker
- IMU
- Reaction Wheels - 4
- Magnetorquer
- SW, automatic calibration
- Attitude pointing accuracy: up to $\pm 0.1^\circ$
- Attitude pointing knowledge: up to 0.05°
- Stability accuracy (Jitter): $\pm 0.004^\circ/s$ (at $f > 4$ Hz)
- Attitude maneuver ability (Slew rate): up to $5^\circ/s$

Operational modes:

- Sun pointing mode
- Nadir pointing mode
- Velocity pointing mode
- Ground geodetic coordinate pointing mode
- Client defined pointing mode



GPS SYSTEM CELESTE

- GPS/Galileo/GLONASS/BeiDou
- Maximum velocity 10km/s
- -148dBm cold start sensitivity
- -165dBm tracking sensitivity
- 29 seconds cold start TTFF
- 1 second hot start
- 2m CEP accuracy

CORVUS Specifications

UMBILICAL CONNECTOR

- Main satellite communication bus
- PSU reset
- Battery charging
- Fake solar input
- Remove before flight element

PROPULSION SYSTEM

- Optional

SOFTWARE

Satellite platform software implements CubeSat Space Protocol (CSP) on internal communication buses. Subsystems implement plain text command line interface for parameter configuration and development on debug ports and over a CSP port.

The included software products include:

- CDHS software for platform telemetry logging and interface
- COM UHF interface and parameter configuration
- COM UHF deployable antenna interface
- COM S-band interface and parameter configuration
- PSU interface and parameter configuration
- AOCS interface for operation and parameter configuration
- GNSS interface and parameter configuration

Optional payload computer system is provided with basic example software interfacing the satellite bus without any specific functionality.



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NEED A RIDE?



Contact us

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