SatRevolution STORK mission

Shared EO-capable platform aimed at in-orbit service provision for external payloads

Based on great interest and success of SatRevolution SW1FT mission (shared platform for in-orbit demonstration on track to launch December 2020), our team is happy to announce next mission to host external payloads and provide in-orbit services related to Earth-Observation.

STORK is a 3U CubeSat with optical payload to launch mid-2021. Aimed at EO-related service provision, we currently have capacity for external payloads. Whether you're looking for a simple in-orbit demonstration and verification, or you're building a complex business case for your Earth-Observation systems and services, SatRevolution **STORK** is the right opportunity for you.

Overall description and features	3U Cubesat platform based on SatRevolution NanoBus with flight heritage. Equipped with SatRevolution Vision 300 optical payload and all necessary subsystems to provide service to payloads: · Power system with up to 50 W of peak power for external payloads · Optical payload with up to 5 m GSD · Advanced attitude determination and control system with up to 0.2 degrees of pointing accuracy · Redundant UHF communication system for command telemetry · S-band communication system for data downlink · All current payload interfaces available · 36 months of mission lifetime · Launch to 500+ km Sun-synchronous orbit in mid-2021 · Range of innovative payload and data services available
Your business case	SatRevolution STORK creates value in following (but not limited to) business cases: · Image processing, value-added Earth-observation services · Demonstration of Earth-observation-oriented technologies in real-life scenarios · Provision of services and data · Obtaining flight heritage for your sub-systems and componentry

SatRevolution S.A.
www.satrevolution.com

Stabłowicka 147, 54-066 Wrocław
+48 533 325 851
contact@satrevolution.com
VAT: PL 8943081944

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External paylaod capacity	Current available payload slots: · 6x of 0,25U slots · 3x of 0,5U slots · 1x 1U slot · 1x tuna-can external slot
Payload interfaces	Platform can accept both standard PC104 and platform proprietary design mechanical payload interfaces. Proprietary design allows for smooth payload integration process. Interfaces available: I2C, SPI, UART, RS485, RS422, CAN, USB, Ethernet, DAC/ADC. Other interfaces are available on request.
Structure	Space-proven NanoBus structure: · CNC manufactured of Aluminium 6061, 5083, 6082 alloy · Hard anodized and oxidized · Up to 2 safety deployment switches and 1 RBF pin · Two separation springs
Power	Power management system is based on complex of Energy Harvesting System; Battery Management System; Auxiliary Power System (payload power supply). · Peak power 75 W · System redundancy, autonomous fault handling and recovery · Battery supervisory circuit · Hardware protection from excessive discharge · Hardware MPPT implementation · User programable up to 6 A maximum battery pack load current · Available power supply: 1.8 V, 3.3 V, 5 V, 12 V and unregulated battery voltage
On-board computing	Space-proven command and data handling module with following capabilities: · Main processor: up to 216 MHz, 2 MB FLASH · Storage memory: from 1 GB up to 16 GB NAND FLASH · External program memory: up to 3 MB with hardware Forward Error Correction · Payload interfaces: I2C, SPI, UART, RS485, RS422, CAN, USB, Ethernet, DAC/ADC · Multiple temperature sensors · Power supply: independent DC/DC converter · Over-The-Air update capability

Communications	Redundant low frequency communication module · Two independent radio transceivers · Frequency range: 400-440 MHz (optionally 120-500 MHz) · Transmission data rate 9,6 kb/s · RF output power: 30 dBm (reconfiguration available on request) · External program memory: up to 1 MB with hardware Forward Error Correction · Radio Sensitivity: -120 dBm · Over-The-Air update capability S-band communication module · S-band frequency range: 2200 – 2290 MHz or 2400-2450 MHz · RF output power: 30 dBm · S-band transmission rate: 3.5 – 10.5 Mb/s · External program memory: up to 1 MB with hardware Forward Error Correction · Over-The-Air update capability
Guidance, navigiation and control	Platform is equipped with following attitude determination and control subsystems: · Space-proven advance flight computer · 3x magnetorquers · 3x reaction wheels · 1x coarse sun-sensor · 1x fine sun-sensor · 1x magnetometer 3-axis · 1x gyroscope 3-axis · 1x GPS receiver Guaranteed platform accuracy: <1 degree of positioning accuracy; <1 degree of pointing accuracy
Optical capabilities	Platform is carrying SatRevolution Vision 300 optical payload with additional processing capabilities. · Bands: 3 (R, G, B) · Ground Sample Distance (GSD): 5.8 m @500 km · Field of View (FoV): 14.2 x 11.8 km @500 km; angle of view (AoV): 1.62° x 1.35° · Maximum image area per orbit: 3800 km^2 · Daily coverage: 61400 km^2 · On-board memory: FRAM 64 GB · Single image resolution: 2456 x 2054 px · Focal length: 300 mm; aperture – f/5.6 · 8, 10, 12-bit processing

Mission timeline	· July-August 2020 – external payload design and readiness review · September-October 2020 - external payload design finalization · November 2020 – provision of payload engineering models · December 2020 – provision of payload flight models · January 2021 – payload integration · February-March 2021 – satellite integration and testing campaign · April 2021 – delivery for launch · June 2021 – launch · July 2021-June 2024 – in-orbit service provision
Payload services	· Payload design review · Platform provision · Assembly, integration and testing · Campaign management · Launch event · Platform and payload commissioning · Payload in-orbit operations and service provision

https://satrevolution.com/products/stork-mission/

contact@satrevolution.com