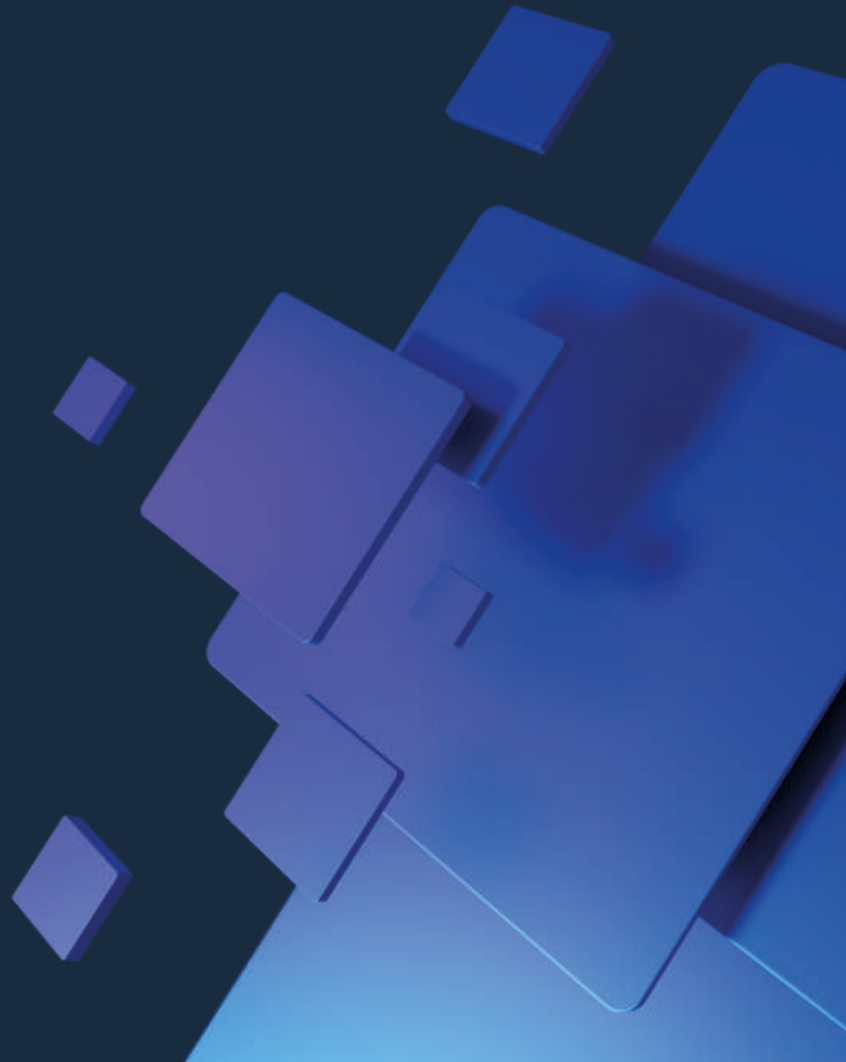
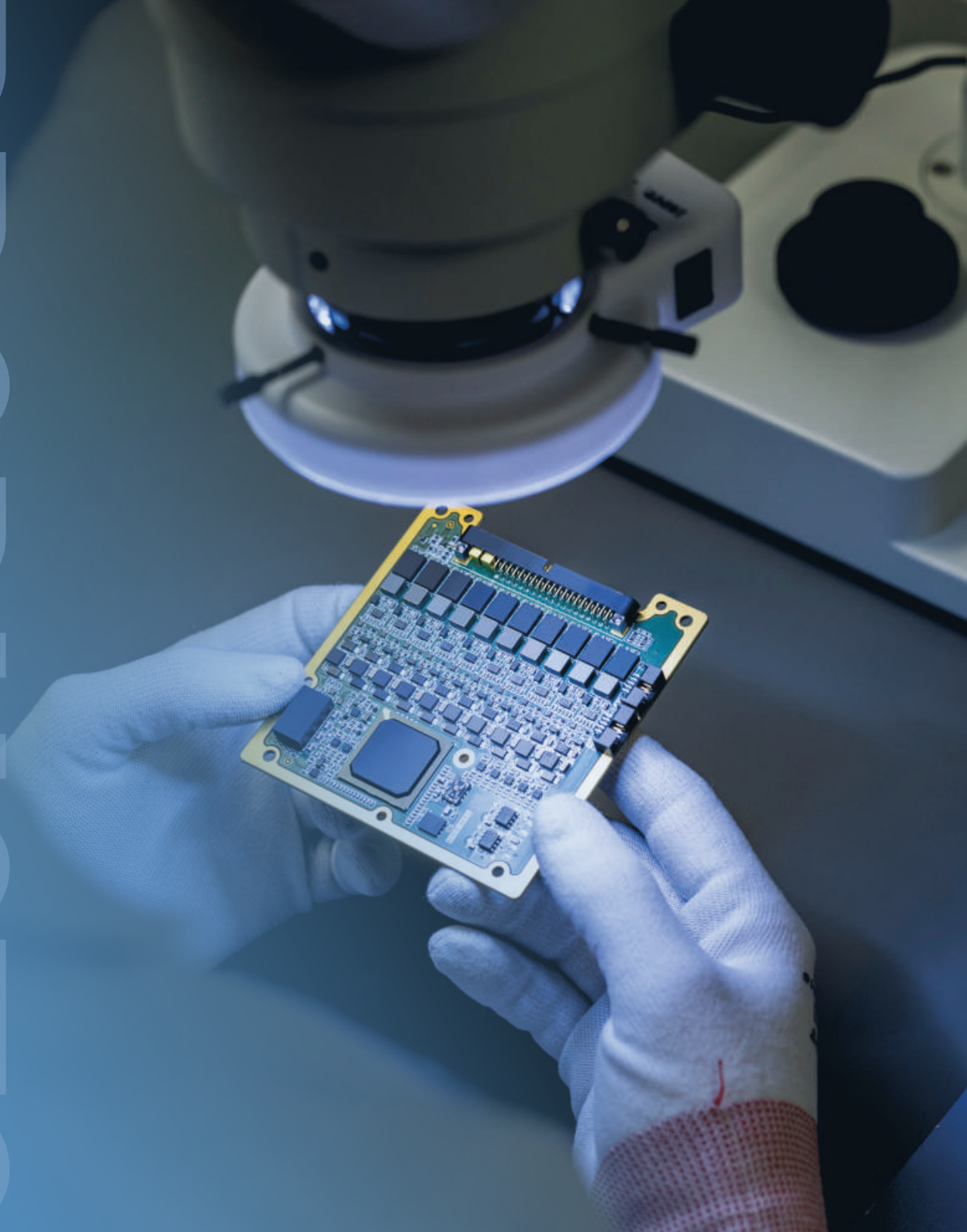




**TURN-KEY
SATELLITE
AVIONICS**



PRODUCTS



PRODUCT PORTFOLIO

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Reliable

Reliable

Highly miniaturized

Highly miniaturized

Radiation tolerant

Radiation tolerant

Flight Proven

Flight Proven

High Quality

High Quality

Fault Tolerant

Fault Tolerant

Innovative

Innovative

In-House testing

In-House testing

skylabs

NANO
nano

**Together,
we are
shaping the future
of space
technology**

At SkyLabs, we specialize in cutting-edge miniaturized on-board data handling solutions and pioneering space engineering. Our focus lies in high-tech solutions, including fault-tolerant hardware and software, powered by internally developed radiation-hardened IP cores for space avionics.

Our dynamic team of experts is dedicated to delivering advanced technology solutions for the most demanding space applications. Embracing the latest technology trends, we prioritize innovation with a proactive and creative design approach.

Located in Maribor, Slovenia, SkyLabs is strategically positioned in Central Europe, fostering strong business connections across the region.



**World
leading provider**

of avionics

**for
micro and**

**nano scale
satellites**

CULTURE

Innovation-driven environment

Everyone is empowered to bring new ideas. Creativity and out-of-the-box thinking are strongly encouraged.

Collaboration and teamwork

Our diverse team of engineers works closely across departments, sharing knowledge and supporting each other to achieve collective success.

Continuous learning

We support and encourage our team members to stay ahead of industry trends through ongoing education and research.

Respectful communication

We prioritize open, respectful communication, fostering a positive, inclusive environment where everyone feels valued and heard.

Work-life balance

We encourage healthy lifestyle, good work-life balance and a variety of sports activities, ensuring our team stays motivated and energized.



**To innovate
the space market
with SkyLabs
disruptive technologies,
products and
solutions
that will change
the layout of space.**

CORE VALUES

Innovation

We constantly push the boundaries of technology, creating cutting-edge solutions that revolutionize space engineering and satellite systems.

Reliability

Our products are built with precision and resilience, ensuring they perform in the most challenging conditions, from space missions to commercial applications.

Customer focus

We listen closely to our customers' needs and deliver tailored, high-quality solutions that exceed expectations and create lasting value.

Excellence

We strive for excellence in everything we do, from the design of our technologies to the way we serve our customers and stakeholders.

Adaptability

In the rapidly evolving space industry, we stay agile, adapting to new challenges and opportunities to maintain our leadership in the market.

OUR
FA
TE



COMMITMENT TO QUALITY

At SkyLabs, our comprehensive MAIT processes are meticulously managed by seasoned and certified operators, ensuring rigorous quality control at every stage. Our commitment to delivering superior products is upheld through the use of AOI, followed by exhaustive visual inspections conducted by our team of IPC-A-610 Class 3 certified experts.

The assembly process is undertaken in our ISO 7 and ISO 8 class cleanroom facilities to assure the cleanliness of our products at the highest level. The final step of our process involves in-depth environmental testing and qualification of our complex products in strict adherence to the stringent requirements of ISO 19683 standards.

Our QMS is crafted in alignment with the rigorous ECSS and has consistently exceeded ISO 9001 audit expectations over the years.



S
A
I
TM



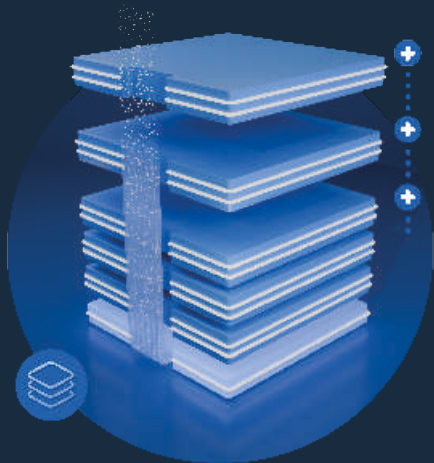
Enhance
missions

Enhance
your **missions**
with

SkyAI™

SkyAI™ solutions enable on-board intelligence
with scalable, power-efficient technology



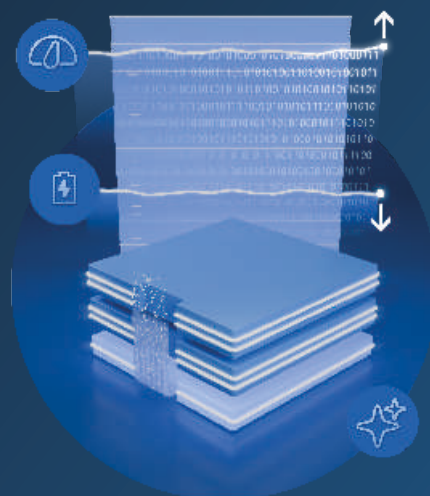


SCALABILITY

SkyAI's scalable computing is driven by a robust architecture that employs redundant, high-speed gigabit Ethernet backhaul, enabling seamless expansion to accommodate increasing mission demands.

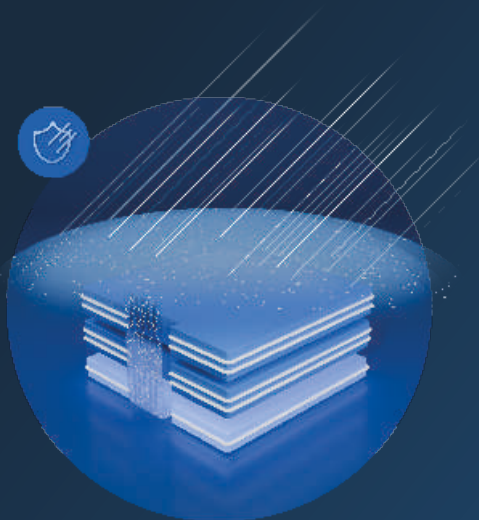
POWER EFFICIENCY

SkyAI™ solutions deliver an ideal balance between computational performance and power efficiency—empowering the new generation of compact, power-constrained satellite missions. This approach maximizes mission capabilities within limited power budgets, meeting the growing needs of next-generation satellite systems.



FAULT TOLERANCE

SkyAI™ solutions leverage flight-proven supervisory technologies to deliver fault-tolerant and robust AI operation in demanding space environments.





Main CPU cluster
4x RISC-V 64-bit processors
@ 600 MHz



Supervisor
RISC-V monitoring core
@ 600 MHz



NANOstack
Optionally available with
NANOstack enclosure

NANOhpc-obc

- ISO 19683
- IPC Class 3+
- TRL 9
- In-house MAIT

High performance fault tolerant OBC

The NANOhpc-obc is a 64-bit high-performance multicore RISC-V on-board computer specifically designed for demanding Space applications that require exceptional performance. It targets key market opportunities, including AI@Edge, situational awareness, and cybersecurity.

With a best-in-class performance-to-power ratio, the NANOhpc-obc delivers over 4000 DMIPS at 600 MHz across 4 RISC-V cores, consuming only 3W. This product pushes on-board intelligence to its limits, addressing the most challenging computational needs.

Equipped with a rich set of embedded peripherals and a coherent multicore cluster, the NANOhpc-obc supports a versatile mix of deterministic real-time systems and Linux, making it ideally suited for power-efficient embedded computing across a wide range of applications.

Expansion boards enable extra processing power in the form of AI co-processor or digital processing unit (DPU).



Main memory
4 GB DDR4



TM storage
256 kB MRAM with SECEDED



Mass storage
92 GB NAND
(EDAC protected)



Interfaces
Redundant CAN,
4x LVDS/RS422/485/UART/16xGPIO,
2x Gigabit ETH



Memory Management
MMU with Physical
memory protection



Software
Linux (Yocto)



AI Technology

Dual Hailo 8 accelerator



NANOstack

Optionally available with
NANOstack enclosure



Performance

Up to 52 TOPS

- ✓ ISO 19683
- ✓ IPC Class 3+
- ✓ TRL 5
- ✓ In-house MAIT

NANOhpc-AI

High performance AI accelerator

Part of the SkyAI™ family of intelligent computing subsystems, the NANOhpc-AI is a high-performance and power-efficient artificial intelligence subsystem composed of a base NANOhpc-obc unit connected via a high-speed PCIe interface to an AI extension built around dual Hailo-8 accelerators. Each Hailo-8 delivers up to 26 TOPS of inference performance, providing a combined peak throughput of 52 TOPS. A PCIe switch manages the high-bandwidth interconnect between the NANOhpc-obc and the AI accelerators, ensuring sufficient data throughput. The NANOhpc-obc provides supervision, housekeeping, and general control capabilities, while the AI extension is dedicated to real-time inference for demanding onboard applications such as video analytics and sensor fusion.



Typical power
Combined 5W
consumption



Supported Frameworks
TensorFlow, TensorFlow Lite,
Keras, PyTorch & ONNX



Main CPU cluster
4x RISC-V 64-bit processors
@ max 600 MHz



Main memory
4 GB DDR4



Mass storage
92 GB NAND
(EDAC protected)



Interfaces
Redundant CAN,
4x LVDS/RS422/485/ UART/16xGPIO,
2x Gigabit ETH



AI Technology
AMD Zynq™
UltraScale+™
MPSoC ZU7EV



Main CPU cluster
4x RISC-V 64-bit processors
@ max 600 MHz



NANOstack
Optionally available with
NANOstack enclosure



FPGA Fabric
504K system Logic Cells

NANOhpc-DPU

- ISO 19683
- IPC Class 3+
- TRL 5
- In-house MAIT

High performance data processing unit

Part of the SkyAI™ family of intelligent computing subsystems, the NANOhpc-DPU is a versatile and reconfigurable data processing subsystem composed of a base NANOhpc-obc unit connected via a high-speed PCIe interface to a DPU extension built around the AMD Zynq UltraScale+ MPSoC. Both the NANOhpc-obc and the Zynq MPSoC are fully programmable, allowing the customer to implement custom on-board computing and data processing functions. The NANOhpc-obc provides supervision, housekeeping, and general control capabilities, while the Zynq MPSoC is dedicated to high-performance user-defined data processing algorithms. A configurable user connector allows direct access to Zynq MPSoC signals, enabling seamless interfacing with payloads or custom peripherals.

-  **Codec support**
H.264 / H.265
-  **Dedicated FPGA logic memory**
32 Gb DDR4
-  **Application Processing Unit**
Quad-core Arm Cortex-A53
@ max 1.5 GHz
-  **Real-Time Processing Unit**
Dual-core Arm Cortex-R5F
@ max 600 MHz
-  **Graphics Processing Unit**
Arm Mali-400 MP2
@ max 667 MHz
-  **Processing system memory**
32 Gb DDR4
-  **Main memory**
4 GB DDR4
-  **Mass storage**
92 GB NAND
(EDAC protected)
-  **Interfaces**
Redundant CAN,
4x LVDS/RS422/485/ UART/16xGPIO,
2x Gigabit ETH



Processor

PicoSkyFT 8/16-bit core
with single precision FPU



Code Memory

4 MB MRAM
(EDAC protected)



NANOstack


Optionally available with
NANOstack enclosure

- ISO 19683
- IPC Class 3+
- TRL 9
- In-house MAIT


NANOobc-2


Fault tolerant OBC for a mission critical operation


The NANOobc-2 on-board computer represents the second generation of SkyLabs's flight proven OBC for the emerging space market. Its fault tolerance by design provides remarkable reliability and robustness against SEE. The NANOobc-2 is powered by PicoSkyFT processor, which furthermore increases operational reliability and delivers nearly 16 MIPS. NANOobc-2 features a redundant mass storage and sufficient capacity of non-volatile and volatile program and data memories to assure functionality for the most demanding space applications. The NANOobc-2 is delivered with flight proven NANOsky CMM Firmware framework, on top of which application layer functions can be developed to suit any mission needs.


 **Data Memory**
2 MB
(EDAC protected)

 **TM storage**
4 Mb MRAM
(EDAC protected)

 **Mass storage**
2 GB NAND Flash
(EDAC protected)

 **Interfaces**
Redundant CAN for TM/TC,
dual LVDS/RS422/485

 **On-board**
Integrated GNSS
receiver

 **Software**
FreeRTOS OS with
NANOsky CMM Framework



Processor

NOEL-V 32-bit core
(RV32IMAFD) with FPU



Memory

256 MB DDR3
(ECC protected)



NANOstack

Optionally available with
NANOstack enclosure

-  ISO 19683
-  IPC Class 3+
-  TRL 9
-  In-house MAIT

NANOhpm-obc

High performance MCU fault tolerant OBC

The NANOhpm-obc is a high-performance RISC-V on-board computer, designed for most demanding LEO applications. NANOhpm-obc provides a versatile design in terms of variety of resources and available interfaces. The NANOhpm-obc is built on a robust NANOobc architecture, enhanced with significantly greater processing power, delivering 100 DMIPS at 50 MHz. It delivers Fault Tolerant NOEL-V processor (Cobham Gaisler - CAES) in peripheral rich SoC design. The NANOhpm-obc is delivered with flight proven NANOsky CMM Firmware framework, on top which application layer functions can be developed to suit any mission needs.



Processor

NOEL-V 32-bit core
(RV32IMAFD) with FPU



Memory

256 MB DDR3
(EDAC protected)



TM storage

1 MB MRAM
(EDAC protected)



Mass storage

2 GB NAND Flash
(EDAC protected)



Interfaces

Redundant CAN for TM/TC,
dual LVDS/RS422/485

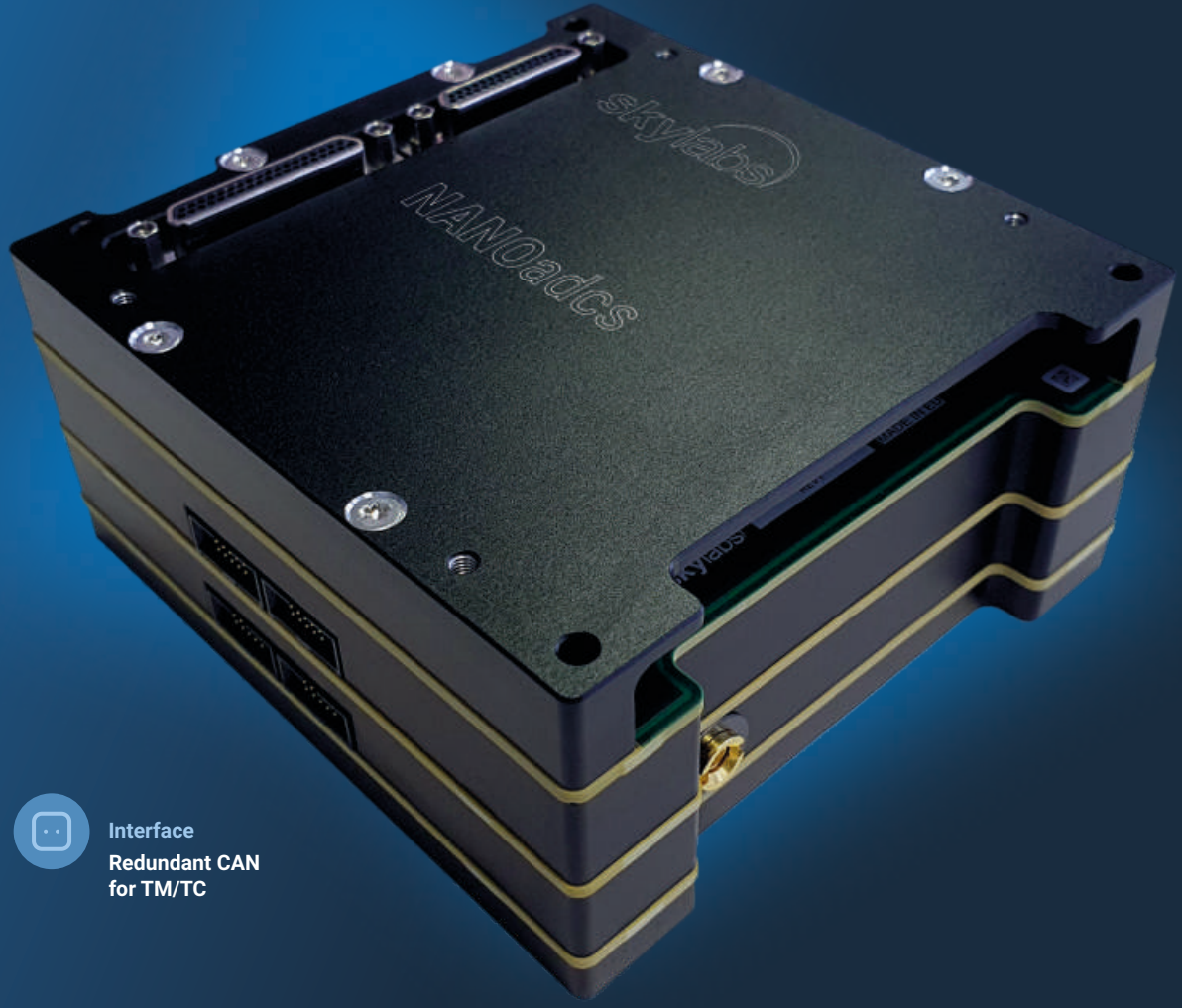


On-board



Integrated GNSS receiver



Built-in
NANOhp



Interface
Redundant CAN
for TM/TC

-  ISO 19683
-  IPC Class 3+
-  TRL 6
-  In-house MAIT

NANOadcs

High performance GNC platform for ADCS

NANOadcs, developed and manufactured by SkyLabs is the electronics system for the ADCS, consisting of built-in Fault Tolerant RISC-V 32-bit OBC, which runs GNC algorithms, based on the collected sensor data, and also either commands or drives the actuators in order to achieve accurate attitude estimation, and high precision pointing accuracy and stability. NANOadcs integrates multi-constellation GNSS receiver, highly sensitive on-board magnetometer and gyroscope.

This complete system, including GNS suit and sensors and actuators, is a fully European solution co-developed between SkyLabs and Indra Deimos, enhancing security, resilience, and innovation, positioning Europe as a leader in small satellite technology.



Integrated On-Board sensors
GNSS receiver,
magnetometer, gyro



Configurable LCL protected power channels
3.3V, 5V, 12V, or 18V



Sensors and actuators interfaces
5x RS422, 1xCAN, 4x UARTs, I2C,
12x Analog TIA&NTC,
3x Current ctrl. Full-bridge PWMs, 1PPS I/O




Wide input power range
5V - 28 V


In cooperation with





 Output power
Adj. up to 31 dBm (1.3W)

 Power consumption
< 4.5 W at 31 dBm

 NANOstack
Optionally available with
NANOstack enclosure

- ✓ ISO 19683
- ✓ IPC Class 3+
- ✓ TRL 9
- ✓ In-house MAIT

NANOcomm-2

UHF/VHF full-duplex communication subsystem with highly efficient amplifier

NANOcomm-2 is a highly miniaturised full-duplex TM/TC satellite communication subsystem. Its best-in-class SWaP characteristics assure the NANOcomm-2 outstanding performance for the emerging space market. Powered by PicoSkyFT, the NANOcomm-2 features embedded intelligence that directly enhances the overall functionality of the satellite system. Several intelligent built-in functions enable the NANOcomm-2 to operate as a fully autonomous system, facilitating the streamlined acquisition of satellite diagnostic data.



Input sensitivity

-111dBm @ 25 kbps GFSK



Data rate

Up to 25 kbps @
Full duplex



Frequency band

Tx: 400 - 470 MHz
Rx: 130 - 200 MHz



Protocol

CCSDS compliant



TM storage

Up to 24k log entries



Interfaces

Redundant CAN for TM/TC



Output power
Adj. up to 30 dBm (1W)




Power consumption
< 7 W at 30 dBm



Security (optional)
Encryption: AES-GCM-256
CCSDS 355.0-B-2: SDLP
CCSDS 355.1-B-1: SDLP-EP



NANOstack
Optionally available with
NANOstack enclosure

-  ISO 19683
-  IPC Class 3+
-  TRL 9
-  In-house MAIT

NANOLink(-S)-base

S-Band full-duplex communication subsystem with highly efficient amplifier

The NANOLink(-S)-base is a highly miniaturized full-duplex TM/TC satellite communication subsystem, equipped with an efficient integrated amplifier, and an optional built-in encryption system that provides a high level of security between the satellite and the ground station (GS).

Several intelligent built-in functions enable the NANOLink(-S)-base to operate as a fully autonomous system, facilitating the streamlined acquisition of satellite diagnostic data. The optional security features (-S) utilize the CCSDS Space Data Link Security protocol.

Additionally, the NANOLink(-S)-base supports the symmetric AES-GCM-256 authenticated encryption algorithm and accommodates multiple encryption keys, making it a key subsystem in NANOsky avionics.



Input sensitivity
-95 dBm @ 4 Mbps OQPSK



Data rate
Up to 4 Mbps
Full duplex



Frequency band
Tx: 2.200 - 2.300 GHz
Rx: 2.025 - 2.110 GHz



Protocol
CCSDS compliant



TM storage
Up to 24k log entries



Interfaces
Redundant CAN for TM/TC,
dual LVDS



Output power
Adj. up to 37 dBm (5W)



Power consumption
< 17 W at 37 dBm



Security (optional)
Encryption: AES-GCM-256
CCSDS 355.0-B-2: SDLP
CCSDS 355.1-B-1: SDLP-EP



NANOstack
Optionally available with
NANOstack enclosure

NANOLink(-S)-boost

S-Band communication subsystem with additional highly efficient amplifier

- ISO 19683
- IPC Class 3+
- TRL 9
- In-house MAIT

The NANOLink(-S)-boost is a highly miniaturized full-duplex TM/TC satellite communication subsystem, equipped with an additional efficient integrated amplifier, and an optional built-in encryption system that provides a high level of security between the satellite and the ground station (GS).

Several intelligent built-in functions enable the NANOLink(-S)-boost to operate as a fully autonomous system, facilitating the streamlined acquisition of satellite diagnostic data. The optional security features (-S) utilize the CCSDS Space Data Link Security protocol.

Additionally, the NANOLink(-S)-boost supports the symmetric AES-GCM-256 authenticated encryption algorithm and accommodates multiple encryption keys, making it a key subsystem in NANOsky avionics.



Input sensitivity

-95 dBm @ 4 Mbps OQPSK



Data rate

Up to 4 Mbps @
Full duplex



Frequency band

Tx: 2.200 - 2.300 GHz
Rx: 2.025 - 2.110 GHz



Protocol

CCSDS compliant



TM storage

Up to 24k log entries



Interfaces

Redundant CAN for TM/TC,
dual LVDS



Output power
Adj. up to 31.5 dBm (1.4W)
per antenna port



Power consumption
< 17 W at 31.5 dBm
for two antenna ports



Security (optional)
Encryption: AES-GCM-256
CCSDS 355.0-B-2: SDLP
CCSDS 355.1-B-1: SDLP-EP



NANOSTACK
Optionally available with
NANOSTACK enclosure

NANOLink(-S)-boost-dp

- ISO 19683
- IPC Class 3+
- TRL 9
- In-house MAIT

S-Band communication subsystem with highly sophisticated signal splitter/combiner

The NANOLink(-S)-boost-dp is a highly miniaturized full-duplex TM/TC satellite communication subsystem, equipped with an additional efficient integrated amplifier, a sophisticated two antenna port splitter/combiner, and an optional built-in encryption system that provides a high level of security between the satellite and the ground station (GS).

Several intelligent built-in functions enable the NANOLink(-S)-boost-dp to operate as a fully autonomous system, facilitating the streamlined acquisition of satellite diagnostic data. The optional security features (-S) utilize the CCSDS Space Data Link Security protocol.

Additionally, the NANOLink(-S)-boost-dp supports the symmetric AES-GCM-256 authenticated encryption algorithm and accommodates multiple encryption keys, making it a key subsystem in NANOSky avionics.



Input sensitivity

-86 dBm @ 4 Mbps OQPSK



Data rate

Up to 4 Mbps
Full duplex



Frequency band

Tx: 2.200 - 2.300 GHz
Rx: 2.025 - 2.110 GHz



Protocol

CCSDS compliant



TM storage

Up to 24k log entries



Interfaces

Redundant CAN for TM/TC,
dual LVDS



Output power
up to 37 dBm (5W)



Security (optional)
Encryption: AES-GCM-256
CCSDS 355.0-B-2: SDLP



NANOSTACK
Optionally available with
NANOSTACK enclosure

- ISO 19683
- IPC Class 3+
- TRL 5
- In-house MAIT

NANOCast

Secure high-speed link with highly efficient integrated amplifier

NANOCast is a 100 Mbps X-Band satellite transmission communication subsystem with an additional highly efficient integrated amplifier and built-in encryption system, which provides a high level of security between satellite and ground station communication. Several intelligent built-in functions enable the use of the NANOCast as an advanced communication system, making the acquisition of satellite payload data practically autonomous. The security functions of the NANOCast subsystems are based on the use of the CCSDS SDLS protocol and supports the symmetric AES-GCM-256 authenticated encryption algorithm with support for encryption key. Advanced encryption functions are supported in combination with a NANOLink subsystem.



Data rate
up to 100 Mbps
@ 50 MHz (OQPSK)



Interfaces
Redundant CAN for TM/TC,
dual LVDS, dual ETH



Protocol
CCSDS compliant



Frequency band
8025 MHz to 8500 MHz



Scalable distributed system

picoRTU-base
picoRTU-analog
picoRTU-digital
picoRTU-high-power



Various user interfaces
HV/HC/LV-HPC (ECSS-compliant)
Analog inputs
RS422/485, CAN, GPIOs,...



NANOstack
Modular distributed system

- ISO 19683
- IPC Class 3+
- TRL 7
- In-house MAIT

picoRTU system

Highly modular RTU system for LEO small & micro satellite platforms

The robust picoRTU modular system is designed to meet the space industry's demands for faster time to market while reducing non-recurrent costs and simplifying the integration and verification processes. The picoRTU system can function either as a standalone base unit or, through a stacked modular approach, as a collection of interconnected add-on units.

A variety of unit models are available, each offering different types of ECSS-compliant user interfaces. This flexibility allows the system to be efficiently tailored on a mission-by-mission basis, with minimal non-recurrent charges.



Interfaces

Redundant CAN for TM/TC,
redundant LVDS



Synchronisation

GNSS 1PPS
synchronisation input



ECSS user interfaces

HV/HC/LV-HPC
Differential ASM, ASM, TSM, BDM, BSM

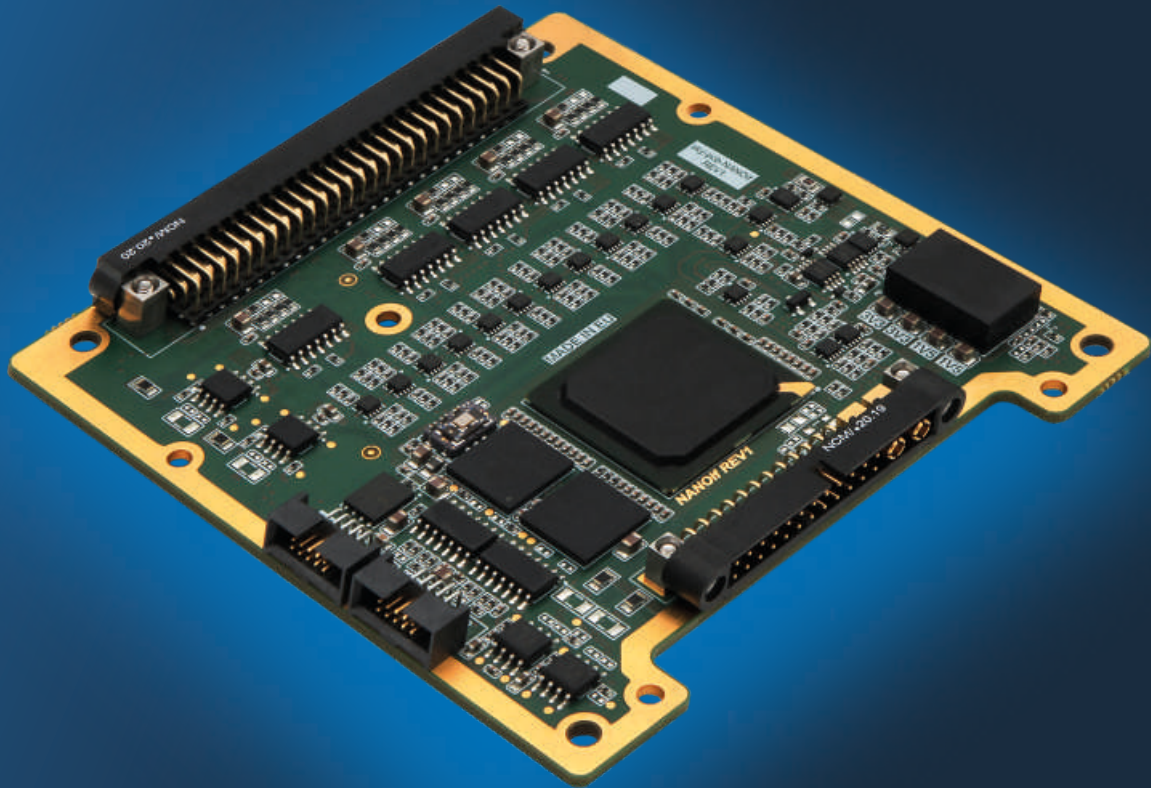


Other user interfaces

RS422/485, CAN, GPIOs,...



User interfaces
CAN, RS422/485, GPIOs,...



Comprehensive subsystem TM
Currents, voltages, temperatures...



NANOstack
Optionally available with
NANOstack enclosure

-  ISO 19683
-  IPC Class 3+
-  TRL 9
-  In-house MAIT

NANOif-2

Intelligent remote terminal unit with unified TM/TC interface

The NANOif-2 represents an intelligent remote terminal unit for interconnection of satellite's on-board sensors, instruments, or payloads into a seamless and unified on-board data handling architecture. NANOif-2 supports several highly configurable user interfaces - discrete ADC channels, Digital Input/Output, as well as communication links UART, RS422/485, SPI, I2C, and auxiliary CAN. All the interfaces are seamlessly transformed into a standard NANOsky I TM/TC redundant CAN bus interface. The translation of user interfaces is performed in a way to provide maximal RTU independence to the user's higher protocols. Several intelligent built-in functions enable the use of the NANOif-2 as a fully autonomous system, making the acquisition and conditioning of satellite sensors data practically autonomous.



User interfaces

2x CAN (with CSP bridge), 5x RS422, 24x ADC, 28x GPIO, 8 with remapping to SPI, I2C, UART



Interfaces

Redundant CAN for TM/TC



TM storage

Up to 24k log entries



⚡ Battery pack capacity
up to 172 Wh

🔋 Battery pack life time
> 30000 re-charge cycles @ 20% DoD
(80% EOL capacity)

⚡ 23 power output channels
3.3V, 5V (3x redundant), 12V and unregulated ch.
Current and voltage monitoring
Over-current and over/under-voltage protection

📦 NANOSTACK
Optionally available with
NANOSTACK enclosure

NANOeps

- ISO 19683
- IPC Class 3+
- TRL 9
- In-house MAIT

Highly integrated EPS with battery management and power control/distribution module

The NANOeps subsystem consists of a power control & distribution module coupled with a battery management module, featuring a scalable integrated battery pack (up to 172 Wh). This makes it one of the most advanced EPS available for nano and microsatellites platforms. The NANOeps includes active balancing to ensure exceptional lifespan and heating system for optimal protection of each battery cell. It is capable of supplying power through 23 independent channels, three of which are redundant. Additionally, the system features five dedicated deployment actuator interfaces, separation and remove before flight switches, and many other functionalities.

The comprehensive subsystem's TM (currents, voltages, temperatures, etc.) and TC is provided over cold redundant CAN interface. The NANOeps is fully complaint with up to two NANOeps-AMPPT subsystems.



Charge rate

Continuous up to 18A



Discharge rate

Continuous up to 18 A,
Peak up to 54 A



Deployment Interfaces

5x deployment outputs,
10x deployment TLM inputs



Separation/RBF Switches

Two separation switches and RBF



Battery balancer

Active battery balancing
per cell string



Interfaces

Redundant CAN for TM/TC



AMPPT channels
8 channels with dedicated
AMPPT each



NANOstack
Optionally available with
NANOstack enclosure

- ✓ ISO 19683
- ✓ IPC Class 3+
- ✓ TRL 9
- ✓ In-house MAIT

NANOeps-AMPPT

The safest and most accurate solar array energy conversion subsystem

NANOeps-AMPPT subsystem supports the safest and most accurate solar array energy conversion method using well proven analog maximum power point tracking feature. NANOeps-AMPPT is fully autonomous unit and compliant with NANOeps subsystem. Several intelligent built-in functions enable NANOeps-AMPPT to provide a rich set of TM for its autonomous analog MPPT conversion loop.



AMPPT efficiency
> 80 % (at 25°C)



Number of NTC inputs
10



Interfaces
Redundant CAN bus
for TM/TC



Solar array (input) parameters
Input voltage range 12.1V to 23.3V,
Up to 678 mA input current,
Input power up to 9W per channel



Charge (output) parameters
Output voltage range 7.5V to 11V,
Output power up to 8W per channel



Protocol
CCSDS compliant



Security

Encryption: AES-GCM-256
CCSDS 355.0-B-2: SDLP
CCSDS 355.1-B-1: SDLP-EP

skyEGSE-comm

Ground Station Equipment for communication over S-band RF link or over UHF/VHF RF link

skyEGSE-comm is a CCSDS compliant SDR solution that enables a full duplex communication link with SkyLabs' on-board RF communication subsystems. skyEGSE-comm exposes all communication capabilities over an MQTT interface, allowing seamless integration over Ethernet connection with customer's AIT or MOSW. Moreover, the skyEGSE-comm can be interconnected with existing ground station networks, including providers such as Leaf-Space and KSATlite.



Interface
Dual RS422



Interface
Dual high-speed LVDS



Interface
Dual CAN buses



 IPC Class 3+

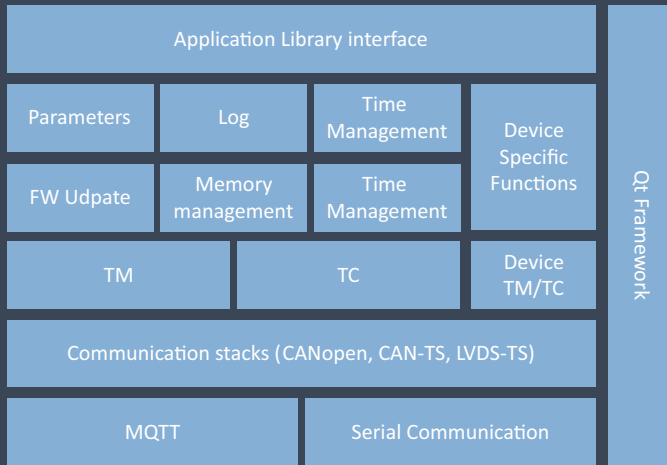
 In-house MAIT

skyEGSE-LINK2

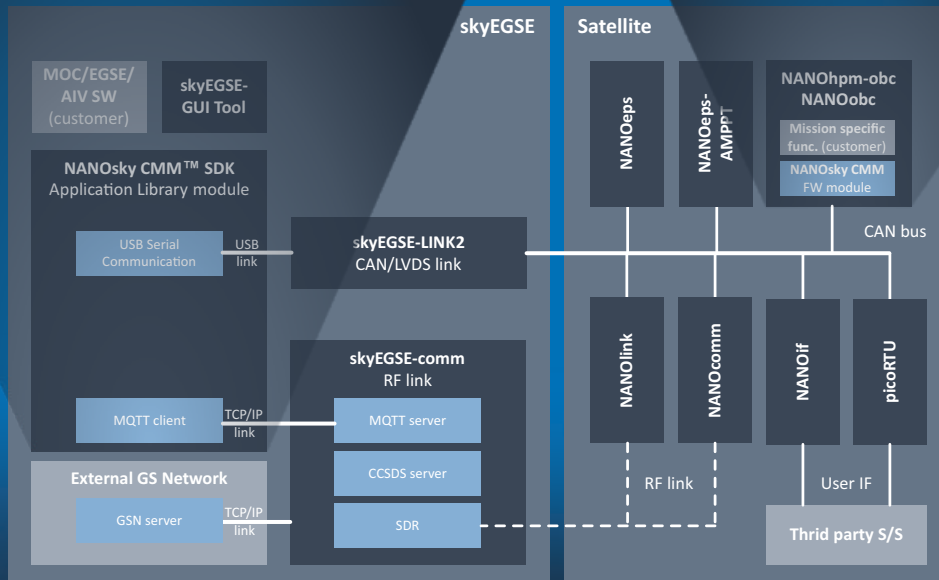
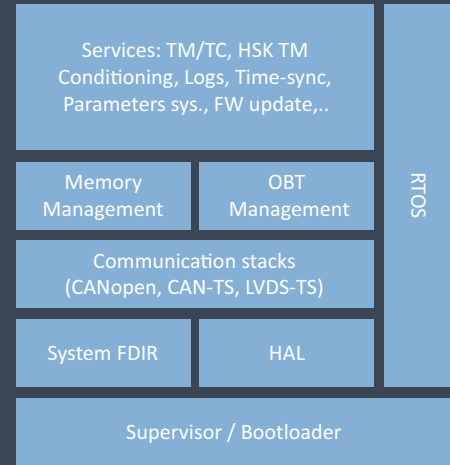
An USB Interface dongle for communication
over CAN/LVDS/RS422 interfaces

skyEGSE-LINK2 advanced interface dongle enables high speed and low latency communication between SkyLabs equipment and skyEGSE-GUI software or NANOskey CMM™ SDK. “Plug-n-Play” USB interface provides required data throughput to feed all dongle’s interfaces at the maximal data rates.

NANOsky CMM™ SDK Application Library module



NANOsky CMM™ SDK FW module



NANOskey CMM™ SDK

Software development kit for Control, Monitor and Management (CMM™) of NANOskey platform subsystems

The NANOskey CMM™ SDK implements all functions to support control, monitoring and management of any SkyLabs subsystems. All functions are provided in a comprehensive C++ library, with application-level examples for fast prototyping or functionality integration into third-party software. This enables users drastic savings in the development time for integration of SkyLabs subsystems functions into customer specific EGSE, AIV/T or even MOC software.

NANOskey CMM™ SDK is composed of Application Library and FW module.



Application Library module

serves as a framework developed in Qt/C++ for Windows and Linux environments. It supports all functionalities of NANOskey and picoRTU subsystems, making it easier to integrate with third-party AIV/T and EGSE software, or to build a solution from scratch.

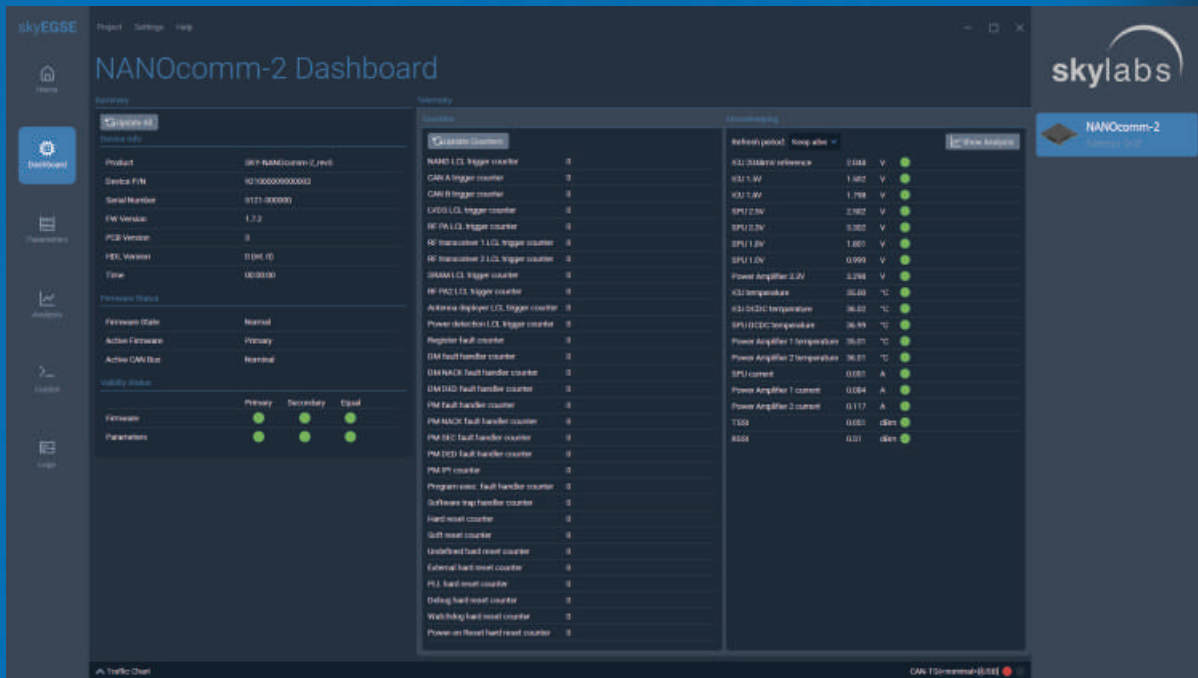


FW module

is a standard set of on-board computer functions integrated into a RTOS. This C-based FW module is verified and flight-proven, including essential features, FDIR mechanism, communication stacks with redundancy management, housekeeping TM acquisition and logging, and more.



Interface
CMM with multiple subsystems



Analyse
Realtime TM monitoring and data export

skyEGSE-GUI

Intuitive App for out-of-the-box operation

The skyEGSE-GUI desktop application enables the user immediate out of the box control, monitoring and management of any SkyLabs equipment. skyEGSE-GUI is a graphical user interface developed on top of NANOsky CMM SDK Application Library module. The application establishes a connection with target equipment via skyEGSE-LINK2 dongle or skyEGSE-comm server and provides features such as:



Telecommand interface for controlling all equipment functions



Downloading equipment logs



Equipment parametrization



Equipment FW upgrade function

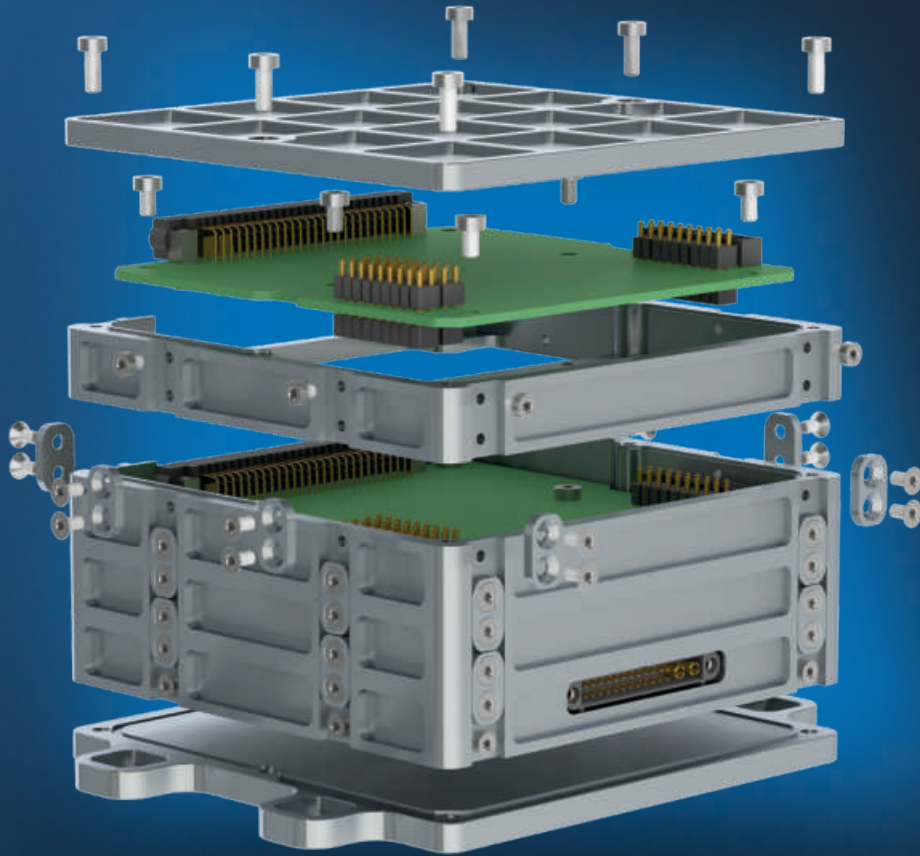


Execution of custom TM/TC



Redundancy support

Single module and physically separated
Two modules physically separated



Mounting options

Easy adaptable mounting position
Vertical or horizontal mounting



Extendable

Easy to extend with new module
Up to 16 modules in single stack



NANOstack

is innovative mechanical approach of assembling satellite platform in highly modular, scalable and ruggedised enclosure, while preserving best in class SWaP without sacrificing reliability or performance.



Product family comparison

On-board computers

Product	NANOobc-2	NANOhpm-obc	NANOhpc-obc
CPU	PicoSkyFT 8/16-bit	NOEL-V 32-bit	4x RISC-V 64 bit
FPU	Optional, IEEE-754 Single precision	IEEE-754 Single/Double precision	IEEE-754 Single/Double precision
Clock speed	16 MHz	50 MHz	600 MHz
CoreMarks	8	192	6000
Typ. Power consumption	0.9 W	2.1 W	3 W
Memory	128kB code memory 64kB data memory	256 MB DDR3	4 GB DDR4
TM storage (MRAM)	1 MB	1 MB	256 kB
Mass storage (FLASH)	2 GB NAND	2 GB NAND	115 GB NAND
Interfaces	Redundant CAN 2x LVDS/RS422/485	Redundant CAN 4x LVDS/RS422/485	Redundant CAN 4x LVDS/RS422/485 UART for Linux Console 2x Gigabit Ethernet
Operating system	FreeRTOS	RTEMS	Linux (Yocto)

Product family comparison

Communication modules

Product	NANOcomm-2	NANOLink(-S)-base	NANOLink(-S)-boost	NANOLink(-S)-boost-dp	NANOCast
Frequency band	UHF / VHF	S-band	S-band	S-band	X-band
TX frequency	400 to 470 MHz	2200 to 2300 MHz	2200 to 2300 MHz	2200 to 2300 MHz	8025 to 8500 MHz
RX frequency	130 to 200 MHz	2025 to 2110 MHz	2025 to 2110 MHz	2025 to 2110 MHz	/
RF bitrate	25 kbps	4 Mbps	4 Mbps	4 Mbps	100 Mbps
Output power	Up to 31 dBm	Up to 30 dBm	Up to 37 dBm	Up to 31.5 dBm	Up to 37 dBm
Protocol	CCSDS	CCSDS	CCSDS	CCSDS	CCSDS
Interfaces	Redundant CAN	Redundant CAN, 2x LVDS	Redundant CAN, 2x LVDS	Redundant CAN, 2x LVDS	Redundant CAN, 2x LVDS, 2x ETH
Security protocol		Optional	Optional	Optional	Optional
Encryption		AES-GCM-256 (optional)	AES-GCM-256 (optional)	AES-GCM-256 (optional)	AES-GCM-256 (optional)



SCAN THE QR CODE
TO VIEW OUR CATALOG



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