Factsheet



KUDELSKI LABS

Space & Defense Security

Security for the New Space Economy, From Chip to Orbit, Before Launch and for Life

Space is now critical infrastructure and a new economy. Capacity is shared and resold, payloads are hosted on others' platforms, and data is sold by use. Europe is now funding security and resilience technologies for space alongside civil missions, which makes space dual-use. Each scenario depends on a robust plan that can exist for 15+ years and defines who can command a satellite, access its capacity and meter its usage, all while noting that hardware security can't be added after launch.

Kudelski Labs helps chip and equipment makers, satellite builders, operators and agencies integrate a sovereign, European root of trust, prove it before flight and manage it in orbit. Each party keeps its own keys, is crypto-agile and is ready for post-quantum.

From Root of Trust to Trusted Services

A root of trust is a protected hardware block holding a unit's identity and keys, beyond the reach of software. Everything builds on it, from secure boot and signed updates to the trusted services new space business models depend on: separate keys for each party and signed records of what each one used.

Trust You Can't Bolt on After Launch

Built in Before Launch
Designed into the silicon or run in the FPGA, our root of trust is on board from first power-up.

Secure for the Life of the Satellite
Keys, identities and updates managed in orbit, for as long as it flies.

Quantum-Safe Now
Crypto-agile security for mandated migration: US from 2027, EU high-risk systems by 2030.

You Hold the Keys
Owners, operators and customers each control their own access on a shared satellite.

The Kudelski Labs Orbital Trust Layer

Built in before launch:
A root of trust in SoCs, chiplets, or rad-hard and commercial FPGAs: protected identity from first boot, ready for post-quantum algorithms.

Proven on the ground:
Independent pre-flight evaluation and attack testing, with evidence for agency and program review.

Controlled in orbit:
Keys, identities and updates managed for the satellite's life, each owner, operator and customer holding their own keys.

Key Features

Everything a space system needs to establish, prove and keep trust, from chip to orbit.

- Hardware root of trust, built into SoCs and chiplets or run on rad-hard and commercial FPGAs, with secure boot and remote attestation of on-board hardware and software
- On-board key services (HSM functions) and signed, authenticated in-orbit software and bitstream updates
- Quantum-ready: post-quantum cryptography and crypto-agility, plus hardened key management for quantum key distribution (QKD), tested against ETSI protection profiles
- Built for shared satellites: multi-authority keys keep owners, operators and customers separate, with signed evidence of what each party used
- Independent pre-flight evaluation, with evidence ready for agency review
- Dual-use: one design, delivered in commercial and government or defense security profiles

Use Cases

- Dual-use and defense missions: national keys under national control, including on commercial platforms
- Building certifiable, secure European space silicon
- Selling shared satellite capacity as revocable customer access
- Hosting third-party payloads, with separate keys for payload and platform operators
- Proving capacity and data use between owner, operator and customer
- Migrating satellites and ground systems to post-quantum cryptography

Why Kudelski Labs

Kudelski engineering first went to space more than 50 years ago, and for the last 30 years we've protected pay-TV content and devices delivered by satellite against attackers in the field. Now we're bringing that trust back to space. We combine advisory, security IP, our security labs and lifecycle operations in one partner, independent of any single prime or chip vendor.

Solutions powering our Customers' Space Ambition:

Device Advisory & Design | Security Labs | Security IP (KSE) | Device Lifecycle Management (keySTREAM)

Strategic Intelligence. Impactful Action.

Our embedded security expertise is rooted in more than three decades of hardware, software and cybersecurity experience. We use our expertise and technology to protect all key assets - devices, identity, data, decisions, commands and actions throughout the lifetime of the device and its ecosystem.

Explore Our Innovations | Contact Us

Kudelski Labs leverages the Kudelski Group's decades of experience in intelligent security to solve the world's most complex cyberthreat challenges at the intersection of connectivity and safety. Its mission is to secure the future—across land, air, space, and industry—through advanced research, real-world engineering, and global partnerships.

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