SHARC

6G SNS Co-funded by the European Union

Multi-Tenant, Disaggregated 6G RAN Over a Secure Hardware-Accelerated Compute Continuum

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CONSORTIUM PARTNERS

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SHARC at a glance

Hardware accelerators become something the 6G RAN chooses at run time

An AI-native, disaggregated, multi-tenant 6G RAN over a secure, hardware-accelerated compute continuum, for more flexibility and lower energy use.

36 months
Sep 2026 – Aug 2029

€6.76M
EU contribution

14 partners
from 8 countries

What AI-native means in SHARC

1. AI in every control loop, from accelerator selection to intent-based policies
2. AI models managed like network software, through one MLOps pipeline
3. AI inference shares the accelerators with RAN processing

Consortium

COORDINATOR
Space Hellas

TECHNICAL MANAGER
NCSR Demokritos

OPERATOR
Telefónica

INDUSTRY & SMES
Advanced Computing Spain · Firecell · Software Radio Systems · Plaixus · Four Dot Infinity · Gigasys Solutions

RESEARCH & ACADEMIA
ICCS · VTT · UPC · Fraunhofer IIS · University of Surrey

How SHARC works

At the core: the i-HAL

RAN functions O-DU · O-CU · xApps and dApps

i-HAL · intelligent hardware abstraction layer

Per job, picks the best variant of each RAN function on the hardware available now

Variants built for lower latency, lower energy or fewer resources

CPU | **GPU** | **FPGA** | **Neuromorphic** | **Analog**

Key technological enablers

Open / Disaggregated | **Computing Technologies** | **Hardware** | **Energy Efficiency Technology** | **Management & Orchestration** | **AI**

What SHARC will deliver

Validated in five use cases

UC1

Non-linear processing

Joint detection and decoding made practical in hardware

UC2

Regenerative NTN payload

Accelerator-enabled gNB on LEO, MEO or GEO satellites

UC3

Accelerators in the RIC

RAN functions offloaded via the i-HAL, vs. CPU-only

UC4

RAN on the continuum

Energy-aware, intent-driven orchestration from cloud to far edge

UC5

Neuromorphic accelerator

SENNA analog spiking chip joined to an SDR platform

Expected outcomes

- ✓ **O-RAN-aligned i-HAL and RAN workload library,** with results fed back to O-RAN
- ✓ **More flexible, more energy-efficient** multi-tenant 6G RAN
- ✓ **Open APIs, blueprints and demos** for automotive, logistics, maritime, public safety

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www.sharc-6g.eu

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