



X-TREME 6G

*X Transceivers and RF front ends
made in Europe's
Microelectronics lighthouse to
Enable new 6G use cases*

- **Start:** 01.01.2025
- **Duration:** 42 months
- **EU funding:** 10.360 M EUR
- **Funding project:** SNS JU
- **Key words:** 6G, microelectronics, telecommunications

Agenda

I Introduction

II Impact

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1. Introduction

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X-TREME 6G project has received fundings from the Smart Networks and Services Joint Undertaking (SNS JU) under the Horizon Europe research and innovation programme under Grant Agreement NO 101192681



Introduction

As Europe is still negotiating its path towards 5G deployment, 6G remains a land of endless possibilities. X-TREME 6G aims to harness those possibilities, and to contribute towards a network-centric, democratized, and open 6G ecosystem able to release the current hyperscale's market embrace, while Empowering European Industry at large.

In other words, X-TREME 6G is the SNS JU's **Microelectronics lighthouse.**



Project description

X-TREME 6G relies on a **unique industry-led consortium** to provide a **foundational open microelectronics platform in Europe**, with the objective to create and design **key disruptive next generation chiplets and chipsets for 6G use cases**. The idea is to break up the full potential of best-in-class BiCMOS, InP and heterogeneous 3D integration for high-capacity radio access technologies, such as **wireless back-hauling** at sub-Terahertz frequencies, **Joint Communication And Sensing, Non-Terrestrial Networks**, and **Network As a Sensor**.

The proposal's ambition is to **establish and maintain a sustainable open platform for the duration of the SNS programme and beyond**, and to **support 6G verticals**.



In a nutshell

“X-TREME 6G will provide tangible contributions towards an experimentation EU framework for 6G; while dynamically supporting the emerging 6G ecosystem and evaluate additional 6G challenges and expectations”.

Mohand Achouche, Nokia France and X-TREME 6G's innovation manager



2. Impact

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Expected impact

- Validation/demonstration of **6G candidate microelectronics technologies and systems** as part of a **representative end-to-end 6G architecture**.
- Exploitation of the results and momentum of the EC **5G infrastructure PPP ICT-42 COREnect CSA project**.
- Validation/demonstration of the performance of **key 6G candidate HW solutions, technologies, components, and architecture** operating across **various frequency bands**.
- Integration of **key 6G-related Chips JU developments**.
- Validation/demonstration of the **feasibility of 5G advanced KPIs**.



Expected results

- **SiGe HBT BiCMOS 55x** fabrication process
- **InP HBT** fabrication process.
- **Novel radio systems and components** in the THz bans.
- **New radio interfaces.**
- **Efficient models** designed for **HW implementation in baseband applications.**
- **Novel RISC-V processor architecture.** accommodating **6G BB functionality.**
- **ML/AI algorithms** for **JCAS, SATCOM, and NaS.**
- End-to-end **data ingestion pipeline** for **NaS platform.**
- **Open 6G testbeds** for experimentation.



Target groups

- **Telecommunications system integrators** and operators.
- **Semiconductor chip manufacturers** and designers.
- **Tier 1 automotive OEMs** for connectivity and radar components.
- **Optical fiber communications industry.**
- **Satellite system** or sub-system manufacturers.



SDG contributions

- SDG 3 – good health and well being
- SDG 4 – quality education
- SDG 8 – decent work and economic growth
- SDG 9 – industry innovation and infrastructure
- SDG 10 – reduced inequalities
- SDG 11 – sustainable cities and communities
- SDG 13 – climate action
- SDG 12 – responsible consumption and production
- SDG 17 – partnerships for the goals

To know more about the SDGs, click on this [link](#).





3. Consortium

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Work package leaders



ST MICROELECTRONICS

- Project coordinator; WP2 leader; WP7 leader



Nokia Italy

- WP1 leader



Nokia France

- Innovation manager

Karlsruhe Institute of Technology (KIT)

- WP3 leader



IMST

- WP4 leader



CEA-Leti

- WP5 leader



ABIMI

- WP6 leader
- Project coordination support.



Other members



- III-V Lab



- Fraunhofer IZM



- DTU



- IMS



- University of Patras



- P-NET



- Orange Polska



- ETH Zurich



- Argus Space



- Politecnico di Milano



4. Communication

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Digital channels

Linkedin - <https://www.linkedin.com>

Website - <https://x-treme6g.eu/>

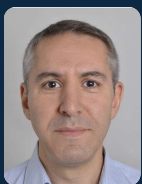


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Thank you!

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