ECS 2024 GHENT BELGIUM 5-6 December

Advanced Nodes and Heterogeneous Integration

SHIFT

Sustainable Technologies Enabling Future Telecom Applications

Challenges and objectives

Beyond-5G and 6G

SHIFT develops innovative semiconductor and packaging technologies for telecommunication areas such as 5GNR (Beyond 5G) and 6G wireless network access and backhaul, ultra-high speed optical links between servers, satellite telecommunications, and Earth observation.

Technical goals

- **Technology Demonstrator:** SiGe BiCMOS 55nm – GaN 100nm
- **Demonstrator#1**: E(71-86GHz) & D(110-175GHz) band phased array antenna modules for 5G backhaul
- **Demonstrator#2:** High-speed/high-capacity data transport for optical communication in data centers and transport
- **Demonstrator#3:** Secure data transmission wireless backhaul over short distances
- **Demonstrator#4**: "Future-G" transceivers (135-145GHz)
- **Demonstrator#5:** Sub-6GHz GaN/SiGe transmitter Front-End Module
- **Demonstrator#6:** Digital single-chip Monolithic Microwave Integrated Circuit (MMIC) Transmitter
- **Demonstrator#7:** Earth observation in X band (8GHz)
- **Demonstrator#8:** Electronically Steerable Array in ka-band (26.5-40GHz) Antenna (ESKaA)
- **Demonstrator#9:** GaN DC-DC converter

Expected impact

SHIFT makes significant contributions to the "twin transition" through innovations for advanced telecommunications

SHIFT develops innovative semiconductor and packaging technologies for telecommunication areas such as 5GNR (Beyond 5G) and 6G wireless network access and backhaul, ultra-high speed optical links between servers, satellite telecommunications, and Earth observation

SHIFT contributes to solving environmental and societal concerns by analysing the carbon footprint of telecommunications products through their manufacturing chain, operational use, and recycling

SHIFT supports Europe's will for sovereignty in semiconductors by accelerating the development and dissemination of new European technologies

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GA: 40 Partners + 3 Associated Partners
8 countries

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