last mile semiconductor

Ultra low-cost, secure & reliable
System-on-Chip based on the first global-free,
non-cellular 5G standard enabling

Smart Edge (AI)
Long Range Connectivity

www.lm-semi.com

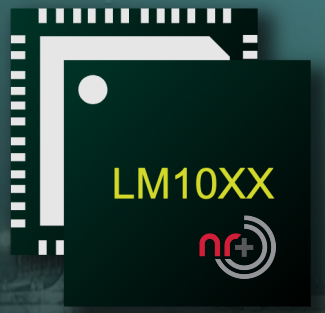
European Innovation Council
Co-funded by the European Union

We are **last mile semiconductor.**

We are developing an ultra-low-power, cost-effective wireless System-on-Chip that combines cellular 5G performance with Bluetooth-level energy efficiency, using the new non-cellular 5G NR+ standard.
One chip – empowering **digital sovereignty** in our **hyperconnected future.**

About us:

- Fabless Semiconductor Company
- Founded in 2022, based in Dresden – the heart of Silicon Saxony
- Currently 25+ team (40+ FTEs) including five PhDs and over 250+ years of combined semiconductor & wireless experience.
- Teams: System design, RFIC, Digital Design, Firmware
- Founders: Christoph Gulich (CEO), Mario Orgis (CTO)



Long Range, a missed feature in IoT…?

…By now!

+

Secure, energy-efficient, and reliable connectivity over **large** areas (smart meters, sensors, gateways, controllers, etc.).

+

NR+ delivers a **globally interoperable, IP-native long-range standard.** While **todays LPWAN** technologies are constrained by **frequency limits, fragmentation, and proprietary architectures**.

>>

We as DECT Forum can position NR+ as **the leading Long Range technology –**

Lets Do it together!

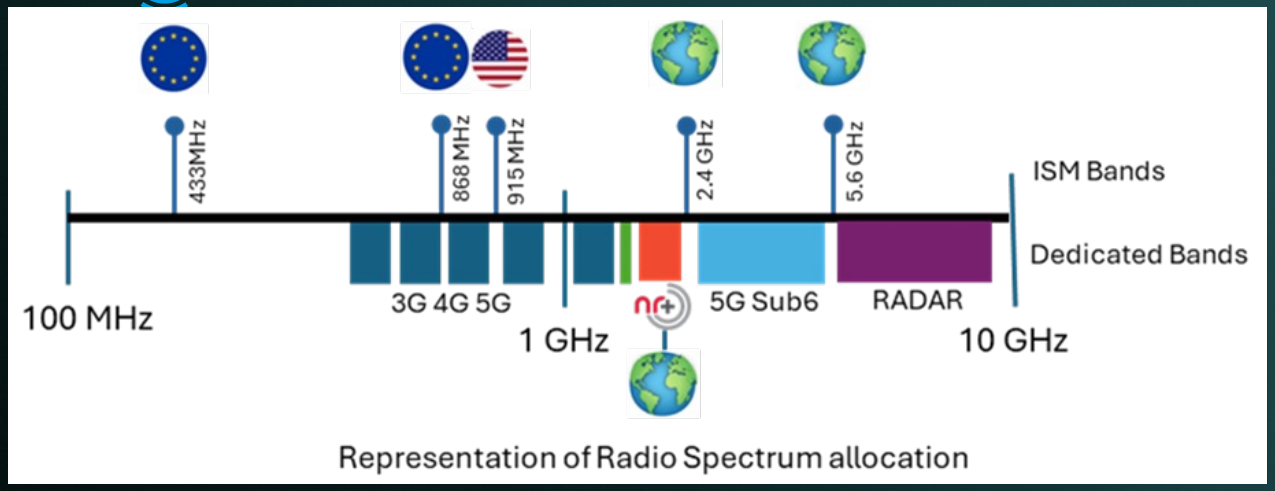
No networks for reliable IoT connectivity are available yet.

Cellular 5G 4G/56

Wi-Fi

Bluetooth

LoRaWAN



Representation of Radio Spectrum allocation

+ Long Range
+ End-to-end security
+ No Interferences
+ Scalability
+ Data rate > 1 Mbit/s
+ Low-cost
+ No operator
+ Free Dedicated spectrum
+ World-wide (incl. Europe)
+ Low-Latency

Product Offering: LM10XX Platform

Our LM10XX is a single-chip solution combining an ultra-low-power RISC-V core with a high-performance multiband NR+ radio and integrated Edge AI capabilities to deliver reliable and secure connectivity. Built on 22nm FDSOI technology, it enables a new generation of energy-efficient and intelligent wireless devices.

Key features

- ✓ Application Processor 32-bit RISC-V @200 MHz
- ✓ Network Processor 32-bit RISC-V
- ✓ 3MB of NVM and 512 KB of RAM
- ✓ **Integrated NR+ multiband radio**
- ✓ Long range up to 6km due to 23dbm TX power
- ✓ **Integrated NPU for Edge AI**
- ✓ Integrated Secure Element for SW monetarization
- ✓ Zephyr OS Software SDK
- ✓ Channel Sounding
- ✓ Open-Source MAC

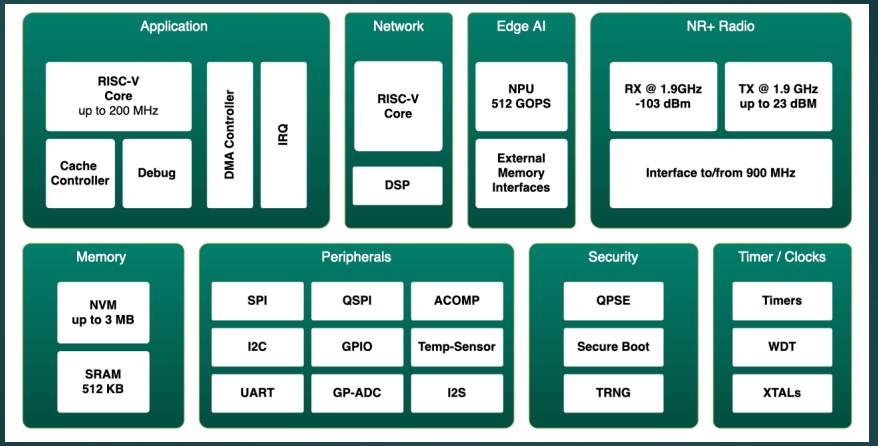
NR+ System-on-Chip Platform

Our LMS NR+ System-on-Chip combines 5G performance with Bluetooth efficiency, providing secure, scalable & cost-effective networks for professional IoT-Application.

SoC fulfils all requirements for professional IoT

- ✓ **Security & Regulatory**
  Integrated Quantum Proof Secure Element
- ✓ **Low Cost**
  In-house RISC-V processor & royalty free design
- ✓ **Reliability & low latency**
  Channel sounding & no interference due to 1.9 GHz operation
- ✓ **Low complexity**
  NR+ standard & no cellular operator

System-on-Chip Architecture



Patents

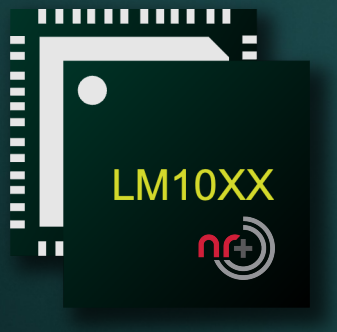
- Channel sounding for channel estimation
- Essential patents for increasing the radio performance
- Patented small area radio transceiver layout

Ultra-low Power Consumption

- 22nm FDSOI

last mile semiconductor

LM10XX SoC Product Family



LM10XX: Family Overview

Scalable, efficient, and ready for DECT NR+ edge devices

>

Entry-level NR+

LM10LE-56

- Large scale massive IoT end points
- Smart Building End devices
- Submetering
- Asset & Logistics Tracking
- Consumer & Appliance Connectivity

>

Multi-interface node

LM10ME-84

- Smart metering Environmental Monitoring
- Grid Sensors
- Critical Infrastructure
- Edge AI Audio

>

Edge AI

LM10HE-121

- Smart Video Surveillance
- Edge AI High Definition Video
- Intercom/Telephony

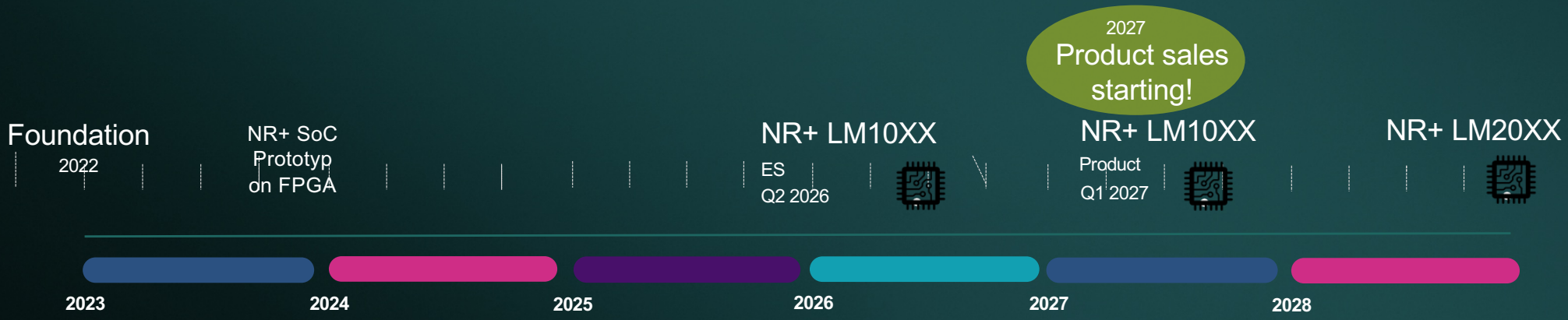
LM10XX: Platform

Interface	LM10LE-56	LM10ME-84	LM10HE-121
NR+ Bands	1880-1930 MHz, 1785-1805 MHz	1880-1930 MHz, 1785-1805 MHz	1880-1930 MHz, 1785-1805 MHz
RF Bandwidth	1,728 MHz, 3,456 MHz, 6,912 MHz	1,728 MHz, 3,456 MHz, 6,912 MHz	1,728 MHz, 3,456 MHz, 6,912 MHz
TX Max Power	10 dBm	23 dBm	23 dBm
QSPI Banks	1	2	3
LVDS	–	1	1 TX + 1 RX pair
SPI	2	2	4
I²C	2	3	4
UART	2	2	2
I²S (Audio)	✓	✓	✓
ADC	3	3	3
Memory	-	-	ext. SRAM
10BASE-T1L	–	Dual Port	Dual Port

Roadmap

Wireless and Wired System-on-Chips for professional IoT

- Wireless NR+ - 1.9GHz and 900MHz
- Wired Single Pair Ethernet - SPE 10BASE-T1L



last mile semiconductor

Ultra low-cost, secure & reliable
System-on-Chip based on the first global-free,
non-cellular 5G standard enabling

Smart Edge (AI)
Long Range Connectivity

www.lm-semi.com

European Innovation Council
Co-funded by the European Union