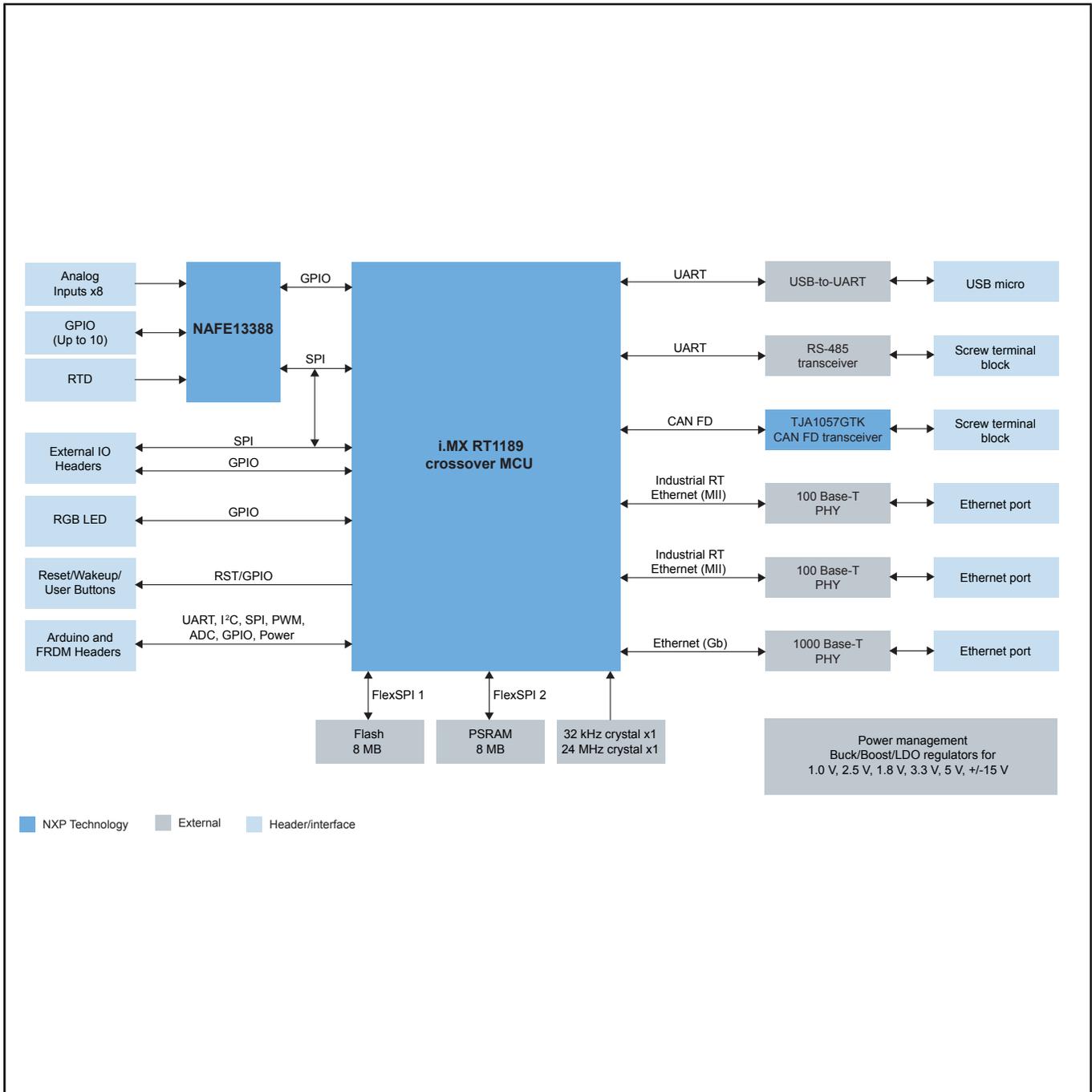# Remote I/O Platform

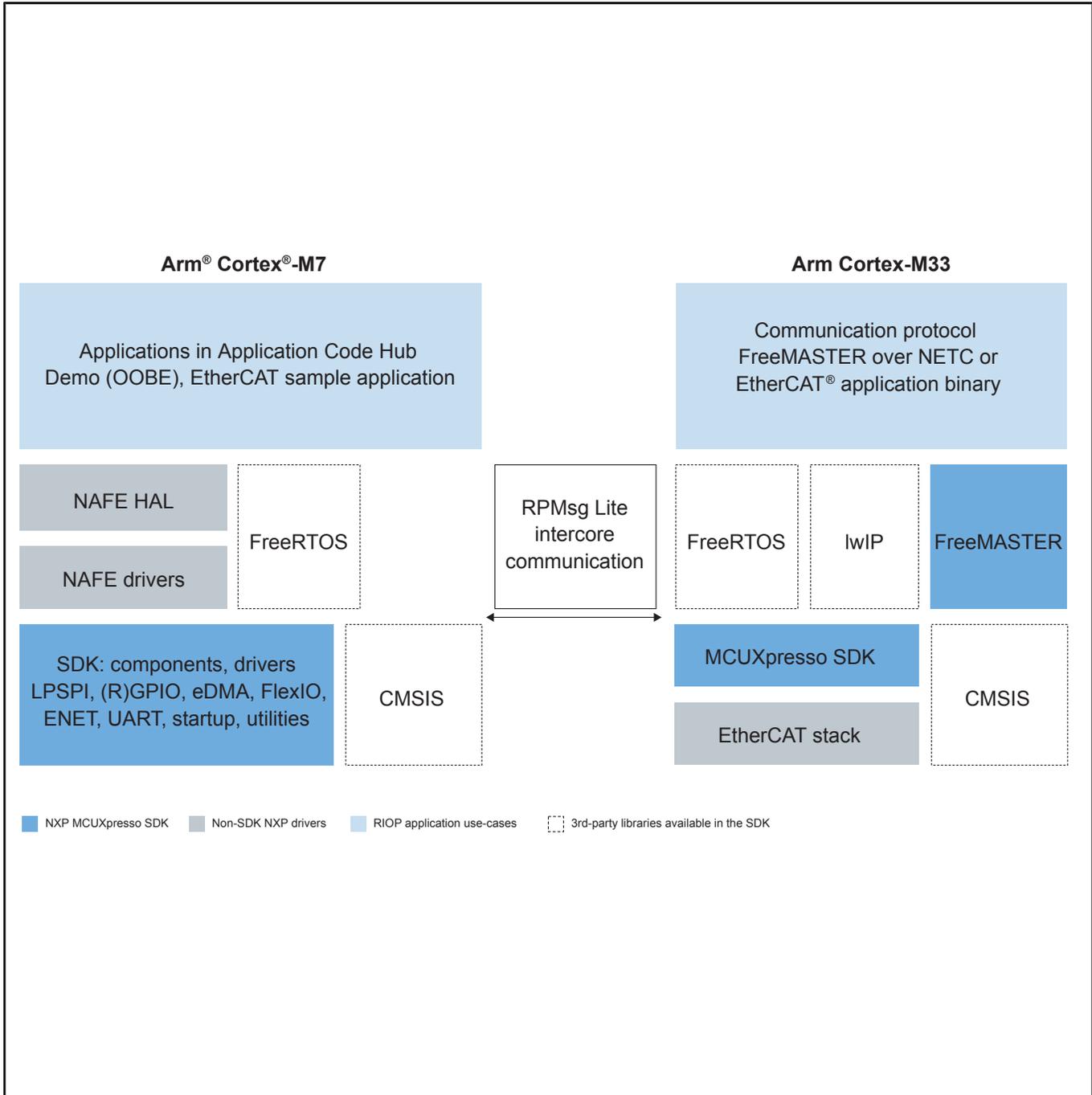## REMOTE-IO-PLATFORM NEW

Last Updated: Dec 18, 2025

NXP's Remote I/O Platform (RIOP) accelerates industrial automation by delivering flexible, high-precision data acquisition and secure, multi-protocol connectivity for factory and process control systems. Designed to simplify integration into Industry 4.0 environments, RIOP supports predictive maintenance and helps optimize reliability and operational efficiency.

As a reference platform, it enables Ethernet-connected remote I/O for both analog and digital signals, while supporting leading industrial protocols such as EtherCAT and CAN alongside robust sensor front-ends. This solution is ideal for quick prototyping, lab setups, factory automation and applications requiring functional safety and instrumentation.

Remote I/O Platform Hardware Block Diagram

Remote I/O Platform Software Block Diagram

Arm® Cortex®-M7

Applications in Application Code Hub Demo (OOBE), EtherCAT sample application

NAFE HAL

NAFE drivers

FreeRTOS

SDK: components, drivers LPSPI, (R)GPIO, eDMA, FlexIO, ENET, UART, startup, utilities

CMSIS

RPMsg Lite intercore communication

Arm Cortex-M33

Communication protocol FreeMASTER over NETC or EtherCAT® application binary

FreeRTOS

lwIP

FreeMASTER

MCUXpresso SDK

EtherCAT stack

CMSIS

NXP MCUXpresso SDK   Non-SDK NXP drivers   RIOP application use-cases   3rd-party libraries available in the SDK

View additional information for Remote I/O Platform.

Note: The information on this document is subject to change without notice.