

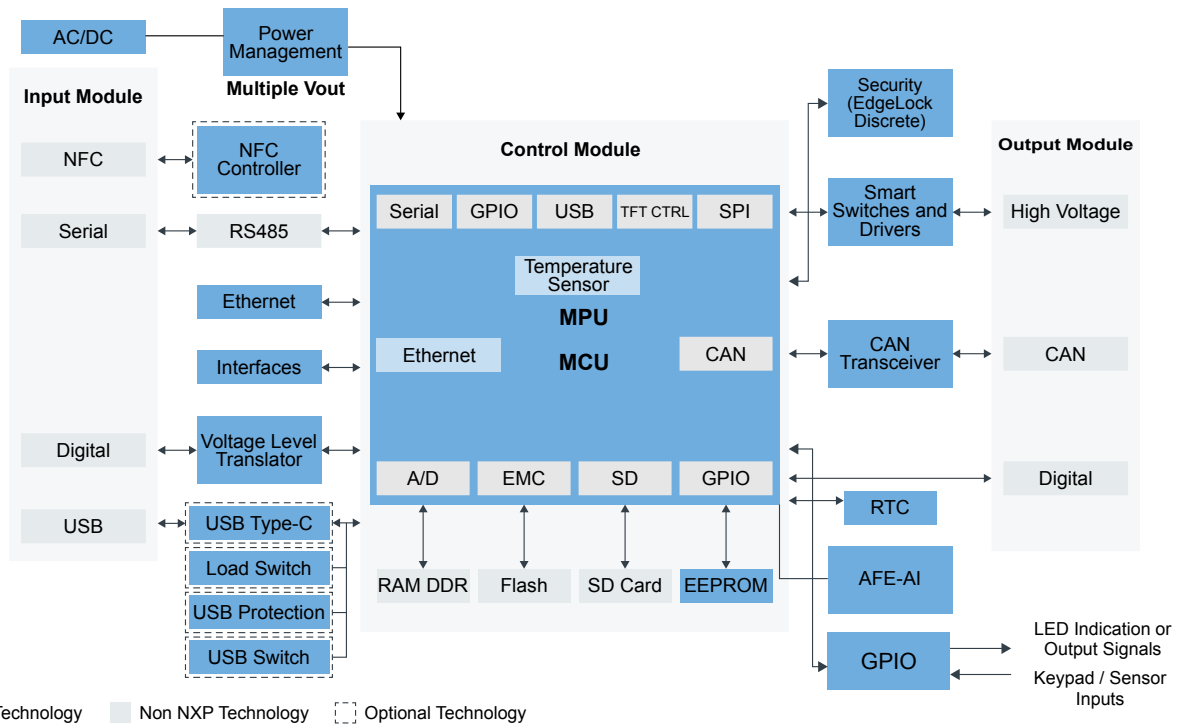


# Programmable Logic Controller (PLC) and Remote I/O

Last Updated: Jan 24, 2024

Panel-mounted controllers and large distributed control systems require PLCs and remote I/Os to precisely control and manage machines and processes for synchronized operations across a factory. For the tiniest IO application up to the most powerful high performance PLC application, NXP's solutions portfolio offers key components, including low power edge microcontrollers and processors with multiple communications interfaces and TSN, high-precision and high-performance analog and digital front ends, security and functional safety.

## Programmable Logic Controller (PLC) Block Diagram



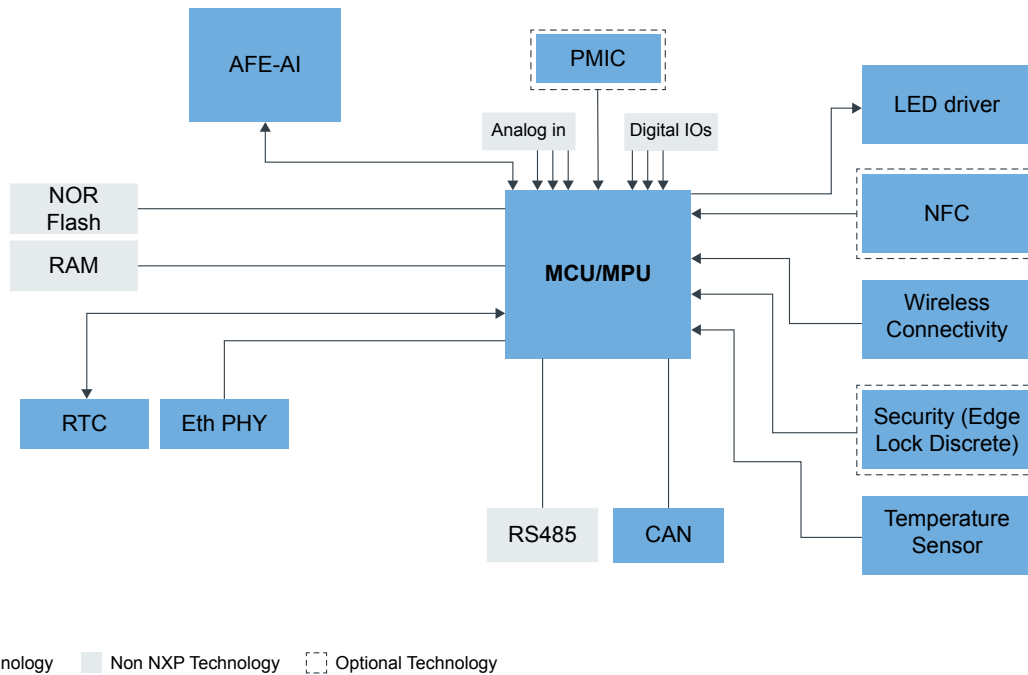
### Recommended Products for Programmable Logic Controller (PLC)

MCU/MPU	<ul style="list-style-type: none"> <li>• <a href="#">MCX-A14X-A15X</a>: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals</li> <li>• <a href="#">MCX-N94X-N54X</a>: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security</li> <li>• <a href="#">General Purpose MCUs</a>: General Purpose MCUs</li> <li>• <a href="#">i.MX RT Crossover MCUs</a>: i.MX RT Crossover MCUs</li> <li>• <a href="#">Layerscape Processors</a>: Layerscape® Processors</li> <li>• <a href="#">i.MX Applications Processors</a>: i.MX Applications Processors</li> </ul>
Air Conditioning GPIO	<ul style="list-style-type: none"> <li>• <a href="#">PCAL9714</a>: 14-Bit SPI I/O Expander with Agile I/O Features</li> <li>• <a href="#">PCAL9722</a>: 22-Bit SPI I/O Expander with Agile I/O Features</li> </ul>

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AFE-AI	<ul style="list-style-type: none"> <li>• <a href="#">NAFEx1388</a>: Highly Configurable 8 Channel ±25 V Universal Input Analog Front-End</li> </ul>
Power Management	<ul style="list-style-type: none"> <li>• <a href="#">PMICs</a>: Power Management Integrated ICs (PMICs)</li> <li>• <a href="#">System Basis Chips</a>: System Basis Chips</li> <li>• <a href="#">PF3000</a>: 12-Channel Configurable PMIC for i.MX6 and i.MX7 Application Processors</li> <li>• <a href="#">MC34VR500</a>: Multi-Output DC/DC Regulator</li> </ul>

Interfaces	<ul style="list-style-type: none"> <li>• <a href="#">CAN Transceivers</a>: CAN Transceivers</li> <li>• <a href="#">TJA1052IT</a>: Galvanically-Isolated High-Speed CAN Transceiver</li> </ul>
Smart Switches and Drivers	<ul style="list-style-type: none"> <li>• <a href="#">High Side Switches</a>: High Side Switches</li> <li>• <a href="#">Pre-Drivers</a>: Pre-Drivers</li> <li>• <a href="#">Low Side Switches</a>: Low Side Switches</li> <li>• <a href="#">Configurable Switches</a>: Configurable Switches</li> </ul>
USB Type-C	<ul style="list-style-type: none"> <li>• <a href="#">USB PD-PHY and CC-Logic</a>: USB PD-PHY and CC-Logic Controllers</li> <li>• <a href="#">PTN5150</a>: CC Logic for USB Type-C Applications</li> <li>• <a href="#">PTN5110</a>: USB PD TCPC PHY IC</li> </ul>
Load Switch	<ul style="list-style-type: none"> <li>• <a href="#">Load Switches</a>: Load Switches</li> <li>• <a href="#">NX5P3090UK</a>: USB PD and Type-C Current-Limited Power Switch</li> </ul>
USB Protection	<ul style="list-style-type: none"> <li>• <a href="#">NX20P0477</a>: USB Type-C CC Smart Protection</li> </ul>
USB Switch	<ul style="list-style-type: none"> <li>• <a href="#">High-Speed Signal Switches</a>: High-Speed USB Signal Switches</li> <li>• <a href="#">USB Redrivers</a>: USB Redrivers - Signal Conditioners</li> <li>• <a href="#">CBTL02043A_CBTL02043B</a>: 3.3 V, Two Differential Channel, 2-1 Multiplexer/Demultiplexer Switch</li> </ul>
NFC	<ul style="list-style-type: none"> <li>• <a href="#">PN7160</a>: NFC Plug and Play Controller with Integrated Firmware and NCI Interface</li> </ul>
Non-Volatile Storage	<ul style="list-style-type: none"> <li>• <a href="#">NXH5104UK</a>: 4 Mbit Serial SPI EEPROM</li> </ul>
Security (EdgeLock Discrete)	<ul style="list-style-type: none"> <li>• <a href="#">SE050</a>: EdgeLock<sup>®</sup> SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility</li> </ul>
AC/DC	<ul style="list-style-type: none"> <li>• <a href="#">AC-DC Controllers</a>: AC-DC Controllers</li> </ul>
Voltage Translator	<ul style="list-style-type: none"> <li>• <a href="#">Voltage Level Translators</a>: Voltage Level Translators</li> </ul>
Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">LS1028A</a>: Layerscape<sup>®</sup> 1028A Applications Processor</li> <li>• <a href="#">i.MX-RT1180</a>: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock<sup>®</sup></li> <li>• <a href="#">SJA1110</a>: Multi-Gig Safe and Secure TSN Ethernet Switch with Integrated 100BASE-T1 PHYs</li> </ul>
Interfaces	<ul style="list-style-type: none"> <li>• <a href="#">CD1030</a>: 33-Channel Multiple Switch Detection Interface with Programmable Current</li> <li>• <a href="#">Bridges</a>: Bridge IC Solutions</li> <li>• <a href="#">I<sup>2</sup>C, SPI, I<sup>3</sup>C Interface Devices</a>: I<sup>2</sup>C, SPI, I<sup>3</sup>C Interface Devices</li> </ul>
RTC	<ul style="list-style-type: none"> <li>• <a href="#">PCF85053A</a>: Bootable CPU RTC with Two I<sup>2</sup>C Buses, 128 Byte SRAM and Alarm Function</li> <li>• <a href="#">Real-Time Clocks</a>: Real-Time Clocks</li> </ul>
Temperature Sensors	<ul style="list-style-type: none"> <li>• <a href="#">P3T1035xUK</a>: I<sup>3</sup>C, I<sup>2</sup>C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor</li> <li>• <a href="#">P3T2030xUK</a>: I<sup>3</sup>C, I<sup>2</sup>C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor</li> <li>• <a href="#">I<sup>3</sup>C/I<sup>2</sup>C Digital Temp. Sensors</a>: I<sup>3</sup>C/I<sup>2</sup>C Digital Temperature Sensors</li> <li>• <a href="#">PCT2075</a>: I<sup>2</sup>C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog</li> </ul>

## Remote I/O Block Diagram



### Recommended Products for Remote I/O

#### MCU/MPU

- **MCX-A14X-A15X**: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals
- **MCX-N94X-N54X**: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security
- **i.MX RT Crossover MCUs**: i.MX RT Crossover MCUs
- **KV Series Arm Cortex-M4/M0+/M7**: KV Series: Real-Time Motor Control and Power Conversion MCUs Based on Arm® Cortex®-M0+/M4/M7
- **LPC5500 Arm Cortex-M33**: LPC5500 Series: Arm® Cortex®-M33 Based Microcontroller Series for Mass Market, Leveraging 40nm Embedded Flash Technology
- **S32K Auto General-Purpose MCUs**: S32K Automotive General-Purpose Microcontrollers

AFE-AI	<ul style="list-style-type: none"> <li>• <a href="#">NAFEx1388</a>: Highly Configurable 8 Channel <math>\pm 25</math> V Universal Input Analog Front-End</li> </ul>
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Wireless Connectivity	<ul style="list-style-type: none"> <li>• <a href="#">IW416</a>: 2.4/5 GHz Dual-Band 1x1 Wi-Fi<sup>®</sup> 4 (802.11n) + Bluetooth<sup>®</sup> 5.2 Solution</li> <li>• <a href="#">88W8987</a>: 2.4/5 GHz Dual-Band 1x1 Wi-Fi<sup>®</sup> 5 (802.11ac) + Bluetooth<sup>®</sup> 5.2 Solution</li> <li>• <a href="#">88W8997</a>: 2.4/5 GHz Dual-Band 2x2 Wi-Fi<sup>®</sup> 5 (802.11ac) + Bluetooth<sup>®</sup> 5.3 Solution</li> <li>• <a href="#">IW620</a>: 2.4/5 GHz Dual-Band 2x2 Wi-Fi<sup>®</sup> 6 (802.11ax) + Bluetooth<sup>®</sup> 5.1 Solution</li> </ul>
CAN Transceivers	<ul style="list-style-type: none"> <li>• <a href="#">CAN Transceivers</a>: CAN Transceivers</li> </ul>
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I2C LED Drivers	<ul style="list-style-type: none"> <li>• <a href="#">LED Controllers</a>: LED Controllers</li> </ul>
Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">LS1028A</a>: Layerscape<sup>®</sup> 1028A Applications Processor</li> <li>• <a href="#">i.MX-RT1180</a>: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock<sup>®</sup></li> </ul>

View our complete solution for [Programmable Logic Controller \(PLC\) and Remote I/O](#).

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

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