

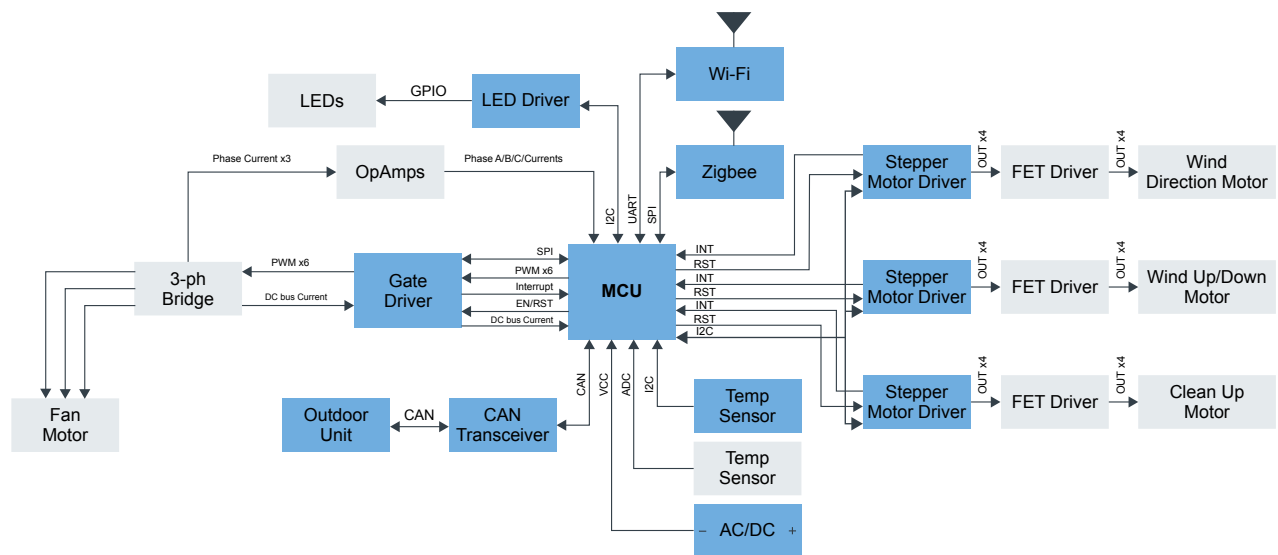


# Air Conditioning (AC)

Last Updated: Feb 26, 2025

Air conditioning (AC) systems usually consist of an external unit, an internal unit and a remote control. These systems are based on inputs from a variety of sensors, controlling different types of motors such as stepper motors for flaps and DC/BLDC blower fan motors – and even an air purifying filter control. NXP offers semiconductor solutions for modern air conditioning systems that provide advanced motor control, increased power efficiency, quieter operation, a range of user interfaces and both IR and RF-based remote control.

## Indoor Unit Block Diagram



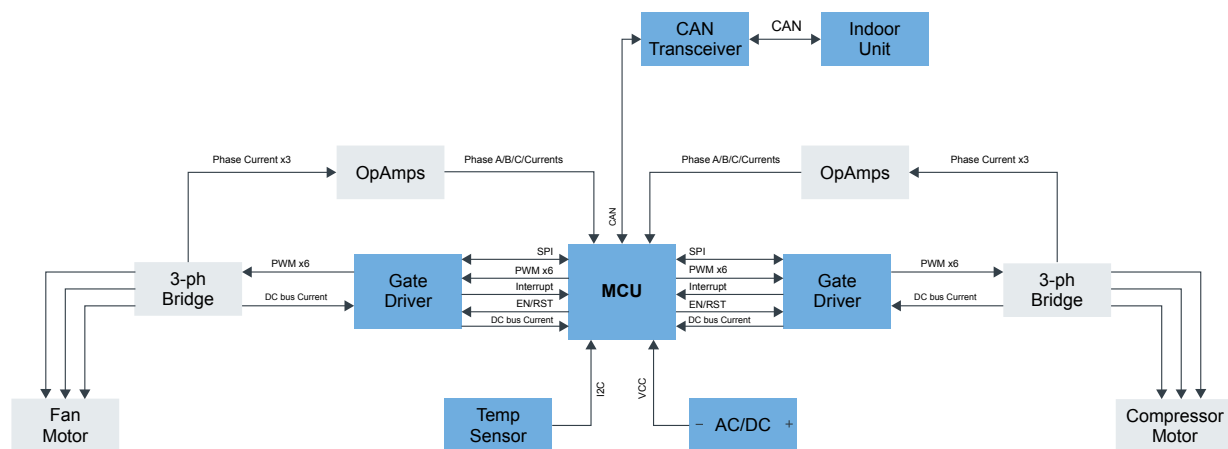
NXP Technology
  Non NXP Technology
  Optional Technology

### Recommended Products for Indoor Unit

Gate Driver	<ul style="list-style-type: none"> <li><a href="#">GD3000</a>: 3-Phase Brushless Motor Pre-Driver</li> </ul>
MCU	<ul style="list-style-type: none"> <li><a href="#">MCX-N94X-N54X</a>: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security</li> </ul>
acdc	<ul style="list-style-type: none"> <li><a href="#">TEA1723AT</a>: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F-Burst = 430 Hz</li> </ul>
Wi-Fi	<ul style="list-style-type: none"> <li><a href="#">88MW32X</a>: 88MW32X 802.11n Wi-Fi<sup>®</sup> Microcontroller SoC</li> <li><a href="#">RW612</a>: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi<sup>®</sup> 6 + Bluetooth<sup>®</sup> Low Energy 5.4 / 802.15.4</li> </ul>

	<ul style="list-style-type: none"> <li>• <a href="#">RW610</a>: Wireless MCU with Integrated Radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 Radios</li> <li>• <a href="#">IW416</a>: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution</li> <li>• <a href="#">IW610</a>: 2.4/5GHz Dual-Band 1x1 Wi-Fi® 6 + Bluetooth Low Energy 5.4 + 802.15.4 Tri-Radio Solution</li> </ul>
Stepper Motor Driver	<ul style="list-style-type: none"> <li>• <a href="#">PCA9629APW</a>: Fm+ I²C-Bus Advanced Stepper Motor Controller</li> </ul>
CAN Trasceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA1042</a>: High-Speed CAN Transceiver with Standby Mode</li> </ul>
Temp Sensor	<ul style="list-style-type: none"> <li>• <a href="#">PCT2075</a>: I²C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog</li> </ul>
LED Driver	<ul style="list-style-type: none"> <li>• <a href="#">PCA9955BTW</a>: 16-Channel Fm+ I²C-Bus 57 MA/20 V Constant-Current LED Driver</li> </ul>
zigbee	<ul style="list-style-type: none"> <li>• <a href="#">JN5189_88_T</a>: JN5189/88 (T): High-Performance and Ultra-Low-Power MCUs for Zigbee® and Thread with Built-In NFC Option</li> </ul>

## Outdoor (Compressor) Unit Block Diagram



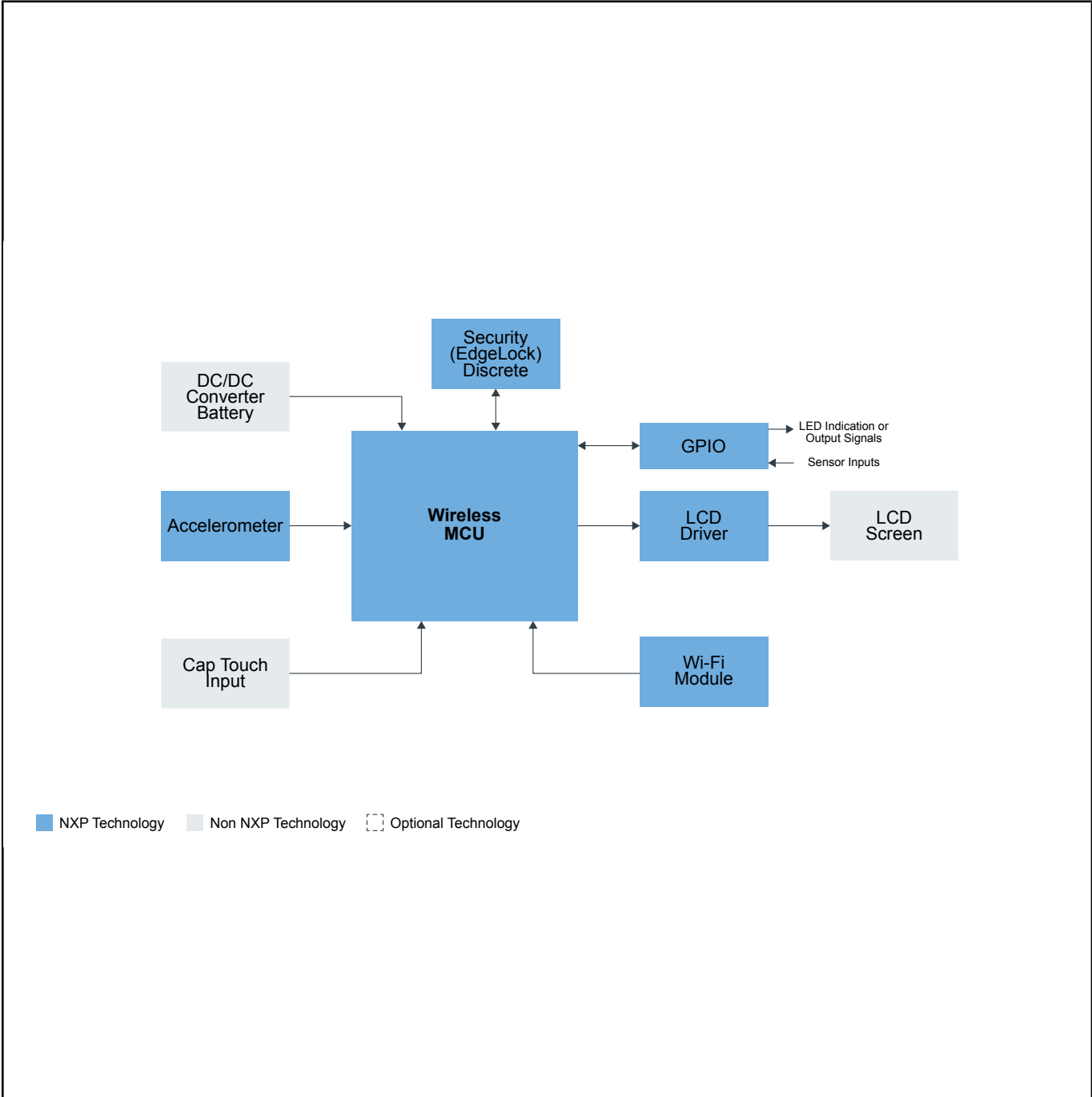
NXP Technology
  Non NXP Technology
  Optional Technology

#### Recommended Products for Outdoor (Compressor) Unit

Gate Driver	<ul style="list-style-type: none"> <li>• <a href="#">GD3000</a>: 3-Phase Brushless Motor Pre-Driver</li> </ul>
CAN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA1042</a>: High-Speed CAN Transceiver with Standby Mode</li> </ul>
MCU	<ul style="list-style-type: none"> <li>• <a href="#">MCX-N94X-N54X</a>: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security</li> </ul>
Temperature Sensor	<ul style="list-style-type: none"> <li>• <a href="#">PCT2075</a>: I<sup>2</sup>C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog</li> </ul>

AC/DC	<ul style="list-style-type: none"> <li>• <a href="#">TEA1723AT</a>: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 430 Hz</li> </ul>
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### Remote Control Block Diagram

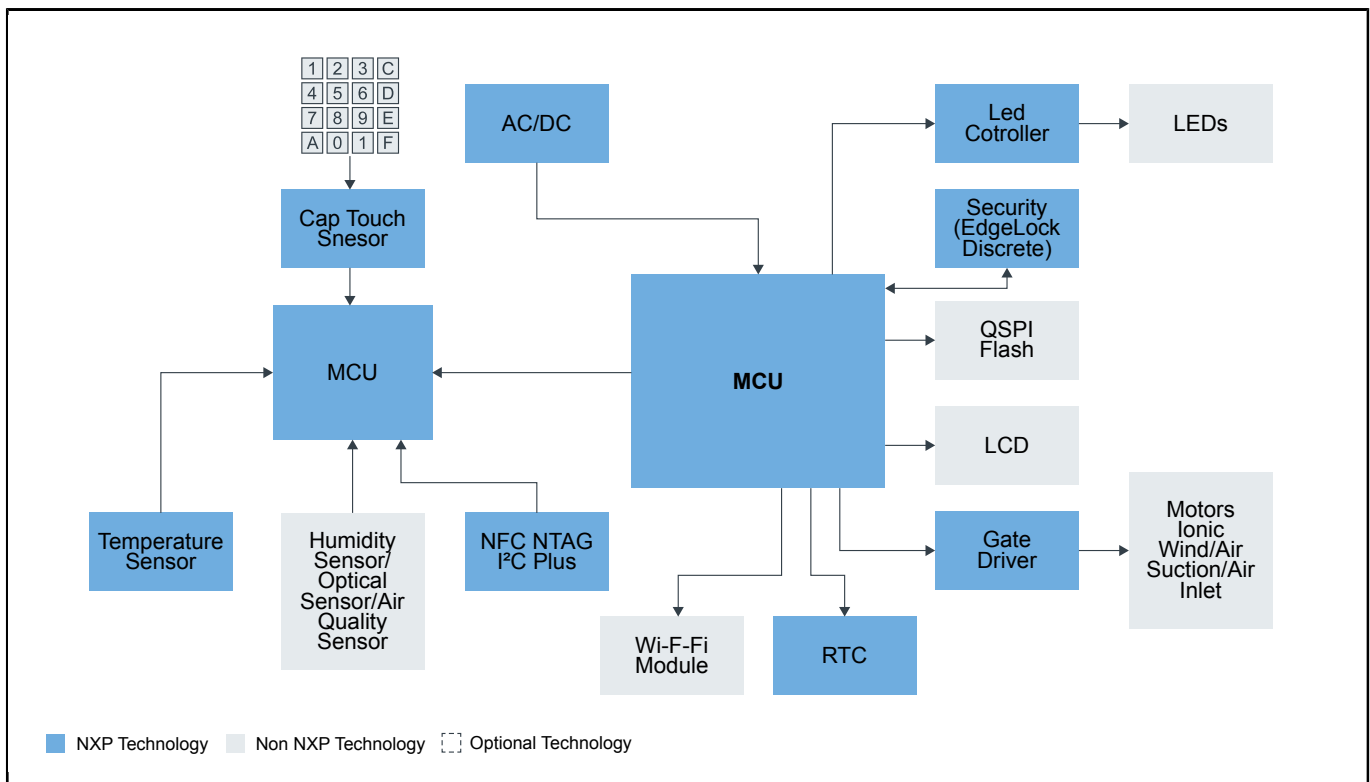


Recommended Products for Remote Control	
Wireless MCUs	<ul style="list-style-type: none"> <li>• <a href="#">MCX-W71X</a>: MCX W71x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE</li> <li>• <a href="#">MCX-W72X</a>: MCX W72x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE</li> <li>• <a href="#">JN5169</a>: ZigBee and IEEE802.15.4 Wireless Microcontroller with 512 KB Flash, 32 KB RAM</li> <li>• <a href="#">RW612</a>: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4</li> <li>• <a href="#">RW610</a>: Wireless MCU with Integrated Radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 Radios</li> </ul>
Wi-Fi	<ul style="list-style-type: none"> <li>• <a href="#">RW612</a>: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4</li> <li>• <a href="#">RW610</a>: Wireless MCU with Integrated Radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 Radios</li> </ul>

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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>
Air Conditioning GPIO	<ul style="list-style-type: none"> <li>• <a href="#">MCX-A13X-A14X-A15X</a>: MCX A13x, 14x, 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="#">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>

## Air Purifier Block Diagram



Recommended Products for Air Purifier	
MCU	<ul style="list-style-type: none"> <li>• <a href="#">MCX-A13X-A14X-A15X</a>: MCX A13x, 14x, 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="#">LPC84X</a>: LPC840: 32-Bit Arm® Cortex®-M0+-Based Low-Cost MCU</li> <li>• <a href="#">i.MX-RT1050</a>: i.MX RT1050 Crossover MCU with Arm® Cortex®-M7 Core</li> </ul>
AC/DC	<ul style="list-style-type: none"> <li>• <a href="#">TEA19361T</a>: GreenChip SMPS Primary Side Control IC with QR/DCM Operation</li> </ul>
Temperature Sensor	<ul style="list-style-type: none"> <li>• <a href="#">P3T1035xUK</a>: I3C, I²C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor</li> <li>• <a href="#">P3T2030xUK</a>: I3C, I²C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor</li> <li>• <a href="#">PCT2075</a>: I²C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog</li> </ul>
LED Controller	<ul style="list-style-type: none"> <li>• <a href="#">PCA9952_PCA9955</a>: 16-Channel Fm+ I²C-Bus 57 MA Constant-Current LED Driver</li> </ul>

RTC	<ul style="list-style-type: none"> <li>• <a href="#">PCF85263A</a>: Tiny Real-Time Clock/Calendar with Alarm Function, Battery Switch-Over, Time Stamp Input and I<sup>2</sup>C-Bus</li> </ul>
Gate Driver	<ul style="list-style-type: none"> <li>• <a href="#">GD3100</a>: Advanced High Voltage Isolated Gate Driver for IGBT and SiC MOSFETs</li> </ul>
NFC	<ul style="list-style-type: none"> <li>• <a href="#">NTAG5-LINK</a>: NTAG<sup>®</sup> 5 Link: NFC Forum-Compliant I<sup>2</sup>C Bridge for IoT on Demand</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>
Cap Touch Sensor	<ul style="list-style-type: none"> <li>• <a href="#">Touch Software</a></li> </ul>

View our complete solution for [Air Conditioning \(AC\)](#).

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

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