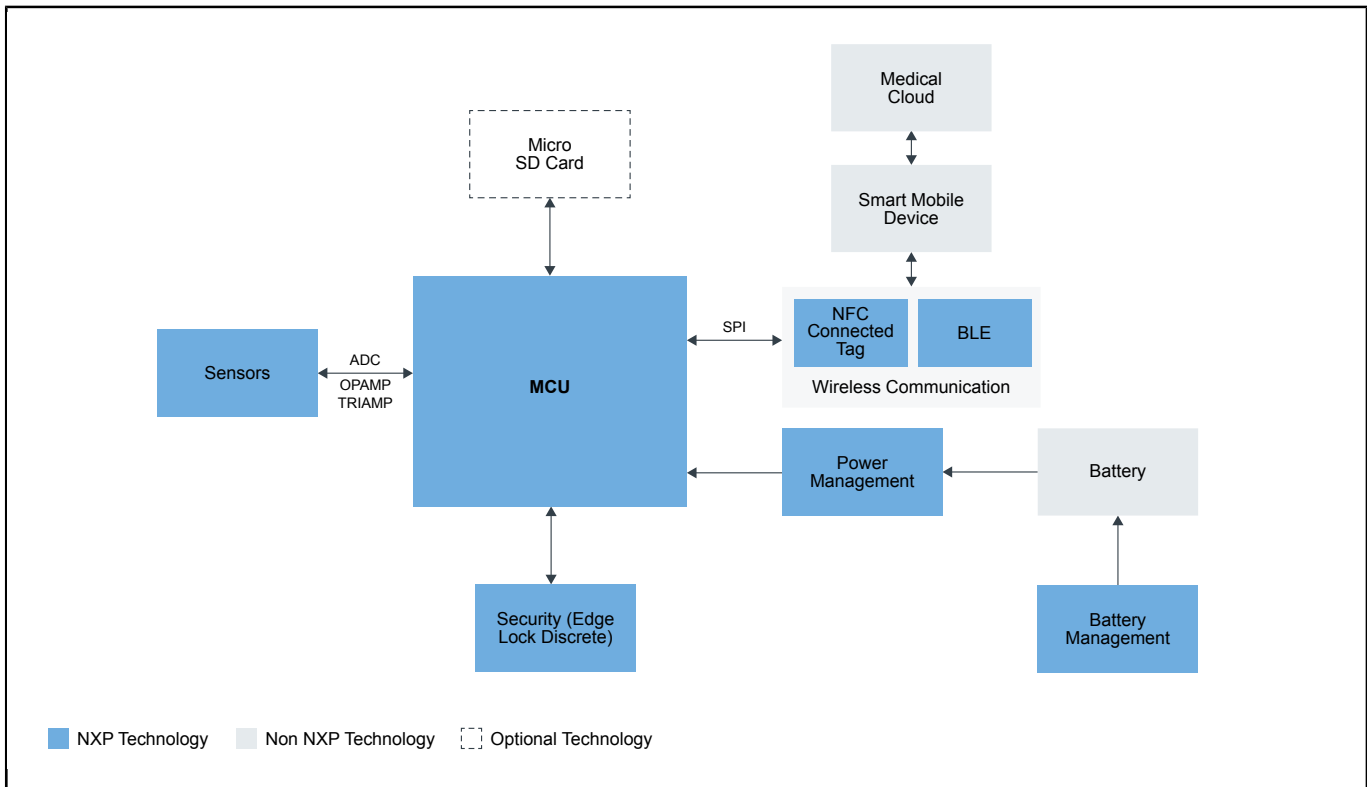# Vital Signs Monitors

Last Updated: Apr 27, 2023

Vital sign monitors provide doctors and healthcare staff with valuable information about the physiological condition of a patient. These noninvasive monitors can measure several vital signs such as heart rate, the percentage of hemoglobin in the blood that is saturated with oxygen (pulse oximetry), blood pressure and respiratory rate. Those measurements can be securely transmitted to either the patient's mobile device for storage or the patient's physician for control.

NXP offers a wide variety of low-power and low-cost MCUs, crossover MCUs, sensors and secure wireless products suitable for vital signs monitors.
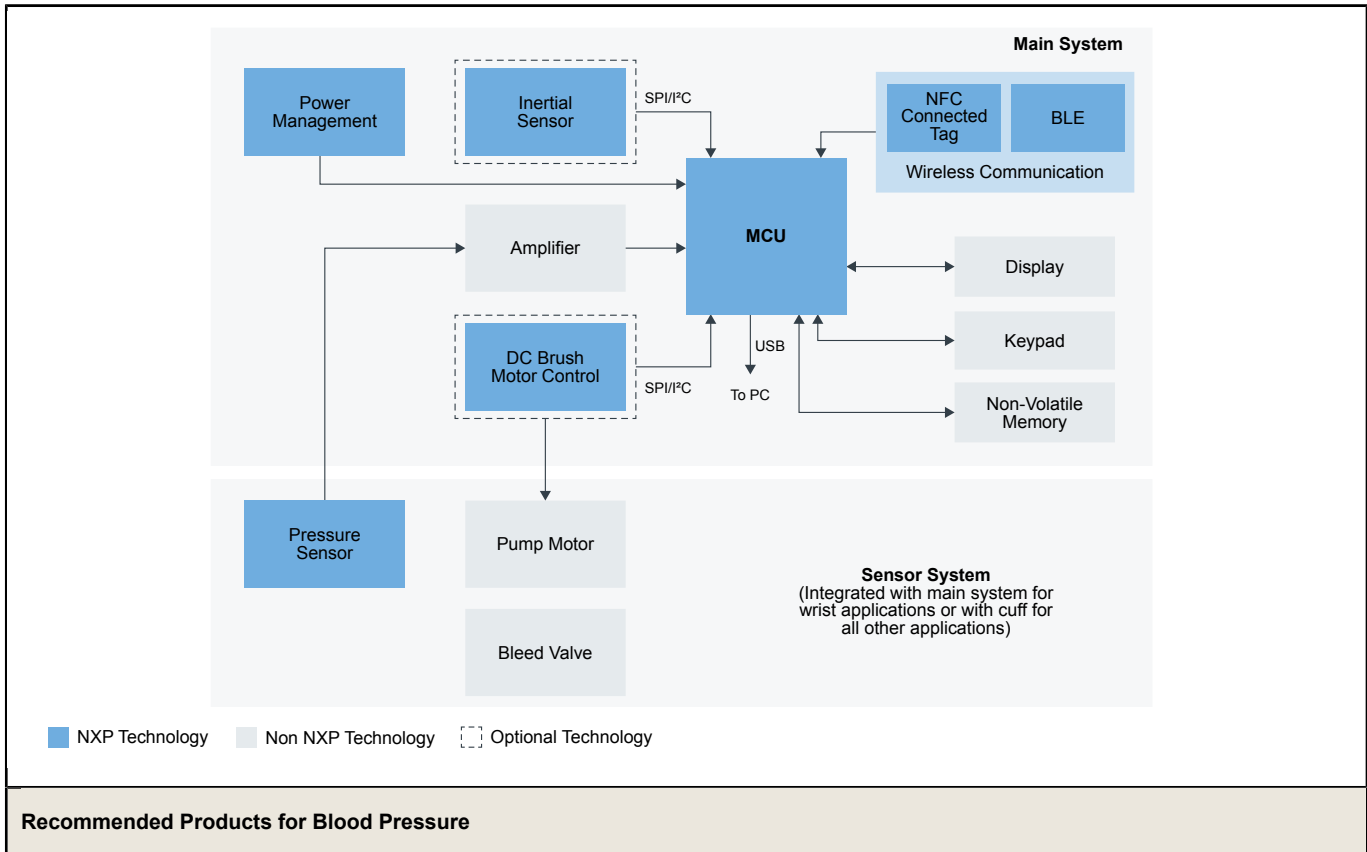
General Application Block Diagram

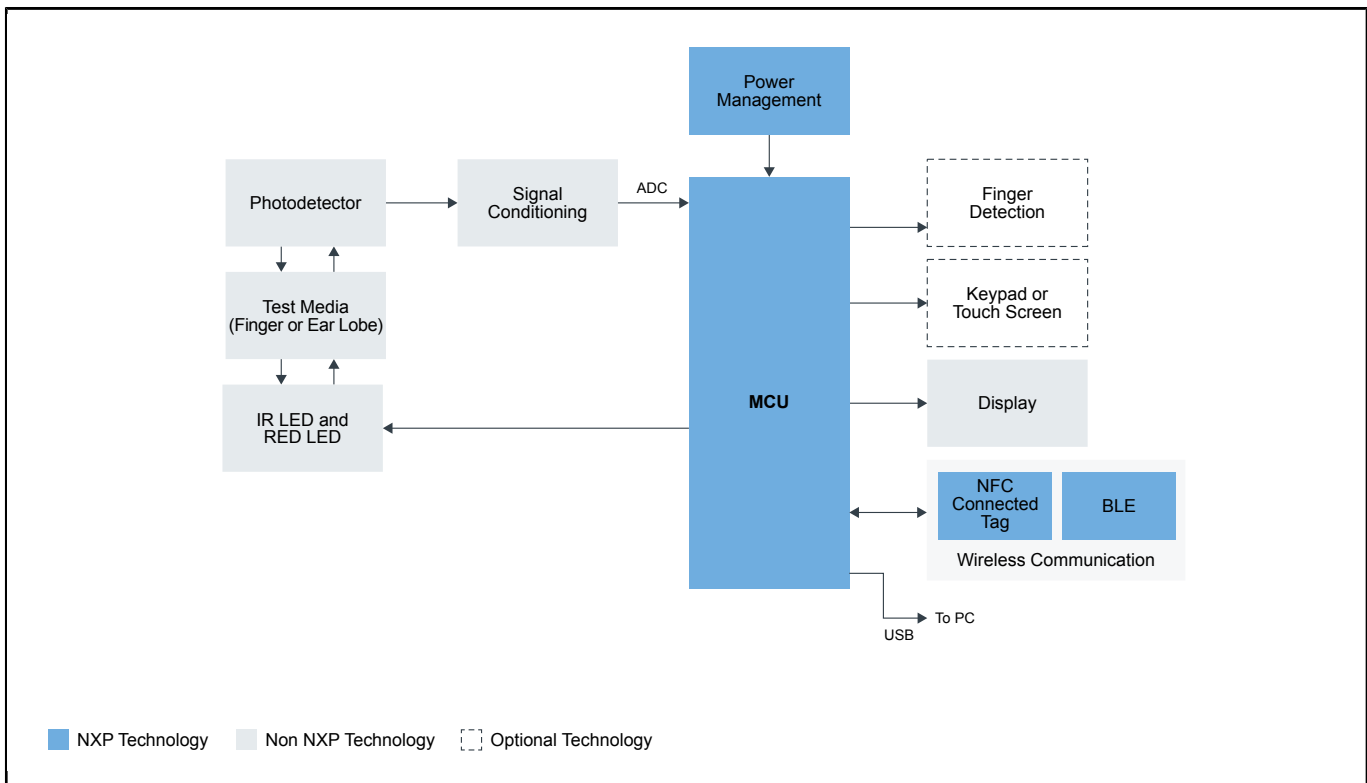| Recommended Products for General Application	
MCU	• **MCX-A14X-A15X**: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals • **MCX-N94X-N54X**: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • **NHS52S04**: NHS52S04: Ultra-Low-Power Bluetooth® Low Energy Solution With Arm® Cortex®-M33 TrustZone® for Medical IoT • **General Purpose MCUs**: General Purpose MCUs • **i.MX RT Crossover MCUs**: i.MX RT Crossover MCUs • **i.MX8**: i.MX 8 Family – Arm® Cortex®-A53, Cortex-A72, Virtualization, Vision, 3D Graphics, 4K Video

NFC Connected Tag	• Connected NFC Tags: Connected NFC Tags • NTAG_I2C: NTAG I²C Plus 2K: NFC Forum Type 2 Tag with I²C Interface • NTAG5-LINK: NTAG® 5 Link: NFC Forum-Compliant I²C Bridge for IoT on Demand • NTAG5-BOOST: NTAG® 5 Boost: NFC Forum-Compliant I²C Bridge for Tiny Devices
Power Management	• PMICs: Power Management Integrated ICs (PMICs)
Sensors	• P3T1035xUK: I3C, I²C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor • P3T2030xUK: I3C, I²C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor • MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa) • FXLS8964AF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital Accelerometer • FXLS8974CF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer
Security (EdgeLock Discrete)	• EDGELOCK-A5000: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy • EdgeLock 2GO: EdgeLock® 2GO
BLE/Wi-Fi	• NHS52S04: NHS52S04: Ultra-Low-Power Bluetooth® Low Energy Solution With Arm® Cortex®-M33 TrustZone® for Medical IoT • QN9090-30: QN9090/30: Bluetooth Low-Energy MCU with Arm®Cortex®-M4 CPU, Energy Efficiency, Analog and Digital Peripherals and NFC Tag Option • MCX Arm Cortex-M: MCX Industrial and IoT Microcontrollers • IW416: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution
Battery Management	• PCA9420-PCA9421: PMIC for Low Power Applications • MC34673: 1.2 A Single-Cell Li-Ion / Li-Polymer Battery Charger • USB Type C: USB Type-C Plug'n Play: Efficient Data and Power Delivery

Blood Pressure Block Diagram

Recommended Products for Blood Pressure

MCU	• 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 • NHS52S04: NHS52S04: Ultra-Low-Power Bluetooth® Low Energy Solution With Arm® Cortex®-M33 TrustZone® for Medical IoT • LPC553x: LPC553x/S3x: Advanced Analog Arm®Cortex®-M33-Based MCU Family
Sensors	• FXLS8974CF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer
NFC Connected Tag	• Connected NFC Tags: Connected NFC Tags
DC Brush Motor Control	• GD3000: 3-Phase Brushless Motor Pre-Driver
Pressure Sensor	• MPXx5050: Differential and Gauge Pressure Sensor (-50 to 50 kPa) • MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa) • Differential/Gauge Up to 115 kPa: Differential/Gauge Up to 115 kPa
BLE	• IW416: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution • NHS52S04: NHS52S04: Ultra-Low-Power Bluetooth® Low Energy Solution With Arm® Cortex®-M33 TrustZone® for Medical IoT • IW612: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution
Power Management	• MC34673: 1.2 A Single-Cell Li-Ion / Li-Polymer Battery Charger • PCA9420-PCA9421: PMIC for Low Power Applications • USB Type C: USB Type-C Plug'n Play: Efficient Data and Power Delivery

Pulse Oximetry Block Diagram

Recommended Products for Pulse Oximetry	
MCU	• 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 • LPC553x: LPC553x/S3x: Advanced Analog Arm®Cortex®-M33-Based MCU Family
Power Management	• USB Type C: USB Type-C Plug'n Play: Efficient Data and Power Delivery • NFC Charging: NFC Wireless Charging • PCA9420-PCA9421: PMIC for Low Power Applications • MC34673: 1.2 A Single-Cell Li-Ion / Li-Polymer Battery Charger
NFC Connected Tag	• Connected NFC Tags: Connected NFC Tags
BLE	• NHS52S04: NHS52S04: Ultra-Low-Power Bluetooth® Low Energy Solution With Arm® Cortex®-M33 TrustZone® for Medical IoT • IW416: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution • IW612: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution

View our complete solution for Vital Signs Monitors.

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