

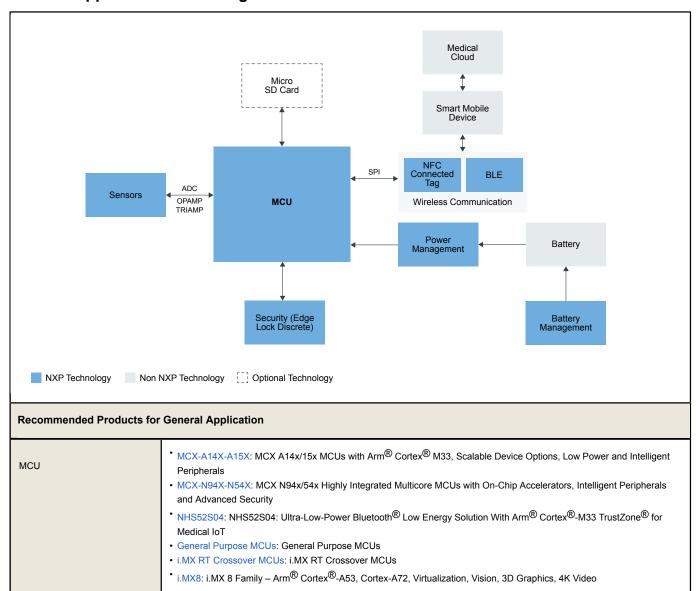
Vital Signs Monitors

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.

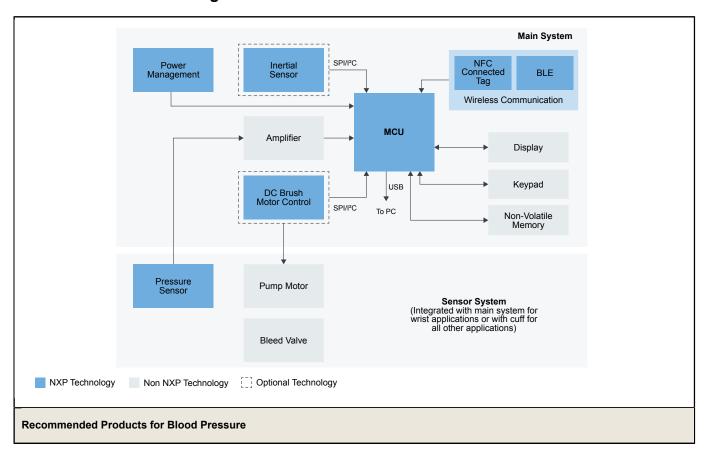
NXP offers a wide variety of low-power and low-cost MCUs, crossover MCUs, sensors and secure wireless products suitable for vital signs monitors.

General Application Block Diagram



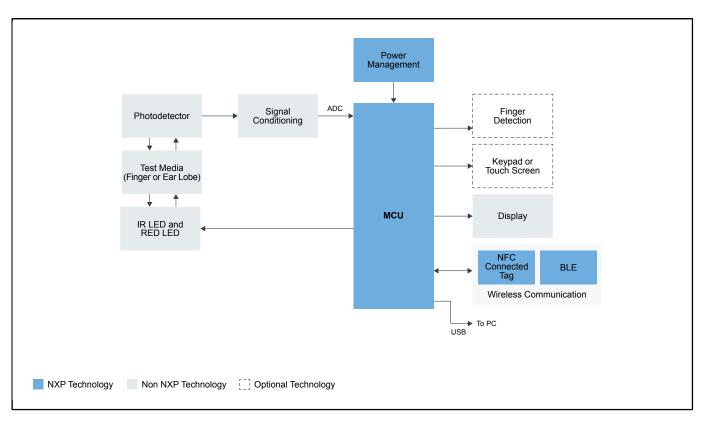
NFC Connected Tag	Connected NFC Tags: Connected NFC Tags NTAG_I2C: NTAG I²C Plus 2K: NFC Forum Type 2 Tag with I²C Interface NTAG5-LINK: NTAG® 5 Link: NFC Forum-Compliant I²C Bridge for IoT on Demand NTAG5-BOOST: NTAG® 5 Boost: NFC Forum-Compliant I²C Bridge for Tiny Devices
Power Management	PMICs: Power 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-lon / Li-Polymer Battery Charger USB Type C: USB Type-C Plug'n Play: Efficient Data and Power Delivery

Blood Pressure Block Diagram



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.

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