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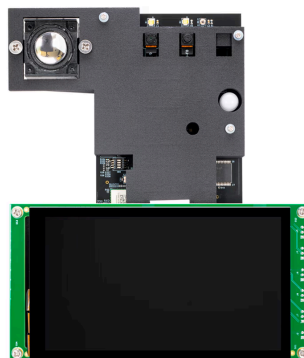
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/ SLN-TLHMI-IOT

NXP EdgeReady Smart HMI Solution Based on i.MX RT117H with ML Vision, Voice and Graphical UI

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NXP EdgeReady Smart HMI Solution Based on i.MX RT117H with ML Vision, Voice and

Graphical UI



The NXP EdgeReady Smart Human Machine Interface (SMHMI) solution leverages the i.MX RT117H crossover MCU to allow developers to quickly and easily enable multi-modal, intelligent, hands-free capabilities including machine learning (ML), vision for face and gesture recognition, far-field voice control and 2D graphical user interface (GUI) in their products. These functions can be mixed and matched to simplify overall system design using just this single NXP high-performance crossover MCU.

This solution’s development kit, the SLN-TLHMI-IOT, comes with a variety of features to help minimize time to market, risk and development effort, including: fully-integrated turnkey software, hardware reference designs and NXP one-stop-shop support for quick out-of-the-box operation. Face/gesture recognition and voice control are performed entirely offline thanks to the i.MX RT117H, eliminating the need for the cloud as well as the privacy and latency concerns that come with it.

In addition to production ready face/gesture recognition, AFE integrated far-field voice control and advanced GUI capabilities, its software framework gives designers the flexibility to customize vision, voice functions and combination of these features. The i.MX RT117H is used for HMI in a broad range of applications including but not limited to consumer, industry and more.

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DESIGN FILES

Product Details

Block Diagram | Supported Devices | Features

Block Diagram

Choose a diagram:

- SMART HMI SOLUTION DEVELOPMENT KIT HARDWARE
- SMART HMI SOLUTION DEVELOPMENT KIT SOFTWARE

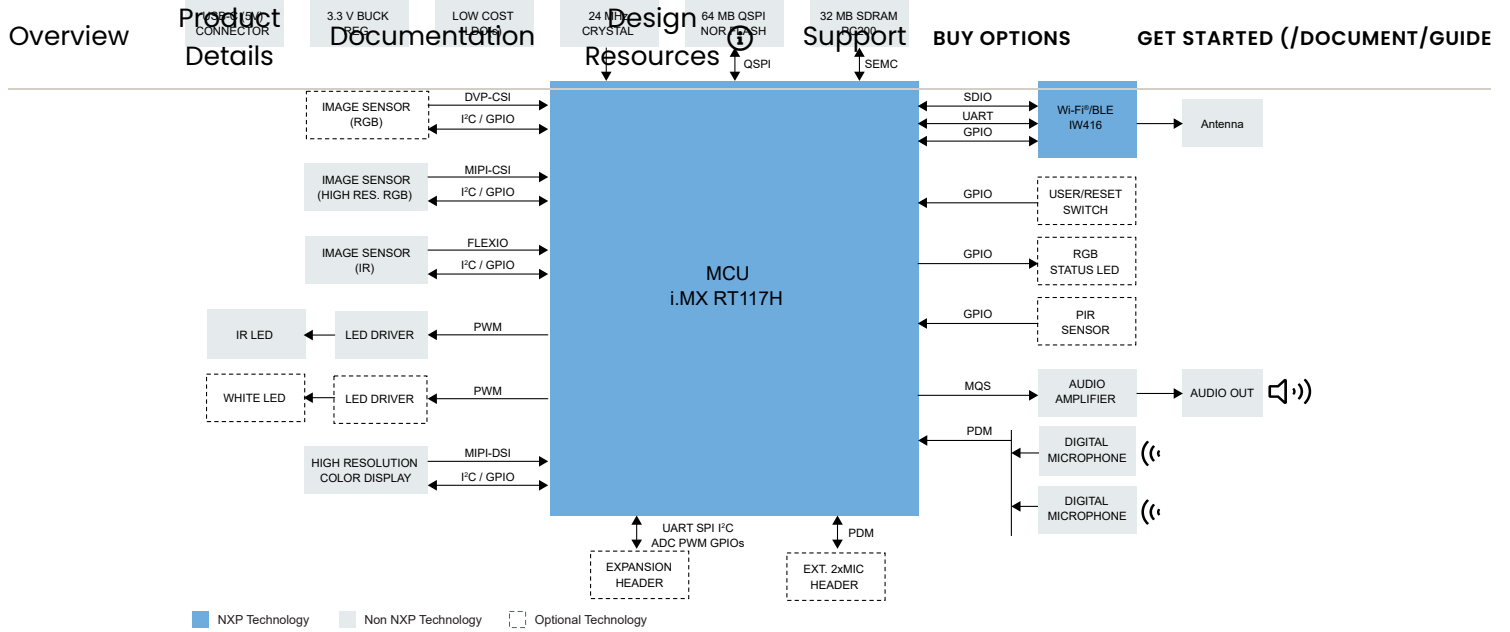
Smart HMI Solution Development Kit Hardware

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Smart HMI Solution Development Kit Hardware



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Supported Devices

Processors and Microcontrollers

i.MX RT Crossover MCUs

- **i.MX-RT1170** (/products/processors-and-microcontrollers/arm-microcontrollers/i-mx-rt-crossover-mcus/i-mx-rt1170-1-ghz-crossover-mcu-with-arm-cortex-cores:i.MX-RT1170): i.MX RT1170: 1 GHz Crossover MCU with Arm® Cortex® Cores

Wireless Connectivity

Wi-Fi® + Bluetooth® + 802.15.4

- **IW416** (/products/wireless-connectivity/wi-fi-plus-bluetooth-plus-802-15-4/2-4-5-ghz-dual-band-1x1-wi-fi-4-802-11n-plus-bluetooth-5-2-solution:iW416): 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution

Features

Turnkey Solution

- Enable Smart HMI applications with ML Vision, hands-free far-field Voice control and advanced Graphical User Interface in addition to traditional touch controls using a

Overview	Product Details	Documentation	Design Resources	Support	NEW OPTIONS	GET STARTED (/DOCUMENT/GUIDE
single NXP crossover MCU to simply overall system design						
<ul style="list-style-type: none">• Full source code (except ML/AI intellectual property) access to production-ready software with rich middleware and driver support, pre-integrated and platform-optimized voice and vision AI algorithms, and dual-core-capable framework architecture to accelerate the development process• Plug-and-play out-of-box experience featuring three demo use-cases: Coffee Machine, Elevator, Smart Home Panel• Cost and form-factor optimized hardware reference designs• NXP one-stop-shop support						
MCU			<ul style="list-style-type: none">• NXP i.MX RT117H Crossover MCU			
Memory			<ul style="list-style-type: none">• 2 MB SRAM (i.MX RT117H internal)• 32 or 64 MB QSPI NOR Flash Module• 32 MB SDRAM Module			
Machine Vision			<ul style="list-style-type: none">• 720P RBG and/or VGA IR image sensor• Supports user identification via face recognition• Supports gesture control via palm shape recognition			
Voice Control			<ul style="list-style-type: none">• 2 onboard digital microphones. Additional microphones available via expansion board (not included)• Acoustic echo cancellation, noise reduction, beamforming and barge-in using VoiceSeeker• Wake word and local voice command using VIT• 3rd party offline voice control available as complementary option			
Graphics Display User Interface			<ul style="list-style-type: none">• 5.5-inch 720p MIPI LCD display• Light and Versatile Graphics Library (LVGL) + VGLite 2D graphics accelerator support• Coffee Machine, Elevator and Smart Home Panel GUI demos available out of box			
Wireless Connectivity			<ul style="list-style-type: none">• Dual band 1x1 Wi-Fi 4+BLE 5.2 combo supported with NXP IW416• Cloud based device management, user data management, OTA, etc• Matter protocol support			
Toolchain			<ul style="list-style-type: none">• NXP MCUXpresso IDE			

Less ^

