



i.MX 6 Series

## NXP Communicator

Introducing the Newest Member of the i.MX6 Series: **i.MX 6ULZ**  
**A high performance and ultra-low cost i.MX 6 family member**

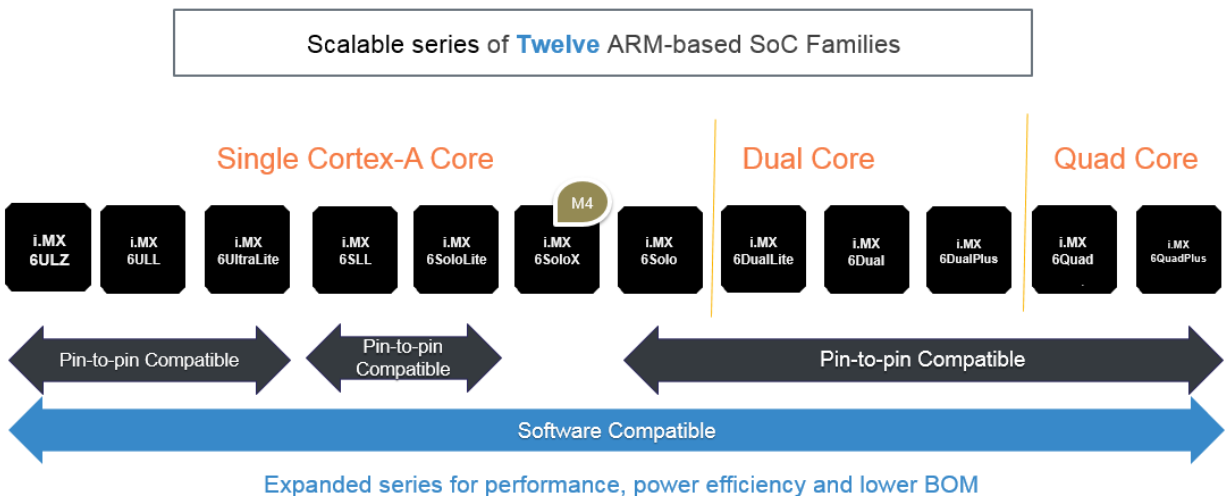
Announcement Date: JUN 2018

Global Full Market Launch Date: Nov 14th, 2018



## i.MX 6 Series in a Glance

The i.MX 6 series of applications processors is a feature- and performance-scalable multicore platform that includes single-, dual- and quad-core families based on the ARM® Cortex® architecture, including the Cortex-A9 core, combined Cortex-A9 + Cortex-M4 cores and Cortex-A7-based solutions up to 1.2 GHz.



## i.MX 6ULZ Product Summary

The i.MX 6ULZ processor is a high-performance, ultra-cost-efficient consumer Linux processor featuring an advanced implementation of a single Arm® Cortex®-A7 core, which operates at speed 900 MHz. The i.MX 6ULZ applications processor includes full audio suite: ESAI, I2S X 3, S/PDIF, and an integrated power management module that reduces the complexity of an external power supply and simplifies power sequencing. Each processor in this family provides various memory interfaces, including 16-bit LPDDR2, DDR3, DDR3L, raw and managed NAND flash, NOR flash, eMMC, Quad SPI and a wide range of other interfaces for connecting peripherals such as WLAN, Bluetooth® and GPS.

## i.MX 6ULZ Specification Highlights

- **Lowest Cost i.MX 6 Member**
  - The 14x14 289 MAPBGA with 0.8mm pitch for simple and low-cost PCB design
  - Integrated power management module that reduces the complexity of external power supply and simplifies power sequencing

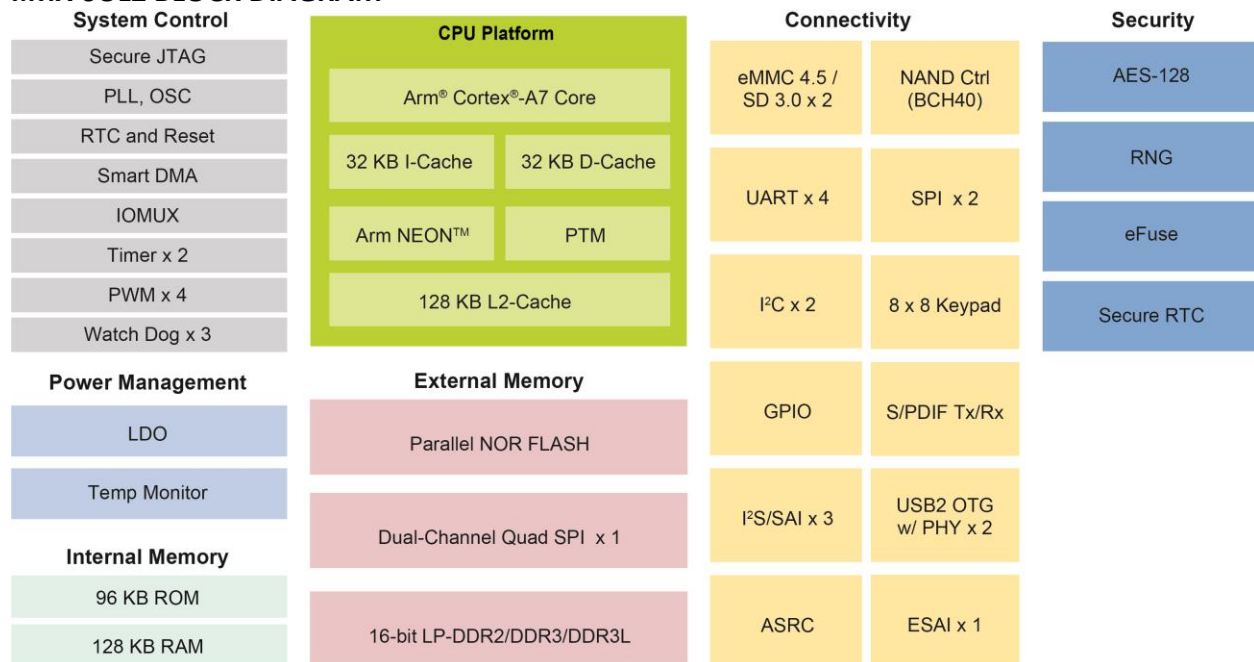
- **High Performance**
  - 900MHz ARM Cortex-A7 with Neon
  - 32KB L1 I-Cache and 32KB L1 D-Cache
  - 128KB L2 Cache
  - Advanced High Assurance Boot
- **Connectivity Optimized for Cost Sensitive Consumer Applications**
  - Full Audio suite: ESAI, I2S X 3, S/PDIF
  - 2x High-speed USB on-the-go with PHY
  - Multiple Serial Communication ports: 2x I2C, 2x SPI, 4x UART, 2x Smartcard interfaces
  - Flexible external memory controller: Parallel NAND, Parallel NOR, dual channel QSPI, eMMC, SD
- **Ease of Use, Compatibility and Scalability**
  - Linux BSP
  - SW and Pin to pin compatible with corresponding i.MX 6UltraLite and i.MX 6ULL
  - SW compatible to broad i.MX 6 series

## i.MX 6ULZ Target Applications

- Computing Engine
- Consumer Electronics
- Audio
- Voice control

## i.MX 6ULZ Product Specifications

### i.MX 6ULZ BLOCK DIAGRAM



## Key Features and Advantages

- ARM Cortex-A7 @ 900MHz
- 32KB L1 I-Cache and 32KB L1 D-Cache
- 128KB L2 Cache
- 16-bit LP-DDR2, DDR3/DDR3L
- 8/16-bit Parallel NOR FLASH / PSRAM
- Dual-channel Quad-SPI NOR FLASH
- 8-bit Raw NAND FLASH with 40-bit ECC
- 2x eMMC 4.5/SD 3.0/SDIO Port
- 2x USB 2.0 OTG, HS/FS, Device or Host with PHY
- Audio Interfaces include ESAI, 3x I2S/SAI, S/PDIF Tx/Rx

## Specifications

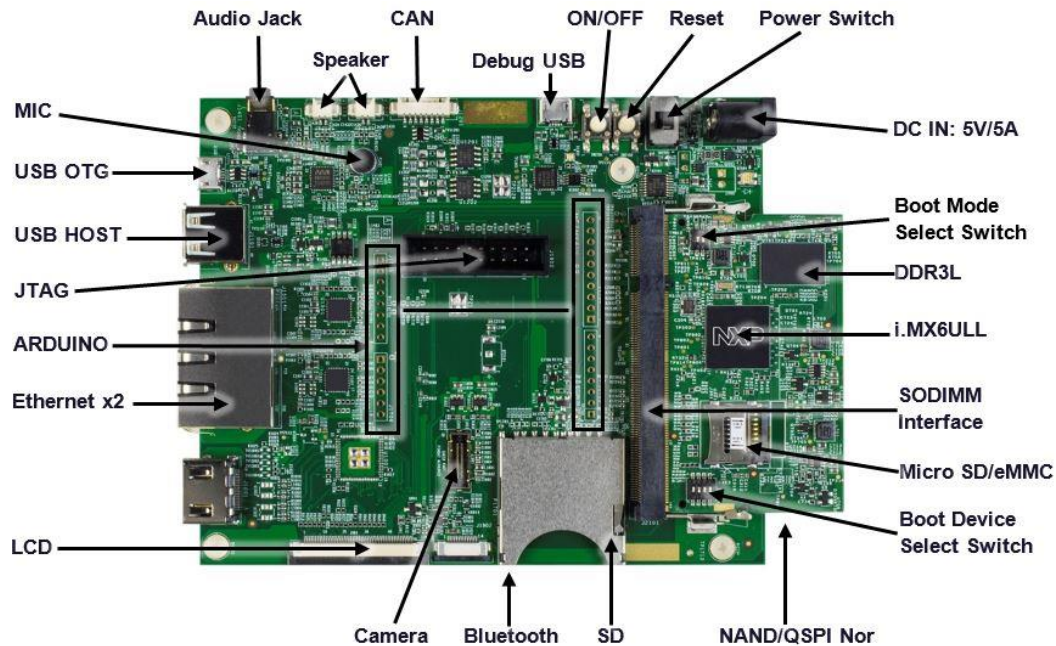
- Package: 289 MAPBGA, 14x14mm, 0.8mm pitch
- Temperature: -0°C to 95°C (Tj)

Feature	MCIMX6Y0(6ULL)	MCIMX6Z0(6ULZ)	MCIMX6Y1(6ULL)	MCIMX6Y2(6ULL)
Sub Family	6ULL Base	6ULZ Base	6ULL General Purpose 1	6ULL General Purpose 2
Core	ARM Cortex-A7	ARM Cortex-A7	ARM Cortex-A7	ARM Cortex-A7
Speed	528 MHz	900MHz	528 MHz	Up to 900 MHz
Cache	32 KB-I, 32KB-D 128KB L2	32 KB-I, 32KB-D 128 KB L2	32 KB-I, 32KB-D 128 KB L2	32 KB-I, 32KB-D 128 KB L2
OCRAM	128 KB	128 KB	128 KB	128 KB
DRAM	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L
eFuse for Customer	256-bit	256-bit	256-bit	256-bit
NAND (BCH40)	Yes	Yes	Yes	Yes
Parallel Nor/EBI	Yes	Yes	Yes	Yes
Ethernet	10/100 MB x 1	None	10/100 MB x 1	10/100 MB x 2
USB with PHY	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	0	0	1	2
Graphic	None	None	None	PxP
CSI	None	None	None	16-bit Parallel CSI
LCD	None	None	None	24-bit Parallel LCD
QSPI	1	1	1	1
SDIO	2	2	2	2
UART	4	4	8	8
IIC	2	2	4	4
SPI	2	2	4	4
I2S/SAI	1	3	3	3
ESAI	1	1	1	1
S/PDIF	1	1	1	1
Timer/PWM	Timer x2, PWM x4	Timer x2, PWM x4	Timer x4, PWM x8	Timer x4, PWM x8
12-bit ADC	1 x 8ch	None	1 x 8ch	2 x 8ch
Keyboard (8 x 8)	Yes	Yes	Yes	Yes
Temperature	-40°C to 105°C (Tj)	-0°C to 95°C (Tj)	-40°C to 105°C (Tj)	-40°C to 105°C (Tj)

## Enablement: Development/Evaluation board

As SW and pin to pin compatible with i.MX 6ULL, i.MX 6ULL EVK can be used for i.MX 6ULZ application development by referring to [i.MX 6ULZ Migration Guide](#). Part number is MCIMX6ULL-EVK, which is orderable now. Shipment can start once order is placed.

### i.MX 6ULL EVK



#### Board features

- i.MX 6ULL applications processor MCIMX6Y2DVM09AB with a 900 MHz ARM<sup>®</sup> Cortex<sup>®</sup>-A7 core
- 4 GB DDR3L SDRAM, 400 MHz
- 256 MB QSPI NOR Flash
- eMMC (unpopulated)
- NAND flash (unpopulated)
- MicroSD<sup>®</sup> connector
- SD connector
- LCD expansion port connector
- Parallel camera connector(unpopulated)
- USB OTG connector
- USB Host connector
- 3.5 mm audio stereo headphone jack
- Board-mounted microphone
- L/R speaker connectors
- Two 10/100 Mbit/s Ethernet connectors
- CAN bus connector
- Sensors including:
  - three-axis accelerometer
  - Digital compass
  - Gyroscope (unpopulated)
- JTAG 20-pin 2.54 mm connector
- Debug port for ARM Cortex-A7 core via USB micro-B connector
- Bluetooth connector

## SW Enablement: NXP Board Support Packages

---

NXP offers a complimentary board support package (BSP) for Linux that supports the entire i.MX 6 series. At time of launch, the general release will be Linux 4.14. BSPs for i.MX 6 series are located at: [i.MX Manufacturing Toolkit for Linux L4.14.62 1.0.0 BSP](#).

Tools will be located at [www.nxp.com/imx6tools](http://www.nxp.com/imx6tools)

- Processor Expert Software Configuration Tool Complimentary software configuration tool providing IO allocation and pin initialization and configuration of hardware abstraction and peripheral drivers.
- Manufacturing Tool
- Code Signing Tool

## Thirty Partner

---

Variscite as NXP's partner will have a i.MX 6ULZ module coming soon.

[https://www.variscite.com/products/system-on-module-som/?cpu\\_name=NXP%20iMX6UL%20%206ULL](https://www.variscite.com/products/system-on-module-som/?cpu_name=NXP%20iMX6UL%20%206ULL).

## Suggested Stocking, Timing and Attach Products

---

The part is orderable **NOW**. Shipment will start immediately after order placed. Product longevity is 10 years from the launch date.

Export compliance and additional pricing information can be found in the Excel stocking file attached. The below tables represent the suggested parts to stock for the launch.

### Part Numbers

Part Numbers	Package (MAPBGA)	Qual	Temp	Freq (MHz)
MCIMX6Z0DVM09AB	14x14, 0.8mm pitch	Consumer	0-95 °C	900

### Development Tools

Family	Board Category	Board Part Number
i.MX 6ULL	EVK	MCIMX6ULL-EVK

Attach products are listed separately in the Attach Products excel file attached.



## Available Documentation and Useful links

---

i.MX 6 series landing page

[https://www.nxp.com/products/processors-and-microcontrollers/applications-processors/i.mx-applications-processors/i.mx-6-processors:IMX6X\\_SERIES](https://www.nxp.com/products/processors-and-microcontrollers/applications-processors/i.mx-applications-processors/i.mx-6-processors:IMX6X_SERIES)

i.MX 6ULZ web page

<https://www.nxp.com/products/processors-and-microcontrollers/applications-processors/i.mx-applications-processors/i.mx-6-processors/ultra-low-cost-linux-processor-with-arm-cortex-a7-core:i.MX-6ULZ>

i.MX 6ULL/Z development board web page

<http://www.nxp.com/iMX6ULLEVK>

i.MX 6ULZ Fact Sheet

<https://www.nxp.com/docs/en/fact-sheet/IMXULZFS.pdf>

i.MX 6ULL EVK Fact Sheet

<https://www.nxp.com/docs/en/fact-sheet/EVKIMX6ULLFS.pdf>

i.MX 6ULZ Fighting Guide

<https://nxp1.sharepoint.com/teams/ext96/Documents%20NXP/Forms/MICRKillSheets.aspx>

i.MX 6ULZ Migration Guide

<https://www.nxp.com/docs/en/nxp/application-notes/AN12264.pdf>

i.MX 6ULZ Marketing Assets (chip shots, block diagram, board photography)

[https://nxp1.sharepoint.com/:f:/t/ext131/distimkt/EorLqVMW7Z9Bh1b2\\_QRsNR4BcROQE1nhVprTwemQ0oTGKA](https://nxp1.sharepoint.com/:f:/t/ext131/distimkt/EorLqVMW7Z9Bh1b2_QRsNR4BcROQE1nhVprTwemQ0oTGKA)

i.MX 6ULZ Presentation

[https://nxp1.sharepoint.com/:p:/r/teams/113/\\_layouts/15/Doc.aspx?sourcedoc=%7B748a32f6-ec3d-496a-bfc5-e69e98f6da22%7D&action=default](https://nxp1.sharepoint.com/:p:/r/teams/113/_layouts/15/Doc.aspx?sourcedoc=%7B748a32f6-ec3d-496a-bfc5-e69e98f6da22%7D&action=default)

MicroCenter Launch materials

<https://nxp1.sharepoint.com/teams/ext96/SitePages/MICR%20Launches.aspx>

MPU Selector Tool

[https://nxp1.sharepoint.com/teams/ext96/Documents%20NXP/MPU\\_Selector.xlsx?d=wb22fece7536b485fb412f653995acec6](https://nxp1.sharepoint.com/teams/ext96/Documents%20NXP/MPU_Selector.xlsx?d=wb22fece7536b485fb412f653995acec6)

Distributor MicroCenter

[https://nxp1.sharepoint.com/teams/ext96/SitePages/Microcontrollers\\_Home.aspx](https://nxp1.sharepoint.com/teams/ext96/SitePages/Microcontrollers_Home.aspx)

i.MX 6 Series-Comparison-Table

[http://www.nxp.com/files/32bit/doc/brochure/FLYRIMXPRDCMPR.pdf?fasp=1&WT\\_TYPE=Brochures&WT\\_VENDOR=FREESCALE&WT\\_FILE\\_FORMAT=pdf&WT\\_ASSET=Documentation&fileExt=.pdf](http://www.nxp.com/files/32bit/doc/brochure/FLYRIMXPRDCMPR.pdf?fasp=1&WT_TYPE=Brochures&WT_VENDOR=FREESCALE&WT_FILE_FORMAT=pdf&WT_ASSET=Documentation&fileExt=.pdf)

IMX6\_SW

[i.MX 6 Series Software and Development Tool Resources](#)

i.MX 6ULZ module from third-party partner

[https://www.variscite.com/products/system-on-module-som/?cpu\\_name=NXP%20iMX6UL%20/%206ULL](https://www.variscite.com/products/system-on-module-som/?cpu_name=NXP%20iMX6UL%20/%206ULL)



## How to Reach Us

---

**Home Page:**

[www.nxp.com](http://www.nxp.com)

**Web Support:**

[www.nxp.com/support](http://www.nxp.com/support)

**USA/Europe or Locations Not Listed:**

NXP Semiconductors  
Technical Information Center, EL516  
2100 East Elliot Road  
Tempe, Arizona 85284  
+1-800-521-6274 or +1-480-768-2130  
[www.nxp.com/support](http://www.nxp.com/support)

**Europe, Middle East and Africa:**

NXP Halbleiter Deutschland GmbH  
Technical Information Center  
Schatzbogen 7  
81829 Muenchen, Germany  
+44 1296 380 456 (English)  
+46 8 52200080 (English)  
+49 89 92103 559 (German)  
+33 1 69 35 48 48 (French)  
[www.nxp.com/support](http://www.nxp.com/support)

**Japan:**

NXP Semiconductors Japan Ltd..  
Headquarters  
ARCO Tower 15F  
1-8-1, Shimo-Meguro, Meguro-ku,  
Tokyo 153-0064, Japan  
0120 191014  
+81 3 5437 9125  
[support.japan@nxp.com](mailto:support.japan@nxp.com)

**Asia/Pacific:**

NXP Semiconductors Hong Kong Ltd  
Technical Information Center  
2 Dai King Street  
Tai Po Industrial Estate,  
Tai Po, N.T., Hong Kong  
+800 2666 8080  
[support.asia@nxp.com](mailto:support.asia@nxp.com)

Information in this document is provided solely to enable system and software implementers to use NXP products. There are no express or implied copyright license granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

NXP Semiconductors reserves the right to make changes without further notice to any products herein. NXP Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does NXP Semiconductors assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in NXP Semiconductors data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. NXP Semiconductors does not convey any license under its patent rights nor the rights of others. NXP Semiconductors products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the NXP Semiconductors product could create a situation where personal injury or death may occur. Should Buyer purchase or use NXP Semiconductors products for any such unintended or unauthorized application, Buyer shall indemnify and hold NXP Semiconductors and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that NXP Semiconductors was negligent regarding the design or manufacture of the part.