TARGET APPLICATIONS

- Building automation
  - Security and access control
  - Building control and monitoring
  - Building HVAC control
  - Secure applications

- Industrial
  - Factory automation
  - Robotics

- Smart home
  - Door locks
  - Smart thermostats
  - Lighting control
  - Security systems

OVERVIEW

The K32 L3 MCU family delivers significant improvements in power optimization and security advancements to address a wide range of industrial and IoT applications. The K32 L3 family provides new enhancements such as low-leakage, power-optimized peripherals, a DC-DC converter, and security features like authenticated boot, secure update and tamper detection pins.

The K32 L3 family includes a high-performance Arm® Cortex®-M4 processor and a low-power Cortex-M0+ processor, ideal for applications that require a host MCU and a low-power MCU. With up to 1.25 MB flash and up to 384 kB SRAM, the K32 L3 family offers ample memory resources to address different applications tasks in a small form factor, low-power, and highly secure design.

The introduction of the K32 L3 family is the start of a long line of MCUs which will further advance our security and power optimization to lead the market in next-generation, power-conscious and low-leakage applications.

Take advantage of the robust enablement to reduce development effort and speed time-to-market with NXP’s comprehensive offering of development tools and MCUXpresso software providing an open-source software development kit (SDK), an easy-to-use integrated development environment (IDE) and a comprehensive suite of system configuration tools.

ENABLEMENT

- FRDM-K32L3A6 Freedom development board
- Support for NXP’s MCUXpresso and IAR Embedded Workbench® IDEs
- Full integration with NXP’s MCUXpresso SDK
- Support for multiple RTOSes including FreeRTOS™
**K32 L3 MCU FAMILY KEY FEATURES AND BENEFITS**

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual-Core Architecture</td>
<td>The dual-core feature (72 MHz Arm® Cortex®-M4 core and Cortex M0+ core) of this family makes it ideal for applications that require a high-performance host process to run the application and a low-power processor for low-throughput operations</td>
</tr>
<tr>
<td>Large On-Chip Memory</td>
<td>Ample memory resources (with up to 1.25 MB flash, up to 384 kB SRAM and 48 kB ROM (Bootloader)) to fit different custom application code and data, reducing complex two-chip solutions to a single device</td>
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</tbody>
</table>
| High Security                      | • Resource Domain Controller for access control, system memory protection and peripheral isolation  
• Cryptographic subsystem that includes a dedicated core, dedicated instruction memory (IRAM and IROM) and dedicated data RAM for autonomous implementation of encryption, signing, and hashing algorithms including AES, DES, SHA, RSA and ECC  
• Secure key management for storing and protecting sensitive security keys  
• Wiping of the crypto subsystem memory, including security keys, upon sensing a security breach or physical tamper event |
| Secure Boot                        | Built-in secure boot to assure only authorized and authenticated code runs in the device |
| DC-DC Converter                    | Reduces the effective current consumption over standard bypass mode |
| Analog                             | High-performance on-chip analog (ADC, DAC, CMP) for sensor aggregation and other sophisticated applications |
| Small, High Pin-Count Packages     | Large I/O capability in different packages including BGA, LQFP and QFN |
| Comprehensive Enablement           | Complete development hardware, software stacks, drivers and RTOS for easy design and fast time-to-market |

**ORDERABLE PART NUMBER**

<table>
<thead>
<tr>
<th>Product</th>
<th>Memory</th>
<th>Core</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>Availability</td>
<td>Flash</td>
<td>SRAM</td>
</tr>
</tbody>
</table>
| K32L3A60VPJ1A | Q3 2019   | 1.25 MB | 384 kB | ✓ | ✓ | 176 VFBGA  
9 x 9 x 0.86mm  
0.5mm pitch |

www.nxp.com/K32L3

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