LPC800 series MCUs offer a range of low-power, space efficient, low-pin-count options.

TARGET APPLICATIONS
- Communications interface for wireless protocols
- Human machine interface (HMI)
- IoT end nodes
- Sensor gateways

OVERVIEW
LPC800 series MCUs are extremely power-efficient and provide a straightforward development experience.

Based on an ultra-low-power ARM® Cortex®-M0+ core, LPC800 MCUs are fully compatible with the Cortex-M architecture and instruction set. The LPC800 series of MCUs efficiently handles 32-bit data, requiring less code, memory and 30% less dynamic power outperforming 8- and 16-bit MCUs.

The LPC800 series is available in a range of package options, including SO, TSSOP, LQFP, HVQFN and XSON.

DIFFERENTIATED FEATURES
Within the LPC800 series is the LPC84x MCU family, offering significant mixed signal integration, along with 256-bit of user configurable memory (FAIM) for device configuration at start-up. And with the recently announced LPC8N04, developers are able to leverage an ISO14443 certified NFC communication interface integrated as part of the LPC800 series offering.

LPC800 SERIES BLOCK DIAGRAM
COMPREHENSIVE ENABLEMENT SOLUTIONS
Software Development

LPC800 series MCUs are supported by our free example code bundle, as well as LPCOpen Driver Code.

The primary platform for LPC800 software development is our example code bundle, a basic, complete working example code for each peripheral, giving 8- and 16-bit MCU users a fast transition to the 32-bit LPC800 series.

Although the LPCOpen Driver Code is no longer our supported platform, a release for the LPC81x/82x/83x families is available. The LPCOpen Driver Code is an Application Programming Interface (API) base for users who have less concern about overall code size. LPCOpen provides ease of use without diving into details of each peripheral registers, making it an easy transition from LPC8xx to LPC1xxx MCUs.

Our LPC800 example code bundle is the fastest, simplest way to learn how to program each peripheral before progressing to its more advanced features. New users of LPC800 series devices can easily step through the example code like a tutorial. Concise and accurate explanations in ‘readme’ files and comments in source files help you to start/debug quickly. It’s easy to understand how the peripheral registers are accessed without going through many levels of API. The example code project and source code directory structures are kept simple, flat, and consistent (as much as possible) between MCUXpresso, ARM Keil® and IAR®. An added benefit is that it offers significantly smaller code size vs LPCOpen; greater than 25% code size reduction for a simple ‘blinky’ example. To try the LPC800 example code bundle, please visit the software download tab of your preferred LPC800 product page.

Hardware Development

- LPCXpresso and LPCXpresso-MAX development boards
  - Low-cost evaluation
  - Flexible expansion options

Integrated Development Environments (IDEs)

- MCUXpresso IDE
- IAR® Embedded Workbench
- ARM Keil® Microcontroller Development Kit

LPC800 SERIES MCU FAMILIES

<table>
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<tr>
<th>Family</th>
<th>Core</th>
<th>Memory</th>
<th>Differentiated Features</th>
<th>Package Options</th>
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<tr>
<td>LPC8N04 MCU</td>
<td>8 MHz Cortex-M0+ core</td>
<td>32 KB Flash, 8 KB SRAM 4 KB EEPROM</td>
<td>Up to 12 GPIO, NFC/RFID ISO 14443 type A interface, Temperature sensor with ±1.5 °C accuracy, -40 °C to +85 °C</td>
<td>HVQFN24</td>
</tr>
<tr>
<td>LPC81x MCU Family</td>
<td>30 MHz Cortex-M0+ core</td>
<td>Up to 16 KB Flash, Up to 4 KB SRAM</td>
<td>Up to 18 GPIO, SCTimer/PWM, Comparator, -40 °C to 105 °C</td>
<td>TSSOP16, TSSOP20, SO20, XSON16</td>
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<tr>
<td>LPC82x MCU Family</td>
<td>30 MHz Cortex-M0+ core</td>
<td>Up to 32 KB Flash, Up to 8 KB SRAM</td>
<td>Up to 29 GPIO, SCTimer/PWM, 12-bit ADC, Comparator, -40 °C to +105 °C</td>
<td>TSSOP20, HVQFN33</td>
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<tr>
<td>LPC83x MCU Family</td>
<td>30 MHz Cortex-M0+ core</td>
<td>Up to 32 KB Flash, Up to 4 KB SRAM</td>
<td>Up to 29 GPIO, SCTimer/PWM, 12-bit ADC, -40 °C to +85 °C</td>
<td>TSSOP20, HVQFN33</td>
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<tr>
<td>LPC84x MCU Family</td>
<td>30 MHz Cortex-M0+ core</td>
<td>Up to 64 KB Flash, Up to 16 KB SRAM</td>
<td>Up to 54 GPIO, SCTimer/PWM, Fast Initialization Memory (FAIM), 12-bit ADC, Dual 10-bit DAC, Comparator, 9 Button Mutual Capacitive Touch, -40 °C to +105 °C</td>
<td>HVQFN33, HVQFN48, LQFP48, LQFP64</td>
</tr>
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OM13097: LPCXPRESSO845-MAX DEVELOPMENT BOARD

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Date of Release: October 2017
Document Number: LPC800FS REV 6