

# An Introduction to Freescale MCUs

## For motor control

Freescale is a leading supplier of embedded controllers with a strong legacy of offering solutions for motor control applications. Our broad portfolio of MCUs spans across 8-, 16- and 32-bit platforms, featuring low-power, analog, control and communications hardware.

### **Freescale 8-bit HC(R)S08 MCU portfolio**

Our portfolio of 8-bit MCUs provides a wide range of highly functional solutions for low- to mid-range industrial and automotive motor control applications. From tiny RS08 devices to highly functional S08 controllers combining timers and analog integration along with a range of connectivity and HMI peripherals, 8-bit MCUs are an ideal solution for simple, cost-sensitive motor control applications. Within the S08 family there is a wide range of 5-volt options that offer more durability and reliability in harsh industrial environments, meeting appliance safety standard IEC60730. Our 5-volt S08 families offer exceptional EFT/ESD performance.

### **16- and 32-bit DSCs**

Freescale DSCs combine DSP speed with MCU control for the ideal industrial motion control solution. These flexible 16- and 32-bit devices are particularly well suited for electric motor control with timers and analog peripherals specifically designed to meet the requirements of the most demanding motor control application. With a range of solutions from cost-effective options in small flash and package combinations to highly integrated and optimized options, our

DSC solutions can tailor almost any motor control application.

### **Kinetis MCUs Based on the 32-bit ARM® Cortex™-M Core**

32-bit Kinetis MCUs represent the most scalable portfolio of ARM Cortex-M core-based MCUs in the industry. There are more than 300 MCUs in the portfolio spanning the entry-level Kinetis L MCUs based on the ARM Cortex™-M0+ core and Kinetis K series MCUs based on the ARM Cortex™-M4 core with IP compatibility across the range as well as pin compatibility across parts offered within the same portfolio. Enabled by innovative 90 nm thin film storage (TFS) flash technology with unique FlexMemory (configurable embedded EEPROM), Kinetis MCUs feature the latest low-power innovations and high-performance, high-precision mixed-signal capability. Kinetis MCUs are supported by market-leading enablement from Freescale and our ecosystem partners. The Kinetis line is suitable for a wide range of low- to mid-range motor control applications.

### **PX Series MCUs Based on the 32-bit Power Architecture® Core**

The PX series of MCUs based on the Power Architecture core provide unmatched performance, comprehensive enablement and ruggedized safety features for the most complex industrial control applications, including motor drives, motion control, power generation, clinical medical, robotics and more. Options exist for both single- and multicore implementation with up to 600 DMIPS of performance. The family offers

up to 4 MB of integrated flash memory, while an embedded safety architecture helps meet challenging safety, reliability and environmental requirements.

Runtime software, a development platform for rapid prototyping, and advanced debug and system modelling tools ensure easy development. We offer 32-bit Qorivva MCUs based on Power Architecture technology specifically tailored for automotive applications, offering the same levels of performance and functionality.

### **It's More Than Just Silicon**

Freescale is dedicated to providing semiconductor solutions that build value into your products. When you purchase from us, you're buying more than just an embedded processor. You're getting access to a broad ecosystem of technical support services, development tools and training—all designed to make your job easier and your end products better. In this brochure, you will learn more about the resources we are providing beyond our MCUs that you can harness through your design effort.

### **Our Commitment to Long-Term Supply**

Freescale is committed to ensuring our products are available for our customers through the entire lifetime of their systems. To that extent, Freescale commits to a minimum product cycle of 10, and in some cases, 15 years for our MCUs targeting the industrial, automotive and medical markets. For product longevity terms and conditions, and to obtain a list of available products, visit [freescale.com/productlongevity](http://freescale.com/productlongevity).

# How to Reach Us:

**Home Page:**

[freescale.com](http://freescale.com)

**Motor Control****Portfolio Information:**

[freescale.com/motorcontrol](http://freescale.com/motorcontrol)

**e-mail:**

[support@freescale.com](mailto:support@freescale.com)

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

Freescale Semiconductor  
Technical Information Center, CH370  
1300 N. Alma School Road  
Chandler, Arizona 85224  
1-800-521-6274  
480-768-2130  
[support@freescale.com](mailto:support@freescale.com)

**Europe, Middle East, and Africa:**

Freescale 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)  
[support@freescale.com](mailto:support@freescale.com)

**Japan:**

Freescale Semiconductor 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@freescale.com](mailto:support.japan@freescale.com)

**Asia/Pacific:**

Freescale Semiconductor 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@freescale.com](mailto:support.asia@freescale.com)

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor 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.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor 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 Freescale Semiconductor 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. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor 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 Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor 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 Freescale Semiconductor was negligent regarding the design or manufacture of the part.

For more information, visit [freescale.com/motorcontrol](http://freescale.com/motorcontrol)

Freescale, the Freescale logo, Kinetis and Qorivva are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. All other product or service names are the property of their respective owners. ARM is the registered trademark of ARM Limited. ARM Cortex-M4 and Cortex-M0+ are trademarks of ARM Limited. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org. © 2012 Freescale Semiconductor, Inc.

Document Number: BBINDMCUART REV 0