MCLPC55S36RN

Motor Control Release Notes for LPC55S36-EVK

Rev. 0 — 31 July 2023   **Release notes**

1   Introduction

These release notes are for the motor-control middleware group of applications released together with the MCUXpresso SDK for LPC55S36-EVK. This document provides a list of application examples, their notable features, supported hardware platforms, changes since the last MCUXpresso release, known issues, and links to further documentation. The latest documentation for the motor control SDK is available on https://www.nxp.com/sdkmotorcontrol.

2   Description

This motor-control middleware release describes the implementation of the motor-control software for 3-phase Permanent Magnet Synchronous Motor (PMSM). Applications can support high- or low-voltage hardware platforms and various MCU types. The following application types are available in the *mc_pmsm* folder of your SDK archive (see Section "Examples"):

- **pmsm_enc** - Sensor and sensorless FOC example utilizing floating-point arithmetics. The Motor Identification (MID) software module in combination with the Motor Control Application Tool (MCAT) allow for rapid application development. The example is available on these boards:
  – LPCXpresso55S36-EVK
- **pmsm_enc_iopamp** - Sensor and sensorless FOC example utilizing floating-point arithmetics. The Motor Identification (MID) software module in combination with the Motor Control Application Tool (MCAT) allow for rapid application development. In this example, the internal operational amplifiers are used instead of the external operational amplifiers. The example is available on these boards:
  – LPCXpresso55S36-EVK
- **pmsm_enc_dual** - Sensor and sensorless FOC example utilizing floating-point arithmetic for dual motor control application. The MID software is available. The MCAT is not available for this example. The example is available on these boards:
  – LPCXpresso55S36-EVK
- **pmsm_periph_framework** - The example contains pins setting (e.g. PWM outputs, ADC inputs) and peripherals setting (e.g. ADC, timers, comparator). Example does not contain algorithms or state machine for motor control application, so spinning with the motor is not possible in the default example. The example is available on these boards:
  – LPCXpresso55S36-EVK

See the user's guide in the *\middleware\motor_control\doc* folder in your SDK Documentation package (see Section "Examples") or the www.nxp.com/sdkmotorcontrol web page.

All examples support the FreeMASTER interface for quick and simple application debugging, tuning, control, and monitoring. See www.nxp.com/freemaster and the application user's guide for more information.

3   Examples

The example projects are distributed only in the form of the MCUXpresso SDK Archive and the release documentation is available in the SDK Documentation package. To acquire both packages (specific to your development platform), use the online MCUXpresso SDK Builder tool and perform the following steps:

- Go to www.mcuxpresso.nxp.com.
- Click the **Select Development Board** button.
- Sign in or create the NXP account (if requested).
- Choose one of the development tools (see Section 4 for the list of boards supported by this release).
- Click the **Build MCUXpresso SDK** button.
- Make sure that the **Motor Control** middleware is selected and click the **Download SDK** button.
- When the SDK Documentation and SDK Archive package build is done (you receive a notification email), it can be downloaded freely.

4   Development tools

The motor-control application examples were developed and tested with the following development tools:

- IAR Embedded Workbench IDE version 9.40.1
- Arm®-MDK - Keil® µVision® version 5.38
- MCUxpresso IDE version 11.8.0

FreeMASTER tool version 3.2.1 was used for application monitoring. See www.nxp.com/freemaster for the latest version.

5   What is new

This section describes all notable changes since the last motor-control middleware MCUXpresso SDK release v2.13.0.

1. **Fault indication disabling**
   A fault indication may be undesirable during the tunning process. Therefore, fault indication can be now disabled.
2. **Added new example for the LPCXpresso55S36-EVK board**
   Added `pmsm_periph_framework` example. For more details, navigate above in this document.

6   Known issues

This chapter contains the description of known issues or non-standard behavior of the released example.

- **User inputs are not generated in MCAT**
  After save mX_pmsm_appconfig.h file, macros defined by user are not generated or copied to the user section in the mX_pmsm_appconfig.h (marked by */* USER INPUT START */* and */* USER INPUT END */* comments).

7   Feedback

Your feedback is very important to us. Please feel free to leave a comment here.

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