MT793X IoT SDK for PSRAM

User Guide

Version: 0.1

Release date: 2021-03-25

Version History

Version	Date	Description
0.1	2021-03-25	Initial draft

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1 Overview

The MT793X provides one 4-MB PSRAM (Pseudo Static Random Access Memory) for applications. This document introduces the specifications, features and software API of the PSRAM.

2 Specifications and Features

2.1 Specifications

- Power supply: 1.7V~1.95V;
- 8-bit data bus, double-data rate, and clock rate up to 200 MHz(400 MBps read/write throughput);
- The operating temperature ranges from -40 °C to +85 °C.

2.2 Features

- Hardware reset (RESET#) and software reset;
- Configurable output drive strength;
- Ultra low power half sleep mode with data retained;
- Wrapped burst lengths: 16/32/64/128 bytes.

3 Software API

This section describes the programming interfaces of the PSRAM driver.

3.1 hal_psram_init()

This function initializes the PSRAM base environment. Call this API if the PSRAM is required. If the operation is successful, HAL_PSRAM_STATUS_SUCCESS should be returned; otherwise, HAL_PSRAM_STATUS_FAIL should be returned.

3.2 hal_psram_off()

This function powers off the PSRAM, including sleep memory cell. If the operation is successful, HAL_PSRAM_STATUS_SUCCESS should be returned; otherwise, HAL_PSRAM_STATUS_FAIL should be returned.

3.3 hal_psram_power_hsleep()

This function gets PSRAM power to half sleep status. If the operation is successful, HAL_PSRAM_STATUS_SUCCESS should be returned; otherwise, HAL_PSRAM_STATUS_FAIL should be returned. This API must be called after hal_psram_init().

3.4 hal_psram_power_wakeup()

This function gets PSRAM power to wakeup status. If the operation is successful, HAL_PSRAM_STATUS_SUCCESS should be returned; otherwise, HAL_PSRAM_STATUS_FAIL should be returned. This API must be called after hal_psram_init() and hal_psram_power_hsleep().

3.5 API Call Flow

- hal_psram_init();
- hal_psram_power_hsleep();
- hal_psram_power_wakeup();
- hal_psram_off().

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