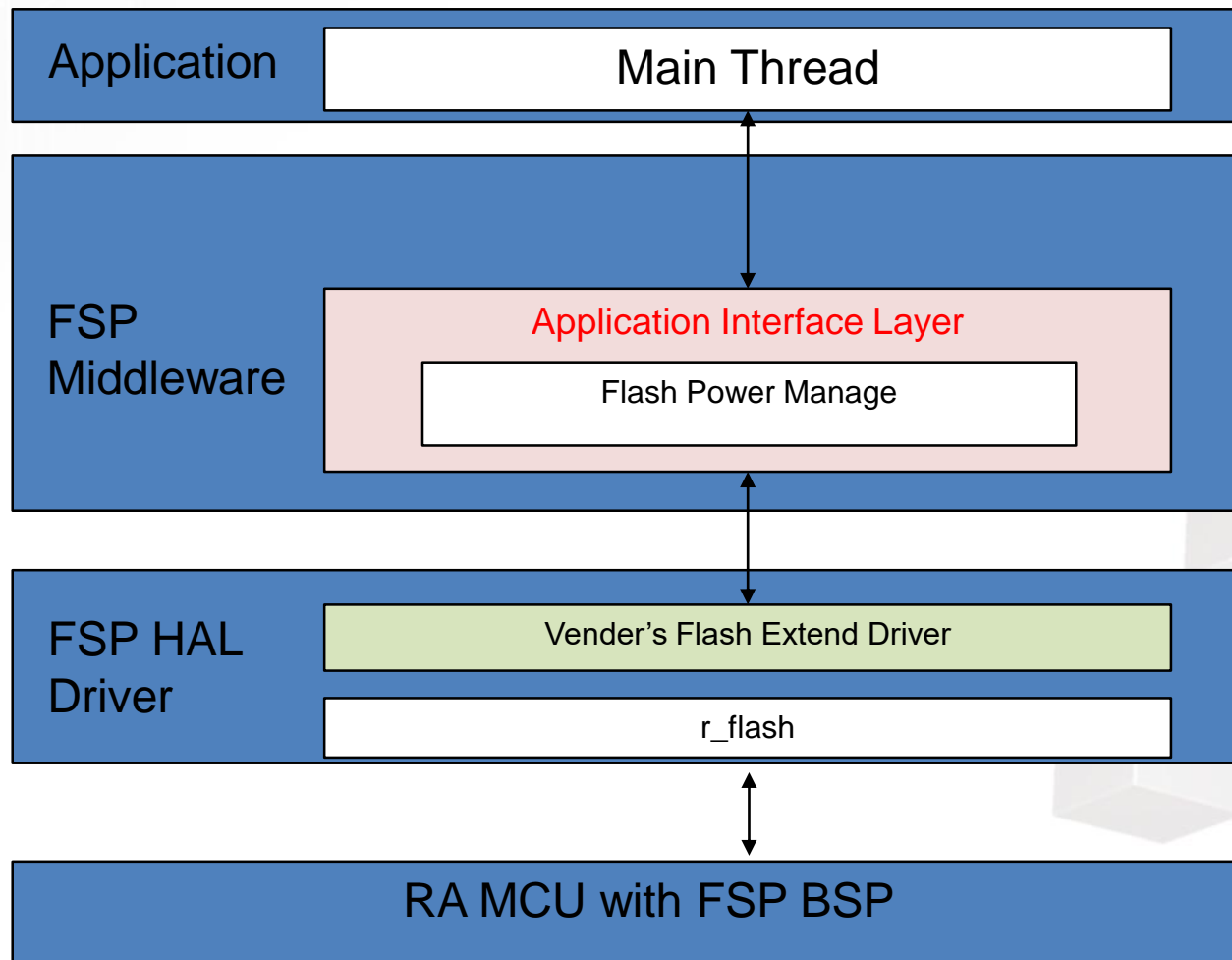# PowerManage Introduction

2021.4

Introduction

Usually, Nor Flash has more than one power mode, such as Normal mode and DeepPowerDown, but in FSP, it is not very easy to change Flash power mode, In this application, we introduce a middleware to manage Flash Power mode, and take MX25R as an example for interpretation. The Power Manage Middleware just offers some interfaces and the Flash vender should realize the interfaces according to related rules.
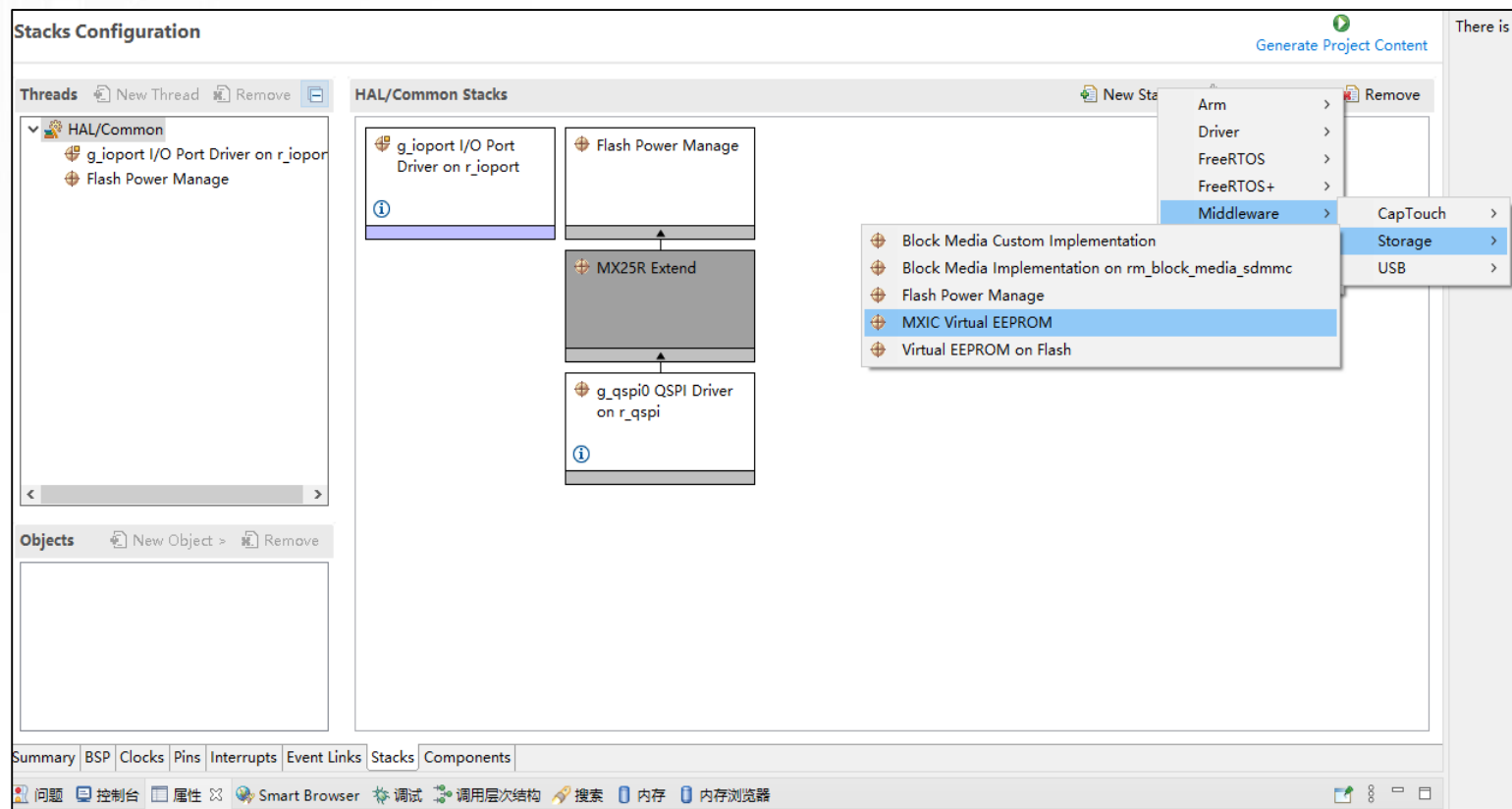
PowerManage Middleware will continue to exist as the FSP is updated.

Macronix Proprietary

2

MACRONIX
INTERNATIONAL Co., LTD.

PowerManage Layer

Application	Main Thread

FSP Middleware

Application Interface Layer

Flash Power Manage

FSP HAL Driver

Vender's Flash Extend Driver

r_flash

RA MCU with FSP BSP

Macronix Proprietary

PowerManage Module

Macronix Proprietary

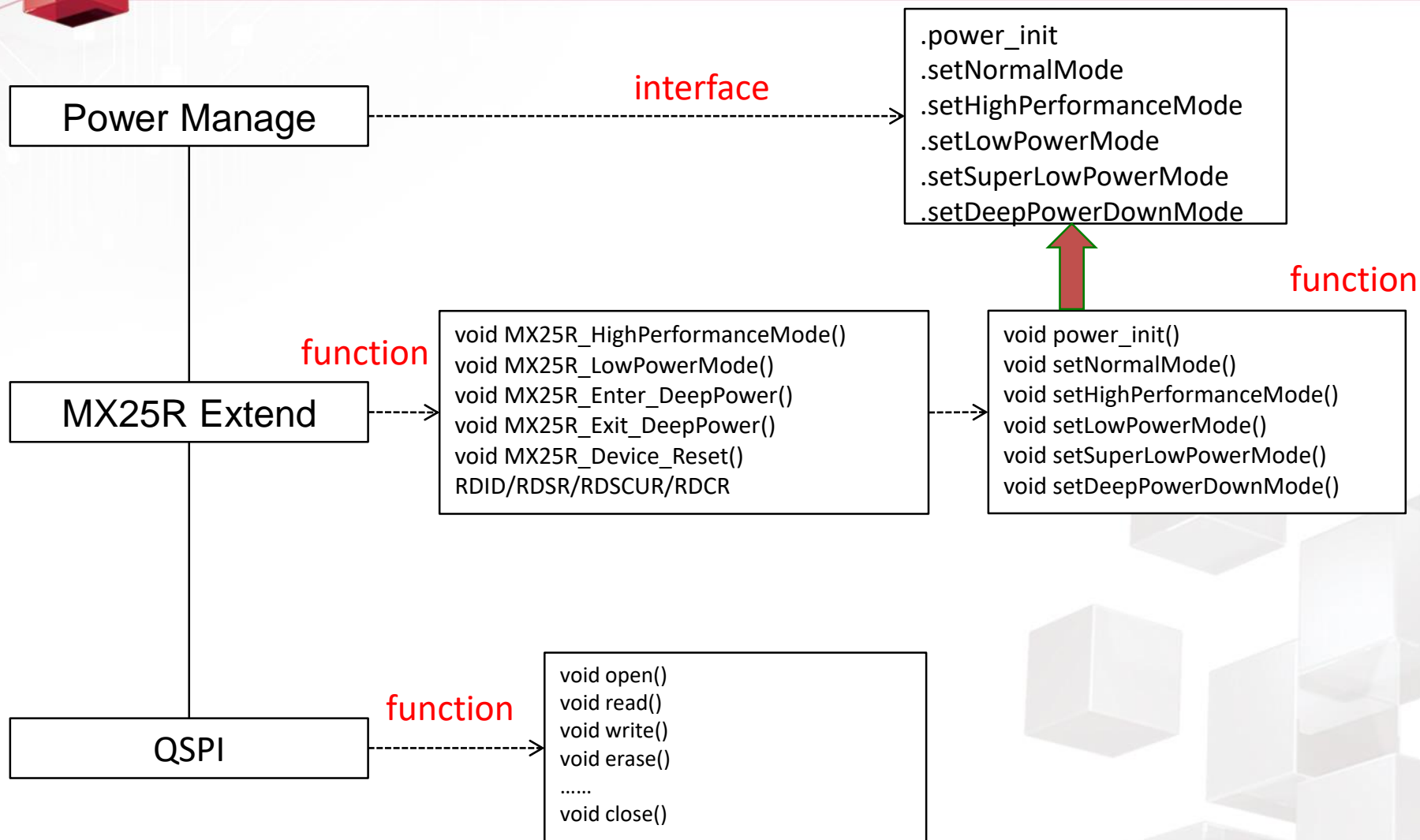# Interface Rules

❑ power_init ()

❑ setNormalMode ()

❑ setHighPerformanceMode ()

❑ setLowPowerMode ()

❑ setSuperLowPowerMode ()

❑ setDeepPowerDownMode ()

Each vender should realize the interfaces above. power_init() is used to do some initialization work, and then vender should select some power mode according to actual Flash. Finally, the other power should return NOT_SUPPORT.

MACRONIX
INTERNATIONAL CO., LTD.

Example

Power Manage ┄┄┄ *interface* ┄┄➤

```
.power_init
.setNormalMode
.setHighPerformanceMode
.setLowPowerMode
.setSuperLowPowerMode
.setDeepPowerDownMode
```

function

MX25R Extend ┄┄ *function* ┄┄➤

```
void MX25R_HighPerformanceMode()
void MX25R_LowPowerMode()
void MX25R_Enter_DeepPower()
void MX25R_Exit_DeepPower()
void MX25R_Device_Reset()
RDID/RDSR/RDSCUR/RDCR
```

┄┄➤

```
void power_init()
void setNormalMode()
void setHighPerformanceMode()
void setLowPowerMode()
void setSuperLowPowerMode()
void setDeepPowerDownMode()
```

QSPI ┄┄ *function* ┄┄➤

```
void open()
void read()
void write()
void erase()
......
void close()
```

Macronix Proprietary

6

MACRONIX