

CP316

Serial Communication-SPI

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Serial Communication -SPI

Serial Communication -SPI

- Serial Peripheral Interface

Serial Communication -SPI

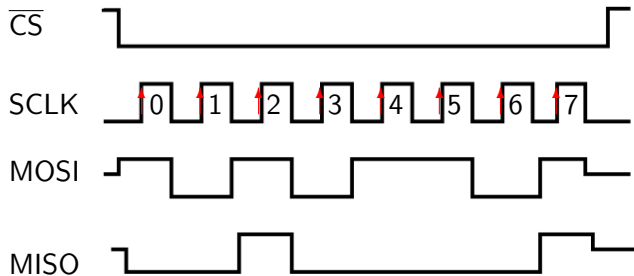
- Serial Peripheral Interface
- Master/slave communication

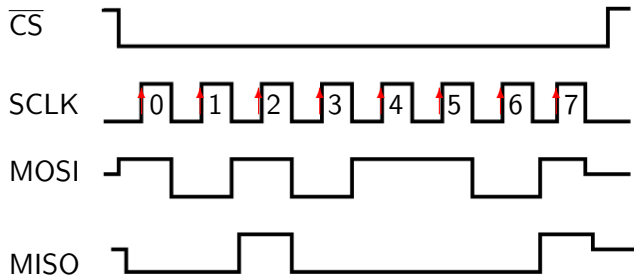
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- Serial Peripheral Interface
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- Uses 3 signals (and Ground),
MISO, MOSI, SCLK
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- Synchronous, so master controls clock rate





SPI transfers can happen in both directions simultaneously.

Introduction

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QwikFlash modules

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QwikFlash modules
ramifications???

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interrupts; transmit and receive

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→ Sections 6.4.5 to 6.4.7

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interrupts; transmit and receive

→ Sections 6.4.5 to 6.4.7

→ Section 8.2

Master Synchronous Serial Port (MSSP) module

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2 modes; **SPI** and I²C

Master Synchronous Serial Port (MSSP) module

2 modes; **SPI** and I^2C

→ Section 15.0 -15.2

SPI

SPI

3 wires +chip select, master-slave

SPI

3 wires +chip select, master-slave
overview

SPI

3 wires +chip select, master-slave
overview
→ Section 10.2

SPI

3 wires +chip select, master-slave

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SPI registers

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→ Section 10.3.1

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3 wires +chip select, master-slave

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SPI registers

→ Section 10.3.1

operation

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→ Sections 10.3.2 to 10.3.5

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→ Sections 10.3.2 to 10.3.5

→ Section 15.3

QwikFlash MAX522 DAC

SPI summary

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3 wires (+ ground), one-to-many

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SCLK (from master)

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SDO (serial data out)

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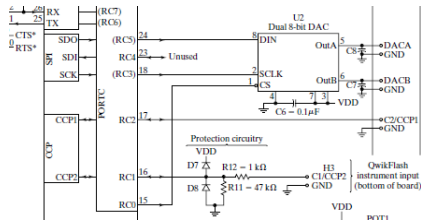
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data transmission rate set by SCLK

packets are single characters

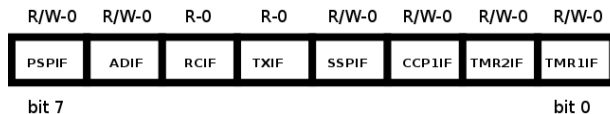
Qwikflash SPI connections

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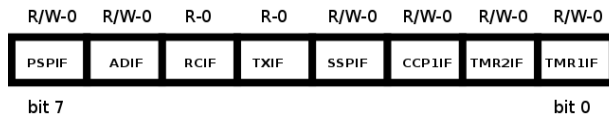


PIR1

PIR1

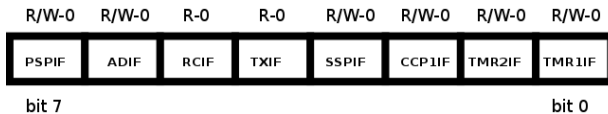


PIR1



Bits in PIR1 register

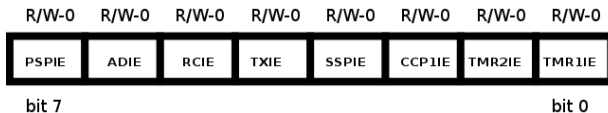
PIR1



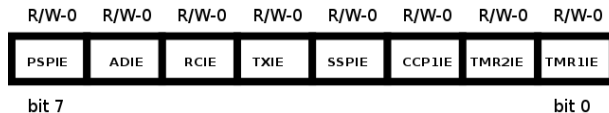
Bits in PIR1 register - Note SSPIF

PIE1

PIE1

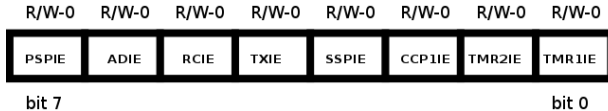


PIE1



Bits in PIE1 register

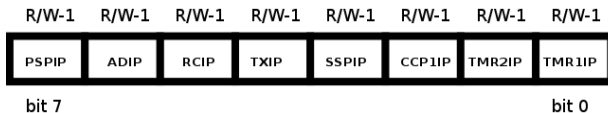
PIE1



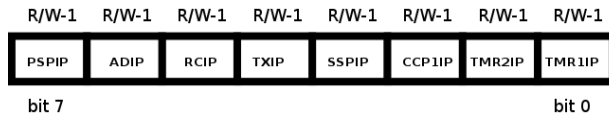
Bits in PIE1 register - Note SSPIE

IPR1

IPR1

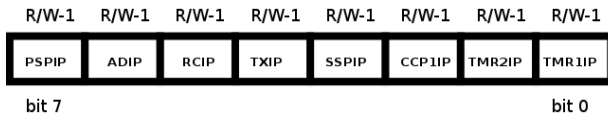


IPR1



Bits in IPR1 register

IPR1



Bits in IPR1 register - Note SSPIP

Bit-bashing

Bit-bashing

overview

Bit-bashing

overview

reasons

Bit-bashing

overview

reasons

NIB

Code

Code

PORT configuration

Code

PORT configuration

→ macro or subroutine?

Code

PORT configuration

→ macro or subroutine?

Initiallization

Code

PORT configuration

→ macro or subroutine?

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→ macro or subroutine?

Code

PORT configuration

→ macro or subroutine?

Initiallization

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Write to device

Code

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