

CP316 IO Ports

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Parallel IO Ports

Parallel IO Ports

memory mapping vs. IO mapping

Parallel IO Ports

memory mapping vs. IO mapping

→ Section 7.3

Parallel IO Ports

memory mapping vs. IO mapping

→ Section 7.3

overview of PIC18 ports

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overview of PIC18 ports

→ Section 7.5

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→ **Section 9.0**

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→ **Section 9.0**

multiplexed pin functions

Parallel IO Ports

memory mapping vs. IO mapping

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multiplexed pin functions

PORTA, PORTB, PORTC, PORTD, PORTE

Port D

Port D

→ Section 9.4

Port D

→ Section 9.4
number of bits?

Port D

→ Section 9.4

number of bits?

TRISD, PORTD (in), **LATD** (out)

Port D

→ Section 9.4

number of bits?

TRISD, **PORTD** (in), **LATD** (out)

TRIS; '1'=Input; '0'=Output

Port D

→ Section 9.4

number of bits?

TRISD, **PORTD** (in), **LATD** (out)

TRIS; '1'=Input; '0'=Output

multiplexed pin functions

Port D

→ Section 9.4

number of bits?

TRISD, **PORTD** (in), **LATD** (out)

TRIS; '1'=Input; '0'=Output

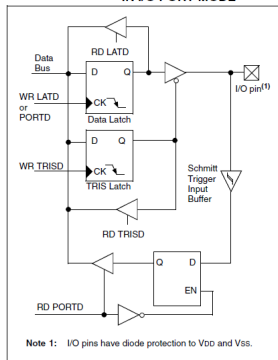
multiplexed pin functions

QwikFlash connections

Port D

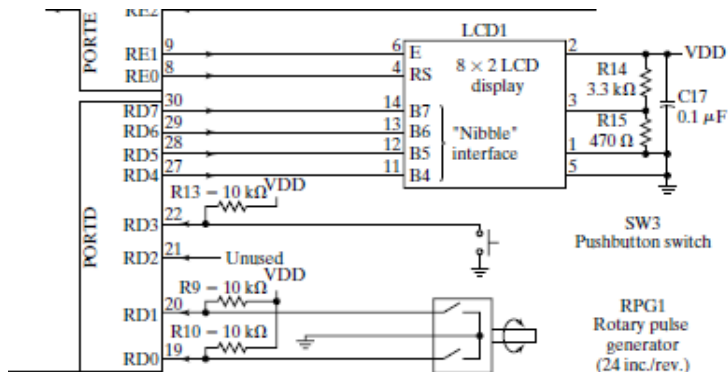
Port D

FIGURE 9-8: PORTD BLOCK DIAGRAM IN I/O PORT MODE



Port D Qwikflash connections

Port D Qwikflash connections



Port D Qwikflash connections

Port E

Port E

→ Section 9.5

Port E

→ Section 9.5
number of bits?

Port E

→ Section 9.5

number of bits?

TRISE, **PORTE** (in), **LATE** (out)

Port E

→ Section 9.5

number of bits?

TRISE, **PORTE** (in), **LATE** (out)

multiplexed pin functions

Port E

→ Section 9.5

number of bits?

TRISE, **PORTE** (in), **LATE** (out)

multiplexed pin functions

ADC inputs 5-7

Port E

→ Section 9.5

number of bits?

TRISE, **PORTE** (in), **LATE** (out)

multiplexed pin functions

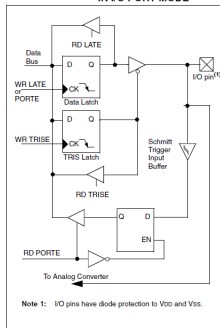
ADC inputs 5-7

QwikFlash connections

Port E

Port E

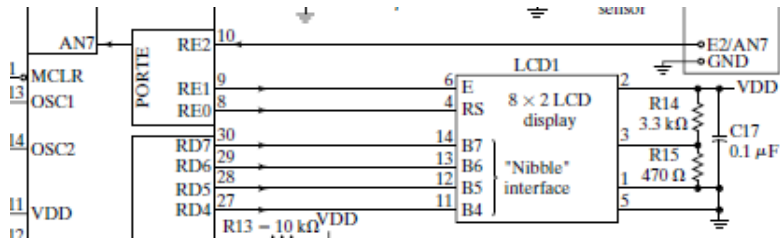
FIGURE 9-9: PORTE BLOCK DIAGRAM IN I/O PORT MODE



Port E

Port E Qwikflash connections

Port E Qwikflash connections



Port E Qwikflash connections

Port C

Port C

→ Section 9.3

Port C

→ Section 9.3
number of bits?

Port C

→ Section 9.3

number of bits?

TRISC, **PORTC** (in), **LATC** (out)

Port C

→ Section 9.3

number of bits?

TRISC, **PORTC** (in), **LATC** (out)

multiplexed pin functions

Port C

→ Section 9.3

number of bits?

TRISC, **PORTC** (in), **LATC** (out)

multiplexed pin functions

peripheral data in/out

Port C

→ Section 9.3

number of bits?

TRISC, **PORTC** (in), **LATC** (out)

multiplexed pin functions

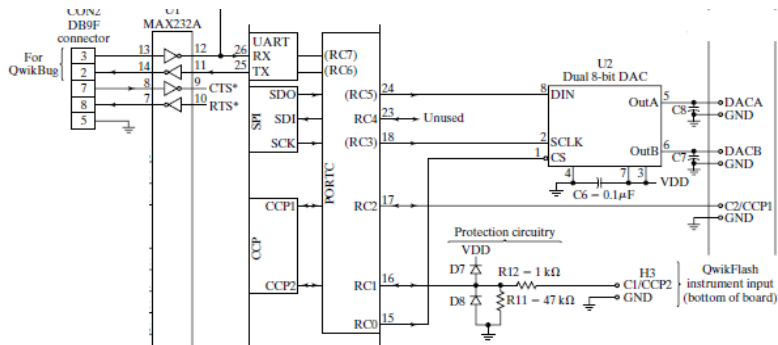
peripheral data in/out

QwikFlash connections

Port C

Port C Qwikflash connections

Port C Qwikflash connections



Port C Qwikflash connections

Port B

Port B

→ Section 9.2

Port B

→ Section 9.2
number of bits?

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

multiplexed pin functions

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

multiplexed pin functions

RB4-7 ; interrupt on change

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

multiplexed pin functions

RB4-7 ; interrupt on change

RB0-2 ; external interrupts

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

multiplexed pin functions

RB4-7 ; interrupt on change

RB0-2 ; external interrupts

RB3 ; CCP

Port B

→ Section 9.2

number of bits?

TRISB, **PORTB** (in), **LATB** (out)

weak pull-ups

multiplexed pin functions

RB4-7 ; interrupt on change

RB0-2 ; external interrupts

RB3 ; CCP

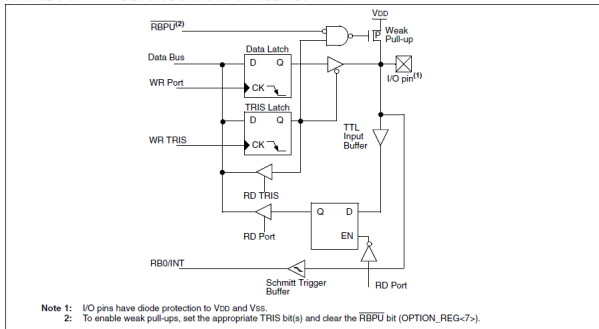
QwikFlash connections

Port B (partial)

Port B (partial)

Port B (partial)

FIGURE 9-5: BLOCK DIAGRAM OF RB2:RB0 PINS

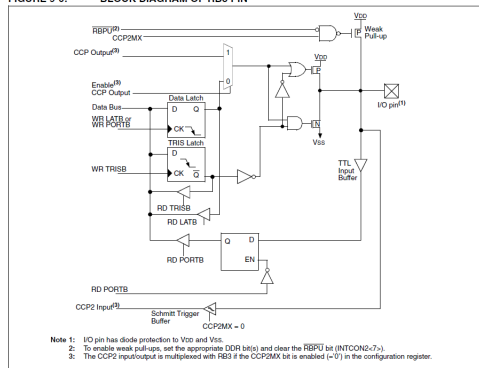


Port B bits 0:2

Port B (partial)

Port B (partial)

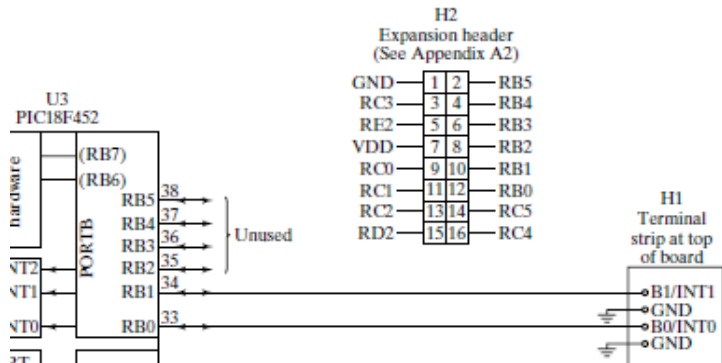
FIGURE 9-6: BLOCK DIAGRAM OF RB3 PIN



Port B bit 3

Port B Qwikflash connections

Port B Qwikflash connections



Port B Qwikflash connections

Port A

Port A

→ Section 9.1

Port A

→ Section 9.1
number of bits?

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

RA0-3, 5 ; SS in, analog inputs 0-4

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

RA0-3, 5 ; SS in, analog inputs 0-4

RA4 ; open drain, TMR0 input

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

RA0-3, 5 ; SS in, analog inputs 0-4

RA4 ; open drain, TMR0 input

RA6 ; OSC2

Port A

→ Section 9.1

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

RA0-3, 5 ; SS in, analog inputs 0-4

RA4 ; open drain, TMR0 input

RA6 ; OSC2

→ Section 2.3 - 2.5

Port A

→ [Section 9.1](#)

number of bits?

TRISA, **PORTA** (in), **LATA** (out)

multiplexed pin functions

RA0-3, 5 ; SS in, analog inputs 0-4

RA4 ; open drain, TMR0 input

RA6 ; OSC2

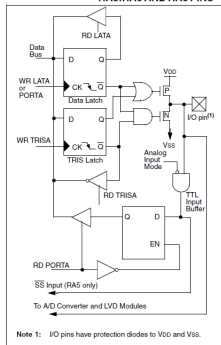
→ [Section 2.3 - 2.5](#)

QwikFlash connections

Port A (partial)

Port A (partial)

FIGURE 9-1: BLOCK DIAGRAM OF RA3:RA0 AND RA5 PINS



Port A bits 0:3 and 5

Port A (partial)

Port A (partial)

FIGURE 9-2: BLOCK DIAGRAM OF RA4/T0CKI PIN

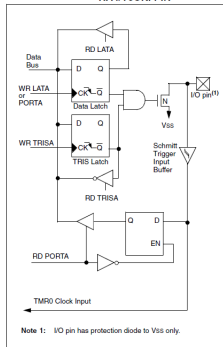
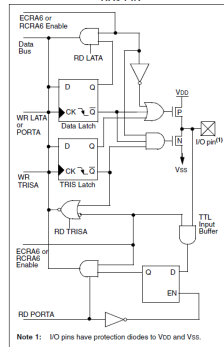


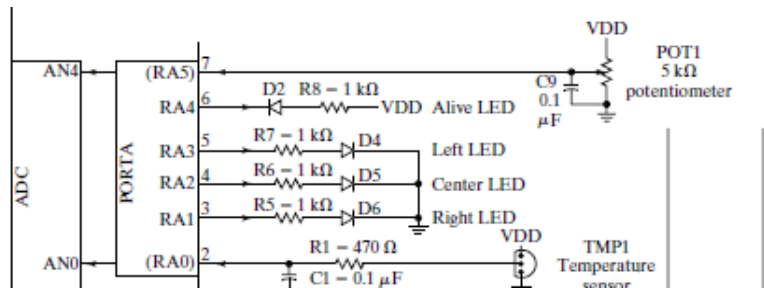
FIGURE 9-3: BLOCK DIAGRAM OF RA6 PIN



Port A bits 4 and 6

Port A Qwikflash connections

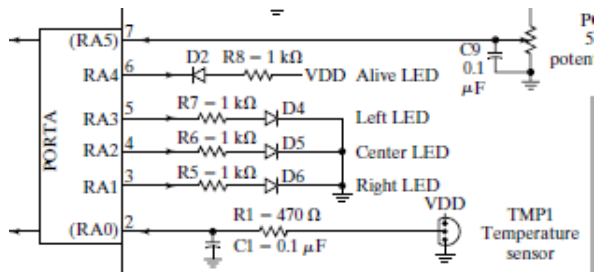
Port A Qwikflash connections



Port A Qwikflash connections

Qwikflash LED connections

Qwikflash LED connections



Modular configuration

Modular configuration

- 1 read config register

Modular configuration

- 1 read config register
- 2 mask bits for specific pins

Modular configuration

- 1 read config register
- 2 mask bits for specific pins
- 3 set/clear bits for specific pins

Modular configuration

- 1 read config register
 - 2 mask bits for specific pins
 - 3 set/clear bits for specific pins
 - 4 rewrite register
- NIB