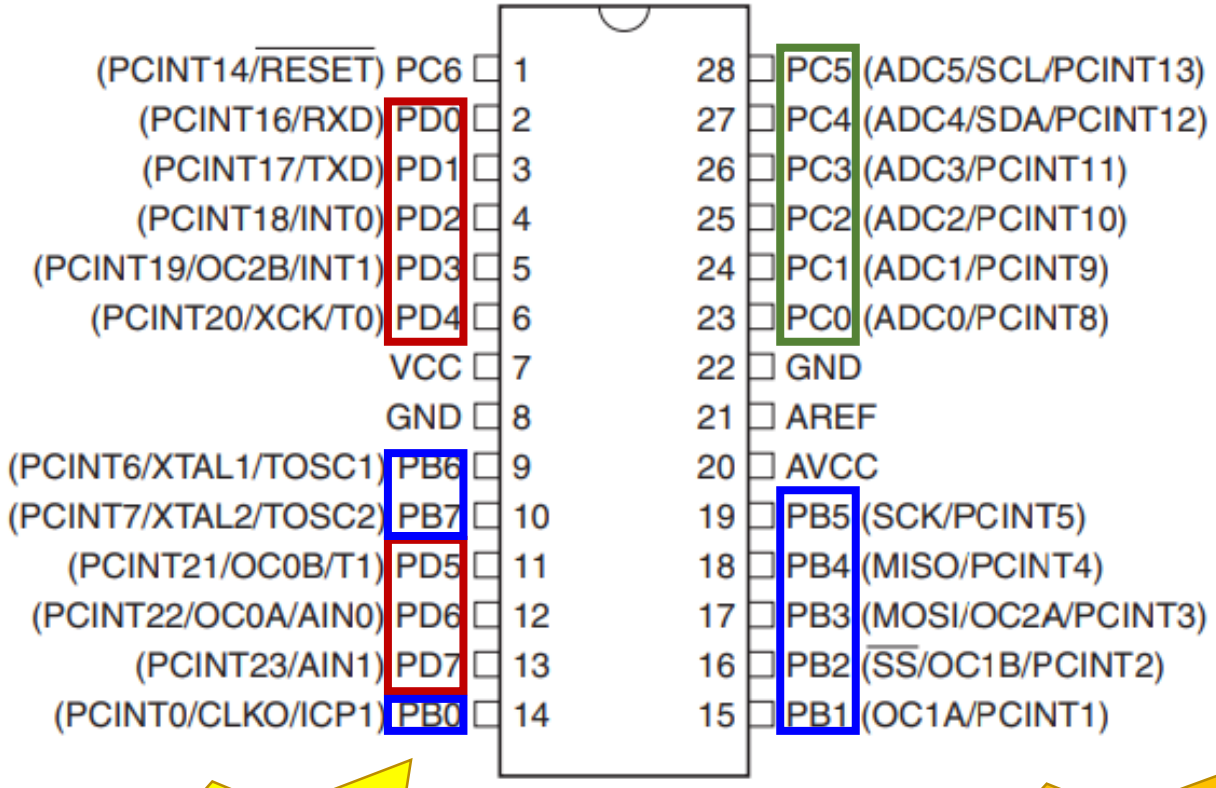
I/O Ports

I/O Ports

PORT B (8 bits) **PORT C (6 bits)** **PORT D (8 bits)**

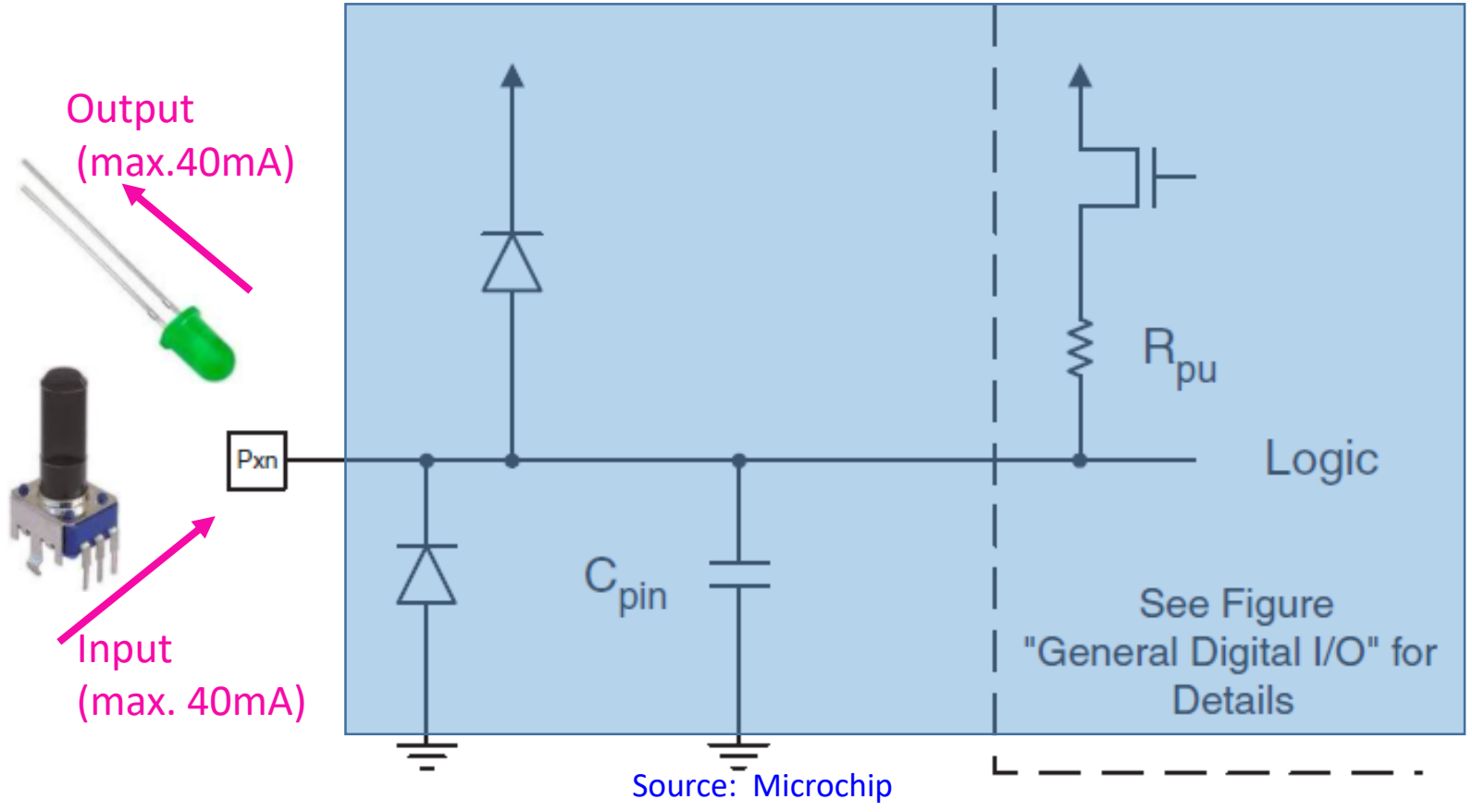


1 pin → 40mA

All ports → 200mA

I/O Ports

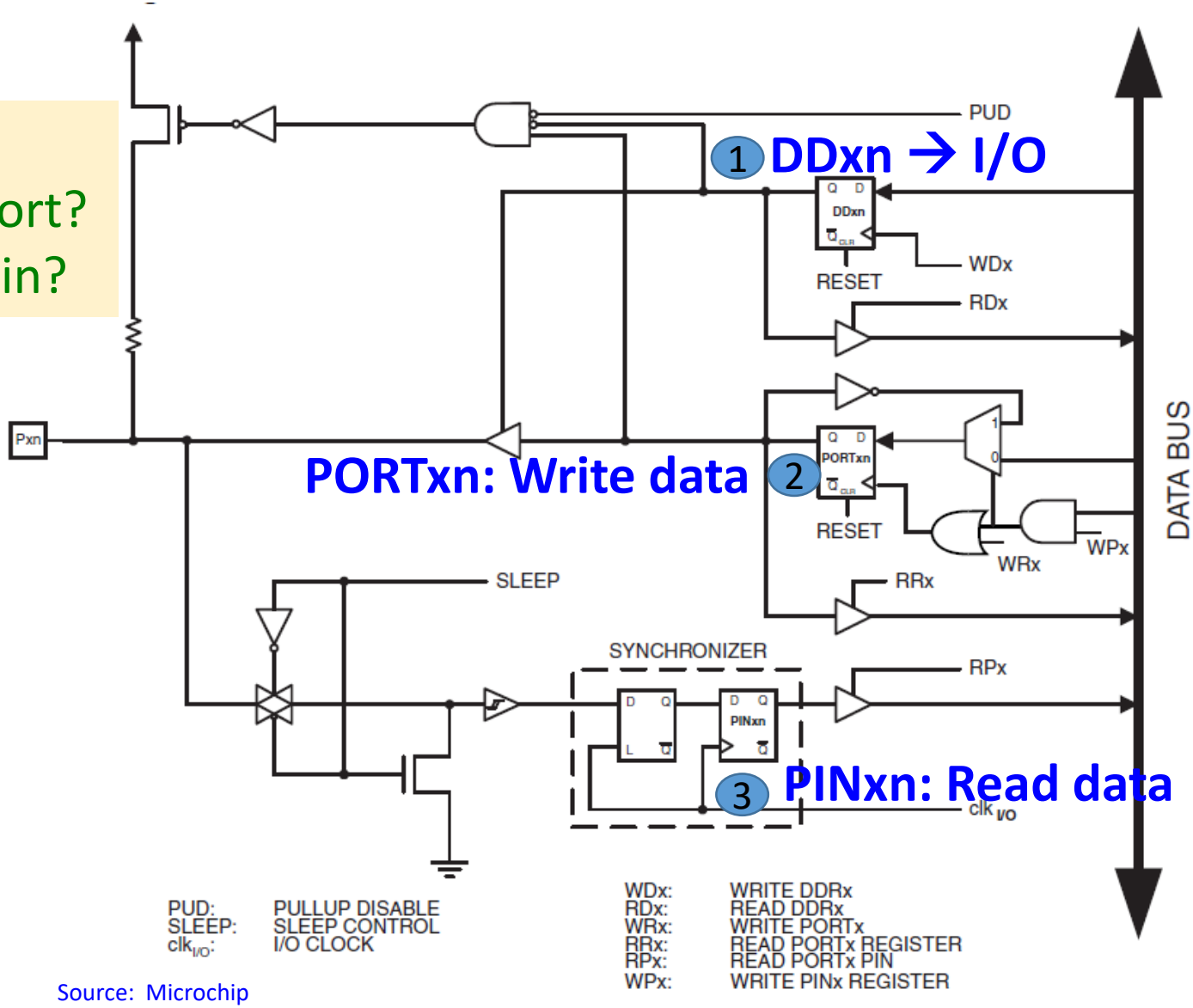
- Input or Output
- True Read-Modify-Write → I/O each pin
- Rpull-up



Source: Microchip

I/O Ports

DDxn:
x → What port?
n → What pin?



Source: Microchip

I/O Ports

- Three I/O memory address locations are allocated for each port:
  - 1-Data Direction Register – DDRx
  - 2-Data Register – PORTx
  - 3-Port Input Pins – PINx

PORTB – The Port B Data Register

Bit	7	6	5	4	3	2	1	0	
0x05 (0x25)	PORTB7	PORTB6	PORTB5	PORTB4	PORTB3	PORTB2	PORTB1	PORTB0	PORTB
Read/Write	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	
Initial Value	0	0	0	0	0	0	0	0	

DDRB – The Port B Data Direction Register

Bit	7	6	5	4	3	2	1	0	
0x04 (0x24)	DDB7	DDB6	DDB5	DDB4	DDB3	DDB2	DDB1	DDB0	DDRB
Read/Write	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	
Initial Value	0	0	0	0	0	0	0	0	

PINB – The Port B Input Pins Address(1)

Bit	7	6	5	4	3	2	1	0	
0x03 (0x23)	PINB7	PINB6	PINB5	PINB4	PINB3	PINB2	PINB1	PINB0	PINB
Read/Write	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	
Initial Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Source: Microchip

I/O Ports

- Bit PUD in Register MCUCR disabled all the Pull-Up resistor overriding whatever configuration

MCUCR – MCU Control Register

Bit	7	6	5	4	3	2	1	0	
0x35 (0x55)	–	BODS(1)	BODSE(1)	PUD	–	–	IVSEL	IVCE	MCUCR
Read/Write	R	R/W	R/W	R/W	R	R	R/W	R/W	
Initial Value	0	0	0	0	0	0	0	0	

Notes: 1. BODS and BODSE only available for picoPower devices ATmega48PA/88PA/168PA/328P

- **Bit 4 – PUD: Pull-up Disable**

When this bit is written to one, the pull-ups in the I/O ports are disabled even if the DDxn and PORTxn Registers are configured to enable the pull-ups ({DDxn, PORTxn} = 0b01). See "Configuring the Pin" on page 85 for more details about this feature.

Source: Microchip