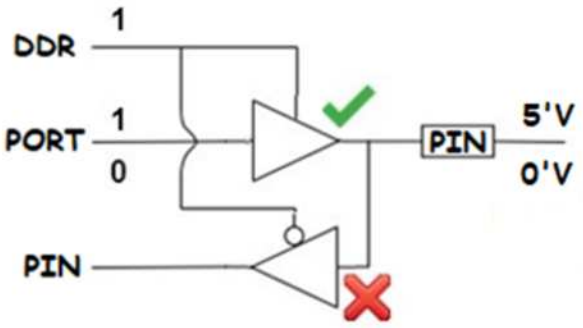
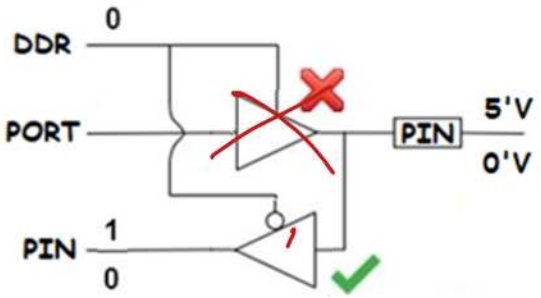
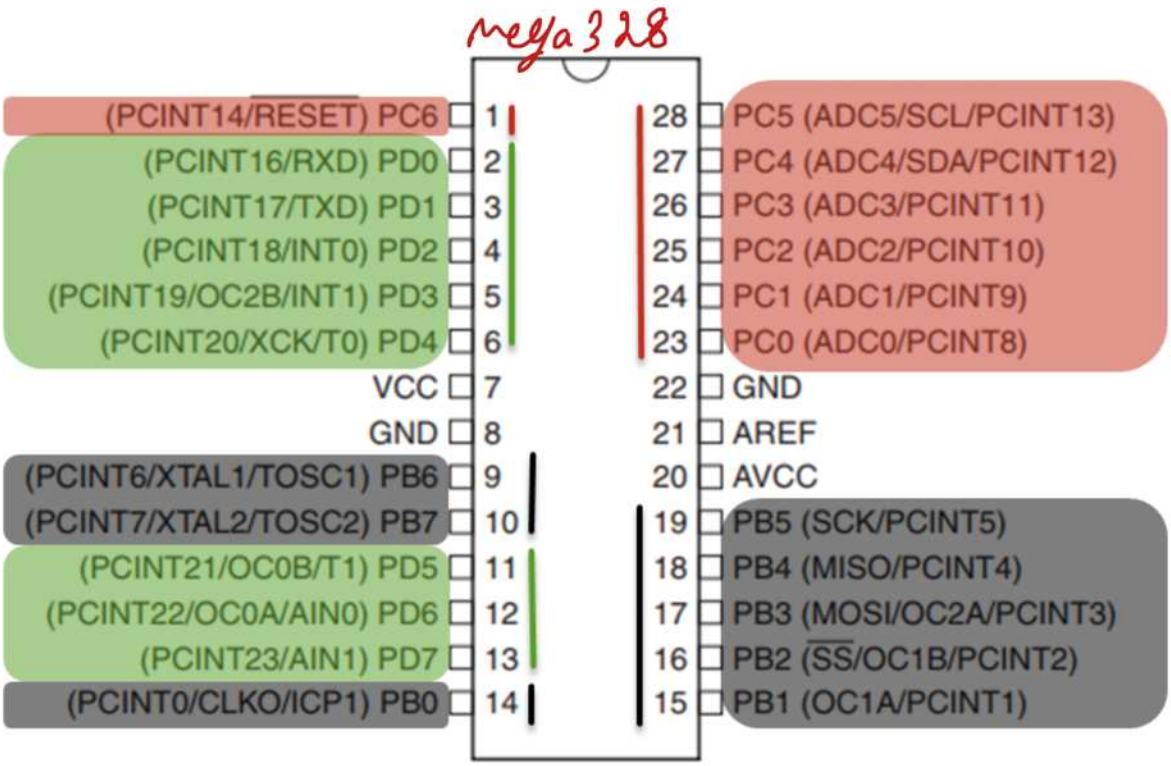






DDRx
PORTx
PINx
x={B, C, D}

DDRB
PORTB
PINB
→ مجموع رجیستر های کنترلی PORTB

DDRC
PORTC
PINC

DDRD
PORTD
PIND
→ مجموع رجیستر های کنترلی PORTD

14.4.2 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	

14.4.3 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	

14.4.4 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	

14.4.3 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	

DDRB	The Port B Data Direction Register							
DDB7	DDB6	DDB5	DDB4	DDB3	DDB2	DDB1	DDB0
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	0	0	0	0	1

```
setBit(DDRB, 0)
```

14.4.2 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	
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	

Table 14-1. **Port Pin Configurations**

DDxn	PORTxn	PUD (in MCUCR)	I/O	Pull-up	Comment
1	0	X	Output	No	Output Low (Sink)
1	1	X	Output	No	Output High (Source)

PORTB	The Port B Data Register							
PORTB7	PORTB6	PORTB5	PORTB4	PORTB3	PORTB2	PORTB1	PORTB0
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	0	0	0	0	1

```
setBit(PORTB, 0)
```

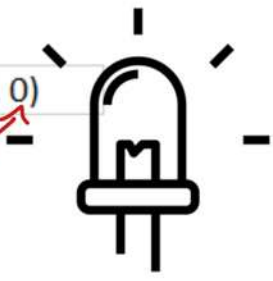
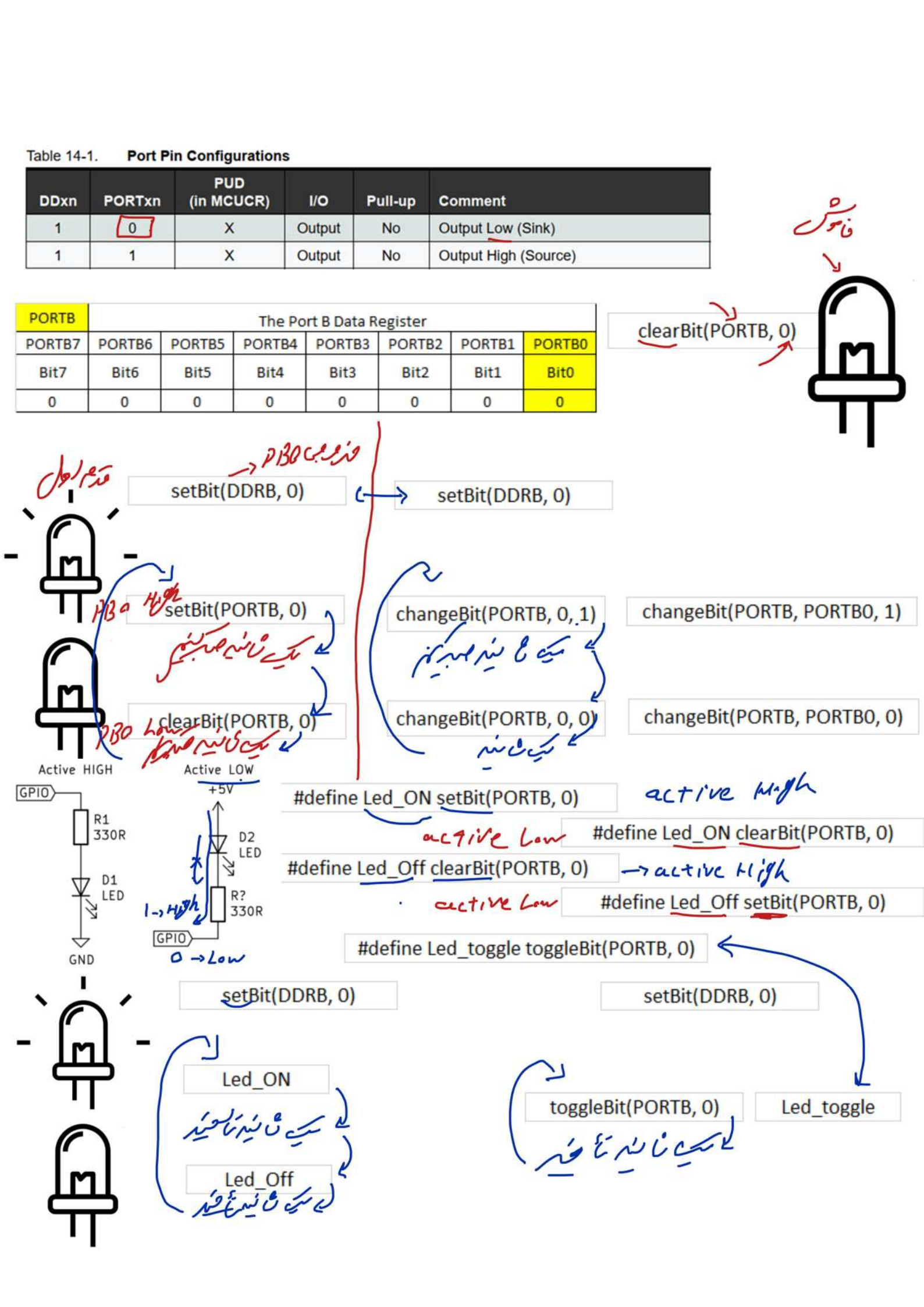
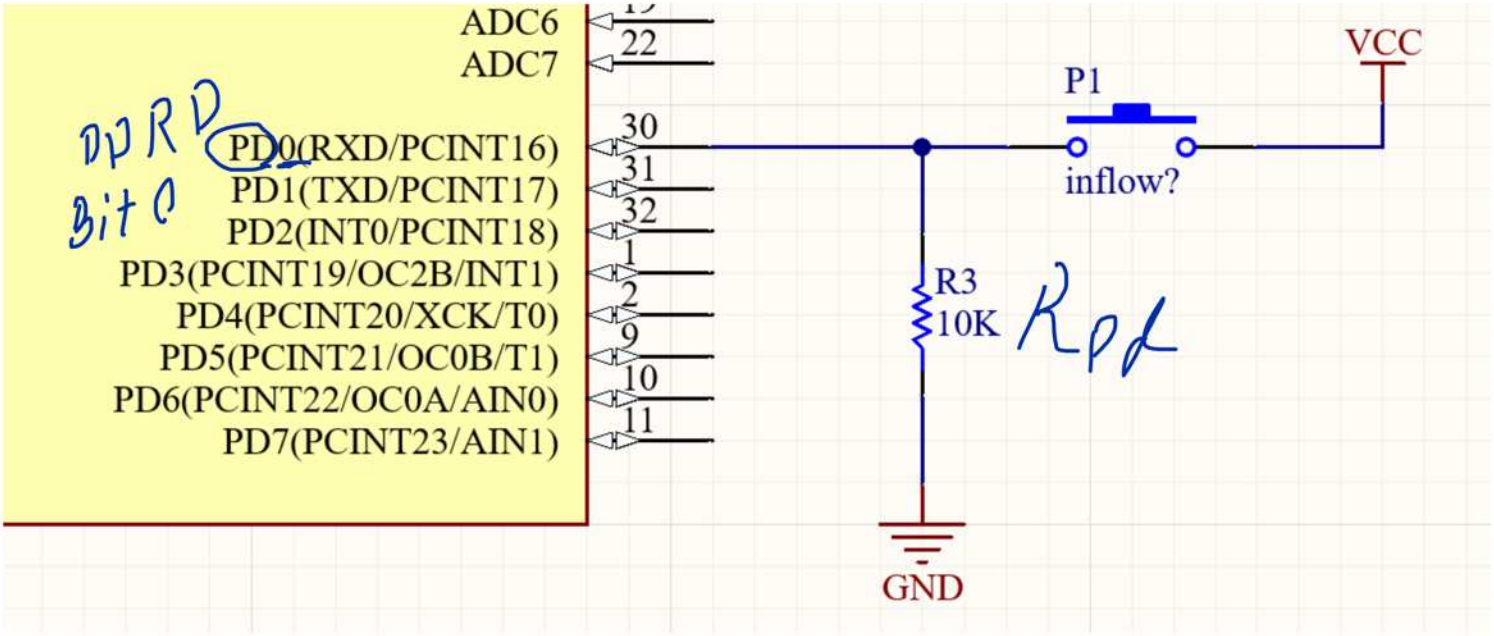


Table 14-1. **Port Pin Configurations**

DDxn	PORTxn	PUD (in MCUCR)	I/O	Pull-up	Comment
1	0	X	Output	No	Output Low (Sink)
1	1	X	Output	No	Output High (Source)

PORTB	The Port B Data Register						
PORTB7	PORTB6	PORTB5	PORTB4	PORTB3	PORTB2	PORTB1	PORTB0
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	0	0	0	0	0





14.4.9 DDRD – The Port D Data Direction Register

Bit	7	6	5	4	3	2	1	0	
0x0A (0x2A)	DDD7	DDD6	DDD5	DDD4	DDD3	DDD2	DDD1	DDD0	DDRD
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	

DDRD	The Port D Data Direction Register						
DDD7	DDD6	DDD5	DDD4	DDD3	DDD2	DDD1	DDD0
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	0	0	0	0	0

clearBit(DDRD, 0)

14.4.10 PIND – The Port D Input Pins Address[1]

Bit	7	6	5	4	3	2	1	0	
0x09 (0x29)	PIND7	PIND6	PIND5	PIND4	PIND3	PIND2	PIND1	PIND0	PIND
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	

Note: 1. Writing to the pin register provides toggle functionality for IO (see "Toggling the Pin" on page 85)

PIND	The Port D Input Pins Address						
PIND7	PIND6	PIND5	PIND4	PIND3	PIND2	PIND1	PIND0
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	0	0	0	0	0

checkBit(PIND, 0)

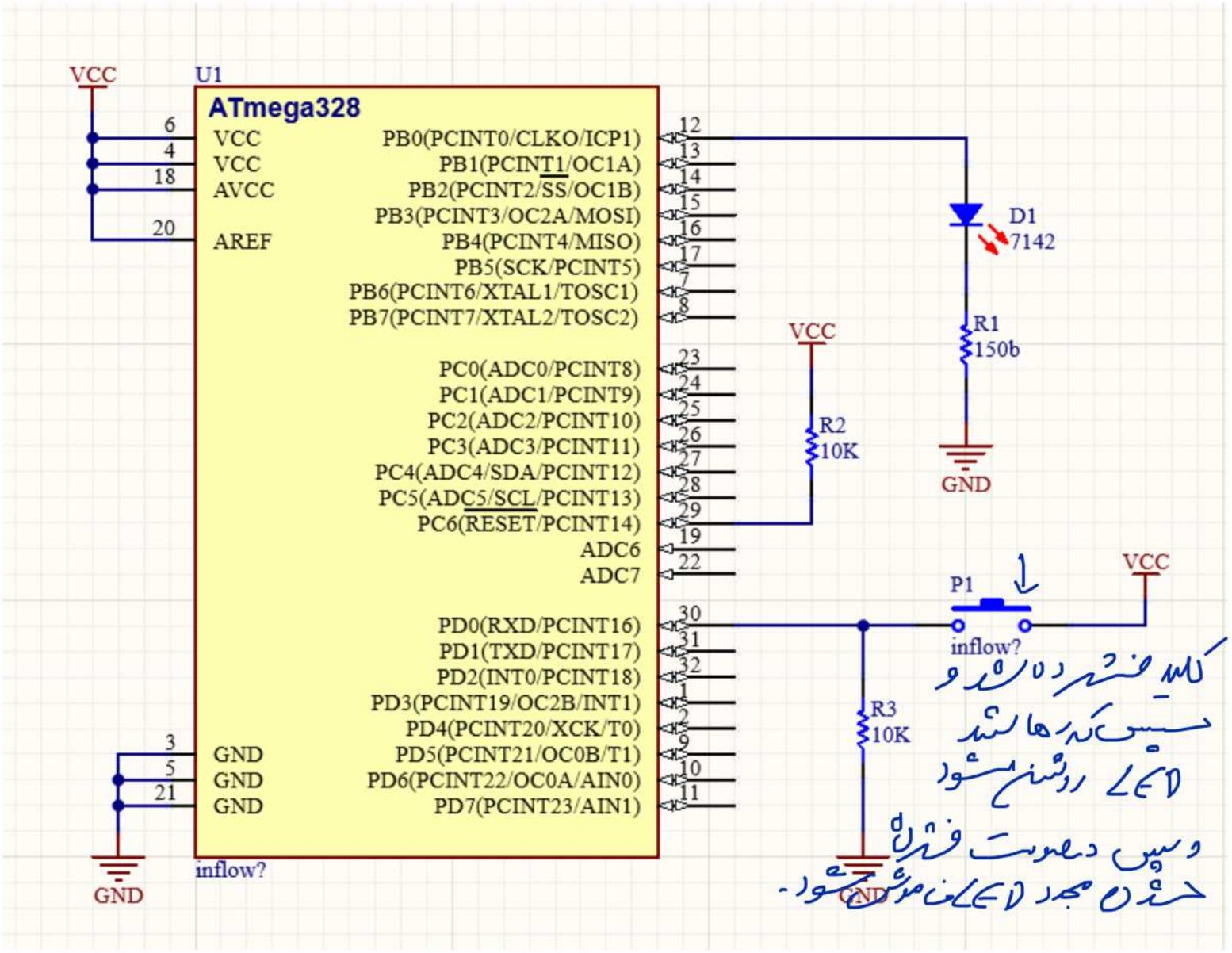
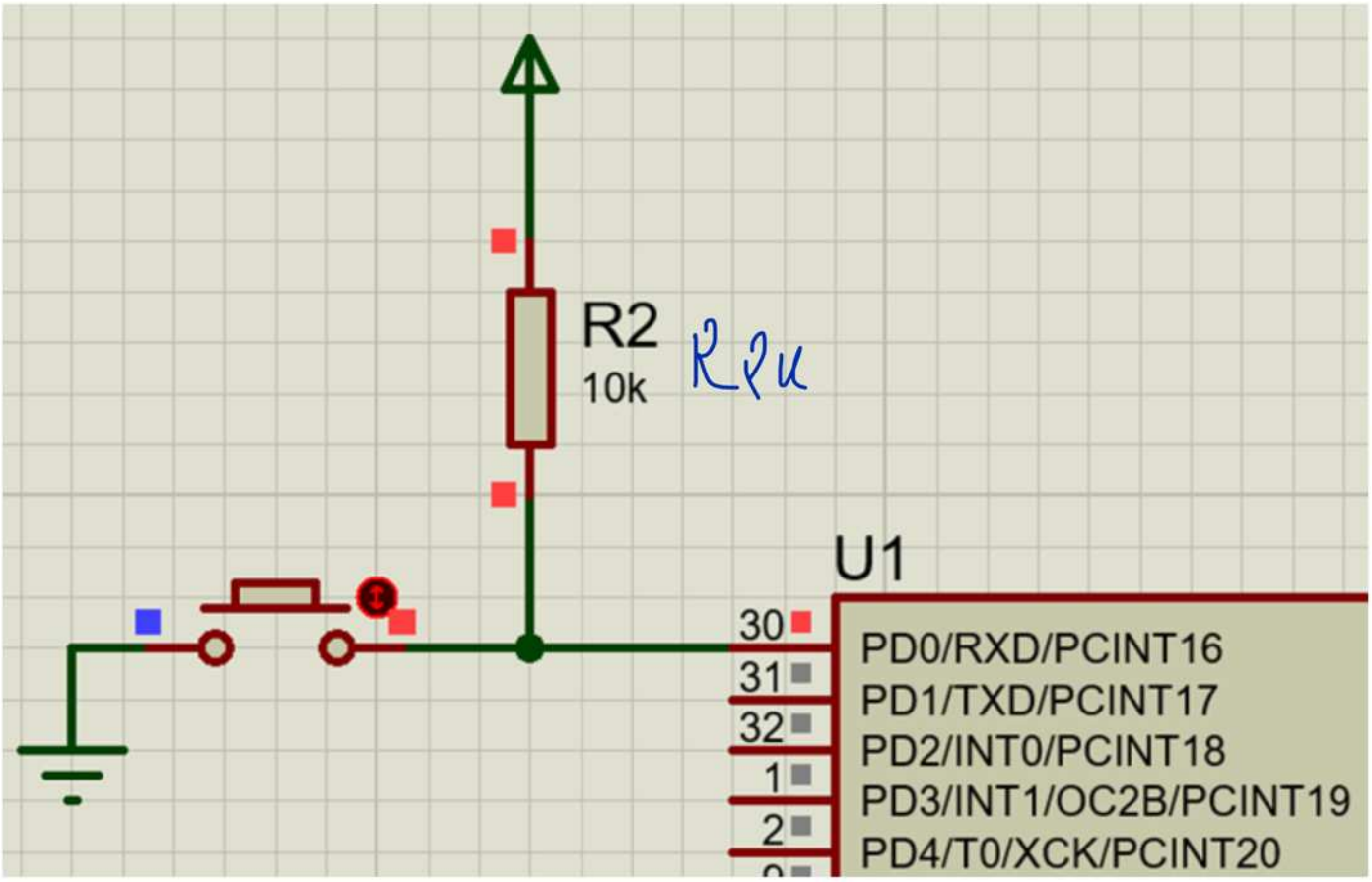
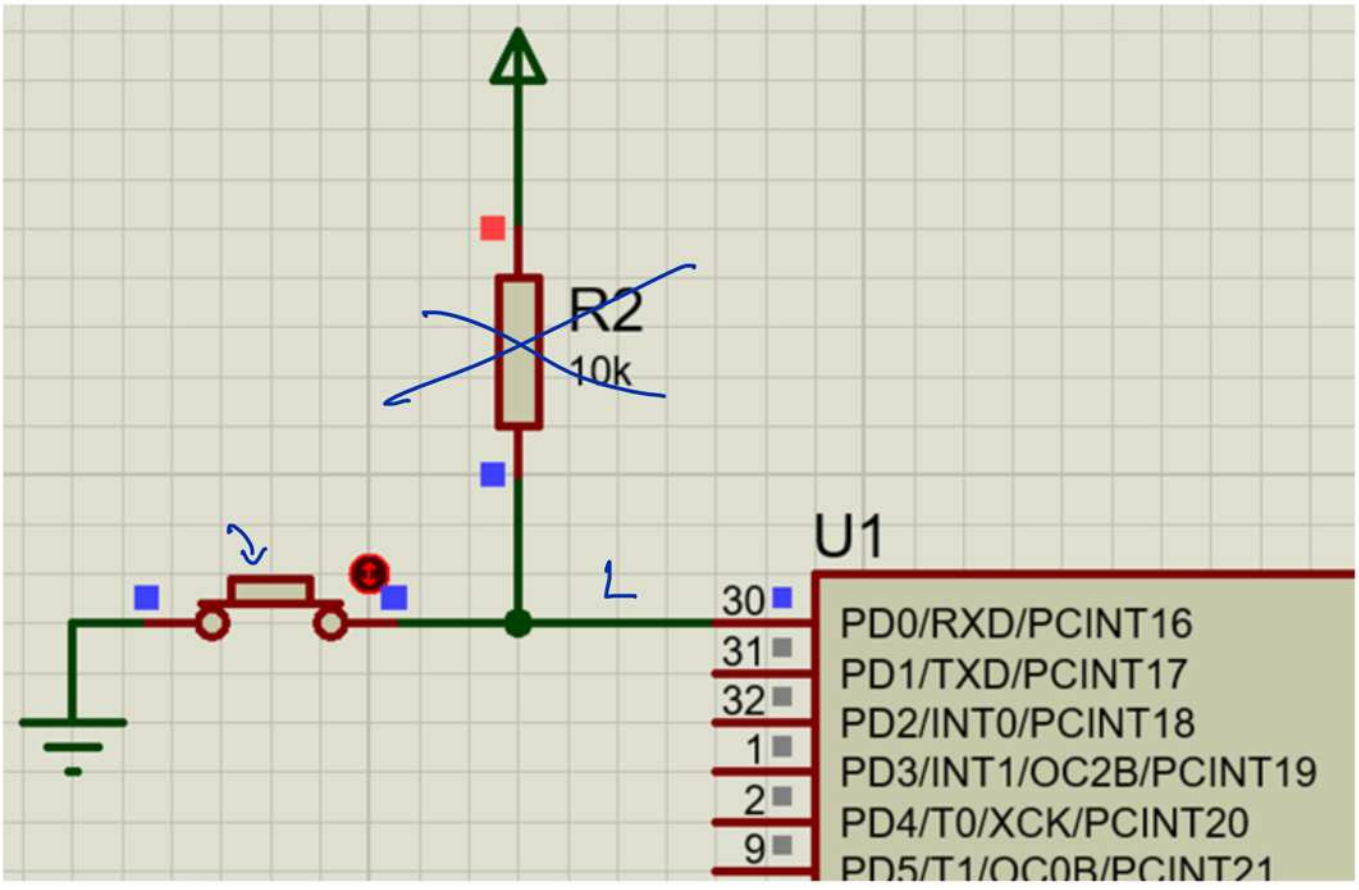


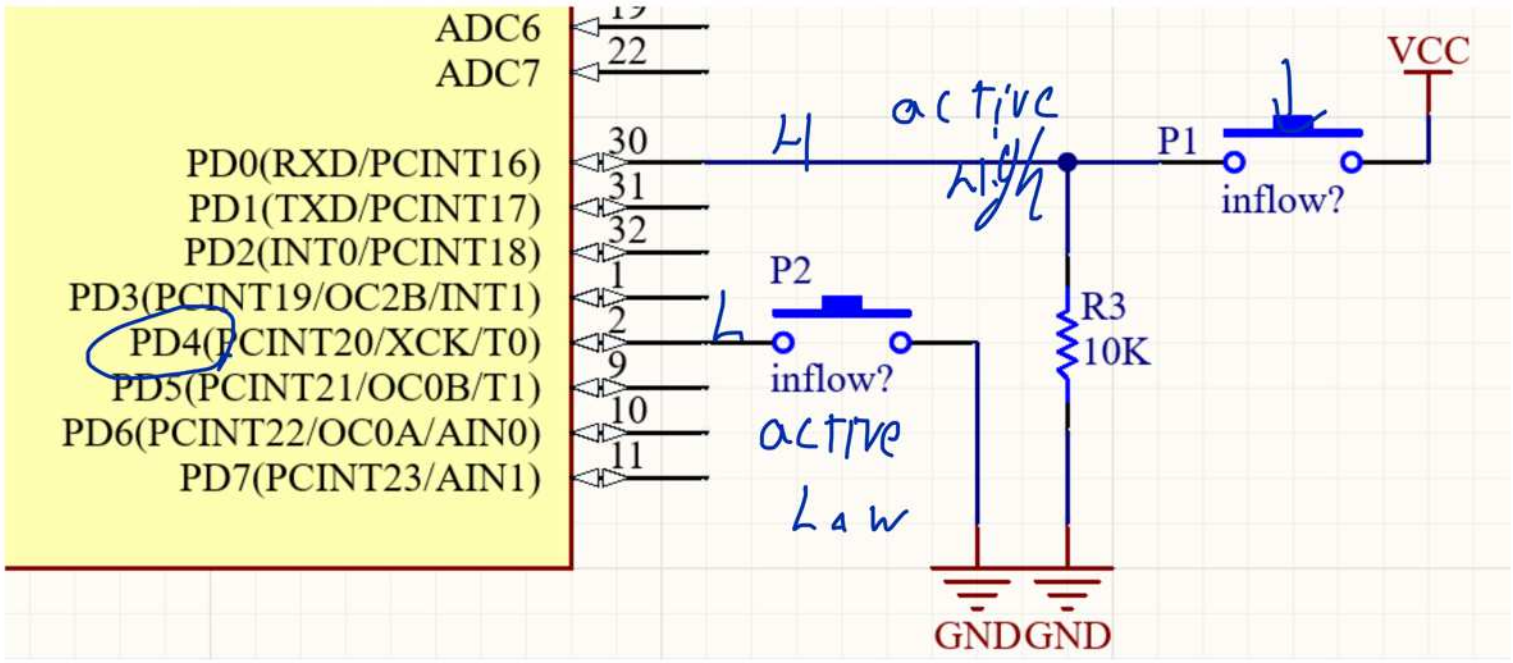
Table 14-1. **Port Pin Configurations**

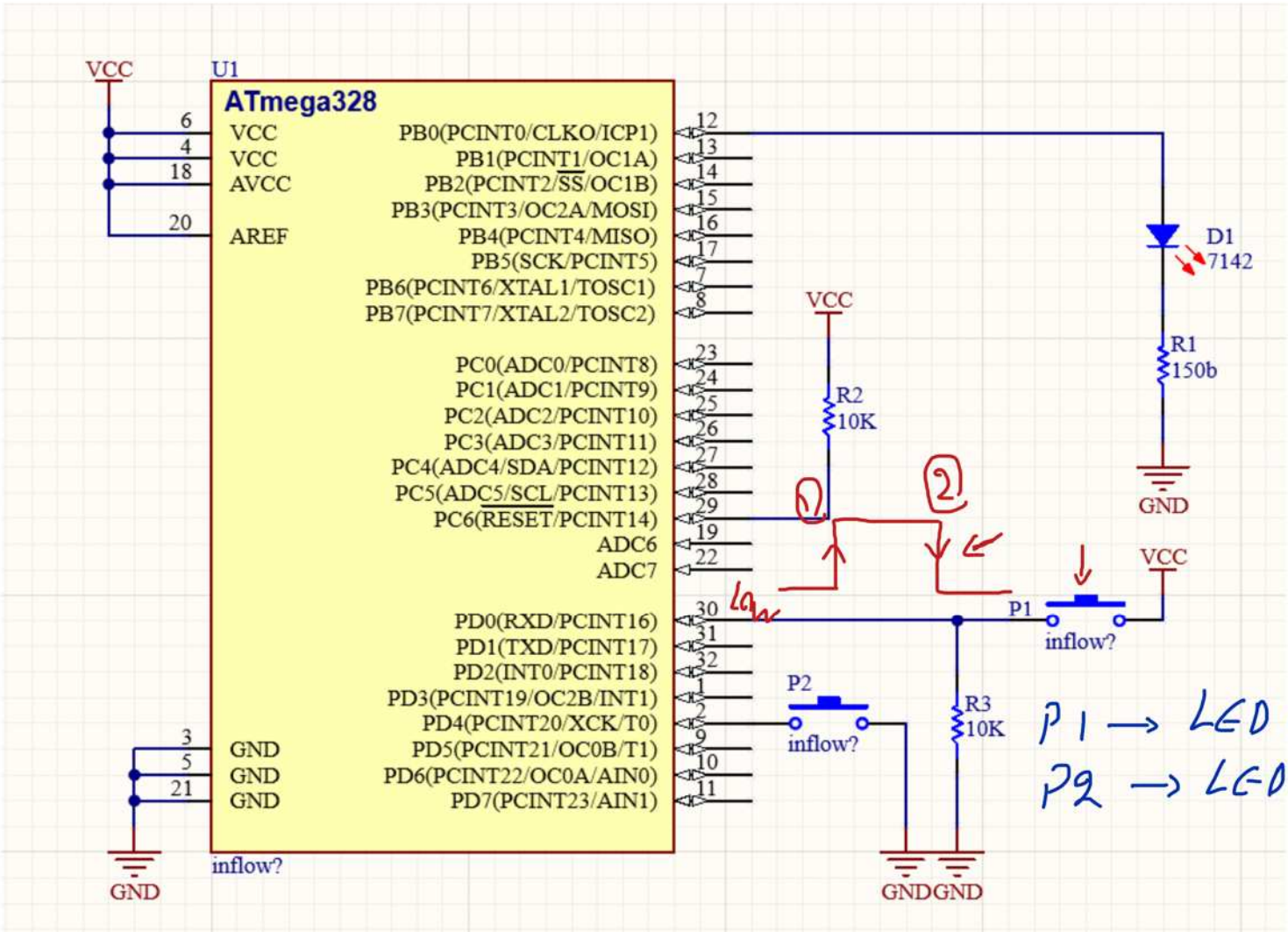
DDxn	PORTxn	PUD (in MCUCR)	I/O	Pull-up	Comment
0	0	X	Input	No	Tri-state (Hi-Z)
0	1	0	Input	Yes	Pxn will source current if ext. pulled low.
0	1	1	Input	No	Tri-state (Hi-Z)

mega328


R2
10k
RPU
U1
30
31
32
1
2
PD0/RXD/PCINT16
PD1/TXD/PCINT17
PD2/INT0/PCINT18
PD3/INT1/OC2B/PCINT19
PD4/T0/XCK/PCINT20


R2
10k
L
U1
30
31
32
1
2
9
PD0/RXD/PCINT16
PD1/TXD/PCINT17
PD2/INT0/PCINT18
PD3/INT1/OC2B/PCINT19
PD4/T0/XCK/PCINT20


ADC6
ADC7
PD0(RXD/PCINT16)
PD1(TXD/PCINT17)
PD2(INT0/PCINT18)
PD3(PCINT19/OC2B/INT1)
PD4(PCINT20/XCK/T0)
PD5(PCINT21/OC0B/T1)
PD6(PCINT22/OC0A/AIN0)
PD7(PCINT23/AIN1)
22
30
31
32
1
2
9
10
11
H
active high
P1
inflow?
VCC
P2
inflow?
L
R3
10K
active Low
GND
GND


VCC
U1
ATmega328
6
4
18
20
VCC
VCC
AVCC
AREF
PB0(PCINT0/CLKO/ICP1)
PB1(PCINT1/OC1A)
PB2(PCINT2/SS/OC1B)
PB3(PCINT3/OC2A/MOSI)
PB4(PCINT4/MISO)
PB5(SCK/PCINT5)
PB6(PCINT6/XTAL1/TOSC1)
PB7(PCINT7/XTAL2/TOSC2)
PC0(ADC0/PCINT8)
PC1(ADC1/PCINT9)
PC2(ADC2/PCINT10)
PC3(ADC3/PCINT11)
PC4(ADC4/SDA/PCINT12)
PC5(ADC5/SCL/PCINT13)
PC6(RESET/PCINT14)
ADC6
ADC7
PD0(RXD/PCINT16)
PD1(TXD/PCINT17)
PD2(INT0/PCINT18)
PD3(PCINT19/OC2B/INT1)
PD4(PCINT20/XCK/T0)
PD5(PCINT21/OC0B/T1)
PD6(PCINT22/OC0A/AIN0)
PD7(PCINT23/AIN1)
3
5
21
GND
GND
GND
inflow?
D1
7142
R1
150b
GND
VCC
R2
10K
1
2
low
P1
inflow?
VCC
P2
inflow?
R3
10K
GND
GND
P1 → LED on
P2 → LED off