I/O Ports

ATmega8

- Port B … 8 bit
- Port C … 7 bit
- Port D … 8 bit

- S každým portem svázány registry:
  - PORTx Data register
  - DDRx Data direction register 0...input 1...output
  - PINx Input pins address
- Piny multiplexovány s ostatními periferiemi

PORTB, DDRB, PINB

PORTB

7	6	5	4	3	2	1	0
PORTB7	PORTB6	PORTB5	PORTB4	PORTB3	PORTB2	PORTB1	PORTB0
R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

DDRB

7	6	5	4	3	2	1	0
DDB7	DDB6	DDB5	DDB4	DDB3	DDB2	DDB1	DDB0
R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

PINB

7	6	5	4	3	2	1	0
PINB7	PINB6	PINB5	PINB4	PINB3	PINB2	PINB1	PINB0
R	R	R	R	R	R	R	R
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Special Function IO Register

SFIOR

7	6	5	4	3	2	1	0
-	-	-	-	ACME	PUD	PSR2	PSR10
R	R	R	R	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

PUD Pull-up Disable
PSR10 Prescaler for Timer/Counter 1 and 0
PSR2 Prescaler for Timer/Counter 2
ACME Analog Comparator Multiplexer Enable

Konfigurace pinu

- DDxn=0 ⇨ Input pin
  - PORTxn=1 ⇨ pull-up aktivován
  - PORTxn=0 ⇨ pull-up odpojen, „tri-state“
  - PINxn je vstupní hodnota
- DDxn=1 ⇨ Output pin
  - PORTxn=1 ⇨ vysoká úroveň
  - PORTxn=0 ⇨ nízká úroveň
- PUD=0 ⇨ deaktivace pull-up bez ohledu na DD

Example

```
ldi r16, 0xC3       ; 11000011
ldi r17, 0x0f       ; 00001111
out PORTB, r16
out DDRB, r17
nop
in  r16, PINB
```

Multiplex PORTB

- Chip Clock Oscillator
- Timer Oscillator
- SPI
- Timer/Counter1
- Timer/Counter2

Multiplex PORTC

- RESET
- ADC
- Two-wire Serial Interface

Multiplex PORTD

- Analog Comparator
- Timer/Counter0
- Timer/Counter1
- External Interrupt 0
- External Interrupt 1
- USART