

# Cheatsheet ADC

DI(FH) Andreas Pötscher, HTL Litec

## ADMUX

*ADC Multiplexer Selection Register*

| 7     | 6     | 5     | 4    | 3    | 2    | 1    | 0    |
|-------|-------|-------|------|------|------|------|------|
| REFS1 | REFS0 | ADLAR | MUX4 | MUX3 | MUX2 | MUX1 | MUX0 |

### Referenzspannung:

| REFS1 | REFS0 | Referenzspannungsauswahl |
|-------|-------|--------------------------|
| 0     | 0     | Externe Spannung an AREF |
| 0     | 1     | AVCC Versorgungsspannung |
| 1     | 0     | Interne Spannung 1.1 V   |
| 1     | 1     | Interne Spannung 2.56 V  |

### Input:

| MUX2 | MUX1 | MUX0 | Einkanaliger Eingang |
|------|------|------|----------------------|
| 0    | 0    | 0    | ADC0                 |
| 0    | 0    | 1    | ADC1                 |
| 0    | 1    | 0    | ADC2                 |
| 0    | 1    | 1    | ADC3                 |
| 1    | 0    | 0    | ADC4                 |
| 1    | 0    | 1    | ADC5                 |
| 1    | 1    | 0    | ADC6                 |
| 1    | 1    | 1    | ADC7                 |

## ADCSRA

*Control and Status Register A*

| 7    | 6    | 5     | 4    | 3    | 2     | 1     | 0     |
|------|------|-------|------|------|-------|-------|-------|
| ADEN | ADSC | ADATE | ADIF | ADIE | ADPS2 | ADPS1 | ADPS0 |

## ADEN

*ADC Enable*

- **1** aktiviert den ADC
- **0** deaktiviert den ADC

## ADSC

*ADC Start Conversion*

- **1** start für jede Wandlung. Startet die erste Wandlung im "Free Running Mode".

## ADATE

*ADC Auto trigger enable*

- **1** aktiviert auto triggering
- **0** deaktiviert auto triggering

## ADIF

*ADC Interrupt Flag*

## ADIE

*ADC Interrupt Enable*

- **1** aktiviert den ADC Interrupt
- **0** deaktiviert den ADC Interrupt

## ADC Prescaler

| ADPS2 | ADPS1 | ADPS0 | Prescaler |
|-------|-------|-------|-----------|
| 0     | 0     | 0     | 2         |
| 0     | 0     | 1     | 2         |
| 0     | 1     | 0     | 4         |
| 0     | 1     | 1     | 8         |
| 1     | 0     | 0     | 16        |
| 1     | 0     | 1     | 32        |
| 1     | 1     | 0     | 64        |
| 1     | 1     | 1     | 128       |

## ADCSRB

*Control and Status Register B*

| 7 | 6    | 5 | 4 | 3    | 2     | 1     | 0     |
|---|------|---|---|------|-------|-------|-------|
| — | ACME | — | — | MUX5 | ADTS2 | ADTS1 | ADTS0 |

## ADC Auto Trigger Source

| ADTS2 | ADTS1 | ADTS0 | Trigger Source               |
|-------|-------|-------|------------------------------|
| 0     | 0     | 0     | Free running mode            |
| 0     | 0     | 1     | Analog Comparator            |
| 0     | 1     | 0     | External Interrupt Request 0 |
| 0     | 1     | 1     | Timer 0 Compare Match A      |
| 1     | 0     | 0     | Timer 0 Overflow             |
| 1     | 0     | 1     | Timer 1 Compare Match B      |
| 1     | 1     | 0     | Timer 1 Overflow             |
| 1     | 1     | 1     | Timer 1 Capture Event        |

## ADCL und ADCH

*ADC Low und ADC High*

### ADCH

| 7 | 6 | 5 | 4 | 3 | 2 | 1    | 0    |
|---|---|---|---|---|---|------|------|
| — | — | — | — | — | — | ADC9 | ADC8 |

### ADCL

| 7    | 6    | 5    | 4    | 3    | 2    | 1    | 0    |
|------|------|------|------|------|------|------|------|
| ADC7 | ADC6 | ADC5 | ADC4 | ADC3 | ADC2 | ADC1 | ADC0 |

## Interrupt Vektor

*ADC\_vect*