FH AACHEN
UNIVERSITY OF APPLIED SCIENCES

Technische Informatik

Wintersemester 2015/2016

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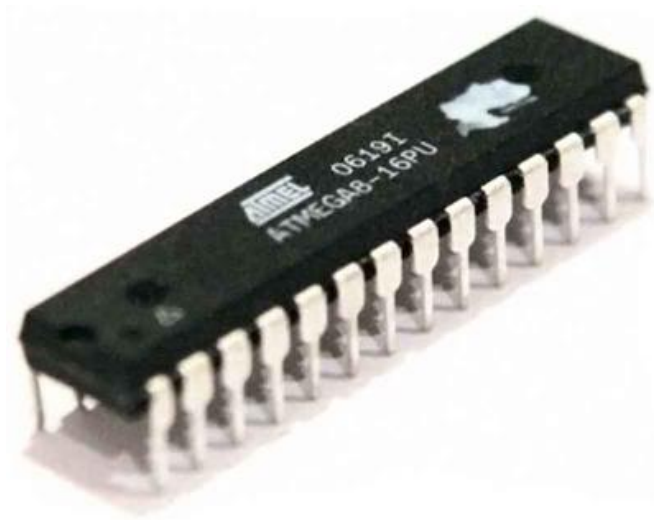
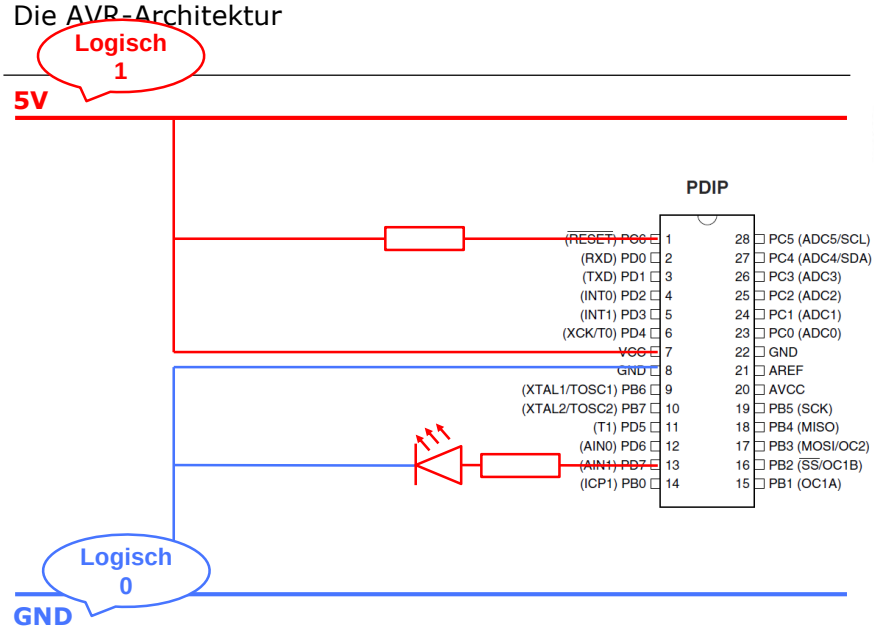
UNIVERSITY OF APPLIED SCIENCES

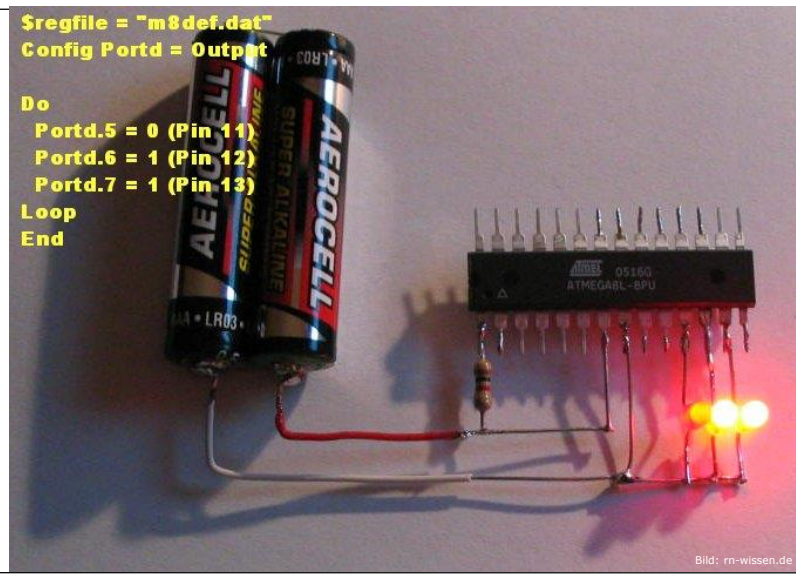
Die AVR-Architektur



Die AVR-Architektur

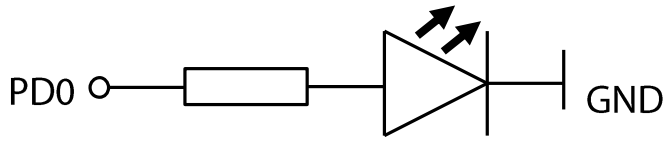


Die AVR-Architektur



IO-Schaltungen

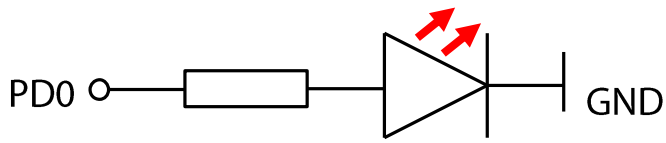
Ausgang (z.B. LED) gegen Masse



0V **0V**

IO-Schaltungen

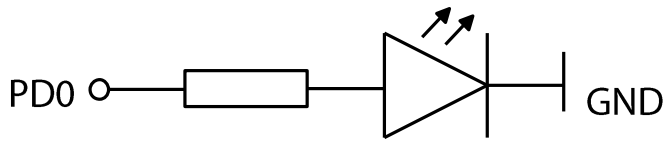
Ausgang (z.B. LED) gegen Masse



5V **0V**

IO-Schaltungen

Ausgang (z.B. LED) gegen Masse




```
LDI R16, 0b00000001 ; DDR setzen
OUT DDRD, R16

LDI R16, 0b00000001 ; LED an
OUT PORTD, R16

LDI R16, 0b00000000 ; LED aus
OUT PORTD, R16
```

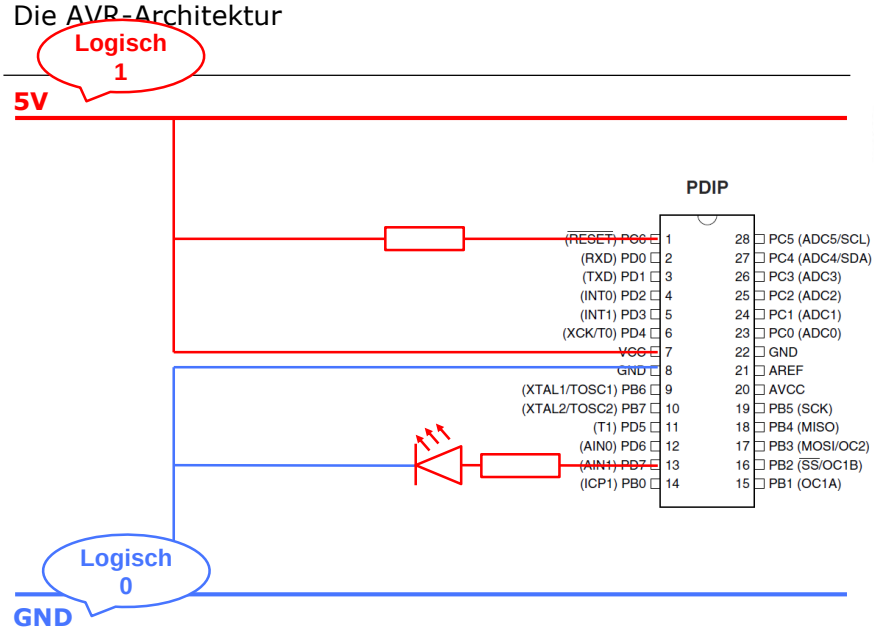
5V

Logisch 1

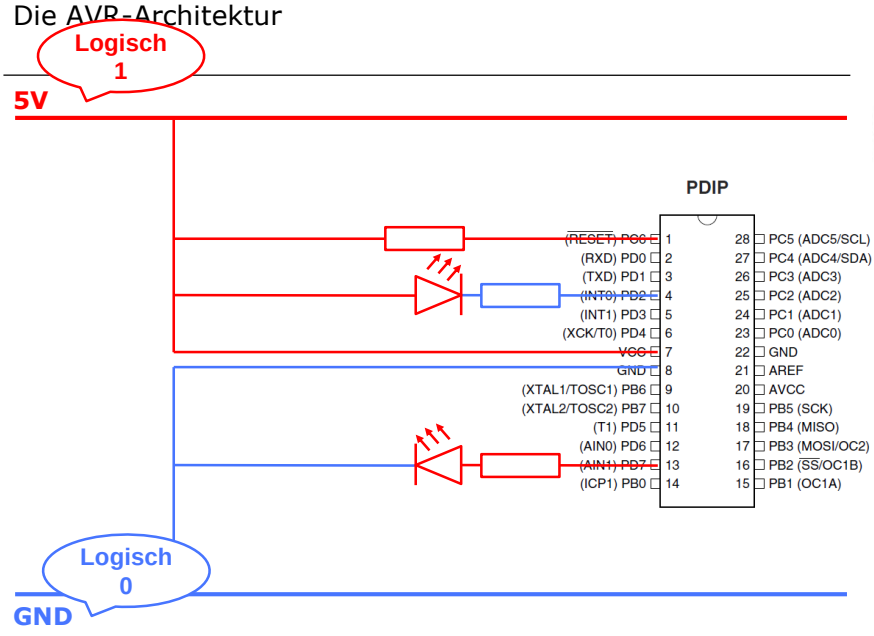
0V

Logisch 0

Die AVR-Architektur

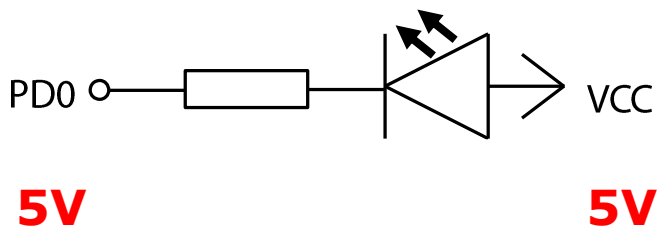


Die AVR-Architektur



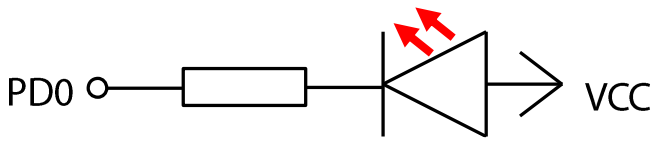
IO-Schaltungen

Ausgang (z.B. LED) gegen VCC



IO-Schaltungen

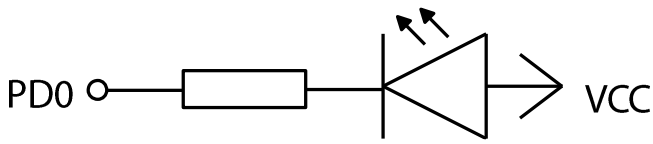
Ausgang (z.B. LED) gegen VCC



0V **5V**

IO-Schaltungen

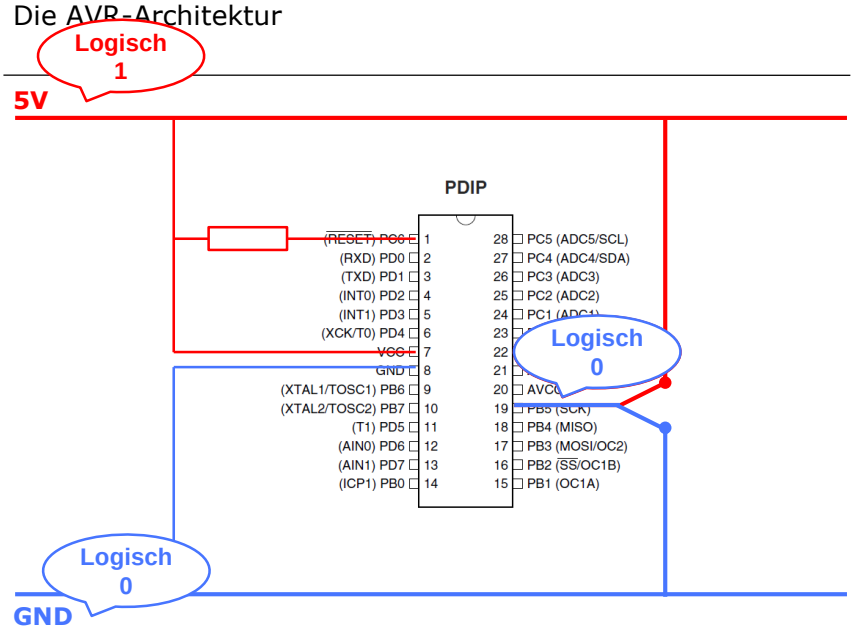
Ausgang (z.B. LED) gegen VCC



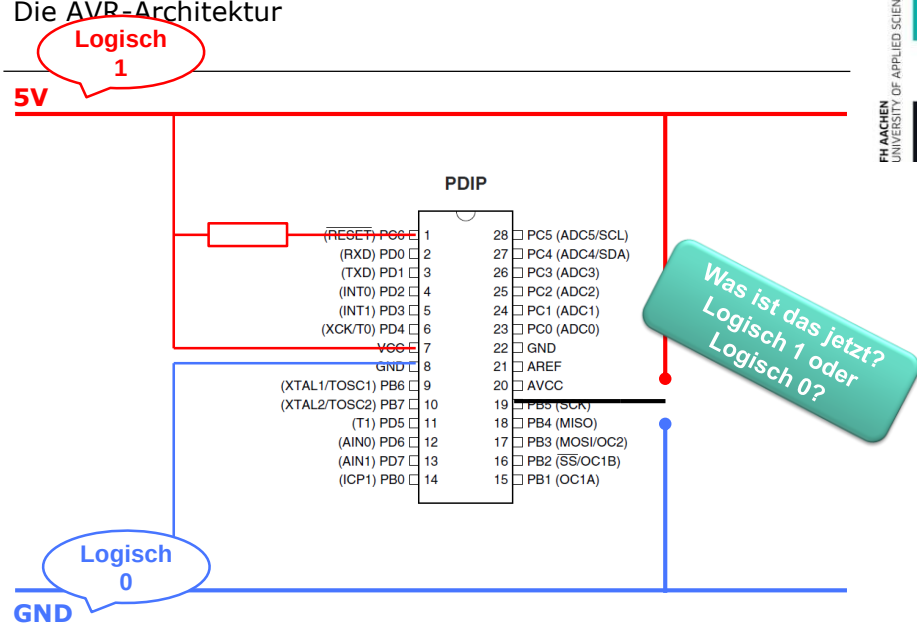

```
LDI R16, 0b00000001 ; DDR setzen
OUT DDRD, R16

LDI R16, 0b00000000 ; LED an
OUT PORTD, R16

LDI R16, 0b00000001 ; LED aus
OUT PORTD, R16
```

0V
Logisch 0
5V
Logisch 1

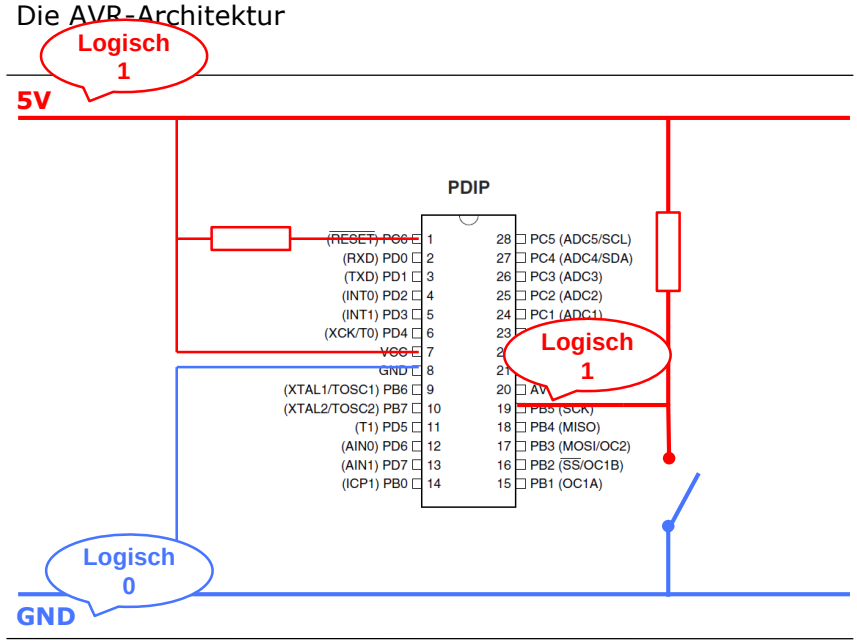
Die AVR-Architektur



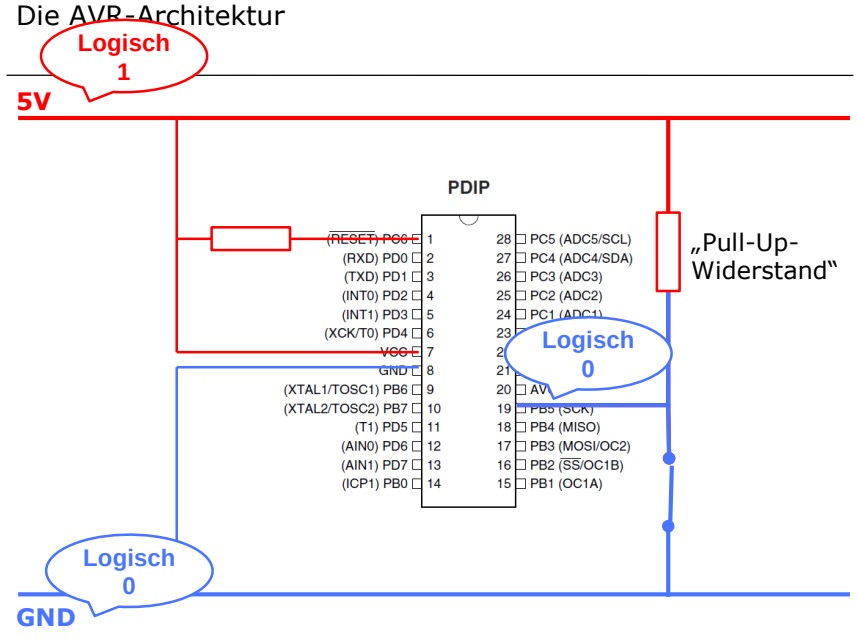
Die AVR-Architektur



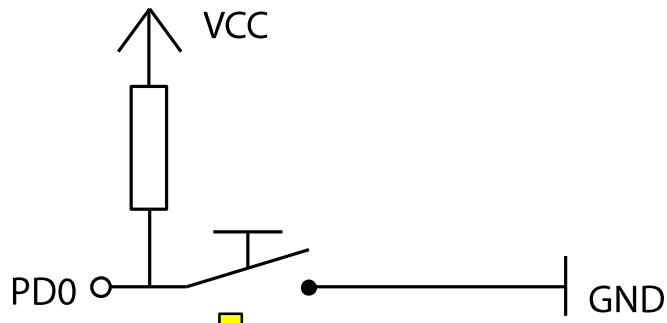
Die AVR-Architektur



Die AVR-Architektur

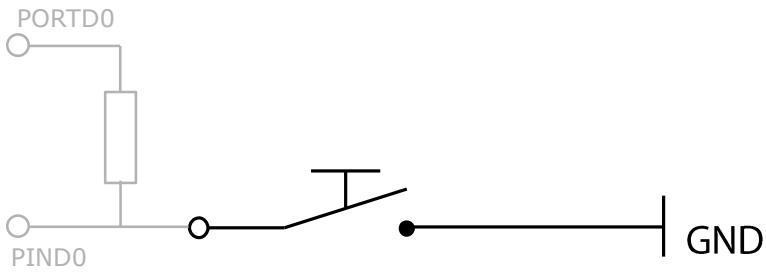


Eingang (z.B. Taster) mit ext. Pull-Up



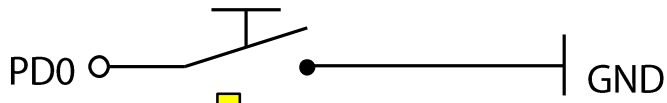

```
LDI R16, 0b00000000 ; DDR setzen
OUT DDRD, R16
LDI R16, 0b00000000 ; internen Pull-Up
OUT PORTD, R16      ; ausschalten

IN R16, PIND        ; einlesen
```


Eingang (z.B. Taster)



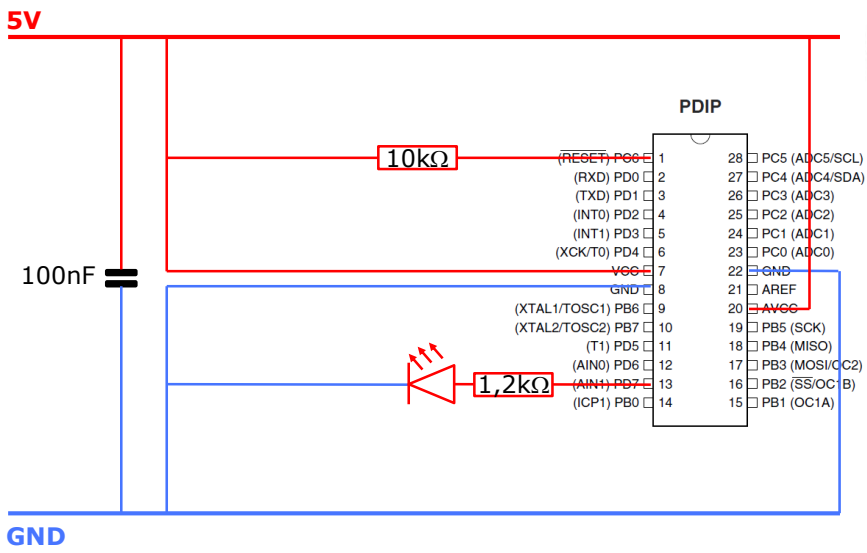
IO-Schaltungen

Eingang (z.B. Taster) ohne ext. Pull-Up




```
LDI R16, 0b00000000 ; DDR setzen
OUT DDRD, R16
LDI R16, 0b00000001 ; internen Pull-Up
OUT PORTD, R16      ; ausschalten

IN R16, PIND        ; einlesen
```


Die AVR-Architektur



Die AVR-Architektur