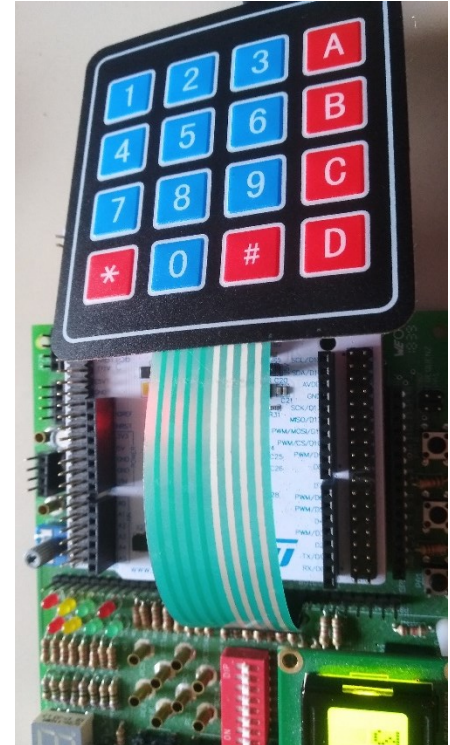


# Matrixtastatur abscannen Polling

Wie kann der Mikrocontroller eine  
Tastatur abfragen?



Ich bin Mik, Dein Mikrocontroller



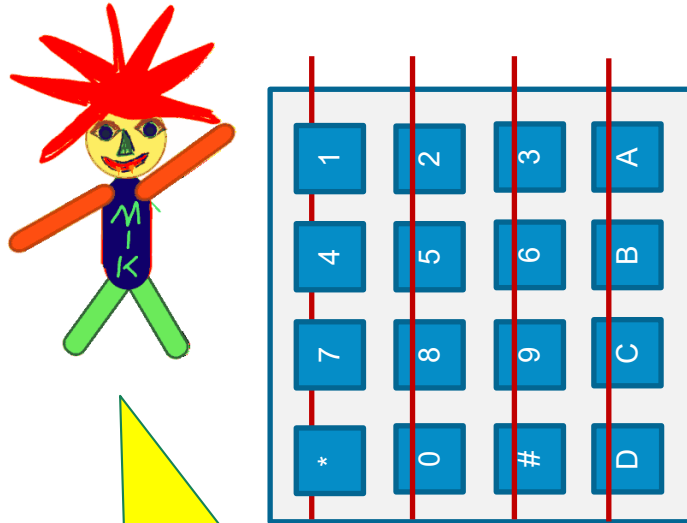
# Matrixtastatur abscannen - Polling



16 Tasten quadratisch angeordnet



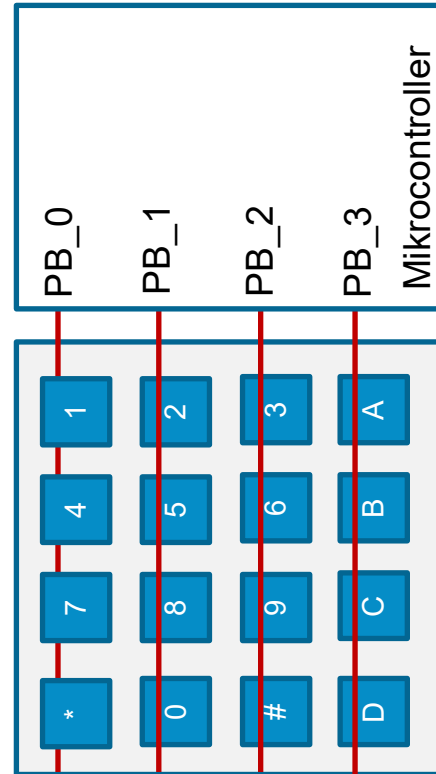
# Matrixtastatur abscannen - Polling



Unter jeder Spalte befinden sich  
Verbindungsleitungen

## Matrixtastatur abscannen - Polling

Wir schließen die Spalten  
an PB\_0..PB\_3 an.

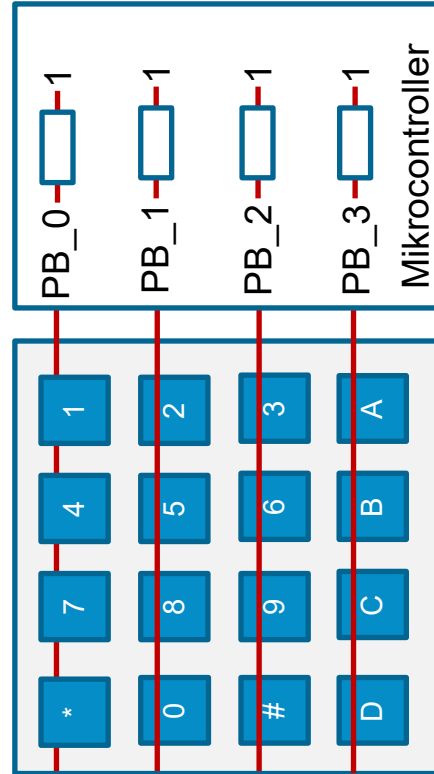


```
PortIn spalten(PortB,0b1111);
```

## Matrixtastatur abscannen - Polling



Wir konfigurieren PB\_0..PB\_3 als mode=PullUp. Damit sind die Eingänge normalerweise 1

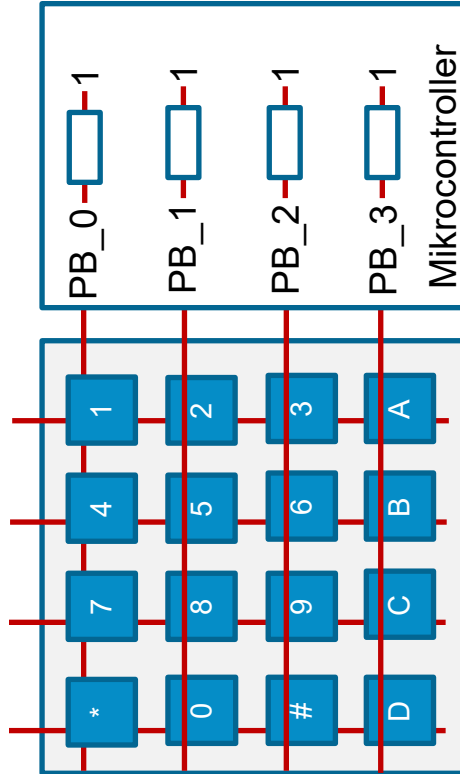


```
PortIn spalten(PortB,0b1111);  
spalten.mode(PullUp);
```

# Matrixtastatur abscannen - Polling

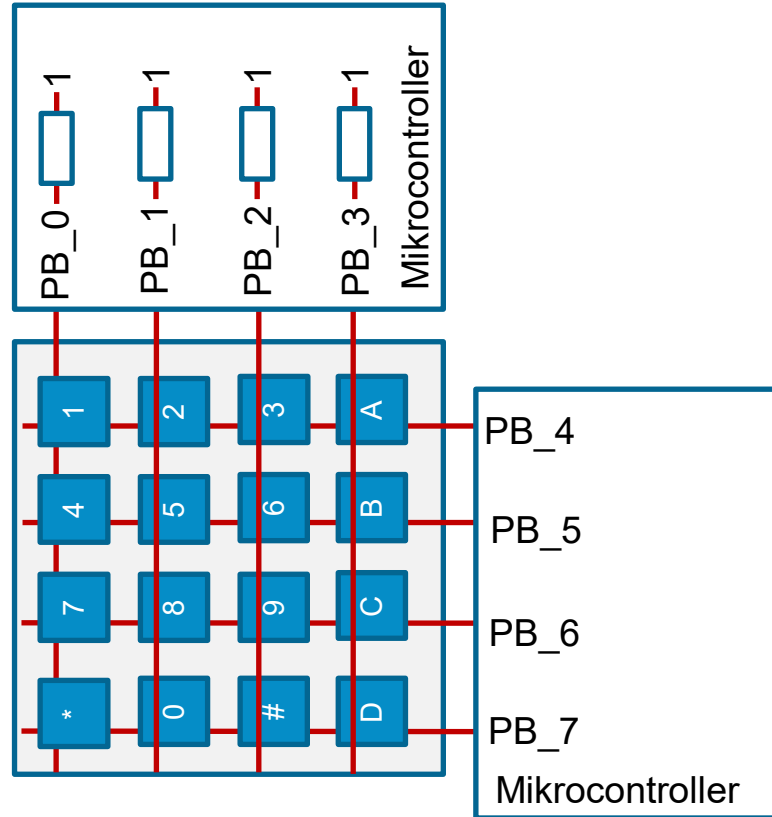


Unter allen Zeilen befinden sich Verbindungsleitungen. Spalten- und Zeilenleitungen berühren sich normalerweise nicht



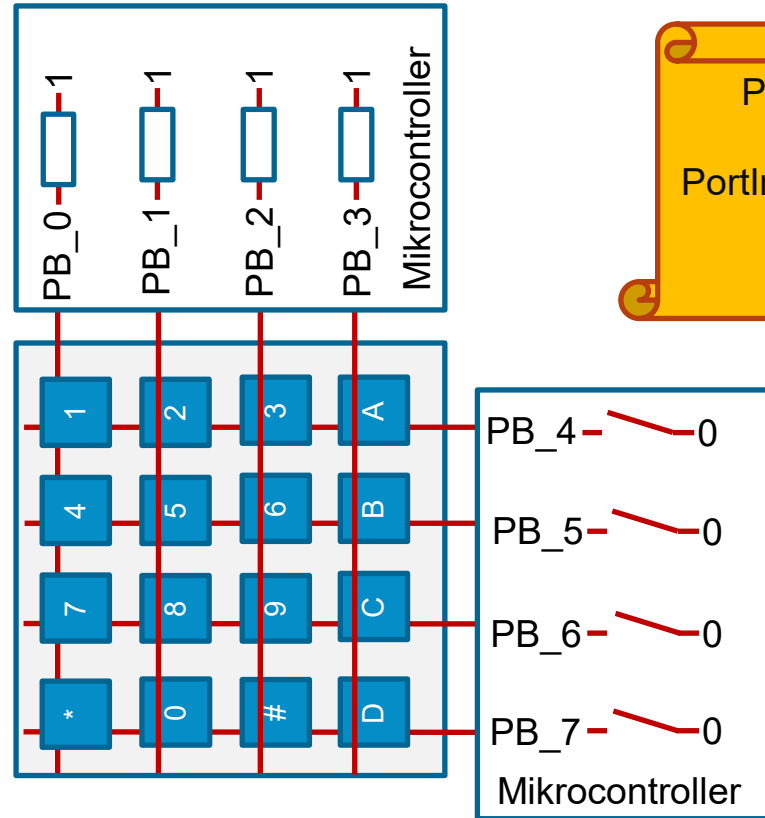
## Matrixtastatur abscannen - Polling

Die Zeilenverbindungen werden an PB\_4..PB\_7 angeschlossen



## Matrixtastatur abscannen - Polling

Die Zeilen werden als  
OpenDrain konfiguriert

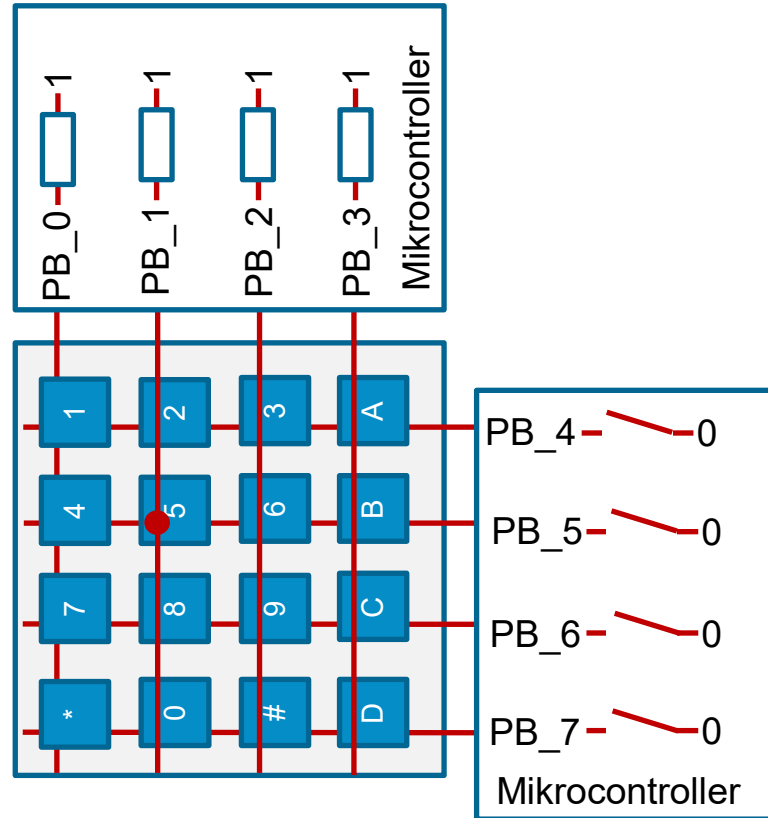


```
PortIn spalten(PortB,0b1111);  
spalten.mode(PullUp);  
PortInOut zeilen(PortB,0b11110000);  
zeilen.output();  
zeilen.mode(OpenDrain);
```



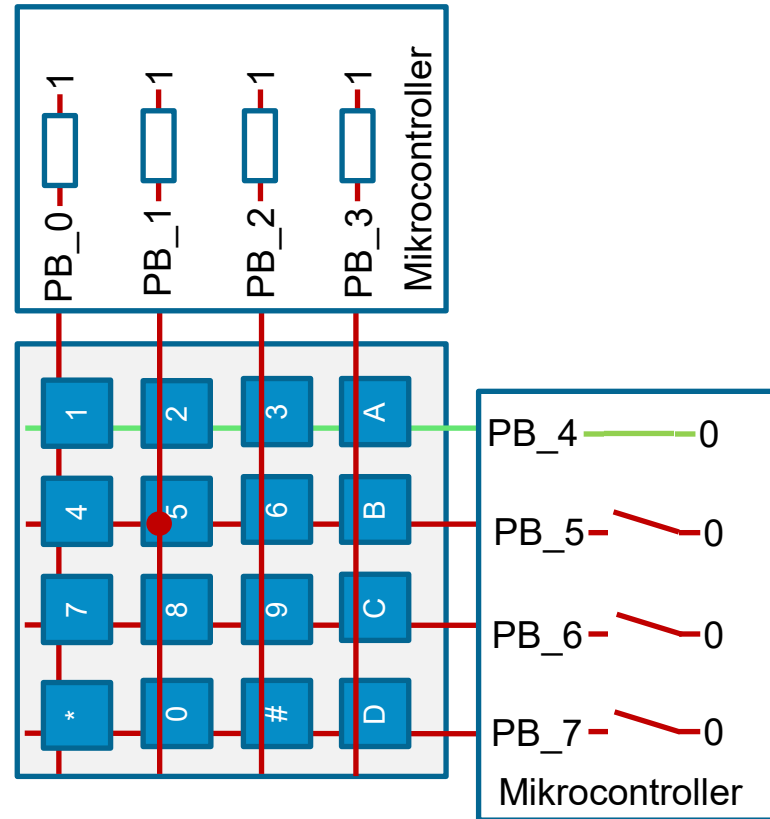
## Matrixtastatur abscannen - Polling

Tastendruck verbindet Zeile und Spalte  
z.B. Wenn die Taste 5 gedrückt wird  
werden PB\_5 und PB\_1 verbunden

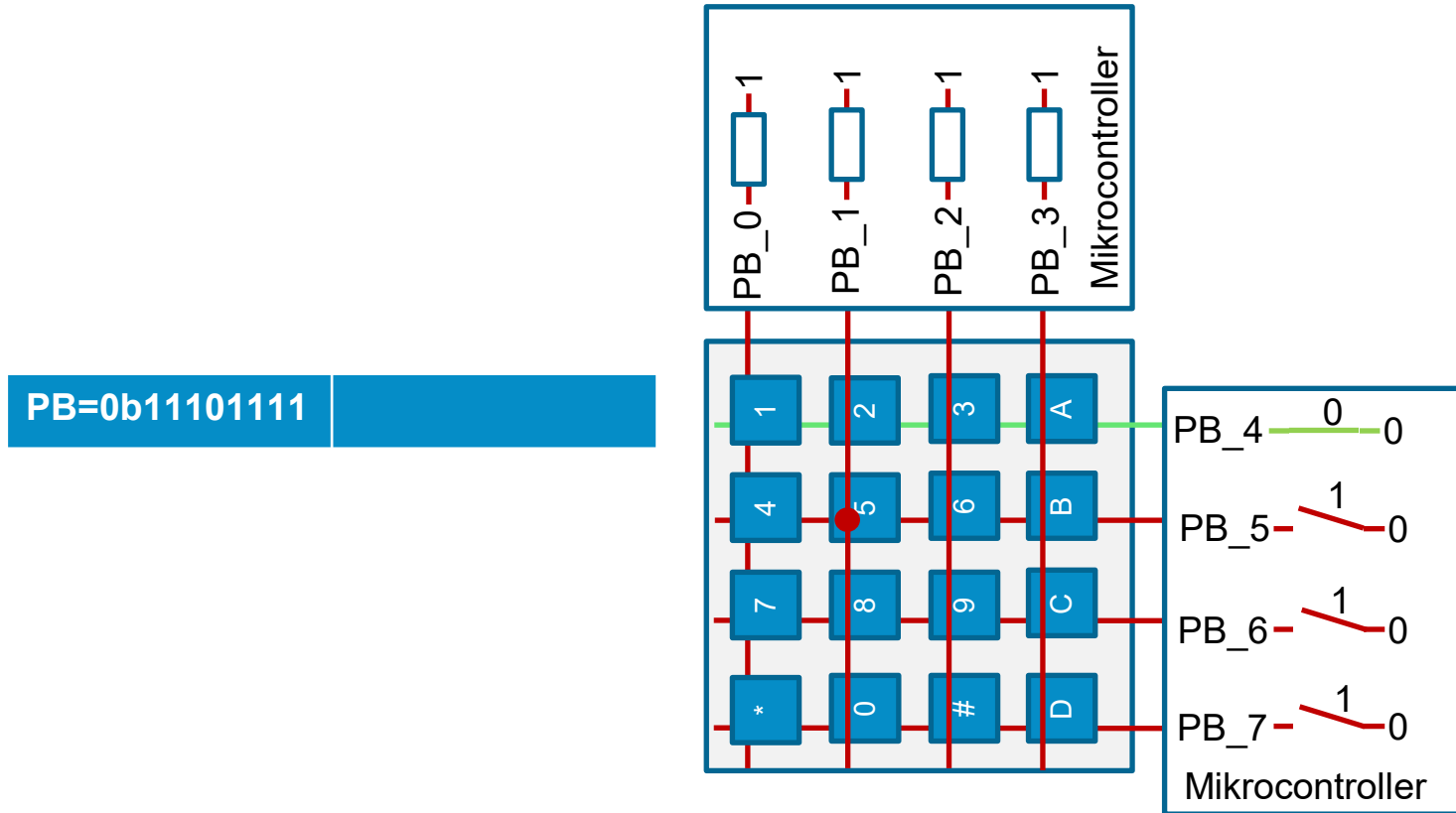


## Matrixtastatur abscannen - Polling

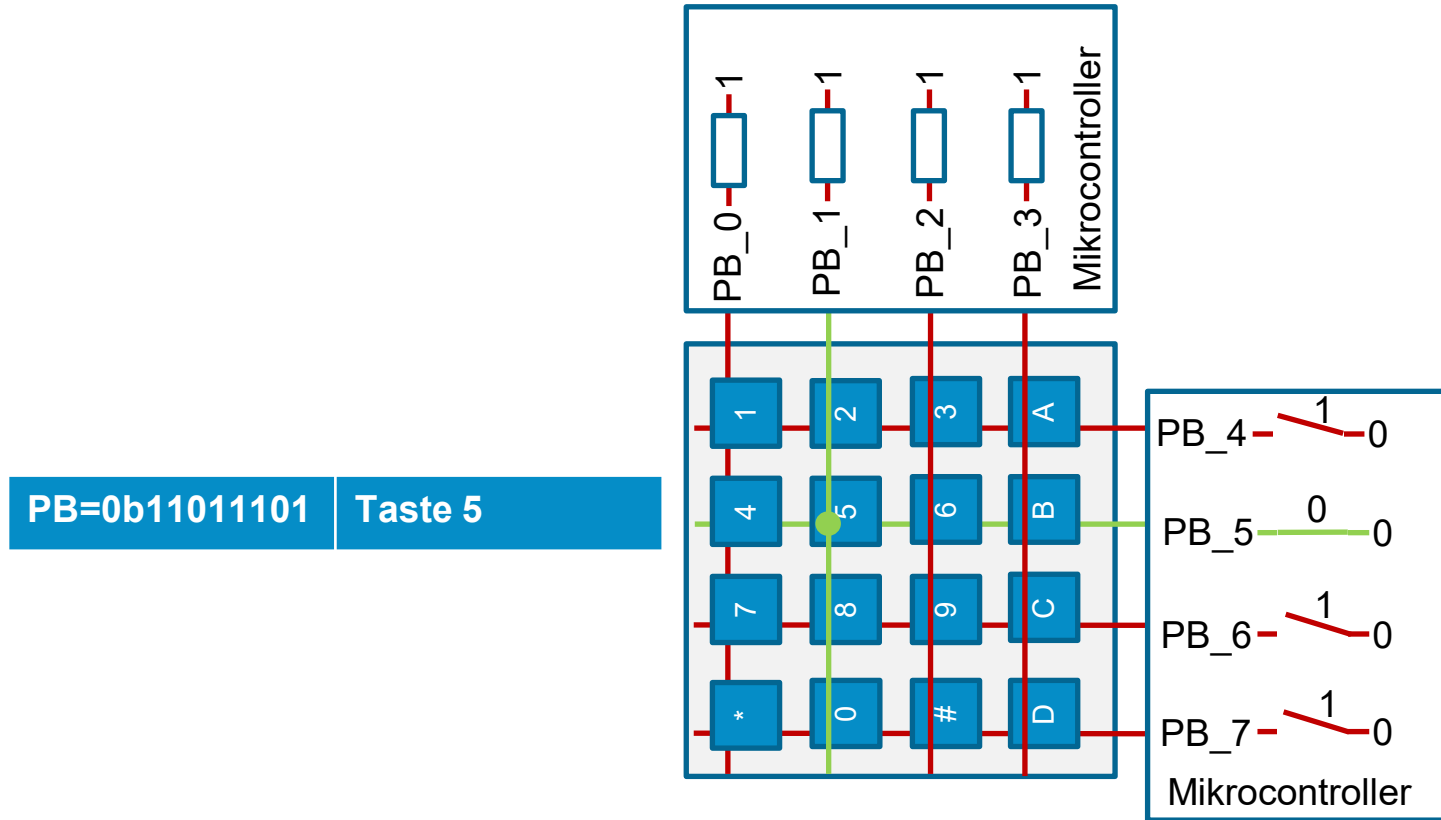
Polling der Tastatur:  
In der Endlosschleife nacheinander  
PB\_4, PB\_5, PB\_6, PB\_7 auf 0  
setzen und PB\_0, PB\_1, PB\_2,  
PB\_3 auf 0 prüfen.



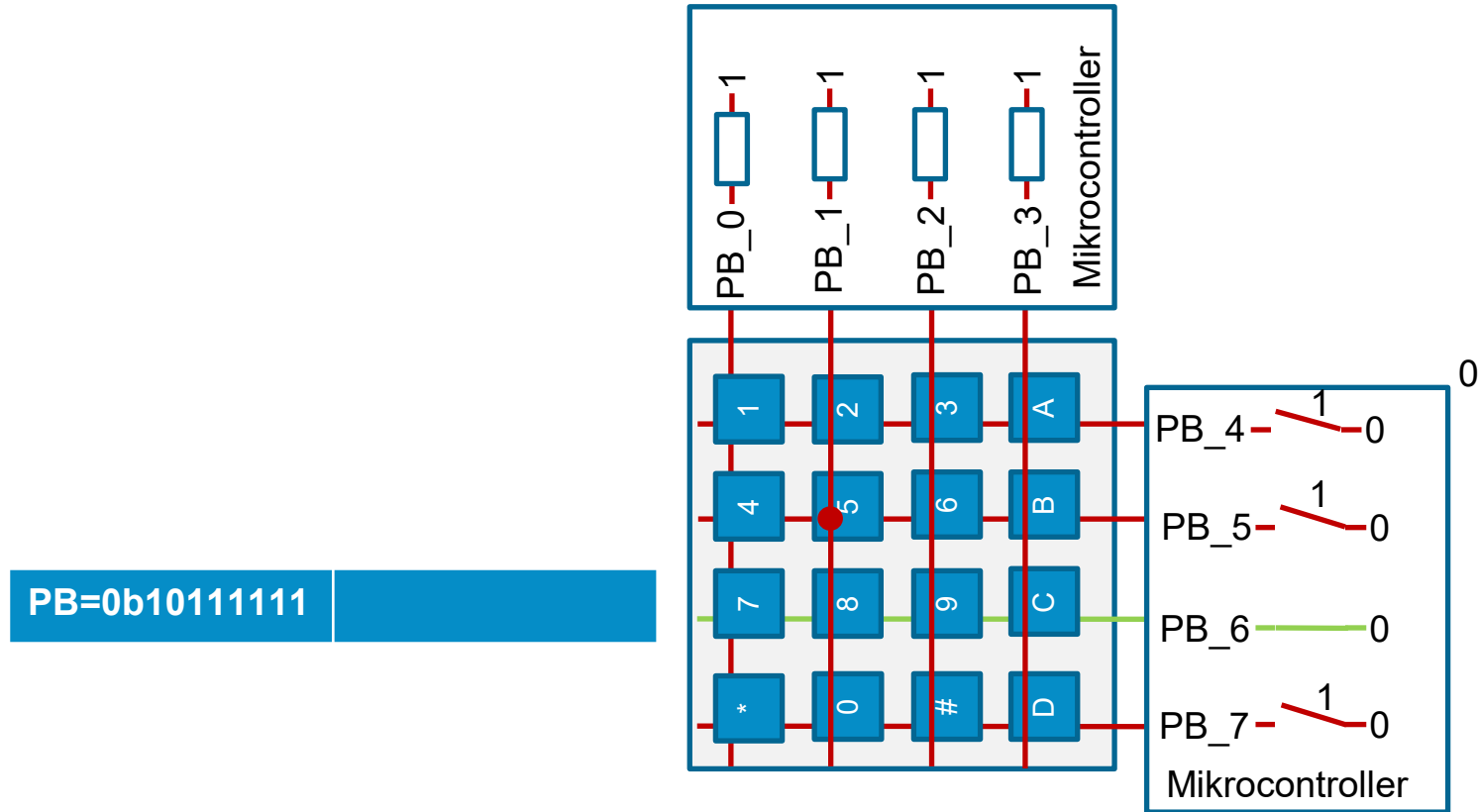
## Matrixtastatur abscannen - Polling



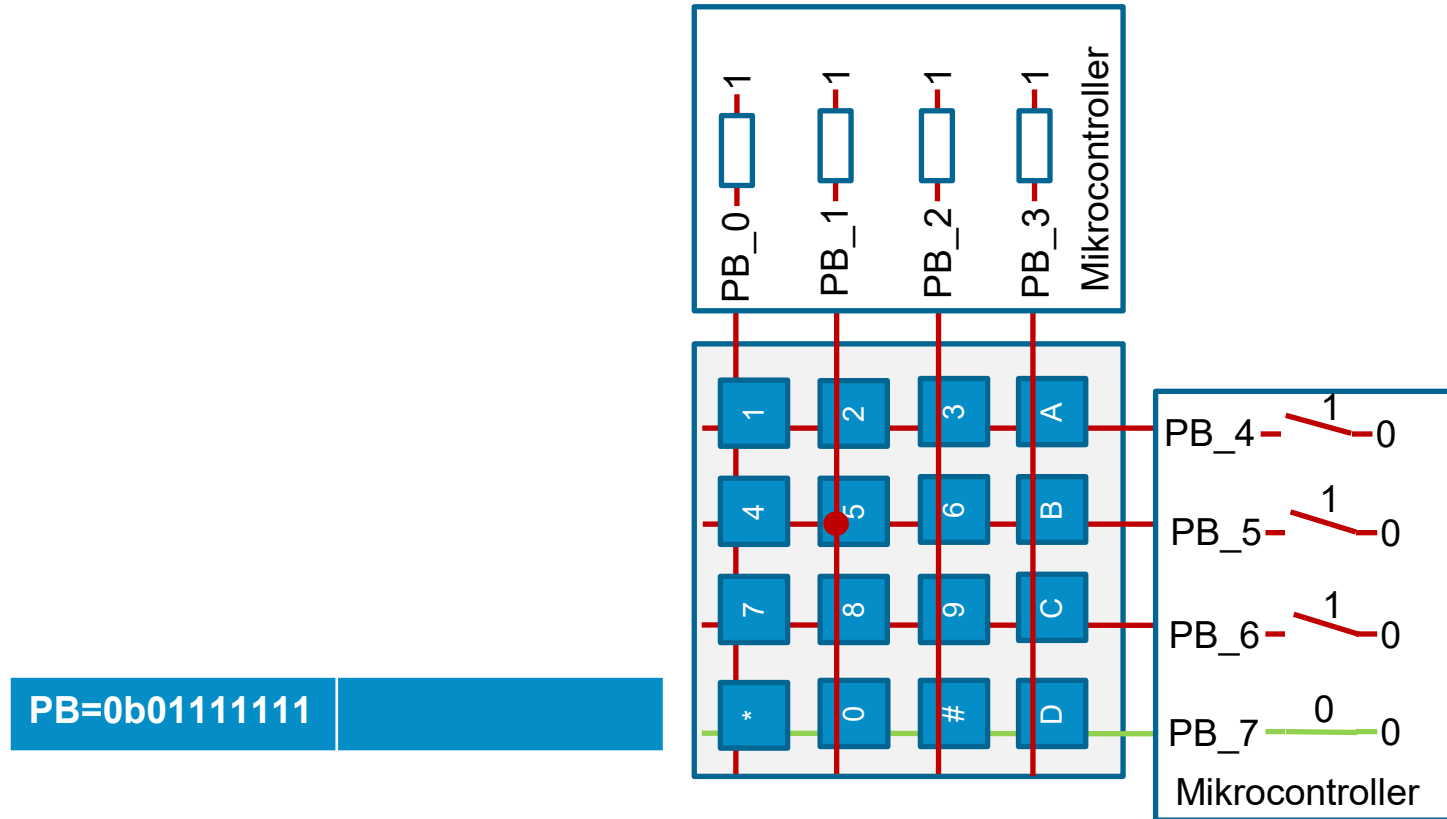
## Matrixtastatur abscannen - Polling



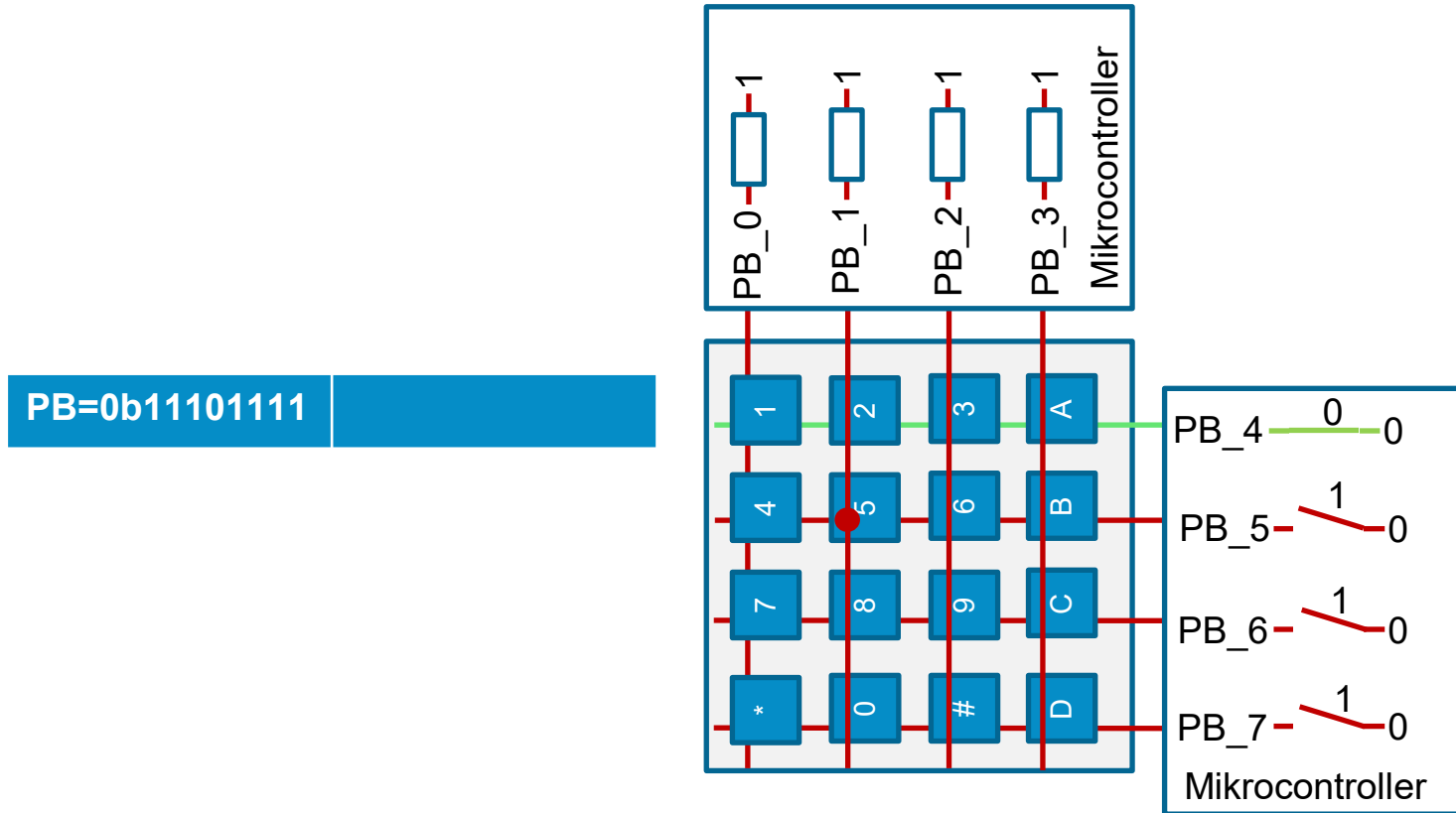
## Matrixtastatur abscannen - Polling



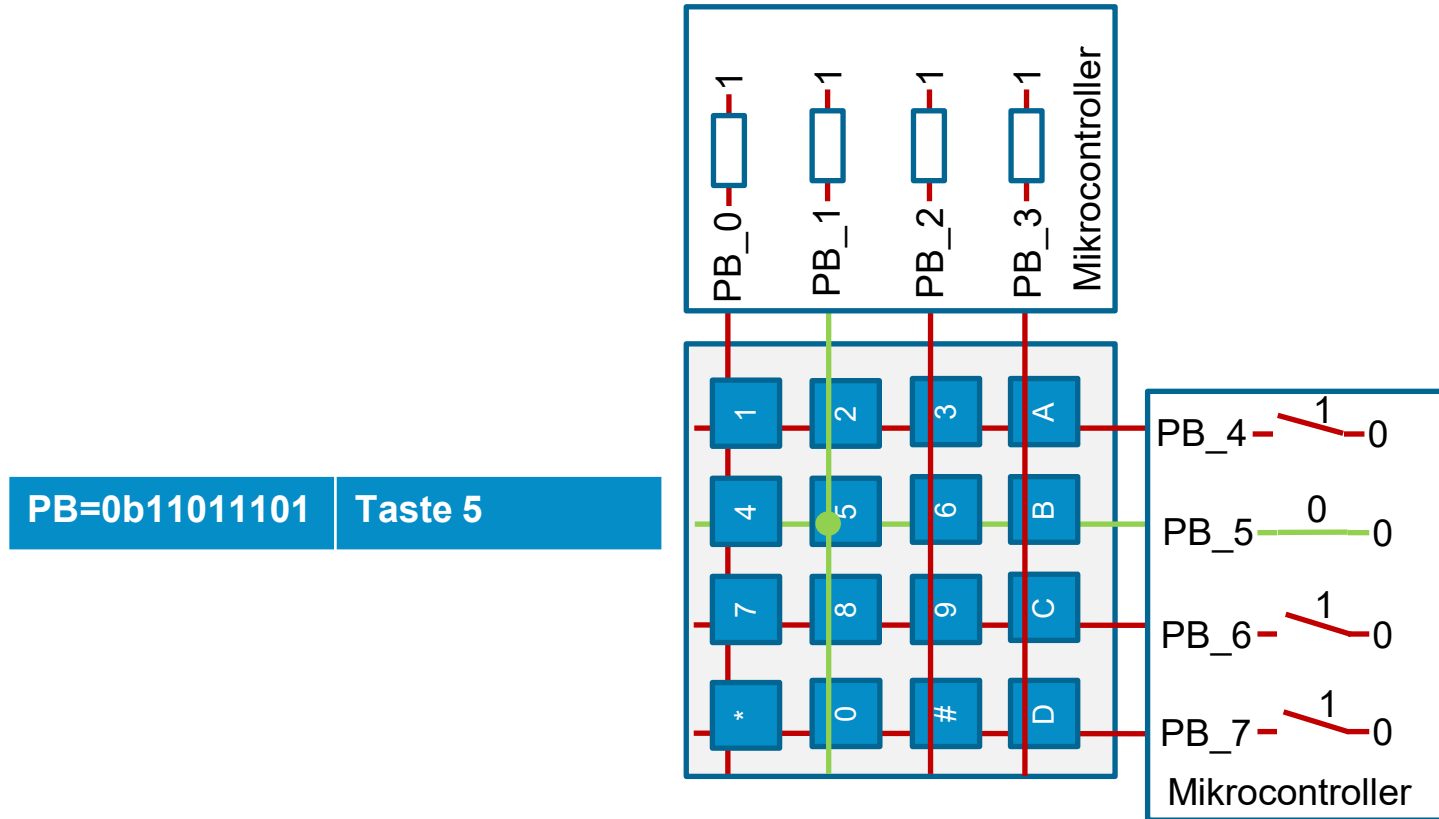
## Matrixtastatur abscannen - Polling



## Matrixtastatur abscannen - Polling

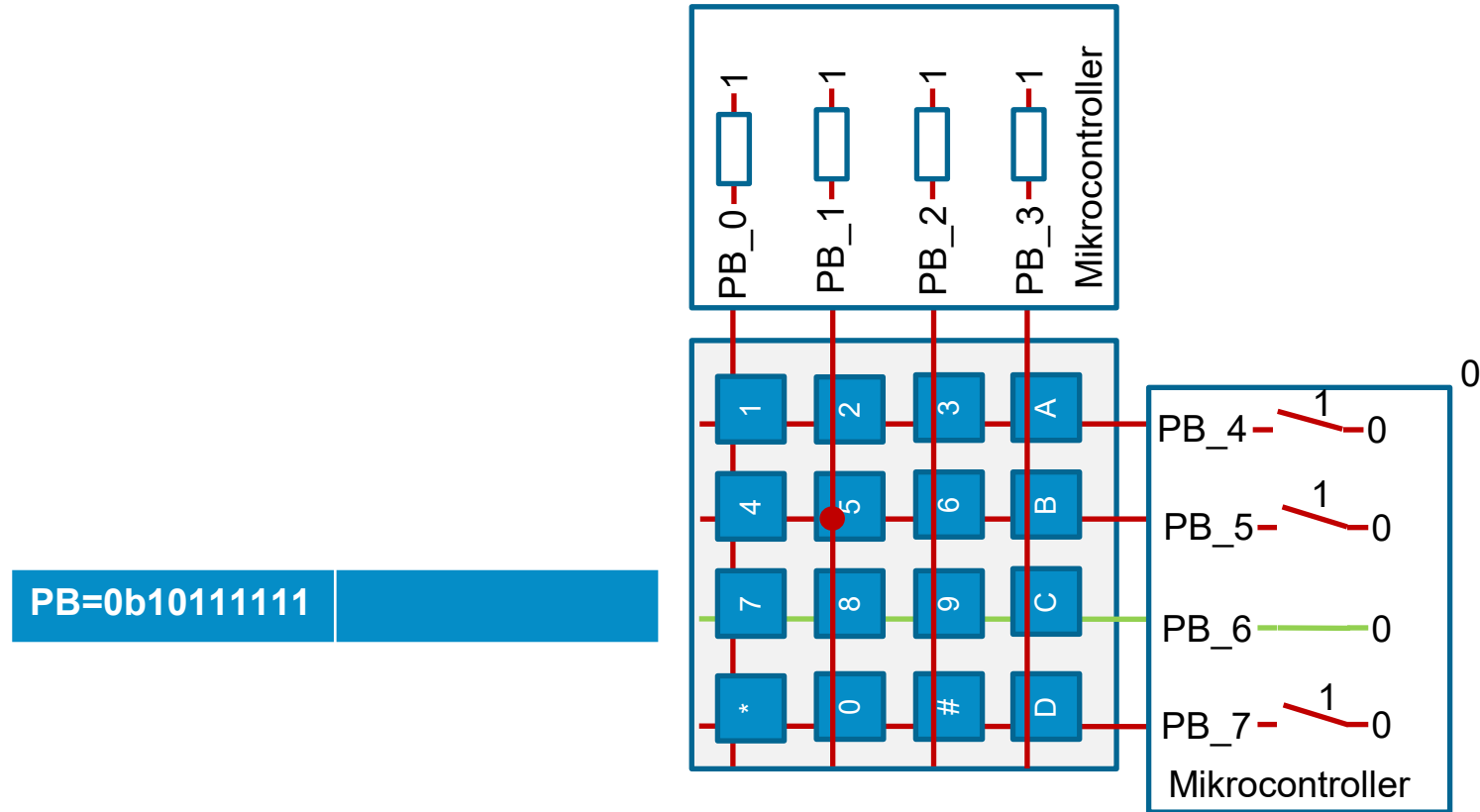


## Matrixtastatur abscreiben - Polling

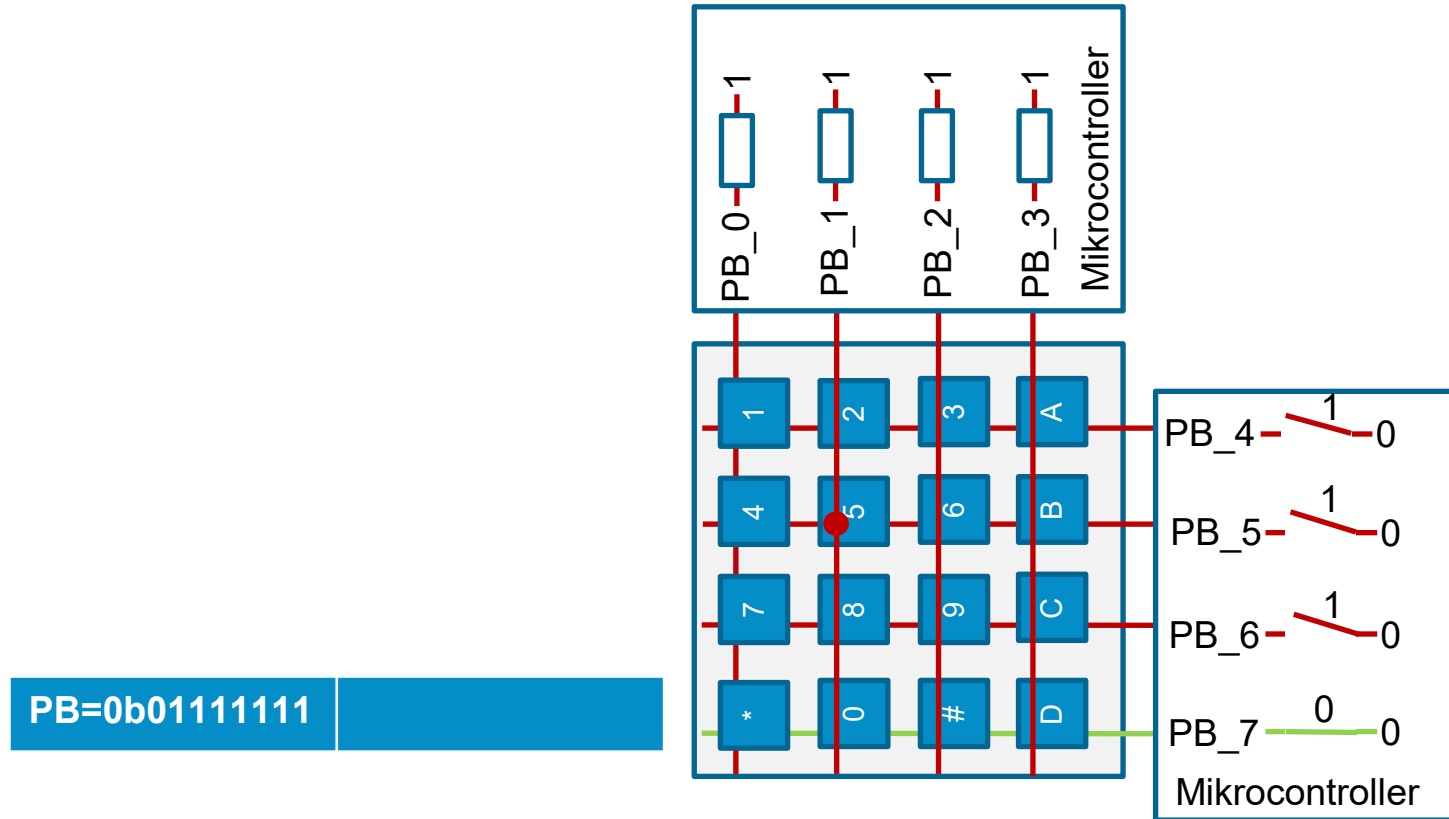




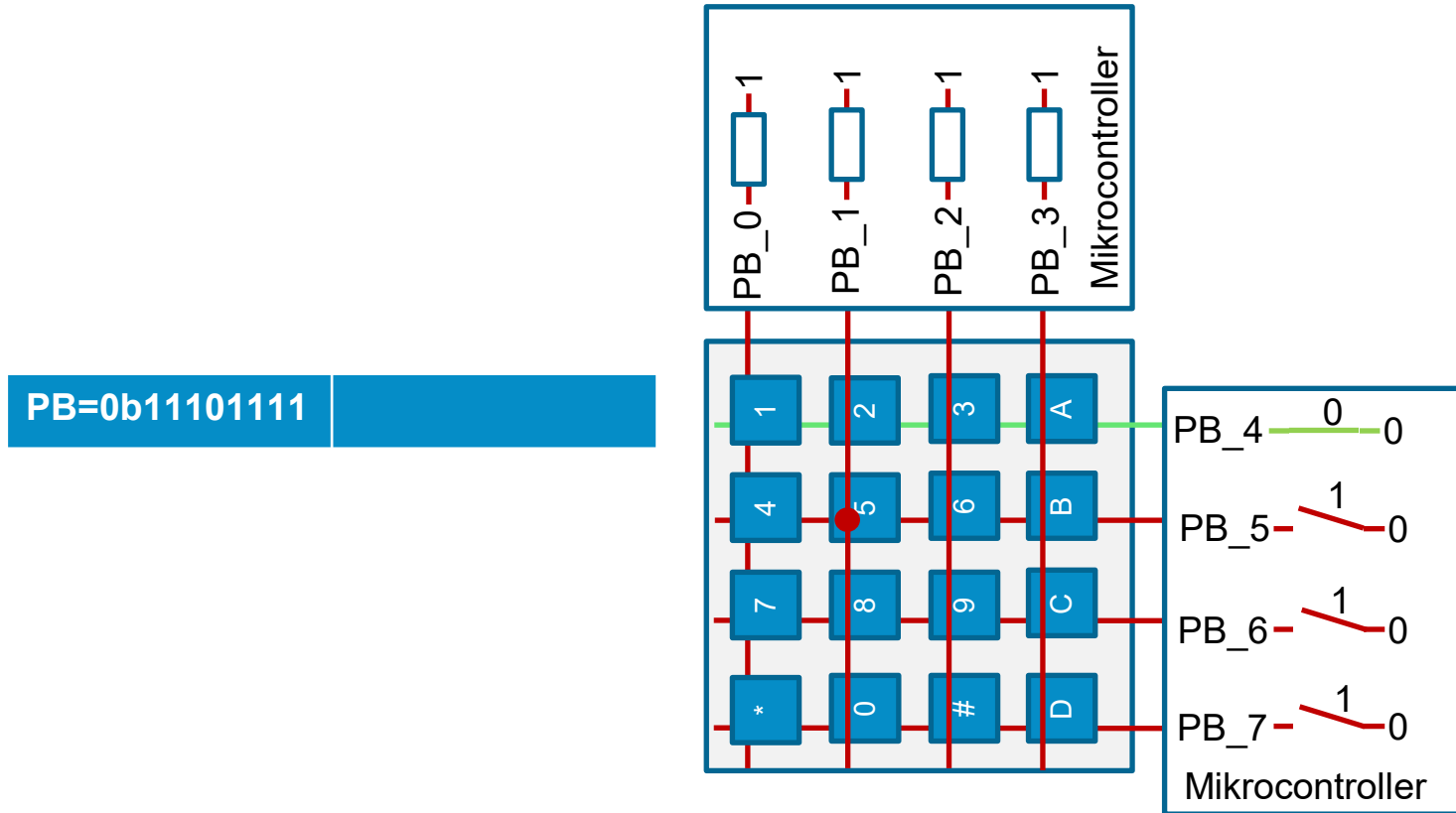
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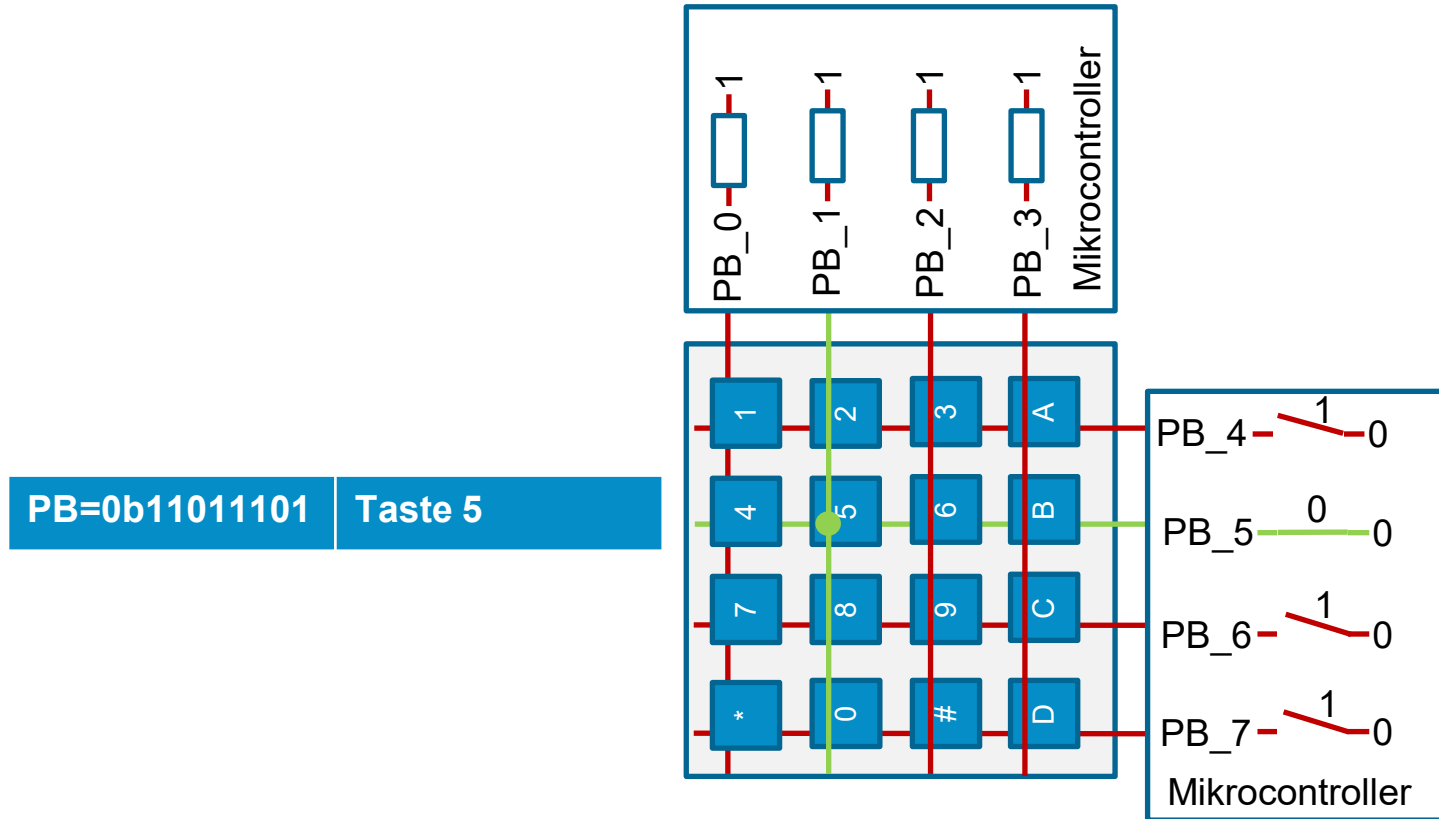
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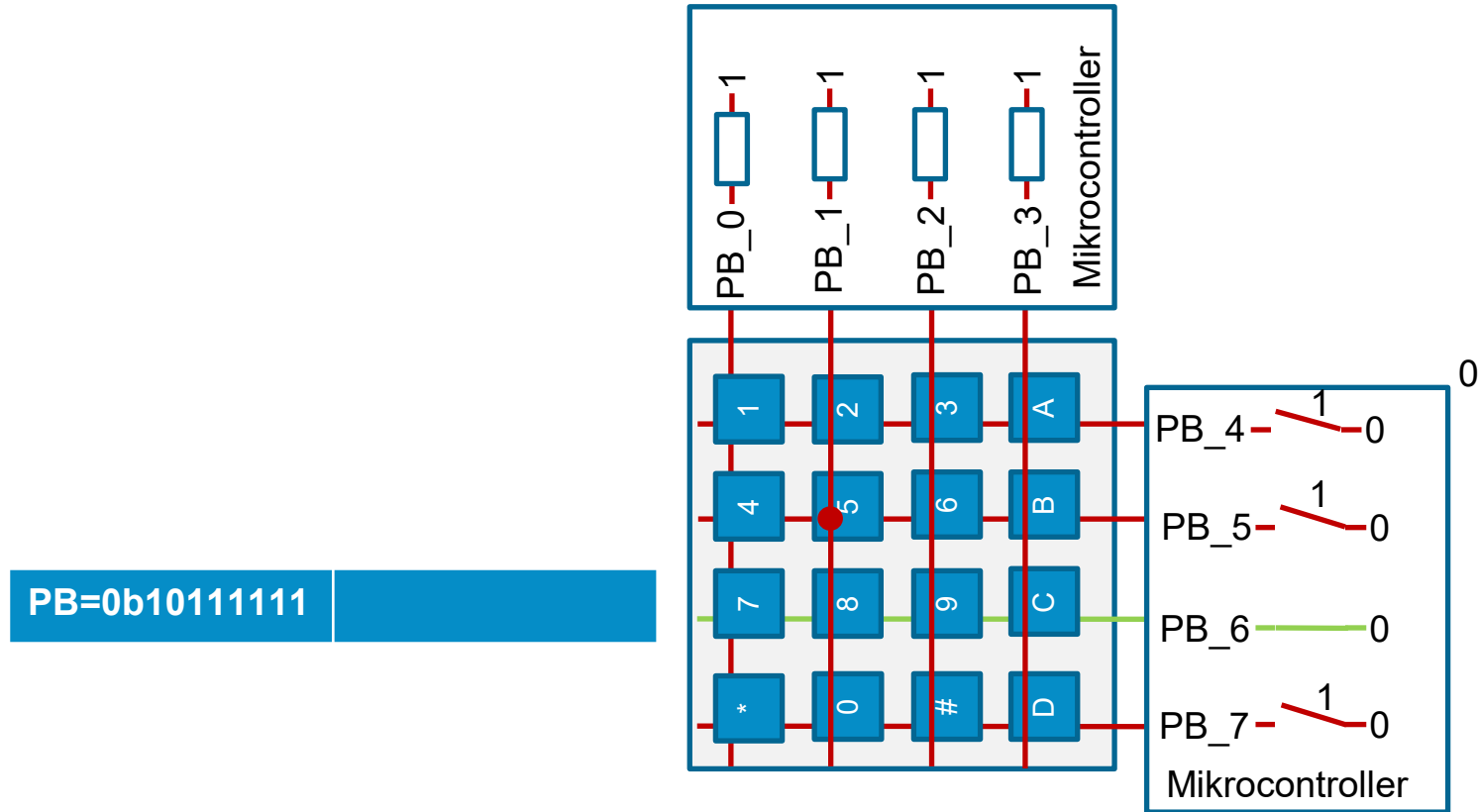
## Matrixtastatur abscannen - Polling



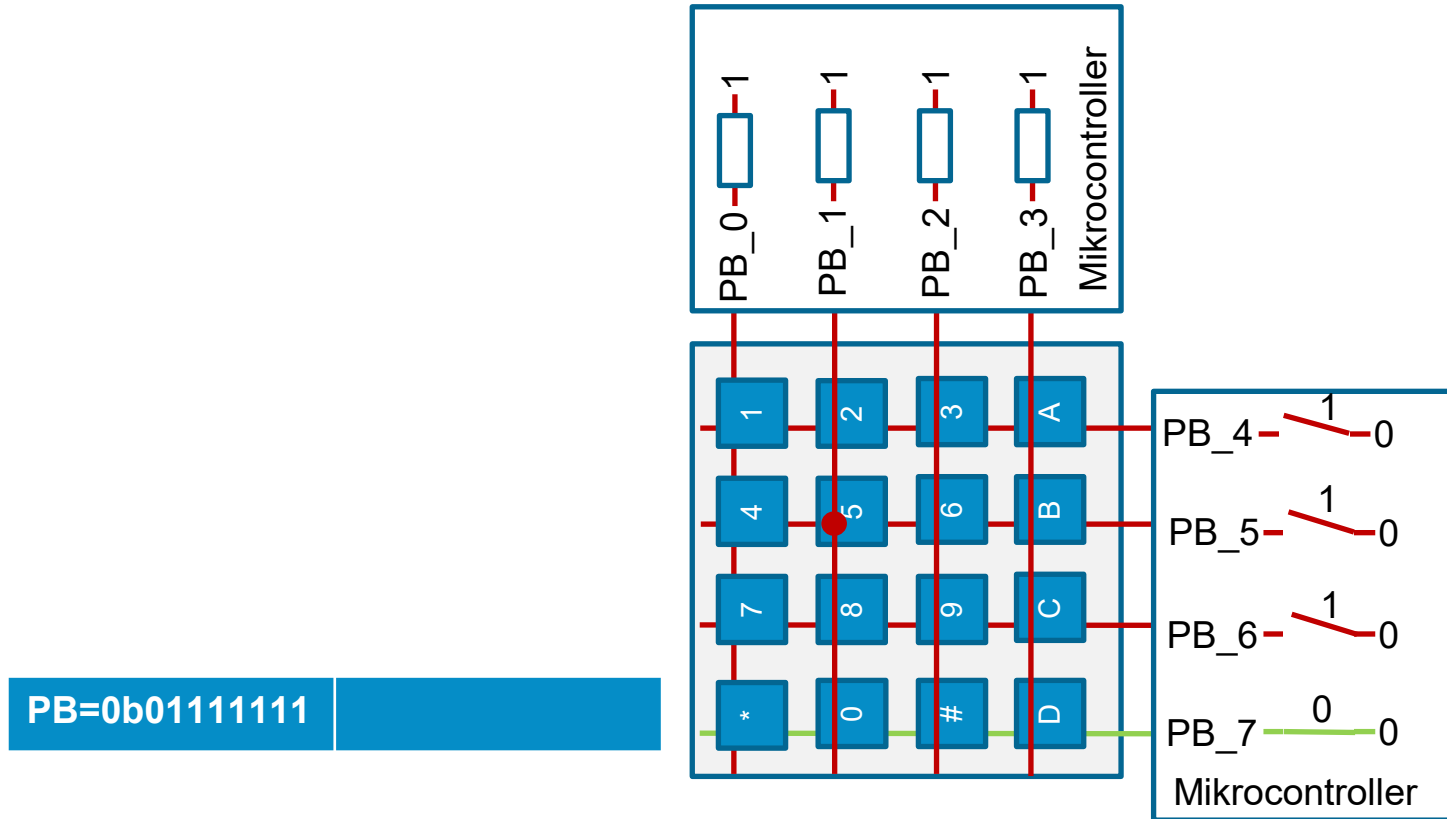
## Matrixtastatur abscreiben - Polling



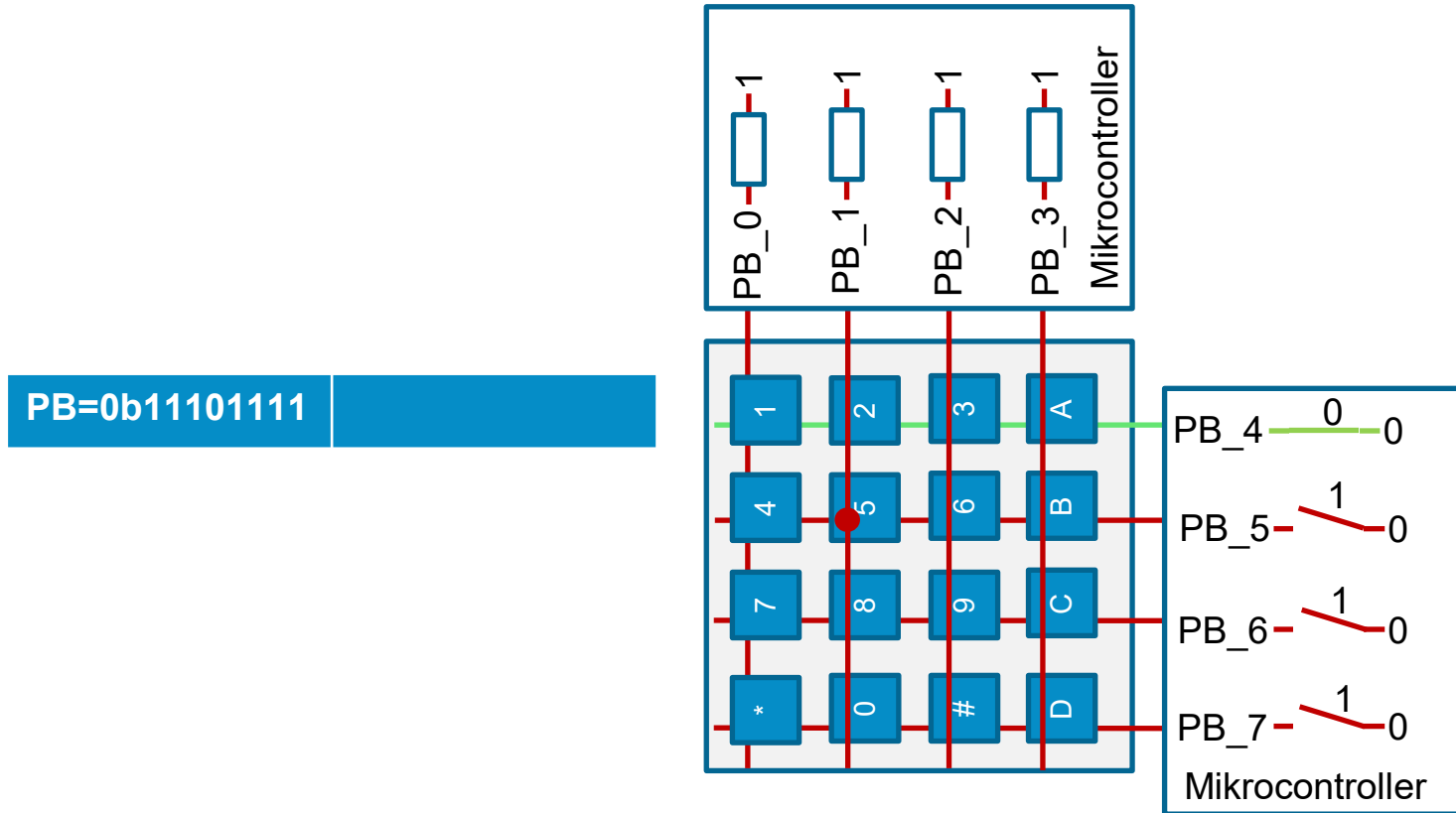
## Matrixtastatur abscannen - Polling



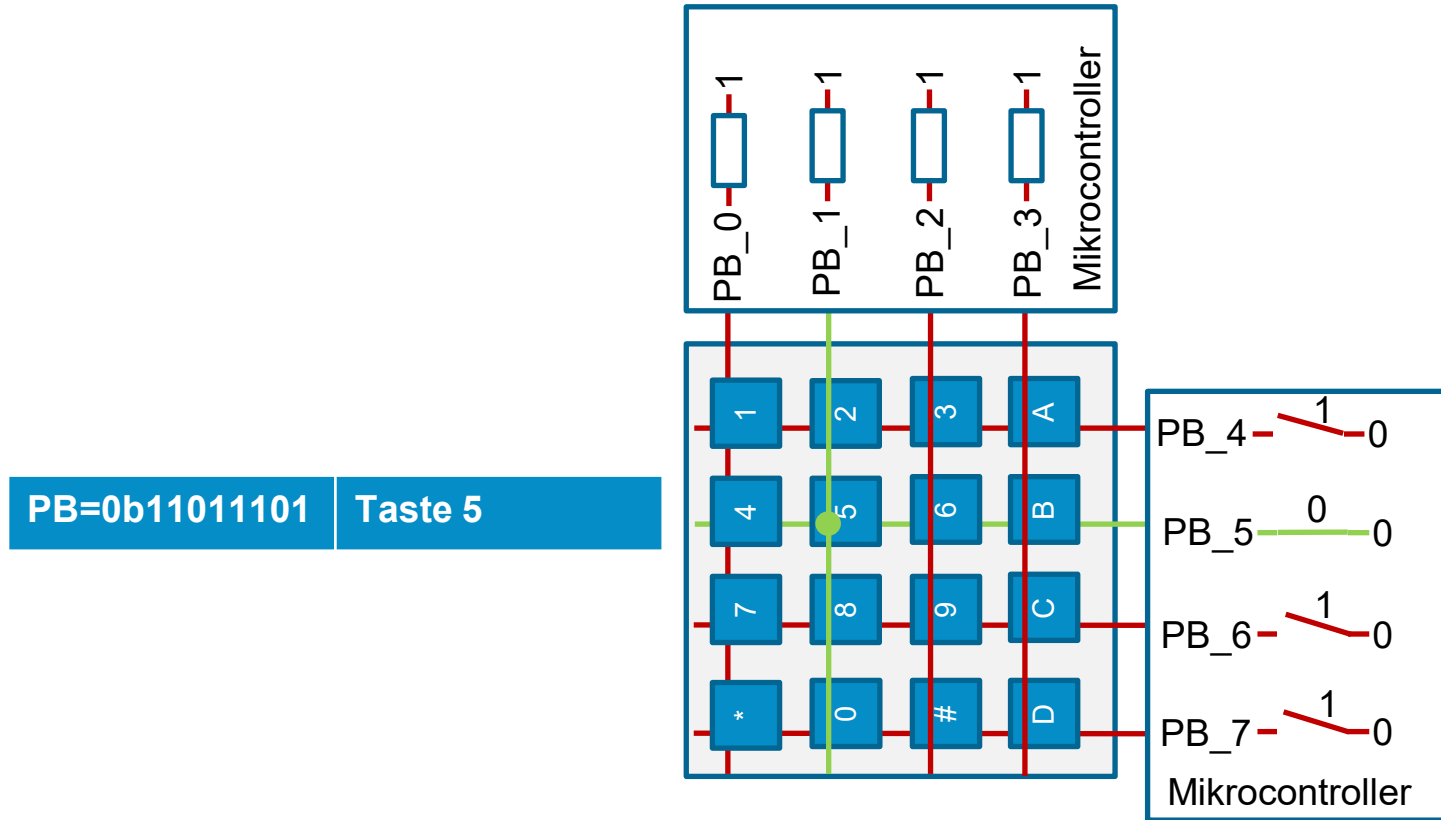
## Matrixtastatur abscannen - Polling



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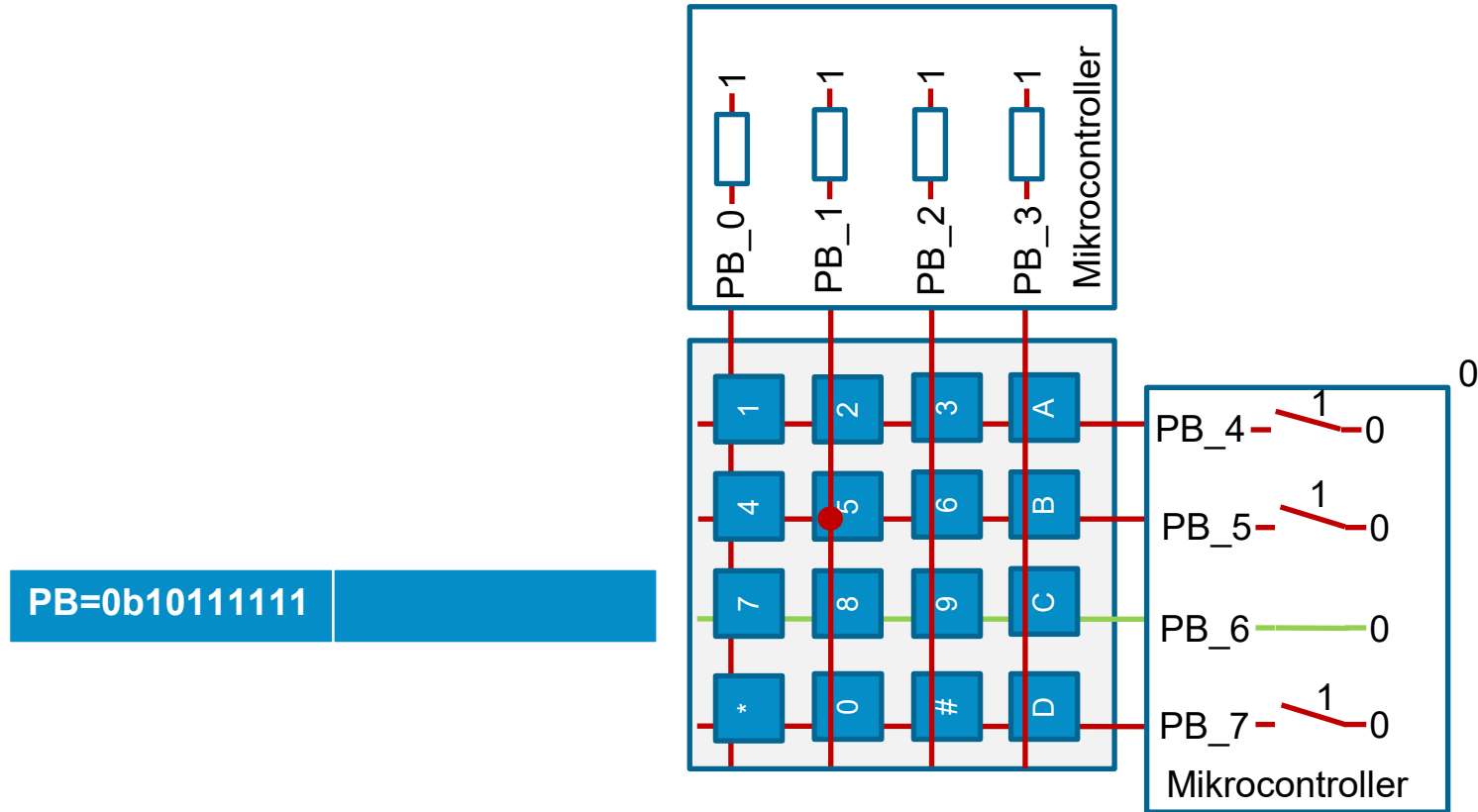


## Matrixtastatur abscannen - Polling

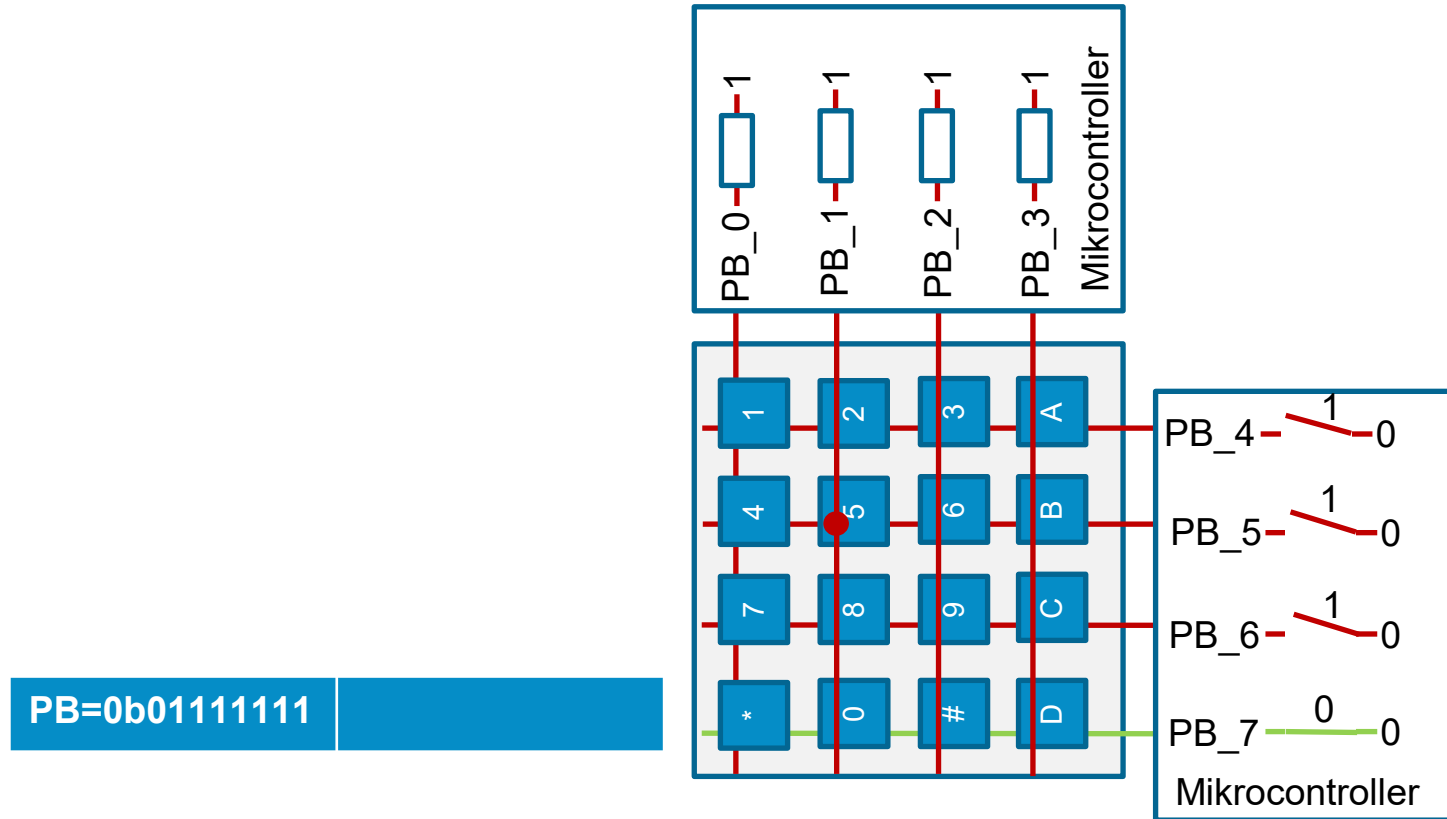




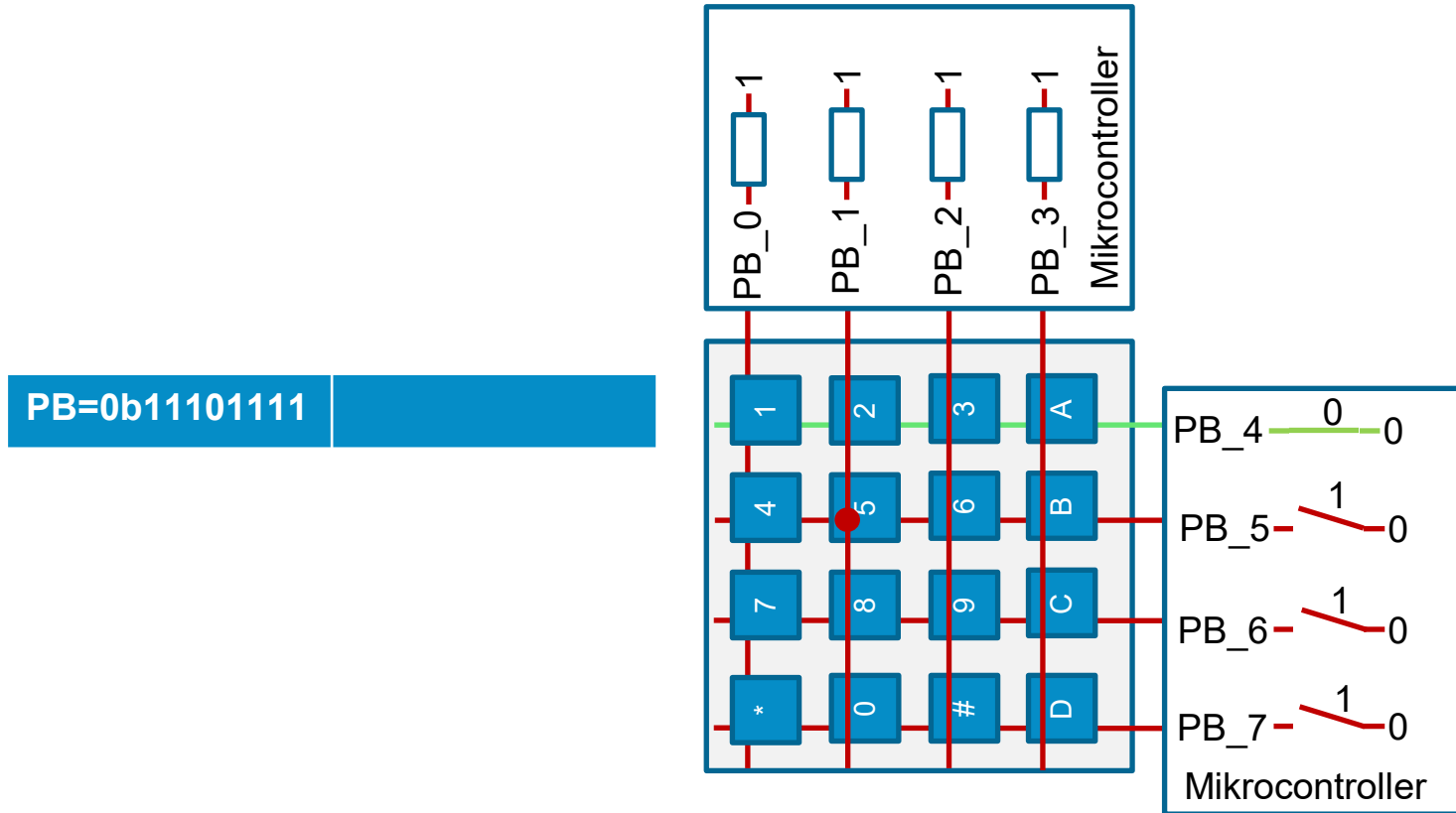
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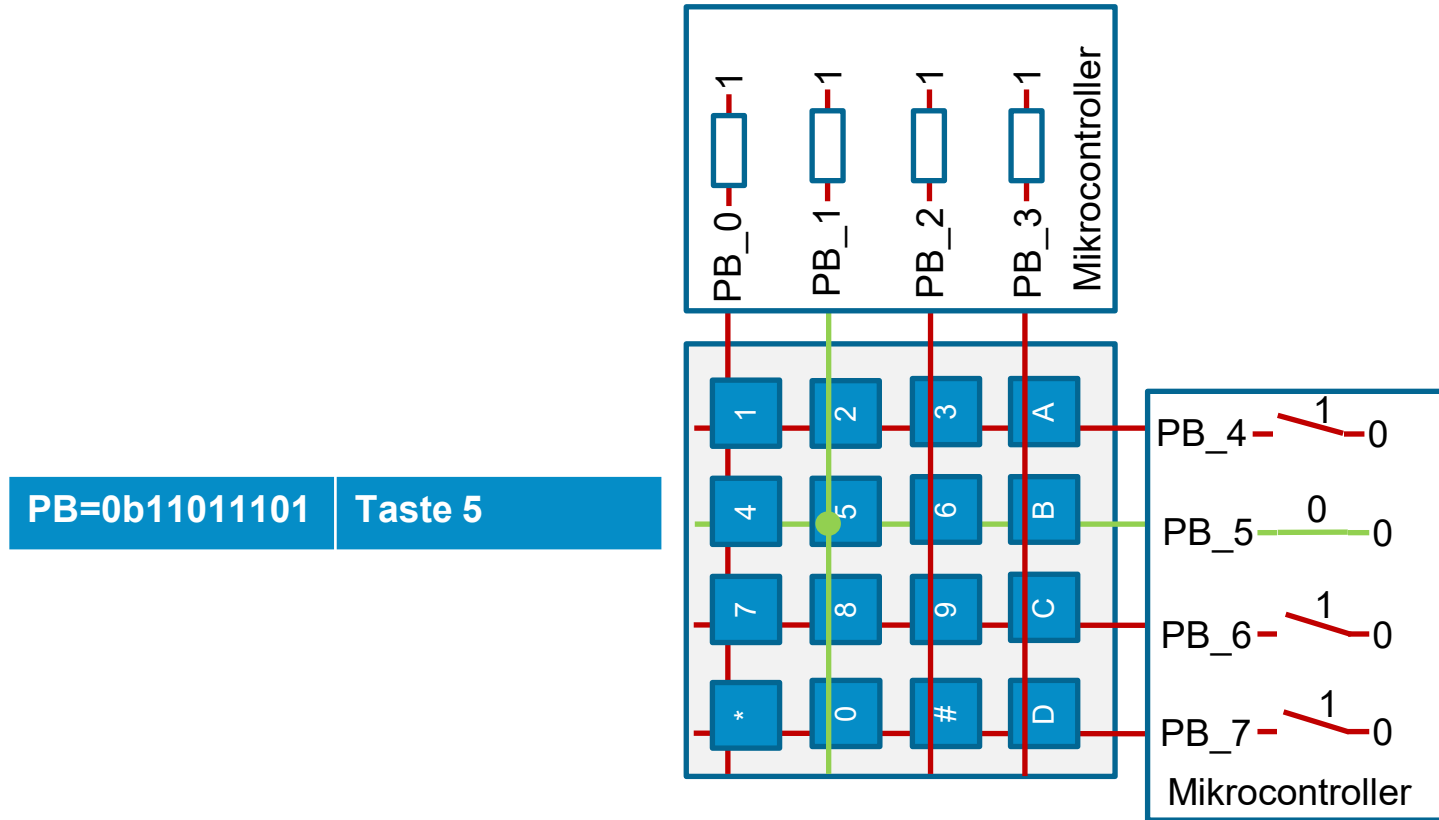
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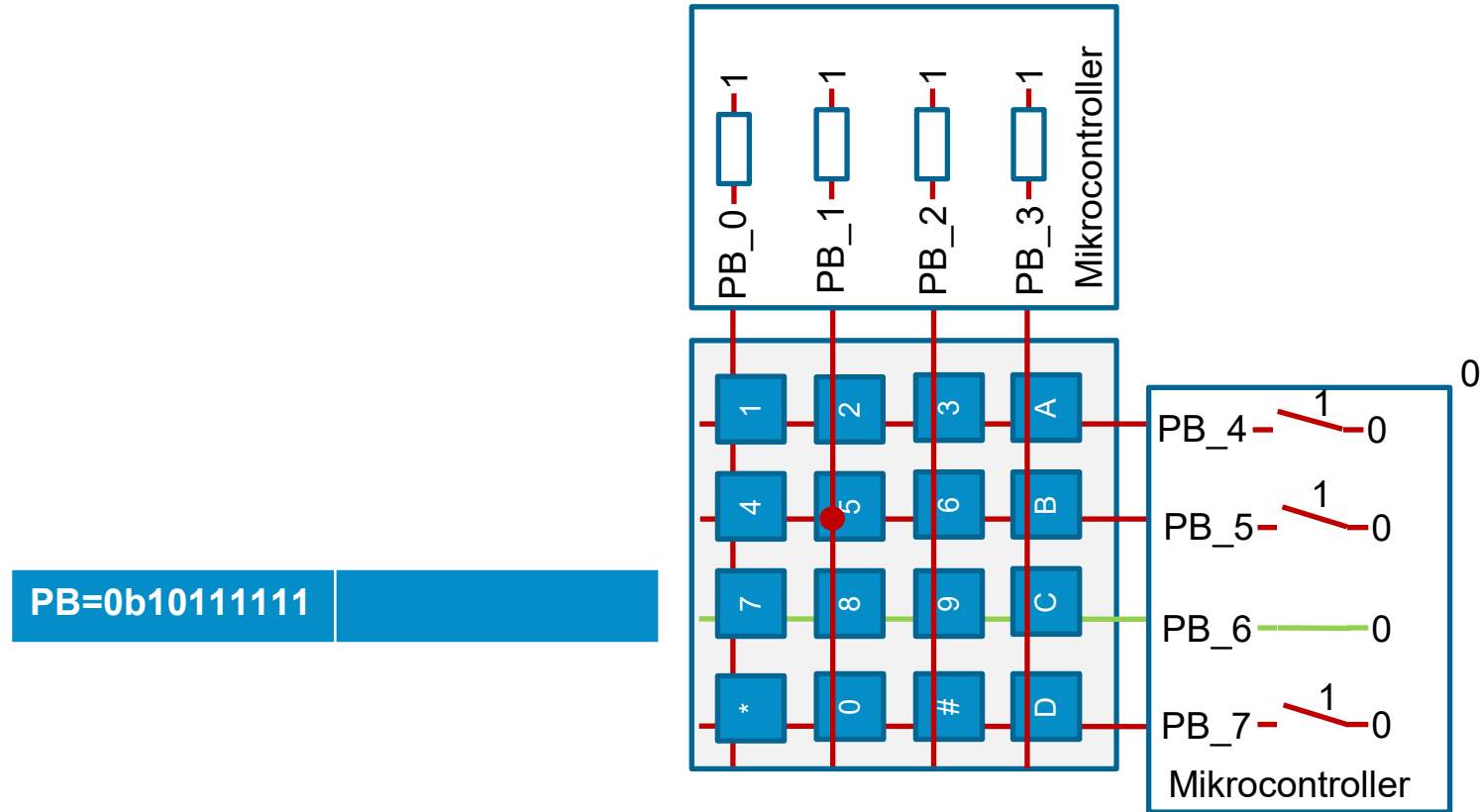
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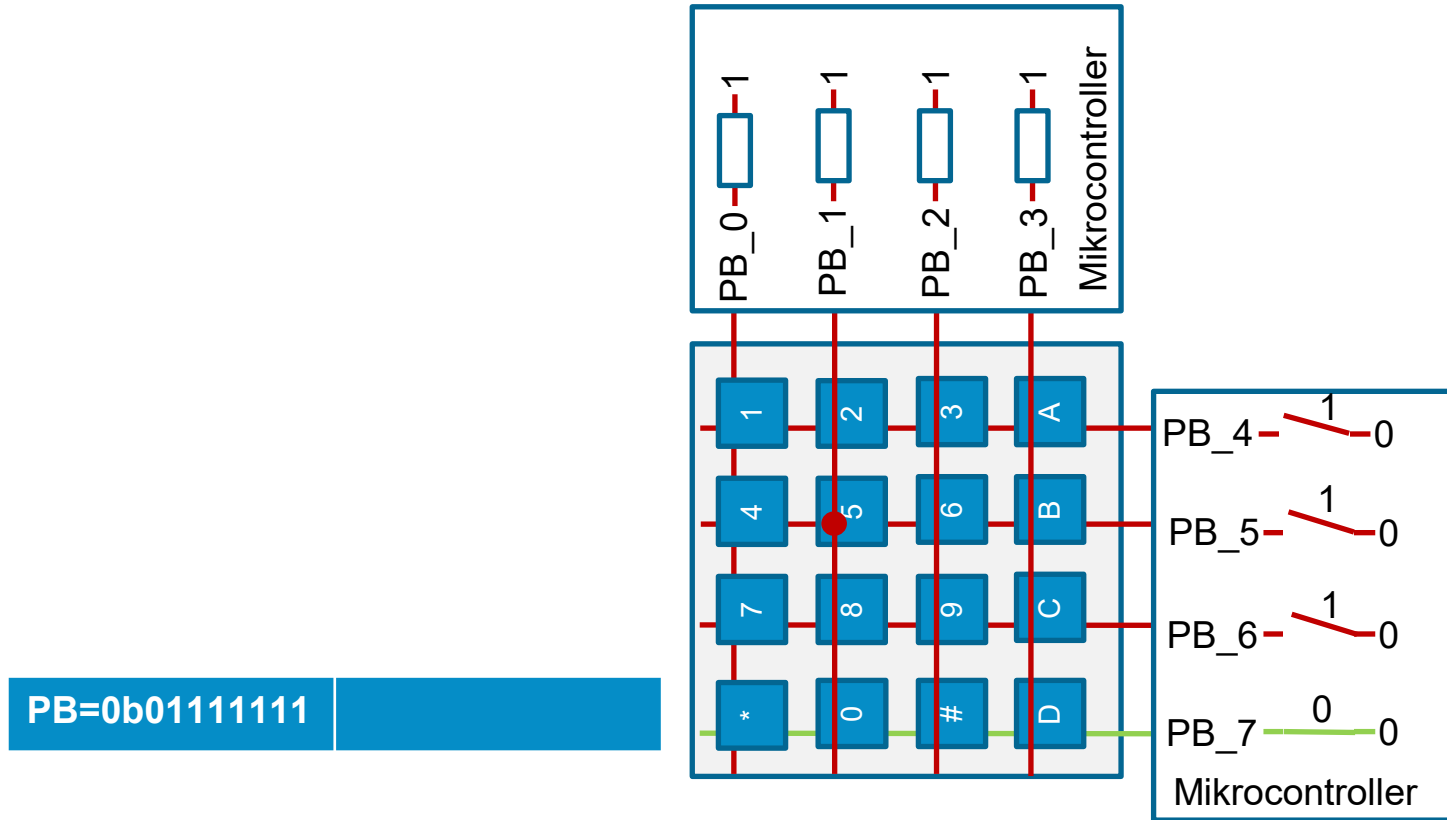
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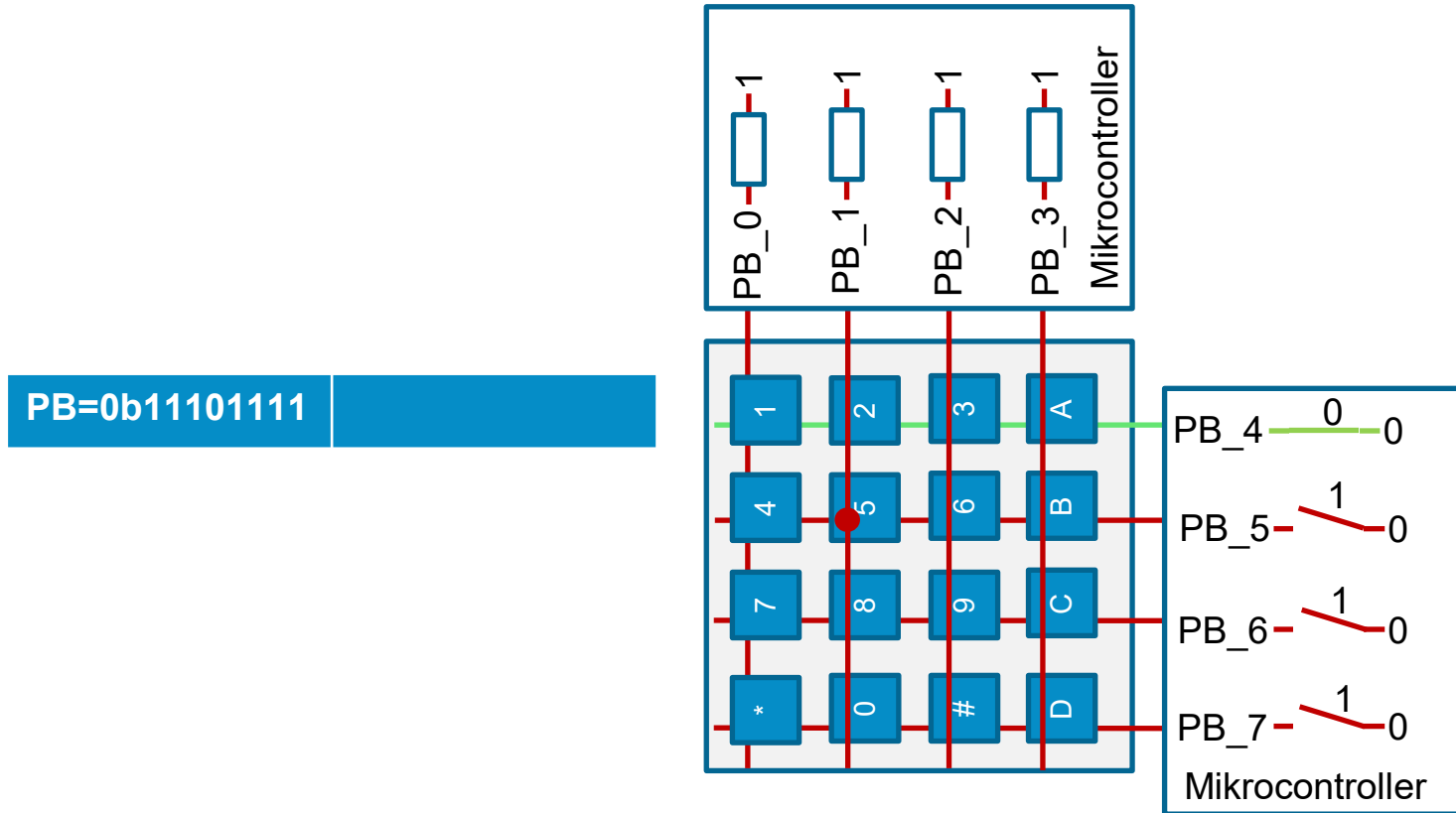
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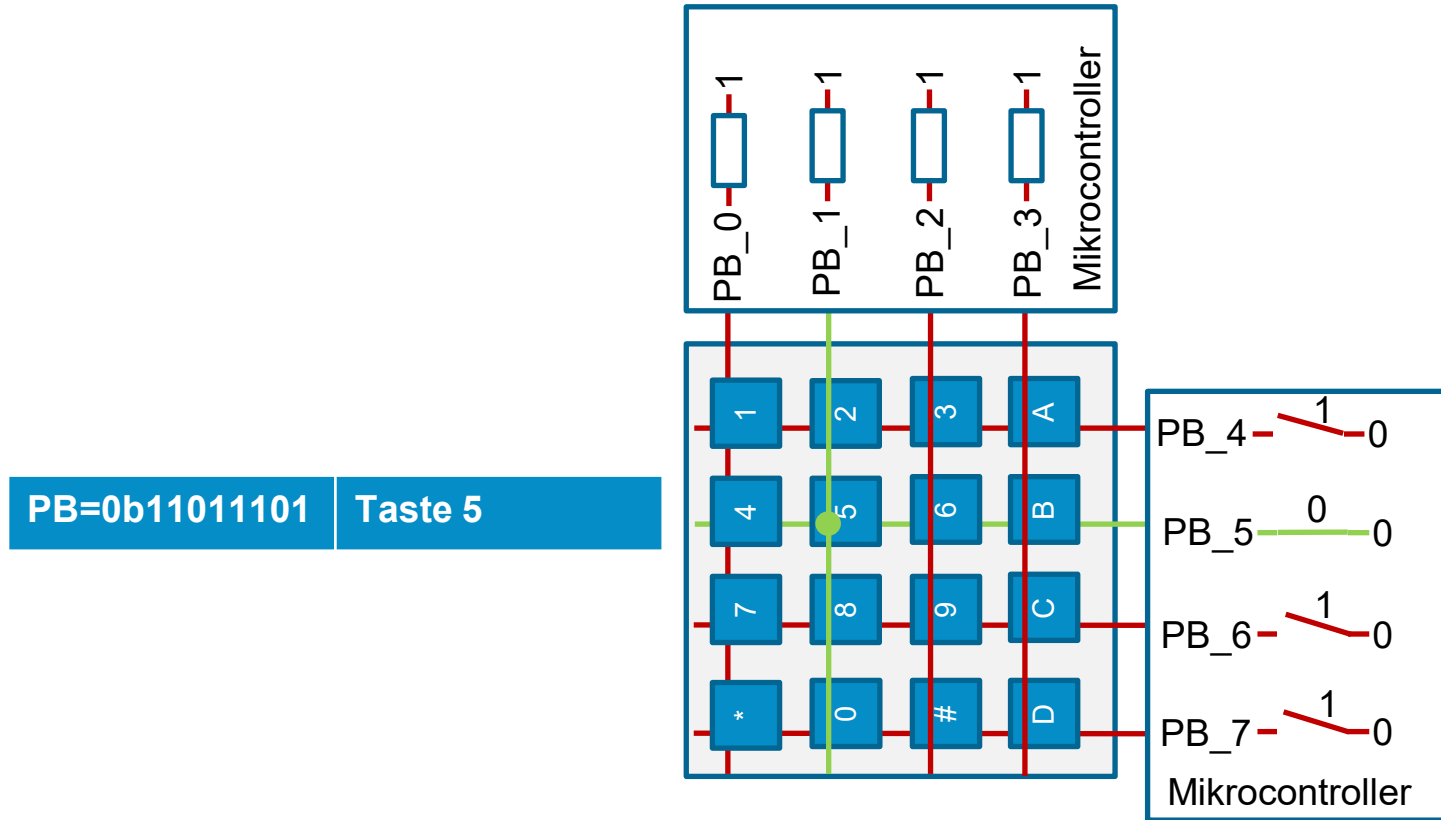
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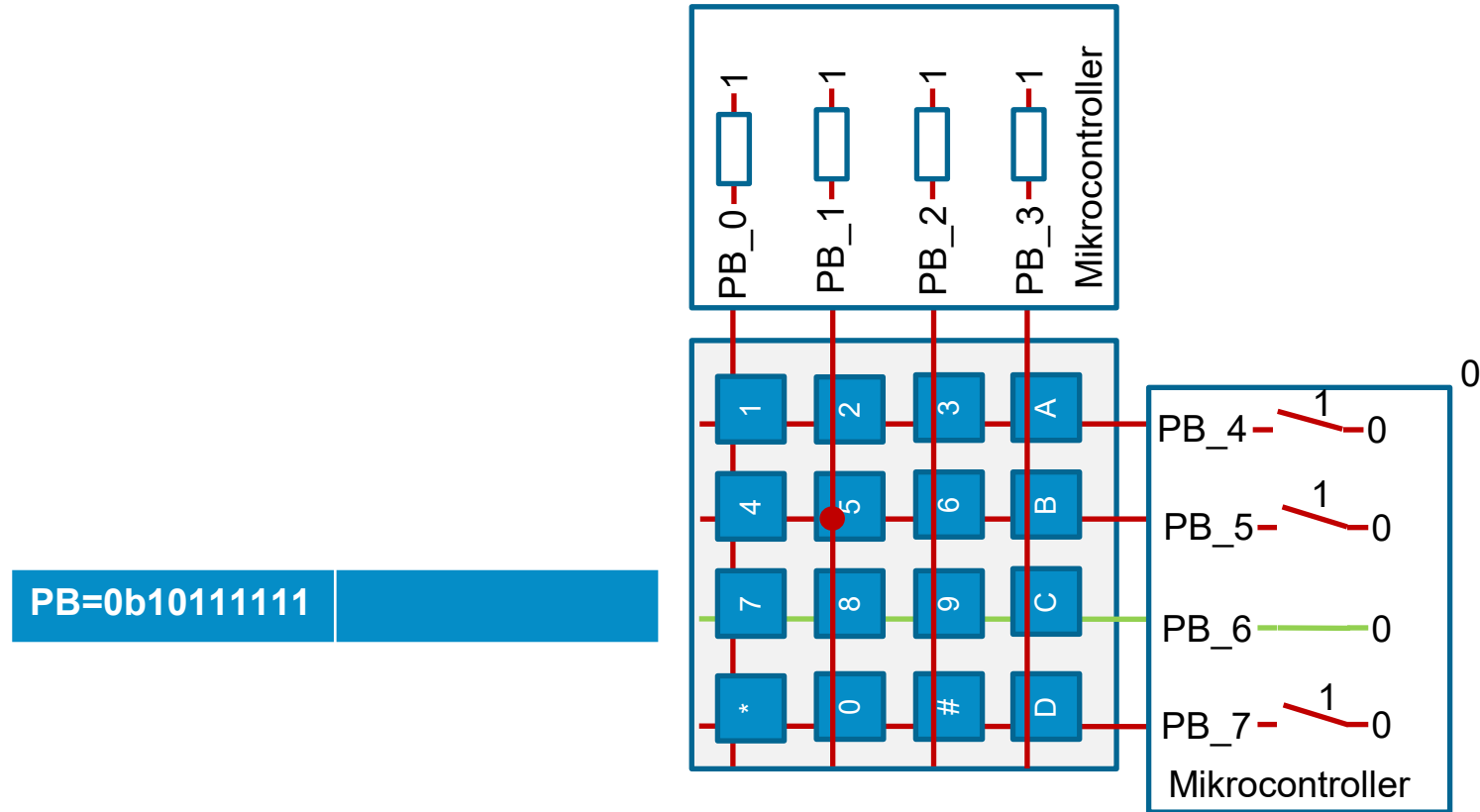


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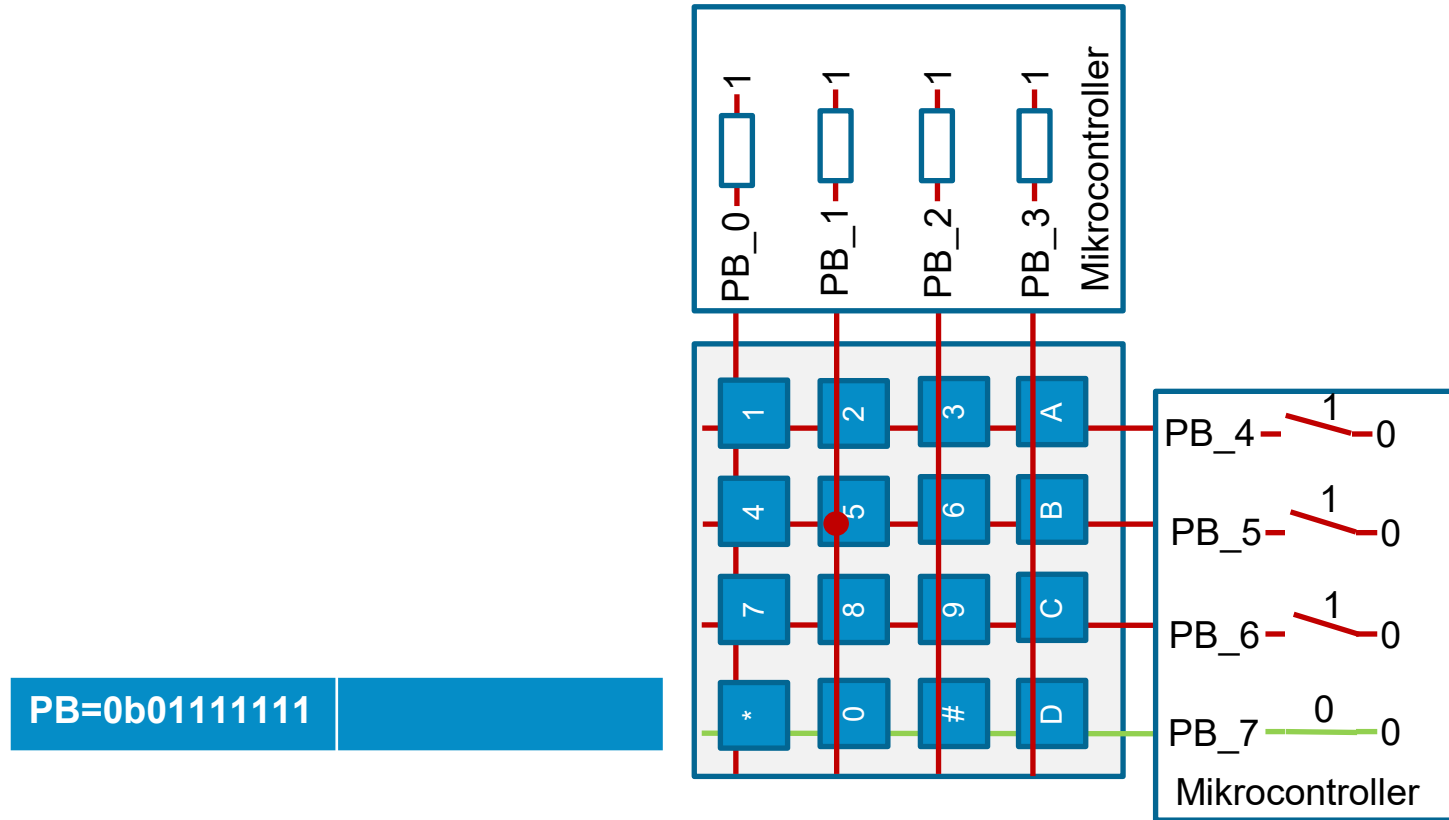




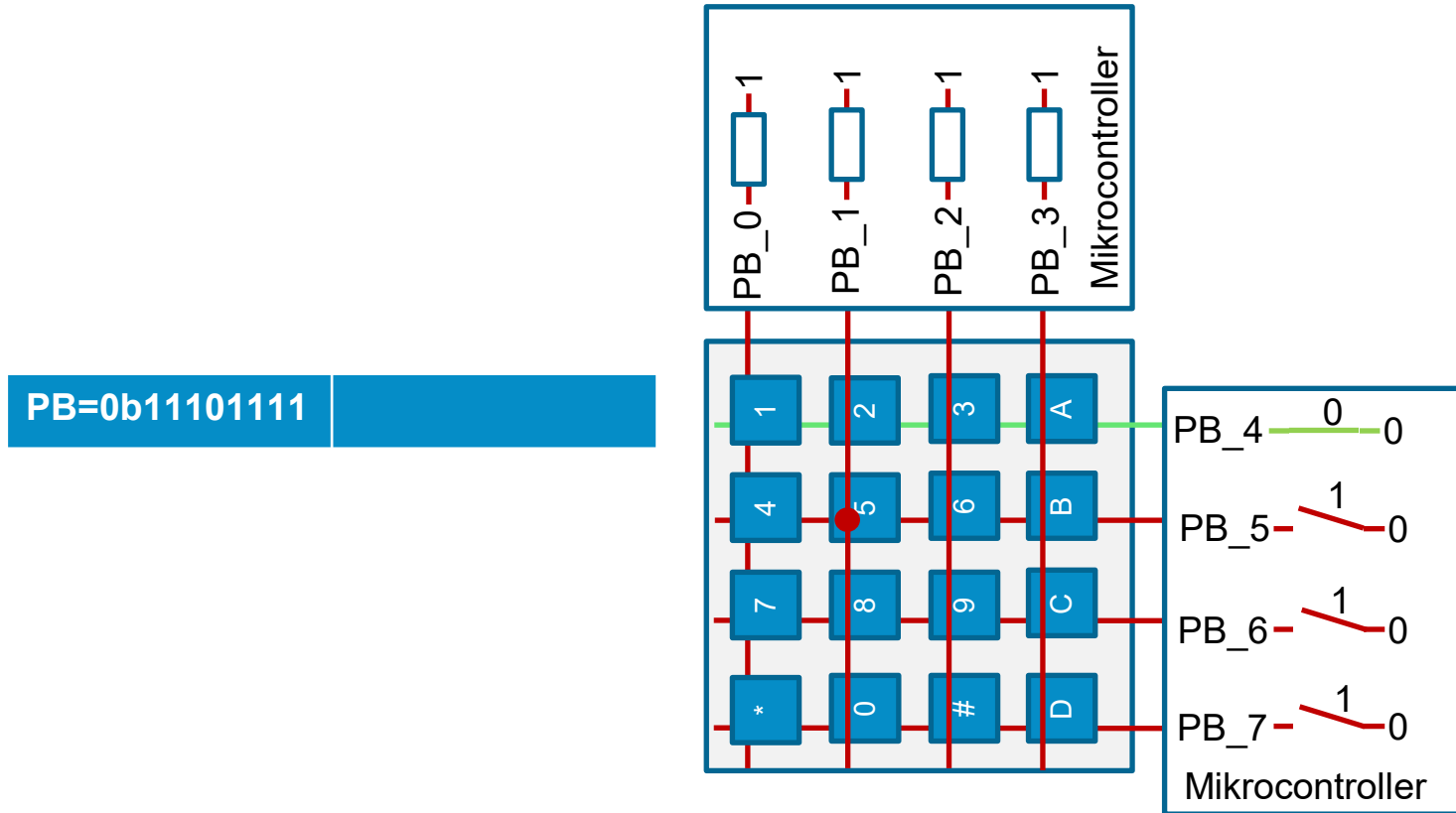
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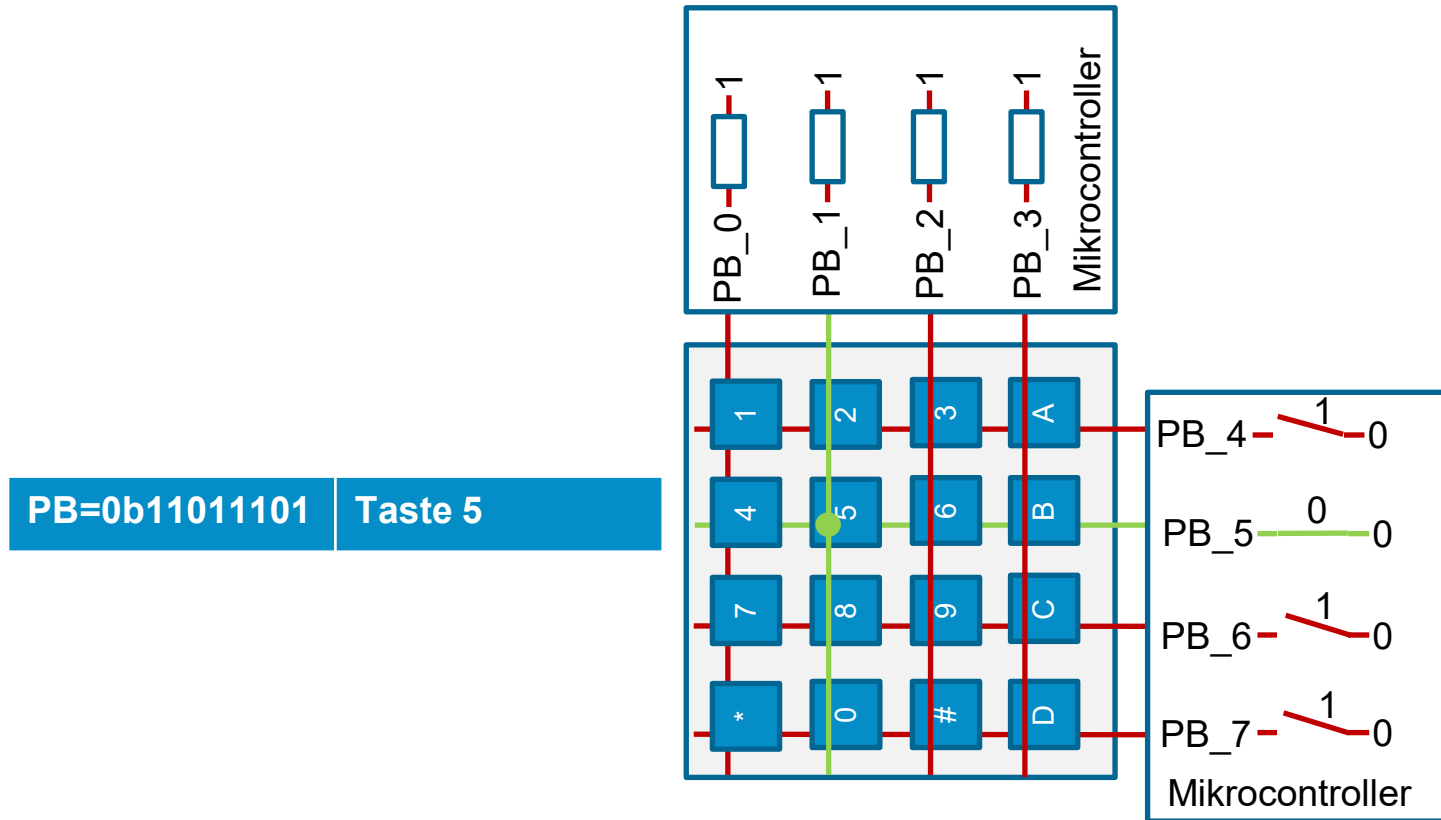
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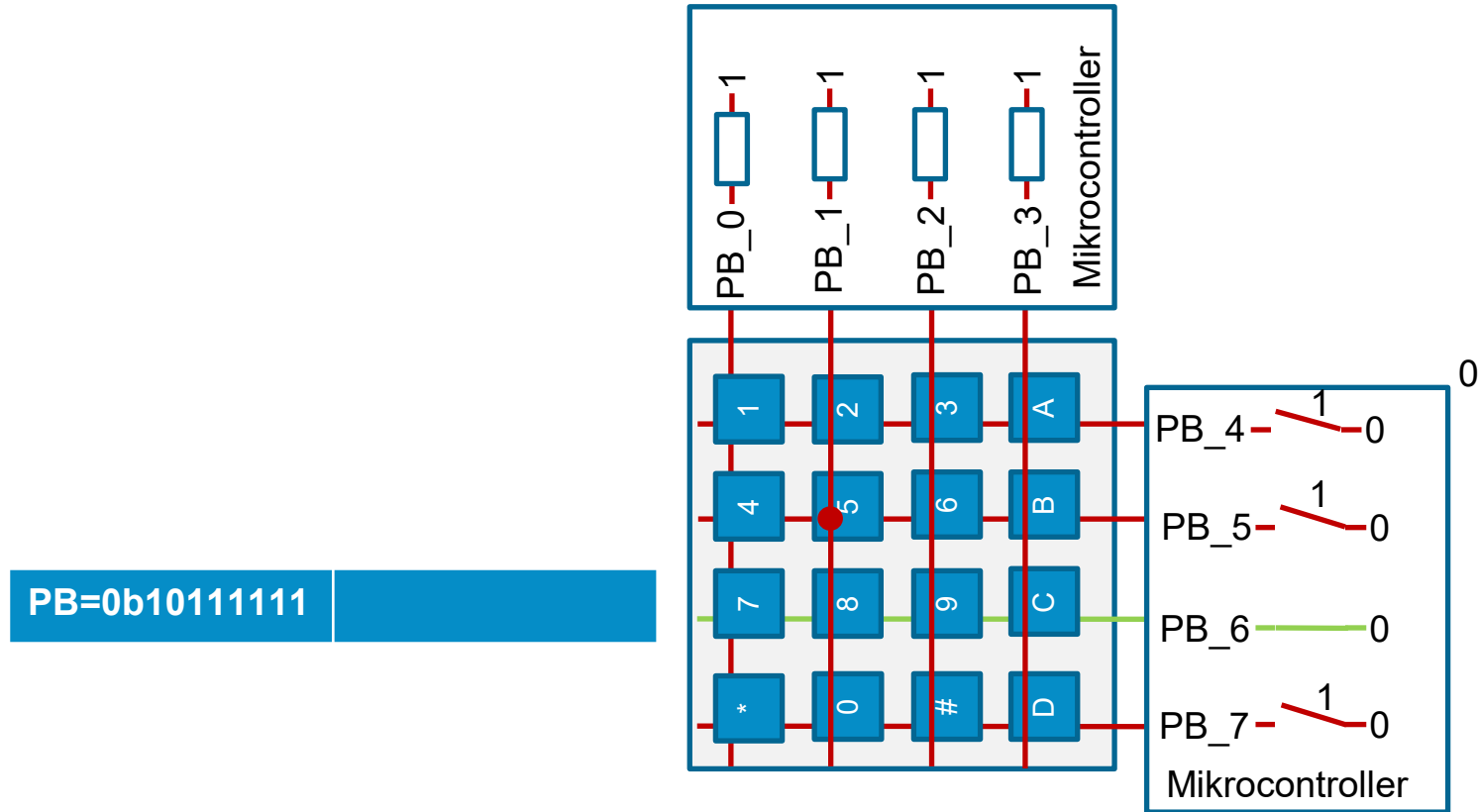
## Matrixtastatur abscannen - Polling



## Matrixtastatur abscreiben - Polling



## Matrixtastatur abscannen - Polling



## Matrixtastatur abscannen - Polling

