

Übungen zu Systemnahe Programmierung in C (SPiC) – Sommersemester 2025

Übung 4

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Lehrstuhl für Informatik 4
Systemsoftware



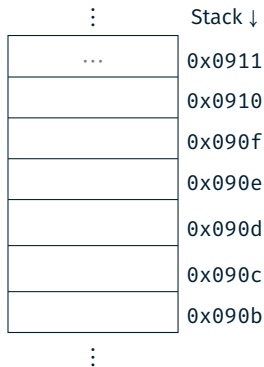
Friedrich-Alexander-Universität
Technische Fakultät

Vorstellung Aufgabe 2

Zeiger & Felder

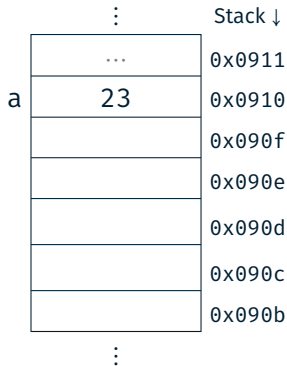
- Variable: `uint8_t x`
- Zeiger: `uint8_t *y`
- Adressoperator: `&x`
- Verweisoperator: `*y`

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01 uint8_t a = 23;  
02 uint8_t b = 42;  
03 uint8_t * p = &a;  
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05 p = &b;  
06 *p -= 40;  
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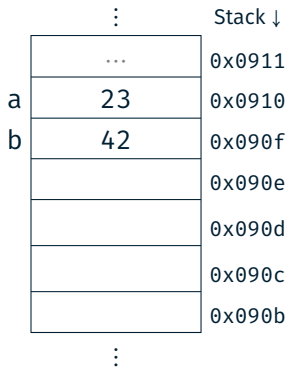
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Achtung: Die genaue Anordnung der Variablen auf dem Stack ist abhängig vom Übersetzer und den gewählten Optimierungen!

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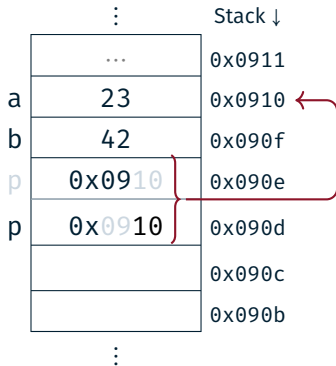
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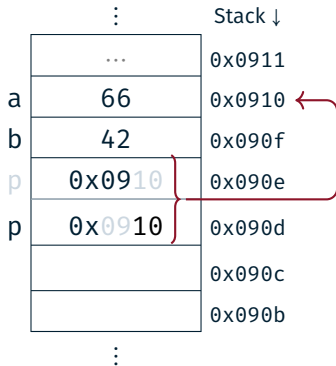
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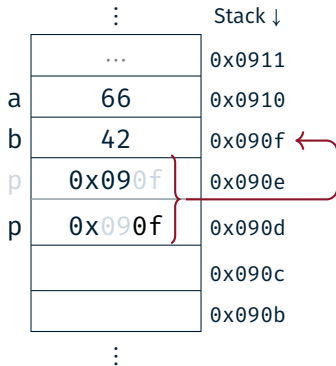
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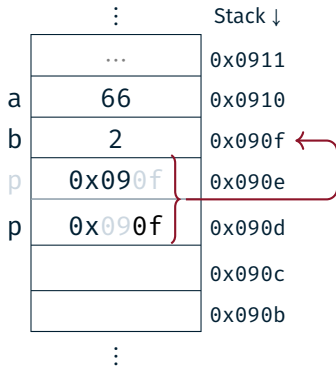
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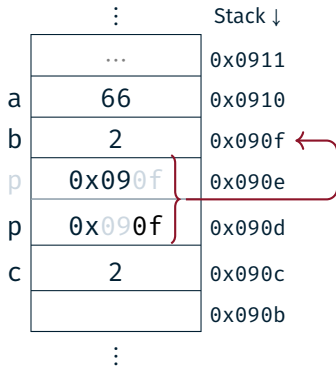
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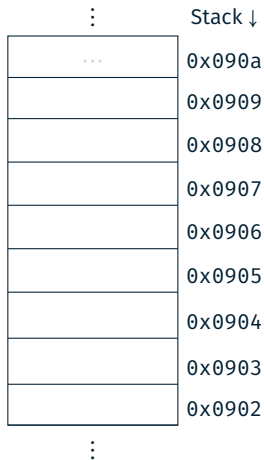
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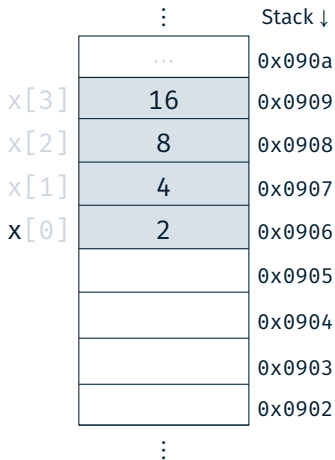
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08 uint8_t x[] = {2,4,8,16};
09 uint8_t *y = x;
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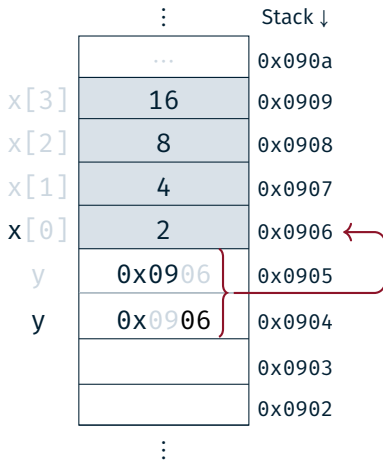
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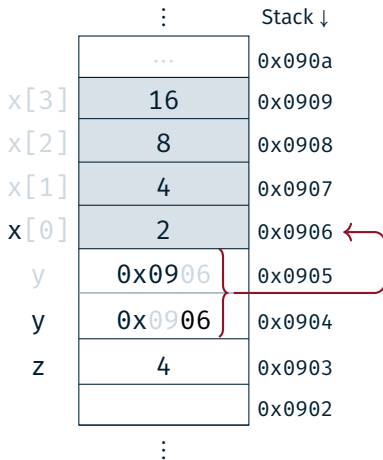
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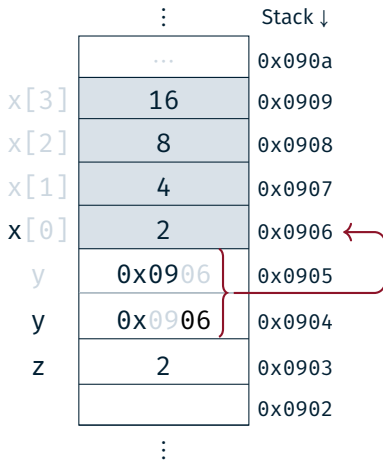
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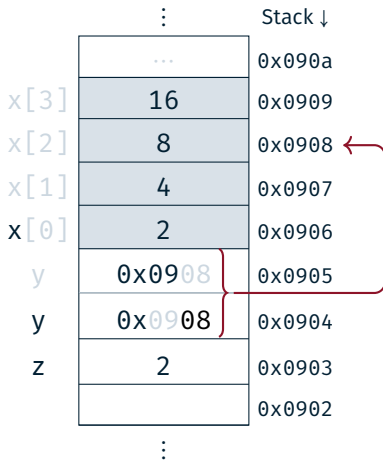
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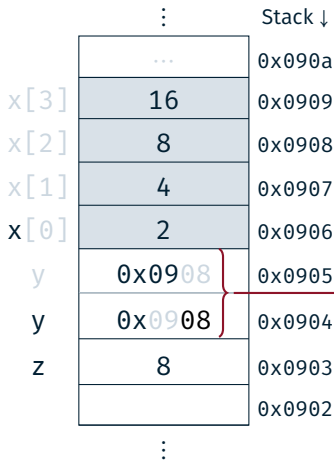
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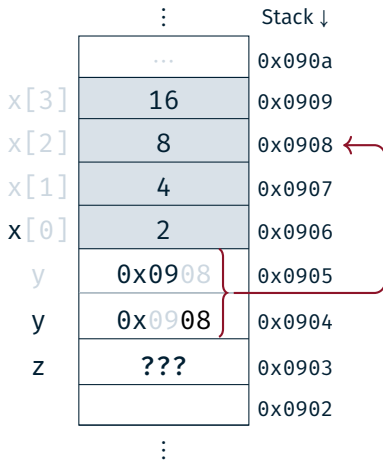


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Undefiniertes Verhalten!

Felder Zugriff außerhalb des definierten Bereichs



Hands-on: Zeiger

Kein Screencast



- Call-by-Value vs. Call-by-Reference
- Zeiger und Felder
- Zeigerarithmetik
- `struct` für GPS-Koordinaten
- Feld von GPS-Koordinaten
- Funktionszeiger

Kompilierbar für das SPiCboard (serielle Konsole), den SPiCsim oder Linux

Quellcode:

<https://sys.cs.fau.de/extern/lehre/ss25/spic/uebung/material/pointer.c>