

Der Mikroprozessor

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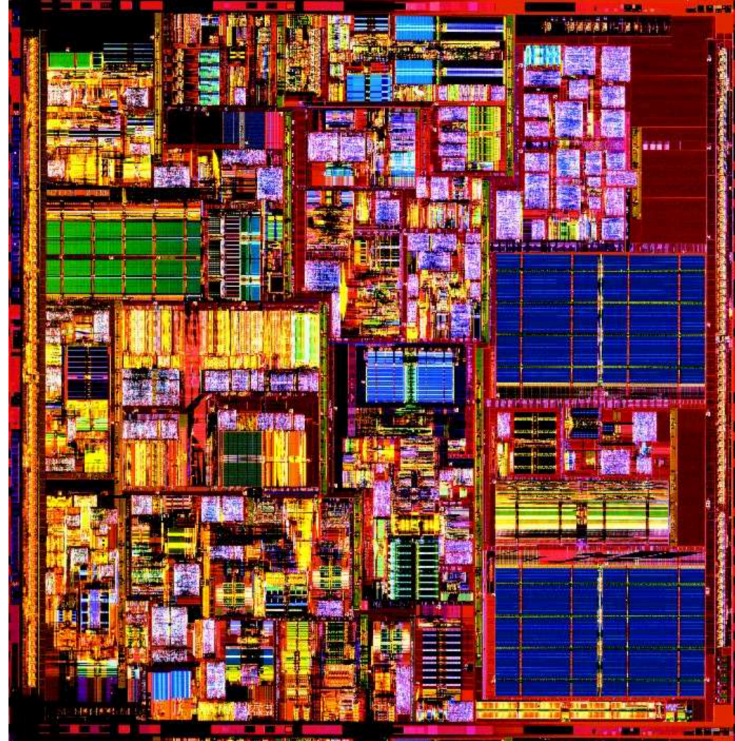
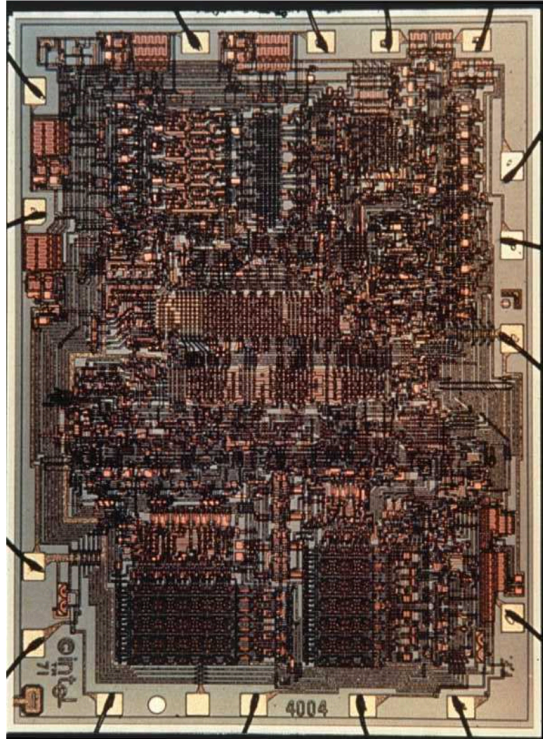
Wintersemester 2015/2016

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- Anwendungszwecke
- Ausblick

- **Herstellung**
- Aufbau & Funktionsweise
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- Ausblick

Integrierter Schaltkreis



Silizium



Sand



Schmelze



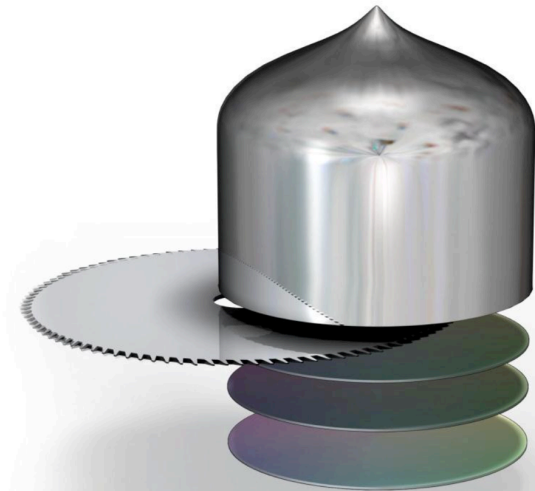
Barren



Schnitt



Schnitt



Scheibe



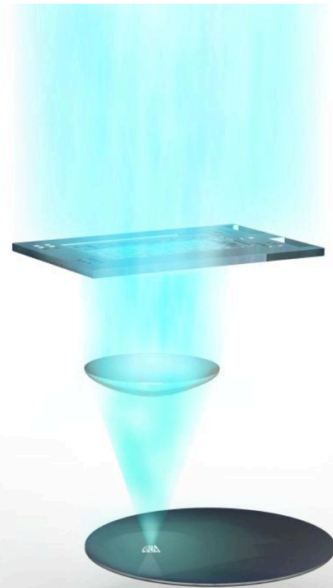
Photolithographie



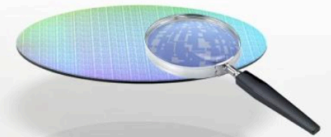
Photolack



UV Licht



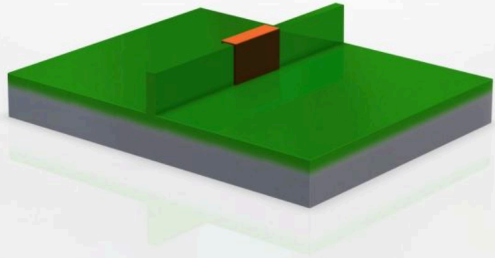
Wafer



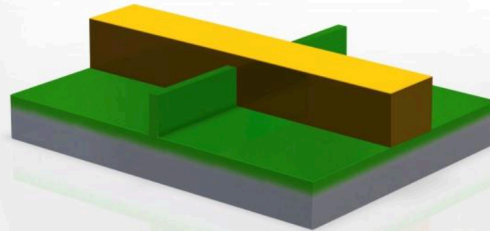
Photolithographie



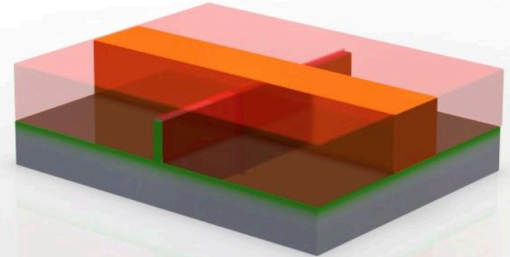
Ätzen



Gates



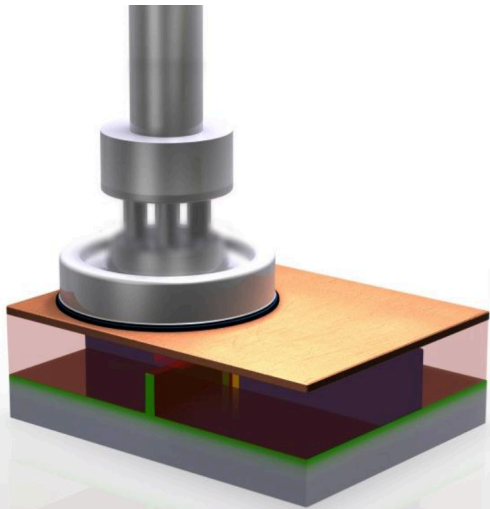
Isolieren



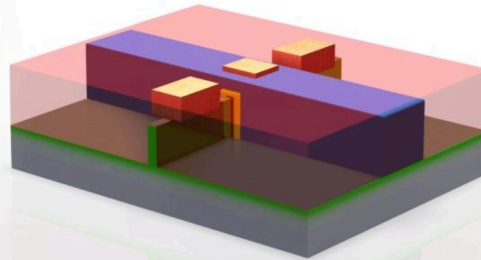
Photolithographie



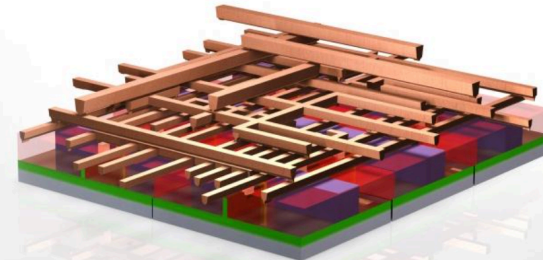
Kupfer



Poliert



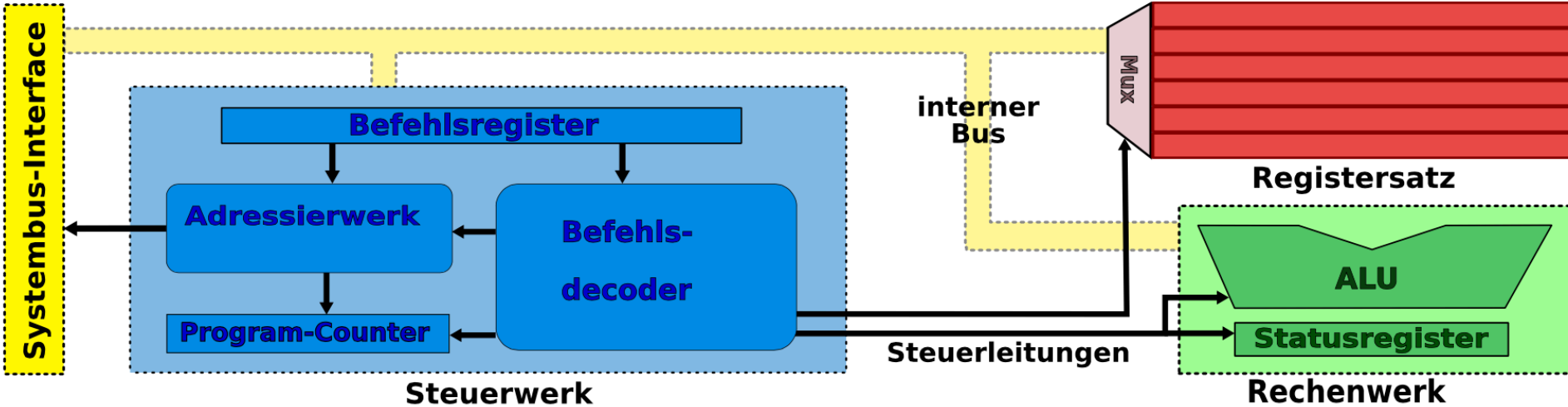
Schaltung





- Herstellung
- **Aufbau & Funktionsweise**
- Anwendungszwecke
- Ausblick

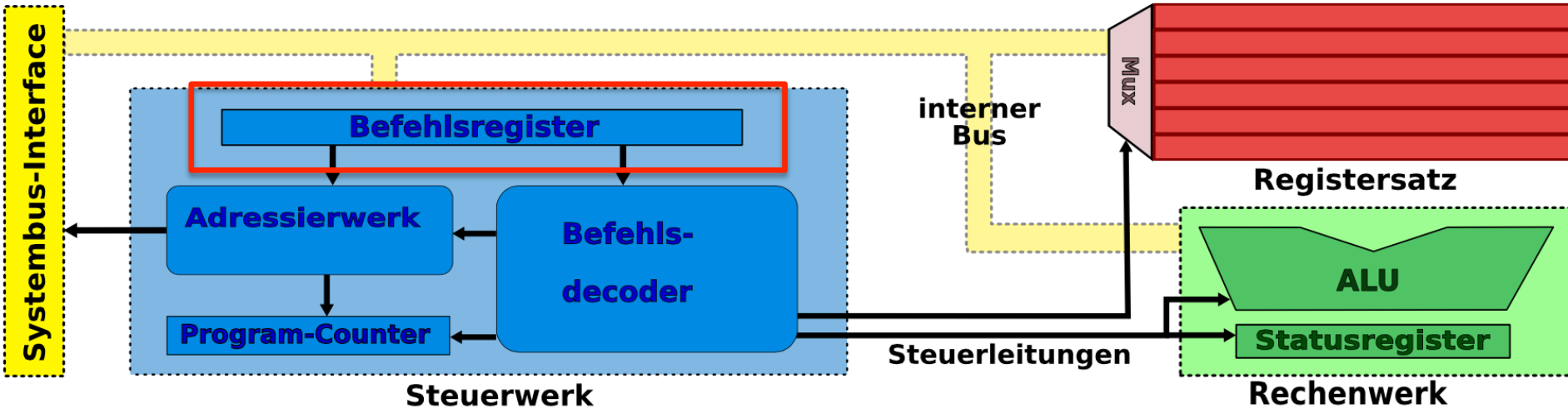
Aufbau



Funktion



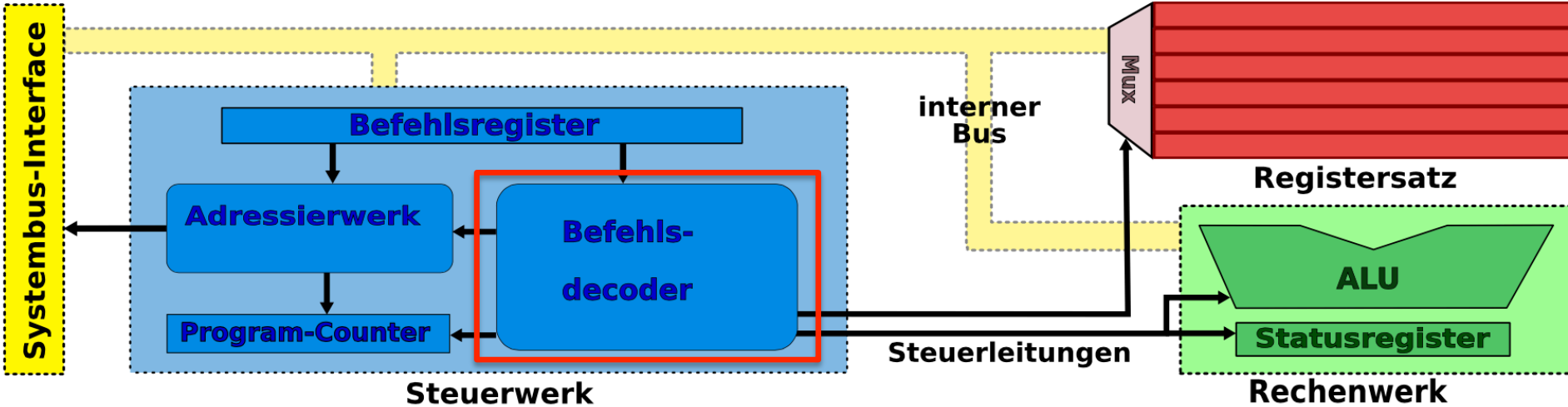
Fetch



Funktion



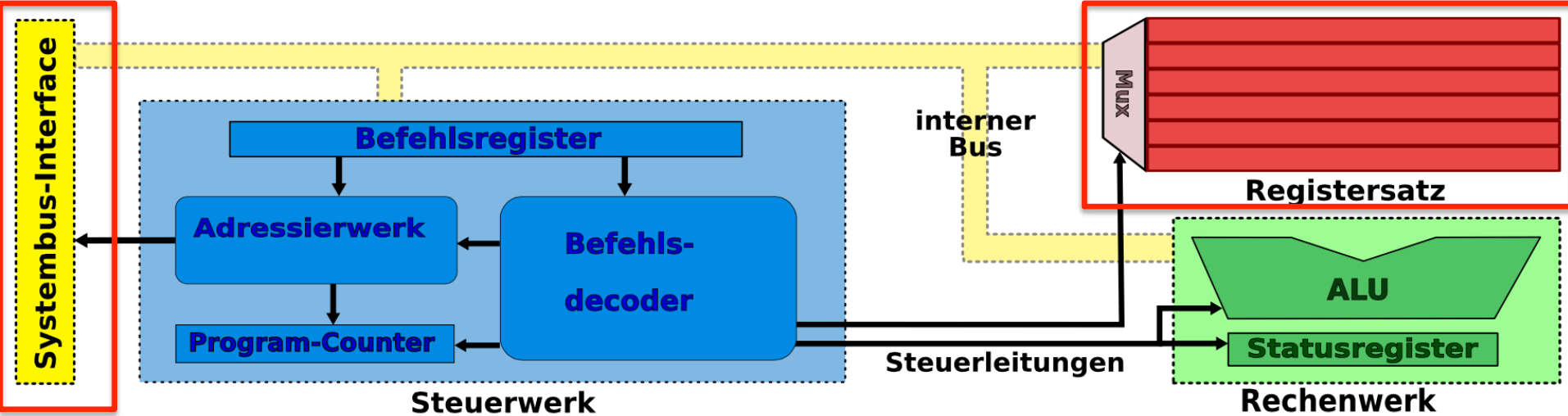
Decode



Funktion



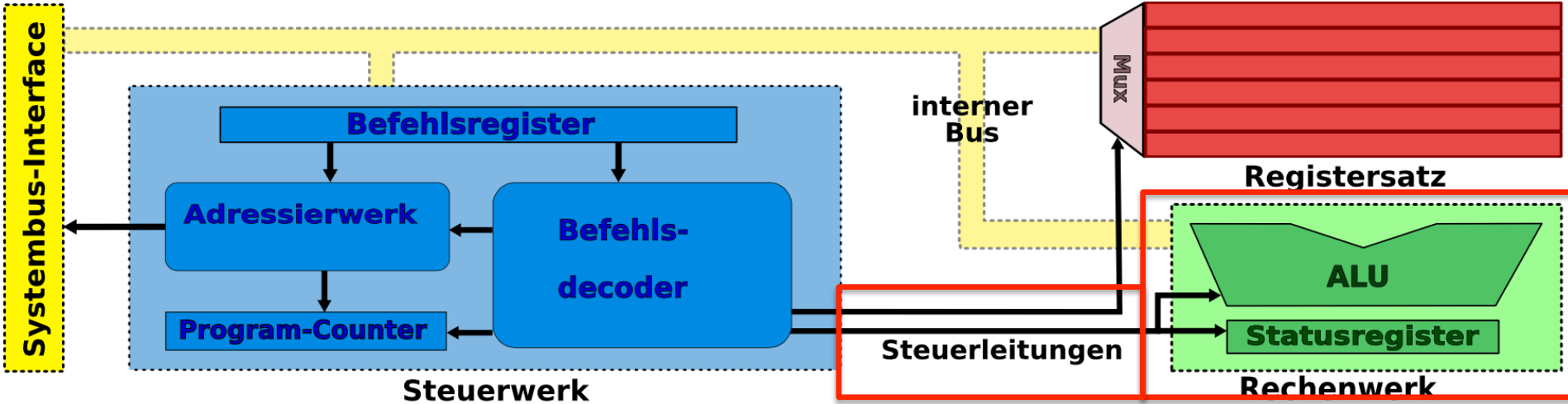
Fetch Operands



Funktion



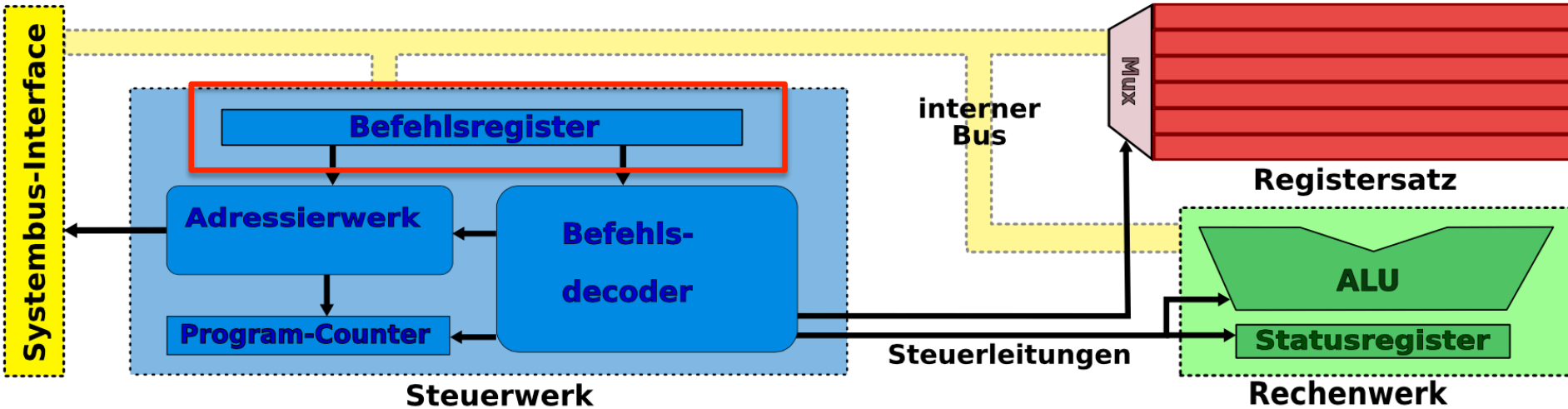
Execute



Funktion



Update Pointer



Zusammenfassung



Fetch Adresse des Befehls auslesen

Decode Befehl interpretieren

Fetch Operands Operatoren auslesen

Execute Operation durchführen

Update Pointer Nächsten Befehl suchen

- Herstellung
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Spezifische Prozessoren



CPU

Digitale Signalprozessoren

Mathematische Prozessoren

Grafikprozessoren

Soundprozessoren

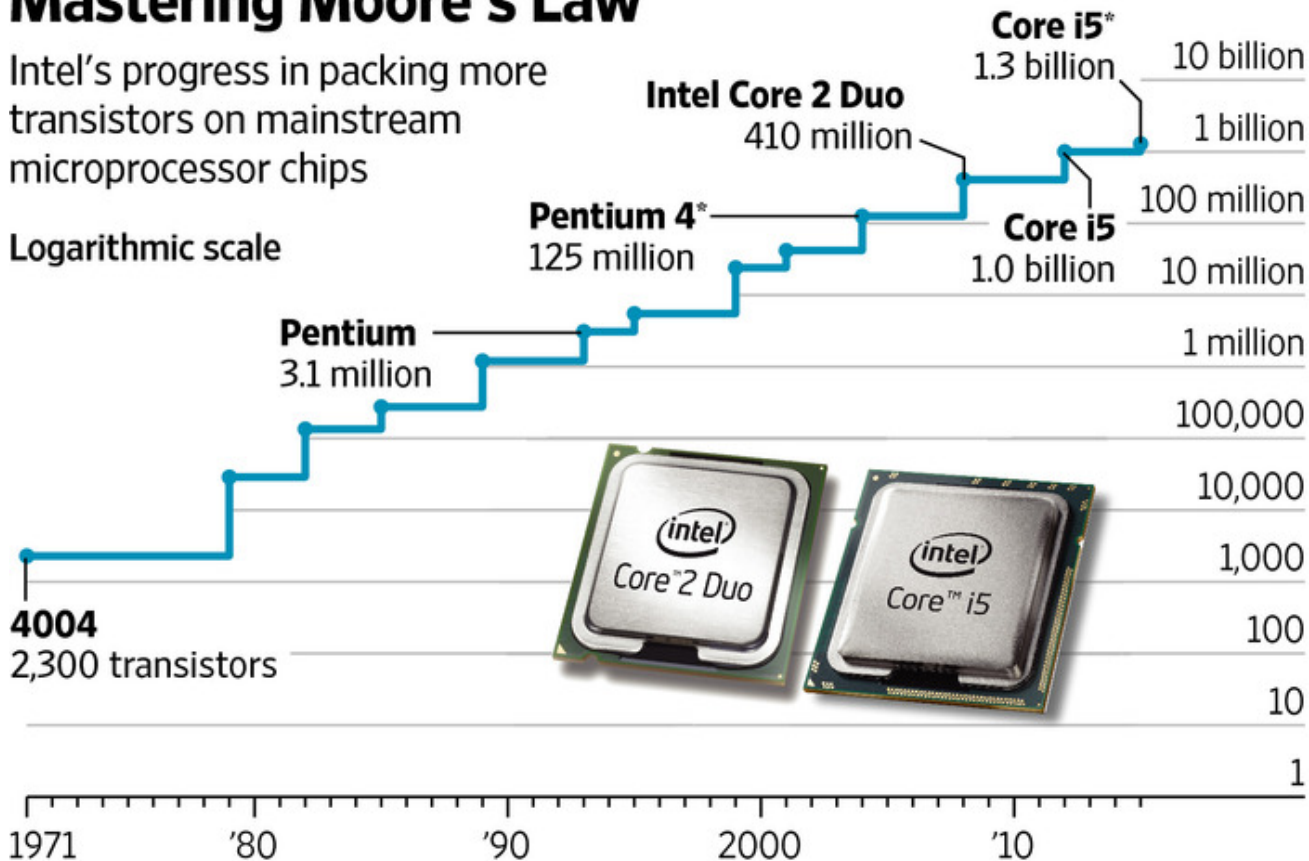
Physikbeschleuniger

- Herstellung
- Funktionsweise
- Anwendungszwecke
- **Ausblick**

Mastering Moore's Law

Intel's progress in packing more transistors on mainstream microprocessor chips

Logarithmic scale



*Upgraded versions of prior models

Source: Intel

THE WALL STREET JOURNAL.

Ausblick



Heute 14 nm Transistoren

Grenze? 5 nm (Tunneleffekt)

Quanten Computer