

Advanced CPU design and optimization

Nico Fröhlich

Troblecodings

July 21, 2020

Quellen und weiterführende Inhalte

- Intel® 64 and IA-32 Architectures Software Developer's Manual
- Software Optimization Guide for AMD64 Processors
- Intel® 64 and IA-32 Architectures Optimization Reference Manual
- Chandler Carruth, Matt Godbolt, Andrei Alexandrescu ...
- Mike Acton

Das was alle CPUs gemeinsam haben:

- Clock (Oszillator)
- Fetch-Decode Cycle
- Instruction Counter

Fetch - Decode - Execute Cycle

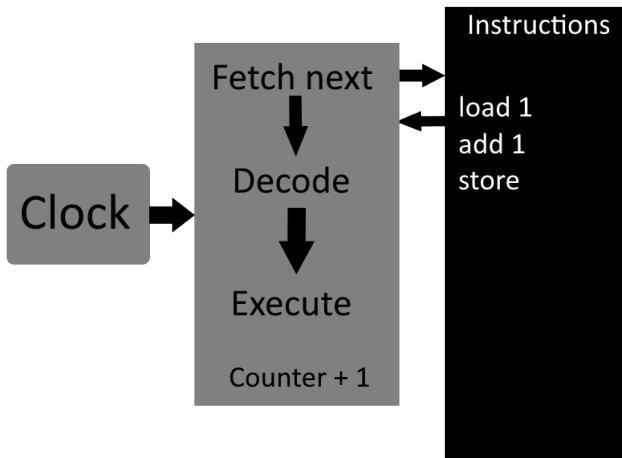


Figure: CPU Cycle

Let's talk cache

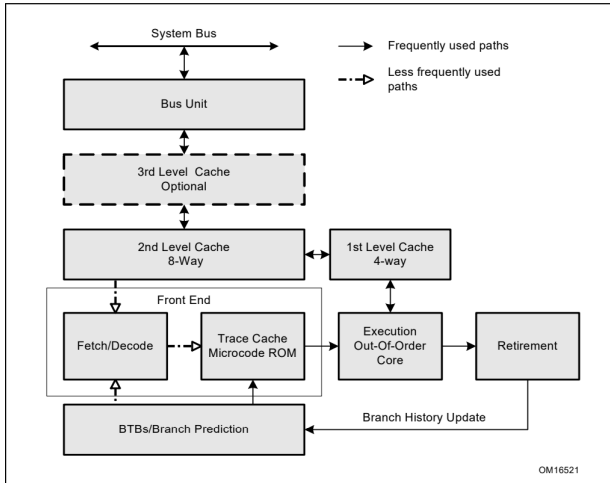


Figure: The Intel NetBurst Microarchitecture

Linked Lists

<https://www.quick-bench.com/q/Ev6U1Owr7WKTbzyNgCol7vEJq4o>