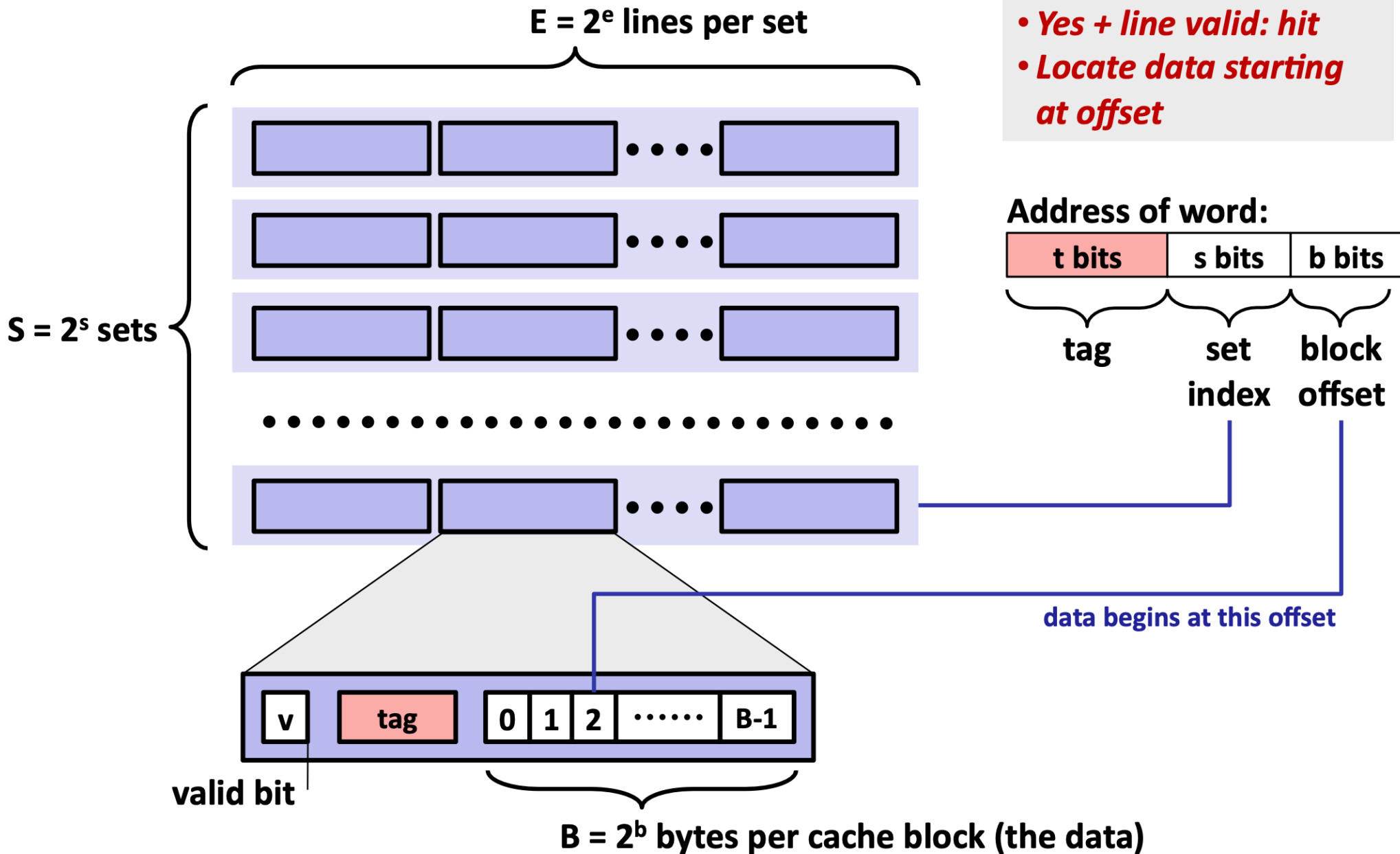
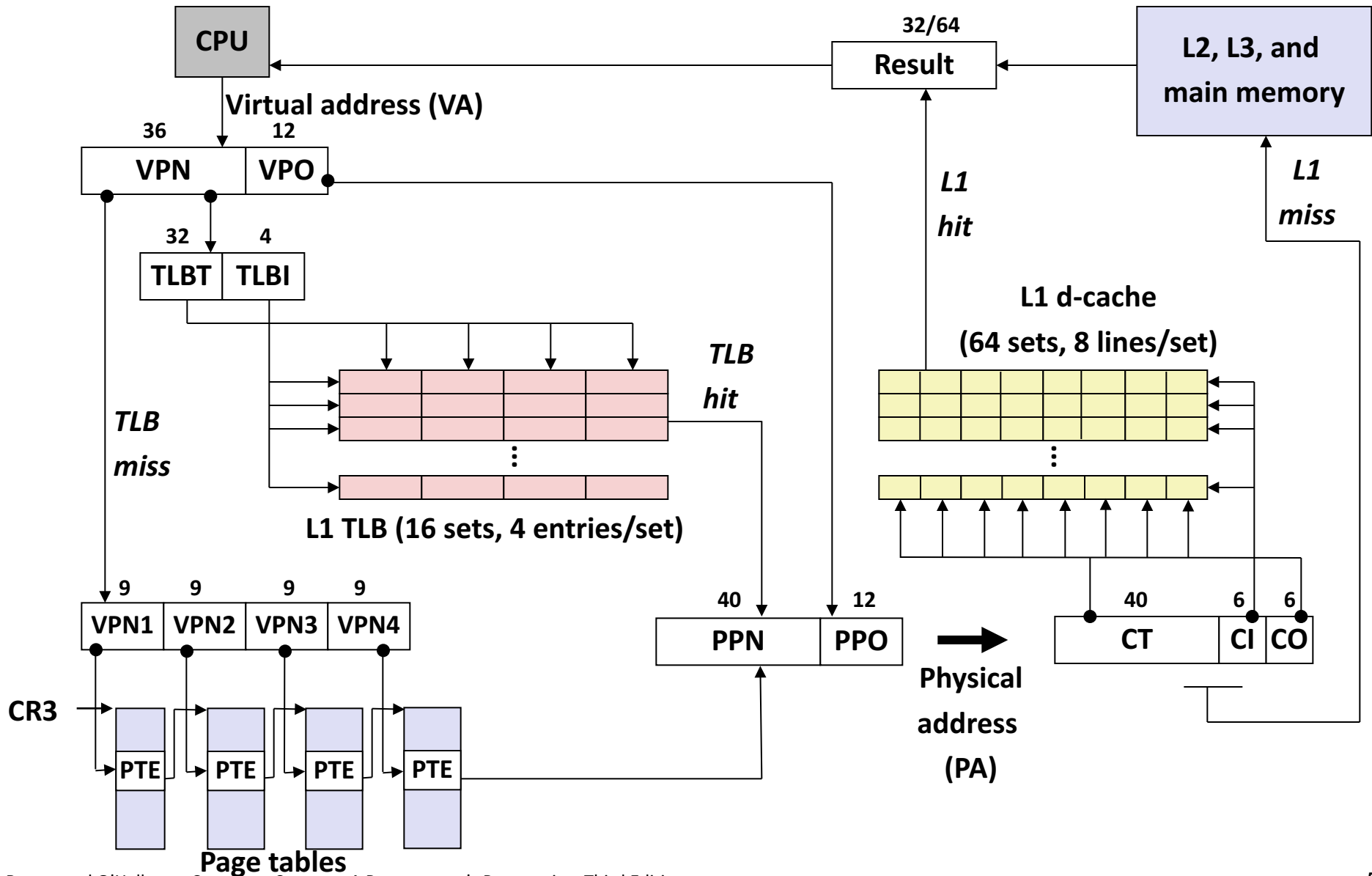


Cache Read

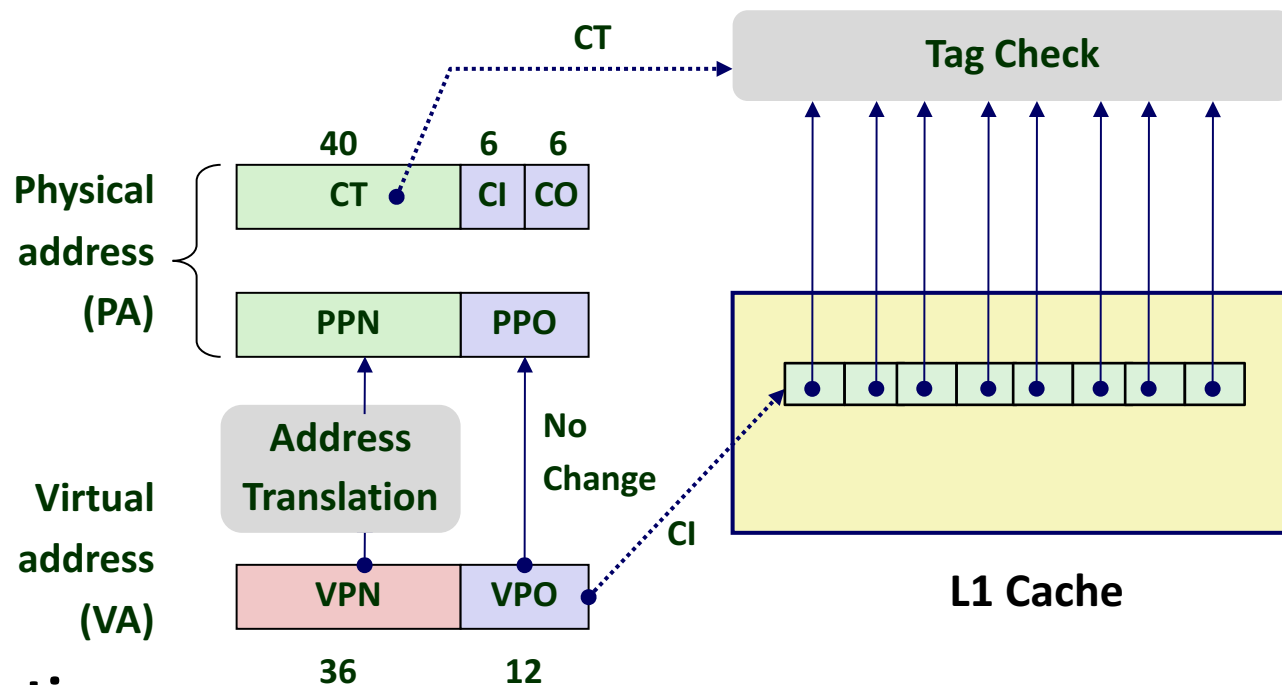
- *Locate set*
- *Check if any line in set has matching tag*
- *Yes + line valid: hit*
- *Locate data starting at offset*



End-to-end Core i7 Address Translation



Cute Trick for Speeding Up L1 Access



■ Observation

- Bits that determine CI identical in virtual and physical address
- Can index into cache while address translation taking place
- Cache carefully sized to make this possible: 64 sets, 64-byte cache blocks
- Means 6 bits for cache index, 6 for *cache* offset
- That's 12 bits; matches *VPO*, *PPO* → One reason pages are 2^{12} bits = 4 KB

Virtual Address Space of a Linux Process

