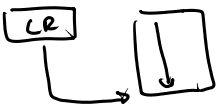
26 May 2020 13:38

VM for large memory addresses

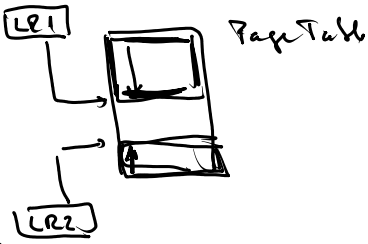
ARM V8 Page Table size = 2^{48-12} entries × 64 bits per entry = $2^{36} \times 2^3 B = 2^{39} B$ = 0.5 TiB

Solutions?

1. Limit register



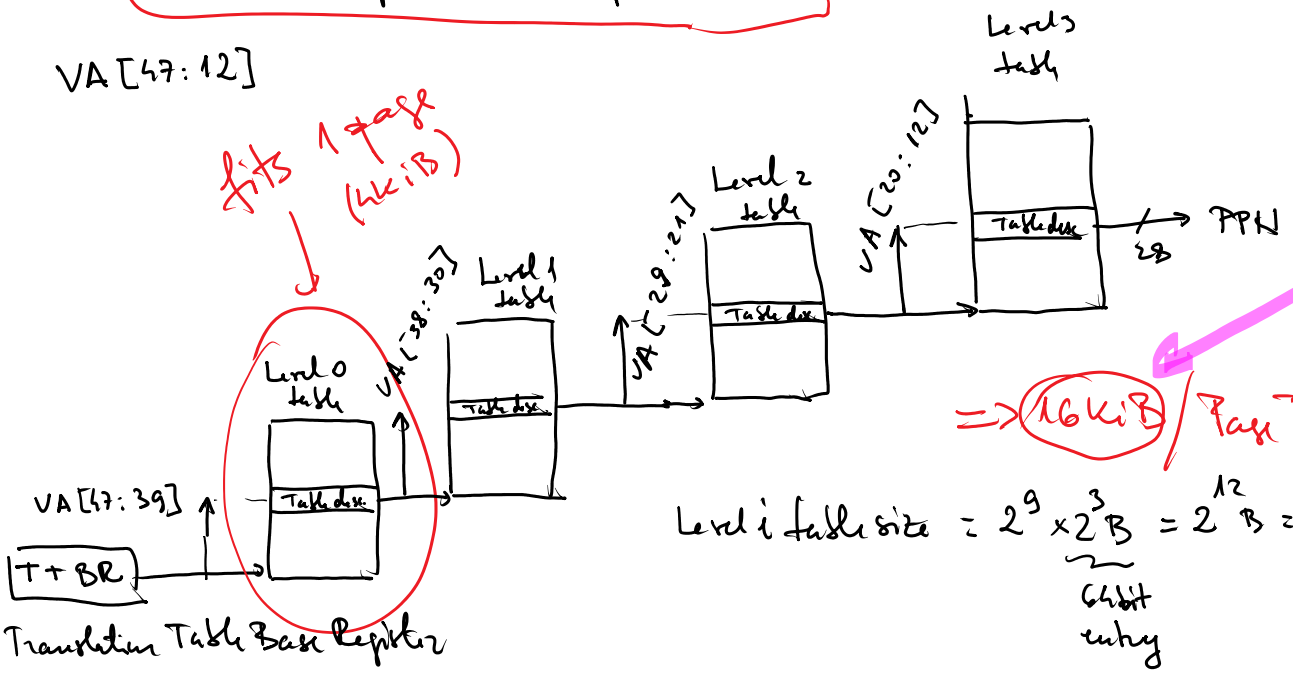
2. Stack, heap – size growth



3. Inverted page table (Hash)
4. Page tables are paged
5. Multiple levels of page tables

} ARM V8

VA [47:12]



=> 16 KiB / Page Table

Level i table size = $2^9 \times 2^3 B = 2^{12} B$ = 4 KiB

64 bit entry