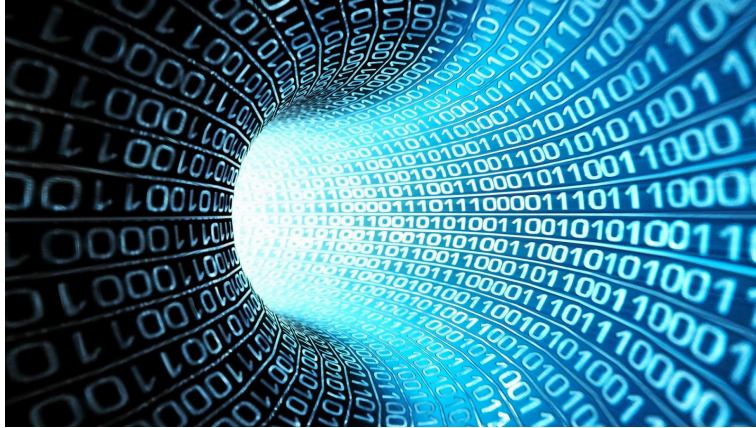
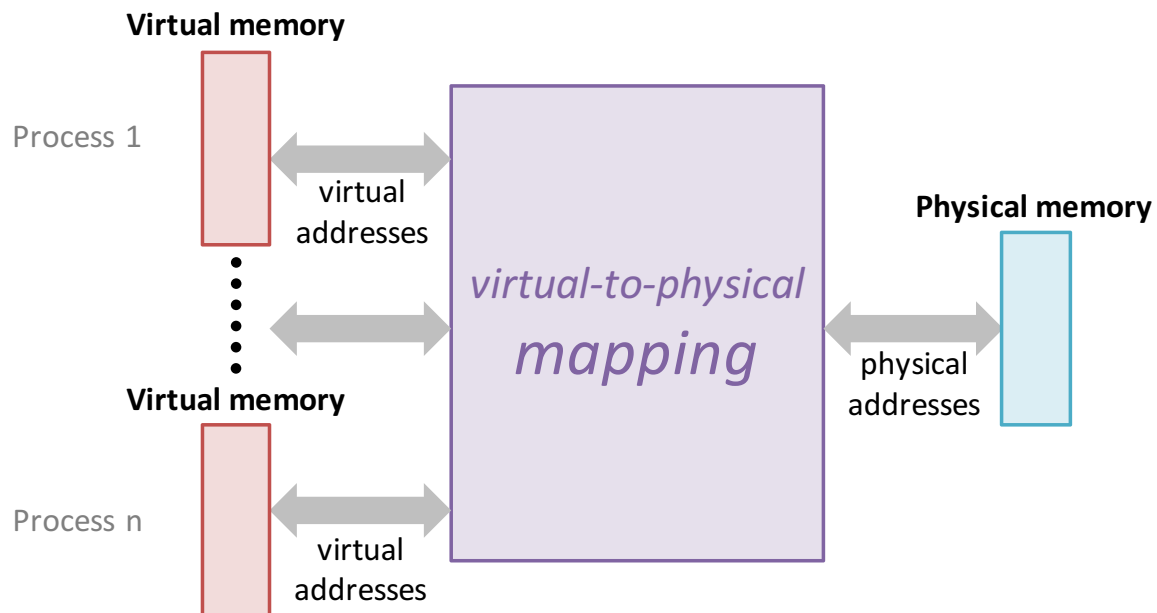


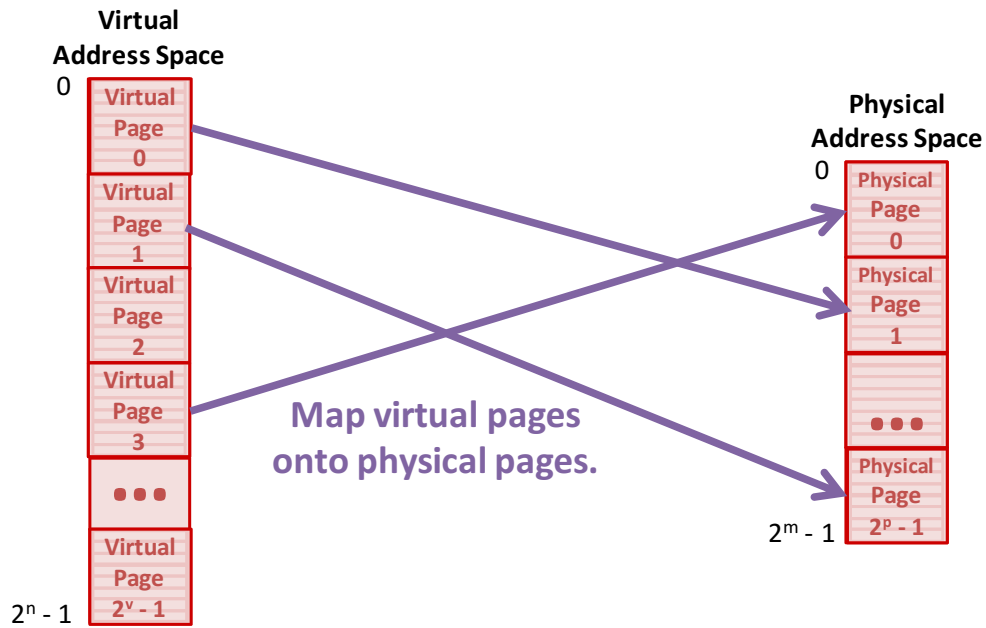
# Virtual Memory (and a bit more...)



## Virtual and Physical Addresses

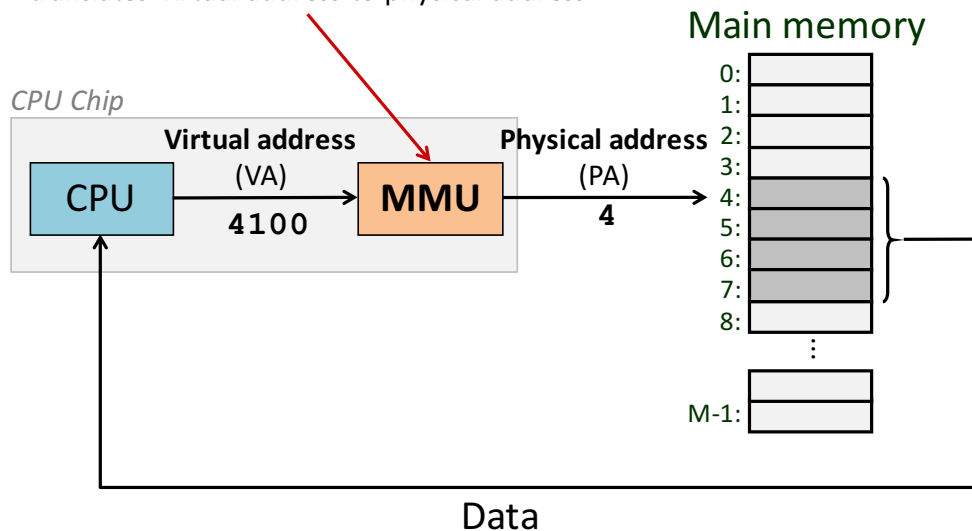


# Memory Pages

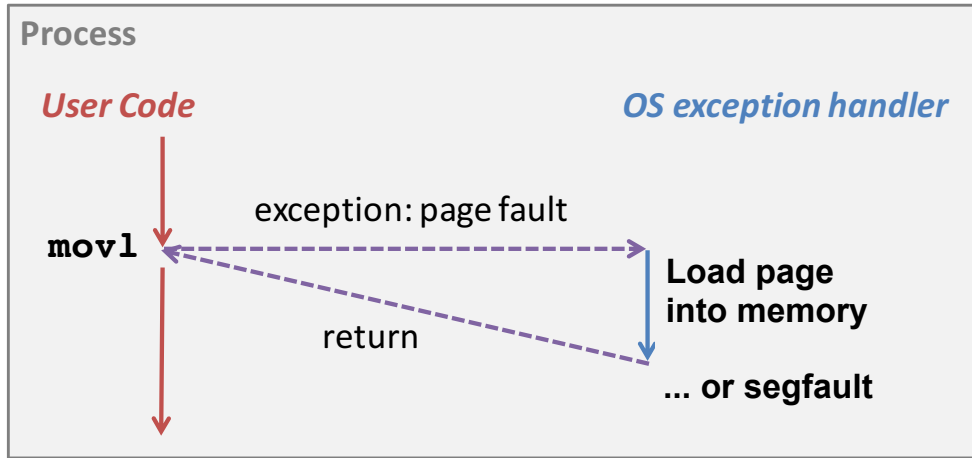


# Address Translation

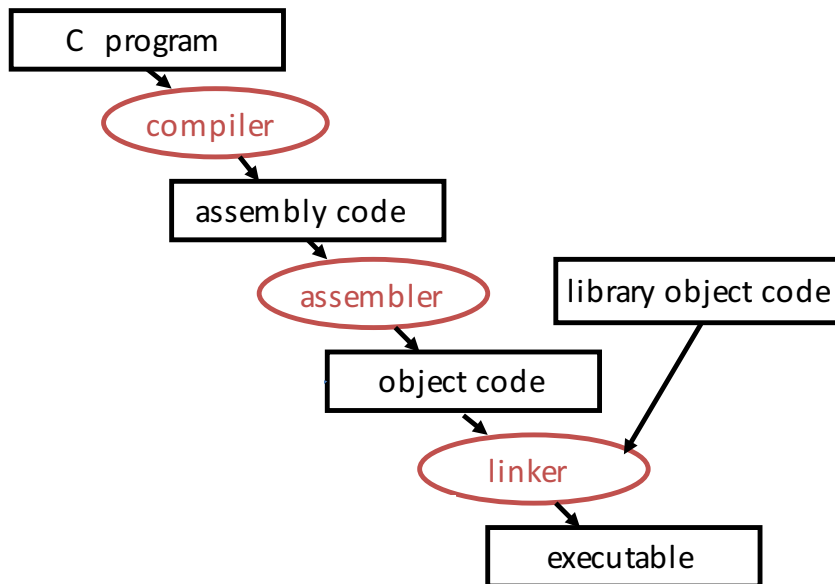
**Memory Management Unit**  
translates virtual address to physical address



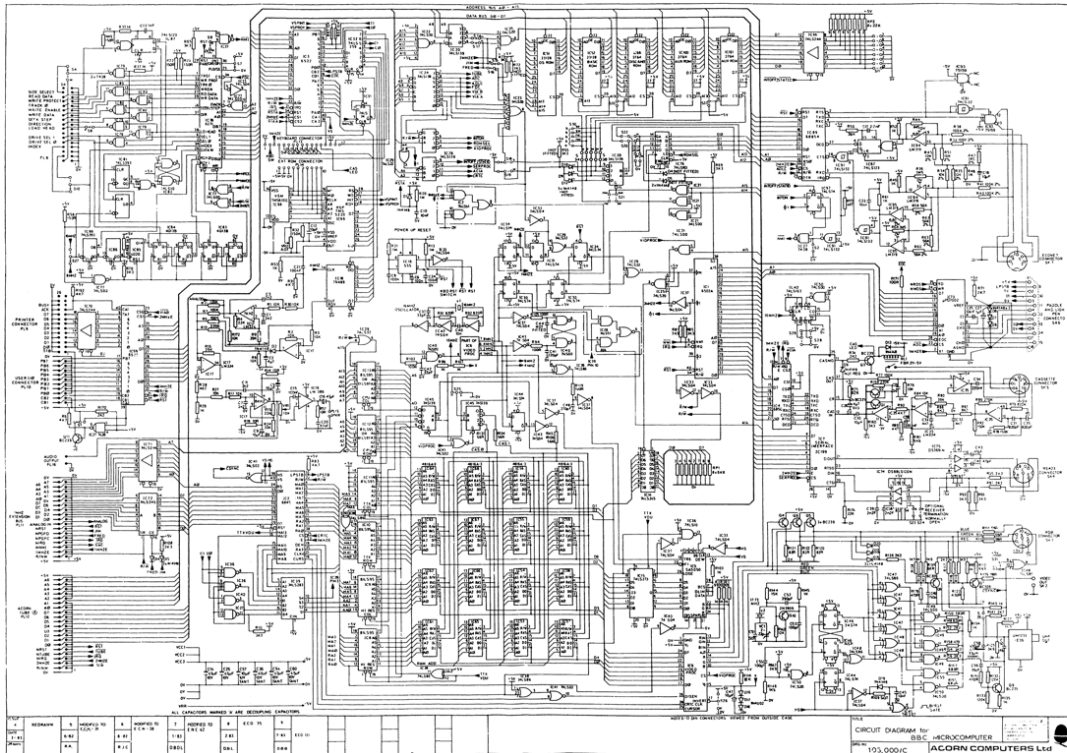
# Page Fault



# Program Generation Workflow



# Circuits and Digital Logic



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7

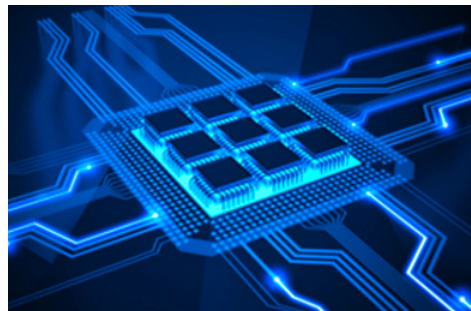
# Big Ideas in Systems

**Abstraction**

**Representation**

**Performance**

**Security + Reliability**



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8