

Types of Assembly Languages

- Assembly language closely tied to processor architecture
- At least four main types:
 - CISC: Complex Instruction-Set Computer
 - RISC: Reduced Instruction-Set Computer
 - DSP: Digital Signal Processor
 - VLIW: Very Long Instruction Word

Common used registers

- general-purpose registers

| |
|-----|
| eax |
| ebx |
| ecx |
| edx |

- Source index
- Destination index
- Base pointer
- Stack pointer
- Instruction Pointer (PC)

| |
|-----|
| esi |
| edi |
| ebp |
| esp |
| eip |

Instructions

| | |
|-------------------------------------------|-------------|
| Data Movement Instructions | mov |
| | push |
| | pop |
| | lea |

| | | |
|------------------------------------------|----------------------|------------------------------------|
| Control Flow Instructions | jmp | e.g. jmp <label> |
| | je , jne , jz | e.g. je <label> |
| | jg , jge | e.g. jg <label> |
| | jl , jle | e.g. jl <label> |
| | cmp | e.g. cmpl \$5, %eax jle <label> |
| | call, ret | e.g. call <label> ret |

| | |
|--------------------------------------------------|---------------------|
| Arithmetic and Logic Instructions | add, sub |
| | inc, dec |
| | imul, idiv |
| | and, or, xor |
| | not |
| | neg |
| | shl, shr |