

# Princeton University

## COS 217: Introduction to Programming Systems

### IA-32 Registers

#### General Purpose Registers

EAX	AX
	AH                      AL
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08   07 06 05 04 03 02 01 00

Accumulator for operands and results data. Stores function return values.

EBX	BX
	BH                      BL
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08   07 06 05 04 03 02 01 00

Accumulator for operands and results data. A function that alters EBX must restore it before returning.

ECX	CX
	CH                      CL
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08   07 06 05 04 03 02 01 00

Accumulator for operands and results data. Counter for string and loop operations.

EDX	DX
	DH                      DL
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08   07 06 05 04 03 02 01 00

Accumulator for operands and results data. I/O pointer.

ESI	SI
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00

Accumulator for operands and results data. Source pointer for string operations. A function that alters ESI must restore it before returning.

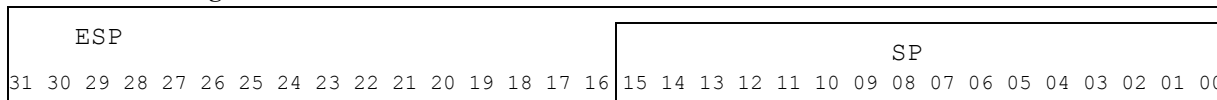
EDI	DI
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00

Accumulator for operands and results data. Destination pointer for string operations. A function that alters EDI must restore it before returning.

## General Purpose Registers (Stack Related)



**Base Pointer Register.** Pointer to bottom of current stack frame.



**Stack Pointer Register.** Pointer to top of current stack frame.

## Status and Control Register



Condition code bits indicating the result of the most recent cmp instruction (and other instructions), and other control and status bits.

## Instruction Pointer Register



Address of the next instruction to be executed