

# 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)

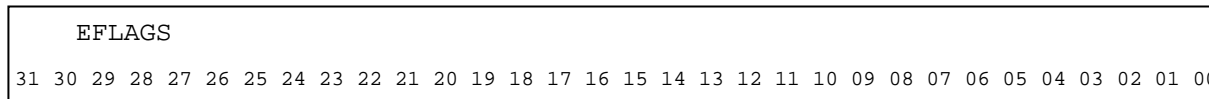


**Base Pointer Register.** Pointer to bottom of current stack frame.



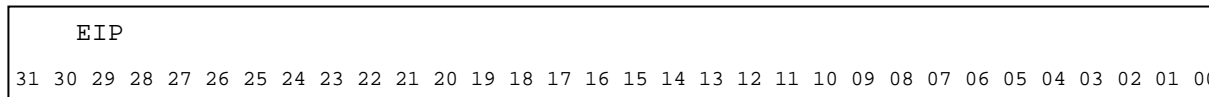
**Stack Pointer Register.** Pointer to top of current stack frame.

## 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