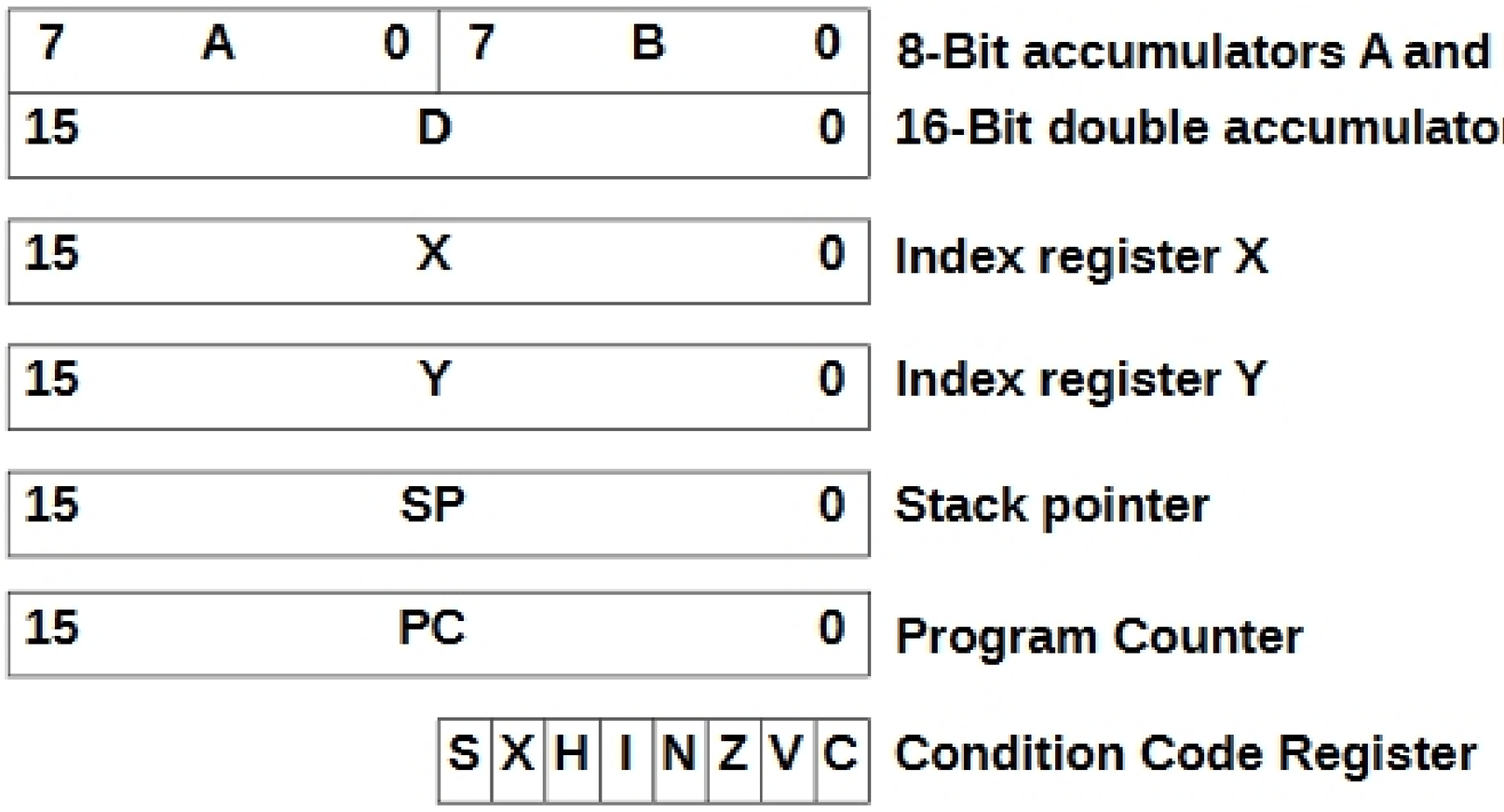
Data values in 68HC11 registers.

Recall that registers A and B are 8-bit registers and that registers D, X, and Y are 16-bit registers. Since the registers contain ***signed binary numbers*** note that:

- If the MSB = 0, the value is positive
- If the MSB = 1, the value is negative and in 2's complement form



Example: Determine the value stored in each register below in decimal form:

Register A

0	0	0	1	1	0	0	1

→ _____ **(decimal value)**

Register B

1	1	0	1	1	1	0	0

→ _____ **(decimal value)**

Register X

0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0

→ _____ **(decimal value)**

Register X

1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1

→ _____ **(decimal value)**

Example: Determine the largest and smallest (most negative) values that can be stored in registers A and X.

Register	Largest Value	Smallest value
A		
X		

Memory Addresses in 68HC11 registers.

Note that memory addresses are NOT ***signed binary numbers*** so no sign bit is used.

Example:

So if an 8-bit memory address is specified (2 hexadecimal digits) as in the examples below, what is the largest and smallest memory address?

STAA $00 → memory address = _____ (decimal form)

STAA $FF → memory address = _____ (decimal form)

total amount of memory addresses with 8 bits: _____

Example:

So if an 16-bit memory address is specified (4 hexadecimal digits) as in the examples below, what is the largest and smallest memory address?

STAA $0000 → memory address = _____ (decimal form)

STAA $FFFF → memory address = _____ (decimal form)

total amount of memory addresses with 16 bits: _____