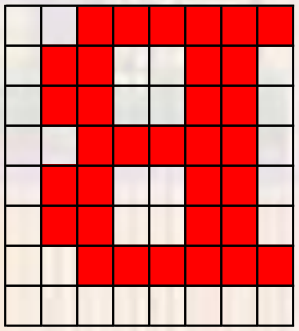
VGA Lab Note

Last updated 7/19/23

VGA Lab Note

- Character ROM
  - Displayed Character size: 1 byte x 8 words = 8 bytes
  - REVERSED



  - 32 characters
  - ROM size: 8 Bytes x 32 characters = 256B

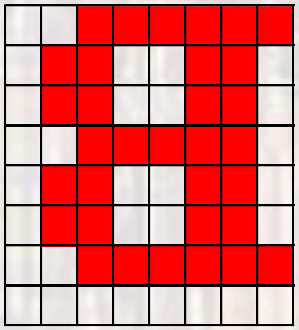
VGA Lab Note

- Character ROM
  - 32, 8 byte characters
  - Memory Address

$$b_7 b_6 b_5 b_4 \; b_3 b_2 b_1 b_0$$

32 possible characters 8 bytes /letter

  - Memory Addresses
    - B – 00001 xxx
    - Z – 11001 xxx



VGA Lab Note

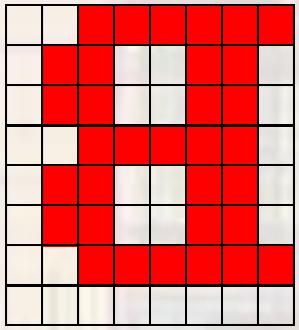
- Character ROM
  - Memory Address

$$b_7 b_6 b_5 b_4 \; b_3 b_2 b_1 b_0$$

32 possible characters 8 bytes /letter

  - Memory Addresses
    - B – 00001 xxx

Address	Value
0000 1000	0x3F
0000 1001	0x66
…	
0000 1110	0x3F
0000 1111	0x00



Note:
address 000 is top
address 111 is bottom

VGA Lab Note

- How to display characters
  - B – 00001 xxx
  - Z – 11001 xxx
  - Display each character for 1 sec
    - Loop 5 memory address MSB bits at 1 sec interval
  - Display a character
    - Synchronize the 3 memory address LSB bits to pixel_x and pixel_y

      or
    - Create a mini-display buffer

      or
    - Create a full display buffer

VGA Lab Note

- Display Characters
  - Why are the characters in the memory backwards???