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CPE 301 - 1104, Fall 2016

Homework 2 Part 2

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8. a. 8 chips are needed. The address lines are shared by all the chips, and each chip provides one bit of the selected word.

b. 128 chips are needed. There will be 16 groups of 8 chips. All chips will share the same address lines, and when an address is selected 8 chips will each provide 1 bit of the selected word.

9. The last address in a 12-bit address bus would be:

Decimal: 4095

Binary: 1111 1111 1111

Octal: 7777

Hex: FFF

10.

11. The processor has 16MB of memory. 16MB/64K = 256 blocks.

12. The first address (the top of the block) will be 0x000000. The last address (the bottom of the block) will be 0x0FFFFF.

13. The address at the top of block 3 will be 0x6000. The address at the bottom of block 3 will be 0x7FFF.

14. 4Meg = 222. The address bus is 22 bits wide.

15. a. The chips are of equal value where 3n + 10,000 = 30n. This is at n = 307. If buying more than 307 units, using the 805I is justified.

b. If buying 3000 units, the 805I will cost $19,000. The 8751 would cost $90,000. $71,000 would be saved by using the 805I.