Zach Hall

ECE 3730

Fundamental

2.

3. Variants differ mainly in EEPROM size, flash memory size, number of I/O channels, and serial communications configurations.

4. Normal Expanded Wide Mode utilizes the full 16-bit data bus. Ports A and B are used for 16-bit addressing while ports C and D are used as 16-bit a 16-bit data bus. To use this mode of operation a user has to set the MODA, MODB, and MODC pins all to 1.

5. The HC12 has a 2-Kbyte block of space that can be mapped anywhere within the standard 64-Kbyte address space. The S12 can be mapped to any 2-Kbyte space within the first 32 Kbytes of memory.

6. Port AD is used as either an analog-to-digital converter system or as a general-purpose input port.

7. The HC12 has 4 Kbyte of EEPROM memory. The S12 also has 4 Kbytes of EEPROM memory.

Advanced

1. A maskable interrupt may be ignored, but a nonmaskable interrupt may not be ignored. Nonmaskable interrupts have a higher priority because they must be executed at the time of arrival.

2. An interrupt is an asynchronous signal sent to the cpu that can suspend execution of a program until the interrupts subroutine has finished execution. When an interrupt occurs, a computer finishes the current instruction it is executing, stores key register values, and then runs the interrupt service routine. After the ISR has finished, key register values are restored and the program continues where it left off.

6. Data direction registers define a pin as an input or an output

7.

8. 65, 535 is the maximum count of the counter

9. The timer will rollover every 131,070 microseconds = 131.07 milliseconds = 0.13107 seconds

14. Yes, the SB2 can drive the DP1. The fanout will be:

IOH/IIH = -0.4 mA/.020 mA = 20 chips

IOL/IIL = 16 mA/-0.4mA = 40 chips