

Questions that might be on the quiz:

Memory stores data and parity bits

When reading the data, generate a set of new parity bits - stored and new

If they are identical, then nothing changed in the parity bits

When you XOR the two, the syndrome word will be all zeros if nothing has changed

Syndrome word - used to determine where the bit flips happened

-If a stored value had a single bit error in the data bits, the the binary representation of the syndrome word would be made from two or more ones with the possible of all ones

-if a stored value had a parity error, then exactly one bit would flip

-if both the data and parity had multiple bit errors, it cannot be determined where the error is.

$2^K \geq 1 + K + M$

-if there are three bit errors in the combined data and parity bits of an SEC and DED system, it shows up as an error that cannot be predicted

Lecture

Memory needs to be:

- faster
- higher density
- power consumption

Faster and power consumption means lower voltages

A stored bit used to take 5 V, now it takes 1.8 V.

Lower voltage means it takes less to flip bits

RAID is much like parity

Inside the DIMM, there is SEC/DED (single error correction/double error detection) circuitry

If a DED, generate a non-maskable interrupt, that less CPU know there is a definite problem

NPN transistor - two one way valves, when a positive voltage is applied, it attracts a negative charge, current can then flow

It is a digital switch