

## Design of a Memory Chip with Error Detection and Correction Codes

A (7,4) code, which is a 7-bit code word with a 4-bit information code, will be stored in a register. The register will be designed using seven Flip-Flops. Each bit of the code word will be stored in a Flip-Flop.

The information will then be processed through error detection circuitry to determine if the transmitted data is correct. If the information needs to be corrected, error correction circuitry will correct the code. The overall error circuitry will be based on the Boolean equations necessary for error detection and correction, and will be built using logic gates and a 3x8 decoder to fix any of the seven bits in its position.

The new information code will be stored in a 4x16 memory chip via 4x16 decoder. The decoder will be used to direct the information into the proper memory location.

