

g47\_26\_5\_encoder  
26:5 encoder circuit

**Description:**

The 26:5 encoder circuit takes as input a 26-bit vector (LETTER, corresponding to a letter of the alphabet) and produces a 5-bit output named INDEX which indicates the highest bit position over all input bits that have a high value. If no inputs bits are high, then assert an ERROR signal. To reiterate: if multiple bits have a high value, then the first is chosen as the current letter.

**Input:**

LETTER signal (26 bits) - the letter being encoded

**Output:**

INDEX signal (5 bits) - the encoded value of LETTER input

ERROR signal (1 bit) - error signal for when no input is provided

**Diagram:**

**Testing:**

We tested all 26 individual letter inputs as well as the error input (all input bits low). Additionally, we tested a few inputs with multiple bits set to high to make sure that the highest priority bit was selected.