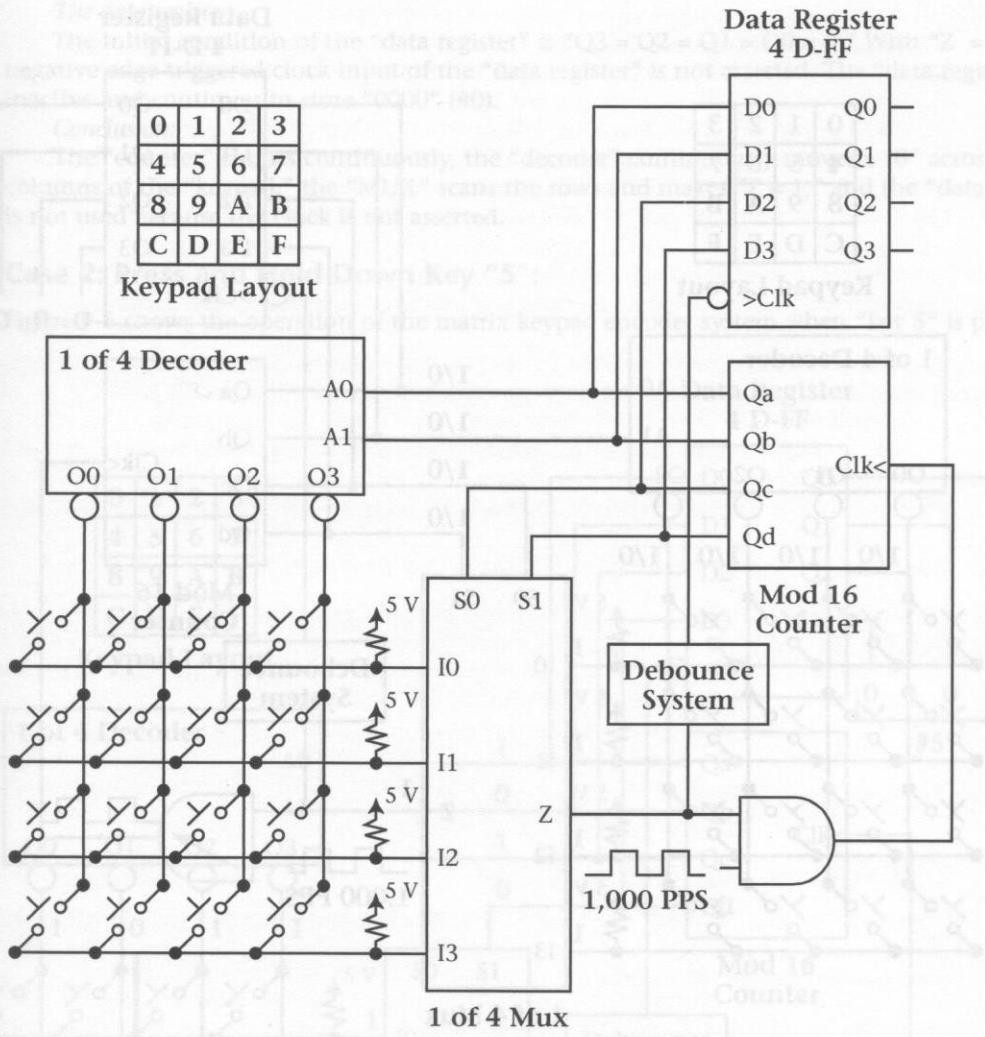

re 9-3 Matrix Keypad Encoder

Here is quick summary of the operation of the matrix keypad encoder. A detailed description is presented later. The matrix keypad encoder is made up of several devices that work together to store the number of the key pressed into the "data register (4-D FF)." The heart of the system is the **mod 16 counter**. The **counter** generates **16** key numbers. The **"1 of 4" decoder** and the **"1 of 4" MUX** use these numbers to scan the matrix keypad to identify which key is pressed. Once the key is identified, it is stored in the **data register**. The number remains stored in the "data register" until the next key is pressed.

Matrix Keypad Encoder: Operational Details

Case 1: No Keys Pressed:

Figure 9-4 shows the operation of the matrix keypad encoder system when none of the keys are pressed.

The MUX:

When no keys are being pressed, the "rows" of the keypad will not be connected to any of the "columns." The four "pull-up resistors" will make the four "input channels" of the "1 of 4 MUX" = "1". Regardless of which channel is selected, "Z" of the "MUX" is "1."