8x8LED dot matrix scroll display

Example Code Introduction for 8-bit NuMicro® Family

Information

Application	This code uses W78E516 to drive LED dot matrix scroll display
BSP Version	None
Hardware	W78E516

1 Function Description

1.1 Introduction

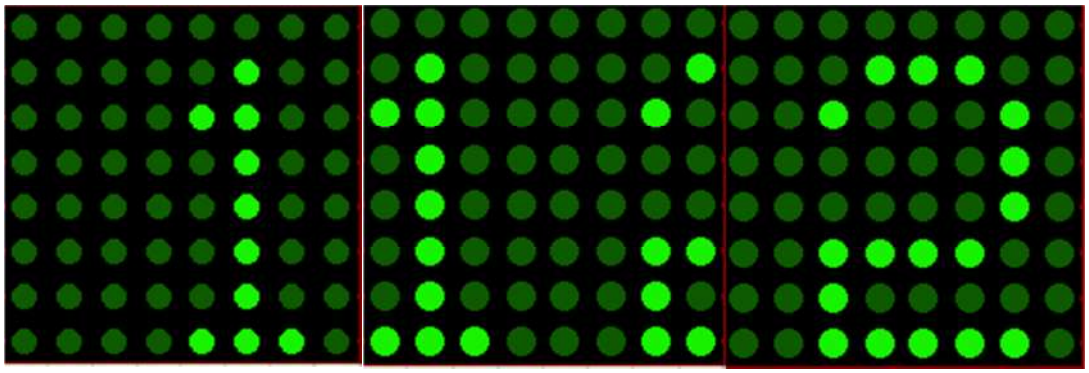
Usually we want to display a paragraph of text on the LED dot matrix screen, but this text content is too much to be displayed on the LED screen. In this case, the LED screen needs to be able to scroll through the text.

This sample code is mainly to demonstrate how to scroll text on an 8×8 LED dot matrix screen. We want to display text on the LED dot matrix screen, usually by dynamic scanning to drive the LED dot matrix.

This sample code uses the column scan method to drive the LED dot matrix. From the first column on the far left, it lights up to the eighth column, and the text scrolls from right to left.

1.2 Demo Result

The following figure shows the process of scrolling 1 to 2 changes on the LED dot matrix .



2 Code Description

The code implementation is simple. Three layers of for loops can be implemented. The outermost layer is responsible for moving to the left, the middle layer is responsible for the speed of movement, and the innermost layer is responsible for dynamically refreshing the display content.

```
for (a = 0; a < 136; a++)          //The number of columns to display
{                                  //the program definition moves to the left
                                   //A little modification can turn to move to the right

    for (b = 0; b < 64; b++)         //Control movement speed
    {
        P2 = 0xfe;                   //The leftmost column is displayed first

        for (c = 0; c < 8; c++)      //Display one frame
        {
            /*P2 is connected to LED dot matrix cathode, P1 is connected to anode*/
            P1 = Font8Tab[a + c];    //Display one column (eight points in the vertical)
            DELAY_N_US(2000);        //Refresh rate 62.5Hz (2ms*8=16ms)

            P1 = 0x00;               //Prevent other columns from being lit
                                     //when scanning column changes

            P2 = P2 << 1 | P2 >> 7; //Switch to the next column
        }
    }
}
```

3 Software and Hardware Environment

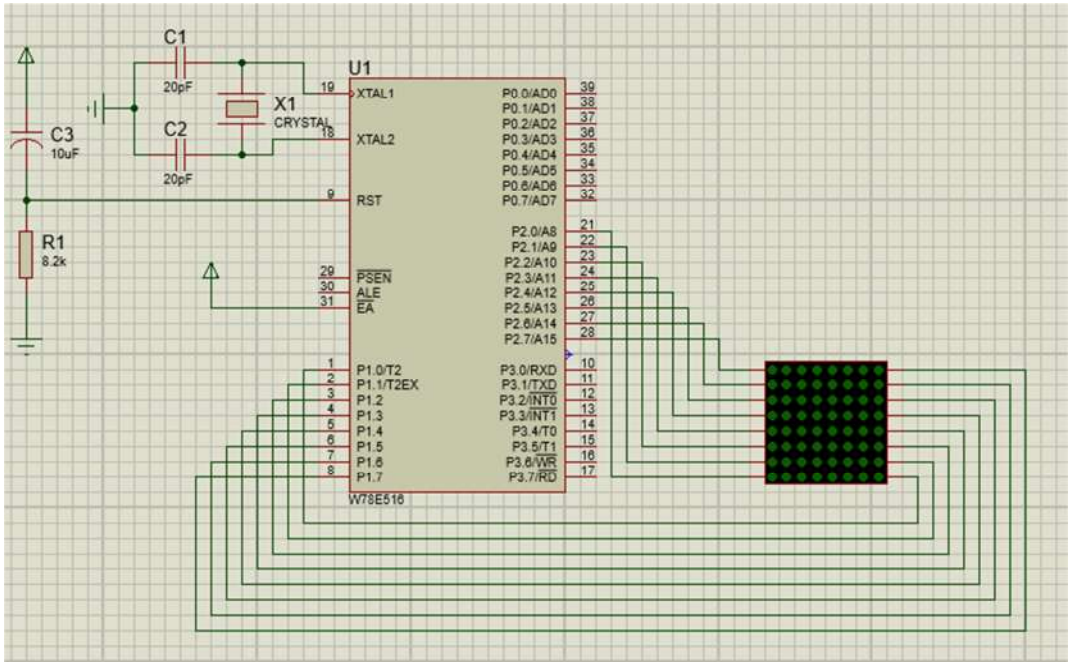
Software Environment

- BSP version
  - None
- IDE version
  - Keil uVersion 5.26

Hardware Environment

- Circuit components
  - W78E516
  - 8*8 LED dot matrix
- Diagram

The figure below is the reference schematic, P2 is connected to the cathode of the LED dot matrix, and P1 is connected to the anode.



4 Directory Information

- EC_W78E516_8x8_LED_Dot_Matrix_Scroll_Display_V1.00
  - Library — Sample code header and source files
    - Device — compliant device header file
    - Startup — A51 startup file and executeable file
  - SampleCode
    - ExampleCode — Source file of example code

5 How to Execute Example Code

1. Browsing into sample code folder by Directory Information (section 4) and double click W78E516_8x8_LED_Dot_Matrix_Scroll_Display.uvproj.
2. Enter Keil compile mode
   a. Build
   b. Download
   c. Start/Stop debug session
3. Enter debug mode
   a. Run

6 Revision History

Date	Revision	Description
July. 30, 2019	1.00	1. Initially issued.

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