Tutoriels MAX7219 avec matrice 8X8

Liens web tuto MAX7219

- Montage Kit MAX7219 EN
- Montage Kstart:arduino:max7219:FRit MAX7219 FR
- Concevez des matrices de LED
- Tuto MAX7219 Arduino
- Matrice 8X8
- Tutoriel Arduino – MAX7219 Afficheur 8X8 LED
- MAX 7219
- LED Matrix Kit
- 64 LEDS et MAX7219
- MAX7219 avec 4 matrices de LEDS 8X8 en cascade
  - Matrice LEDS 5 fois 8x8
- LEDS 8X8 par internet
- Une Video

Programmes

Préparation Logiciels

arduino.exe

Utiliser ou télécharger la dernière version de l'IDE Arduino

Le diagramme de synchronisation pour Max7219 et son format de données série sont joints ci-

dessous avec ses caractéristiques électroniques.

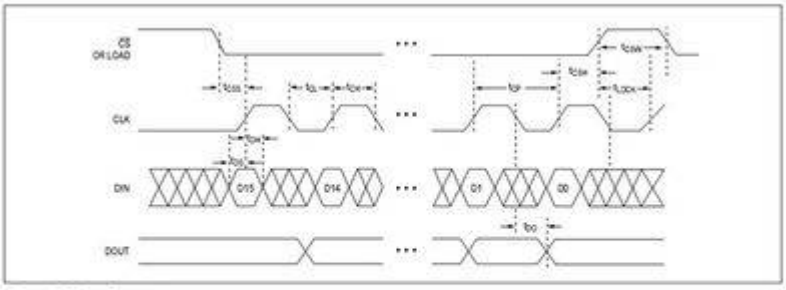

Figure 1. Timing Diagram

Table 1. Serial-Data Format (16 Bits)

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
X	X	X	X	ADDRESS				MSB	DATA						LSB

ELECTRICAL CHARACTERISTICS (continued)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
LOGIC INPUTS						
Input Current DIN, CLK, LOAD, CS			-1		1	µA
Logic High Input Voltage			3.5			V
Logic Low Input Voltage					0.8	V
Output High Voltage						V
Output Low Voltage					0.4	V
Hysteresis Voltage				1		V
TIMING CHARACTERISTICS						
CLK Clock Period			100			ns
CLK Pulse Width High			50			ns
CLK Pulse Width Low			50			ns
CS Fall to SCLK Rise Setup Time (MAX7221 only)			25			ns
CLK Rise to CS or LOAD Rise Hold Time			0			ns
DIN Setup Time			25			ns
DIN Hold Time			0			ns
Output Data Propagation Delay					25	ns
Load-Rising Edge to Next-Clock Rising Edge (MAX7219 only)			50			ns
Minimum CS or LOAD Pulse High			50			ns
Data-to-Segment Delay					2.25	ms

Un programme de test sans librairie à inclure

exemple_code_MAX7219.ino

```
 unsigned char i;
 unsigned char j;
/*Port Definitions*/
int Max7219_pinCLK = 10;
int Max7219_pinCS = 9;
int Max7219_pinDIN = 8;

unsigned char disp1[38][8]={
{0x3C,0x42,0x42,0x42,0x42,0x42,0x42,0x3C},//0
{0x10,0x18,0x14,0x10,0x10,0x10,0x10,0x10},//1
{0x7E,0x2,0x2,0x7E,0x40,0x40,0x40,0x7E},//2
{0x3E,0x2,0x2,0x3E,0x2,0x2,0x3E,0x0},//3
{0x8,0x18,0x28,0x48,0xFE,0x8,0x8,0x8},//4
{0x3C,0x20,0x20,0x3C,0x4,0x4,0x3C,0x0},//5
{0x3C,0x20,0x20,0x3C,0x24,0x24,0x3C,0x0},//6
{0x3E,0x22,0x4,0x8,0x8,0x8,0x8,0x8},//7
{0x0,0x3E,0x22,0x22,0x3E,0x22,0x22,0x3E},//8
{0x3E,0x22,0x22,0x3E,0x2,0x2,0x2,0x3E},//9
{0x8,0x14,0x22,0x3E,0x22,0x22,0x22,0x22},//A
```

```
{0x3C,0x22,0x22,0x3E,0x22,0x22,0x3C,0x0},//B
{0x3C,0x40,0x40,0x40,0x40,0x40,0x3C,0x0},//C
{0x7C,0x42,0x42,0x42,0x42,0x42,0x7C,0x0},//D
{0x7C,0x40,0x40,0x7C,0x40,0x40,0x40,0x7C},//E
{0x7C,0x40,0x40,0x7C,0x40,0x40,0x40,0x40},//F
{0x3C,0x40,0x40,0x40,0x40,0x44,0x44,0x3C},//G
{0x44,0x44,0x44,0x7C,0x44,0x44,0x44,0x44},//H
{0x7C,0x10,0x10,0x10,0x10,0x10,0x10,0x7C},//I
{0x3C,0x8,0x8,0x8,0x8,0x8,0x48,0x30},//J
{0x0,0x24,0x28,0x30,0x20,0x30,0x28,0x24},//K
{0x40,0x40,0x40,0x40,0x40,0x40,0x40,0x7C},//L
{0x81,0xC3,0xA5,0x99,0x81,0x81,0x81,0x81},//M
{0x0,0x42,0x62,0x52,0x4A,0x46,0x42,0x0},//N
{0x3C,0x42,0x42,0x42,0x42,0x42,0x42,0x3C},//O
{0x3C,0x22,0x22,0x22,0x3C,0x20,0x20,0x20},//P
{0x1C,0x22,0x22,0x22,0x22,0x26,0x22,0x1D},//Q
{0x3C,0x22,0x22,0x22,0x3C,0x24,0x22,0x21},//R
{0x0,0x1E,0x20,0x20,0x3E,0x2,0x2,0x3C},//S
{0x0,0x3E,0x8,0x8,0x8,0x8,0x8,0x8},//T
{0x42,0x42,0x42,0x42,0x42,0x42,0x22,0x1C},//U
{0x42,0x42,0x42,0x42,0x42,0x42,0x24,0x18},//V
{0x0,0x49,0x49,0x49,0x49,0x2A,0x1C,0x0},//W
{0x0,0x41,0x22,0x14,0x8,0x14,0x22,0x41},//X
{0x41,0x22,0x14,0x8,0x8,0x8,0x8,0x8},//Y
{0x0,0x7F,0x2,0x4,0x8,0x10,0x20,0x7F},//Z
};



void Write_Max7219_byte(unsigned char DATA)
{
            unsigned char i;
        digitalWrite(Max7219_pinCS,LOW);
        for(i=8;i>=1;i--)
          {
             digitalWrite(Max7219_pinCLK,LOW);
             digitalWrite(Max7219_pinDIN,DATA&0x80);// Extracting a bit
data
             DATA = DATA<<1;
             digitalWrite(Max7219_pinCLK,HIGH);
           }
}


void Write_Max7219(unsigned char address,unsigned char dat)
{
        digitalWrite(Max7219_pinCS,LOW);
        Write_Max7219_byte(address);           //address□code of LED
        Write_Max7219_byte(dat);               //data□figure on LED
        digitalWrite(Max7219_pinCS,HIGH);
}
```

```
void Init_MAX7219(void)
{
 Write_Max7219(0x09, 0x00);       //decoding BCD
 Write_Max7219(0x0a, 0x03);       //brightness
 Write_Max7219(0x0b, 0x07);       //scanlimit 8 LEDs
 Write_Max7219(0x0c, 0x01);       //power-down mode 0 normal mode 1
 Write_Max7219(0x0f, 0x00);       //test display 1 EOT display 0
}



void setup()
{

  pinMode(Max7219_pinCLK,OUTPUT);
  pinMode(Max7219_pinCS,OUTPUT);
  pinMode(Max7219_pinDIN,OUTPUT);
  delay(50);
  Init_MAX7219();
}


void loop()
{
   for(j=0;j<38;j++)
  {
   for(i=1;i<9;i++)
    Write_Max7219(i,displ[j][i-1]);
   delay(500);
  }
}
```

Programmes avec librairies à inclure

- afficheur8x8.zip
- max7219_dot_matrix_scroll_text.ino.zip
- web-scroll-matrix-master.zip
- max7219_100.ino.tar.gz

Librairies

Différentes librairies à tester

- ledcontrol.zip

- ledcontrol-master.zip
- maxmatrix.zip

Une librairie pour les matrices en cascade (à essayer ...)

- ledcontrolms_f79uc7xhkcjmpgv.zip

Une autre librairie mais pour le Raspberry (A voir lors d'une autre soirée ...)

- luma.led_matrix-master_raspberry.zip
- On peut y voir une demo en image animée...

Pour la création de codes pour matrices de LEDS

Envoyer par Fernand

8x8 Matrix Character Creator

Pour la création de caractères 8×8 sur la matrice de LEDs

- Leds Matrice editor
- Le programme qui va avec :
- Programme pour matrice

Toujours envoyer par Fernand : un programme de test, ne pas oublier d'inclure les 2 librairies ci-dessous

Matrix 32x8 Max7219

- exemple 002 programme 32X8
  - Librairie Adafruit_gfx
  - Librairie Max72xx

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