

Tutoriels MAX7219 avec matrice 8X8



Liens web tuto MAX7219

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- [Montage Kstart:arduino:max7219:FRit MAX7219 FR](#)
- [Concevez des matrices de LED](#)
- [Tuto MAX7219 Arduino](#)
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- [MAX7219 avec 4 matrices de LEDS 8X8 en cascade](#)
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Programmes

Préparation Logiciels



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.

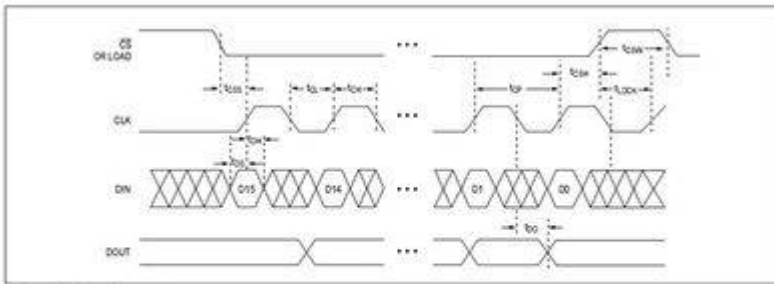


Figure 1. Timing Diagram

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)

(V_{CC} = 5V ± 5%, R_{LOAD} = 0 Ω to 1 kΩ, T_A = Tamb to T_{max}, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
LOGIC INPUTS						
Input Current (DIN, CLK, LOAD, CS)	I _{IN} , I _I	V _{IN} = 0V or V _H	-1	1		µA
Logic High Input Voltage	V _{IH}		3.5			V
Logic Low Input Voltage	V _{IL}			0.8		V
Output High Voltage	V _{OH}	I _{OUT} , I _{OL} = -1mA	V _H - 1		0.8	V
Output Low Voltage	V _{OL}	I _{OUT} , I _{OH} = 1.5mA		0.8		V
Hysteresis Voltage	ΔV _I	DIN, CLK, LOAD, CS		1		V
TIMING CHARACTERISTICS						
CLK Clock Period	f _{CLK}			100		kHz
CLK Pulse Width High	t _{CLKH}			50		ns
CLK Pulse Width Low	t _{CLKL}			50		ns
CS Fall to SCLK Rise Setup Time (MAX7219 only)	t _{CS}			20		ns
CLK Rise to CS or LOAD Rise Hold Time	t _{CLKH}			0		ns
DIN Setup Time	t _{DI}			25		ns
DIN Hold Time	t _{DIH}			0		ns
Output Data Propagation Delay	t _{PROP}	C _{LOAD} = 50pF			25	ns
Load-Rising Edge to Next-Clock-Rising Edge (MAX7219 only)	t _{LOAD}			50		ns
Minimum CS or LOAD Pulse High	t _{CSW}			50		ns
Data-to-Segment Delay	t _{SD}				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 displ[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_f79uc7xhkcyjmgv.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 8x8 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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