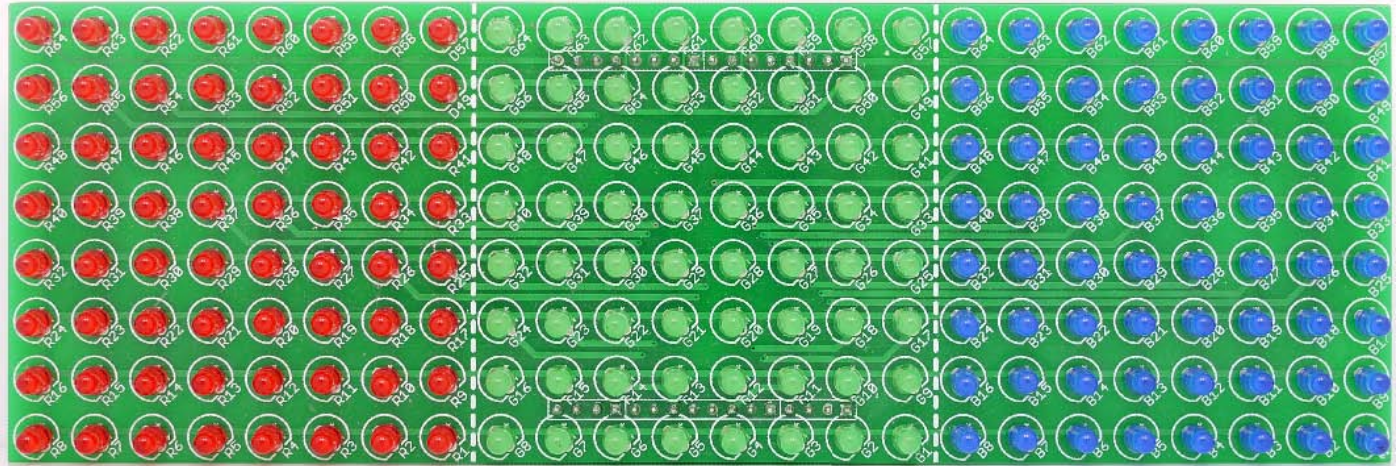


# RAINBOWDUINO EXTENSION SHIELD V0.9B

Rainbowduino Extension Shield is a breakout board of Rainbowduino's 192 separate LED driving channels. The channels are divided into three 8\*8 arrays: red, green and blue for easier controlling. This shield is designed to ease customized LED projects based on Rainbowduino.



- Direct plug in Rainbowduino

## FEATURES

- 60.33mm×180.61mm(3 multiple of Rainbowduino's size)
- Can drive 192 separate LEDs
- No extra junctions needed

## KEY SPECIFICATIONS

- 8×24 LED matrix
- drive Ext LEDs

## USAGE

Rainbowduino Extension Shield is the breakout board of Rainbowduino, It can easily control 192(8×24) LEDs. It can also solder LEDs out of board. LED is upwards, and its back is the place to solder the pins.

## PROGRAMMING

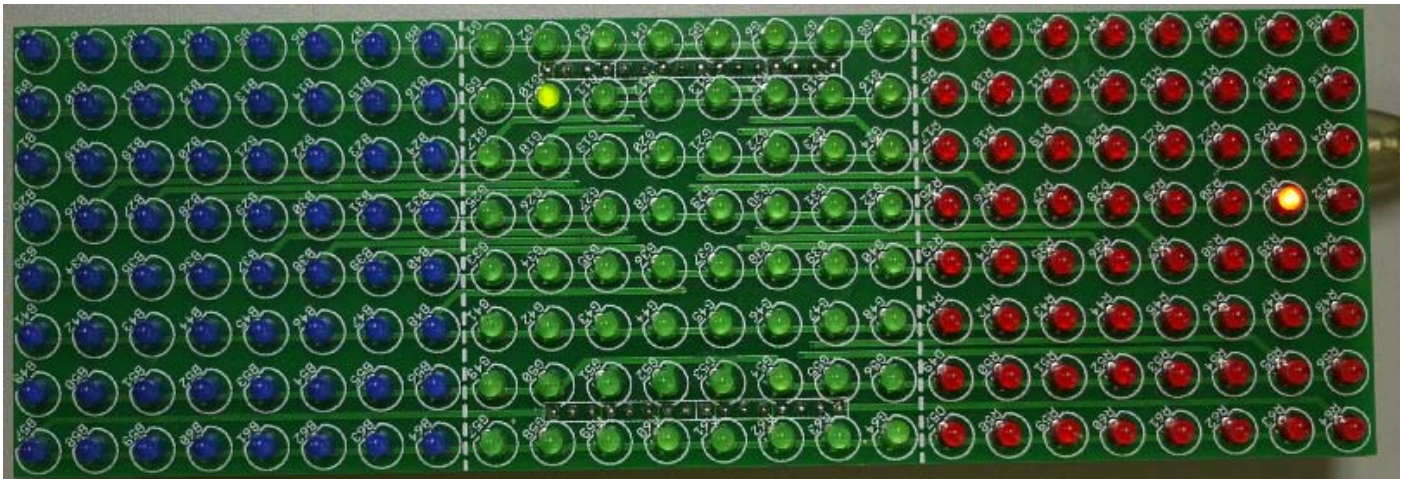
The code for details is linked on the depot page, please look it up if needed.

## EXAMPLES

Rainbowduino Extension Shield is used to bright the LEDs in different patterns. The code below is able to control G10 and R31 to shine gradually as an example. You can change the style simply by modifying the parameter value of dots\_color array. The first element can choose the matrix in different color; the last two parameters are used to define which one need to shine in row & column value.

```
void _main(void)
{
    _init();
    unsigned char i=0;
    for(;;)
    {
        dots_color[G][1][3]=i<<4;//high 4bit G10 dot
        dots_color[R][2][4]=i&0x0f;//low 4bit R31 dot
        i++;
        delay(100);
    }
}
```

The effect is:



Actually 1 byte is used to control two LEDs, the theory for details is as follows:

```
{//green debug
    {0x00, 0x00, 0x00, 0x00}, //G8, G7, G6, G5, G4, G3, G2, G1      every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G16, G15, G14, G13, G12, G11, G10, G9  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G24, G23, G22, G21, G20, G19, G18, G17  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G32, G31, G30, G29, G28, G27, G26, G25  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G40, G39, G38, G37, G36, G35, G34, G33  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G48, G47, G46, G45, G44, G43, G42, G41  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00}, //G56, G55, G54, G53, G52, G51, G50, G49  every dot has 4 bit color
    {0x00, 0x00, 0x00, 0x00} //G64, G63, G62, G61, G60, G59, G58, G57  every dot has 4 bit color
},
```



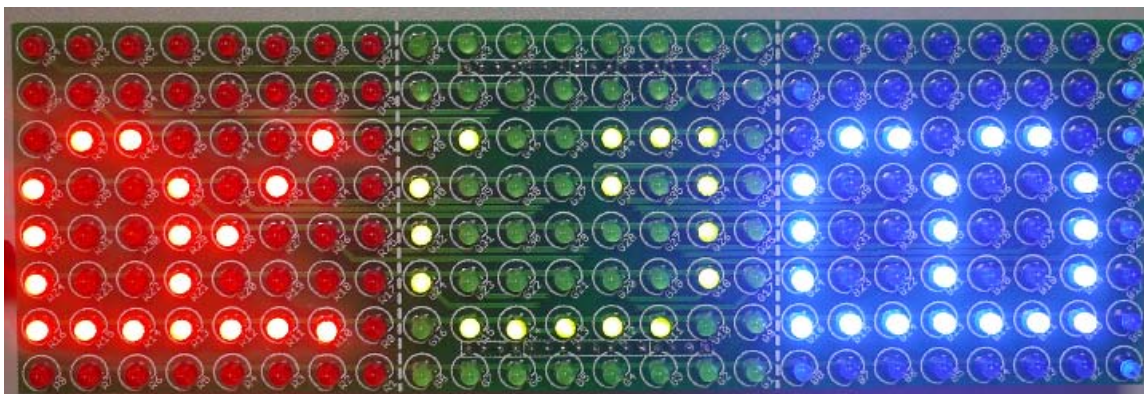
```

{//red debug
  {0x00, 0x00, 0x00, 0x00}, //R8, R7, R6, R5, R4, R3, R2, R1      every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R16, R15, R14, R13, R12, R11, R10, R9  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R24, R23, R22, R21, R20, R19, R18, R17  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R32, R31, R30, R29, R28, R27, R26, R25  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R40, R39, R38, R37, R36, R35, R34, R33  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R48, R47, R46, R45, R44, R43, R42, R41  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //R56, R55, R54, R53, R52, R51, R50, R49  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00} //R64, R63, R62, R61, R60, R59, R58, R57  every dot has 4 bit color
},

{//blue debug
  {0x00, 0x00, 0x00, 0x00}, //B8, B7, B6, B5, B4, B3, B2, B1      every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B16, B15, B14, B13, B12, B11, B10, B9  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B24, B23, B22, B21, B20, B19, B18, B17  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B32, B31, B30, B29, B28, B27, B26, B25  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B40, B39, B38, B37, B36, B35, B34, B33  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B48, B47, B46, B45, B44, B43, B42, B41  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00}, //B56, B55, B54, B53, B52, B51, B50, B49  every dot has 4 bit color
  {0x00, 0x00, 0x00, 0x00} //B64, B63, B62, B61, B60, B59, B58, B57  every dot has 4 bit color
},

```

Another effect picture displayed as the character RGB here, and the code for details is linked on the depot page.



## CAUTIONS

Remember that the LED's positive must be connected to the octagonal pad. The extension board's quadrate pin should be plugged to the first pin rabbet. On the contrary, the LEDs will not shine, neither damaged.

## LICENSING

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## SUPPORT

Please refer to product page for latest documents and development resources, any product related issue could be inquired via [info@seedstudio.com](mailto:info@seedstudio.com)

## REVISION HISTORY

Rev.	Descriptions	Editor	Release date
v0.9b	Initial public release	KFJ	Sept 22, 2010

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