Colorduino

-Magic RGB LED matrix driver platform

Overview

The Colorduino is a RGB LED matrix driver platform basis on ATMega 328P. This design is to make user easily modify or write the firmware of Colorduino by Arduino IDE. Colorsduino pairs the M54564 with a single DM163 constant current driver. By using the DM163, the Colors shield gains three 8+6-bit channels of hardware PWM control of the LED's freeing up the MCU from having to implement it in software. This gives the ATmega more CPU bandwidth for performing other tasks. Colorduino is easy to cascade by IIC and Power interface.

Features

- 8bits colors support with 6bits correction for each color in every dots
- Hardware 16MHz PWM support
- Without any external circuits, play and shine
- Dedicated GPIO and ADC interface
- Hardware UART and IIC communication with easy cascading
- 24 constant current channels of 100mA each
- 8 super source driver channels of 500mA each

Specifications

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PCB size	60mm X 60mm X 1.6mm
Microprocessor	Atmega328P
Indicators	PWR State
Power supply	5V~7.5V DC(7.5V Max)
Cascade power connector	Terminal Blocks
Program interface	UART/ISP
Expansion socket	100mil bended pin header pair
Communication protocols	UART/IIC
RHoS	Yes

Electrical Characteristics

Specification	Min	Type	Max	Unit
Power Voltage	3.3	5	7.5	VDC
Input Voltage VH:	4.5	5	5.5	
Input Voltage VL:	-0.3	0	0.5	V
Current Consumption(Except LED matrix)	-	20	40	mA
Drive current(Every channel)			500	mA
Drive current(Every dot)			58	mA
Circuit response time	10			ns
RGB LED-Matrix color resolution per dot			16M	
Uart Baud rate	9600		115200	bps

Hardware
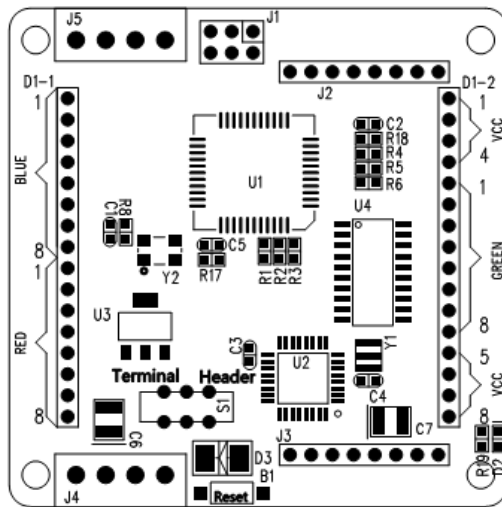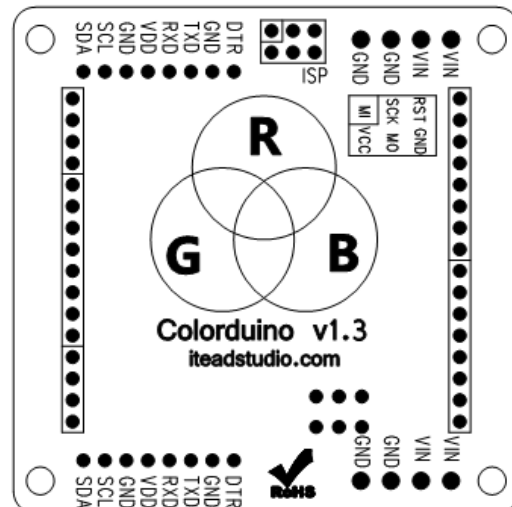
Top View   Button View

Pad Name	Type	Description
SDA	I/O	Data wire of IIC Bus
SCL	I/O	Clock wire of IIC Bus
GND	G	Ground plane
VDD	P	Power wire for all digital components
RXD	I/O	Data wire of UART Bus
TXD	I/O	Data wire of UART Bus
DTR	I	Special reset wire of Arduino program
VIN	P	Power wire for all LEDs and Super current driver
MI	I/O	Data input of ISP
MO	I/O	Data output of ISP
SCK	I/O	Clock input of ISP
RST	I	Reset input of ISP