Name: MKS GEN-L V2.0

This motherboard is integrated which is based on Marlin open source, greatly compatible with Ramps&Mega2560. Further, it is good cost [1]effective with high performance.

Features

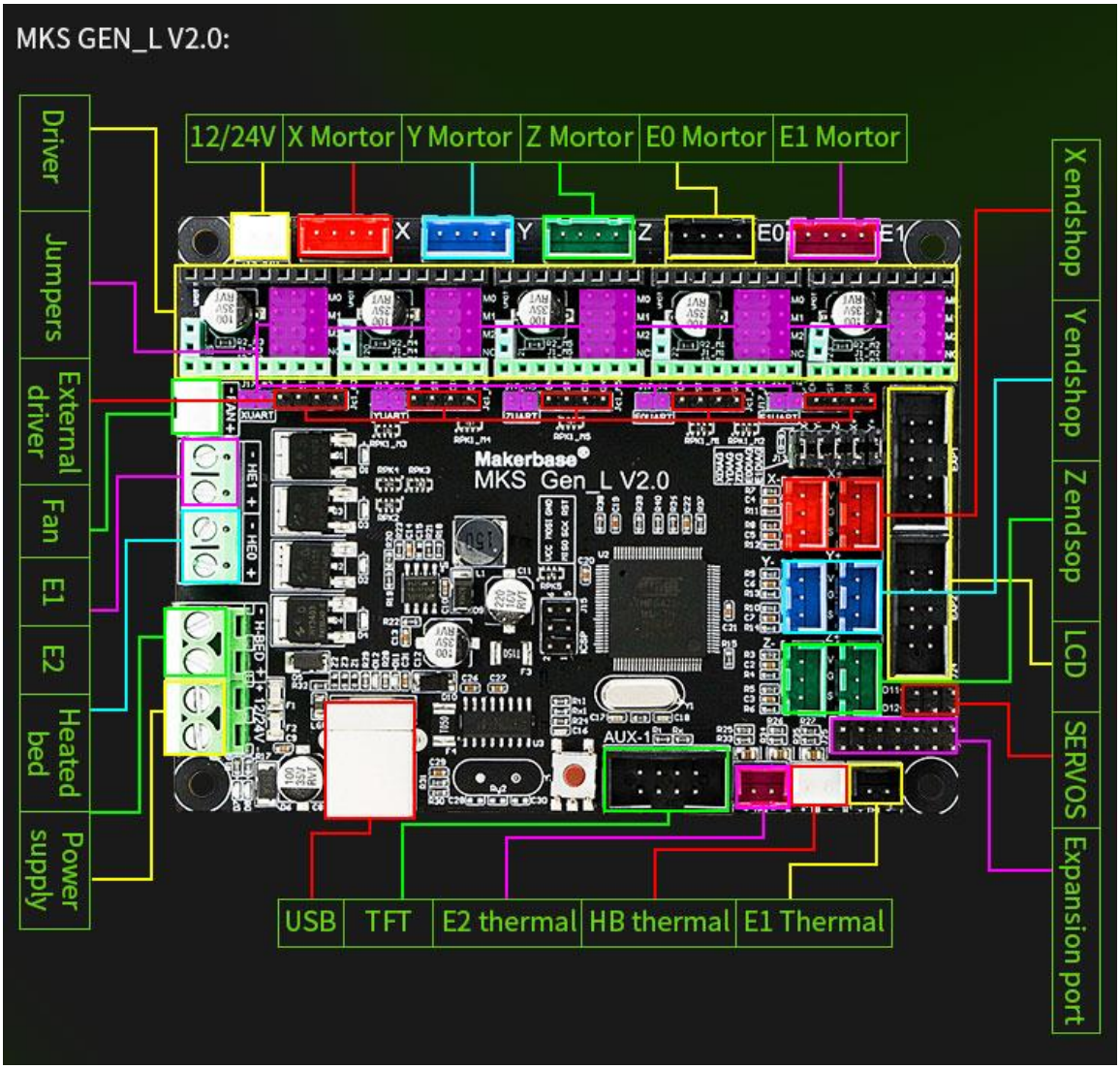
- **Compared to V1.0, V2.0 can be easily enable TMC stepper driver by jumpers.No need wiring cable.Such as :TMC2130 SPI mode,TMC2208/2209 UART mode.**
- Assembly with high quality MOSFET which is good at cooling and ensure stable working in a long time.
- Use dedicated power chip which has excellent cooling and stable electricity.
- Adopt stable and reliable filter circuit to reduce interference. Improve printing performance.
- Highly, improve the MOSFET cooling of heated bed .
- It is easy and safe to assemble motors, drivers and endstops in different color.
- **Attention:Please disconnect all parts from the board when upload firmware.**

[1]

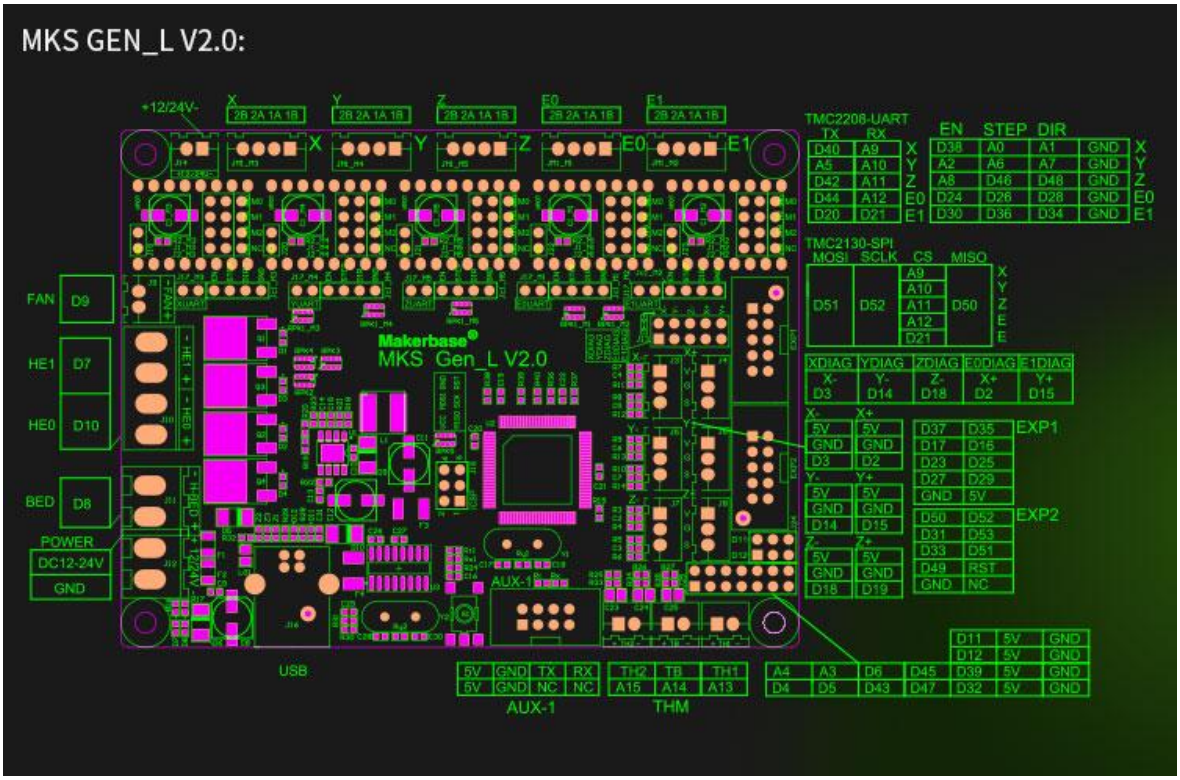
More features as following

Specifications			
Name	MKS GEN-L	**Version**	V2.0
Size	110*84mm	**Firmware**	Repetier, Marlin
Voltage	12V/24V DC	**Processor**	Mega2560
Sensor*3	NTC 100K	**File Format**	G-code
Extruder	E1,E2	**N º Endstop**	6
N º Fan	1	**Wireless**	MKS WiFi
Thermocouple	AD597/PT100	**Microstep**	Full Step
CPU	Arduino Mega 8-bits, ATmega2560(16Mhz)		
Driver	CH340		
Machine Available	XYZ,Delta,i3,corexy,etc.		
Stepper Driver Support	A4988,8825,TMC2130/2208/2209,LV8729,TB6600,etc		
Compatible Display	LCD2004,LCD12864,MKS TFT,OLED,etc.		
Software	Simplify3D,KISSlicer,Cura,Repetier-host,etc		
SD Card Type	External module or in the LCD module		

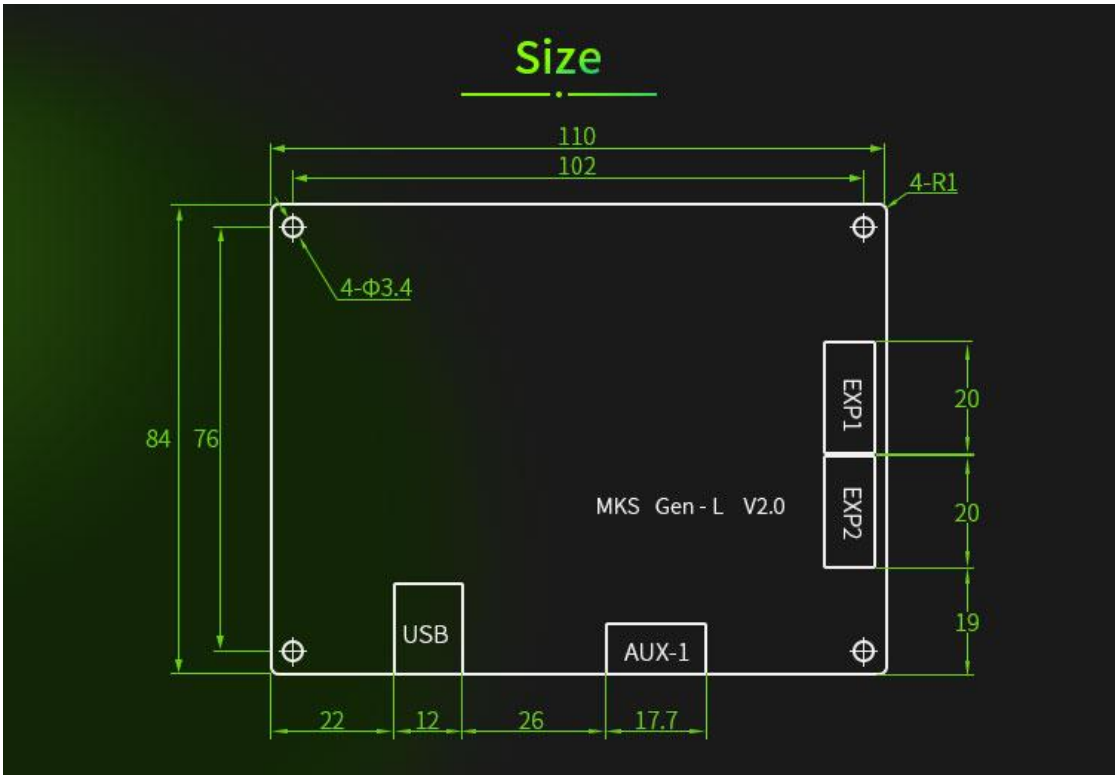
Wiring


MKS GEN_L V2.0:
Driver
Jumpers
External driver
Fan
E1
E2
Heated bed
Power supply
12/24V
X Mortor
Y Mortor
Z Mortor
E0 Mortor
E1 Mortor
Xendshop
Yendshop
Zendsop
LCD
SERVOS
Expansion port
USB
TFT
E2 thermal
HB thermal
E1 Thermal
Makerbase
MKS Gen_L V2.0
AUX-1

Pinout


MKS GEN_L V2.0:
Makerbase
MKS Gen_L V2.0
FAN D9
HE1 D7
HE0 D10
BED D8
POWER
DC12-24V
GND
USB
AUX-1
THM
TMC2208-UART
TMC2130-SPI
EXP1
EXP2

Size


Size
110
102
4-R1
4-Φ3.4
84
76
20
20
19
EXP1
EXP2
MKS Gen - L V2.0
USB
AUX-1
22
12
26
17.7

https://www.aliexpress.com/store/4675028?spm=2114.12010608.0.0.44365b94Eqp6eT

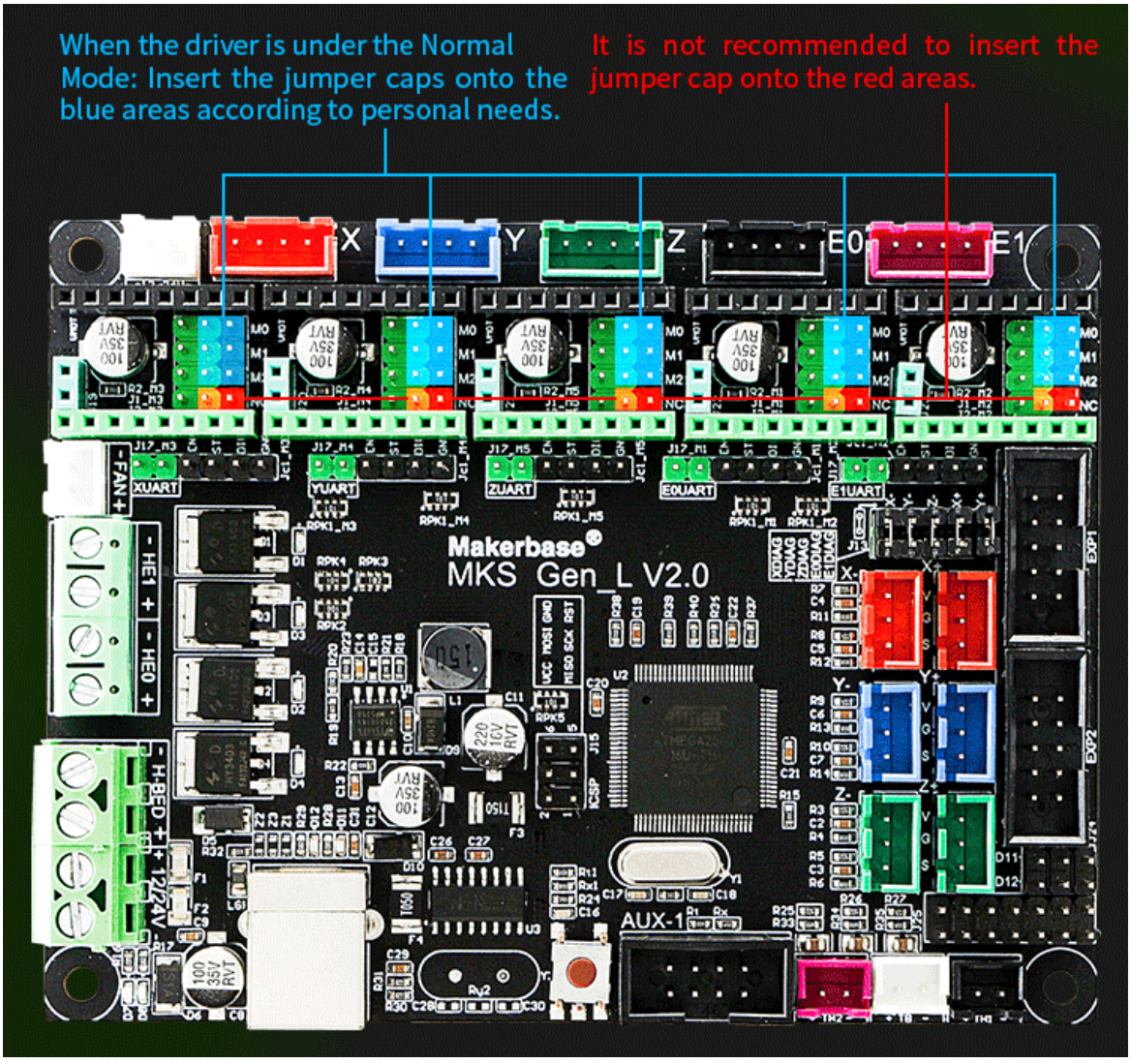
GEN_L V2.0 Motor driver setting

Note: the following descriptions is only suitable for mks series of drivers other manufacturers may have different setting steps.

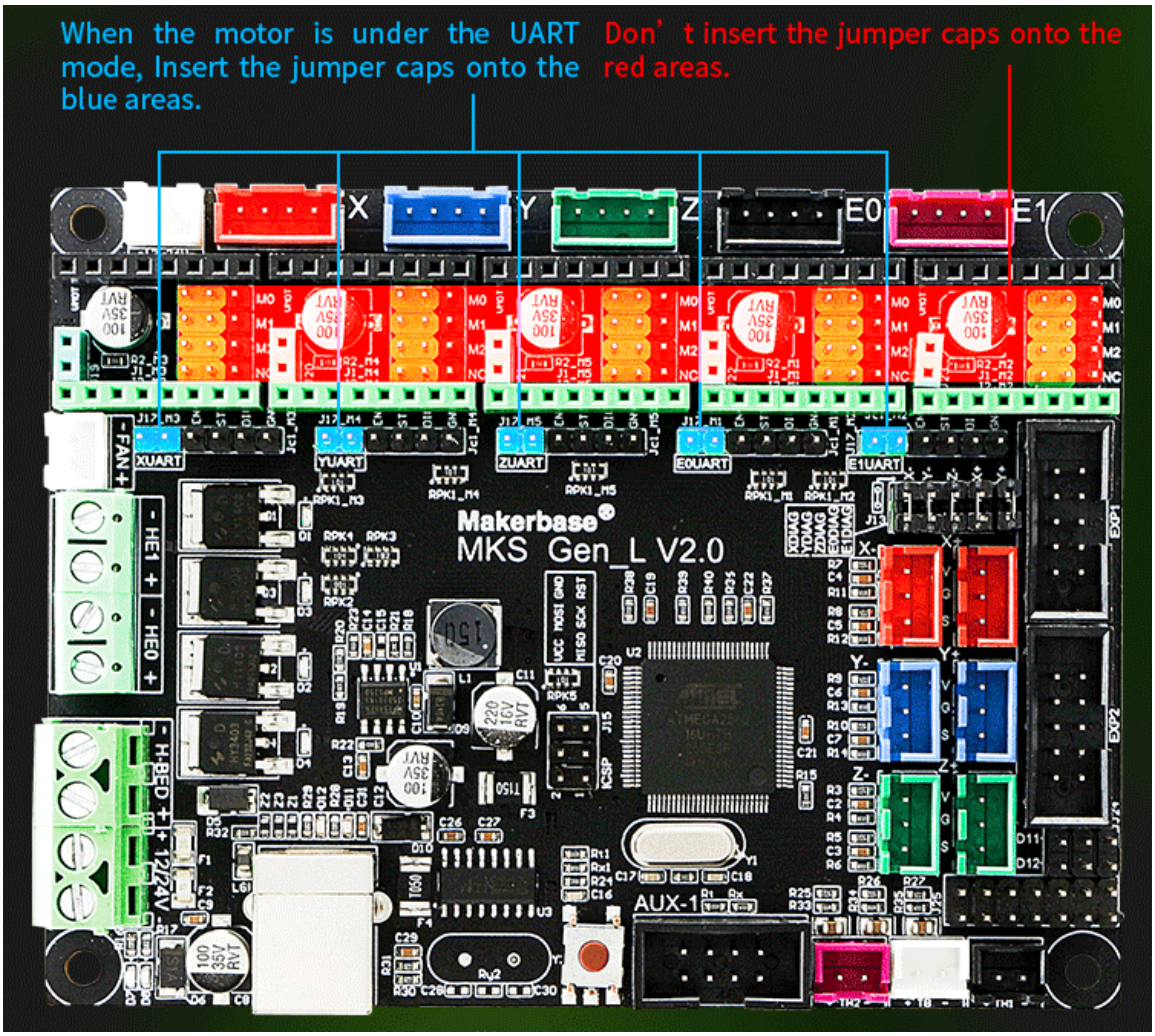
1. Step / dir Normal Mode

When the driver is under the Normal Mode (such as A4988, LV8729, TB67S109) Microsteps can be adjusted via jumper caps. Insert the jumper caps onto the right side black pin areas(M0, M1, M2) to adjust microsteps according to personal own needs.

Note: It isn't recommended to insert jumper caps to the fourth column pin areas (red areas), because some drivers functions may be affected (such as TB67S109) if inserting jumper caps onto the fourth column pin areas.



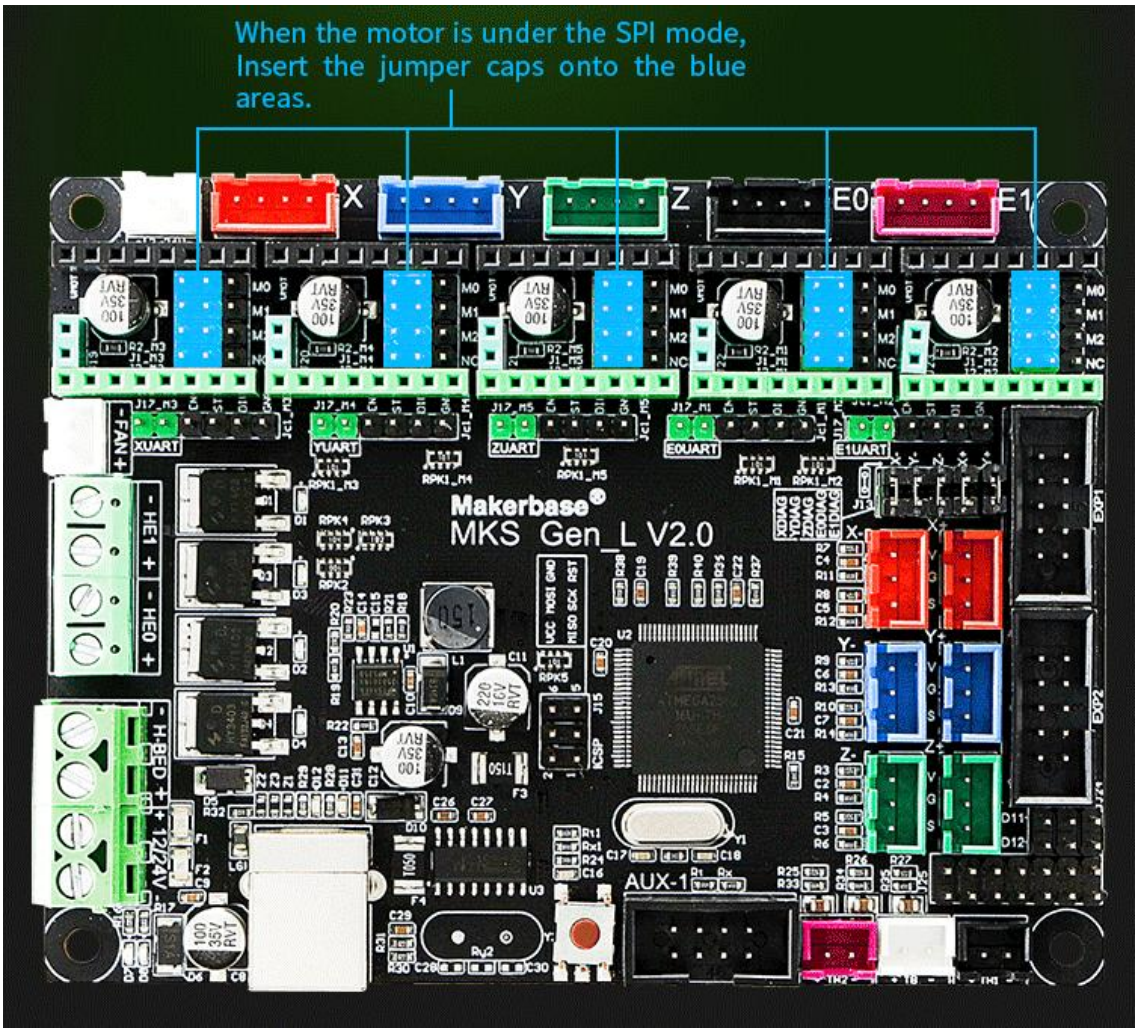
2. Uart Mode (MKS TMC2208 V2.0)
When the motor is under the UART Mode, current and working mode can be configured directly via marlin firmware.
As the following figure shows
1. All jumper caps on the driver need to be taken out. (ban inserting jumper caps onto driver)
2. Insert jumper caps onto UART pin areas of motherboard.
3. Setting up the driver parameter via marlin firmware(refer to datasheet for detail)



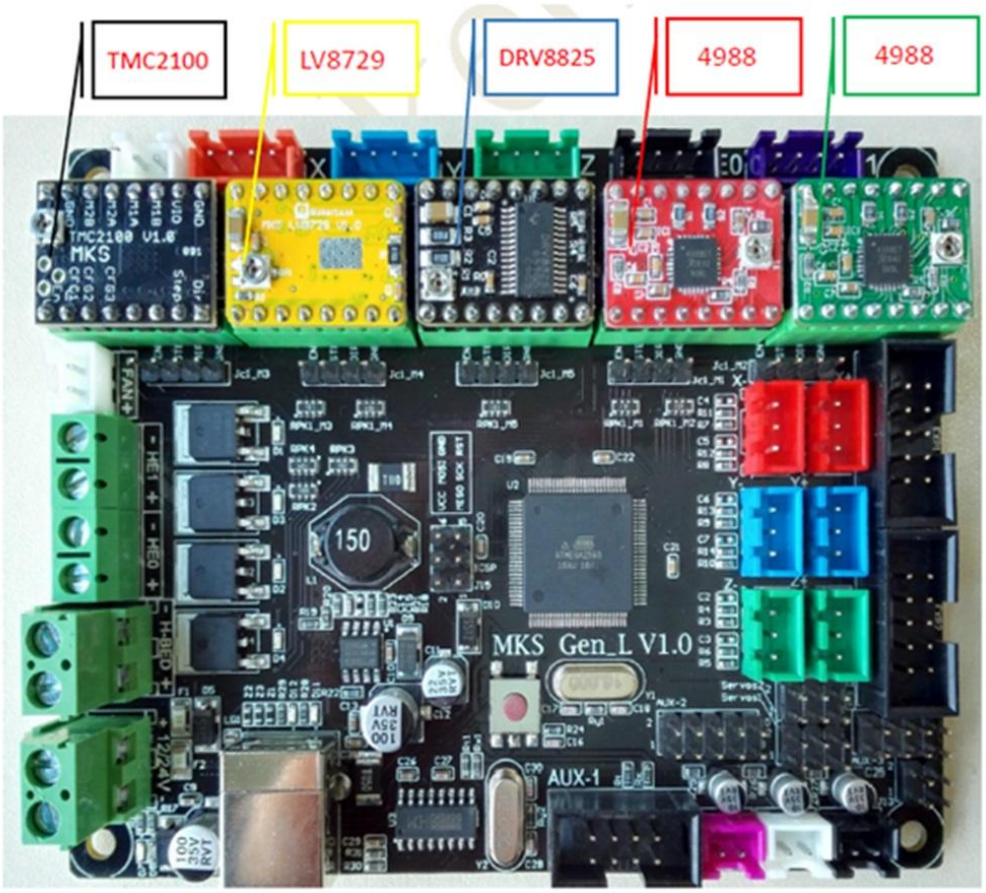
3. SPI Mode

SPI Mode: Due to the special design of motherboard internal wiring, TMC2130 or other types of drives doesn’ t need wire jumper, directly insert the jumper caps onto the motherboard. Refer to the figure below.

Insert jumper caps onto the left side four columns pin areas (green areas)



The direction of stepper drivers on boards.



How to Adjust Driver Current.

Caution!

Please mind the power polarity and drivers direction.

Please don't put the drivers or motors on/off while power on.

Please disconnect all motors when adjust driver current.

A4988(1amp)
I= vref /1.6,default Vref 1.6V and 0.5A,Max1.0A.

A4988(2amp)
I= vref /0.8,default Vref 0.8V and 1.0A,Max2.0A.

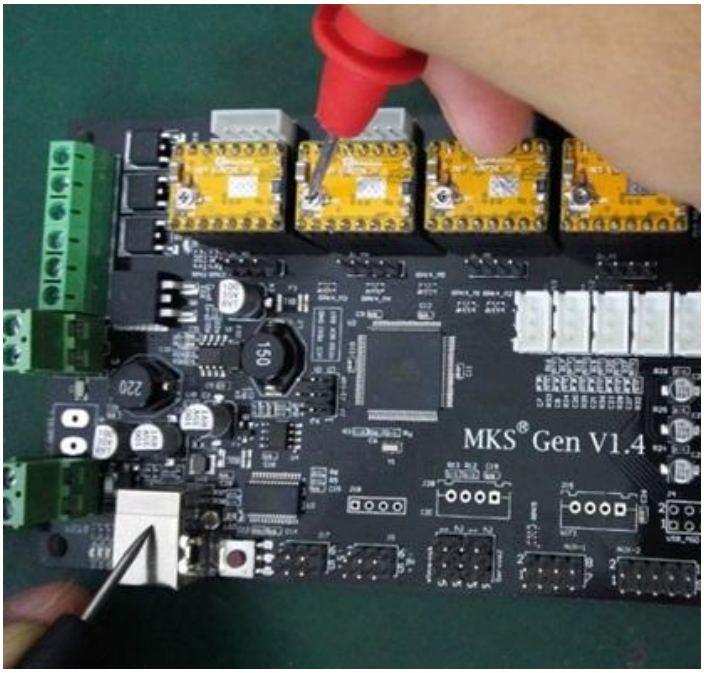
DRV8825
I= vref *2, default 0.65A and 1.3A,Max 2.5A.

LV8729
I= vref /0.5, default 0.4A and 0.8A,Max 1.5A.

Microstep

A4988				DRV8825				LV8729			
M1	M2	M3	Steps	M1	M2	M3	Steps	M1	M2	M3	Steps
Low	Low	Low	Full	Low	Low	Low	Full	Low	Low	Low	Full
High	Low	Low	1/2	High	Low	Low	1/2	High	Low	Low	1/2
Low	High	Low	1/4	Low	High	Low	1/4	Low	High	Low	1/4
High	High	Low	1/8	High	High	Low	1/8	High	High	Low	1/8
High	High	High	1/16	Low	Low	High	1/16	Low	Low	High	1/16
				High	Low	High	1/32	High	Low	High	1/32
				Low	High	High	1/32	Low	High	High	1/64
				High	High	High	1/32	High	High	High	1/128

Following picture shows how to check the Vref.



Rated Current	
Voltage	12/24V DC
Power Supply	<15A
Heater	<10A
Heated Bed	<13A
Driver	<2A
MOSFET of Bed	<25A
MOSFET of Heater	<4A
Fan	<10A