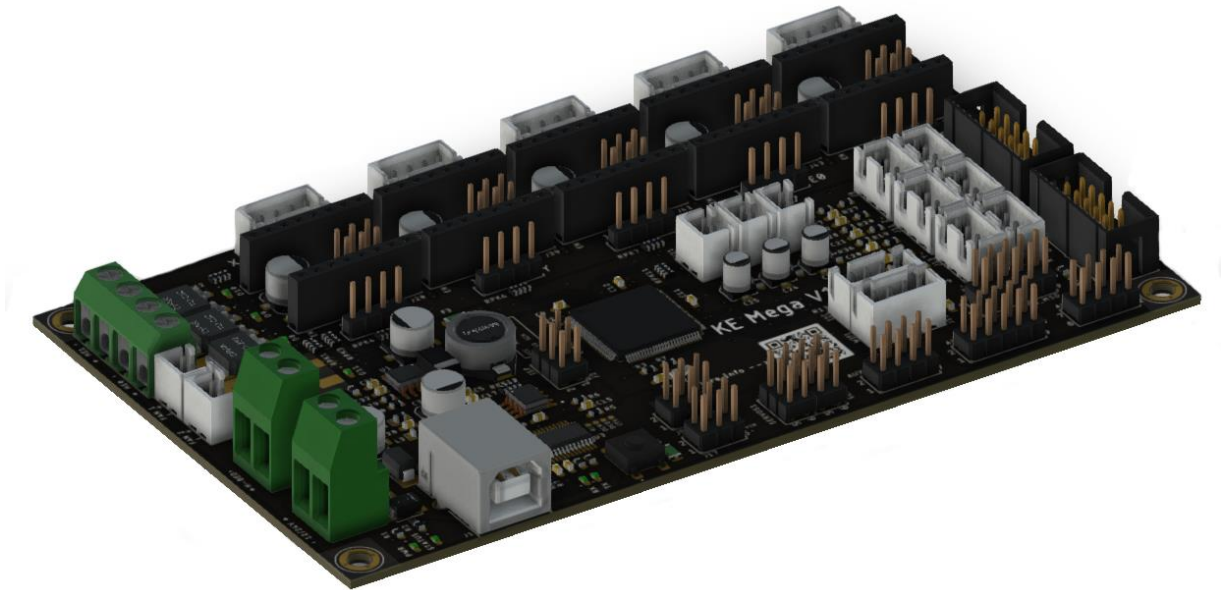


# Datasheet

## KE Mega V1.0

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## **1. Description:**

**KE Mega V1.0** is a feature rich all-in-one electronics solution for Reprap and other 3D printers / CNC devices. It features an onboard ATmega2560. Its five motor outputs are powered by Pololu pin compatible stepper drivers. The board features a developer friendly expansion port supporting giving access to all unused I/O, ADC and I2C pins. This board is designed to be flexible in the user's power source availability, allowing any power supply from 12V-24V. this controller can replace ramps-based motion controller out of the box. It also features possibility to connect most touchscreens (TFT) controllers.

## **2. Features:**

- Fully integrated solution:
  - Arduino 2560-R3 compatible, uses 8-bit ATMEGA2560 with 256kB flash and 8kB RAM and works with Marlin, Repetier, Sprinter firmware.
  - FTDI FT232RL chipset for high-speed USB-Serial connection, Hassle free connection to PC.
  - Can directly replace ramps 1.4 and other control boards based on ramps
- Power supply:
  - Can be used with 12V-24V for motors, heaters, and heated bed.
  - Integrated high precision switching regulator from ST-microelectronics.
  - 12/24V power supply output for external peripherals.
  - 5V power supply output for other TTL compatible peripherals.
  - Automatic power selector for ATmega2560/USB-serial chipset
- Easy connection to display + SD card connector:

- RepRapDiscount SmartController compatible pin header on board (EXP1 and EXP2)
- 5x stepper driver connectors:
  - Pin headers for microstepping selection.
  - Support Polulu A4988, DRV8825, TMC2100 and other similar clones.
  - X, Y, Z Axis + Dual extruder or X, Y, Z1, Z2 Axis + Single extruder.
- 3x temperature ADC connectors for thermistors:
  - 2x extruder thermistor + 1x heated bed thermistor
- 3x PWM capable power mosfet outputs with led indicator:
  - 2x extruder heater cartridge/power resistor + 2x (12V/24V) fan.
- 1x PWM capable power mosfet with extended cooling area for heated bed.
- 6x end stop connectors with power supply
  - Xmin/Xmax/ymin/Ymax/Zmin/Zmax
  - End stops such as mechanical. Opto, hall etc..
- Screw terminals, JST connectors, and pin header for easy connection with pin information on PCB.
- Easy to develop/debug new or optimized firmware using Atmel Studio and ICSP
- Connectors for interfacing external stepper drivers for high current steppers.
- Safety:
  - Over voltage and over current protection.
  - Reverse polarity protection for 5V and external 12V out power rail.
  - Thermal shutdown of switching regulators.
  - ESD protection on USB line.
- 4-Layer board PCB enables reducing EMI effect, and better heat transfer capability.
- Various inputs and outputs for extensibility.
- USB type B connector and USB pin header for external USB port
- Made in India product.
- Much more.

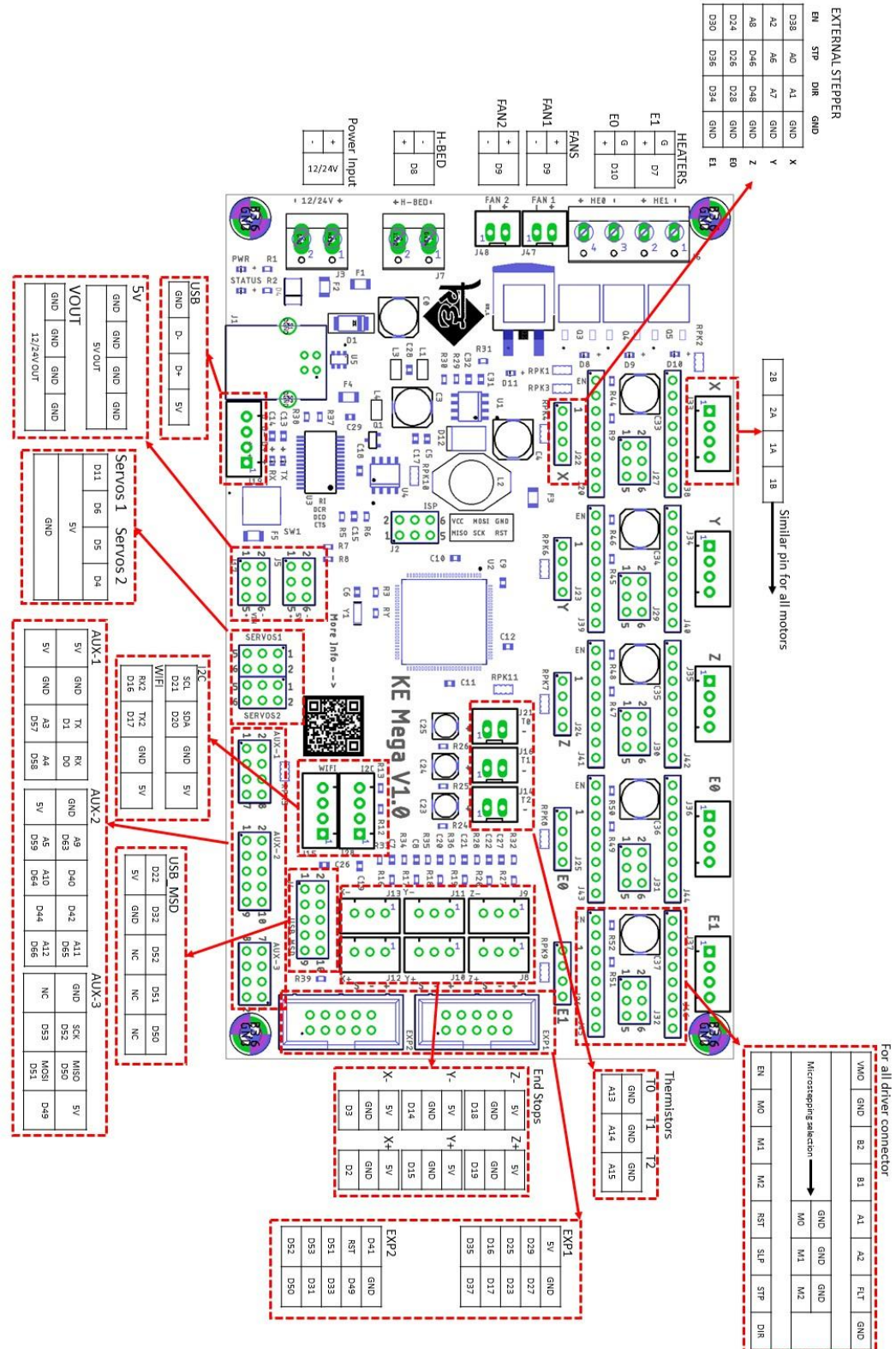
### 3. Specifications

Specification	Min	Max	Unit
Supply voltage	12	24	V
Current consumption			A
1. Main Power	-	20	
2. 5V Rail	-	1	
3. Vout Rail	-	0.75	
4. USB	-	0.5	
5. ATMEGA GPIO DC current	-	0.020	
Max stepper motor current	-	4	A
Temperature	-20	80	°C
Relative Humidity	0	95	%

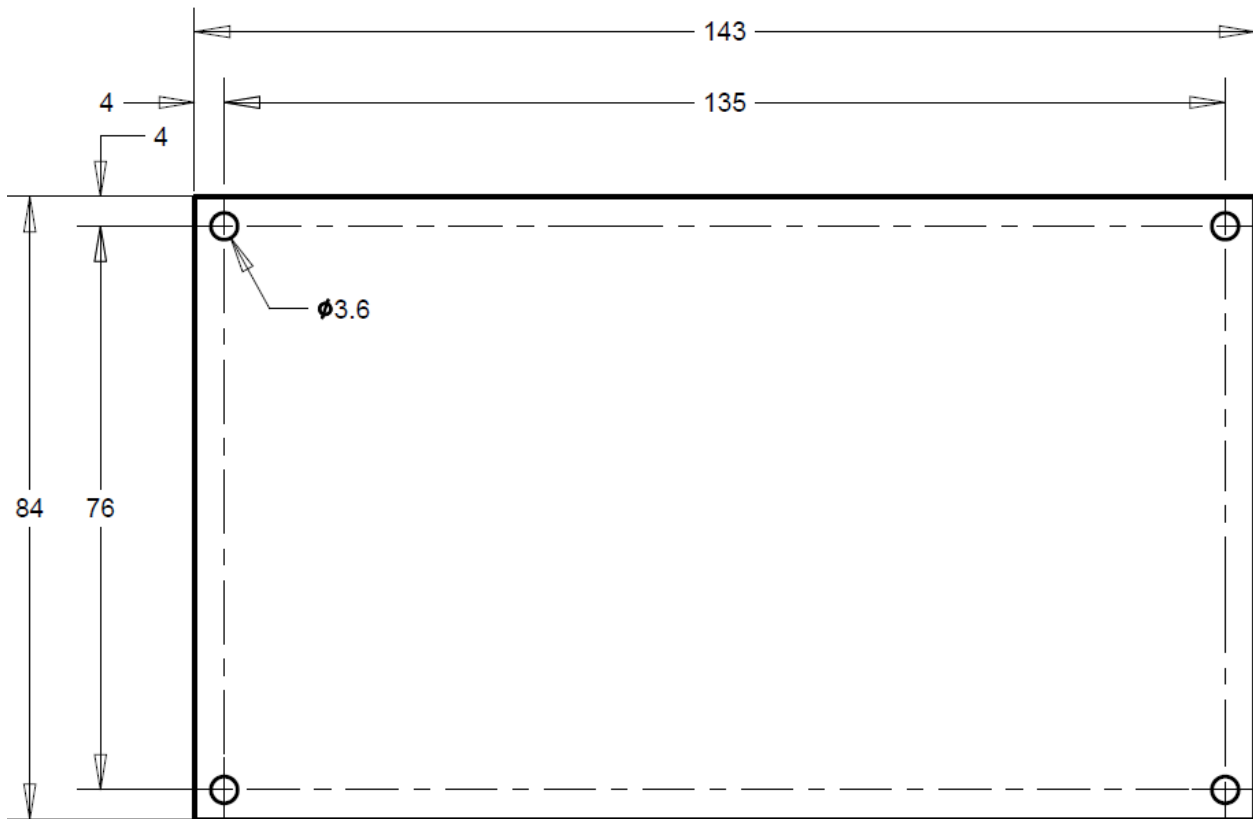
**\*Notes:**

1. Exceeding 1 Amps rating of 5v can blow fuse and also send Switching regulator to go in safe mode, always check the current consumption of the peripherals before connecting it to 5V power rails.
2. Do not exceed maximum parameters stated in above table, exceeding above parameters can temporary or permanently damage product.

## 4. Pin diagram:



## 5. Mechanical dimensions



## 6. Package content:

1. KE Mega 1.0 packed in ESD safe bag.
2. USB A to B Cable 0.3m.

## 7. References

- A. Information on Ramps 1.4 → [Link](#)
- B. KE MEGA 1.0 repository → [Link](#)
- C. FTDI firmware download → [Link](#)
- D. FTDI driver installation guide → [Link](#)
- E. Master repository of marlin → [Link](#)
- F. Configuring Marlin → [Link](#)



## **8. General warranty and Service:**

We will provide a one-year warranty on the board which covers any manufacturing defect. after the expiration of the warranty, a lifetime warranty on passive components will be provided.

Paid service in case of failure of the active components can be provided after the expiration of warranty period i.e., ATMEGA2560, USB transceiver, switching regulator, power MOSFETs. In all of the above cases shipping charge shall be borne by the customer.

Any malfunction due to the application of overvoltage at 5v and 24v rail will void the warranty but certainly, we can provide paid service for the repairing of such boards.

## **9. Contact US:**

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## **Appendix A: Revision History**

Document Title: KE MEGA V1.0 Datasheet  
Document no: KE\_00012\_0221  
Product Page [Link](#)  
Feedback

Revision	Changes	Date
V 1.0	First Release	Feb 2021