USER MANUAL

PWB-M140

DC-to-DC Power Board

1.00-01082018-103700

Box Contents

- 1 x PWB-M140 power board
- 1 x DC-in module
- 1 x DC input power cable

Ordering Information

Part Number	Description
10GGB00000020	140W DC-DC power board, voltage range from 12V~24V

Table of Contents

List of Figures

List of Tables

1. Product Overview

The PWB-M140 is a fanless DC-to-DC power board designed for Mini-ITX series x86 mainboards.

1.1 Key Features

- Voltage Over/Under Protection Function
- Wide Range DC Input Voltage
- Compatible with Mini-ITX series mainboards
- Wide operating temperature range
- Fanless, easy integration and quick setup

1.2 Product Specifications

Protection

- Output Voltage Protection (Over Voltage Protection) OVP
- Output Current Protection (Output Short Protection)
- Output Voltage Protection (Under Voltage Protection) UVP

Operating Temperature

- 0°C ~ 60°C

Operating Humidity

- 0% ~ 95% (non-condensing)

Dimensions

- 150mm x 51mm (5.9” x 2”)

Compatible models

- EPIA-M920, EPIA-M910, EPIA-M900, EPIA-M860, VB7009

DC Input

Input Voltage	12V ~24V
Input Current	4.7A ~12A

DC Output Voltage

- @ Input Voltage 12V ~ 24V

Output	Minimum	Normal	Maximum	Maximum Combined Power
+5V_SB±5%	4.75V	5V	5.25V	140W
+3.3V±5%	3.14V	3.3V	3.47V	
+5V±5%	4.75V	5V	5.25V	
+12V±5%	11.4V	12V	12.6V	
-12V±5%	-13.2V	-12V	-10.8V	
Power Good	4.75V	5V	5.25V	

- @ Input Voltage 10V ~ 12V

Output	Minimum	Normal	Maximum	Maximum Combined Power
+5V_SB±5%	4.75V	5V	5.25V	122.2W
+3.3V±5%	3.14V	3.3V	3.47V	
+5V±5%	4.75V	5V	5.25V	
+12V±5%	11.4V	12V	12.6V	
-12V±5%	-13.2V	-12V	-10.8V	
Power Good	4.75V	5V	5.25V	

DC Output Current

- @ Input Voltage 12V~30V

+5V_SB	+3.3V	+5V	+12V	-12V	Power Good	Maximum Combined Power
2A	6.2A	7A	6A	200mA	5mA	140W

- @ Input Voltage 10V~12V

+5V_SB	+3.3V	+5V	+12V	-12V	Power Good	Maximum Combined Power
2A	6A	6A	5A	200mA	0.1A	122W

Note:
As the operating temperature provided in the specifications is a result of the test performed in VIA's chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is highly suggested to execute a solid testing program and take all the variables into consideration when building the system. Please ensure that the system runs well under the operating temperature in terms of application.

1.3 Layout Diagram

1.3.1 PWB-M140 Power Board Layout

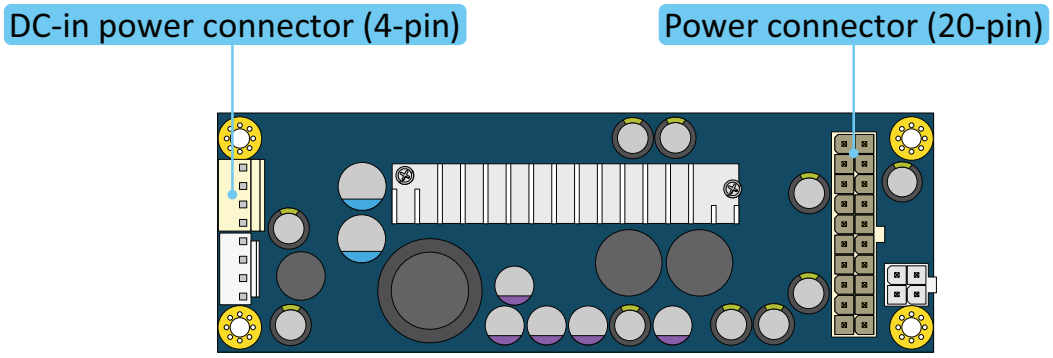

Figure 1: Layout diagram of the PWB-M140 power board (top view)

1.3.2 DC-In Module Layout

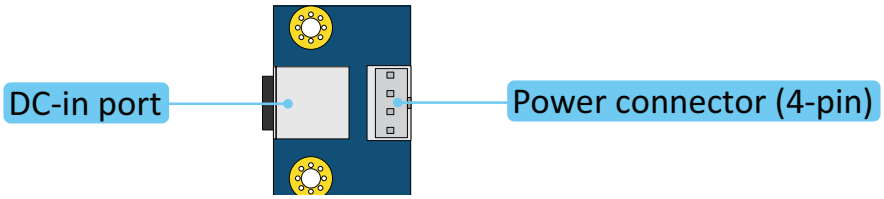

Figure 2: Layout diagram of the DC-in module

1.4 Product Dimensions

1.4.1 PWB-M140 Dimensions

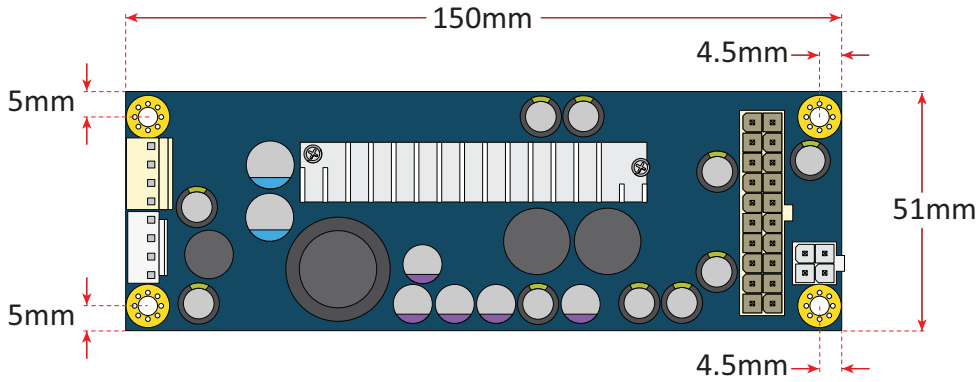

Figure 3: Mounting holes and dimensions of the PWB-M140 power board

1.4.2 DC-In Module Dimensions

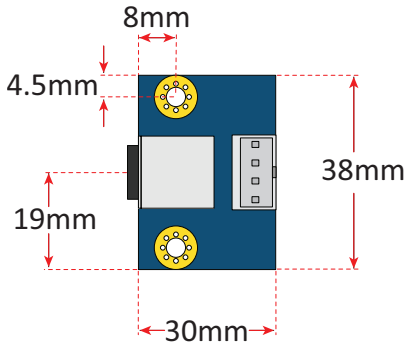

Figure 4: Mounting holes and dimensions of the DC-in module

2. I/O Interface

2.1 Onboard Connectors

2.1.1 DC-In Power Connector

The PWB-M140 power board has a DC-in power connector (4-pin) labeled as “CN1”. The DC-in power connector is used to connect to the DC-in module. The pinouts of the DC-in power connector are shown below.

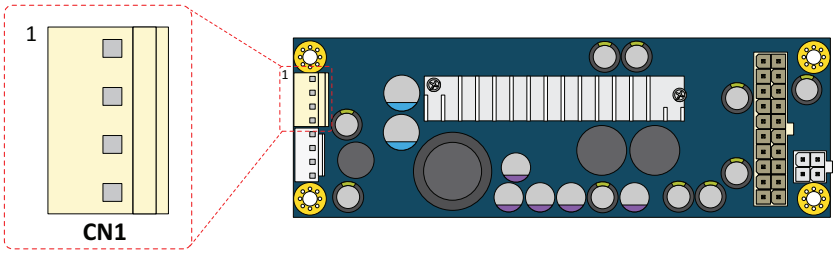

Figure 5: DC-in power connector diagram

Pin	Signal
1	Vin+ (anode) +10V~+30V
2	Vin+ (anode) +10V~+30V
3	Vin- (GND)
4	Vin- (GND)

Table 1: DC-in power connector pinouts

2.1.2 Power Connector

The PWB-M140 power board has a power connector (20-pin) labeled as “CN2”. The power connector is used to connect to the ATX power connector on the EPIA mainboard. The pinouts of the power connector are shown below.

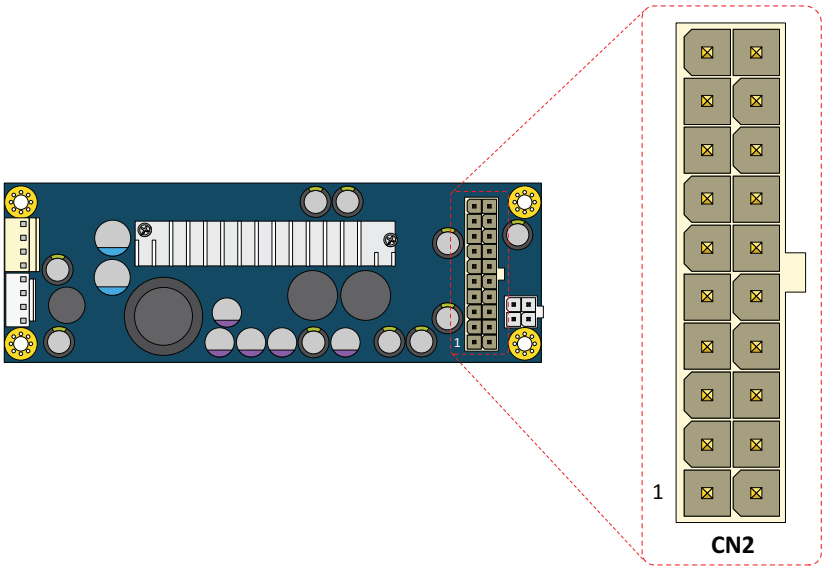

Figure 6: Power connector diagram

Pin	Signal	Pin	Signal
1	+3.3V (Output Voltage)	11	+3.3V
2	+3.3V (Output Voltage)	12	-12V (Output Voltage)
3	GND	13	GND
4	+5V (Output Voltage)	14	P_ON (Power On)
5	GND	15	GND
6	+5V (Output Voltage)	16	GND
7	GND	17	GND
8	Power Good (PGD 5V)	18	NC
9	+5VSB (5V only)	19	+5V (Output Voltage)
10	+12V (Output Voltage)	20	+5V (Output Voltage)

Table 2: Power connector pinouts

3. Hardware Installation

3.1 Installing the PWB-M140 power board

Step 1

Place the PWB-M140 power board and DC-in module in the desire position in the chassis. Secure both in place through the mounting holes.

Step 2

Connect the Power cable to the power connector (CN2) on the PWB-M140 power board, and then connect the other end of the cable to the ATX power connector on the mainboard.

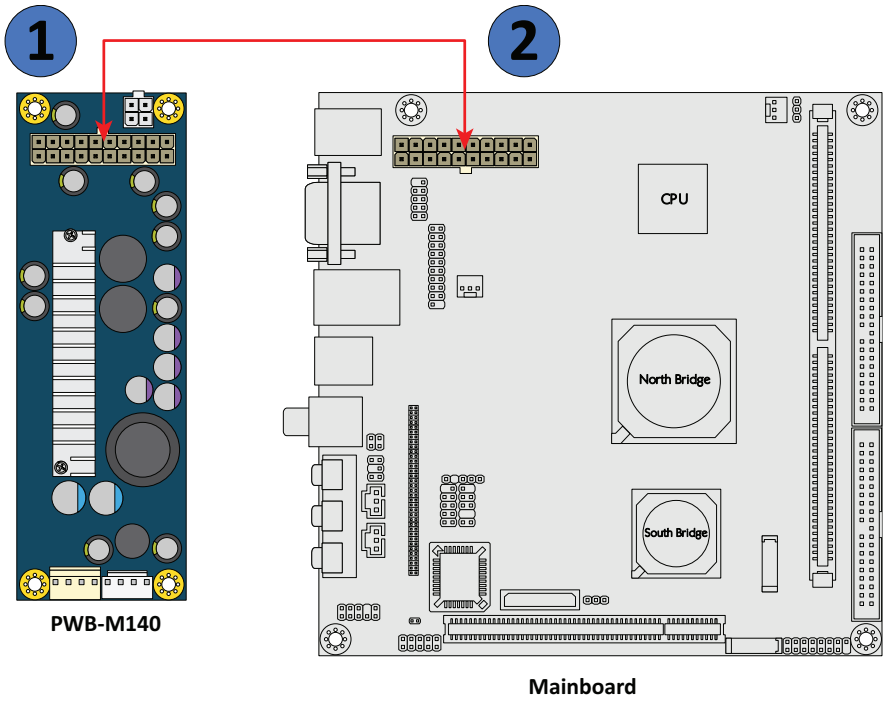

Figure 7: Connecting the PWB-M140 power board to the mainboard

Step 3

Connect the DC input power cable to the DC-in power connector (CN1) on the PWB-M140 power board, and then connect the other end of the cable to the power connector (4-pin) on the DC-in module.

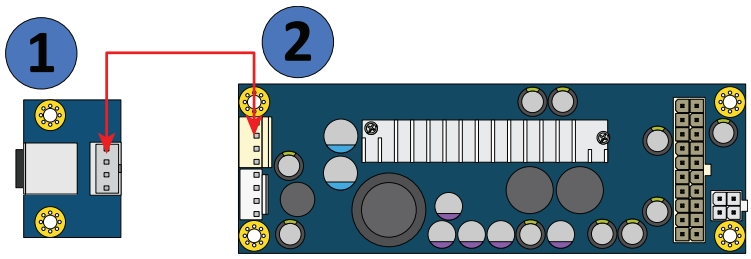

Figure 8: Connecting the DC-in module to the PWB-M140 power board

Step 4

Arrange the cables. Make sure the cable's connectors are properly inserted and the locking mechanism is snapped in place.

4. Technical Support

- For utilities downloads, latest documentation and new information about the PWB-M140, please visit our website at **https://www.viatech.com/en/accessories/x86-power-boards/**
- For technical support and additional assistance, always contact your local sales representative or board distributor, or go to **https://www.viatech.com/en/support/driver-support-fag/technical-support/** for technical support.
- For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. Please visit our website at **https://www.viatech.com/en/about/contact/** to submit a request.

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