EPM-1714

Super-CAP ATX Power Module

User's manual

1st Ed – 13 January 2017

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Copyright Notice

Disclaimer

Content

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EPM-1714 Super-CAP ATX Power Module
- 1 x DVD-ROM contains the followings:
    — Ethernet drivers and utilities
- ATX 10P x 2 Cable
- ATX 2P x 2 Cable
- COM port to COM port cable
- Mini USB (module) to A type USB cable (M/B)

If any of the above items is damaged or missing, contact your retailer.

2. Hardware Configuration

2.1 Product Overview
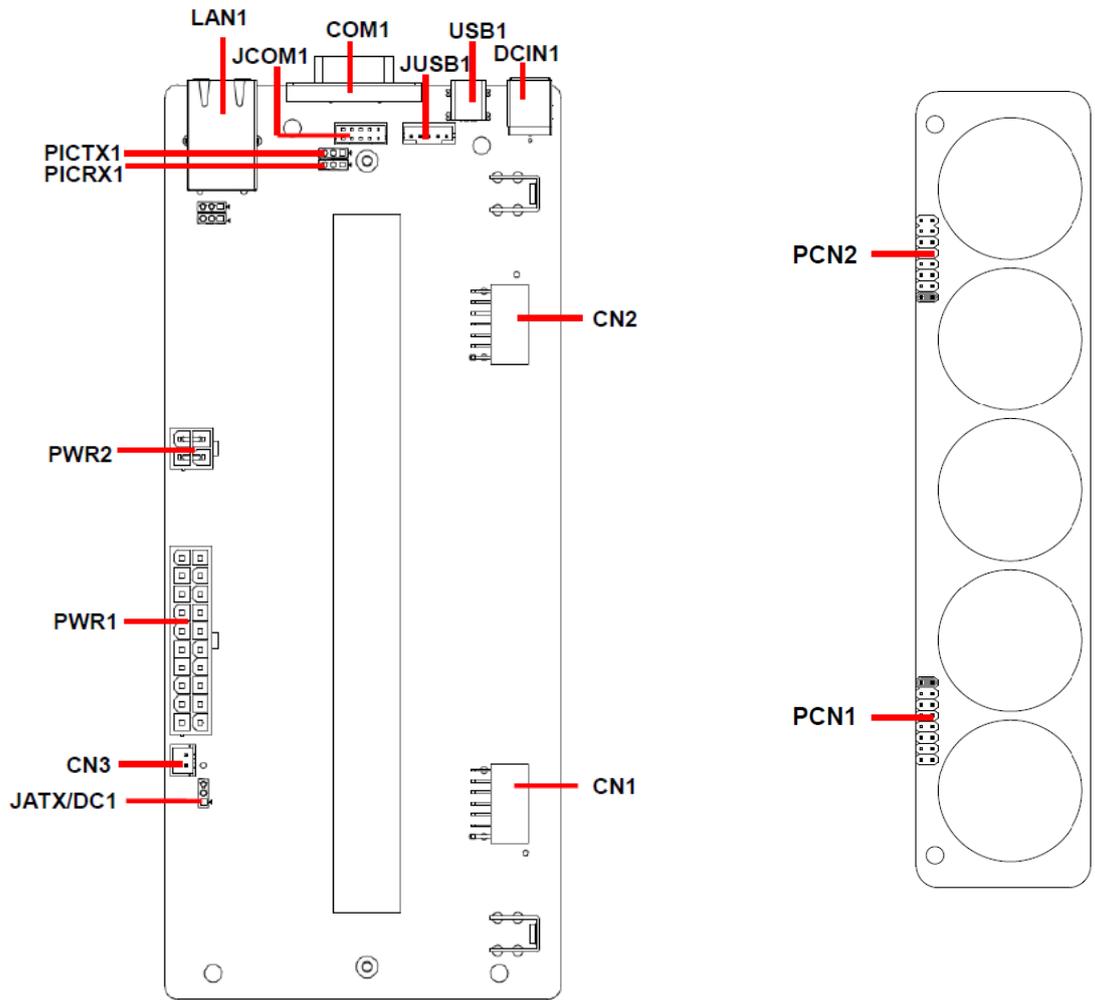
2.2 Jumper and Connector List

The following tables list the function of each of the board's connectors.

Jumpers

| Label	Function	Note
PICTX1/PICRX1	PIC to COM Port	3 x 1 header, pitch 2.00 mm
JATX/DC1	ATX/DC Input power select	3 x 1 header, pitch 2.00 mm

Connectors

| Label	Function	Note
LAN1	RJ-45 Ethernet connector 1 (Remote Monitor)	
USB1	USB2.0 connector (Remote Monitor)	
COM1	Serial port connector (Remote Monitor)	D-sub 9-pin, male
DCIN1	DC power-in connector	
CN1/2	Main board connector 1/2 (connect to PCN1/2)	7 x 2 header, pitch 2.54 mm
CN3	Power button connector	2 x 1 wafer, pitch 2.00mm
PWR1	Power connector 1	10 x 2 wafer, pitch 4.20 mm
PWR2	Power connector 2	2 x 2 wafer, pitch 4.20mm
JCOM1	On board box header for serial port	5 x 2 wafer, pitch 2.00 mm
JUSB1	On board box header for USB2.0	5 x 2 wafer, pitch 2.00 mm
PCN1/2	Super-Cap Pack board connector 1/2 (connect to CN1/2)	8 x 2 header, pitch 2.54 mm

2.3 Setting Jumpers and Connectors

### 2.3.1 PIC to COM Port (PICTX1/PICRX1)
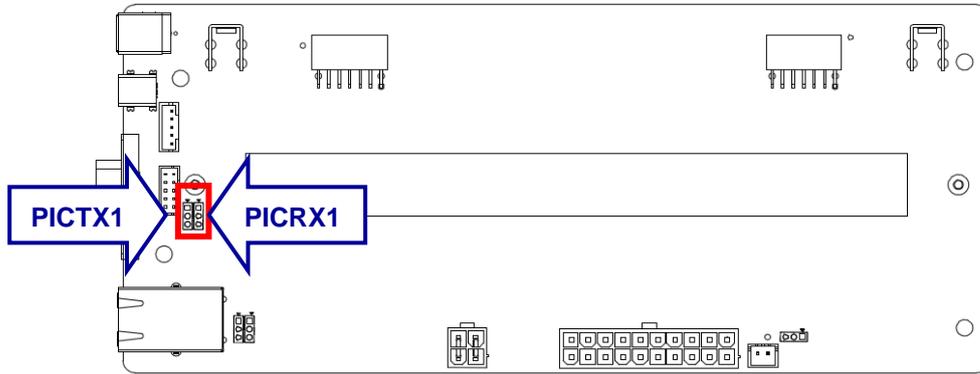
1-2: PIC to COM*
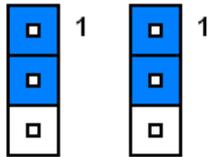
2-3: LAN Console
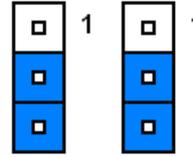

### 2.3.2 ATX/DC Input power select (JATX/DC1)
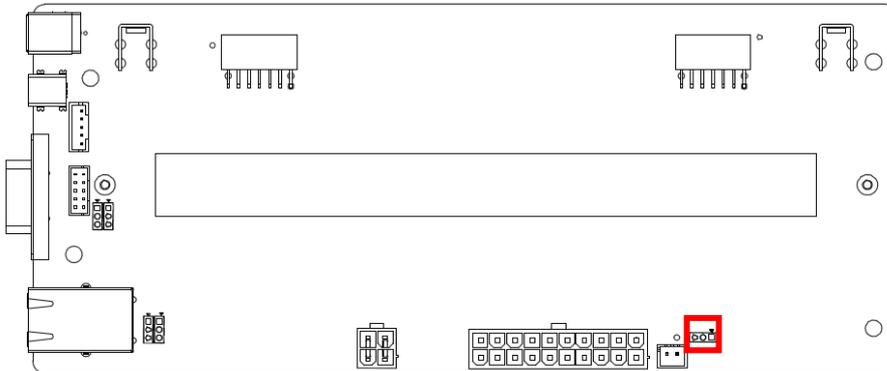
1-2: ATX*
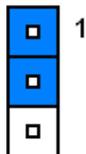
2-3: DC
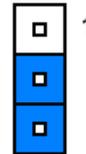
2.3.3 On board box header for USB2.0 (JUSB1)
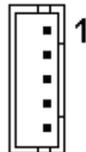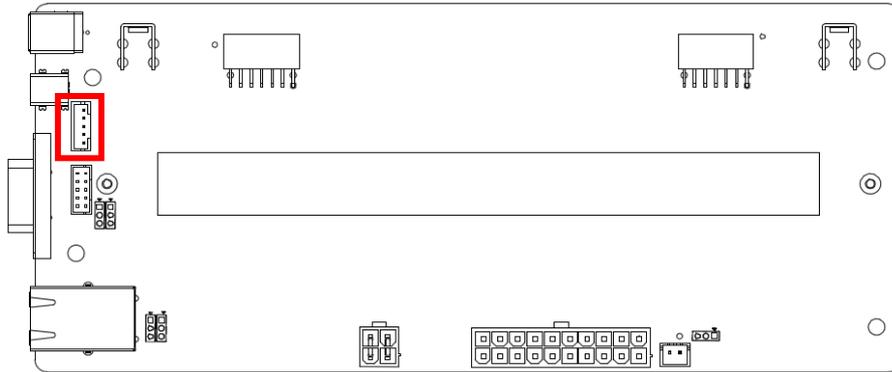
Signal	PIN
UVCC	1
USBP_DM	2
USBP_DP	3
GND	4
GND	5

2.3.4 On board box header for serial port (JCOM1)
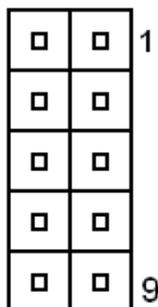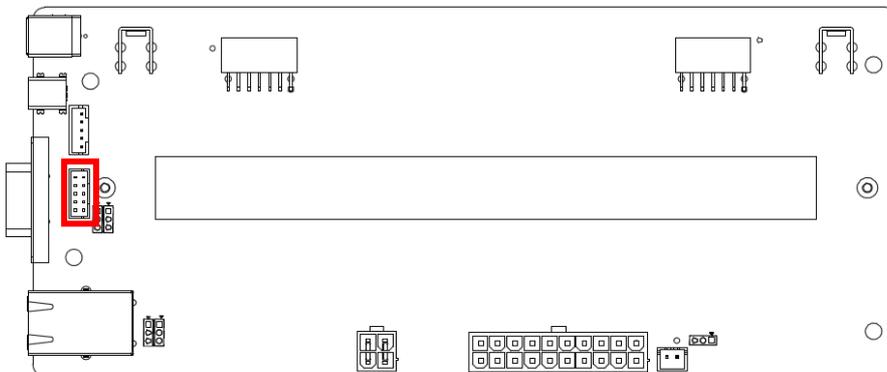
Signal	PIN	PIN	Signal
RXD	2	1	NC
NC	4	3	TXD
NC	6	5	GND
NC	8	7	NC
NC	10	9	NC

2.3.5 Power connector 1 (PWR1)
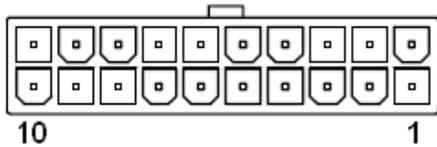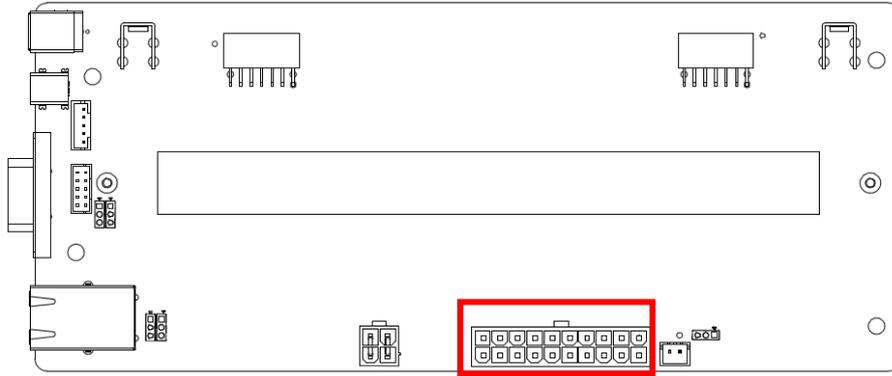
Signal	PIN	PIN	Signal
+3.3V	1	11	+3.3V
+3.3V	2	12	-12V
GND	3	13	GND
+5V	4	14	+5V
GND	5	15	GND
+5V	6	16	GND
GND	7	17	GND
ATX_PWROK	8	18	GND
+5VSB	9	19	+5V
+12V	10	20	+5V

2.3.6 Power connector 2 (PWR2)
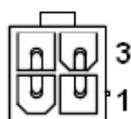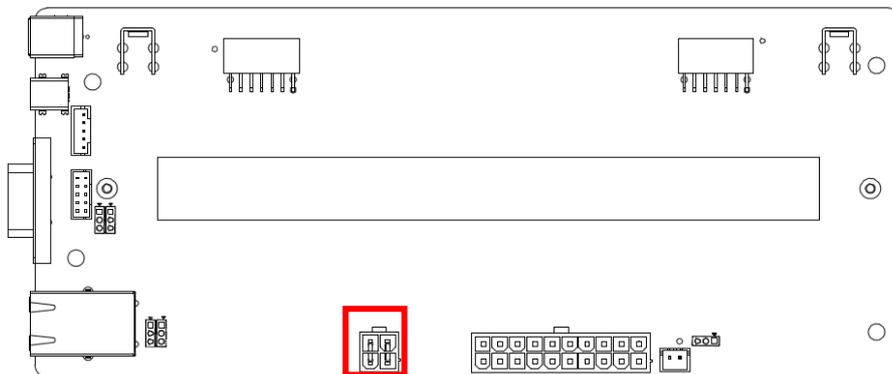
Signal	PIN	PIN	Signal
+12V	4	3	+12V
GND	2	1	GND

2.3.7 Main board connector 1 (CN1)
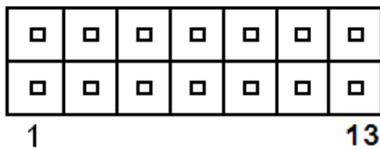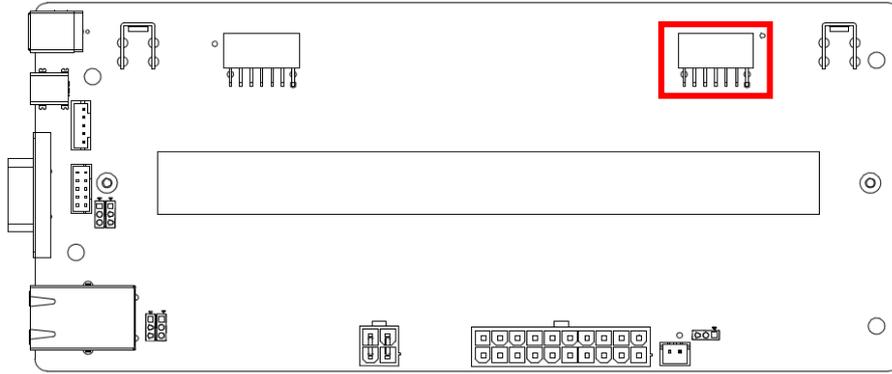
Signal	PIN	PIN	Signal
VCS_34	1	2	VCS_34
VCS_45	3	4	VCS_45
VCS_NP	5	6	VCS_NP
VCS_NP	7	8	VCS_NP
VCS_NP	9	10	VCS_NP
GND	11	12	SC5#
GND	13	14	NC

2.3.8 Main board connector 2 (CN2)
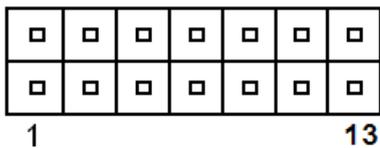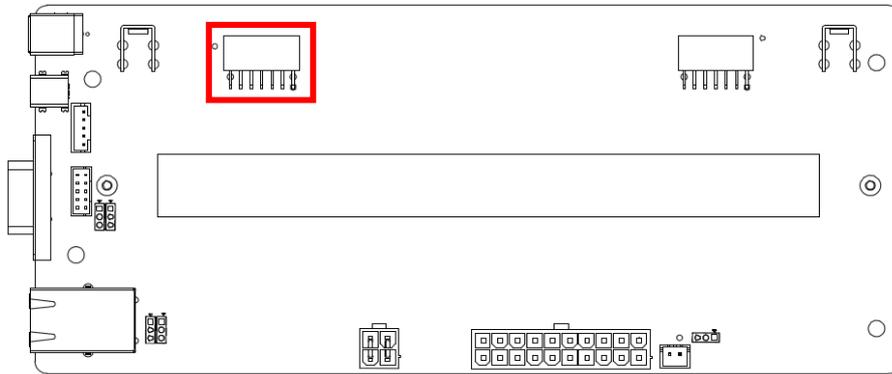
Signal	PIN	PIN	Signal
GND	1	2	ETS_R
+VSC	3	4	+VSC
+VSC	5	6	+VSC
+VSC	7	8	+VSC
+VSC	9	10	+VSC
VCS_12	11	12	VCS_12
VCS_23	13	14	VCS_23

2.3.9   Power button connector (CN3)
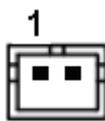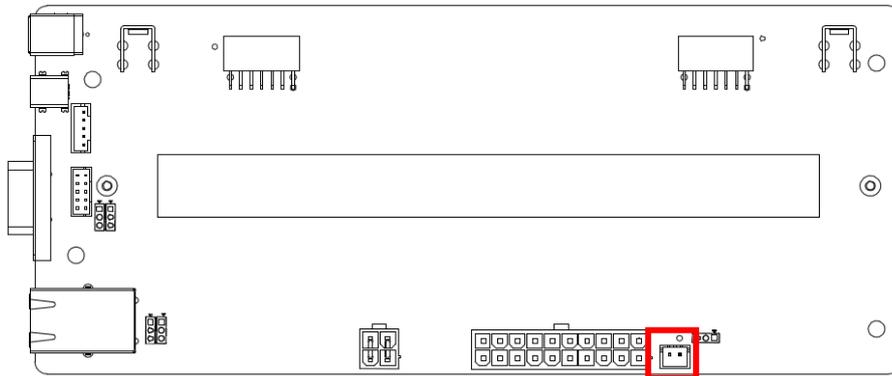
Signal	PIN
POFF_TRG1	1
POFF_TRG2	2

2.3.10   Super-Cap Pack board connector 1 (PCN1)
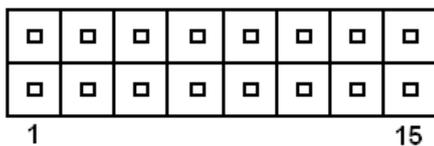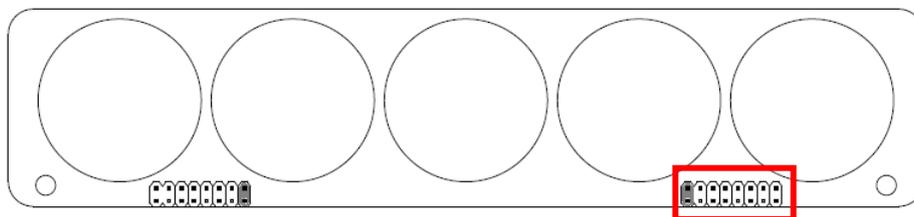
Signal	PIN	PIN	Signal
	1	2	
PVCS_34	3	4	PVCS_34
PVCS_45	5	6	PVCS_45
PVCS_NP	7	8	PVCS_NP
PVCS_NP	9	10	PVCS_NP
PVCS_NP	11	12	PVCS_NP
PSC5#	13	14	PSC5#
NC	15	16	GND

2.3.11 Super-Cap Pack board connector 2 (PCN2)
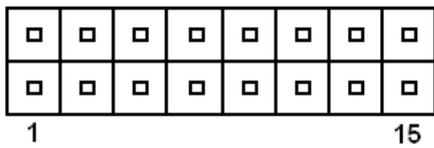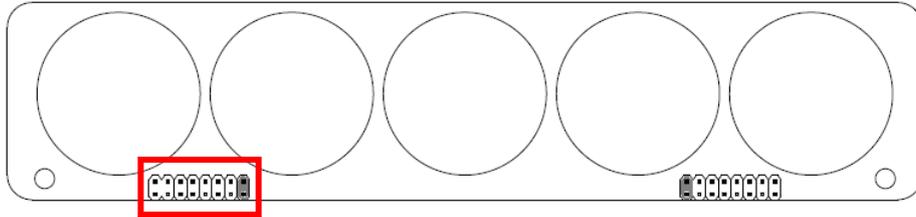
Signal	PIN	PIN	Signal
PETS_R	1	2	GND
+VSCP	3	4	+VSCP
+VSCP	5	6	+VSCP
+VSCP	7	8	+VSCP
+VSCP	9	10	+VSCP
PVCS_12	11	12	PVCS_12
PVCS_23	13	14	PVCS_23
	15	16	

2.4 Connection and Operation explained

2.4.1 Power input connection:

1. Connecting ATX power connector (20 pins) between the EPM-1714 and main board.

2. Connecting ATX 12V power connector (4 pins) between the EPM-1714 and main board.

3. Connecting Power button connector (CN3) of EPM-1714 to the power switch pin header of the main board.

4. Input +9V~+24V DC power to DCIN1 of EPM-1714
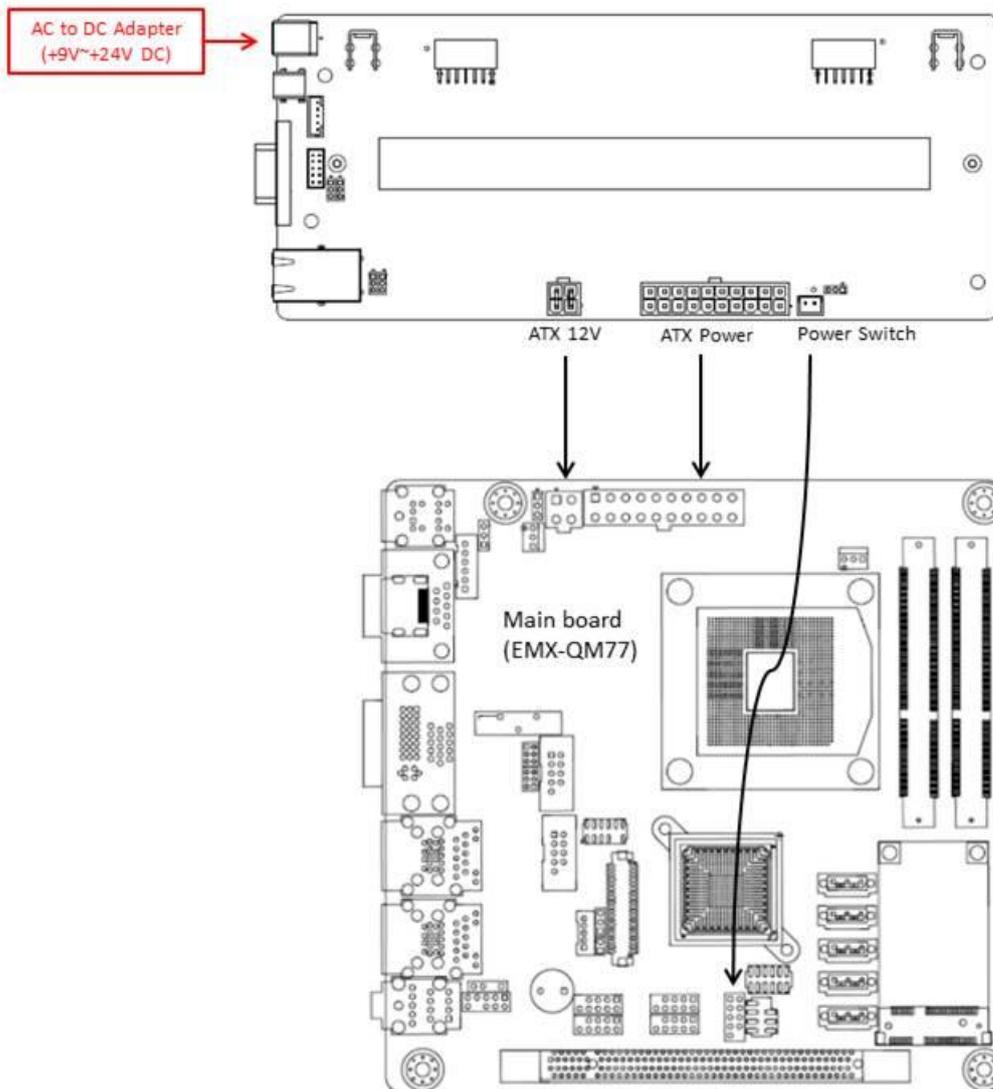
2.4.2 Connection for monitoring EPM-1714's Super Capacitor power status through COM port:

1. PIC to COM Port (PICTX1/PICRX1) jumper set 1-2 (PIC to COM, default)

2. Connecting the COM ports between EPM-1714 and main board through a COM port cable.

3. Run "EPM-1714_TEST_V002_130923_C.exe" for setting and monitoring the EPM-1714 status.
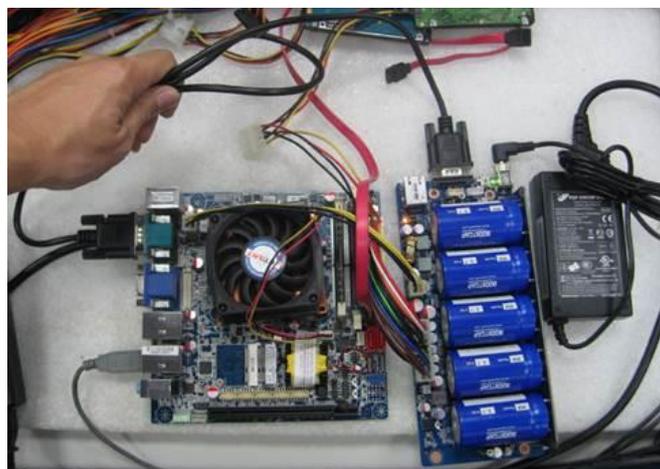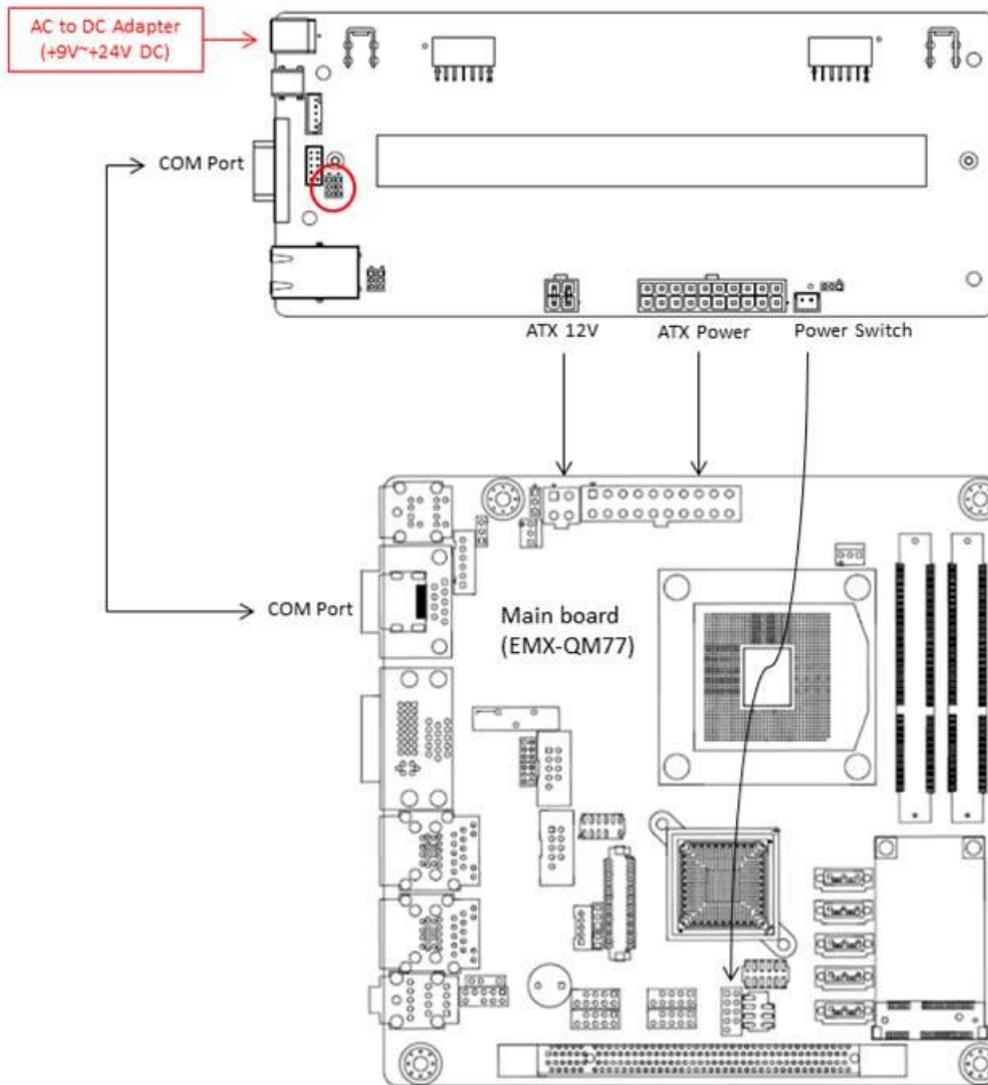
2.4.3 Connection for monitoring EPM-1714's Super Capacitor power status through USB port:

1. PIC to COM Port (PICTX1/PICRX1) jumper set 1-2 (PIC to COM, default)

2. Connecting the USB ports between EPM-1714 and main board through an USB port cable.

3. Run "EPM-1714_TEST_V002_130923_C.exe" for setting and monitoring the EPM-1714 status.
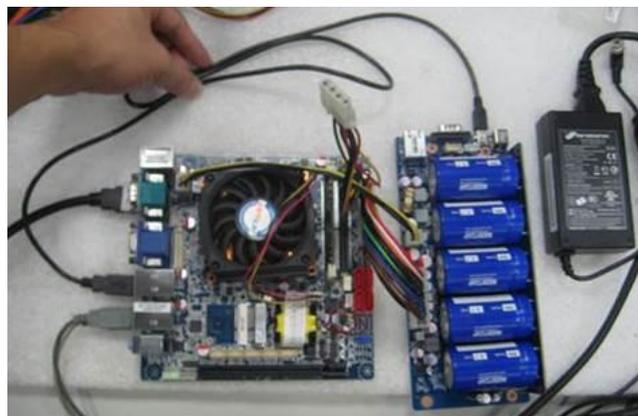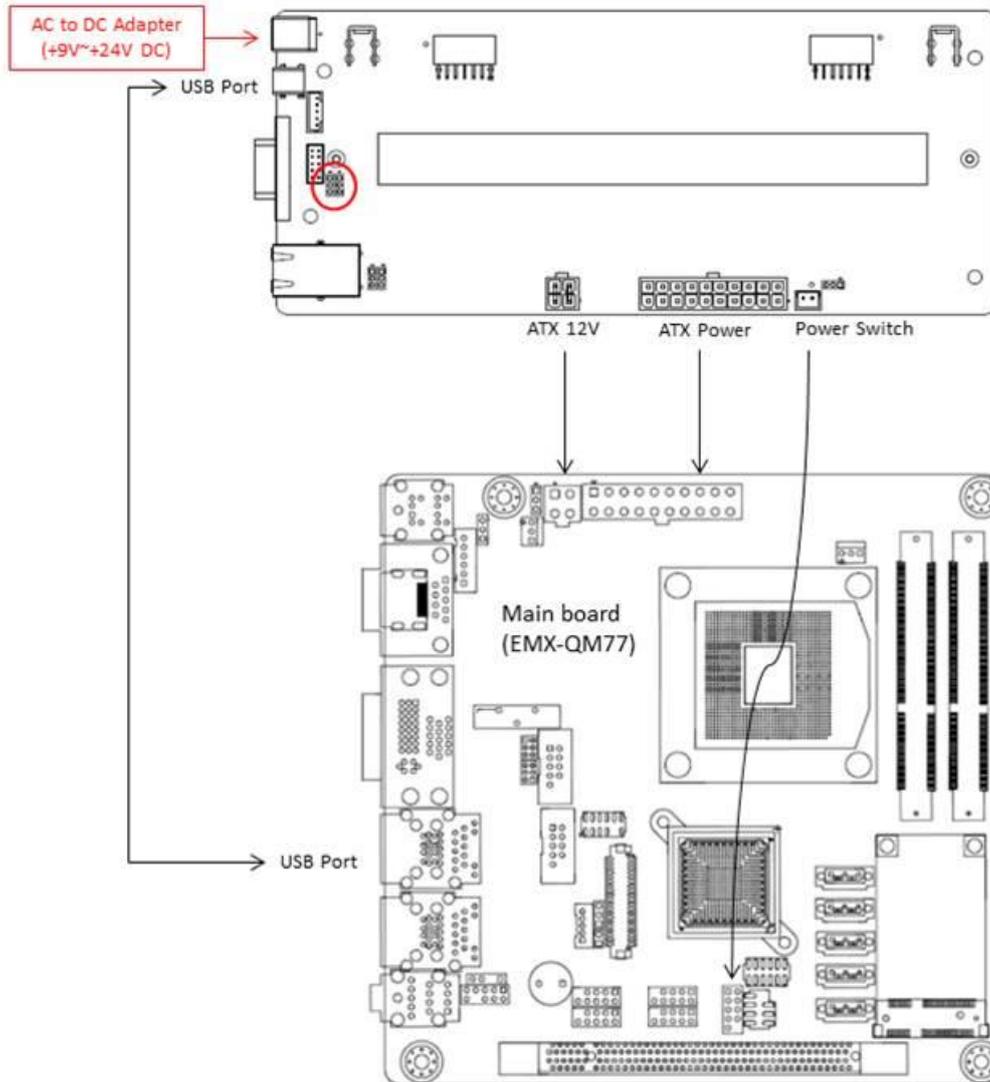
2.4.4 Connection for monitoring EPM-1714's Super Capacitor power status through LAN port:

1. PIC to COM Port (PICTX1/PICRX1) jumper set 2-3 (LAN Console)

2. Connecting the LAN ports between EPM-1714 and main board through a LAN port cable.

3. Run "EPM-1714_TEST_V002_130923_C.exe" for setting and monitoring the EPM-1714 status.
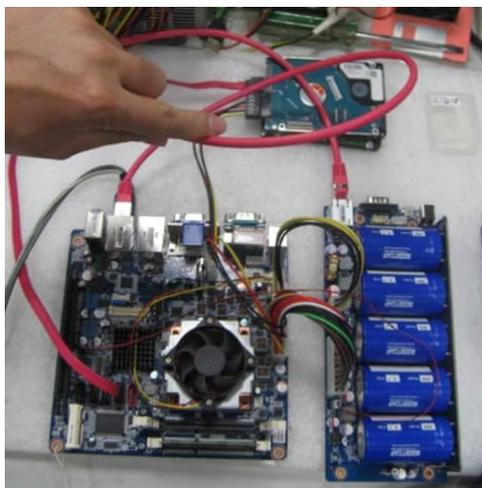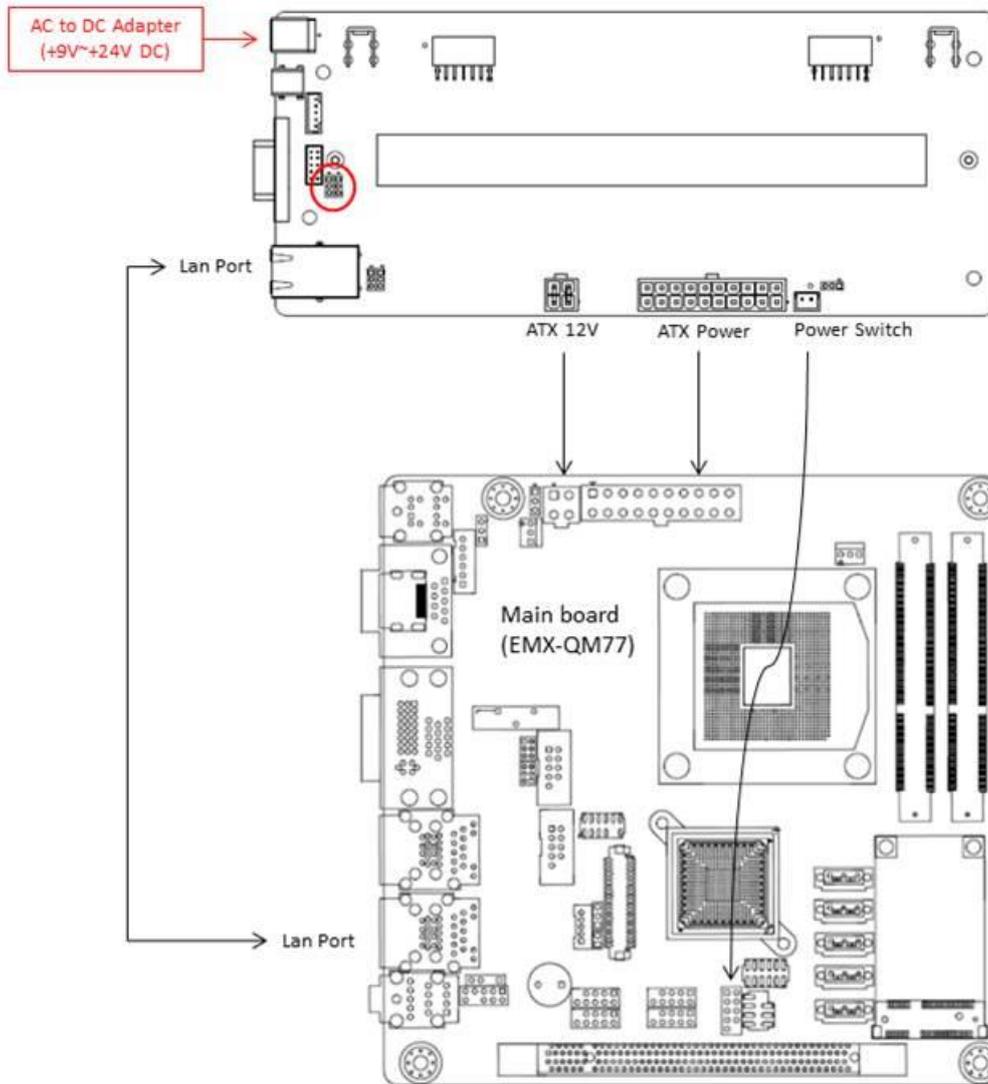
2.5 API Setup

2.5.1   Linux API Setup

Please following the bellow install procedure to make and loading the driver.

(You also can see the Document "INSTALL_NOTE.txt" in compressed file we provided.)

You need use root to build and install.

$ = command line

Step1. Install QT Tool、libraries and headers

$ yum install qt qt-devel

Step2. Make sure the path of qmake command is correct (The QT version should be 4.x)

$ qmake –v

    Using Qt version 4.6.2 in /usr/lib.   (my environment)

Step3. Install API file

1. Switch to "api" directory.
2. Type "make" to build the API file.
3. Type "make install" to copy the api to system directory

Step4. Install TEST program

1. Switch to "1714_demo" directory.
2. Type "make" to build the test program.
3. Type "./1714_demo" to execute the test program.
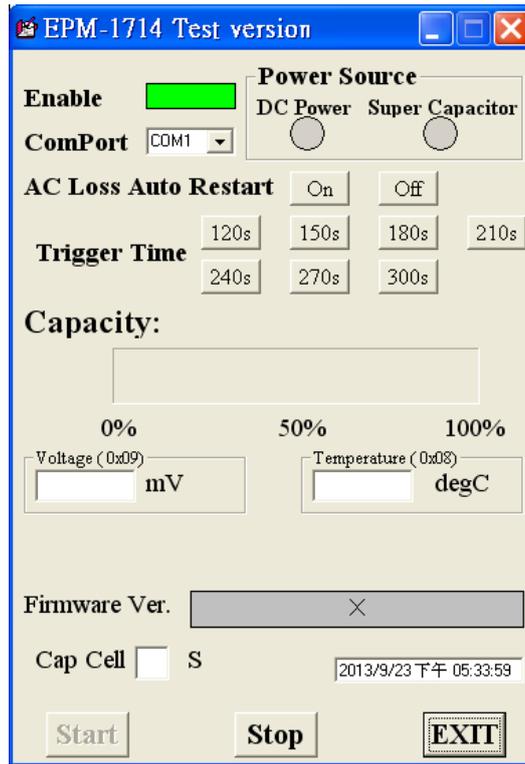
The dialog box will show below:

Step2. Set the "ComPort", if the communication port is available for connection, the color on "Enable" status become green.
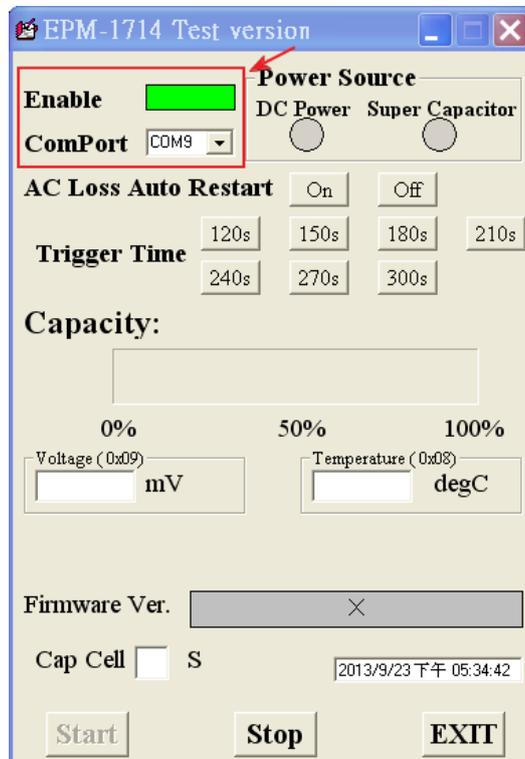
Step3. Set the status of "AC Loss Auto Restart" to Off mode.
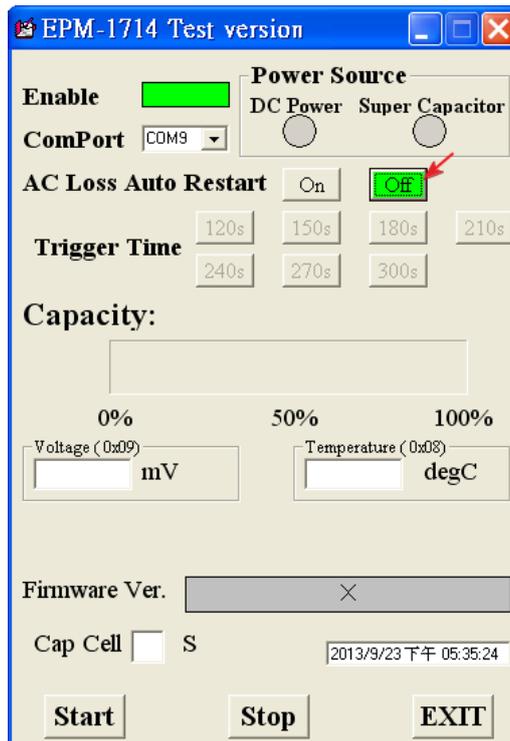
Press the "Start" button to get Supercap capacity, voltage and temperature level, also get the status of power source and Firmware Version.
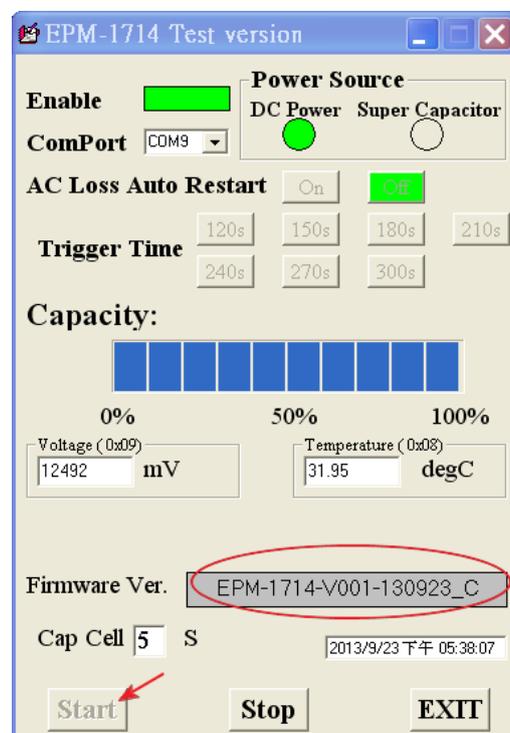
EPM-1714 User's Manual

When the jumper on the Pinhead JATX/DC1 is on DC(short Pin2 and Pin3):
The LED4 (flash for 0.5 second) is notification signal for indicate:

1. EPM-1714 power Off and SuperCap Off:
2. DC Jack power on and the status of AC Loss Auto Restart is On to Off.
3. DC Jack power off at first time.

When the jumper on the Pinhead JATX/DC1 is on JATX(Short Pin1 and Pin2):
The notification LED signal (flash for 0.5 second) would be sent out every time when DC is on and off .

If the status of "AC Loss Auto Restart" to On mode:
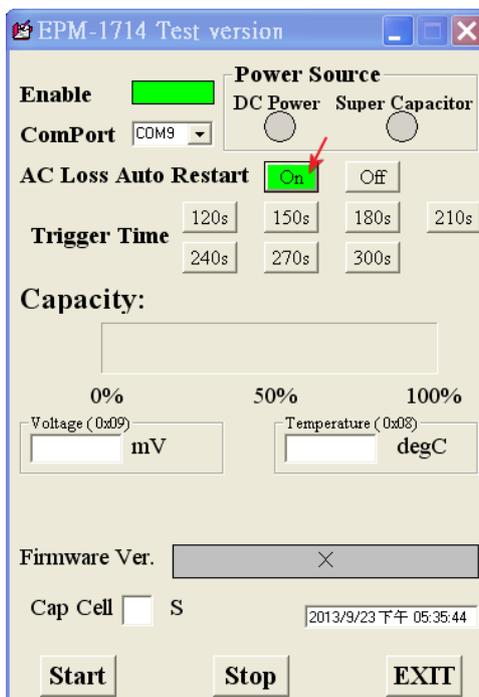
Please also select the "Trigger Time" to setup the re-start timer while AC loss.

EPM-1714 User's Manual
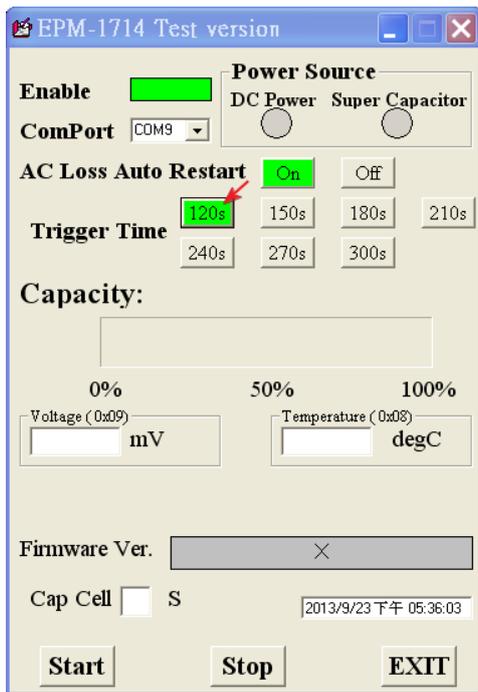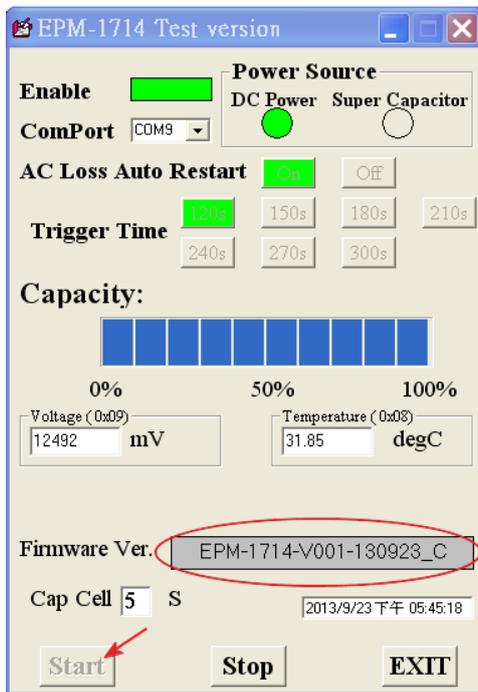
Press the "Start" button to setup the new configuration.

When the jumper on the Pinhead JATX/DC1 is on DC(short Pin2 and Pin3):

When the DC power off, the trigger signal pulse (0.5 second) would be sent to mainboard to trigger MB shutdown, the notification LED4 also flash for 0.5 second.

When DC power source is recovered, a trigger signal pulse would be sent to mainboard after preset trigger time (configuration 2 to 5 minutes setting) and the notification LED4 also flash for 0.5 second.

When the jumper on the Pinhead JATX/DC1 is on JATX(Short Pin1 and Pin2):

EPM-1714 would send trigger signal pulse to reboot the system when DC is available.

22 EPM-1714 User's Manual

2.5.2 Windows API Setup

Step1. Run EPM-1714_TEST_V002_130923_C.exe
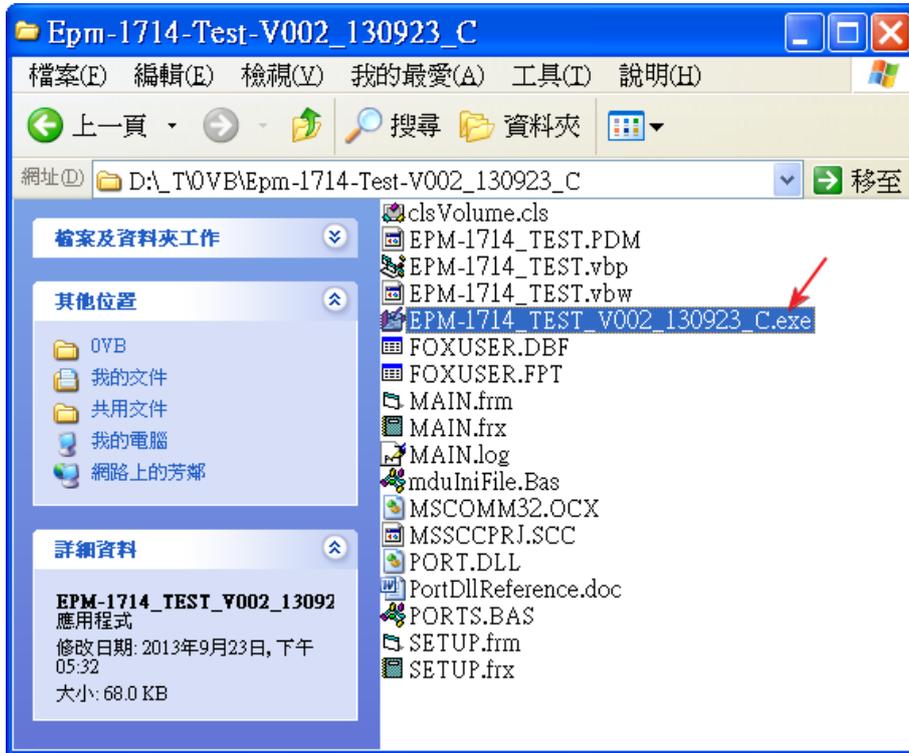

The dialog box will show below:
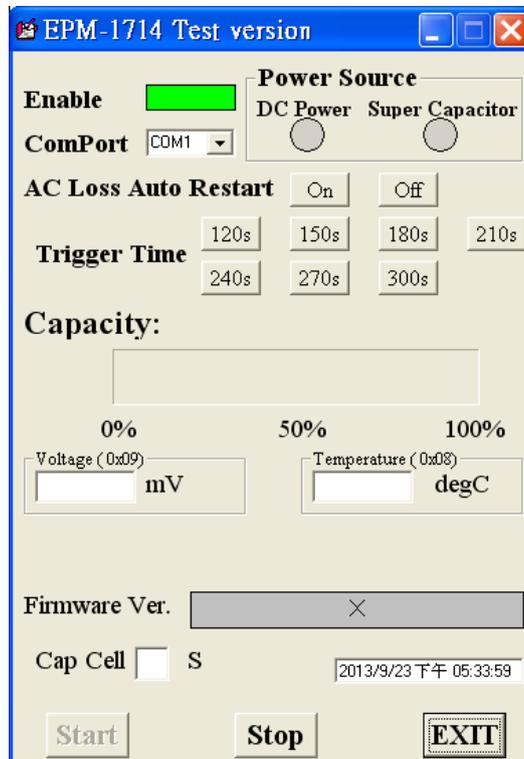
Step2. Set the "ComPort", if the communication port is available for connection, the color on "Enable" status become green.
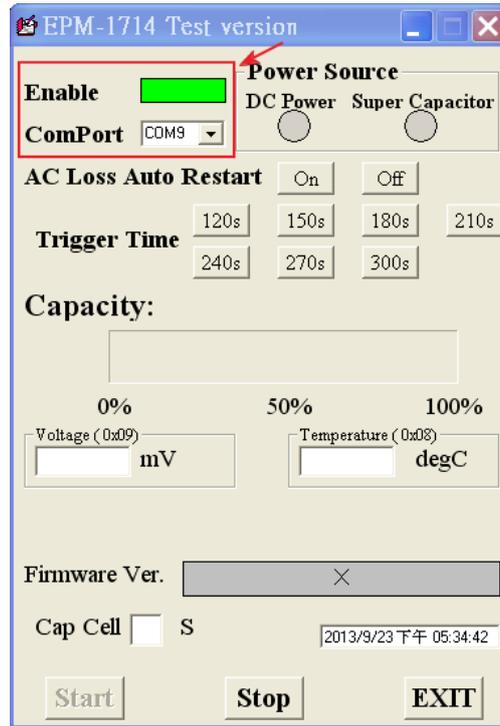

Step3. Set the status of "AC Loss Auto Restart" to Off mode.
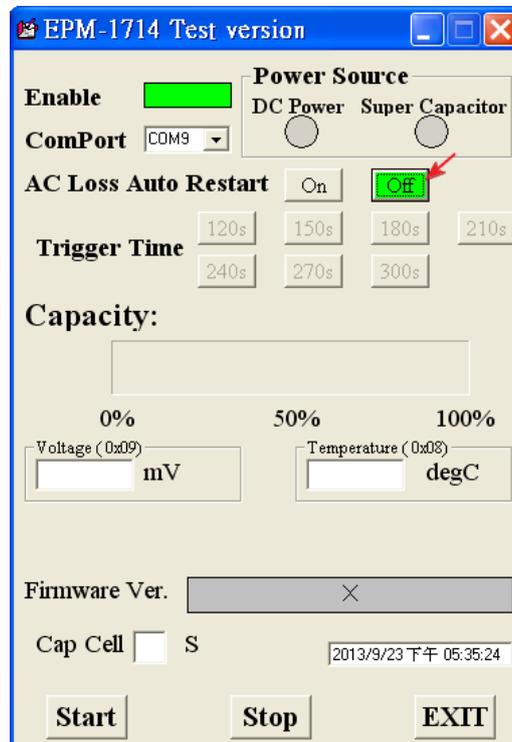
EPM-1714 User's Manual

Press the "Start" button to get Supercap capacity, voltage and temperature level, also get the status of power source and Firmware Version.

When the jumper on the Pinhead JATX/DC1 is on DC(short Pin2 and Pin3):
The LED4 (flash for 0.5 second) is notification signal for indicate:
1. EPM-1714 power Off and SuperCap Off:
2. DC Jack power on and the status of AC Loss Auto Restart is On to Off.
3. DC Jack power off at first time.

When the jumper on the Pinhead JATX/DC1 is on JATX(Short Pin1 and Pin2):
The notification LED signal (flash for 0.5 second) would be sent out every time when DC is on and off .

If the status of "AC Loss Auto Restart" to On mode:

Please also select the "Trigger Time" to setup the re-start timer while AC loss.

Press the "Start" button to setup the new configuration.

When the jumper on the Pinhead JATX/DC1 is on DC(short Pin2 and Pin3):
When the DC power off, the trigger signal pulse (0.5 second) would be sent to mainboard to trigger MB shutdown, the notification LED4 also flash for 0.5 second.
When DC power source is recovered, a trigger signal pulse would be sent to mainboard after preset trigger time (configuration 2 to 5 minutes setting) and the notification LED4 also flash for 0.5 second.

When the jumper on the Pinhead JATX/DC1 is on JATX(Short Pin1 and Pin2):
EPM-1714 would send trigger signal pulse to reboot the system when DC is available.