

1.0 Product

PenMount 1501 control board is one of the cutting-edge innovations from PenMount. A collectively integrated feature with USB / RS232 / UART / I²C interface supporting 15.0" to 18.5" projected capacitive touch screens; complemented by the superbly developed PenMount drivers which can be used directly in Windows 8.

PenMount 1501 Control Board uses Microcontroller, which is a capacitive sensing IC designed for AMT Projected Capacitive Input (PCI) touch panel and other projected capacitive touch panel. It is designed for PCI touch screen size up to 18.5". PenMount 1501 Control Board has the programmable filter, gain amplifier; with the functions of single, dual touch; and the gestures of one and two fingers. There are six connectors on this board: three 40Pin ZIF connectors for PCI touch screen FPC cable, one USB connector for 4-pin USB cable (optional) , and one RS232 connector for 5-pin RS232 cable (optional) , and one I²C connector for 7-pin I²C cable (optional).

2.0 Specifications

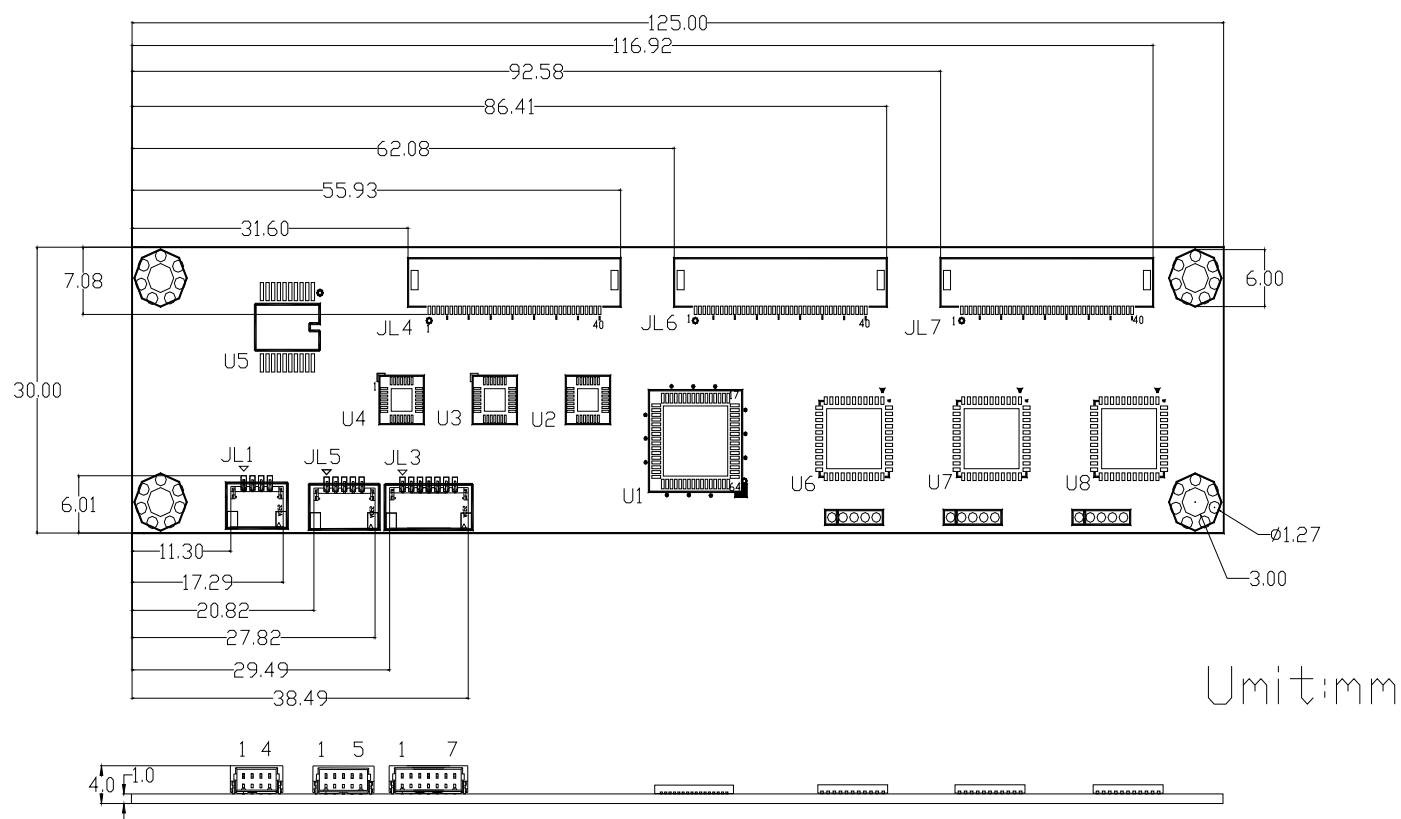
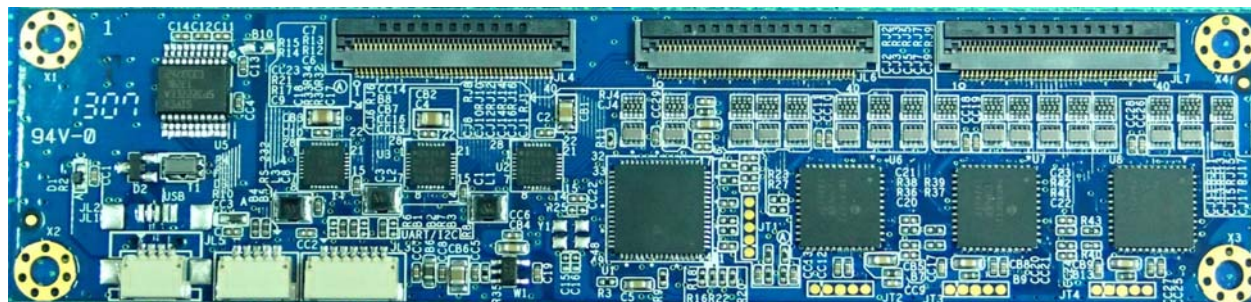
- 2.1 Controller part no : P2-05x1,P2-02x3
- 2.2 Supporting Projected Capacitive touch panel size:
Projected capacitive type, size is 15.0" to 18.5"
- 2.3 Interface: USB, UART, RS-232, I²C
USB: Full-speed, 12Mbps
UART,RS-232 : 38400 baud rate / 8bit data / non parity / one stop bit / non-PnP
I²C: I²C Slave, support 400 kHz specifications
- 2.4 ADC resolution: 10bits
- 2.5 Max Touch Line : 47 Driving lines, 66 Sensing line
- 2.6 Sampling rate:>100sps
- 2.7 Operating Voltage: +5V DC
- 2.8 Power Consumption : Typical -- Working Mode : 65.4mA
Idle Mode : 52.4mA
Sleep Mode : 4.2mA
- 2.9 RS specification: IEC61000-4-3 Level 2 , Criteria A
- 2.10 CS specification: IEC61000-4-6 Level 2 , Criteria A
- 2.11 Operating temperature: -20°C ~ +70°C
- 2.12 Storage temperature: -40°C ~ +85°C

Note :

Power consumption and sample rate will vary according to different firmware versions.

3.0 Mechanical Drawing

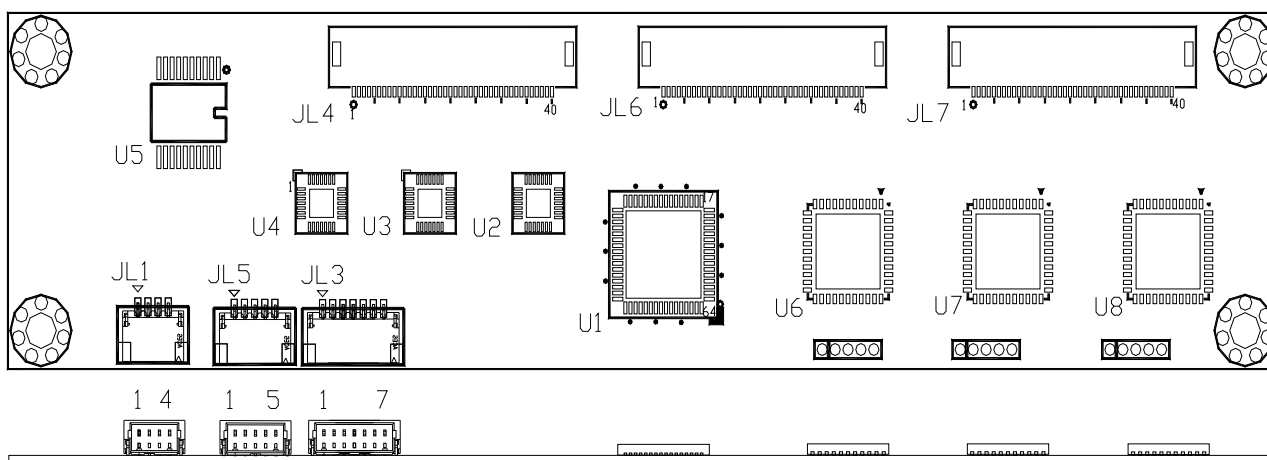
3.1 Mechanical size



PenMount PM1501 PCI Controller Board Data Sheet

3.2 Touch line pin definition

JL4 40Pin ZIF , PH 0.5mm ; HRS FH52-40S-05SH				JL6 40Pin ZIF , PH 0.5mm ; HRS FH52-40S-05SH			
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	21	Cap Drive X27	1	Cap Drive X7	21	Cap Sense Y8
2	Cap Drive X46	22	Cap Drive X26	2	Cap Drive X6	22	Cap Sense Y9
3	Cap Drive X45	23	Cap Drive X25	3	Cap Drive X5	23	Cap Sense Y10
4	Cap Drive X44	24	Cap Drive X24	4	Cap Drive X4	24	Cap Sense Y11
5	Cap Drive X43	25	Cap Drive X23	5	Cap Drive X3	25	Cap Sense Y12
6	Cap Drive X42	26	Cap Drive X22	6	Cap Drive X2	26	Cap Sense Y13
7	Cap Drive X41	27	Cap Drive X21	7	Cap Drive X1	27	Cap Sense Y14
8	Cap Drive X40	28	Cap Drive X20	8	Cap Drive X0	28	Cap Sense Y15
9	Cap Drive X39	29	Cap Drive X19	9	GND	29	Cap Sense Y16
10	Cap Drive X38	30	Cap Drive X18	10	GND	30	Cap Sense Y17
11	Cap Drive X37	31	Cap Drive X17	11	GND	31	Cap Sense Y18
12	Cap Drive X36	32	Cap Drive X16	12	GND	32	Cap Sense Y19
13	Cap Drive X35	33	Cap Drive X15	13	Cap Sense Y0	33	Cap Sense Y20
14	Cap Drive X34	34	Cap Drive X14	14	Cap Sense Y1	34	Cap Sense Y21
15	Cap Drive X33	35	Cap Drive X13	15	Cap Sense Y2	35	Cap Sense Y22
16	Cap Drive X32	36	Cap Drive X12	16	Cap Sense Y3	36	Cap Sense Y23
17	Cap Drive X31	37	Cap Drive X11	17	Cap Sense Y4	37	Cap Sense Y24
18	Cap Drive X30	38	Cap Drive X10	18	Cap Sense Y5	38	Cap Sense Y25
19	Cap Drive X29	39	Cap Drive X9	19	Cap Sense Y6	39	Cap Sense Y26
20	Cap Drive X28	40	Cap Drive X8	20	Cap Sense Y7	40	Cap Sense Y27
JL7 40Pin ZIF , PH 0.5mm ; HRS FH52-40S-05SH							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	Cap Sense Y28	11	Cap Sense Y38	21	Cap Sense Y48	31	Cap Sense Y58
2	Cap Sense Y29	12	Cap Sense Y39	22	Cap Sense Y49	32	Cap Sense Y59
3	Cap Sense Y30	13	Cap Sense Y40	23	Cap Sense Y50	33	Cap Sense Y60
4	Cap Sense Y31	14	Cap Sense Y41	24	Cap Sense Y51	34	Cap Sense Y61
5	Cap Sense Y32	15	Cap Sense Y42	25	Cap Sense Y52	35	Cap Sense Y62
6	Cap Sense Y33	16	Cap Sense Y43	26	Cap Sense Y53	36	Cap Sense Y63
7	Cap Sense Y34	17	Cap Sense Y44	27	Cap Sense Y54	37	Cap Sense Y64
8	Cap Sense Y35	18	Cap Sense Y45	28	Cap Sense Y55	38	Cap Sense Y65
9	Cap Sense Y36	19	Cap Sense Y46	29	Cap Sense Y56	39	GND
10	Cap Sense Y37	20	Cap Sense Y47	30	Cap Sense Y57	40	GND



JL1 / 4PIN / USB	
PIN NO.	DESIGNATION
1	5VIN
2	D-
3	D+
4	Ground

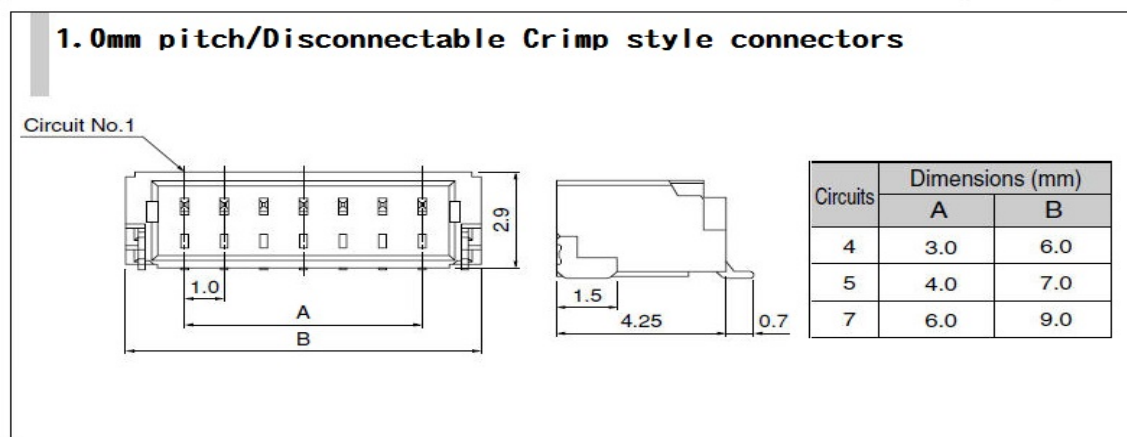
JL5 / 5PIN / RS-232	
PIN NO.	DESIGNATION
1	5VIN
2	RXD
3	TXD
4	Ground
5	Ground

JL3 / 7PIN / UART / I ² C	
PIN NO.	DESIGNATION
1	5V IN
2	Ground
3	SCL / RXD
4	SDA/ TXD
5	RESET
6	DETECT
7	INTHM

Note :

If you use I²C interface, please add pull-up resistor 2.2K at SCL / SDA / INTMH.

3.4 Connector specification



3.5 Interface detection

PM1501 supports Interface detection. User can plug-in suitable cable to JL1 for USB interface, to JL3 for I2C / UART interface, and to JL5 for RS-232 interface. Firmware will use DETECT to select I2C or UART. So user must setup DETECT before PM1501 power-on. Please refer diagram below to select your desired interface for I2C or UART.

	DETECT (JL3,Pin6)
I2C	Float
UART	Low

4.0 Drivers, Utilities

4.1 Drivers:

For I²C:

Windows CE : Provide binary driver for freescale iMX platform. Other platform by request.

Linux / Android : Provide source code for integration.

For USB / RS-232 / UART

Windows 2000, XP, 2003: single touch, mouse driver.

Windows Vista: single touch, inbox driver.

Windows 7,8: dual touch, Inbox driver.

Linux: Ubuntu, Android, other Linux distributions under development.

4.2 Utility:

Firmware adjustment utility is ready for user to fine tune the touch panel sensitivity.

Note :

Drivers, Utilities : all the drivers are available in AMT and PenMount website. The PenMount utilities is also available, contact us

5.0 Others

5.1 ROHS compliance: This control board is met ROHS compliance

5.2 For EMC protection recommendations please refer to the AMT touch screen integration guides.

Remark: Specification is subject to change without notice