PenMount PM1410 PCI Controller Board Data Sheet

1.0 Product

The PenMount PM1410 control board is a high specification (Projected Capacitive Input, PCI) touch panel controller product introduced by PenMount. The PenMount PM1410 can be applied in the consumer, commercial and industrial fields.

The PenMount PM1410 provides four types of interfaces, USB、I²C、UART and RS232 and supports PCI touch panels sized from 12.1” to 15.6”. The PenMount PM1410 also supports a wide range of operating systems such as Windows and Linux.

The PenMount PM1410 was developed based on Microchip microprocessors and is paired with PenMount’s in-house hardware design and firmware algorithmic mechanism. It provides high performance computing and possesses excellent anti-noise capabilities.

There are five connectors on this board: 60Pin & 40 Pins ZIF connectors for PCI touch screen FPC cables, one USB connector for 4-pin USB cable (optional) , and one I²C/UART connector for 7-pin I²C cable (optional) , and one RS232 connector for 5-pin RS232 cable (optional)

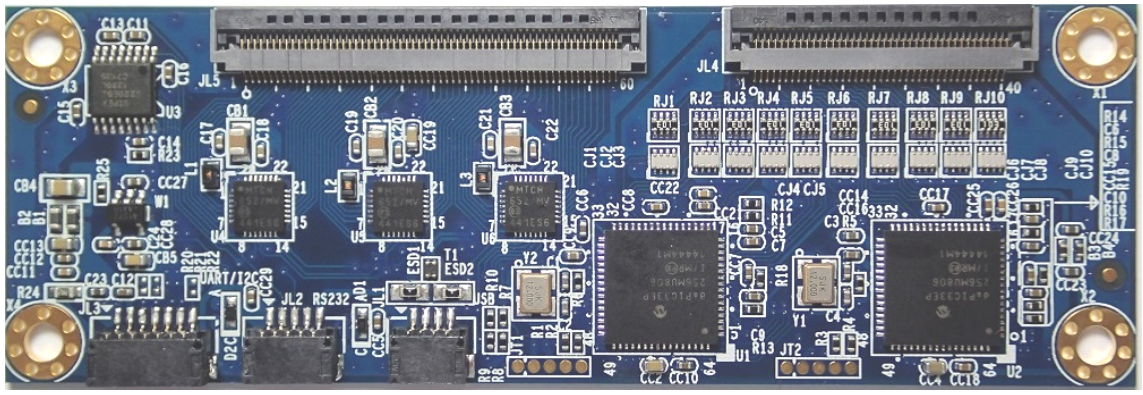
2.0 Specifications

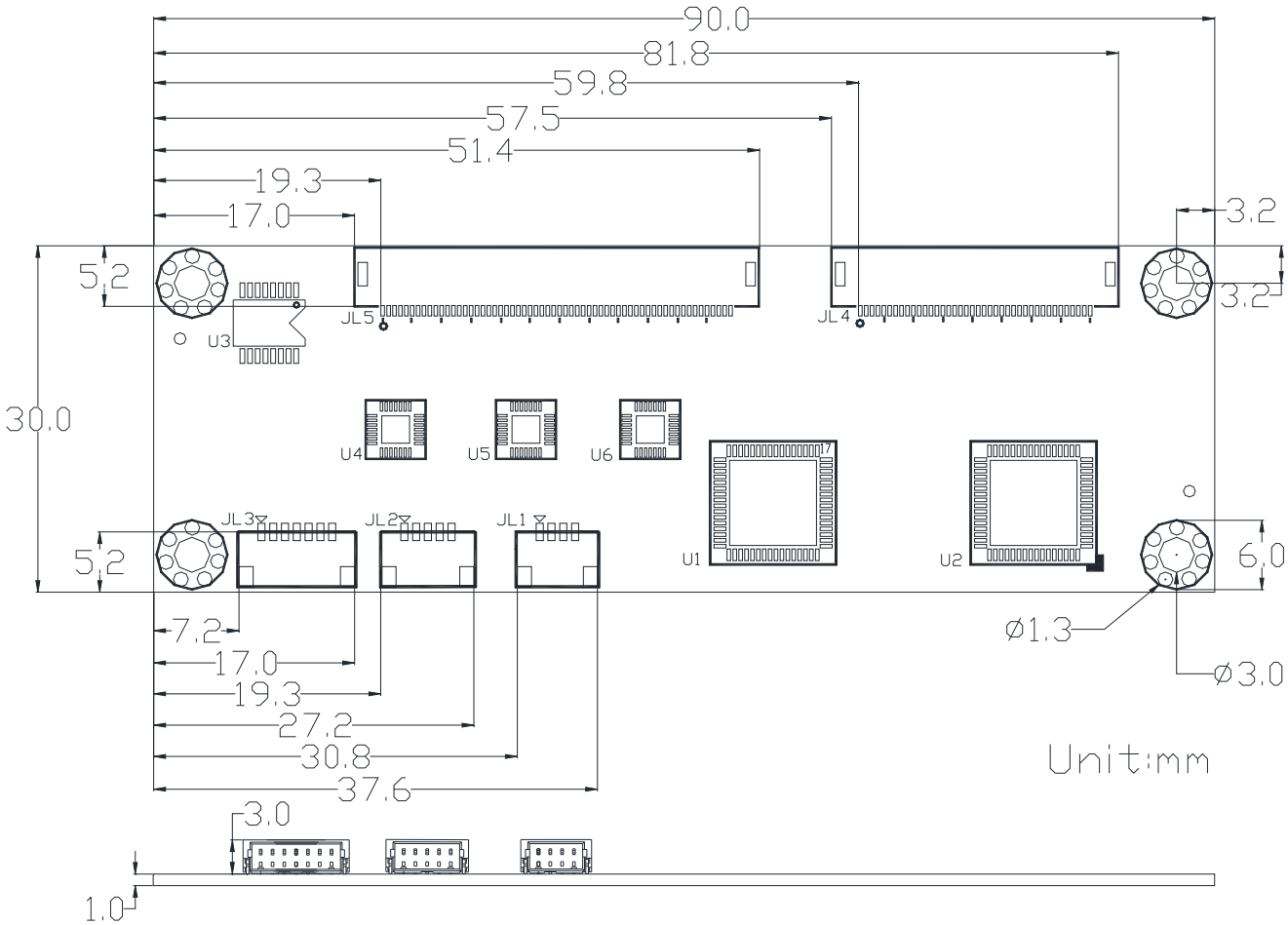
2.1 Controller part no: PenMount P2-08 x 2pcs
2.2 Supported Projected Capacitive touch panel size: 12.1” to 15.6”
2.3 Interface: USB, I²C, UART, RS-232
USB,Full-speed, 12Mbps
UART,RS-232 Interface 38400 baud rate / 8bit data / non parity / one stop bit / non-PnP
I²C,Slave, support 400 kHz specifications
2.4 ADC resolution: 10bits
2.5 Max. Touch Lines support: 57 Driving lines (Tx) , 38 Sensing line (Rx).
2.6 Sampling rate: >160sps (Single touch)
2.7 Operating Voltage Vcc: +5V, ±5%
2.8 Power Consumption: Typical -- Working Mode: 60.3mA / 5V DC
Idle Mode: 46.5mA / 5V DC
Sleep Mode: 3.0mA / 5V DC
2.9 Operating temperature: -30°C ~ +70°C .
2.10 Storage temperature: -40°C ~ +85°C
2.11 RS specification: IEC61000-4-3 Level 3 ,Criteria A (For 1.8mm Top Glass, Dual touch)
2.12 CS specification: IEC61000-4-6 Level 3 ,Criteria A (For 1.8mm Top Glass, Dual touch)
2.13 MTBF: 30℃ -- 1284012 Hours , 40℃ -- 1121079 Hours

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

3.0 Mechanical Drawing

3.1 Mechanical size



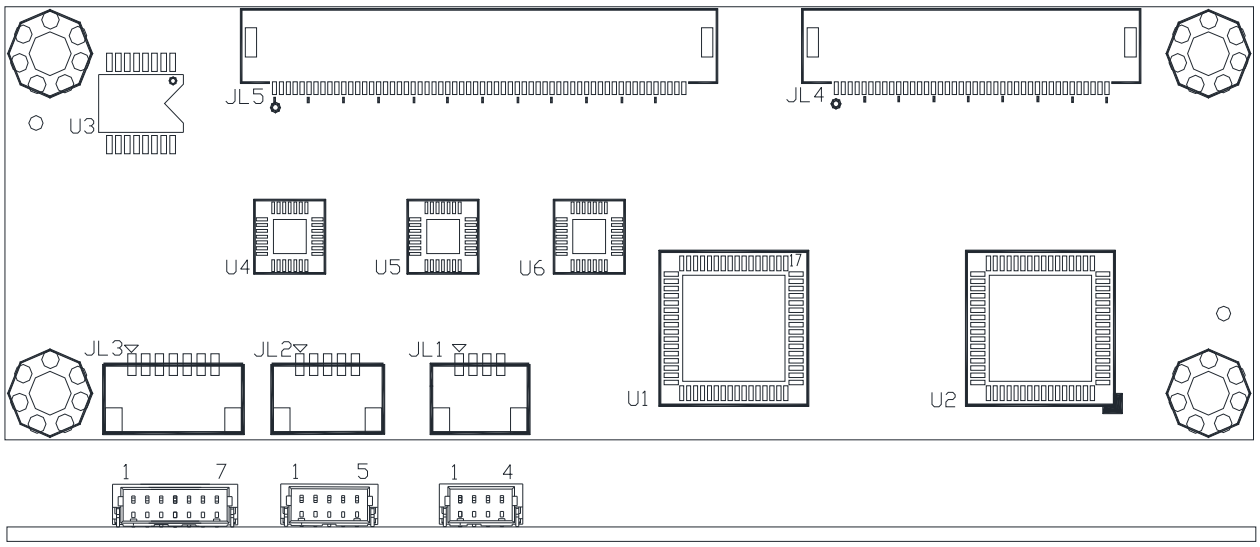


3.2 Touch line pin definition

JL4 40Pin ZIF , PH 0.5mm ; HRS FH52-60S-05SH							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	21	Cap Sense X28	1	Cap Sense X18	21	Cap Sense X8
2	Cap Sense X37	22	Cap Sense X27	2	Cap Sense X17	22	Cap Sense X7
3	Cap Sense X36	23	Cap Sense X26	3	Cap Sense X16	23	Cap Sense X6
4	Cap Sense X35	24	Cap Sense X25	4	Cap Sense X15	24	Cap Sense X5
5	Cap Sense X34	25	Cap Sense X24	5	Cap Sense X14	25	Cap Sense X4
6	Cap Sense X33	26	Cap Sense X23	6	Cap Sense X13	26	Cap Sense X3
7	Cap Sense X32	27	Cap Sense X22	7	Cap Sense X12	27	Cap Sense X2
8	Cap Sense X31	28	Cap Sense X21	8	Cap Sense X11	28	Cap Sense X1
9	Cap Sense X30	29	Cap Sense X20	9	Cap Sense X10	29	Cap Sense X0
10	Cap Sense X29	30	Cap Sense X19	10	Cap Sense X9	30	GND

JL5 60Pin ZIF , PH 0.5mm ; HRS FH52-60S-05SH							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	16	Cap Drive X14	31	Cap Drive X29	46	Cap Drive X44
2	Cap Drive X0	17	Cap Drive X15	32	Cap Drive X30	47	Cap Drive X45
3	Cap Drive X1	18	Cap Drive X16	33	Cap Drive X31	48	Cap Drive X46
4	Cap Drive X2	19	Cap Drive X17	34	Cap Drive X32	49	Cap Drive X47
5	Cap Drive X3	20	Cap Drive X18	35	Cap Drive X33	50	Cap Drive X48
6	Cap Drive X4	21	Cap Drive X19	36	Cap Drive X34	51	Cap Drive X49
7	Cap Drive X5	22	Cap Drive X20	37	Cap Drive X35	52	Cap Drive X50
8	Cap Drive X6	23	Cap Drive X21	38	Cap Drive X36	53	Cap Drive X51
9	Cap Drive X7	24	Cap Drive X22	39	Cap Drive X37	54	Cap Drive X52
10	Cap Drive X8	25	Cap Drive X23	40	Cap Drive X38	55	Cap Drive X53
11	Cap Drive X9	26	Cap Drive X24	41	Cap Drive X39	56	Cap Drive X54
12	Cap Drive X10	27	Cap Drive X25	42	Cap Drive X40	57	Cap Drive X55
13	Cap Drive X11	28	Cap Drive X26	43	Cap Drive X41	58	Cap Drive X56
14	Cap Drive X12	29	Cap Drive X27	44	Cap Drive X42	59	GND
15	Cap Drive X13	30	Cap Drive X28	45	Cap Drive X43	60	GND

3.3 Interface pin definition



JL1 / 4PIN / USB	
PIN NO.	DESIGNATION
1	V_{cc} (USB5V)
2	D-
3	D+
4	Ground

JL2 / 5PIN / RS232	
PIN NO.	DESIGNATION
1	V_{cc} (5V)
2	RXD
3	TXD
4	Ground
5	Ground

JL3 / 7PIN / I²C / UART				
PIN NO.	DESIGNATION	I²C	UART	Remark
1	V_{cc} (5V)	v	v	
2	Ground	v	v	
3	SCL,RXD	v	v	
4	SDA,TXD	v	v	
5	Reset	Float	Float	Pull Low at least 2 μs to reset the P2-08 device
6	DETECT	N.C	Low	
7	INTHM	v	N.C	

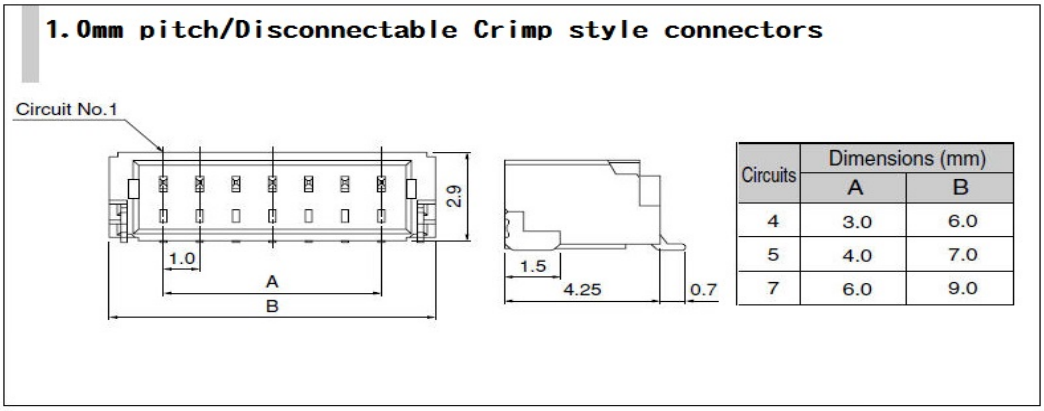
Note:

N.C: No Connection

PM1410 supports the single interface cable connection.

If you use I²C interface, please add pull-up resistor 2.2K at SCL / SDA / INTHM on Host side.

3.4 Connector specifications



Circuits	Dimensions (mm)	
	A	B
4	3.0	6.0
5	4.0	7.0
7	6.0	9.0

4.0 Drivers, Utilities

4.1 Drivers:

For I²C:

Windows CE : By request.

Linux / Android : Provide source code for integration.

For USB

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

Windows Vista: single touch, inbox driver.

Windows 7,8: 5 touches support, Inbox driver.

Linux: inbox driver after kernel 3.0, provide source code for kernel 2.6

For UART / RS-232

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

Windows Vista: single touch, digitizer driver.

Windows 7,8: 5 touches support, digitizer driver.

Linux: inbox driver after kernel 3.2, provide source code for kernel 2.6

4.2 Utility:

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

Note :

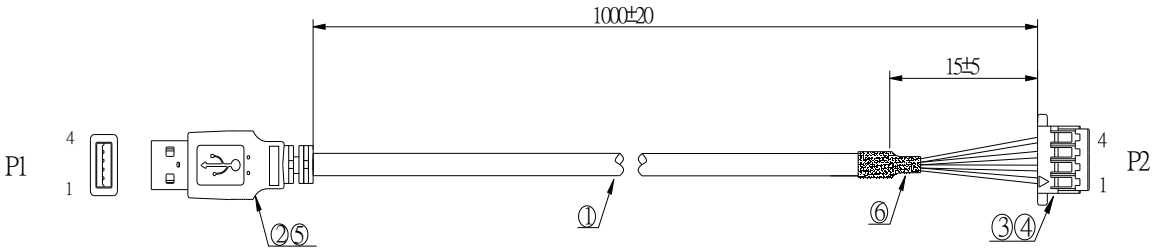
Drivers, Utilities: all the drivers are available in AMT and PenMount website. For utilities is also available, please contact us for more information.

5.0 Others

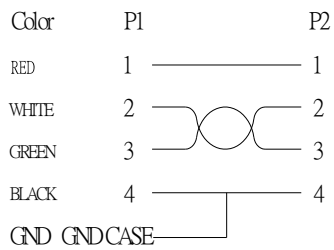
5.1 ROHS compliance: This control board is ROHS compliant

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

5.3 To achieve good noise interference protection capabilities, PenMount requires paired interface cables possess comprehensive EMI shielding. The following is an USB cable interface diagram as reference.



PIN ASSIGNMENT



Remark:

1.Test Conditions

a. Conductor Resistance:2Ω

b. Insulation Resistance:10MΩ

c. Insulation Testing:DC 300V

NO.	Description	Q'TY
⑥	HEAT SHRINK TUBE:?4.0mm L=10mm BLACK	1PC
⑤	OUTER MOLDED:PVC 45P COLOR:BLACK OR EQU	15g
④	HOUSING: KY-1001HS-04P OR EQU	15g
③	TERMINAL: KY-1001TPS-20 OR EQU	1PC
②	USB A(M):PIN G/F Plastic:Black Case Nickel-plated OD:4.5	1PC
①	CABLE:UL2725 #28*1P+#28*2C+ADB(80% Al-MgBraid) OD:3.5 Black L=1040MM	1PC

Remark: Specifications are subject to change without notice