

Mini PCIe MIO-E Design Reference

Revision 1.0

Reference Documents

Document	Location

Introduction

- This document is the design reference for designing a MIOe module with Mini PCIe and SIM holder feature to work with Advantech MIO single board.

- Contents:
 - Function Selection Table
 - PCB Layout Considerations
 - Reference Schematic
 - Component List

This document is only for MIOe design reference purpose only. Although the information is intended to be accurate, Advantech makes no claims, promises, or guarantees about the quality or reliability of a MIOe board that designed by any user who is outside of Advantech Corp.

FUNCTION SELECTION TABLE

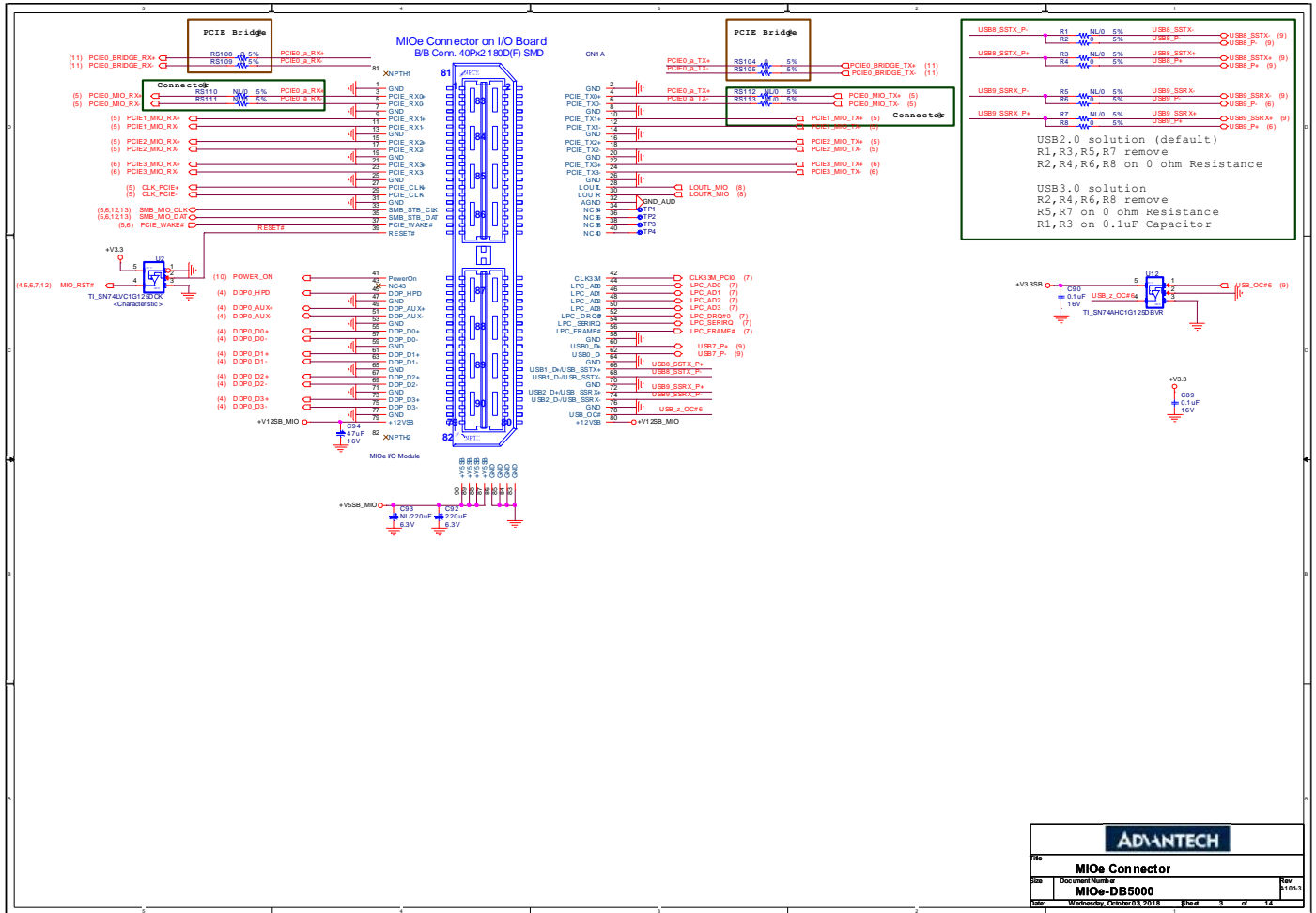
J2:

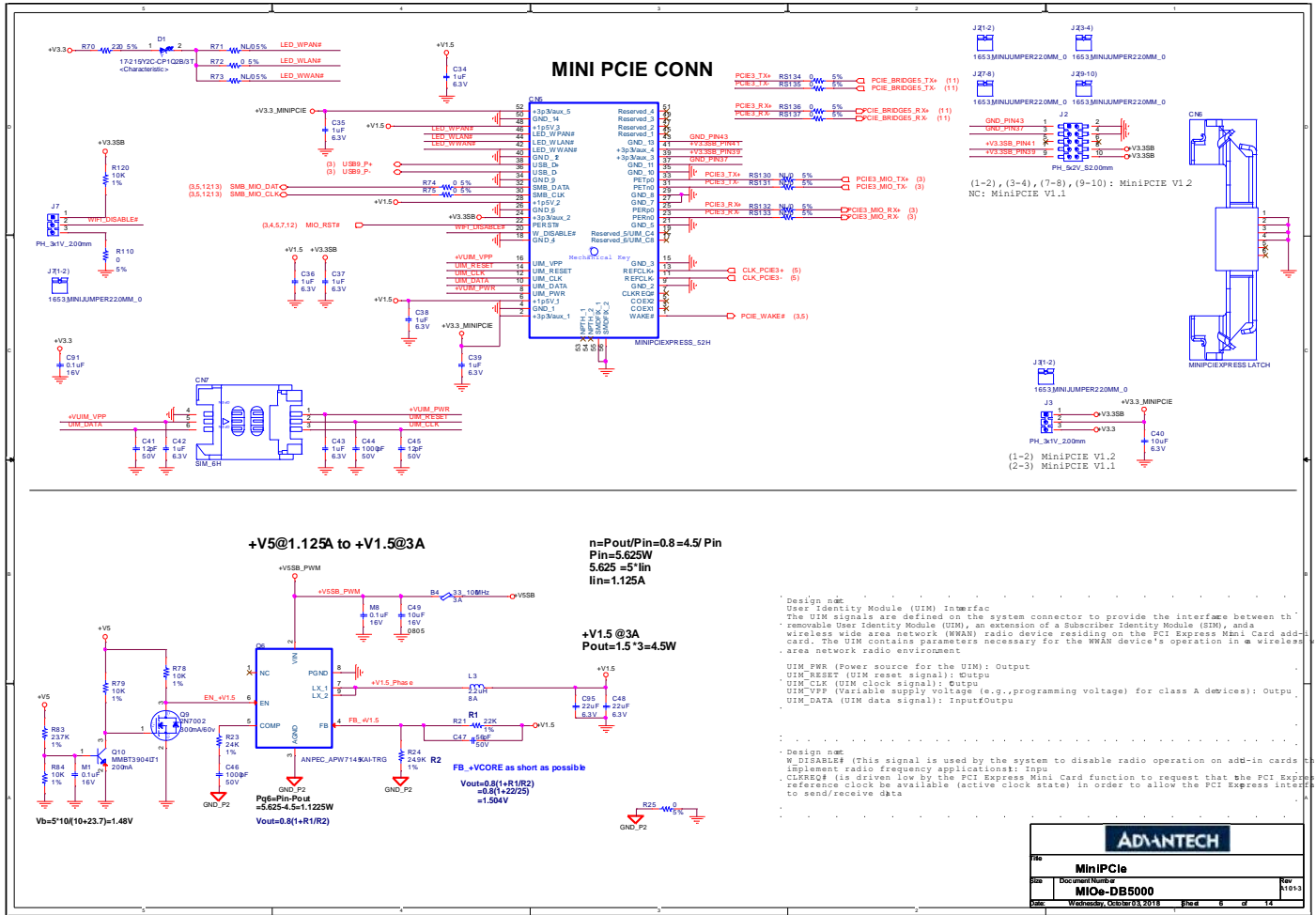
Configuration	Mini PCIe Version
NC	V1.1
J2(1-2), J2(3-4) , J2(7-8) , J2(9-10)	V1.2

PCB Layout Considerations

Please notice that PCB Layout will be vary depends on design. For layout considerations, please refer to MIOe design guide.

Reference Schematic





Component List

QTY	Description	Reference	Manufacture Part Number	Manufacture
1	CR 23.7K 1% 1/16W SMD 0402	R83	0402WGF2372TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
1	CR 5.62K 1% 1/16W SMD 0402	R17	0402WGF5621TCE	
1	CR 4.02K 1% 1/16W SMD 0402	R175	0402WGF4021TCE	國巨股份有限公司 (Yageo Co.,Ltd.)
1	CR 1.2k 1% 1/16W SMD 0402	R174	0402WGF1201TCE	
1	CR 22k 1% 1/16W SMD 0402	R21	0402WGF2202TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
1	CR 3.3 5% 1/16W SMD 0402	R171	0402WJ033JTCE	國巨股份有限公司 (Yageo Co.,Ltd.)
1	CR 24K 1% 1/16W SMD 0402	R23	0402WGF2402TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
2	CR 12K 1% 1/16W SMD 0402	R169 R172	0402WGF1202TCE	大毅科技股份有限公司 (Ta-I Technolony Co., Ltd.)
1	SC 47uF 20% 16V SMD 7.3x4.3x1.9mm 16TQC47M	C94	16TQC47M	東三積體電子股份有限公司
2	MLCC X5R 22uF 20% 6.3V SMD 0805	C48 C95	0805X226M6R3CT	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)
2	SC 220uF 20% 6.3V SMD 7.3x4.3x1.8mm 6TPE220M	C92 C93	6TPE220M	三洋電機株式會社 (Sanyo Electric Co Ltd.)
2	MLCC X5R 10uF 10% 6.3V SMD 0805	C40 C81	C0805B106K007T	禾伸堂企業股份有限公司 (Holy Stone Enterprise Co., Ltd.)
12	MLCC X7R 0.1uF 10% 16V SMD 0402	C75 C86 C89 C90 C91 C153 M1 M2 M3 M4 M6 M8	0402B104K160CT	國巨股份有限公司 (Yageo Co.,Ltd.)

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2	MLCC NPO 12pF 5% 50V SMD 0402	C41 C45	0402N120J500CT	國巨股份有限公司 (Yageo Co.,Ltd.)
9	MLCC X5R 1uF 10% 6.3V SMD 0402	C34 C35 C36 C37 C38 C39 C42 C43 C80	0402X105K6R3CT	台灣東電化股份有限公司 (TDK Taiwan Corporation)
2	SC 330uF 20% 6.3V SMD 7.3x4.3x1.8mm 6TPE330MAP	C82 C152	6TPE330MAP	三洋電機株式會社 (Sanyo Electric Co Ltd.)
1	MLCC X7R 0.22uF 10% 16V SMD 0603	C85	0603B224K160CT	台灣東電化股份有限公司 (TDK Taiwan Corporation)
1	MLCC X5R 10uF 10% 16V SMD 0805	C49	C0805B106K016T	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)
6	MLCC X5R 10uF 10% 16V SMD 1206	C76 C77 C78 C154 C155 C156	1206X106K160CT	台灣東電化股份有限公司 (TDK Taiwan Corporation)
1	MLCC NPO 18pF 5% 50V SMD 0402	C79	0402N180J500CT	國巨股份有限公司
1	MLCC NPO 56pF 5% 50V SMD 0402	C47	0402N560J500CT	(Yageo Co.,Ltd.)
3	MLCC X7R 1000pF 10% 50V SMD 0402	C44 C46 C84	0402B102K500CT	國巨股份有限公司 (Yageo Co.,Ltd.)
2	MLCC X7R 680pF 10% 50V SMD 0603	C59 C60	CC0603KRX7R9BB681	國巨股份有限公司 (Yageo Co.,Ltd.)
3	Inductor 2.2uH 20% 8A SMD	L1 L2 L3	PCMC063T-2R2MN	乾坤科技股份有限公司 (Cyntec Co., Ltd)
3	Bead 33ohm 25% 3A SMD 0603 BLM18PG330SN1D	B4 B11 B17	BLM18PG330SN1D	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)

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1	LED YELLOW SMD 0805 17-215/Y2C-CP1Q2B/3T	D1	17-215/Y2C-CP1Q2B/3T	億光電子工業股份有限公司
1	LED GREEN SMD 0805 WO/Pb HSMG-C170 Avago	D5	17-21VGC/TR8	(Everlight Electronics Co., Ltd.)
2	MOSFET N-CH 2N7002 300mA 60V SMD SOT-23 3P	Q9	2N7002	恩智浦半導體 (NXP Semiconductors)
		Q16		
1	MOSFET P-CH Si4435DDY-T1-GE3 -30V SMD SO-8 8P	Q15	Si4435DDY-T1-GE3	台灣威世有限公司 (Vishay Intertechnology Inc.)
6	MOSFET N-CH FDMC7696 12A 30V SMD MLP 3.3x3.3 8P	Q11	FDMC7696	香港商美國快捷半導體香港有限公司 (Fairchild Semiconductor Hong Kong Ltd.)
		Q12		
		Q13		
		Q14		
		Q19		
		Q20		
1	TRANS MMBT3904LT1G NPN SMD SOT-23 3P WO/Pb ON	Q10	MMBT3904LT1G	安森美半導體 (On Semiconductor)
1	MOSFET N-CH 2N7002DW-7-F 0.115A 60V SMT SOT-363	U10	2N7002DW-7-F	Diodes Inc.
4	R 10KΩ 1/16W 1% SMD 0402	R78	0402WGF1002TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R79		
		R84		
		R120		
2	CR 4.7 1% 1/10W SMD 0603	R41	0603WAF470KT5E	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R76		
1	CR 1K 1% 1/16W SMD 0402	R31	0402WGF1001TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
4	CR 100K 1% 1/16W SMD 0402	R179	0402WGF1003TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R180		
		R183		
		R184		
1	CR 200K 1% 1/16W SMD 0402	R181	0402WGF2003TCE	厚聲電子工業有限公司
1	CR 24.9K 1% 1/16W SMD 0402	R24	0402WGF2492TCE	(Uniroyal Electronics Industry Co.,Ltd.)
1	CR 220 5% 1/16W SMD 0402	R70	0402WJ0221TCE	厚聲電子工業有限公司
1	R 330 1/16W 5% SMD 0402	R178	0402WJ0331TCE	(Uniroyal Electronics Industry Co.,Ltd.)
1	IC SN74LVC1G125DCKR SMD SC-70 5P	U2	SN74LVC1G125DCKJ	德州儀器工業股份有限公司 (Texas Instruments Incorporated)

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16	CR 0 5% 1/16W SMD 0402	R1	0402WGJ0000TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R2		
		R3		
		R4		
		R5		
		R6		
		R7		
		R8		
		R25		
		R71		
		R72		
		R73		
		R74		
		R75		
18	CR 0 5% 1/16W SMD 0402	R182	0402WGJ0000TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R190		
		RS104		
		RS105		
		RS108		
		RS109		
		RS110		
		RS111		
		RS112		
		RS113		
		RS130		
		RS131		
		RS132		
		RS133		
RS134				
RS135				
RS136				
RS137				

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7	CR 10K 5% 1/16W SMD 0402	R167	0402WGJ0103TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R168		
		R170		
		R173		
		R177		
		R263		
		R264		
1	IC SMD SN74AHC1G125DBVR SOT-23 5P 3.05*1.75*1.3	U12	SN74AHC1G125DBVR	德州儀器工業股份有限公司 (Texas Instruments Incorporated)
1	IC TPS51124RGET SMD QFN 24P	U9	TPS51124RGER	德州儀器工業股份有限公司 (Texas Instruments Incorporated)
1	IC APW7145KAI-TRG Converter SMD SOP-8 3A integra	Q6	APW7145KAI-TRG	茂達半導體有限公司 (Anpec Electronics Corp.)
2	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS	J3	21N12050-03S10B	何迪企業股份有限公司 (Ho-Base Technology Co.,Ltd.)
		J7	-01G-4/2.8	
1	PIN HEADER SMD 5*2P 180D(M) 2.0mm	J2	21N22050-10M00B -01G-4-C	致威電子公司 (Jih Vei Electronics Co., Ltd.)
6	MINI JUMPER 2P 2.0mm 180D(F) DIP MJ-2B	J2(1-2)	27S1001-OPS35-01G	何迪企業股份有限公司 (Ho-Base Technology Co.,Ltd.)
		J2(3-4)		
		J2(7-8)		
		J2(9-10)		
		J3(1-2)		
		J7(1-2)		
1	SIM card conn. 6p 90D(F) SMD	CN7	WL608C3-M04-7F	鴻海精密工業股份有限公司 (Foxconn Electronics Inc.)
1	MINI PCI Express 52P 6.8mm 90D SMD	CN5	AS0B226-S68Q-7H	(Foxconn Electronics Inc.)
1	MINI PCI Express 52P 6.8mm 90D SMD	CN6	AS0B226-S68K-7H	
1	MIOE Connector	CN1	QTE-040-05-L-D-A	Samtec U.S.A.

Other Remarks

This document provides a reference on hardware design only. For other support or resource such as Firmware or other utilities, please contact your local agent.