

HDMI MIO-E Design Reference

Revision 1.0

Reference Documents

Document	Location

Introduction

- This document is the design reference for designing a MIOe module with HDMI feature to work with Advantech MIO single board.

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

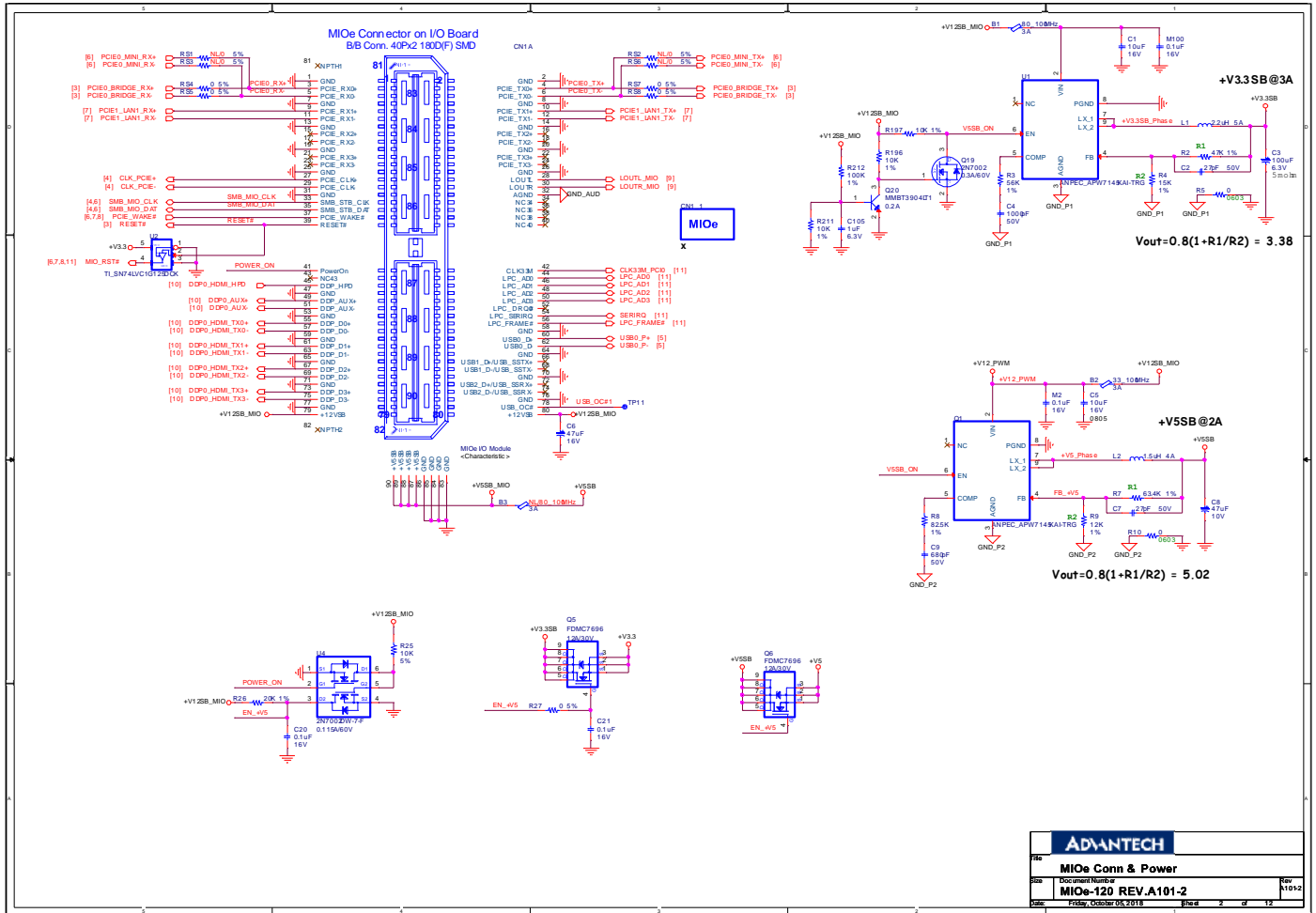
This document is only for MIOe design reference purpose only. Although the information is intended to be accurate, Advantech makes no claims, promises, or guarantees about the quality or reliability of a MIOe board that designed by any user who is outside of Advantech Corp.

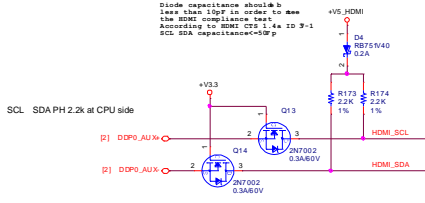
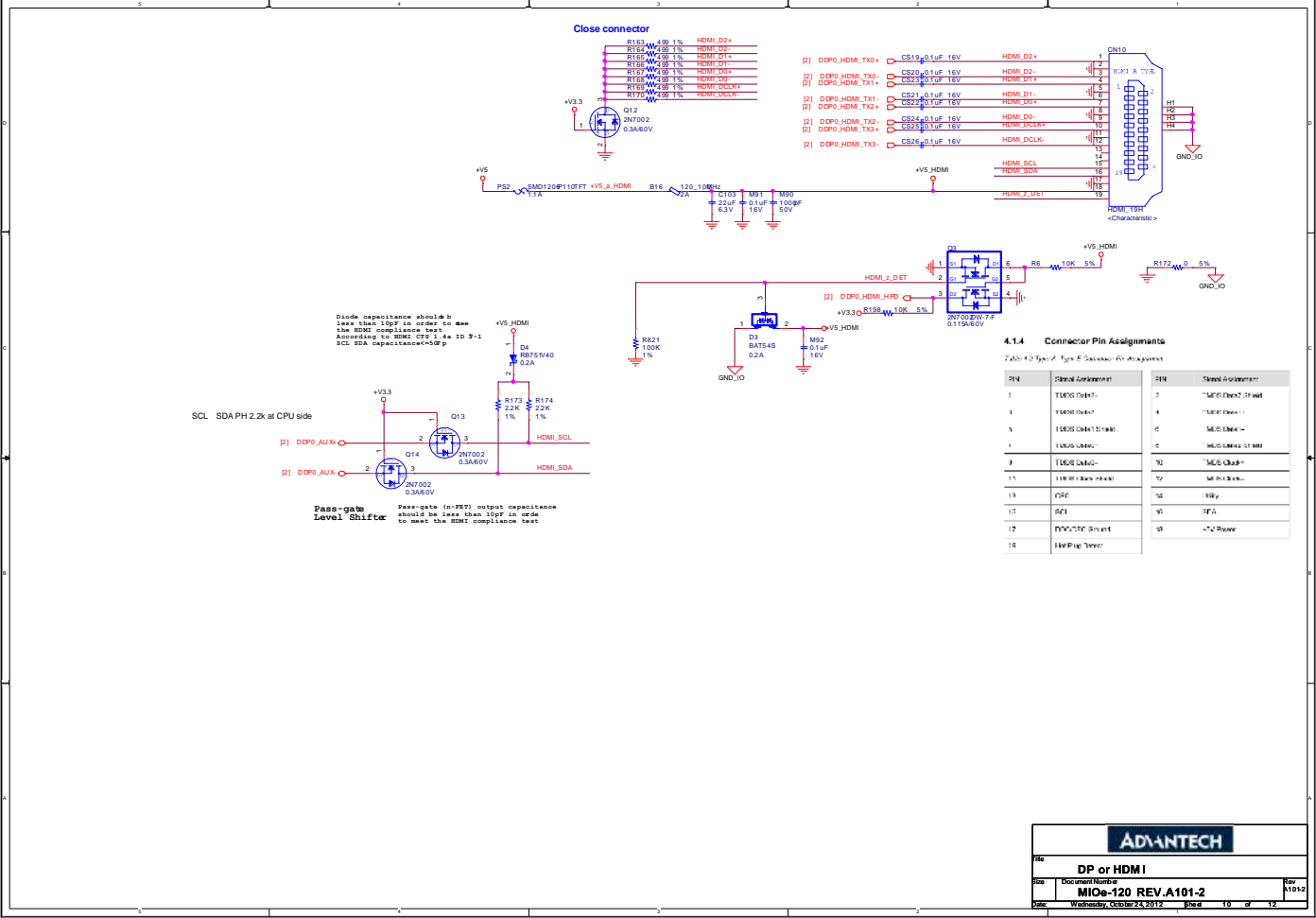
FUNCTION SELECTION TABLE

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





4.1.4 Connector Pin Assignments

Table 4-2 Type A Connector Pin Assignments

Pin	Signal Assignment	Pin	Signal Assignment
1	TUEB Data+	7	TUEB Data+
2	TUEB Data-	8	TUEB Data-
3	TUEB Data+ (HDMI)	9	TUEB Data-
4	TUEB Data-	10	TUEB Data+
5	TUEB Data-	11	TUEB Data-
6	TUEB Data+	12	TUEB Data+
13	TUEB Data-	13	TUEB Data-
14	TUEB Data+	14	TUEB Data-
15	TUEB Data-	15	TUEB Data+
16	TUEB Data-	16	TUEB Data-
17	TUEB Data+	17	TUEB Data-
18	TUEB Data-	18	TUEB Data+

Component List

QTY	Description	Reference	Manufacture Part Number	Manufacture
1	CR 20K 1% 1/16W SMD 0402	R26	0402WGF2002TCE	厚聲電子工業有限公司
1	CR 63.4K 1% 1/16W SMD 0402	R7	0402WGF6342TCE	(Uniroyal Electronics Industry Co.,Ltd.)
2	CR 2.2K 1% 1/16W SMD 0402	R173	0402WGF2201TCE	厚聲電子工業有限公司
		R174		(Uniroyal Electronics Industry Co.,Ltd.)
8	CR 499 1% 1/16W SMD 0402	R163	0402WGF4990TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R164		
		R165		
		R166		
		R167		
		R168		
		R169		
1	CR 56K 1% 1/16W SMD 0402	R3	0402WGF5602TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
1	CR 15K 1% 1/16W SMD 0402	R4	RM04FTN1502	大毅科技股份有限公司 (Ta-I Technology Co., Ltd.)
1	CR 12K 1% 1/16W SMD 0402	R9	RM04FTN1202	大毅科技股份有限公司 (Ta-I Technology Co., Ltd.)
1	CR 82.5K 1% 1/16W SMD 0402	R8	RM04FTN8252	大毅科技股份有限公司 (Ta-I Technology Co., Ltd.)
1	CR 47K 1% 1/16W SMD 0402	R2	RM04FTN4702	大毅科技股份有限公司 (Ta-I Technology Co., Ltd.)
1	SC 100uF 20% 6.3V SMD 3.5x2.8x1.9mm 6TPB100MA	C3	6TPB100MA	三洋電機株式會社 (Sanyo Electric Co Ltd.)
1	SC 47uF 20% 16V SMD 7.3x4.3x1.9mm 16TQC47M	C6	16TQC47M	東三積體電子股份有限公司
1	MLCC X5R 1uF 10% 6.3V SMD 0402	C105	C1005X5R0J105KT	台灣東電化股份有限公司 (TDK Taiwan Corporation)
1	MLCC X5R 10uF 10% 16V SMD 0805	C5	GRM21BR61C106K	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)
1	MLCC X5R 22uF 20% 6.3V 0603	C103	CL10A226MQ8NRNE	台灣三星電子股份有限公司 (Samsung Electronics Taiwan Co.,Ltd)

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14	MLCC X7R 0.1uF 10% 16V SMD 0402	C20	2238 787 15649	國巨股份有限公司 (Yageo Co.,Ltd.)
		C21		
		CS19		
		CS20		
		CS21		
		CS22		
		CS23		
		CS24		
		CS25		
		CS26		
		M2		
		M91		
		M92		
		M100		
1	SC 47uF 20% 10V SMD 3.5x2.8x1.9mm 10TPB47M	C8	10TPB47M	三洋電機株式會社 (Sanyo Electric Co Ltd.)
2	MLCC NPO 27pF 5% 50V SMD 0402	C2	223886915279	國巨股份有限公司 (Yageo Co.,Ltd.)
		C7		
2	MLCC X7R 1000pF 10% 50V SMD 0402	C4	223858715623	國巨股份有限公司 (Yageo Co.,Ltd.)
		M90		
1	MLCC X7R 680pF 10% 50V SMD 0402	C9	223858715621	國巨股份有限公司 (Yageo Co.,Ltd.)
1	MLCC X7R 10uF 10% 16V SMD 1206	C1	C3216X7R1C106KT	台灣東電化股份有限公司 (TDK Taiwan Corporation)
1	Inductor 1.5uH 20% 4A SMD	L2	PCMB042T-1R5MS	乾坤科技股份有限公司 (Cyntec Co., Ltd)
1	Inductor 2.2uH 20% 5A SMD	L1	PCMB042T-2R2MS	乾坤科技股份有限公司 (Cyntec Co., Ltd)
2	Bead 80 +-25% 3A SMD 0805	B1	AA-800Y03304	三集瑞科技股份有限公司 (Trio Technology Co., Ltd.)
		B3		
1	Bead 120ohm 25% 2A SMD 0603	B16	BLM18PG121SN1	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)
1	Bead 33ohm 25% 3A SMD 0603	B2	BLM18PG330SN1D	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)
1	Polyswitch 1.1A 8V SMD 1206	PS2	SMD1206P110TFT	聚鼎科技股份有限公司 (Polytronics Technology Corporation)

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1	DIODE RB751V40 0.2A 40V SMD SOD-32	D4	RB751V40	恩智浦半導體 (NXP Semiconductors)
1	Schottky BAT54S 30V 225MW SMD SOT-23	D3	BAT54S	恩智浦半導體 (NXP Semiconductors)
4	MOSFET N-CH 2N7002 0.3A 60V SMD SOT-23 3P	Q12	2N7002	恩智浦半導體 (NXP Semiconductors)
		Q13		
		Q14		
		Q19		
2	MOSFET N-CH FDMC7696 12A 30V SMD MLP 3.3x3.3 8P	Q5	FDMC7696	香港商美國快捷半導體香港有限公司 (Fairchild Semiconductor Hong Kong Ltd.)
		Q6		
1	TRANS NPN MMBT3904LT1G 0.2A SMD SOT-23 3P	Q20	MMBT3904LT1G	安森美半導體 (On Semiconductor)
2	MOSFET N-CH 2N7002DW-7-F 0.115A 60V SMT SOT-363	Q3	2N7002DW-7-F	Diodes Inc.
		U4		
3	CR 10K 1% 1/16W SMD 0402	R196	0402WGF1002TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R197		
		R211		
2	CR 100K 1/16W 1% SMD 0402	R212	0402WGF1003TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R821		
10	CR 0 5% 1/16W SMD 0402	R27	0402WGF1000TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R172		
		RS1		
		RS2		
		RS3		
		RS4		
		RS5		
		RS6		
		RS7		
RS8				
2	CR 0 5% 1/10W SMD 0603	R5	232270296001L	惠賢
		R10		

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3	CR 10K 5% 1/16W SMD 0402	R6	0402WGJ0103TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R25		
		R198		
1	IC SN74LVC1G125DCKR SMD SC-70 5P	U2	SN74LVC1G125DCKR	德州儀器工業股份有限公司 (Texas Instruments Incorporated)
2	IC APW7145KAI-TRG Converter SMD SOP 8P	Q1	APW7145KAI-TRG	茂達半導體有限公司 (Anpec Electronics Corp.)
		U1		
1	HDMI Conn. 19P 0.5mm 90D(M) SMD QJ51191-WFB4-7F	CN10	QJ51191-WFB4-7F	鴻海精密工業股份有限公司 (Foxconn Electronics Inc.)
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.