

10/100/1000 Gbe Ethernet MIO-E Design Reference

Revision 1.0

Reference Documents

Document	Location
I210-AT_I211-AT 1G-BASE-T REFERENCE DESIGN	RDC: 490115
Intel® Ethernet Controller I210 Datasheet	
Intel® Ethernet Controllers - 82574/82583 to I210/I211 Design Guide	
Intel® Ethernet Controller I210-AT/IT Checklist	

Introduction

- This document is the design reference for designing a MIOe module with Gbe Ethernet 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

DEV_OFF_N (Pin U18.28):

This is a 3.3V input signal. Asserting DEV_OFF_N puts the I210 in device disable mode. Note that this pin is asynchronous.

DEV_OFF_N	LAN Enable/Disable
Pull-up DEV_OFF_N with a 3.3 KΩ resistor to 3.3VAUX power.	LAN Enable
Pull-up DEV_OFF_N with a 3.3 KΩ resistor to GND.	LAN Disable

NVM_SI (Pin U18.12):

Selection pin for Flash Security.

NVM_SI	Flash Security
Pull-up DEV_OFF_N with a 3.3 KΩ resistor to 3.3VAUX power.	Enable
Pull-up DEV_OFF_N with a 3.3 KΩ resistor to GND.	Disable

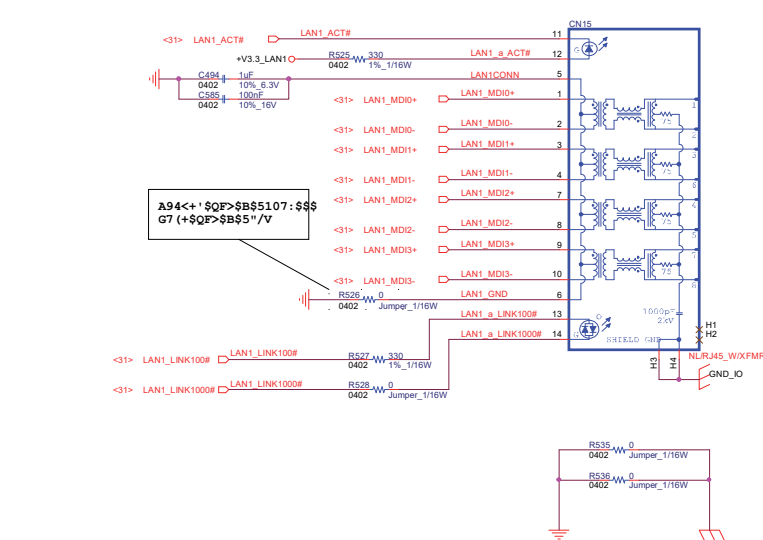
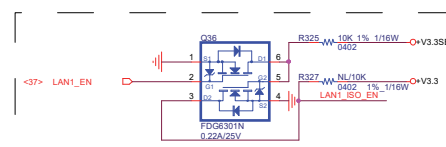
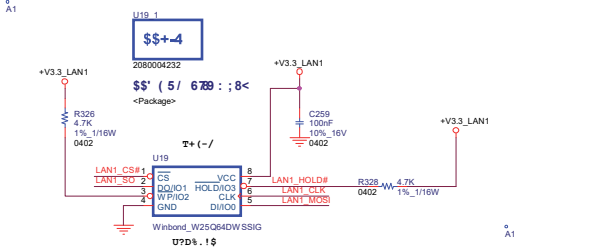
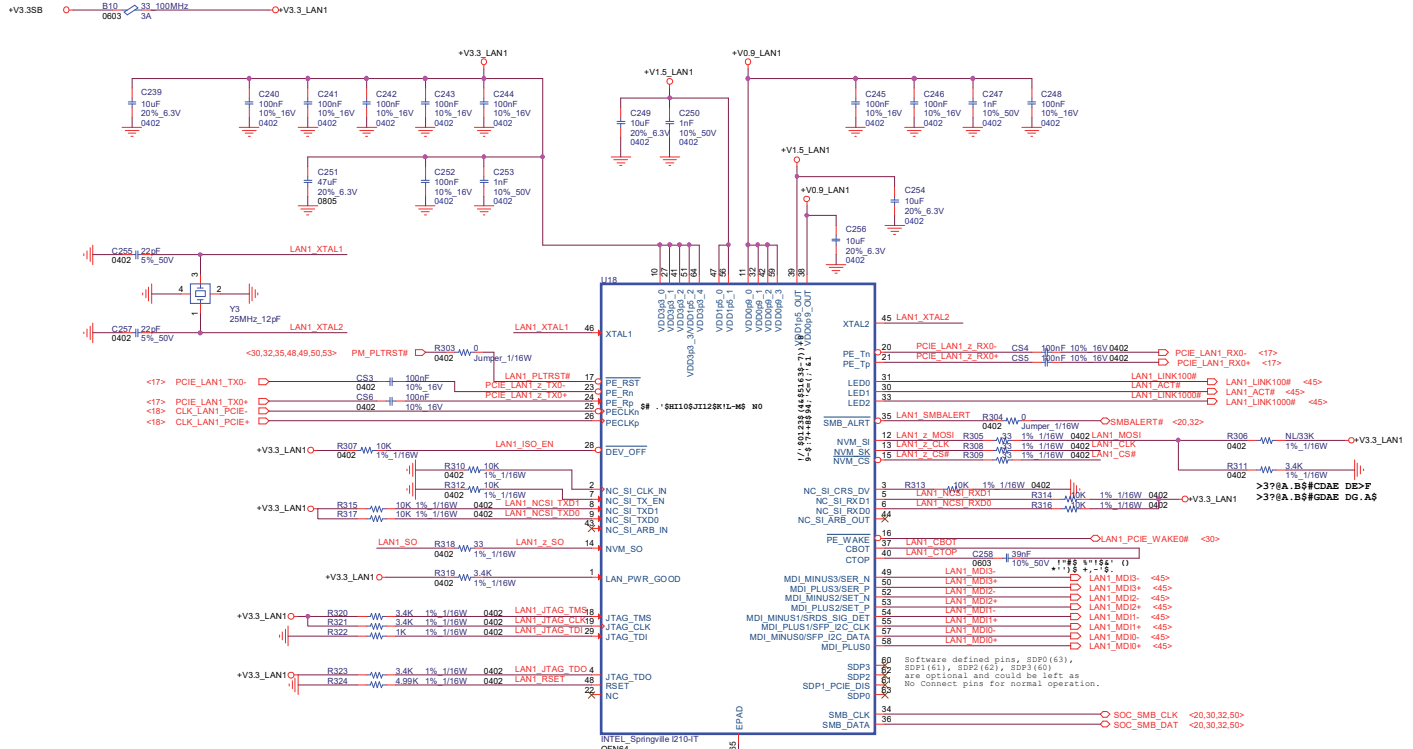
PCB Layout Considerations

Please notice that PCB Layout will be vary depends on design. For layout considerations, please refer to Intel Doc. 490115

Reference Schematic

O3P1P@QF>0R51IS2F

I210-AT (code name: Springville Commercial Temperature) support a Media Dependent Interface (MDI) interface
 I210-TT (code name: Springville Industrial Temperature) support a Media Dependent Interface (MDI) interface
 I210-IS (code name: Springville Industrial Temperature) support SerDes/SGMII



Part ID		ADVANTECH	
Title			
INTEL SPRINGVILLE I210IT			
Size	Document Number	Rev	
Custom	PCM-9366	A101-1	
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Part ID		ADVANTECH	
Title			
LAN CONN			
Size	Document Number	Rev	
Custom	PCM-9366	A101-1	
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Component List

QTY	Description	Reference	Manufacture Part Number	Manufacture
2	TKFR 4.7K 1% 1/16W SMD 0402	R326	0402WGF4701TCE	厚聲電子工業有限公司 (Uniroyal Electronics Industry Co.,Ltd.)
		R328		
1	TKFR 4.99K 1% 1/16W SMD 0402	R324	0402WGF4991TCE	
2	TKFR 330 1% 1/16W SMD 0402	R525	0402WGF3300TCE	
		R527		
5	TKFR 3.4K 1% 1/16W SMD 0402	R311	0402WGF3401TCE	
		R319		
		R320		
		R321		
		R323		
1	TKFR 33K 1% 1/16W SMD 0402	R306	0402WGF3302TCE	
10	TKFR 10K 1% 1/16W SMD 0402	R307	0402WGF1002TCE	
		R310		
		R312		
		R313		
		R314		
		R315		
		R316		
		R317		
		R325		
		R327		
4	TKFR 33 1% 1/16W SMD 0402	R305	0402WGF330JTCE	
		R308		
		R309		
		R318		
1	TKFR 1K 1% 1/16W SMD 0402	R322	0402WGF1001TCE	
6	TKFR 0 Jumper 1/16W SMD 0402	R303	0402WGF0000TCE	
		R304		
		R526		
		R528		
		R535		
		R536		

15	MLCC X7R 0.1uF 10% 16V SMD 0402 2238 787 15649	C240	0402B104K160CT	華新科技股份有限公司 (Walsin Technology Corporation)
		C241		
		C242		
		C243		
		C244		
		C245		
		C246		
		C248		
		C252		
		C259		
		C585		
		CS3		
		CS4		
		CS5		
CS6				
1	MLCC X5R 47uF 20% 6.3V SMD 0805 CL21A476MQYNNNE	C251	0805X476M6R3CT	
4	MLCC X5R 10uF 20% 6.3V SMD 0402 CL05A106MQ5NUNC	C239	0402X106M6R3CT	
		C249		
		C254		
		C256		
1	MLCC X7R 1uF 10% 6.3V SMD 0402 CC0402KRX7R5BB105	C494	0402B105K6R3CT	
2	MLCC NPO 22pF 5% 50V SMD 0402 CC0402JRNPO9BN220	C255	0402N220J500CT	
		C257		
3	MLCC X7R 1000pF 10% 50V SMD 0402 223858715623	C247	0402B102K500CT	
		C250		
		C253		
1	MLCC X7R 0.039uF 10% 50V SMD 0603 CC0603KRX7R9BB	C258	CC0603KRX7R9BB393	國巨股份有限公司(Yageo Co.,Ltd.)
1	Bead 33ohm 25% 3A SMD 0603 BLM18PG330SN1D	B10	BLM18PG330SN1D	台灣村田股份有限公司 (Taiwan Murata Electronics Co., Ltd.)

Enabling an Intelligent Planet

1	X'TAL 25MHz 10ppm 12pF SMD 4P 3.2X2.5X0.7mm	Y3	7M25000139	台灣晶技股份有限公司(Txc Corporation)
1	MOSFET FDG6301N N-CH 0.22A 25V SMD SC70-6 6P	Q36	FDG6301N	香港商美國快捷半導體香港有限公司 (Fairchild Semiconductor Hong Kong Ltd.)
1	IC WGI210IT SLJXT SMD QFN 64P 9x9x1.0mm	U18	WGI210IT SLJXT	英特爾科技有限公司 (Intel Microelectronice Ltd.)
1	IC W25Q80DVSNIQ SPI FLASH 8MB SOIC 8P	U19	W25Q80DVSNIQ	華邦電子股份有限公司 (Winbond Electronics Corp.)
1	PHONE JACK RJ45 14P 90D(M) DIP RTA-195AAK1A	CN15	RTA-195AAK1A	湧德電子股份有限公司(UDE Corp.)

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.