

Migration from W3150A+ to W5100

This application note describes what designers and programmers should consider when migrating from W3150A+ to W5100. For additional information about the W5100, please refer to the W5100 datasheet.

This document contains the following topics:

- Section 1, "Comparison"
- Section 2, "Hardware Considerations"
- Section 3, "Software Considerations"
- Section 4, "Reference"

1. Comparison

1.1 Advantages and Challenges of Migration

This section highlights the various advantages and challenges involved when migrating from W3150A+ to the W5100.

Following is a list of the advantages of migrating to the W5100.

- Cost effective.
- PHY embedded into W5100
- The driver library of W3150A+ and W5100 is fully compatible.

Following is a list of differences that may present challenges in migrating from the W3150A+ to the W5100:

- Different pinout. See Section 2, "Hardware Considerations" for information on addressing these differences.

1.2 Summary and Feature Comparison tables

Table 1 includes information comparing some of the features of W3150A+ and W5100.

Table 1. W3150A+ and W5100 Comparison

		W3150A PLUS	W5100
H/W	Core	H/W IPv4	
	Voltage	3.3v	
	H/W Reset	Low active	
	Ethernet core Clock	25Mhz	
	Performance (full-duplex)	25Mbps	
	Package	Small 64-pin LQFP	Small 80-pin LQFP
	MCU bus I/F	Direct / Indirect / SPI	
	Tx/Rx memory	16KB	
	Socket number	4	
	MII	Nibble	Embedded PHY
Function	TCP/IP protocol	TCP, UDP, IP, ARP, ICMP, MAC, IGMP, PPPoE	
	SEND_OK interrupt	Support	
	No delayed ACK	Support in TCP mode	
	Interrupt register clear	By writing "1"	
	RD/WR Pointer register	2 byte registers	
	Receive Data Size / Free Tx Buffer Size register	Support	
	Keep alive command	Support	
	Direct send command without ARP	Support	

2. H/W consideration

2.1 Voltage

Both models are 3.3v device.

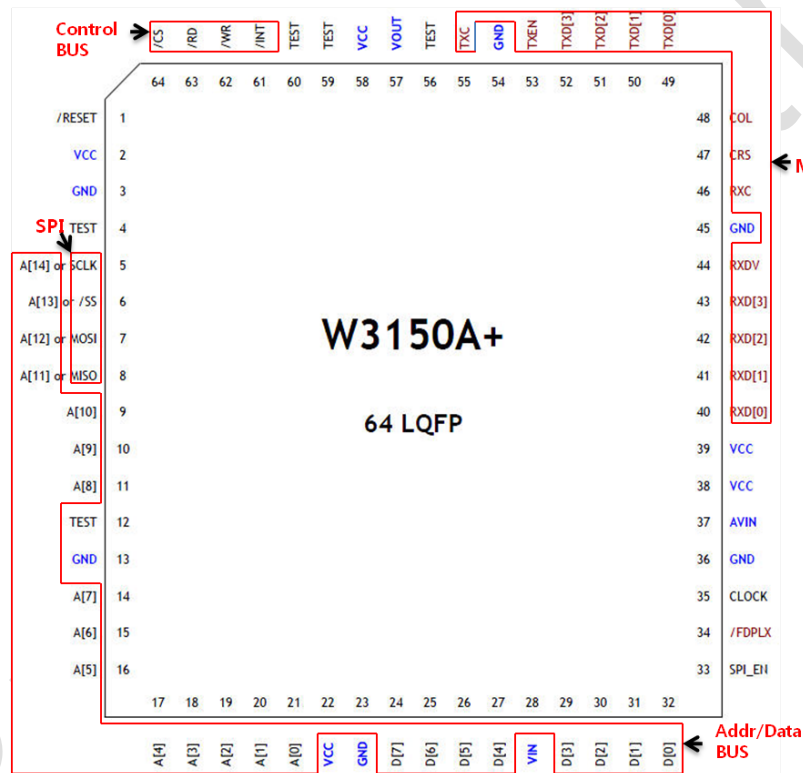
2.2 Package and Pinout

a) The pinout has a huge difference. Two main factors made this difference.

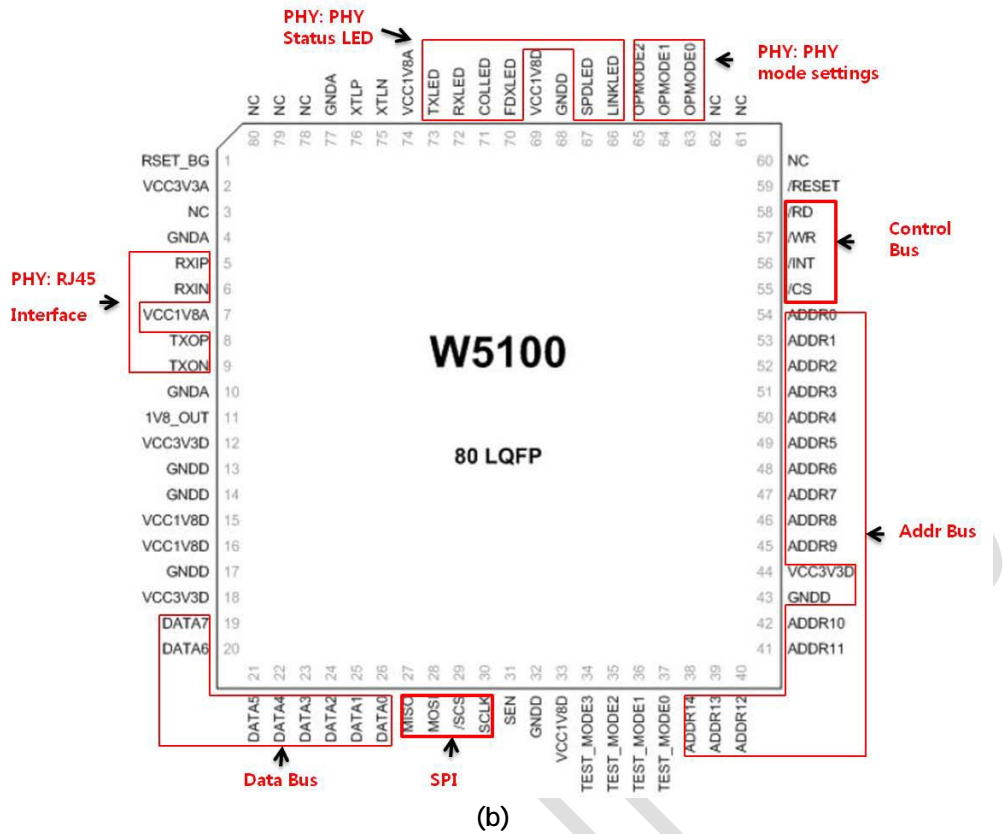
- As PHY is embedded in W5100, MII is replaced by RJ45 interface.
- 4-wire SPI interface doesn't share address bus pins any more.

b) Pinout considerations:

There are two parts that users should note when migrate W3150A+ to W5100. They are MCU interface and PHY interface. MCU interface consists of Control bus, Address bus, Data bus and SPI. PHY interface consists of PHY mode setting interface, MII(W3150A+) or RJ45 (W5100) and PHY Status LED. As long as these parts were fully understood, users could easily do the H/W migration from W3150A+ to W5100.



(a)



(b)
Fig. 1 Pinout considerations when migrate W3150A+ to W5100

- c) In our website, users can find reference schematic of W3150A+ and W5100. By this way, more H/W related information can be found so that the H/W migration from W3150A+ to W5100 can be done very soon.

3. S/W consideration

3.1 Software library

The driver library of W3150A PLUS and W5100 is fully compatible. Thus, when users finished H/W migration, the whole migration job was already completed.

4. References

W5100 library and errata:

<http://www.wiznet.co.kr/W5100/download>

Reference schematic of W3150A PLUS:

[http://www.wiznet.co.kr/UpLoad_Files/ReferenceFiles/NM7010B_Schematic_070718\[1\].pdf](http://www.wiznet.co.kr/UpLoad_Files/ReferenceFiles/NM7010B_Schematic_070718[1].pdf)

Reference schematic of W5100:

http://www.wiznet.co.kr/UpLoad_Files/ReferenceFiles/W5100_Ref_sch_MAG_R2.1.pdf