

Interfacing a ICPlus's IP101A  
100Mbps Ethernet PHY to  
NUC710A MAC  
Application Note  
V1.0

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# 1. Introduction

This application note describes the NUC710A/NUC745A hardware for connecting an external Ethernet PHY. NUC710A/NUC745A series MCU include W90P710 and W90N745, all of them support MAC interface.

This MAC interface supports RMII interface only, doesn't support MII interface; this interface consists of the following signals: MDC, MDIO, REFCLK, CRSDV, RXD[1:0], TXEN, TXD[1:0] and RXERR, through this interface, NUC710A/NUC745A can connect to different kind Ethernet PHY.

The following schematic shows the IP101A application circuit. Since the two signals: GPIO46 of W90P710 and GPIO24 of W90N745 /PHY\_REFCLK (names MAC\_REFCLK) and pin#7, TX\_CLK/REF\_CLK (names PHY\_REFCLK) of IP101A both are input signals and are 50MHz clock input, and IP101A can generate 50MHz clock output from pin#16, RX\_CLK/C50M\_O (names C50M\_O), so we connect C50M\_O to both MAC\_REFCLK and PHY\_REFCLK.

**Note.** We don't suggest using DAVICOM PHY (p/n: DM9161A/B), because it cause EMI side effect and there is not any solution.



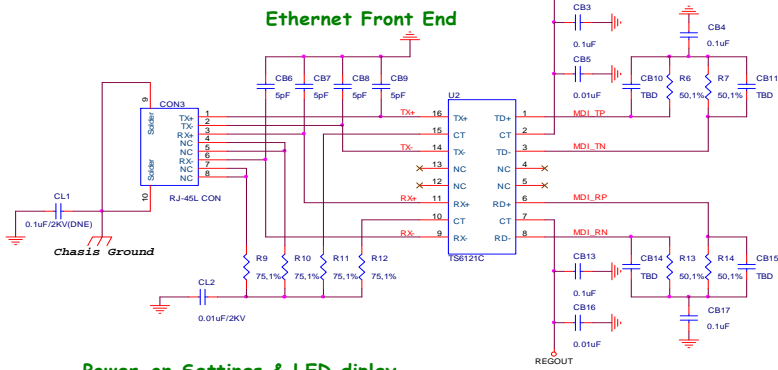
# 2. Example (Schematic)

## ETHERNET

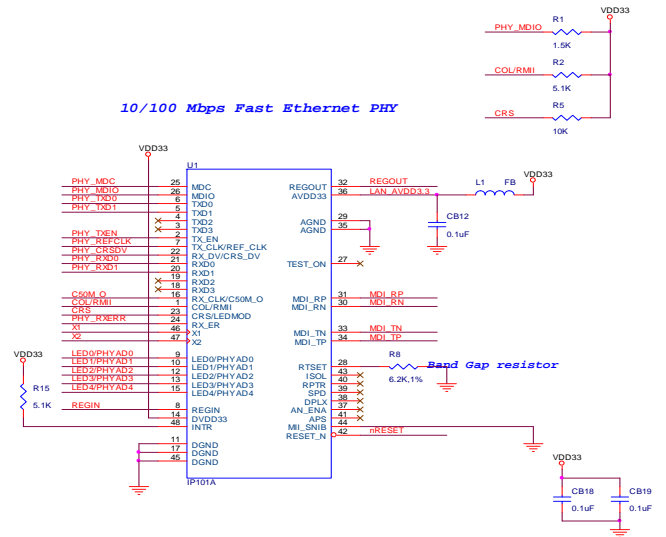
GPIO[29..20] GPIO[29..20]  
 nRESET nRESET

GPIO00	RP1	1	8	BP4R-22	PHY_RXERR
GPIO01	2	7			PHY_CRCSDV
GPIO02	3	6			PHY_TXD0
GPIO03	4	5			PHY_RXD1
GPIO05	RPX	1	8	BP4R-22	PHY_TXD1
GPIO06	2	7			PHY_TXD0
GPIO07	3	6			PHY_TXD1
GPIO08	4	5			PHY_TXD0
GPIO09	RP3	1	22		MAC_REFCLK
GPIO09	RP4	2	22		PHY_MDC

### Ethernet Front End



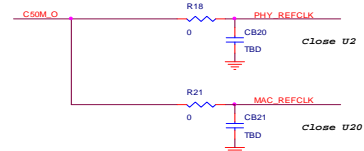
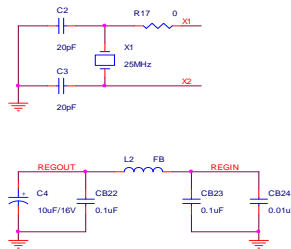
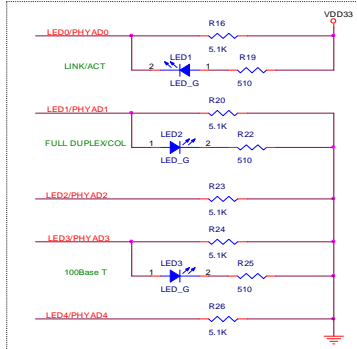
### 10/100 Mbps Fast Ethernet PHY



### Power-on Settings & LED display

PHY address-->00001H

LED mode 2



Title		
ETHERNET.SCH		
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### 3. Revision History

Version	Date	Description
V1.0	Dec. 01, 2008	• First Release

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