MOD-ENC28J60 development board

User's manual

All boards produced by Olimex are ROHS compliant

Document revision B, January 2015
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INTRODUCTION

MOD-ENC28J60 is development board with UEXT connector and 10 Mbit ENC28J60 ethernet controller from Microchip Technology Inc.

BOARD FEATURES

– MOD-ENC28J60 is the easiest way to add 10 Mbit ethernet connectivity to any of our boards with UEXT connector

– ENC28J60 Ethernet controller with UEXT connector for easy connection to our other development boards with UEXT connector

– LAN connector with build in transformer

– two status LEDs on LAN connector

– SPI interface takes only few pins to add Ethernet interface to your microcontroller project

– UEXT 10 pin interface on 0.1" row pins header

– backward compatibility with ENC28J60-H with 2×5 pin header

– PCB: FR-4, 1.5 mm (0,062"), soldermask, white silkscreen component print

– Dimensions: 40×24 mm (1.55×0.95")

– space between the pin rows: 20 mm (0.8")

ELECTROSTATIC WARNING

The MOD-ENC28J60 board is shipped in protective anti-static packaging. The board must not be subject to high electrostatic potentials. General practice for working with static sensitive devices should be applied when working with this board.

BOARD USE REQUIREMENTS

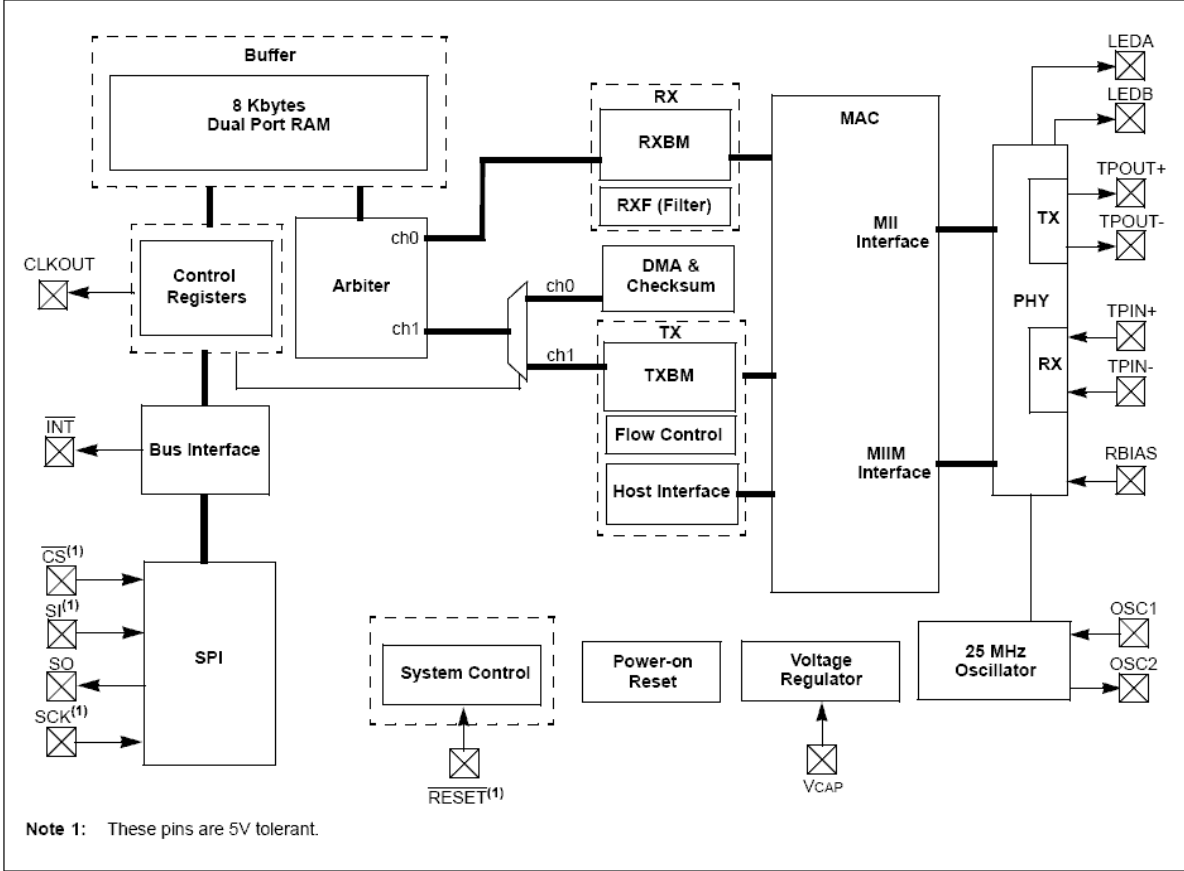**Hardware:** Our development boards PIC-WEB and PIC-MINI-WEB use ENC28J60

Ethernet Controller Features

MOD-ENC28J60 board use ENC28J60 stand-alone ethernet controller with these features:

– IEEE 802.3. Compatible Ethernet Controller

– Fully Compatible with 10/100/1000Base-T Networks

– Integrated MAC and 10Base-T PHY

– Supports One 10Base-T Port with Automatic Polarity Detection and Correction

– Supports Full and Half-Duplex modes

– Programmable Automatic Retransmit on Collision

– Programmable Padding and CRC Generation

– Programmable Automatic Rejection of Erroneous Packets

– SPI Interface with Clock Speeds Up to 20 MHz
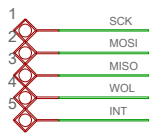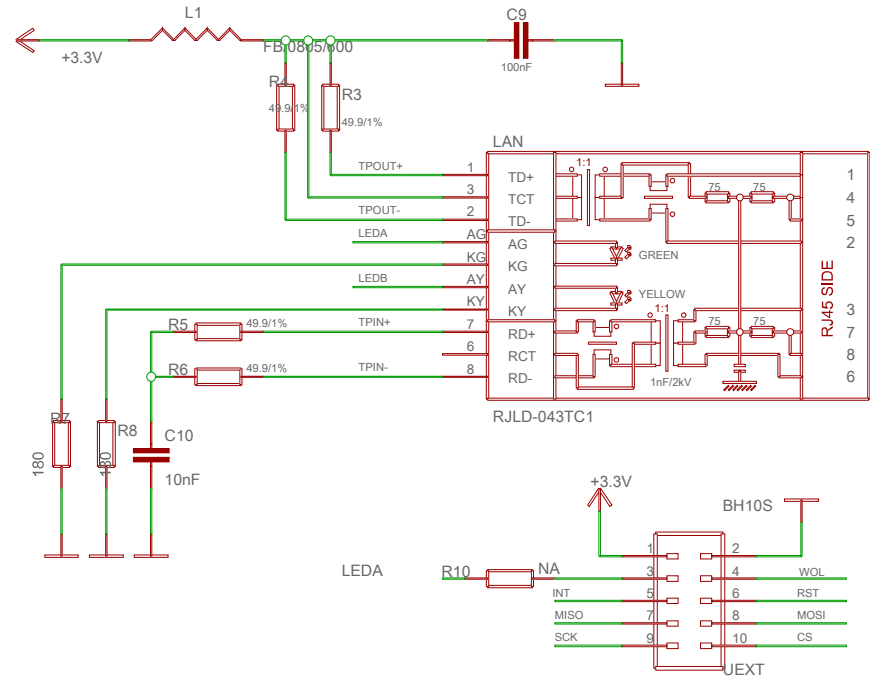
BLOCK DIAGRAM

ENC28J60 BLOCK DIAGRAM

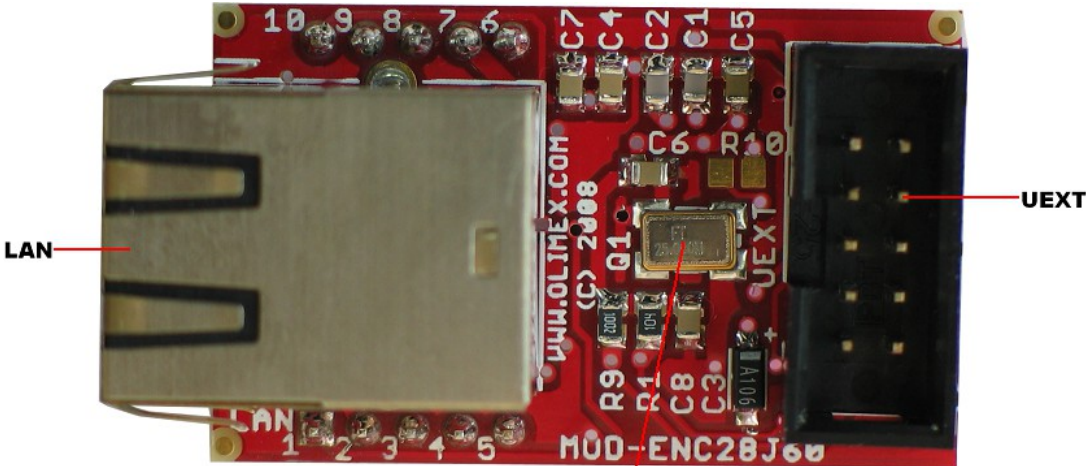
Note 1: These pins are 5V tolerant.

MEMORY MAP

ENC28J60 MEMORY ORGANIZATION

Note: Memory areas are not shown to scale. The size of the control memory space has been scaled to show detail.
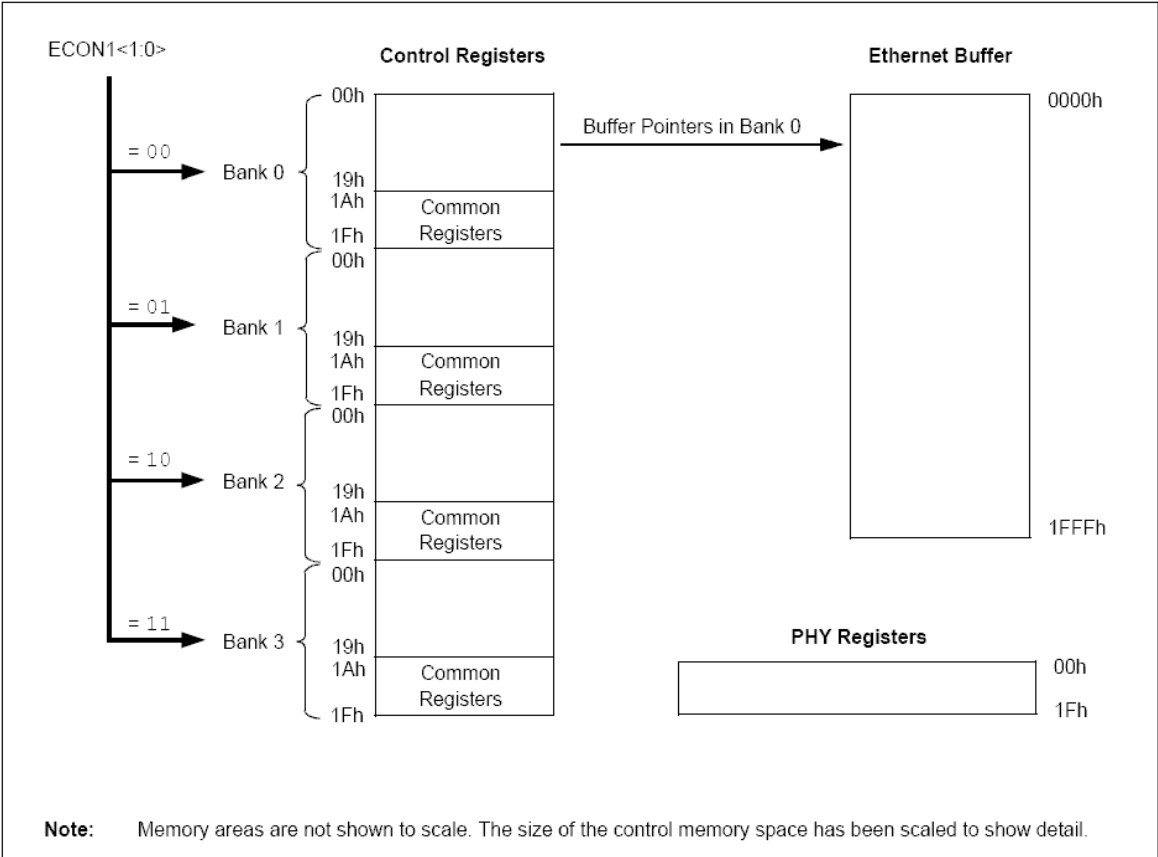
SCHEMATIC
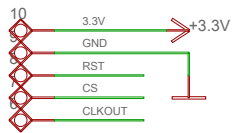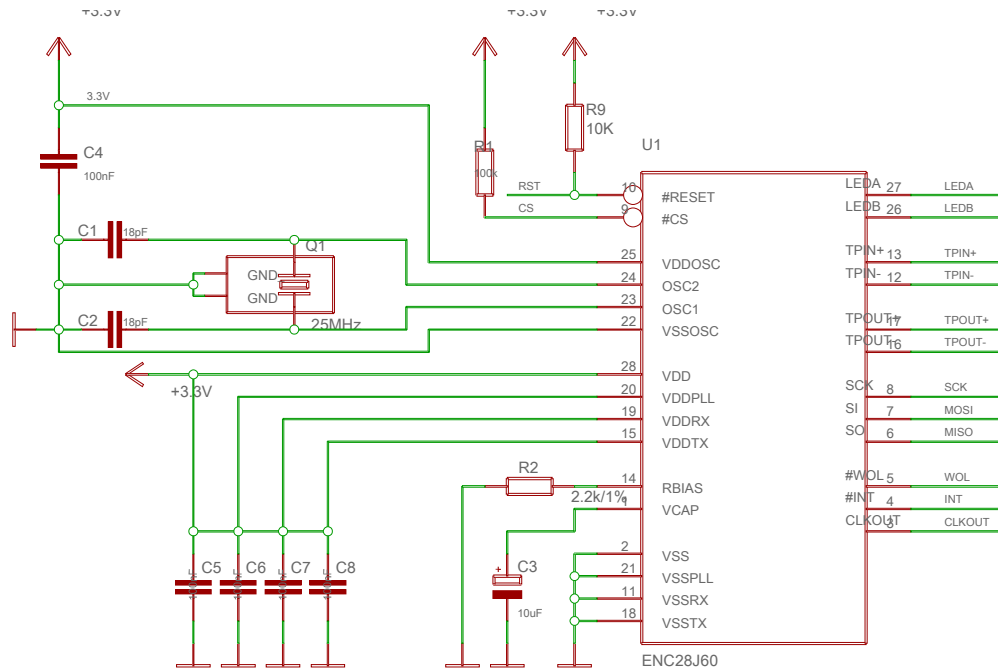
MOD-ENC28J60, board revision A

OLIMEX LTD, BULGARIA

https://www.olimex.com

BOARD LAYOUT

LAN

UEXT

Quartz Crystal Q1

EXT

EXT
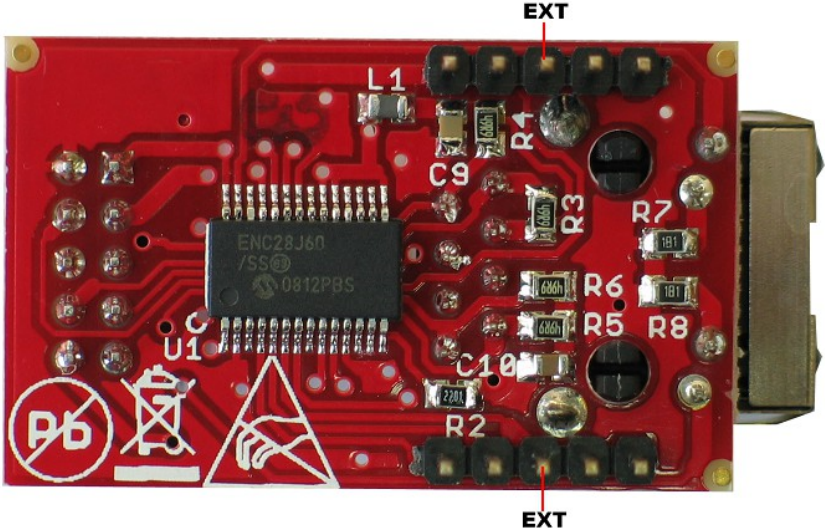
POWER SUPPLY CIRCUIT

MOD-ENC28J60 is typically power supplied by UEXT pin 1 and pin 2 and by EXT pin 10 and pin 9.

RESET CIRCUIT

MOD-ENC28J60 reset circuit includes pin 6 of UEXT connector, pin 10 of U1 and R9 (10k).

CLOCK CIRCUIT

Quartz crystal 25 MHz is connected to **ENC28J60** pin 23 (OSC1) and pin24 (OSC2).

IMPORTANT: If the board has a quartz crystal rotated at 45 degrees relative to the pads provided do not panic. This is normal. We have two types of such crystals – one of them requires 4 pads, the other only 2 pads. That is why we have provided 4 pads to be able to fit both crystals. All boards Olimex manufactures pass automatized optical inspection after assembly and obvious misplacement like this is impossible to occur.
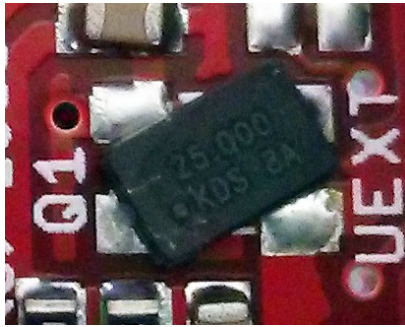
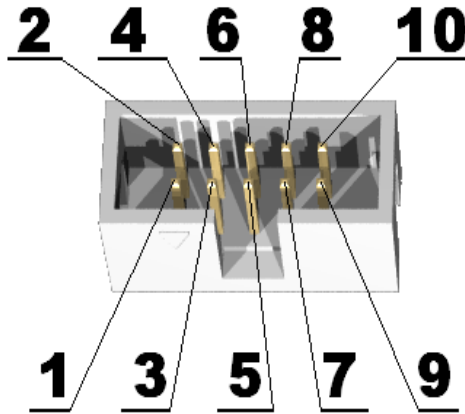*A tilted quartz crystal is not a sign of a manufacturing error!*
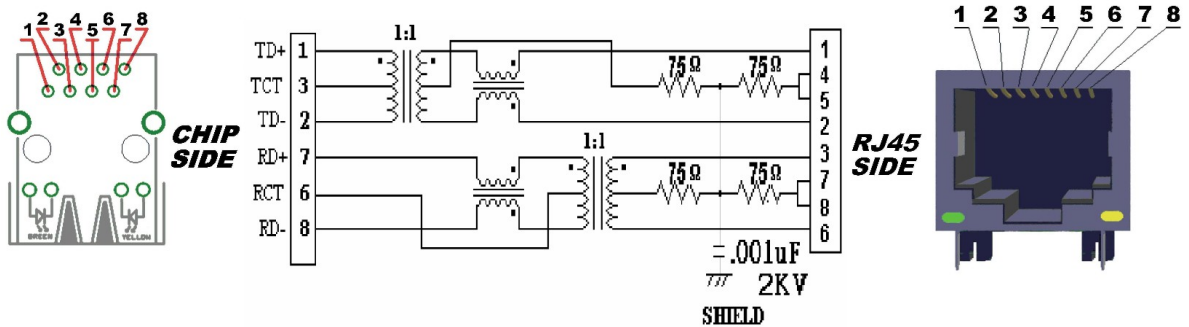
JUMPER DESCRIPTION

There are no jumpers on the board.

CONNECTOR DESCRIPTIONS

UEXT

Pin #	Signal Name
1	3.3V
2	GND
3	LEDA
4	WOL
5	INT
6	RST
7	MISO
8	MOSI
9	SCK
10	CS

LAN

Pin #	Signal Name Chip Side	Pin #	Signal Name Chip Side
1	TX+	5	Not Connected (NC)
2	TX-	6	VDD
3	VDD	7	RX+
4	Not Connected (NC)	8	RX-

LED	Color	Usage
Right	Green	Link status
Left	Yellow	Activity status

EXT
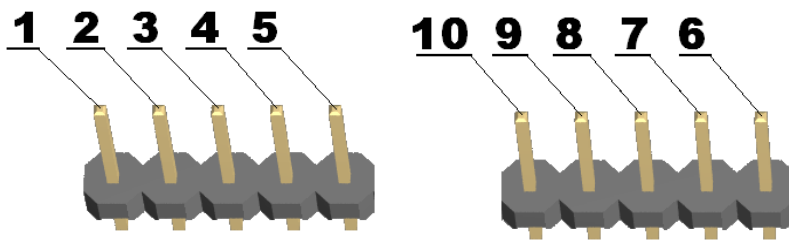
Pin#	Signal Name	Pin#	Signal Name
1	SCK	6	CLKOUT
2	MOSI	7	CS
3	MISO	8	RST
4	WOL	9	GND
5	INT	10	3.3V

MECHANICAL DIMENSIONS
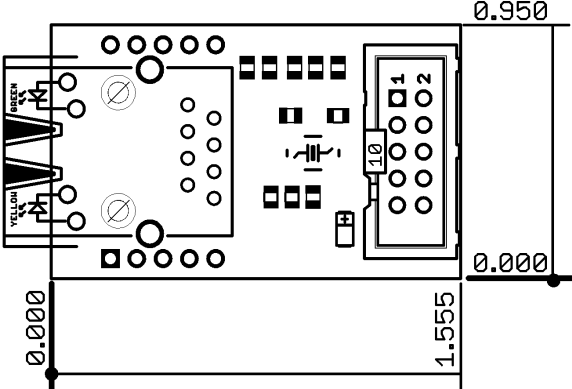
All measures are in inches.

AVAILABLE DEMO SOFTWARE

Please check the SOFTWARE section of the product page for a number of examples with different boards. The web page for MOD-ENC28J60 is:

https://www.olimex.com/Products/Modules/Ethernet/MOD-ENC28J60/

ORDER CODE

MOD-ENC28J60 – completely assembled and tested, includes ENC28J60 Ethernet controller

How to order?

You can purchase directly from our online shop or from any of our distributors. Note that usually it might be faster and cheaper to purchase Olimex products from our distributors. List of confirmed Olimex LTD distributors and resellers: https://www.olimex.com/Distributors

Please visit our web site www.olimex.com for more information.

REVISION HISTORY:

Board revision:

Board revision	Notable changes
B	Initial release of the board

Manual revision:

Document revision	Notable changes	Modified page
A	- Initial manual release	All
B, 23.01.15	- Cleared duplicate information - Added clarification about the rotated quartz crystal - Formatting improvements	All

Disclaimer: