

Connect ENC28J60 module to V500 V2(.2)+ Expansion Header

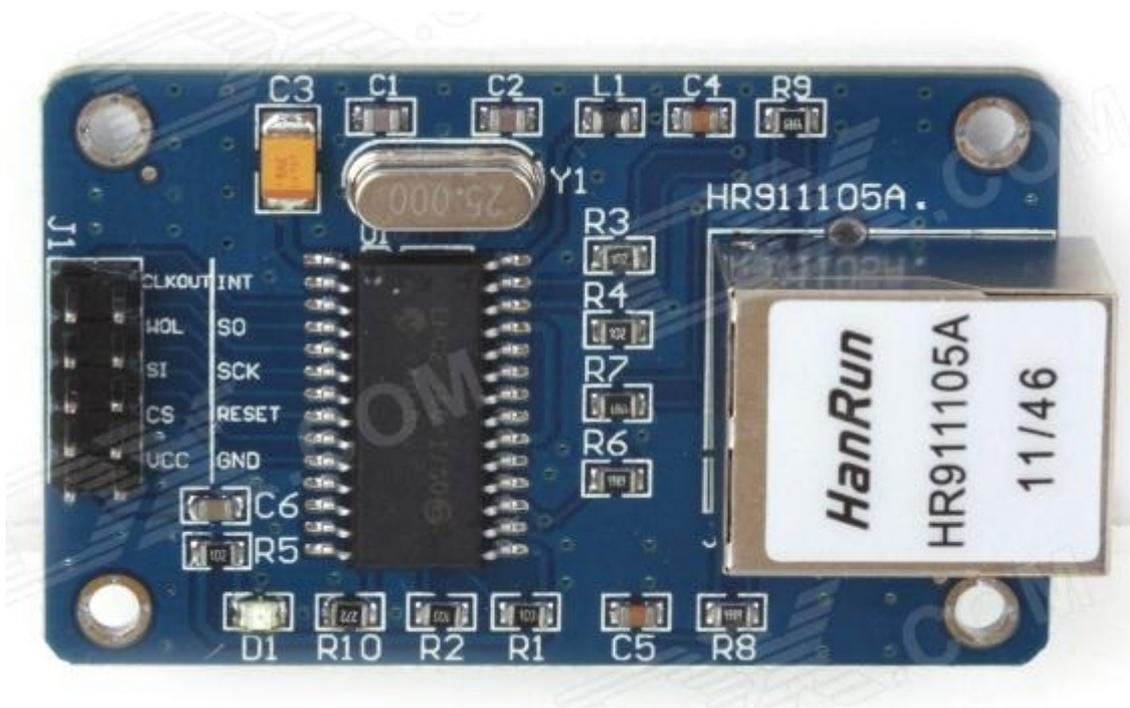
WARNING :

- All pins are 3.3V only. Do NOT connect 5V signals without proper level shifting.
- Documented pinout is for **GOLD2.9 and upwards** only. Do **NOT** use it on earlier cores.
- Apollo Team isn't be responsible for any damage made to your card.
- Required cables are different between V500 revisions, cable is ribbon flat since revision 2.2

[All-in-one Pinout Sheet](#)

Quickstart Guide

1) Get an ENC28J60 module (make sure it's 3.3V !) from [eBay](#)



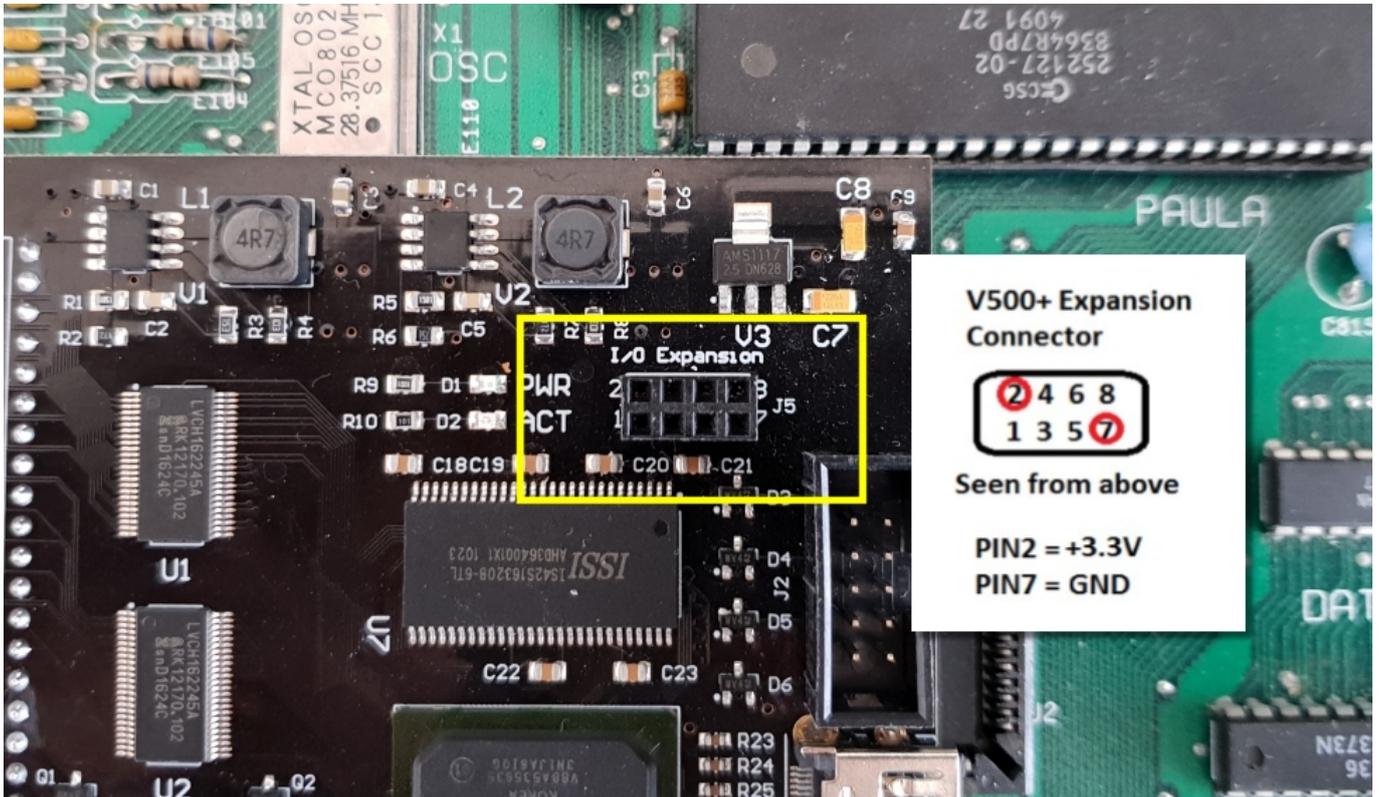
2a) For V500+ V2 users : Get some Dupont wires (Male-to-Female) from [eBay](#)



2b) For V500+ V2.2 users : Get some Flat Ribbon Cables (Female-to-Female) from [eBay](#)

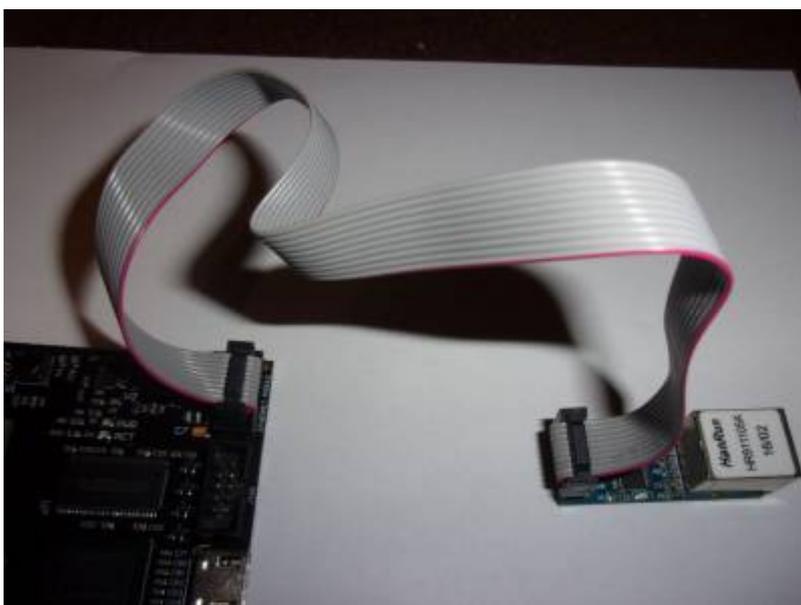


3a) For V500+ V2 users : Connect your module to Expansion Header with below pin-out



Expansion Connector	ENCJ2860 Module
8 (MISO)	So
1 (MOSI)	Si
3 (nCS1)	CS
6 (CLK)	SCK
5 (IRQ)	INT
7 (GND)	GND
2 (+3.3V)	VCC

3b) For V500+ V2.2 users : Connect your module to Expansion Header

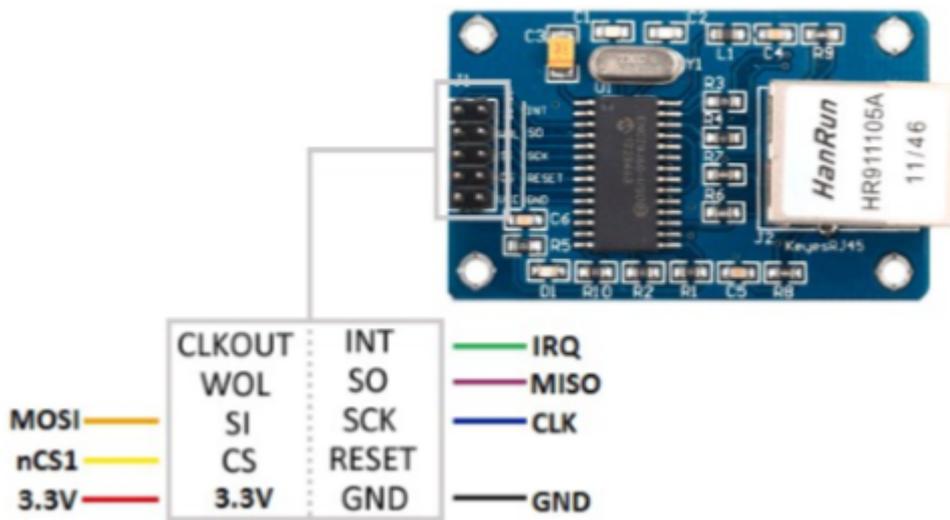


4) Download and install latest SAGA drivers (>=1.3)

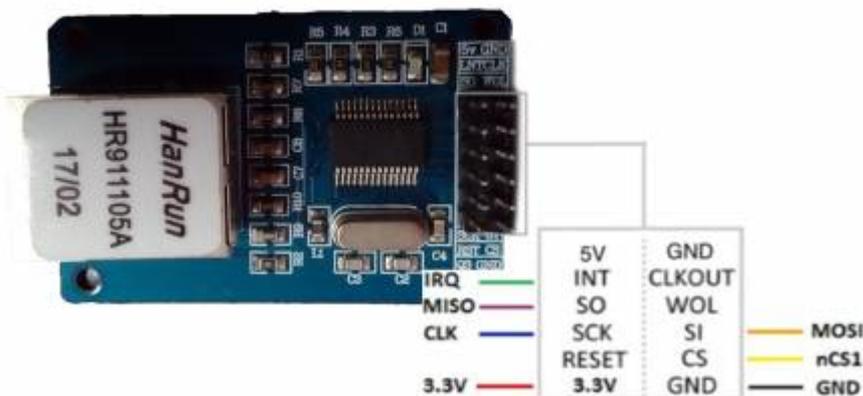
5) Enjoy the cheapest Amiga Ethernet device ever !

Detailed pinout

Connector Pin	SPI Function	UART Function	Remarks
1	MOSI	TXD	
2	+3.3V	+3.3V	
3	nCS1 (SDNet)	CTS	FPGA internal Pullup 50k
4	nCS2 (USB, etc.)	GPO1	FPGA internal Pullup 50k
5	IRQ	RTS	FPGA internal Pullup 50k
6	CLK	GPO2	
7	GND	GND	
8	MISO	RX	FPGA internal Pullup 50k



example: incorrectly labeled 5V module



Testing

A set of test programs is available for newly made cables. Please make sure that the TCP/IP stack is inactive/offline before conducting the test. The SDNet distribution contains drivers, documentation

and the test programs. In case of the V500v2 Expansion port described in this article, the test program is named v2expethtest. Please make sure that a LAN cable is connected from the module to an active Ethernet port (Switch,Router,...).

Open a CLI/Shell window, go with "CD" to the directory where v2expethtest is located ("bin" subdirectory of the SDNet distribution) and call v2expethtest without further arguments.

The tool will first verify that communication to the module is possible via SPI and then test available speeds. Please note that the speed index 0 is expected to fail. That is normal. Depending on the installed Core speed you may or may not be able to run speed index 1 successfully (speed 1 should work on Core x11, may fail on Core x12 and above).

After the memory transfer test, the tool will send out valid DHCP requests. You should see at least one of the LEDs blink periodically. Typical home networks do have a DHCP server running. In that case it should answer the requests.

The tool quits automatically after about 1 minute and prints out a conclusion to the performed tests.

Driver installation and configuration

The SANA-II driver for the ENC28J60 chip connected to the V500V2+ expansion port is named v2expeth.device. Please copy this file to the directory Devs:Networks. Create Devs:Networks if it didn't exist. Please consult the manual of your chosen TCP/IP stack how to add an Ethernet interface.

From version 1.94 on, v2expeth.device supports interrupt driven receive timing. On Core Gold 2.10 or later, you can enable the interrupt driven mode by the following CLI command sequence

```
makedir ENVARC:sana2
echo "TIMER=0 INTERRUPT PRI=6" >ENVARC:sana2/v2expeth.config
```

Less commonly used configuration options are outlined in the README file that comes with the SDNet distribution.

Download

The full distribution of SDNet and V2Expeth can be downloaded here: [SDNet-1.95.lha](#). In that archive you find the mentioned tools. Source code included.

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