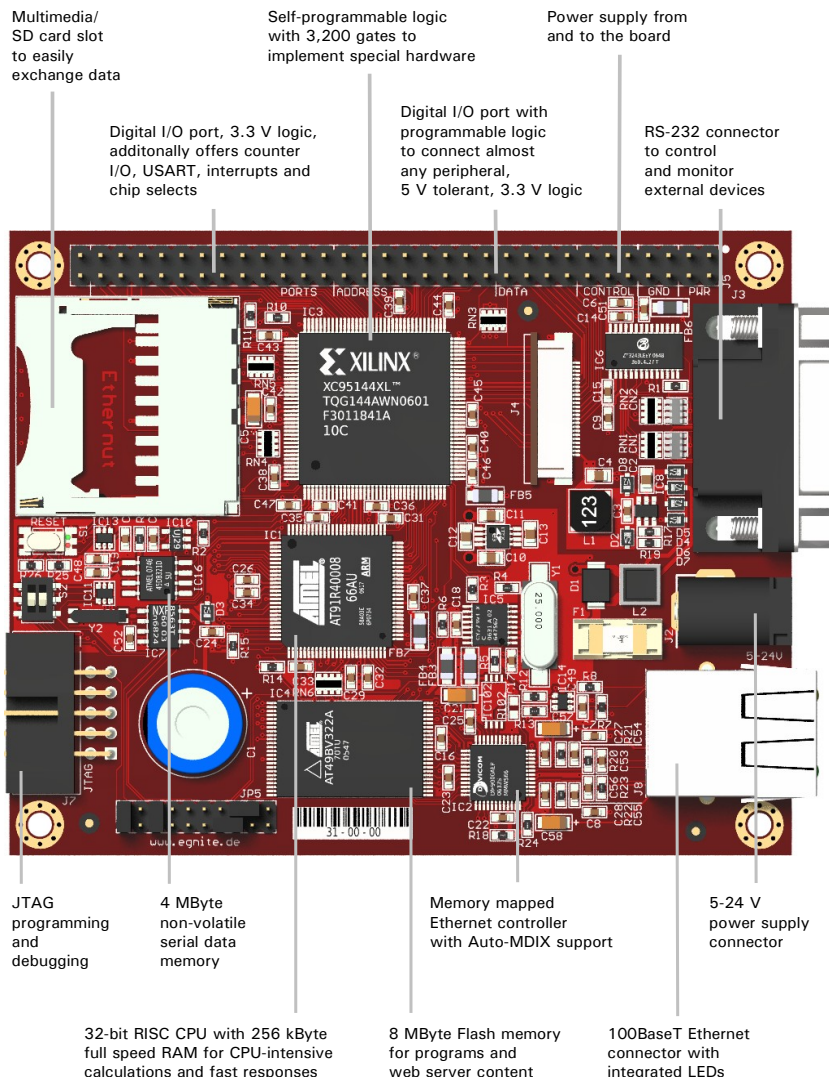


# Ethernut 3.1

## Embedded Ethernet



### Hardware

Since their introduction in 1983, ARM microcontrollers have developed to become undisputed market leaders. Ethernut 3.1 is a network compatible single board computer based on the ARM7TDMI, which is combined with a programmable logic module.

The third generation of the Ethernut family offers quick response time with minimal power consumption. Running in internal RAM the 32-bit CPU processes around 72 million commands per second and the programmable logic enables the implementation of special hardware interfaces. 8 MByte's of flash storage and a socket for MMC/SD cards offer sufficient capacity for more challenging tasks.

Like all other Ethernut boards, it provides an extension connector for attaching additional hardware. Hence it is suitable for both the prototyping of your own hardware as well as for direct integration into your finished product.

This robust board has been in production since 2005. Our in-house quality control procedures guarantee a consistently high level of reliability.

### Software

Application development is carried out in the high level programming language C, using either free GNU tools or the commercially supported ImageCraft compiler.

An active Open Source community developed and managed Nut/OS, a cooperative multithreading operating system with TCP/IP stack, which was specially designed with tiny embedded systems in mind.

The well documented source code provides a convenient user interface, which is very similar to the C programming of desktop PC's. Programmers will therefore quickly feel at ease operating this. Although pre-configured for Ethernut 3.1, all important settings can be customized with just a few mouse clicks with an easy to use graphical interface available on Linux, Windows and Mac OS X PCs

incorporating any special requirements.

A complete Internet enabled web server needs about 100 kByte Flash and 20 kByte RAM. This leaves enough space for ambitious product ideas, including a boot loader for the update of firmware via the network. Many useful example applications are included in the distribution.

# Ethernut 3.1

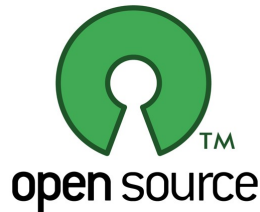
Embedded Ethernet



## Support

Several companies with many years of experience in Nut/OS software and Ethernut hardware offer commercial support.

Furthermore, mailing lists are an important element of this Open Source project, which enable developers to share their experiences and to help one another in problem solving.



## Licence

The entire source code for the target system, as well as the hardware design, have a permissive BSD licence. This is available for commercial products without any licence fees.

In contrast to some other Open Source licence models, there is no obligation to publish your own source code enhancements.

## Technical data

### Processor

CPU	AT91R40008, 73.728 MHz Clock
Flash memory	External 4 MByte
Static RAM	Internal 256 kByte
Serial Flash	External 4 MByte
RTC	Hardware (PCF8563T)

### Interfaces

Ethernet	RJ-45 10/100BaseT (DM9000A)
RS-232	1 x 9-pin DCE, 8-Wire
Digital I/O	17 configurable GPIO lines with alternate functions
Analog I/O	None available
Programming	10-pin JTAG
Indicators	Power (red), link (yellow), activity (green), user (green)

### Power supply

Regulator	600 mA switcher (LT1616)
Input	2.1 mm barrel connector, unregulated 5 to 24 V DC
Expansion port	9 to 24 V unregulated or 3.3 V regulated, output > 1 W
Consumption	< 1.2 W at 12 V
Battery backup	None

### Protection

RS-232	15 kV ESD protection
Ethernet	Transformer isolation
Power supply	1 A replaceable fuse, rectifier bridge, current limiter, thermal shutdown

### Environmental

Operating temperature	0 to 70 °C (32 to 158 °F)
Storage temperature	-65 to 140 °C (-85 to 284 °F)
Humidity	5 to 95 %, non-condensing

### Approvals

Safety	PCB flammability rating UL94-V-0
RoHS compliance	EU directive 2002/95/EC

### Metrics

Dimensions (L x B x H)	98 x 78 x 17 mm (3.86 x 3.07 x 0.67 in)
Weight	61 g (0.134 lb)

### Product identification

PCB revision	Written in copper on the PCB's backside
Serial number	IEEE registered MAC Address on barcode sticker label (Code 128C)

## Order information

### Ethernut Starter Kit 3.1D

Item no.	EGN101106
Included in delivery	Ethernut Bulk 3.1D 1 spare fuse 1 Turtelizer 2 (ARM in-system programmer) 1 serial cable manual, software CD 2-year warranty

### Ethernut Bulk 3.1D

Item no.	EGN101006
Included in delivery	Ethernut Bulk 3.1D 2-year warranty