
Application Note: AN00120

XMOS 100Mbit Ethernet application note

Ethernet connectivity is an essential part of the explosion of connected devices known collectively as the Internet of Things (IoT). XMOS technology is perfectly suited to these applications - offering future proof and reliable ethernet connectivity whilst offering the flexibility to interface to a huge variety of “Things”.

This application note shows a simple example that demonstrates the use of the XMOS Ethernet library to create a layer 2 ethernet MAC interface on an XMOS multicore microcontroller.

The code associated with this application note provides an example of using the Ethernet Library to provide a framework for the creation of an ethernet Media Independent Interface (MII) and MAC interface for 100Mbps.

The application note uses XMOS libraries to provide a simple IP stack capable of responding to an ICMP ping message. The code used in the application note provides both MII communication to the PHY and a MAC transport layer for ethernet packets and enables a client to connect to it and send/receive packets.

Required tools and libraries

- xTIMEcomposer Tools - Version 14.0.0
- XMOS Ethernet library - Version 3.0.0
- XMOS OTP Reading Library - Version 2.0.0
- XMOS sliceKIT Board Support Library - Version 2.0.0

Required hardware

This application note is designed to run on an XMOS xCORE-L (General Purpose family) series device. The example code provided with the application has been implemented and tested on the xCORE-L2 sliceKIT 1V2 (XP-SKC-L2) core board using ethernet sliceCARD 1V1 (XA-SK-E100). There is no dependency on this core board - it can be modified to run on any (XMOS) development board which has the option to connect to the ethernet sliceCARD.

Prerequisites

- This document assumes familiarity with the XMOS xCORE architecture, the Ethernet standards IEEE 802.3u (MII), the XMOS tool chain and the xC language. Documentation related to these aspects which are not specific to this application note are linked to in the references appendix.
- For a description of XMOS related terms found in this document please see the XMOS Glossary¹.
- For an overview of the Ethernet library, please see the Ethernet library user guide.



Copyright © 2015, All Rights Reserved.

Xmos Ltd. is the owner or licensee of this design, code, or Information (collectively, the “Information”) and is providing it to you “AS IS” with no warranty of any kind, express or implied and shall have no liability in relation to its use. Xmos Ltd. makes no representation that the Information, or any particular implementation thereof, is or will be free from any claims of infringement and again, shall have no liability in relation to any such claims.

¹<http://www.xmos.com/published/glossary>