

AX88279 Product Introduction

Revision 1.04
May 13th, 2024

Revision History

Revision	Date	Description
1.00	2023/02/24	Initial release
1.01	2023/07/14	Updated Figure 1 in the Section 2.
1.02	2023/08/15	Updated Figure 3 in Section 3.
1.03	2024/01/17	Updated Selection Guide in Figure 3.
1.04	2024/05/13	Updated Selection Guide in Figure 3.

Table of Contents

1. Introduction	4
2. Block Diagram	4
3. Target Applications.....	5
4. Selection Guide	5
5. Order Information	6
6. AX88279 Demo Board	6
7. Mass Production Solutions.....	7
7-1. Windows Mass Production Tool.....	7

List of Figures

Figure 1. AX88279 Block Diagram	4
Figure 2. AX88279 Typical Applications Diagram.....	5
Figure 3. ASIX USB Ethernet ICs Selection Guide	5
Figure 4. Ordering Information	6
Figure 5. AX88279 Demo Board	6
Figure 6. Program Page for Windows Mass Production Tool	7
Figure 7. MP Page for Windows Mass Production Tool	8

1. Introduction

This document provides an overview of AX88279 USB 3.2 Gen1 to 2.5G Ethernet Controller product.

The AX88279 is a USB 3.2 Gen1 to 2.5G Ethernet controller with integrated 2.5G/1G/100M Base-T Ethernet PHY. AX88279 supports MACsec, Precision Time Protocol (PTP), Microsoft Modern Standby, etc. advanced features, and supports Windows 11/10/8.x, Linux/Android/Chrome OS, Nintendo Switch in-box drivers, and macOS/Linux native CDC-NCM driver for driverless, Plug & Play.



The AX88279 is an easy-design, small form factor and cost-efficient solution, which adapts to any platforms required to support 2.5G Ethernet network connectivity via USB port and is suitable for Desktop/Notebook/POS, USB Ethernet dongles, docking stations, smart mobile device cradles, game consoles, smart camera/IP STB, 5G/LTE router/gateway, etc. smart home/office applications.

2. Block Diagram

The following is AX88279 block diagram,

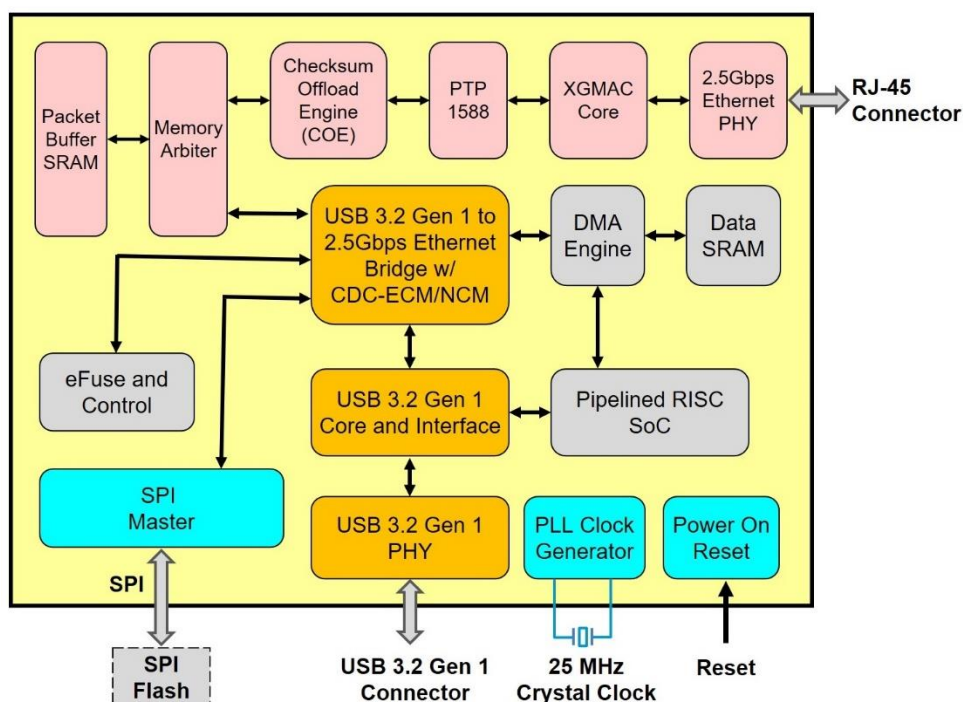


Figure 1. AX88279 Block Diagram

3. Target Applications

The following are AX88279 typical target applications.

- Desktop/Notebook/POS
- Game Console
- USB Ethernet Dongle for Ultrabook /Tablet/Smart Phone
- IP STB, Smart Camera, Smart TV Box
- Docking Station, Cradle
- 5G/LTE Router/Gateway
- Embedded Systems with USB Host Interface

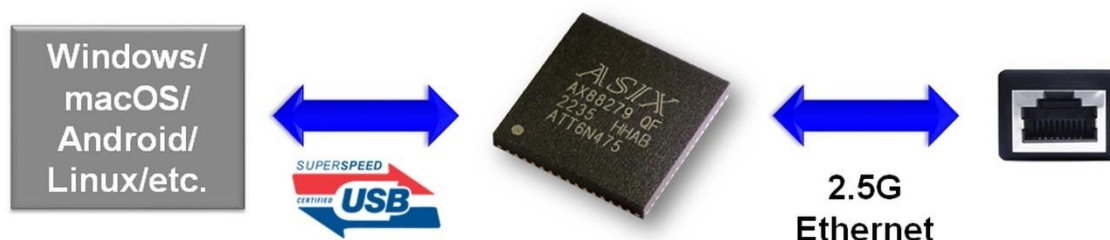


Figure 2. AX88279 Typical Applications Diagram

4. Selection Guide

The following is the selection guide of ASIX USB Ethernet ICs for different requirement applications. Please visit ASIX USB Ethernet ICs web pages and contact ASIX's Sales (sales@asix.com.tw) for details.

Part No.	USB Speed	Ethernet MAC/PHY (bps)	CDC-NCM Driverless	iPXE	PTP	MAC Interface	Temperature Range (°C)	Package
AX88279	USB 3.2	2.5G/1G/100M	V	V	V	-	0 ~ +70	QFN-60
AX88179B	USB 3.2	1G/100M/10M	V	V	V	-	0 ~ +70 -40 ~ +85	QFN-40
AX88179A	USB 3.2	1G/100M/10M	V	V	-	-	0 ~ +70	QFN-40
AX88772E	USB 2.0	100M/10M	V	V	V	-	0 ~ +70	QFN-32
AX88772D	USB 2.0	100M/10M	V	V	-	-	0 ~ +70	QFN-32
AX88772C	USB 2.0	100M/10M	-	-	-	RMII/ Rev-RMII	0 ~ +70/ -40 ~ +85	LQFP-64
AX88772B	USB 2.0	100M/10M	-	-	-	RMII/ Rev-RMII	0 ~ +70/ -40 ~ +85	LQFP-64
AX88772A	USB 2.0	100M/10M	-	-	-	-	0 ~ +70	LQFP-64

Figure 3. ASIX USB Ethernet ICs Selection Guide

5. Order Information

The following are the ordering information of AX88279 silicon and AX88279 demo board. Please contact ASIX's Sales (sales@asix.com.tw) for more details.

Part Number	Description
AX88279 QF	QFN 60-pin lead Free package, Commercial temperature range: 0 to 70°C.

AX88279 Board	Description
AX88279 Demo Board	This is AX88279 demo board for USB 3.2 Gen1 to 2.5G Ethernet applications

Figure 4. Ordering Information

6. AX88279 Demo Board

ASIX Electronics offers AX88279 demo board for designers to evaluate AX88279 USB 3.2 Gen1 to 2.5G Ethernet functionalities on different target applications. If you need to purchase the AX88279 demo board, please contact ASIX's Sales (sales@asix.com.tw) for more details.

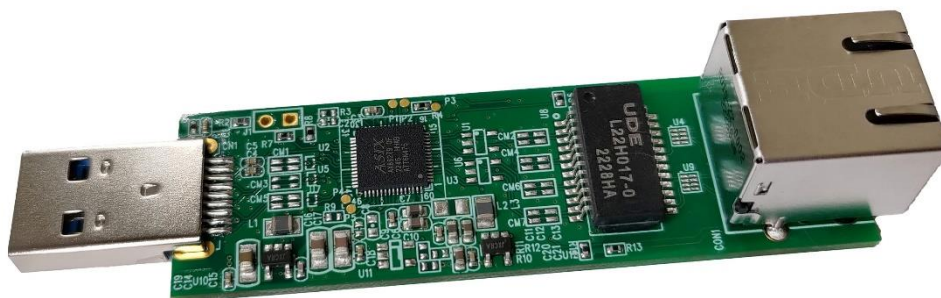


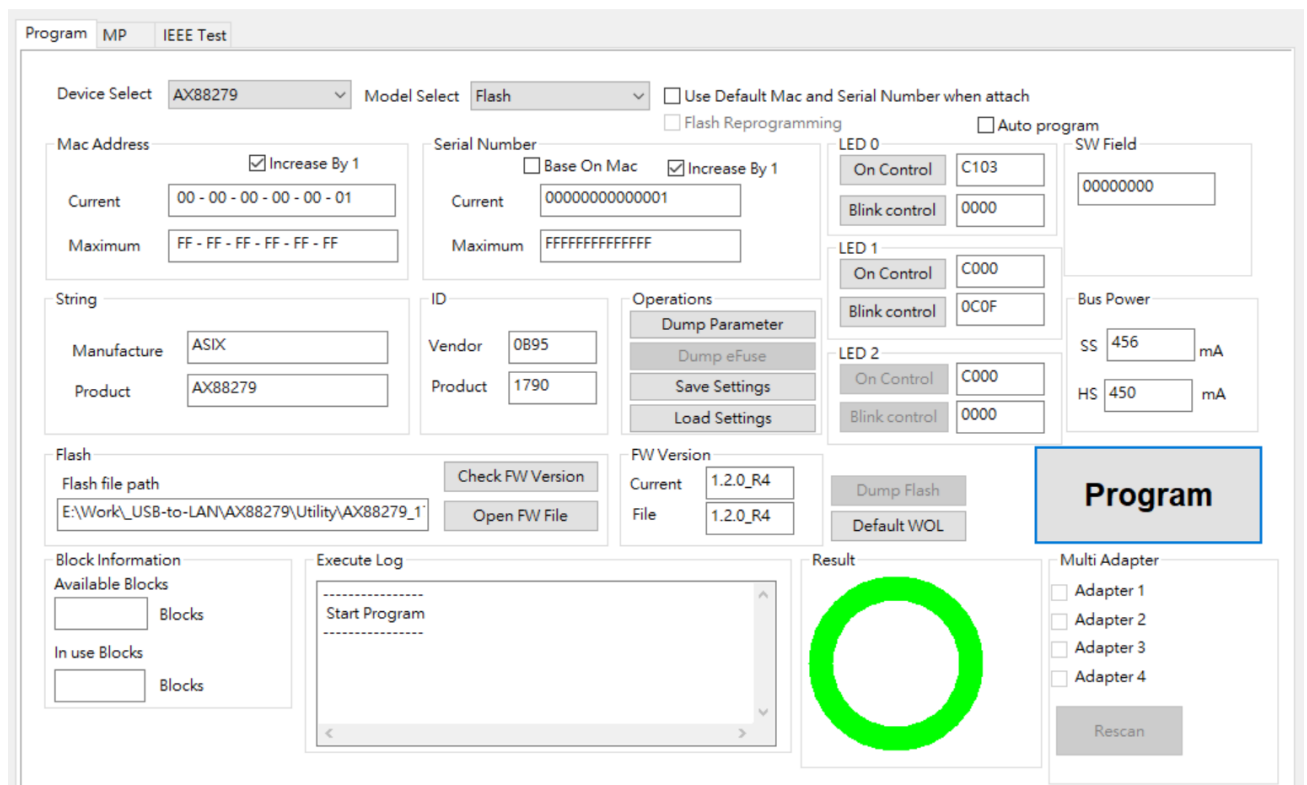
Figure 5. AX88279 Demo Board

7. Mass Production Solutions

To support the mass production for those products using AX88279 chip. ASIX provides the Windows Mass Production Tool solution for AX88279 customers. This chapter provides a brief introduction for this solution. Please refer to “**AX88279_179A_772D Mass Production User Guide**” for details.

7-1. Windows Mass Production Tool

ASIX Electronics provides a Windows Mass Production tool for users to easily program AX88279 firmware code and optional parameters into serial Flash memory on a typical Windows PC. This AX88279 Windows Mass Production Tool supports to customize the MAC address, Serial Number, Vendor ID and Product ID, etc. for AX88279 based application systems in mass production.



The screenshot displays the 'Program' page of the Windows Mass Production Tool. The interface is organized into several functional areas:

- Top Navigation:** Tabs for 'Program', 'MP', and 'IEEE Test' are visible, with 'Program' being the active tab.
- Device and Model Selection:** 'Device Select' is set to 'AX88279' and 'Model Select' is set to 'Flash'. There are checkboxes for 'Use Default Mac and Serial Number when attach' and 'Flash Reprogramming'.
- Mac Address Configuration:** Includes 'Current' (00-00-00-00-00-01) and 'Maximum' (FF-FF-FF-FF-FF-FF) fields, with an 'Increase By 1' checkbox.
- Serial Number Configuration:** Includes 'Current' (00000000000001) and 'Maximum' (FFFFFFFFFFFFFF) fields, with a 'Base On Mac' checkbox and an 'Increase By 1' checkbox.
- String Configuration:** 'Manufacture' is set to 'ASIX' and 'Product' is set to 'AX88279'.
- ID Configuration:** 'Vendor' is set to '0895' and 'Product' is set to '1790'.
- Flash Configuration:** 'Flash file path' is set to 'E:\Work\USB-to-LAN\AX88279\Utility\AX88279_1'. There are buttons for 'Check FW Version', 'Open FW File', 'Dump Parameter', 'Dump eFuse', 'Save Settings', and 'Load Settings'.
- FW Version:** 'Current' and 'File' versions are both set to '1.2.0_R4'. There are buttons for 'Dump Flash' and 'Default WOL'.
- LED Control:** Sections for LED 0, LED 1, and LED 2, each with 'On Control' and 'Blink control' buttons and input fields.
- SW Field:** A text input field containing '00000000'.
- Bus Power:** 'SS' is set to 456 mA and 'HS' is set to 450 mA.
- Program Button:** A large, prominent blue button labeled 'Program'.
- Result:** A large green circle indicating a successful operation.
- Multi Adapter:** Checkboxes for 'Adapter 1', 'Adapter 2', 'Adapter 3', and 'Adapter 4', with a 'Rescan' button.
- Block Information:** 'Available Blocks' and 'In use Blocks' sections, each with a text input field and a 'Blocks' label.
- Execute Log:** A text area showing 'Start Program'.

Figure 6. Program Page for Windows Mass Production Tool

This tool also supports to send/receive packets in different Ethernet speed modes, and program the serial Flash. This tool can be run on a Windows PC, which installs the AX88279 Windows driver. This tool also needs a separate server PC to run the test server tool (TestServer.exe). The test server tool on server PC can receive packets from the “device under test” product, and then reply back.

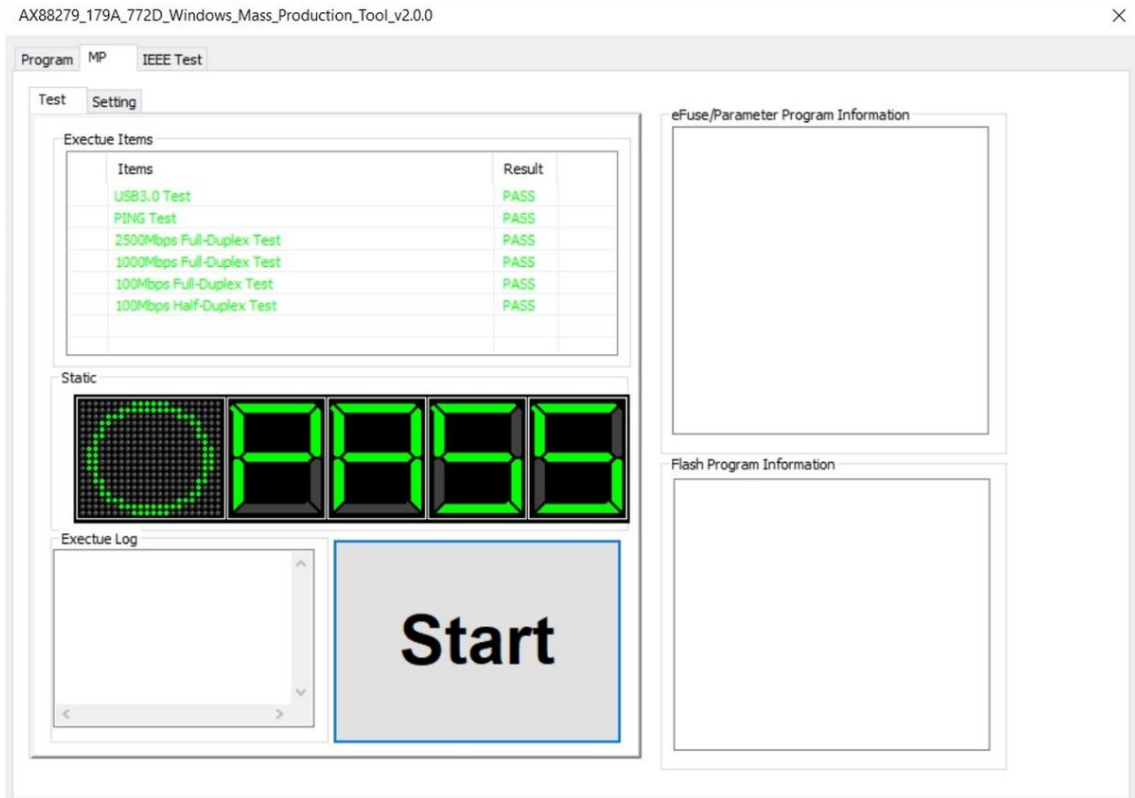


Figure 7. MP Page for Windows Mass Production Tool

Copyright © 2023-2024 ASIX Electronics Corporation. All rights reserved.

DISCLAIMER

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose, without the express written permission of ASIX. ASIX may make changes to the product specifications and descriptions in this document at any time, without notice.

ASIX provides this document “as is” without warranty of any kind, either expressed or implied, including without limitation warranties of merchantability, fitness for a particular purpose, and non-infringement.

Designers must not rely on the absence or characteristics of any features or registers marked “reserved”, “undefined” or “NC”. ASIX reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. Always contact ASIX to get the latest document before starting a design of ASIX products.

TRADEMARKS

ASIX, the ASIX logo are registered trademarks of ASIX Electronics Corporation. All other trademarks are the property of their respective owners.

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.



**4F, No.8, Hsin Ann RD., Hsinchu Science Park,
Hsinchu, Taiwan, R.O.C.**

TEL: +886-3-5799500

FAX: +886-3-5799558

Email: support@asix.com.tw

Web: <https://www.asix.com.tw>