AX88179 Product Introduction

Revision 1.01
July 19th, 2013

Revision History

Revision	Date	Description
0.10	2011/12/21	Preliminary release
0.20	2012/01/03	1. Updated some descriptions in Section 1, 6.
1.00	2012/05/23	1. Added Section 6 "Mass Production Solutions. 2. Added Section 7 "AX88179 Demo Board". 3. Updated the Selective Guide in Section 3. 4. Modified some descriptions in Section 2-1, 8.
1.01	2013/07/19	1. Modified some descriptions in Section 3, 8.

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1. Introduction

The AX88179 USB 3.0 to Gigabit Ethernet controller is a high performance and highly integrated ASIC which enables low cost, small form factor, and simple plug-and-play Gigabit Ethernet network connection capability for desktops, notebook PC's, Ultrabook's, docking stations, game consoles, digital-home appliances, and any embedded system using a standard USB port.

The following URL provides detailed online resource of ASIX Electronics USB-to-LAN solutions: (Refer to http://www.asix.com.tw/products.php?op=ProductList&PLine=71.)

This Application Design Note applies specifically to the following AX88179 USB 3.0 to Gigabit Ethernet controller.

AX88179 – USB3.0 to 10/100/1000M Gigabit Ethernet Controller

This document provides an overview of AX88179 USB3.0 to Gigabit Ethernet Controller product.

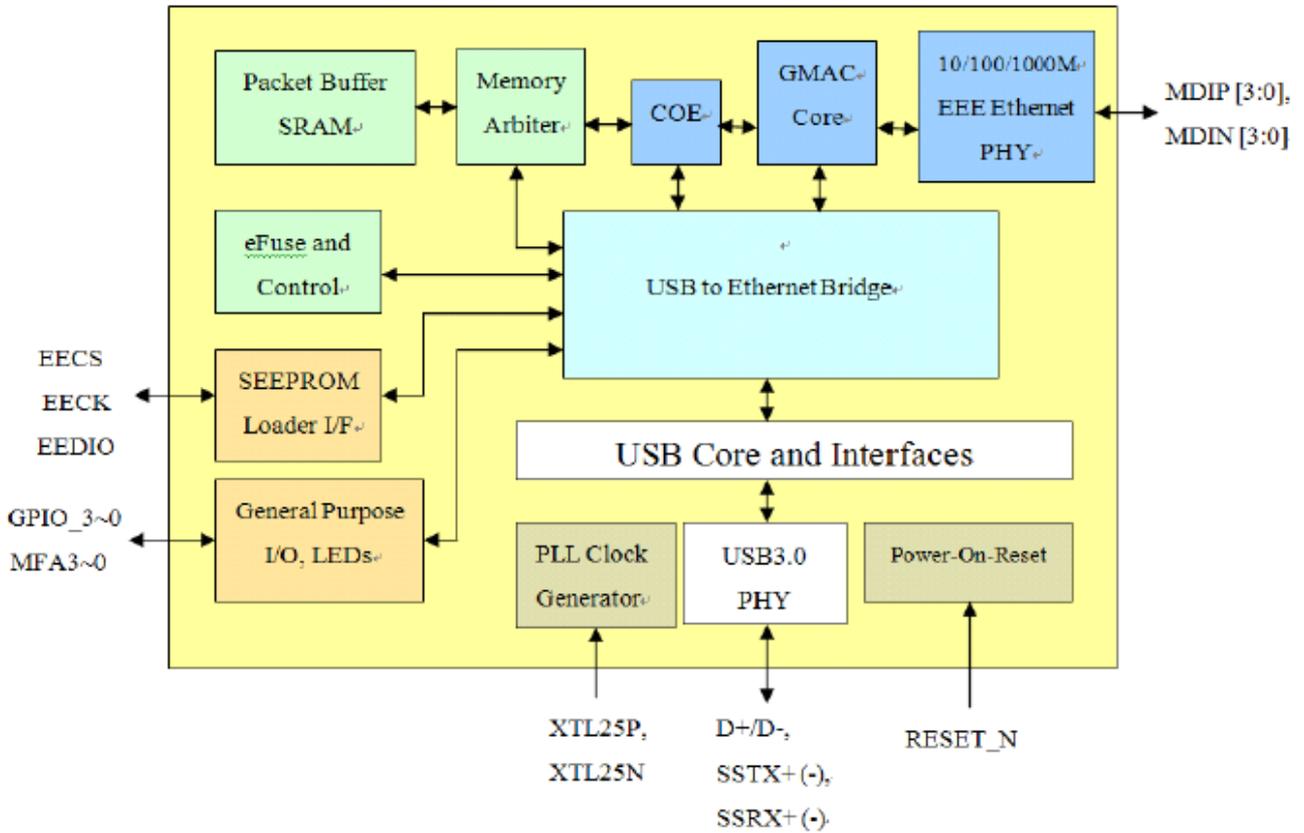## 2. Block Diagram

The following is AX88179 block diagram,

Figure 1.   AX88179 Block Diagram
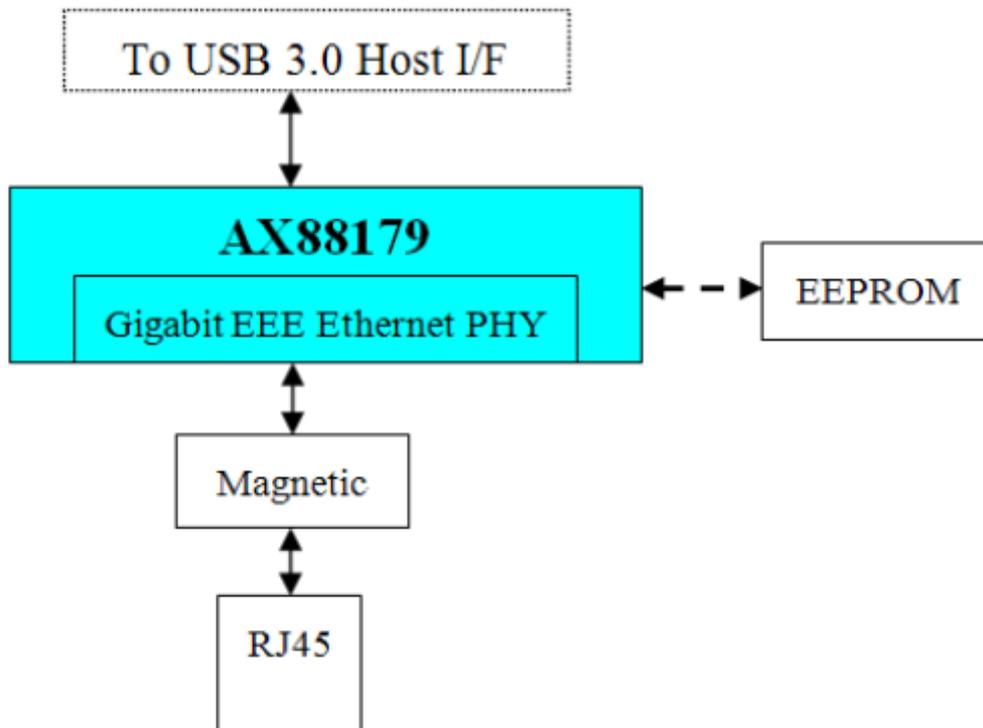
2-1. Typical System Block Diagram

Figure 2.   USB 3.0 to Gigabit Ethernet Adaptor/Dock

3. Selection Guide

The following is the selection guide of ASIX Electronics USB to Ethernet family for different requirement applications. Please visit ASIX Electronics USB-to-LAN solutions web pages http://www.asix.com.tw/products.php?op=ProductList&PLine=71 and contact ASIX's Sales (sales@asix.com.tw) for details.

Part No.	USB Speed	USB Hub	Ethernet MAC/ PHY (Mbps)	Microsoft AOAC	MAC Interface	Crossover Detection and Auto-correction
AX88179	Super (3.0)	-	10/100/1000	-	-	v
AX88178A	High (2.0)	-	10/100/1000	-	-	v
AX88178	High (2.0)	-	10/100/1000 (MAC only)	-	MII/GMII/ RGMII	-
AX88772C	High (2.0)	-	10/100	v	RMII/Rev-RMII(Optional)	v
AX88772B	High (2.0)	-	10/100	-	RMII/Rev-RMII(Optional)	v
AX88772A	High (2.0)	-	10/100	-	-	v
AX88172A	High (2.0)	-	10/100	-	(Rev-)MII/ Rev-RMII	v
AX88772	High (2.0)	-	10/100	-	MII	-
AX88760	High (2.0)	3-Port	10/100	-	-	v

Part No.	IP/TCP/UDP Checksum	Wake-on-LAN	Serial Interface	Temperature Range (°C)	Package
AX88179	v	v	-	0 ~ +70	QFN-68
AX88178A	v	v	-	0 ~ +70	QFN-68
AX88178	-	v	-	0 ~ +70	LQFP-128
AX88772C	v	v	-	0 ~ +70	LQFP-64
AX88772B	v	v	-	0 ~ +70/ -45 ~ +85	LQFP-64
AX88772A	-	v	I²C, SPI UART	0 ~ +70	LQFP-64
AX88172A	-	v	I²C, SPI UART	0 ~ +70	TQFP-80
AX88772	-	v	-	0 ~ +70	LQFP-128
AX88760	-	v	-	0 ~ +70	LQFP-100

Figure 3. Selection Guide

4. Ordering Information

The following are the ordering information of AX88179 silicon and AX88179 demo boards. Please contact ASIX's Sales (sales@asix.com.tw) for more details.

Part Number	Description
AX88179 QF	68 PIN, QFN Package, Commercial Grade Temperature Range 0℃ to +70 ℃ (Green, Lead-Free)

AX88179 Demo Board	Description
AX88179 Demo Board	This is a USB dongle for AX88179 USB 3.0 to Gigabit Ethernet application

Figure 4. Ordering Information

5. Target Applications

The following are some PC/Internet and consumer electronics target applications for your reference.

PC/Internet

USB Dongle   Docking Station   Port Replicator for Mobile Computer   Media Gateway   Networked Printer   POS, Card Reader

Mobile Internet Device(MID)   UMPC   Netbook   Ultrabook   Pocketable Computer

Consumer Electronics

Game Console   Portable Media Player   IP STB   IPTV   DVD-Recorder/DVR   TiVo Box   ePiano

Figure 5.   Target Applications

6. Mass Production Solutions

To support the mass production for those products using AX88179 chip. ASIX provides the Windows SROM Programming Tool and Windows Production Test Tool solutions for AX88179 customers. This chapter provides a brief introduction for both solutions. Please refer to "**AX88179 EEPROM User Guide**" for details.

6-1.   Windows SROM Programming Tool

ASIX Electronics provides a Windows SROM Programming tool for users to easily program the Serial EEPROM/eFuse of AX88179 on a typical Windows PC. This AX88179 Windows SROM Programming Tool supports to customize the MAC address, Serial Number, Vendor ID and Product ID, etc. for AX88179 based application systems in mass production.
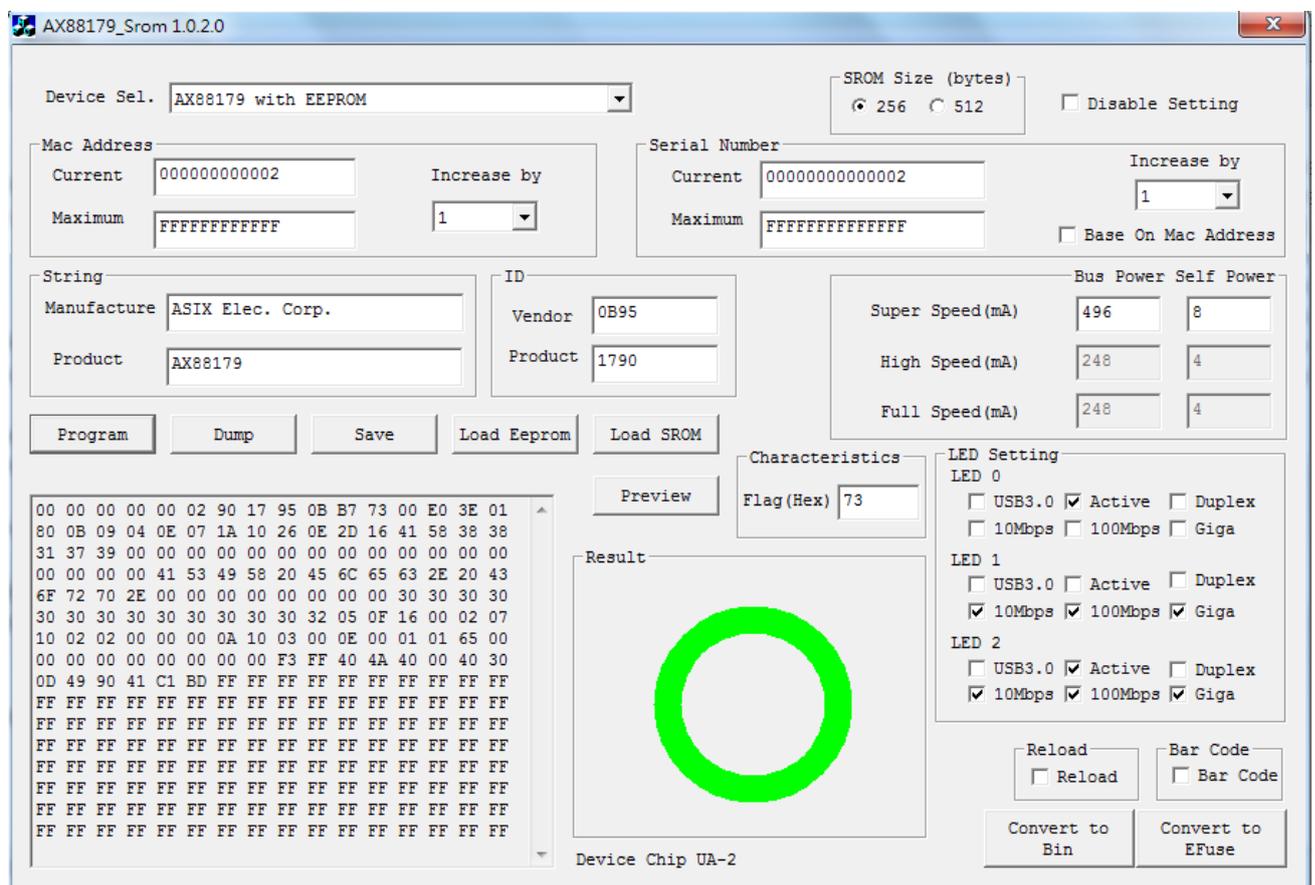

Figure 6.   Windows SROM Programming Tool

6-2. Windows Production Test Tool

ASIX Electronics provides a Windows Production Test tool for users to run some basic network function tests and program the EEPROM of their AX88179 based application systems during production. This tool is used for testing AX88179 based application systems.

This tool supports to send/receive packets in different Ethernet speed modes, and program EEPROM. This tool can be run on a Windows PC, which installs the special AX88179 Windows test 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.
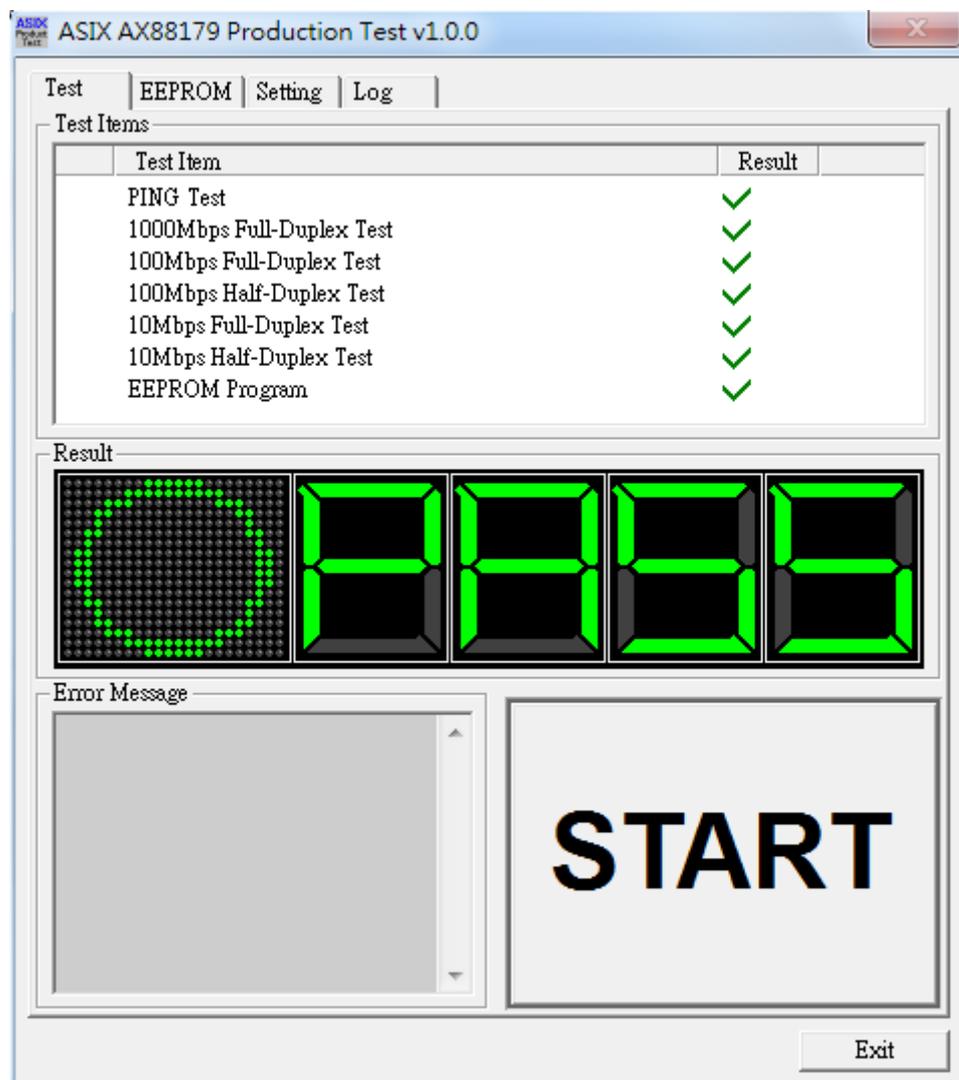

Figure 7.   Windows Production Test Tool

7. AX88179 Demo Board

ASIX Electronics provides AX88179 demo board for users to evaluate the basic functions of AX88179 on different target applications. If you need to purchase the AX88179 demo board, please contact ASIX's Sales (sales@asix.com.tw) for more details.

Figure 8.   AX88179 Demo Board

8. Related Technical Archives

The following are AX88179 related technical archives list for your reference. You can download some basic AX88179 related technical archives from AX88179 product web page.

AX88179 – **USB3.0 to 10/100/1000M Gigabit Ethernet Controller**

AX88179 Technical Archives	Type	Availability*
AX88179 Product Introduction	Document	This document
AX88179 Product Brief	Document	Public Release
AX88179 Demo Board Reference Schematic	Schematic	Public Release
AX88179 Windows 8.1 64-bit Driver	Driver	Public Release
AX88179 Windows 8.1 32-bit Driver	Driver	Public Release
AX88179 Windows 8.0 64-bit Driver	Driver	Public Release
AX88179 Windows 8.0 32-bit Driver	Driver	Public Release
AX88179 Windows 7 64-bit Driver	Driver	Public Release
AX88179 Windows 7 32-bit Driver	Driver	Public Release
AX88179 XP/Vista 64-bit Driver	Driver	Public Release
AX88179 XP/Vista 32-bit Driver	Driver	Public Release
AX88179 Apple Mac OSX 10.6 to 10.8 Driver	Driver	Public Release
AX88179 Linux/Android Drivers	Driver	Public Release
AX88179 Datasheet	Document	MyASIX Membership
AX88179 USB 2.0 to Gigabit Ethernet Application Design Guide	Document	MyASIX Membership
AX88179 Demo Board PCB file	PCB	MyASIX Membership
AX88179 Demo Board Gerber files	Gerber	MyASIX Membership
AX88179 Demo Board BOM File	BOM	MyASIX Membership
AX88179 IBIS Model	IBIS	MyASIX Membership
AX88179 Reliability Report	Report	MyASIX Membership
AX88179 EEPROM/Manufacture User Guide	Document	Contact ASIX Sales
AX88179 WinCE 7.0 Driver	Driver	Contact ASIX Sales
AX88179 WinCE 6.0 Driver	Driver	Contact ASIX Sales
AX88179 WinCE 5.0/Mobile 6.x/Mobile 5.x Driver	Driver	Contact ASIX Sales
AX88179 UEFI Driver	Driver	Contact ASIX Sales
AX88179 PXE Boot Code	Driver	Contact ASIX Sales
AX88179 Windows SROM Programming Tool	Utility	Contact ASIX Sales
AX88179 Windows Production Test Tool	Utility	Contact ASIX Sales
AX88179 RoHS Report	Report	Contact ASIX Sales
AX88179 Performance Test Report	Report	Contact ASIX Sales
AX88179 USB-IF Compliant Test Report	Report	Contact ASIX Sales
AX88179 IEEE 802.3 Compliant Test Report	Report	Contact ASIX Sales

Figure 9.   Related Technical Archives

Availability Type	Description
Public Release	Please download the technical archives from AX88179 product web page directly.
MyASIX Membership	Please register MyASIX membership from MyASIX register web page (http://www.asix.com.tw/RegLogin.php?mod=thisis) first and then download the technical archives from AX88179 product web page.
Contact ASIX Sales	Please contact ASIX's Sales (sales@asix.com.tw) for more details.

Figure 10. Technical Archives Availability Type

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

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