Gigabit USB 2.0 Ethernet Adapter

User's Manual

ABOUT THIS MANUAL

This manual is designed for use with the Gigabit USB 2.0 Ethernet Adapter. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential, or other damage.

SAFETY INSTRUCTIONS

Always read the safety instructions carefully:

- Keep this User's Manual for future reference
- Keep this equipment away from humidity
- If any of the following situation arises, get the equipment checked by a service technician:
 - The equipment has been exposed to moisture.
 - The equipment has been dropped and damaged.
 - The equipment has obvious sign of breakage.
 - The equipment has not been working well or you cannot get it to work according to the User's Manual.

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1. Introduction

This Gigabit USB 2.0 Ethernet adapter is a cost effective solution that converts a USB port into a 10/100/1000Base-T Ethernet port. It enables low cost and affordable Gigabit Ethernet network connection to desktop, notebook PC, and embedded system using popular USB ports. No need to purchase an expensive Gigabit network interface card and to spare a PCI or Cardbus slot, just using your existing USB ports and you can upgrade your network connection speed.



Features

- Supports 10/100/1000 Mbps auto-sensing capability.
- Supports Auto MDIX (straight and cross network cable auto-detection).
- USB specification 1.0, 1.1 and 2.0 compliant.
- Supports USB full and high speed modes with bus power capability
- IEEE 802.3, 802.3u, and 802.3ab (10Base-T, 100Base-T, and 1000Base-T) compatible
- Supports both full-duplex and half-duplex operation in Fast Ethernet
- Supports Jumbo packet of up to 9KB
- Supports suspend mode and remote wakeup via link-up and magic packet

Package Contents

Before installation, please check the items of the package.

- Gigabit USB 2.0 Ethernet Adapter x1
- Driver CD x1
- Quick Installation Guide x1

System Requirements

- Operating Systems : Windows 2000[®], Windows XP[®], Windows Vista[®], and Windows 7[®] Mac OS X 10.4 and 10.5 or later
- One available USB port

LED Status

| LED | Color | Description |
|-----------|--------|----------------------------|
| 1000 Mbps | Green | When network links. |
| Link | Orange | When data is transferring. |

2. Installation and Connection

Installing Drivers

On Windows 2000[®]/ Windows XP[®]

Note: DO NOT connect the Ethernet adapter to your computer before completing the driver installation.

 Insert the provided CD into your disc drive. Locate and double-click the Setup.exe file in the Driver folder to launch the setup program.

Click Next and Install the driver.





3. Click **Finish** to complete the installation.

| AX88178 - InstallShield W | izard |
|---------------------------|---|
| AX66176 - InstallSmeld w | InstallShield Wizard Complete The InstallShield Wizard has successfully installed AX88178. Click Finish to exit the wizard. |
| | < Back Finish Cancel |

4. Connect the Ethernet adapter's USB end to a free USB port of your computer.

Then you will see the dialog on your desktop.



*Actual strings depend on your operation system. These screen shots are from Windows XP 32-bit and might vary slightly for each operation system.

5. Connect an Ethernet cable to the Ethernet port on the adapter and connect the other end of the Ethernet cable to your network hub, switch or router. Then you can use the USB 2.0 Ethernet Adapter.

On Windows Vista[®]/Windows 7[®]

Note: DO NOT connect the Ethernet adapter to your computer before completing the driver installation.

 Insert the provided CD into your disc drive. Locate and double-click the Setup.exe file in the Driver folder to launch the setup program.

| 🛷 AutoPlay | |
|---|---|
| DVD RW Drive (E: |) Driver |
| Always do this for software | and games: |
| Install or run program | |
| Run Setup.exe Publisher not specified | |
| General options | |
| Open folder to view files using Windows Explorer | |
| Set AutoPlay defaults in Contr | <u>ol Panel</u> |
| | |
| AX88178 - Installshield Wizard | Welcome to the InstallShield Wizard for AX88178 The InstallShield Wizard will install AX88178 on your computer. To continue, click Next. |
| | <back next=""> Cancel</back> |

2. Wait for the program to install the drivers.



3. Click **Finish** to complete the installation.

| AX88178 - InstallShield Wizard | | | |
|--------------------------------|---|--|--|
| | InstallShield Wizard Complete The InstallShield Wizard has successfully installed AX88178. Click Finish to exit the wizard. | | |
| | < <u>B</u> ack Finish Cancel | | |

*Actual strings depend on your operation system. These screen shots are from Vista 32-bit and might vary slightly for each operation system.

 Connect the Ethernet adapter's USB end to a free USB port of your computer. Then you will see the dialog on your desktop.



Note: It is normal situation that when you see the dialog box of "You must restart your computer to apply these changes". Please click "Restart Now".

| M | licrosoft Windows |
|---|--|
| | You must restart your computer to apply these changes |
| | Before restarting, save any open files and close all programs. |
| | Restart Now Restart Later |

4. Follow the instructions below to complete the installation. Then you can use the USB 2.0 Ethernet Adapter.

On MAC OS X 10.4 / 10.5

Note: DO NOT connect the Ethernet adapter to your computer before completing the driver installation.

 Insert the provided CD into your disc drive. Locate and double-click the AX88178.pkg file in the Driver folder on Mac10.4 to launch the setup program. (On Mac10.5, driver will be installed automatically.)



2. Please click **Continue** to install this software.



| | Select a Destination |
|---|---|
| Introduction Select Destination Installation Type Install Finish Up | Select a destination Select a destination Select a destination Drivers software. |
| P | You have chosen to install this software on the volume "10.4.3." |

3. Select a Destination volume to install the driver and click **Continue**.

4. Click Install to perform a basic installation of software package.





5. Click "Continue installation" to install.

6. Click "Restart", the computer will be restarted once installation is completed.



7. Connect the Ethernet adapter to a free USB port.

8. Start **System Preferences** and select **Network**, you'll see the screen as below prompted and please select **OK**.

| | | Network | | |
|----------|------|--|--------------|--|
| Show All | | | Q | |
| | Loca | ation: Automatic | • | |
| 6 | S | how: Network Status | • | |
| e Inte | 8 | New Port Detected A new network port has been detecte Ethernet Adaptor (en5) | :d: | |
| | | Please verify that it is configured com press Apply Now to activate it. | rectly, then | |
| | | | | |
| | | | | |

| 9. You will find that a new Ethernet network interface is avail | able. |
|---|-------|
|---|-------|

| 9 🖯 🖯 | Network | |
|---------------|--|--------------|
| Show All |) | |
| | Location: Automatic | 1 |
| | Show: Ethernet Adaptor (en5) | - |
| | CP/IP PPPoE AppleTalk Proxies Ethernet | |
| Configure IPv | 4: Using DHCP | |
| IP Addres | s: 192.168.0.101 Renew | v DHCP Lease |
| Subnet Mas | k: 255.255.255.0 DHCP Client ID: | |
| Route | r: 192.168.0.1 (if req | uired) |
| DNS Server | 's: | (Optional) |
| Search Domain | s: | (Optional) |
| IPv6 Addres | s: fe80:0000:0000:0200:00ff:fe00:0004 | |
| | Configure IPv6 | ? |

- * Actual strings depend on your operation system. These screen shots are from MAC 10.4 and might vary slightly for each operation system.
- * Generally, driver would be installed automatically on Mac10.5, but if you can't connect the internet by using DHCP, please install the provided driver and follow the instructions as Mac 10.4 installation. There may vary slightly for Mac 10.5.

Now the installation is complete. You can connect the adapter to a network device by an Ethernet cable.

The Link LED should light up green to indicate a proper physical connection between the Ethernet adapter and the network. If the Link LED doesn't light up, please verify the cable connections between all the network devices.

Verifying the Driver Installation

To verify your Ethernet adapter installation, please launch **Device Manager** by the steps below:

On Windows 2000[®] / Windows XP[®] Right-click the My Computer icon on the desktop and select Manager > Device Manager.



On Windows Vista[®] / Windows 7[®]: Right-click the Computer icon on the desktop and select Properties > Device Manager.



In the **Network adapters** group, a string similar to **USB2.0 to Gigabit Ethernet Adapter** should be displayed.

If there is a question or exclamation mark next to that item, then the driver is not properly installed. Please delete the item, unplug the adapter and repeat the installation steps.

On Mac OS X 10.4 / 10.5 click "System Preferences" on the desktop and select

| 0 | Network | |
|-----------------|---|------------|
| Show All | ٩ | |
| L | ocation: Automatic | |
| | Show: Ethernet Adaptor (en5) | |
| ТСР/ | /IP PPPoE AppleTalk Proxies Ethernet | |
| Configure IPv4: | Using DHCP | |
| IP Address: | 192.168.0.101 Renew DHC | P Lease |
| Subnet Mask: | 255.255.255.0 DHCP Client ID: | |
| Router: | 192.168.0.1 | |
| DNS Servers: | | (Optional) |
| Search Domains: | | (Optional) |
| IPv6 Address: | fe80:0000:0000:0000:0200:00ff:fe00:0004 | |
| | Configure IPv6 | ? |

Network > Show > Ethernet Adapter > Renew DHCP Lease.

Once you finish the installation, you can open **GO** > **Utilities** > **System Profile** > **Hardware** > **USB** > to verify if your Ethernet adapter is properly installed.

| 000 | Gv | _test's PowerBook G4 | |
|------------------------|--------------------------|----------------------|-----------------|
| Gw_test's PowerBook G4 | | | 2/6/10 12:47 AM |
| Contents | USB Device Tree | | |
| ▼Hardware | USB Bus | | |
| ATA | AX88178 | | |
| Audio (Built In) | USB Bus | | |
| Bluetooth | | | |
| Diagnostics | | | |
| Disc Burning | | | |
| Fibre Channel | | | |
| FireWire | | | |
| Graphics / Displays | | | |
| Memory | | | |
| PC Cards | | | |
| PCI Cards | | <u>^</u> | |
| Percellal SCEL | USB Bus: | | |
| Parallel SCSI | | | |
| Power | Host Controller Location | AppleUSPOHCI | |
| Printers | PCI Device ID: | 0x0019 | |
| Serial-ATA | PCI Revision ID: | 0x0001 | |
| USB | PCI Vendor ID: | 0x106b | |
| ▼ Network | Bus Number: | 0x18 | |
| AirPort Card | 1200170 | | |
| Firewall | AX88178: | | |
| Locations | Removable Mer | ia: No | |
| Modems | Detachable Driv | e: Yes | |
| Volumes | BSD Name: | en5 | |
| ▼ Software | Version: | 0.01 | |
| Applications | Bus Power (mA) | 500 | |
| Extensions | Speed: Manufacturer: | ASIX Flac Corp | |
| Fonts | OS9 Drivers: | No | |
| Frameworks | Product ID: | 0x1780 | |
| Logs | Serial Number: | 000004 | |

Connecting to a Network

Now you can connect your network device, e.g, switch, router, DSL/Cable modem, to the adapter's LAN port via an Ethernet cable.

Notes on Ethernet Cables

- Sometimes a so-call crossover Ethernet cable is required for connection to certain network equipments. As the adapter's LAN port supports Auto-MDIX feature, it eliminates the need to use crossover cables.
- When the Ethernet adapter is used in a Gigabit network, it's recommended that you use Category 6 Ethernet cable for higher transmission speed.

On **Windows 2000**[®]**/ Windows XP**[®], upon your connection, a message pops up in the notification area indicating your connection speed.

The adapter's AutoSense feature can automatically detect the network's maximum line speed. To have a 1000Mbps connection, your network device (e.g., switch, router or DSL modem) must also support 1000Mbps.

On **Windows Vista[®]/ Windows 7**[®], you can view the connection speed by the steps below:

1. Right-click the network icon in the system tray and select **Network and Sharing Center**.



2. Click **View status** on Windows Vista and Local Area Connection on Windows 7 for the connection of your Ethernet adapter.



3. Current connection speed will be displayed among the connection information.

| eneral | | |
|--|-----------------|---------------------|
| Connection - | | |
| IPv4 Conne | ctivity: | Internet |
| IPv6 Conne | ctivity: | Limited |
| Media State | | Enabled |
| Duration: | | 00:04:03 |
| Speed: | | 100.0 Mbps |
| D <u>e</u> tails | | |
| D <u>e</u> tails | Sent — 💐 | Received |
| D <u>e</u> tails Activity Bytes: | Sent — 1,149 | — Received 2,259 |

On **Mac OS X 10.4 / 10.5**, you can view the speed of connection by the steps below:

1. Click "System Preferences" on the desktop > Network.

* If you can't connect the internet by using DHCP, please install the provided driver and double-click **AX88178_10.5** file in the **Driver** folder on Mac 10.5

| Show All | Network | Q | |
|------------------|--------------------------------|--------------|----------|
| Loca | ation: Automatic | \$ | |
| S | how: Ethernet Adaptor (en5) | \$ | |
| TCP/IP | PPPoE AppleTalk Proxies | Ethernet | |
| Configure IPv4: | Jsing DHCP | • | |
| IP Address: 1 | 92.168.0.101 | Renew DH | CP Lease |
| Subnet Mask: 2 | 55.255.255.0 DHCP Client | t ID: | |
| Router: 1 | 92.168.0.1 | (If required |) |
| DNS Servers: | | | (Optiona |
| Search Domains: | | | (Optiona |
| IPv6 Address: fe | 80:0000:0000:0000:0200:00ff:fe | 00:0004 | |
| E | Configure IPv6 | | (|

2. Click Advanced > Ethernet and you will see the speed of your internet.

| 00 | | | Network | | |
|-----------|----------------|--------------|-------------------|---------|-----------|
| Shi | ow All | | | | ٩ |
| See USB C | Gigabit Etherr | et | | | |
| | TCP/IP | INS WINS A | ppleTalk 802.1X | Proxies | Ethernet |
| | | Ethernet ID: | 00:50:b6:45:d3:77 | | |
| | | Configure: | Automatically | \$ |) |
| | | Speed: | 1000baseT | ¢ | |
| | | Duplex: | full-duplex | ÷ | |
| | | MTU: | Standard (1500) | Å. | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| ? | | | | (| Cancel OK |
| ? | | | Chara | (| Cancel Of |

Enable Jumbo Frame

1. Please double click on Control Panel > Device Manger > Network Adapter > ASIX Ax888178 USB 2.0 to Gigabit Ethernet Adapter.



2. Right-click on ASIX AX88178 USB 2.0 to Gigabit Ethernet Adapter and choose Properties.



- 3. Please click on Advance tab and look for Connection Type on the Property window.
 - Please select 1000BaseT Full_Duplex on Value window.

| ASIX AX88 | 178 USB2.0 | to Giga | bit Ether | net Adapter Properties |
|---|---|------------------------|---------------------------|---|
| General | Advanced | Driver | Details | Power Management |
| The foll the prop on the r | owing propert perty you wan ight. | ies are a t to char | vailable fo ige on the | or this network adapter. Click e left, and then select its value |
| Property | /: | | | <u>V</u> alue: |
| Flow C Jumbo Netwo QoS P Wake | ction Type ontrol Packet rkAddress acket Taggin Up | g | | 1000Base T Full_Duplex ▼ |
| L | | | | OK Cancel |

4. Please select Jumbo Packet on Property window and select 9014 Bytes on Value window.

| ASIX AX88178 USB2.0 to Gigabit Ether | met Adapter Properties |
|--|--|
| General Advanced Driver Details | Power Management |
| The following properties are available for the property you want to change on the on the right. Property: Connection Type Flow Control Jumbo Packet NetworkAddress QoS Packet Tagging Wake Up | or this network adapter. Click a left, and then select its value <u>Value:</u> 9014 Bytes 9014 Bytes 9014 Bytes Disabled |
| | OK Cancel |

Notice: Please be aware that if other network device also supports same specification of transfer mode when enabling the function.

Configuring Network Settings

You should configure your Ethernet adapter as required according to your network environment. If you are unsure about the settings, consult with your network administrator for assistance. The following describes how to launch the network settings window for your Ethernet adapter.

Windows 2000[®]/ Windows XP[®]

After the installation, a local area connection icon is automatically created for your Ethernet adapter in the **Network Connections** folder. You can access **Network Connections** folder by selecting **Start > Settings > Control Panel > Network and Internet Connections**.

In the **Network Connections** folder, double-click the connection icon indicating your adapter. Then the **Local Area Connection Properties** window appears for user to make required settings.



Windows Vista[®]/Windows 7[®]

To configure network settings for your Ethernet adapter on Windows Vista:

- 1. Right-click the network icon in the system tray and select **Network and Sharing Center**.
- 2. Click **Manage network connections** on Windows Vista and **Change adapter settings** on Windows 7.



3. Right-click the Local Area Connection icon indicating your network adapter and click **Properties**.



4. Then the Local Area Connection Properties window appears for user to make required settings.

| ternet Protocol Version 4 (TCP/IPv4) Properties |
|--|
| General Alternate Configuration You can get IP settings assigned automatically if your network support this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. |
| You can get IP settings assigned automatically if your network support this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. |
| Obtain an IP address automatically |
| Ouse the following IP address: IP address: Subnet mask: Default gateway: |
| Obtain DNS server address automatically Use the following DNS server addresses: Preferred DNS server; |
| Alternate DNS server: |
| |

3. Specifications

| Network Standards | IEEE 802.3: 10Base-T IEEE 802.3u: 100Base-T IEEE 802.3ab: 1000Base-T |
|--------------------------|--|
| Data Transfer Rates | Ethernet: 10Mbps (Half/Full Duplex) Fast Ethernet:100Mbps (Half/Full Duplex) Gigabit:1000Mbps (Full Duplex) |
| Data Bus | USB 2.0 (1.1 compliant) |
| Power Consumption | 950mW |
| Power Management | Suspend mode, hibernation mode |
| Network Interface | Female RJ45 jack |
| RAM | Embedded 20KB SRAM for RX packet buffering and 20KB SRAM for TX packet buffering |
| Operating System Support | Windows 2000 [®] ,Windows XP [®] , Windows Vista [®] , and Windows 7 [®] Mac OS X 10.4 and 10.5 or later |
| Working Environment: | Operation temperature: 10 ~ 40 degree C |
| | Storage temperature: -10 ~ 80 degree C |
| Certification | FCC, CE |

* Specification is subject to change without further notice.

4. Regulatory Compliance

FCC Conditions

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received. Including interference that may cause undesired operation.

CE

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

WEEE Information

For EU (European Union) member users:

According to the WEEE (Waste electrical and electronic equipment) Directive, do not dispose of this product as household waste or commercial waste. Waste electrical and electronic equipment should be appropriately collected and recycled as required by practices established for your country. For information on recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.

