

IEEE 1588v2 on Moxa's DA-FX04-MM-ST-T Fiber LAN Module

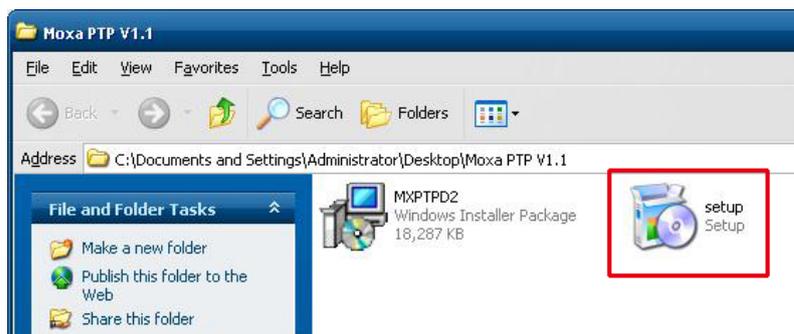
Moxa Technical Support Team
support@moxa.com

This document describes how to install and configure the IEEE 1588v2 functions on Moxa's DA-FX04-MM-ST-T fiber LAN module used on Moxa's DA-682/683/710-XPE computers. Before conducting the installation, you must first install the driver on Moxa's DA-682/683/710-XPE computers, or the installation will fail and the IEEE1588v2 functions cannot be enabled.

Installing the Driver

Download the zip file named **Moxa PTP V1.1.zip** from Moxa's website or get the file from Moxa's technical support service.

1. Unzip the file, and then run **setup.exe** to start the installation.



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About Moxa

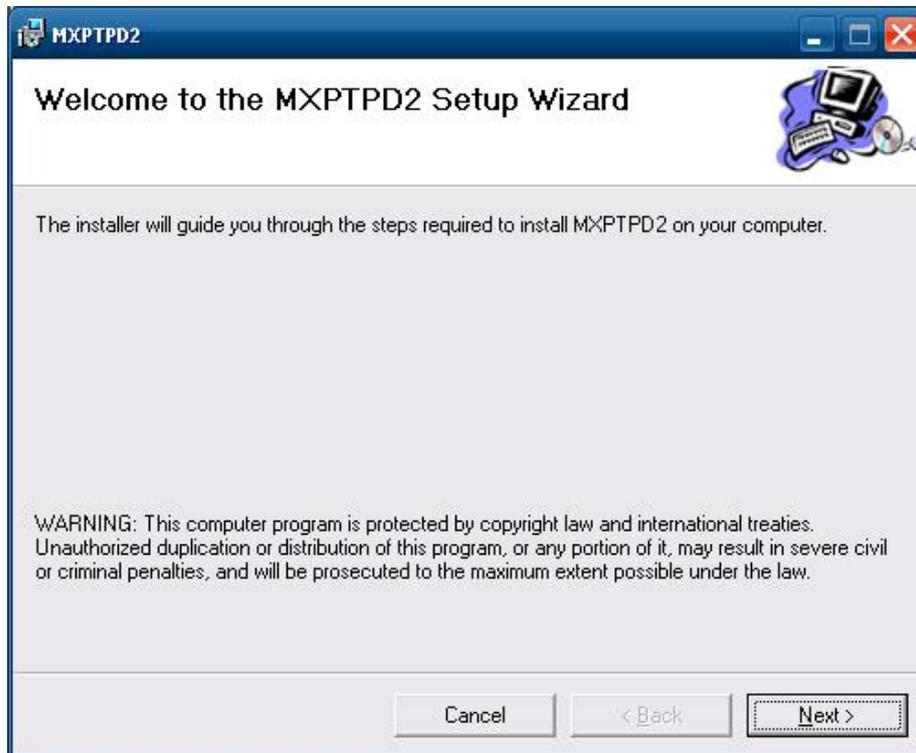
Moxa manufactures one of the world's leading brands of device networking solutions. Products include serial boards, USB-to-serial hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

How to Contact Moxa

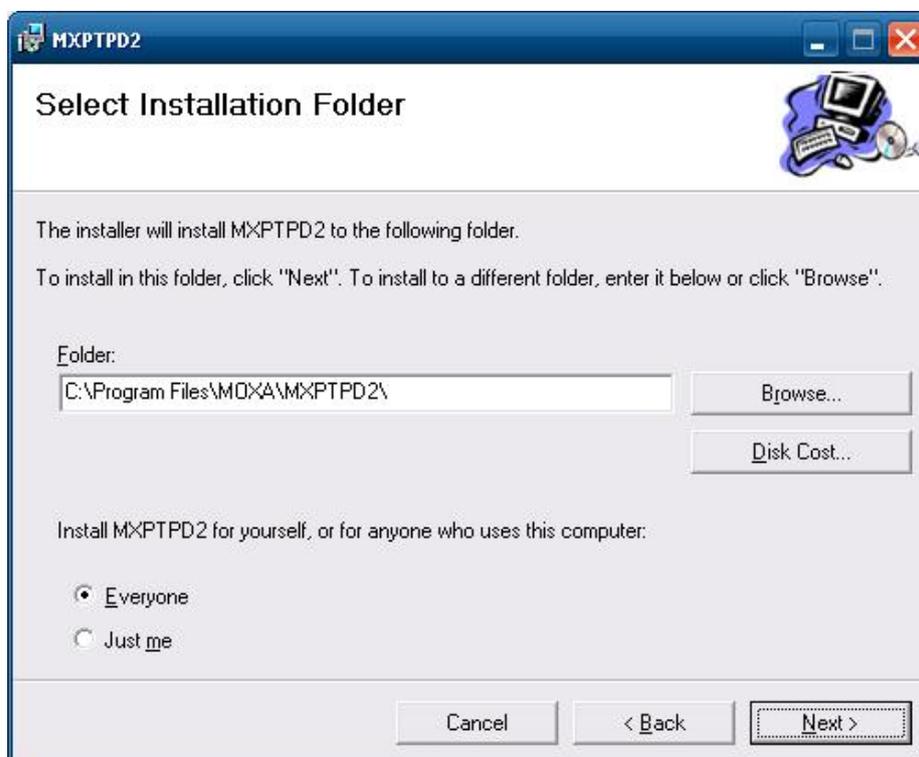
Tel: +886-2-8919-1230 Web: www.moxa.com
Fax: +886-2-8919-1231 Email: info@moxa.com

MOXA®

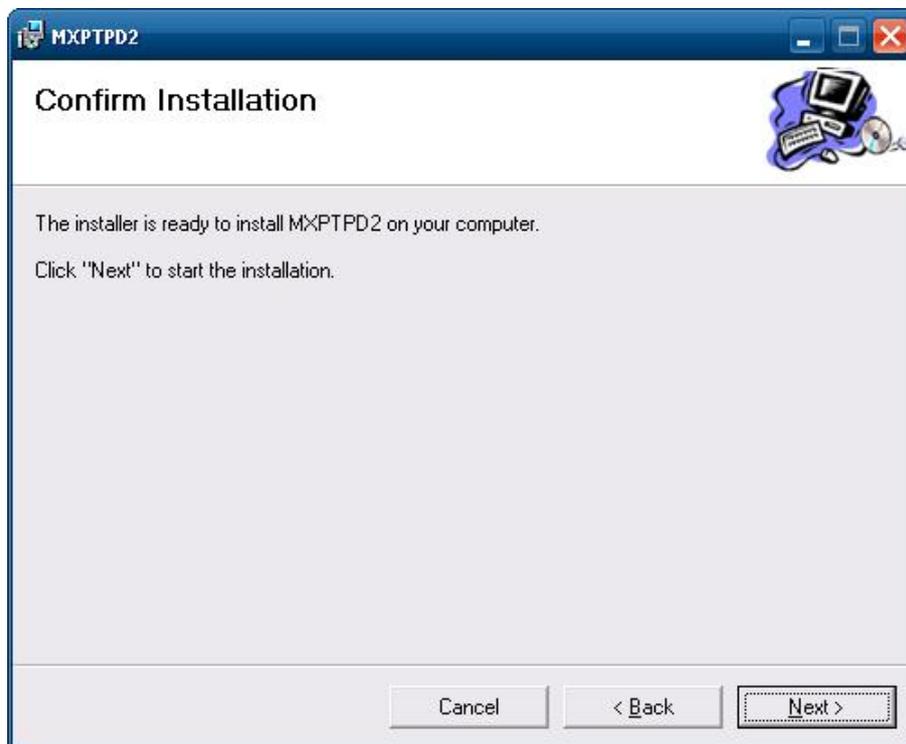
2. The Setup Wizard will guide you to complete the installation. Click **Next** to continue.



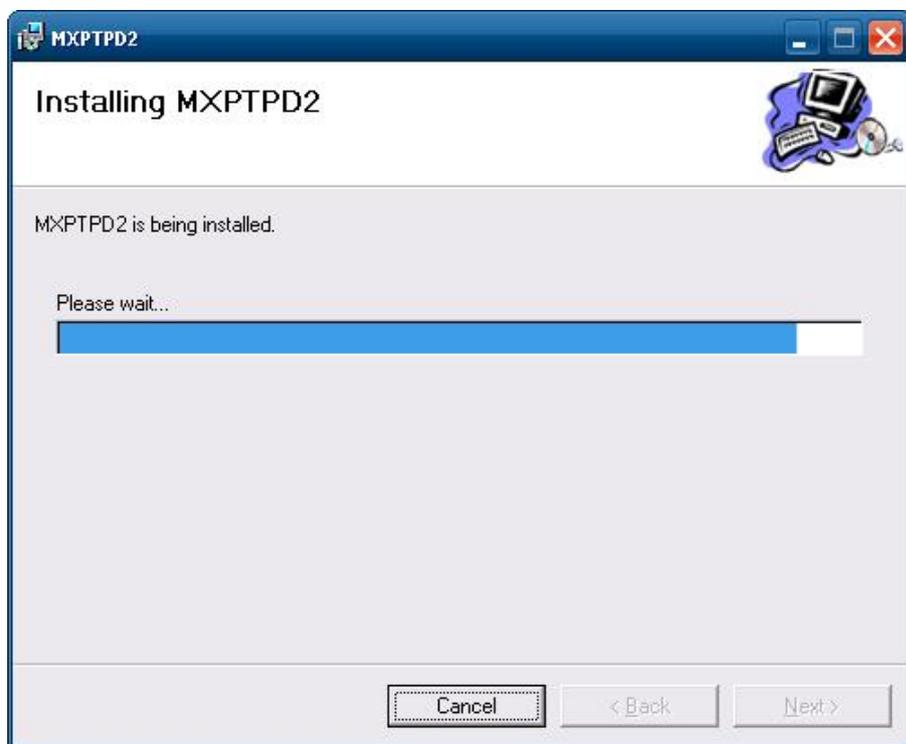
3. Select the installation folder, and then click **Next** to continue.



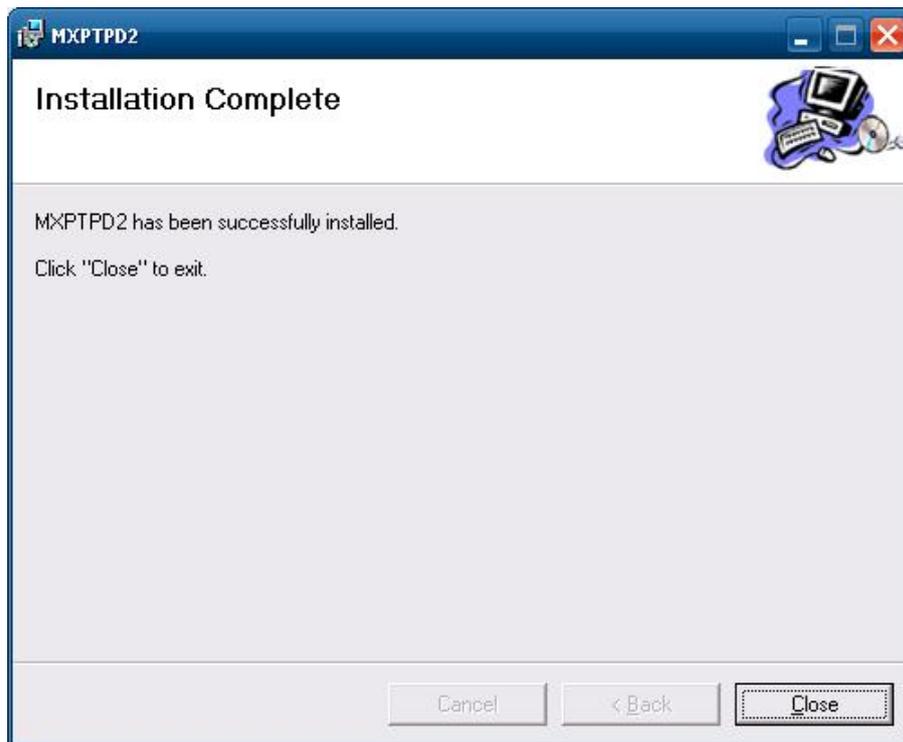
4. Confirm the installation, and then click **Next** to continue.



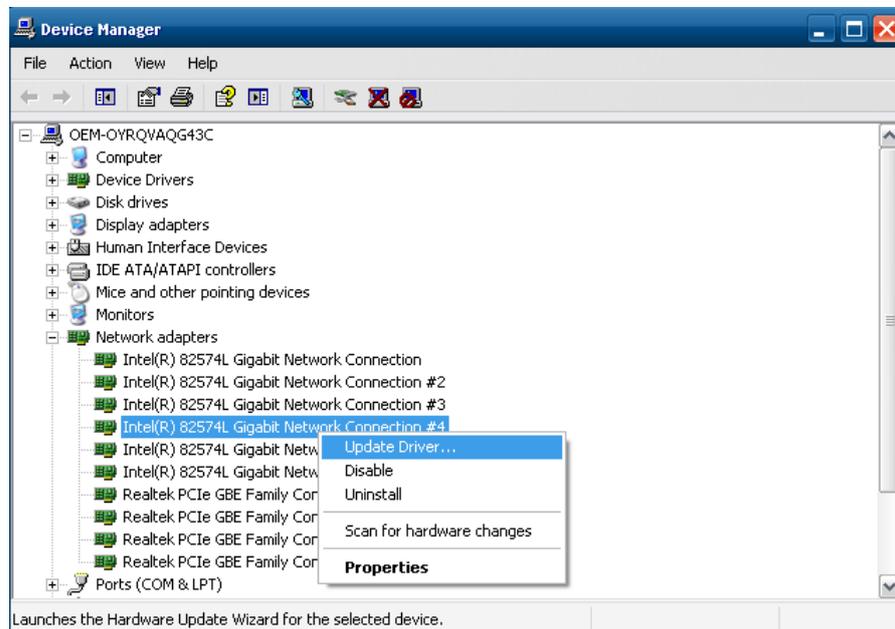
5. The installation will start. Wait for the next step.



6. Click **Close** to exit.



7. Select the port of the network adapter in **Device Manager** to update the driver. Right-click **Update Driver...** to continue.

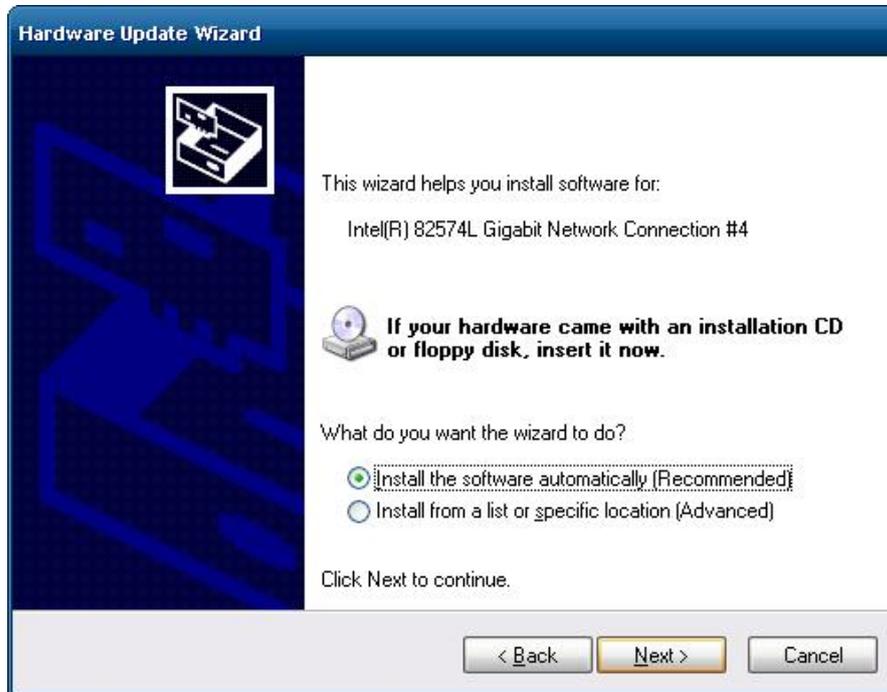


Please note that once you update the IEEE1588 driver on the Ethernet port you have selected, Intel's Ethernet teaming functions on the port will be disabled, and the network redundancy function will no longer be available.

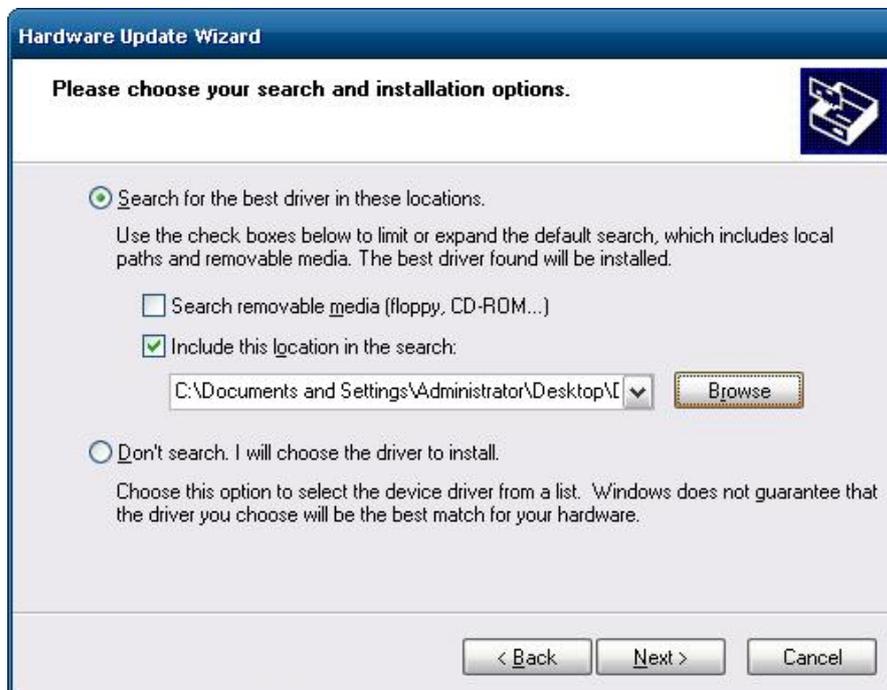
8. Continue to the next step for hardware update. Select **Yes, this time only** in the Wizard, and then click **Next** to continue.



9. Select **Install the software automatically (Recommended)**, and then click **Next** to continue.



10. Select **Search for the best driver in these locations**, and check **Include this location in the search**. Click **Browse** to continue.



11. Select **driver** folder, click **OK** to continue the update.



12. Click **Finish** to complete the hardware update.



Configuring the IEEE1588v2 Functions on the DA-682/683/710-XPE Computers

Launching the PTP Program

Run **Moxa PTP** from the following path on the computer:

Start → All Programs → Moxa → PTP → Moxa PTP



Configuring the Basic Settings

1. Select the interface from the **Bind Interface** drop-down box to indicate on which LAN port you would like to use the IEEE 1588 protocol.
2. Select if you would like to use **P2P (Peer-to-Peer)** mode or **E2E (End-to-End)** mode for the PTP protocol. When finished, select **Apply** to continue.



For the switches and routers that have implemented transparent clocks, either the end-to-end (E2E) method or peer-to-peer (P2P) method must be selected.

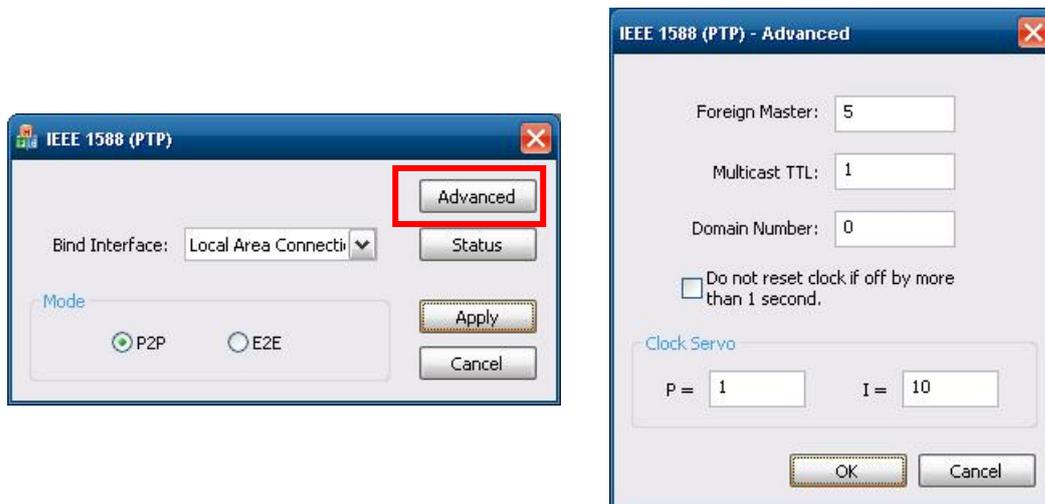
In addition to providing PTP event transmit time information, the peer-to-peer transparent clock (P2P TC) is a transparent clock that provides corrections for the propagation delay of the link connected to the port receiving the PTP event message. In the presence of peer-to-peer transparent clocks, delayed measurements between slave clocks and the master clocks are performed using the peer delay measurement mechanism.

An end-to-end transparent clock (E2E TC) only measures the time taken for a PTP event message to transit the device and provides this information to the clocks receiving this PTP event message.

Configuring the Advanced Settings

If you do not fully understand the consequences of changing the advanced settings, we suggest you **DO NOT USE** the advanced settings for the IEEE 1588 configuration.

1. Click **Advanced** for further settings.



2. Configure the following settings:

Foreign Master: The Foreign Master setting allows users to configure how many foreign masters can be synchronized with the DA-682/683/710. Enter a number in the field; the maximum is 255.

Multicast TTL Settings: The IP multicast routing protocol uses the Time to Live (TTL) field of the IP datagram to decide how far from a sending host to a given multicast packet should be forwarded. The default TTL for multicast datagram is 1, which will result in multicast packets going only to other hosts on the local network. Select the value for the multicast TTL setting; allowed values are 1, 32, 42 and 128.

Domain Number Setting: A master clock may be set with different domain numbers. Users can specify the PTPd domain number to reach the foreign master records. Enter the number for the domain so that the foreign master records can be sent. In addition,

Check the cell if you do not want to reset clock if off by more than 1 second.

Clock Servo Setting: Under normal circumstances, users are advised to not tune servo variables, unless you fully understand the PID controller. The default PID controller is set to be 1 for P and 10 for I.

3. When finished, click **OK**.

Monitoring the System Status

1. Click **Status** to monitor the system status.



2. You may check the current status for the system.

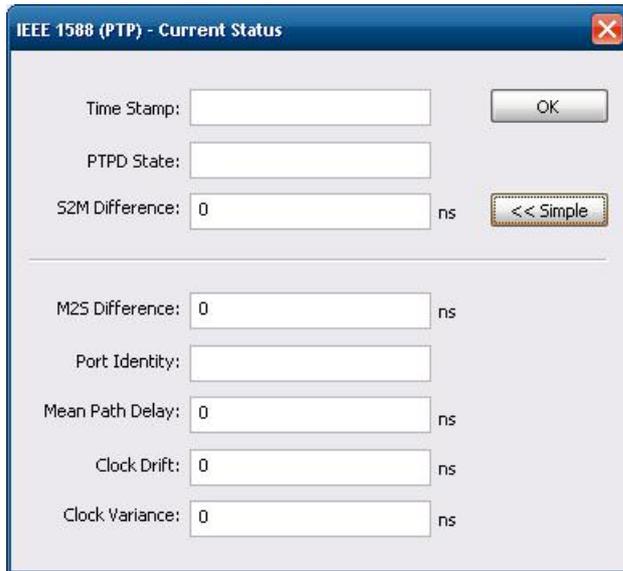


Time Stamp: The current time of the DA-682/683/710-XPE computers.

PDPD State: The role of the device, usually slave.

S2M Difference: The time difference between the DA-682/683/710-XPE computers and the Time Server.

For more information click **Detail**.



M2S Difference: This value shows the time difference between the DA-682/683/710-XPE computers and the Time Server.

Port Identity: This value shows the code of the Time Server.

Mean Path Delay: This value shows the time difference of the packets sent between the Time Server and the DA-682/683/710-XPE computer

Clock Drift: This value shows the frequency of the time drifting apart between the DA-682/683/710-XPE computers and the Time Server.

Clock Variance: This value determines the basic unit (in nanosecond) for time synchronization.

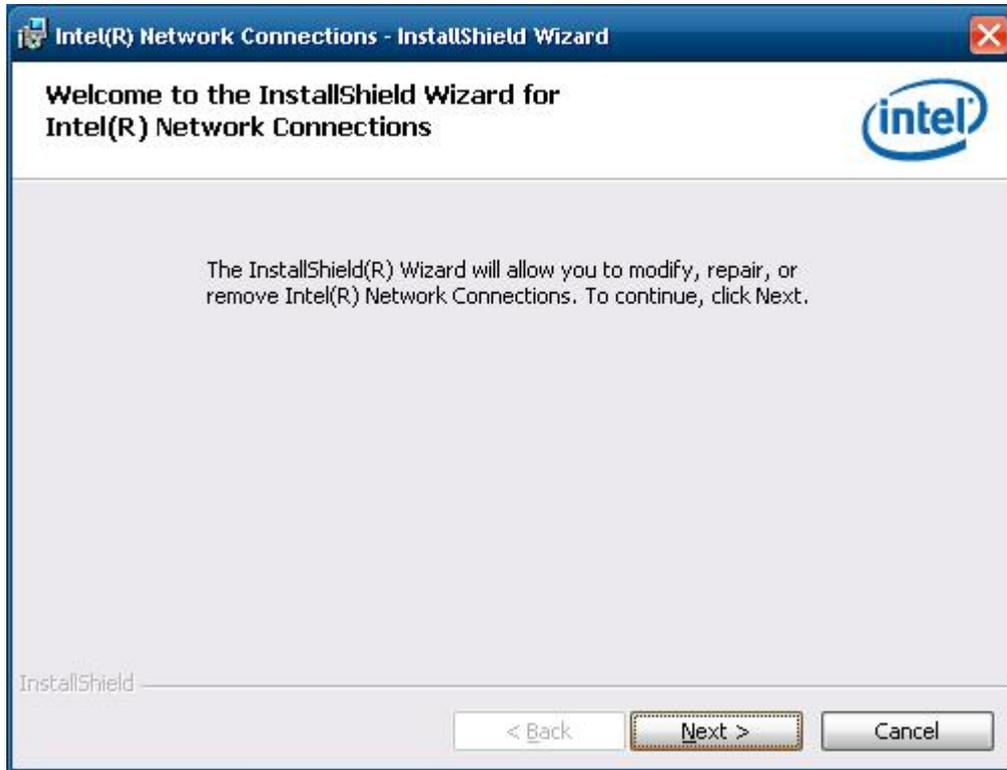
3. Click **OK** to exit.

Uninstalling the Driver

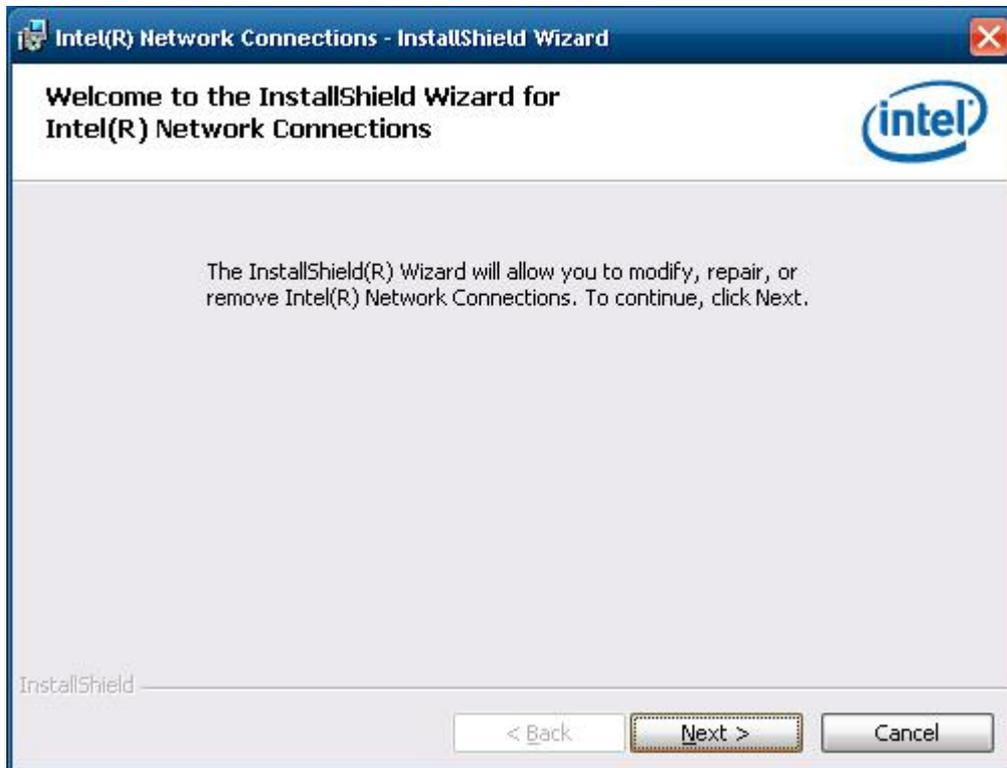
1. Select **All Programs** → **MOXA** → **PTP**, and then run **Uninstall**.



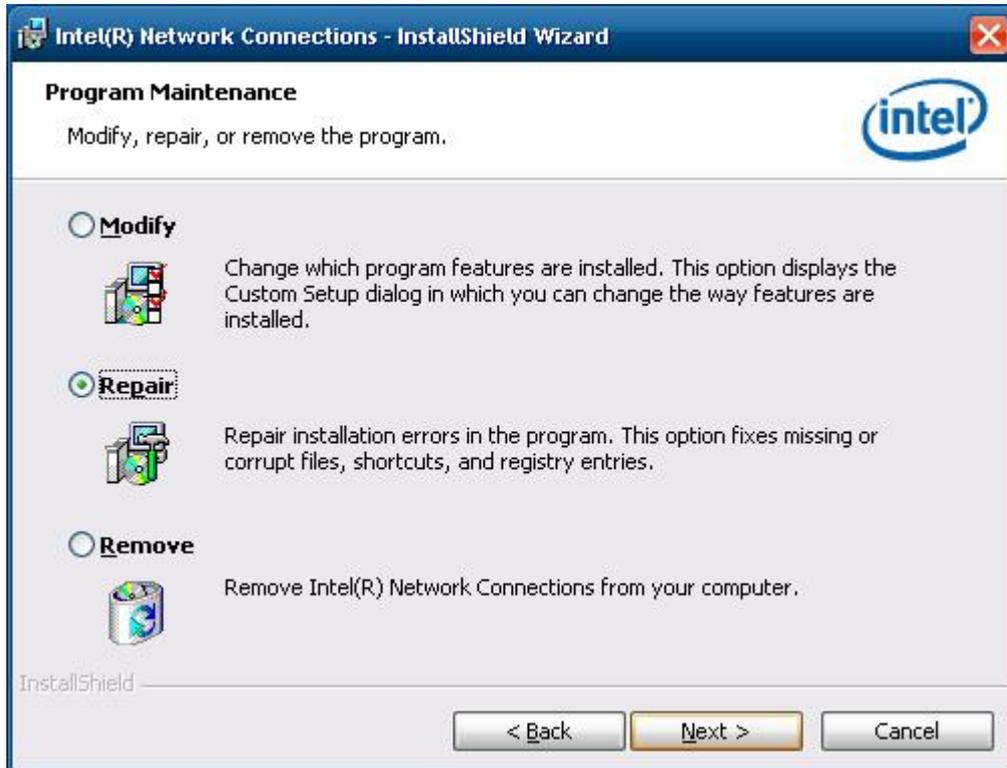
2. The Intel InstallShield wizard will appear, click **Next** to continue.



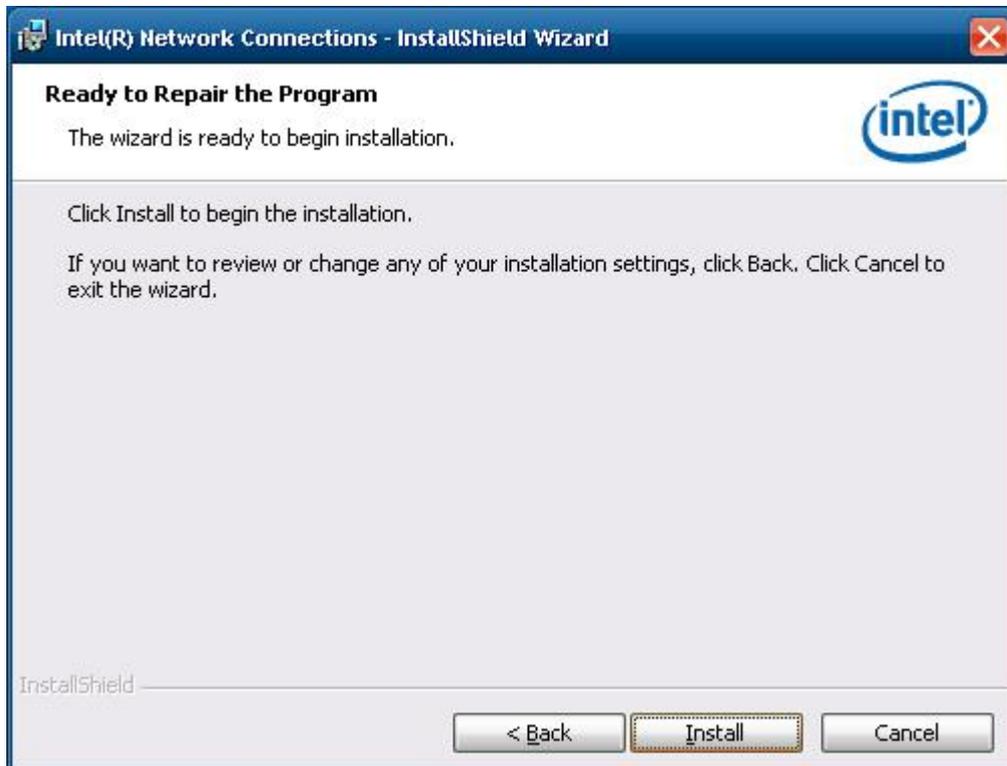
3. Click **Next** to continue.



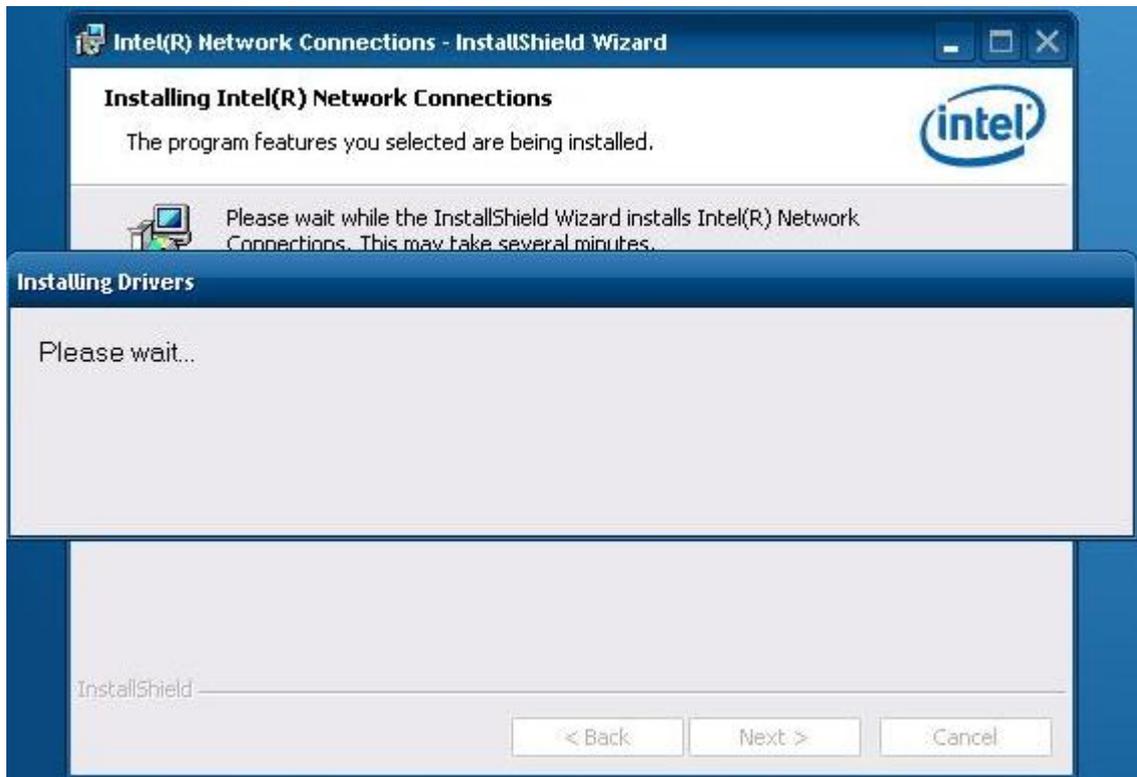
4. Select **Repair** and then click **Next** to continue.



5. Click **Install** to continue.



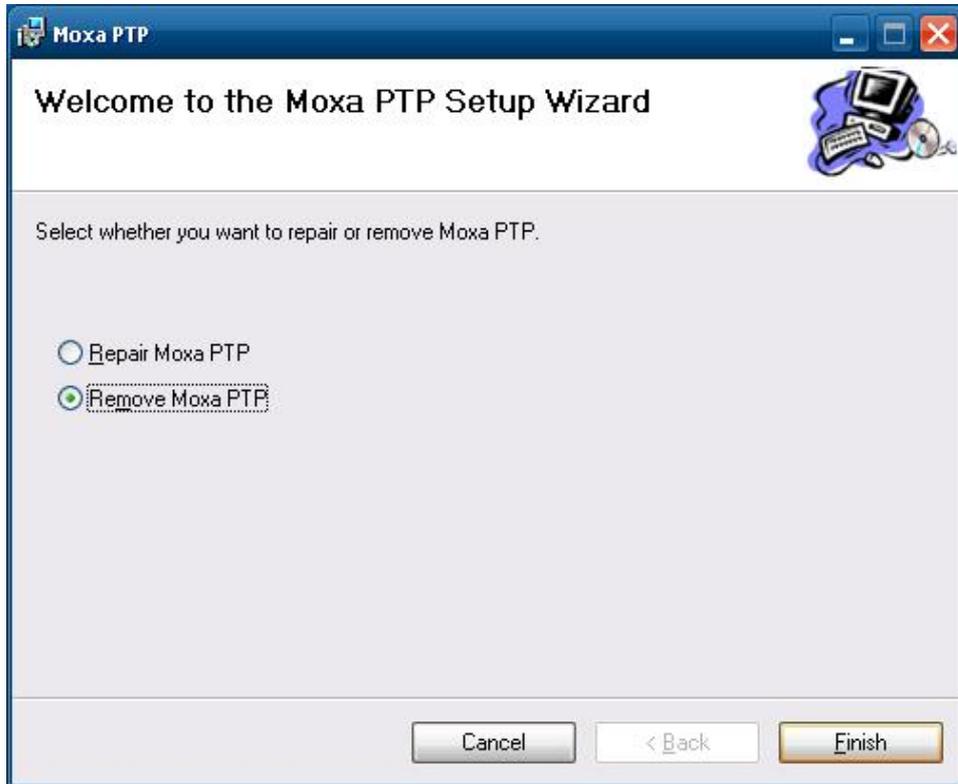
6. Wait for the driver to be installed.



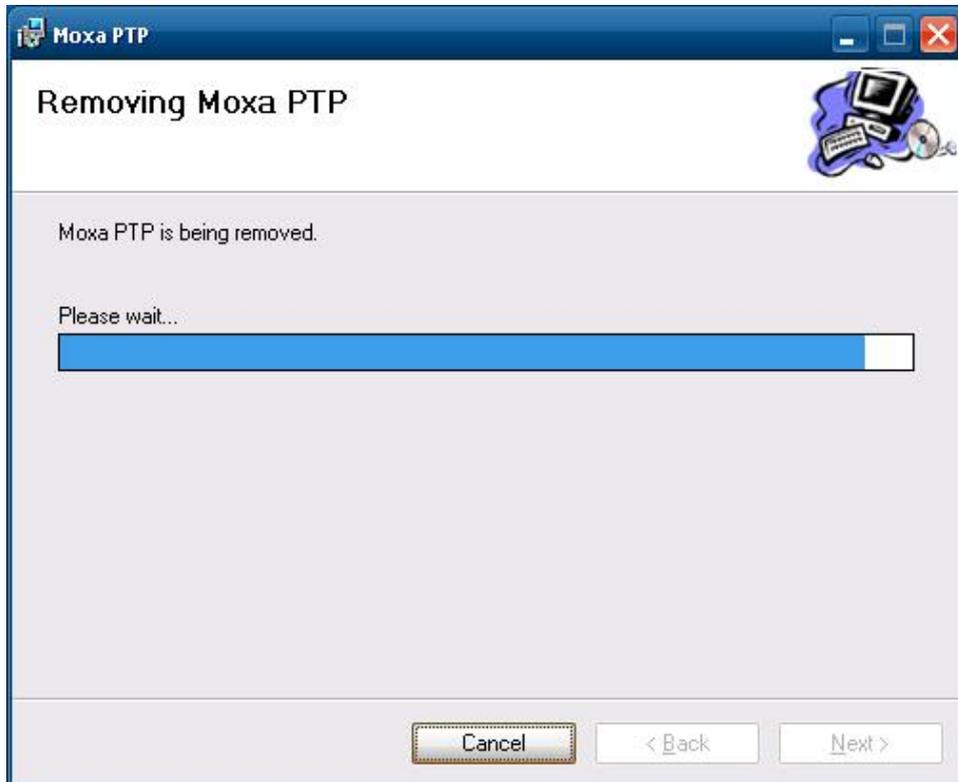
7. Click **Finish** to complete the installation.



8. Next, the **Moxa PTP Wizard** will appear; select **Remove Moxa PTP** and click **Next**.



9. Wait for the Wizard to remove **Moxa PTP**.



10. After the Moxa PTP driver has been removed, the network driver will resume to the original Intel driver.

