

# USER'S MANUAL

**AX92324**

**2-Port 10GbE PoE PCI Express  
Card**

**User's Manual**



[www.axiomtek.com](http://www.axiomtek.com)

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## ESD Precautions

The boards have integrated circuits sensitive to static electricity. To avoid damaging chipsets from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on a human body.
- When handling boards and components, wear a grounding wrist strap available from most electronic component stores.

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# Section 1

## Introduction

This section contains general information and detailed specifications of the AX92324 2-port 10Gigabit PCI Express LAN Card with IEEE802.3at compliant PoE capabilities, including the following sections:

- General Description
- Features
- Specifications
- Dimensions

### 1.1 General Description

The AX92324 is a dual-port 10GbE PCI Express LAN card based on the Intel® Ethernet Controller X550-AT2. To meet the demands of the next-generation 10GbE cameras with high resolution and high-speed transmission over one single Ethernet cable, the AX92324 features the combination of 10GbE and IEEE802.3at compliant PoE capabilities. It also supports PoE power on/off and power budget settings via management software or API. The AX92324 is suitable for high bandwidth, high-speed data transmission and low latency requirements for machine vision, intelligent surveillance and network applications.

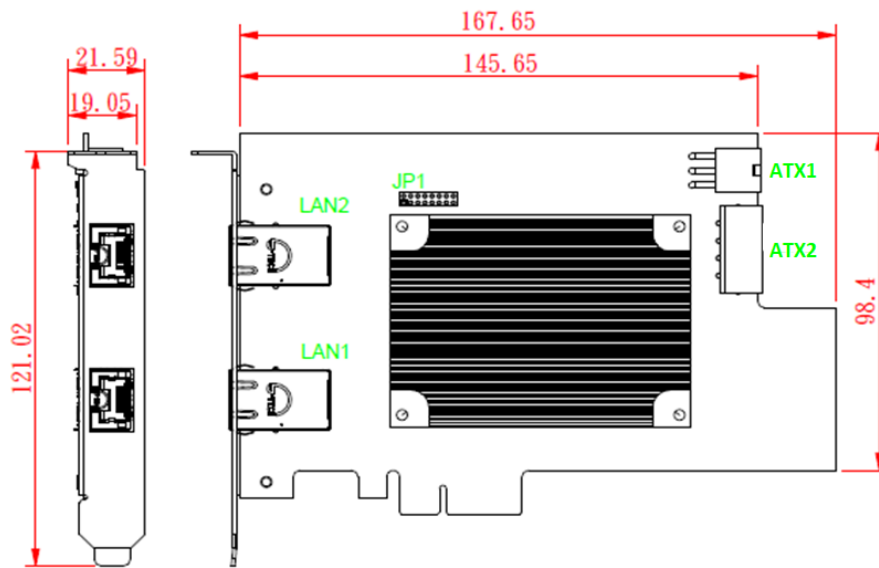
### 1.2 Features

- Intel® Ethernet Controller X550-AT2, up to 10 Gbps data rate
- Supports 15.5KB Jumbo Frame and IEEE 1588
- Compliant with IEEE802.3at to deliver 25.5W per port
- PCI Express x4 compliant
- PoE power on/off via Power Manager software and API
- Operating temperature range from 0°C to 55°C

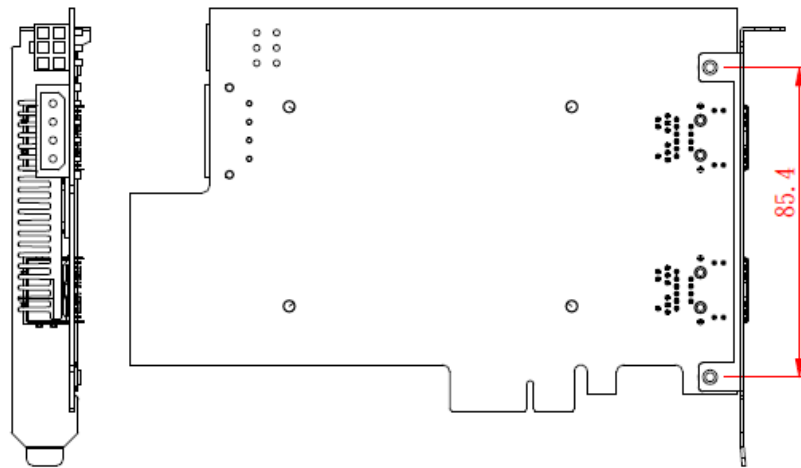
## 1.3 Specifications

- **LAN Chip**
  - Intel<sup>®</sup> X550-AT2 Controller
  - 10Gbps/\*5Gbps/\*2.5Gbps/1Gbps/100Mbps (\*Linux only)
- **Bus Type**
  - Gen.3 PCI Express x4 interface
- **PoE Capability**
  - IEEE 802.3at compliant; each port delivers up to 30W at 52VDC
- **Port Connector**
  - 8-pin RJ-45
- **Power Requirements**
  - Power from PCIe slot: (Max. 20W POE power output)
    - 2.1A @ +12V
    - 1.2A @ +3.3V
  - Power from the ATX power connector: (Max. 60W POE power output)
    - 6A @ +12V or 3A @ +24V\* (\*24V power is for Axiomtek's products)
    - 1.2A @ +3.3V (from PCIe slot)
  - 30W@54VDC power output (per port)
- **Environmental**
  - Operating temperature: 0°C ~ 55°C (+32°F to +131°F) (with air flow)
  - Operating humidity 10% ~ 95% non-condensing
  - Storage temperature: -20°C ~ 80°C (-4°F to +176°F)
- **Dimensions**
  - W 168 mm x D 111 mm
- **OS Support**
  - Windows<sup>®</sup> 7/10 64bit, Linux
- **Certifications**
  - CE compliance

## 1.4 Dimensions



Component Side



Solder Side

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# Section 2

## Connectors

### 2.1 Connectors

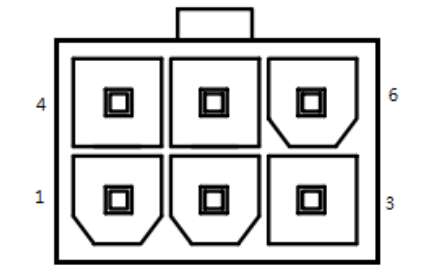
Connectors connect the board with other parts of the system. Loose or improper connection might cause malfunctions. Make sure all connectors are properly and firmly connected. The following table lists the function of each connector on the AX92324.

Connectors	Label
12/24V Power Input (ATX1)	2.1.1
4-pin Molex Male connector (ATX2)	2.1.2
RJ-45 Connector (LAN1 & 2)	2.1.3
Jumper (JP1)	2.1.4

Note: ATX1, ATX2 and JP1 are available in the PoE version of AX92324 only.

#### 2.1.1 12/24V Power Input (ATX1)

The power connector is used for PoE function when total power of powered device is over 20 watts.



Pin	Signal
1	+12V / +24V*
2	+12V / +24V*
3	+12V / +24V*
4	Ground (GND)
5	Ground (GND)
6	Ground (GND)

Note:

\* 24V power is for Axiomtek's products only.

\*12V power is for 6-pin ATX power supply.

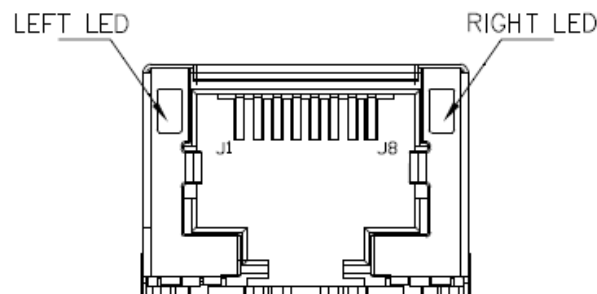
### 2.1.2 4-pin Molex Male connector (ATX2)

The power connector is used for PoE function when total power of powered device is over 20 watts.



Pin	Signal
1	+12V
2	GND
3	GND
4	NC

### 2.1.3 RJ-45 Connector (LAN1 & 2)

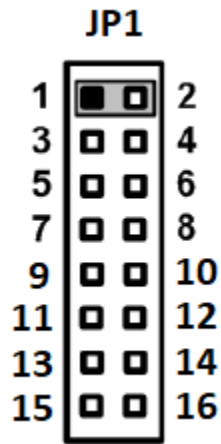


Pin	Description
J1	MDI0+
J2	MDI0-
J3	MDI1+
J4	MDI2+
J5	MDI2-
J6	MDI1-
J7	MDI3+
J8	MDI3-
Left LED	Speed LED : 10G (Green) 1G (Orange) 100M (No light)
Right LED	Active LED (Green)

### 2.1.4 Jumper1 (JP1)

Default board ID setting is 1.

Function	Setting
Board ID=1	1-2 close
Board ID=2	3-4 close
Board ID=3	5-6 close
Board ID=4	7-8 close
Board ID=5	9-10 close
Board ID=6	11-12 close
Board ID=7	13-14 close
Board ID=8	15-16 close



**Note:**

If using only one piece of AX92324 on your system, you can ignore this setting. When using two or more pieces of AX92324 on your system, you must set a different board ID for each piece.

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# Chapter 3

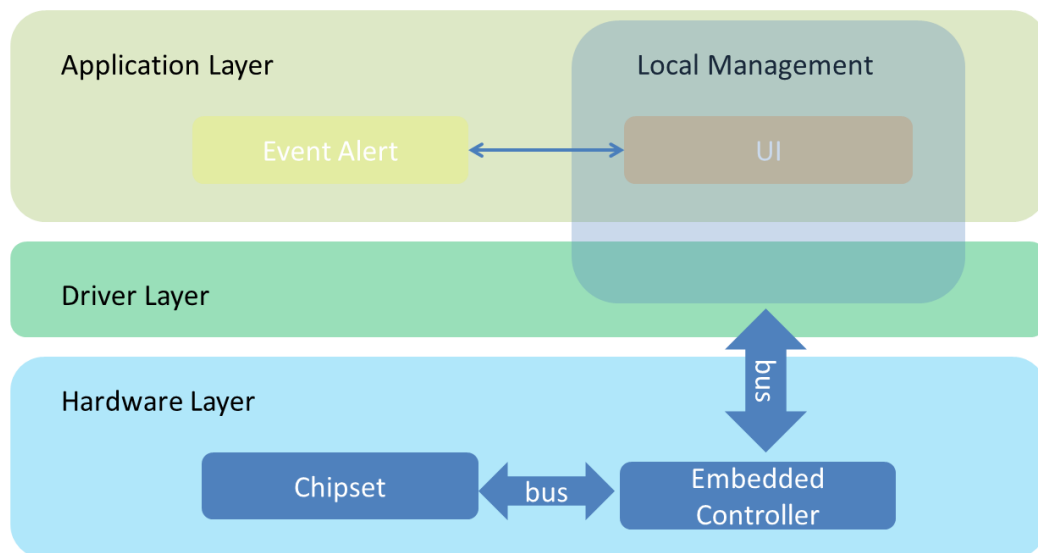
## PoE Manager Software

### 3.1 Management software

AMSIO PoE Manager is a highly integrated software management system that provides an easy-to-use application programming interface.

#### Software Structure

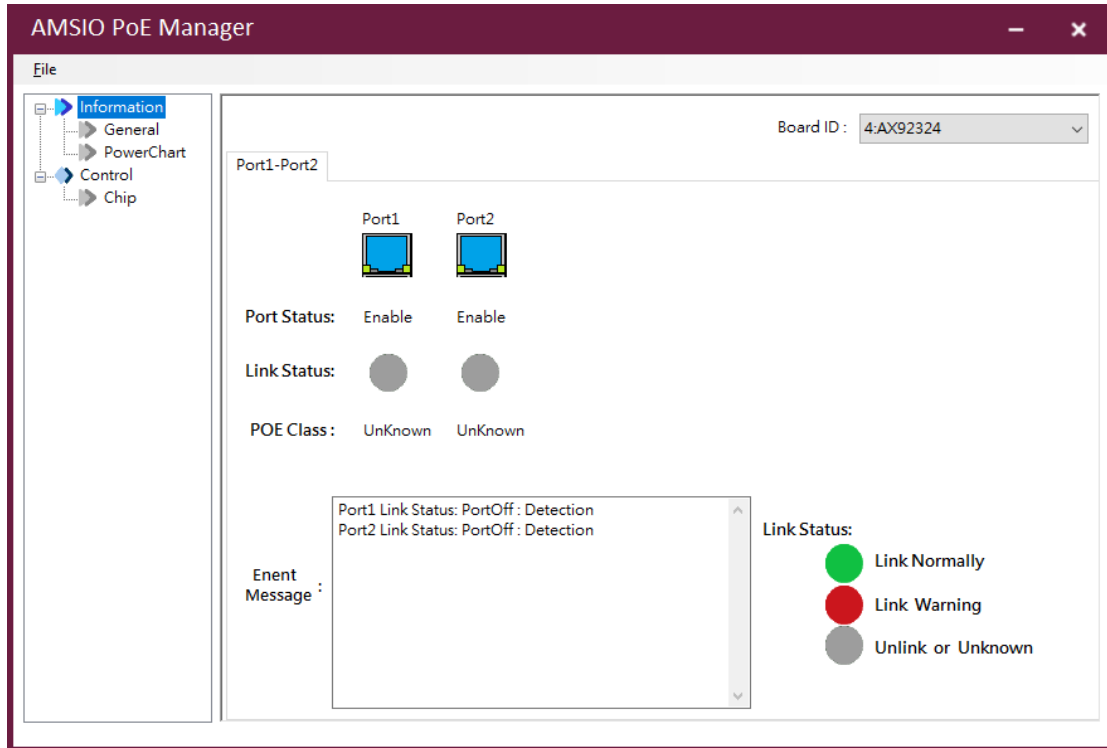
AMSIO PoE Manager is an intelligent software tool for managing PoE (Power over Ethernet) devices, ranging from physical layer connectivity and communication layer protocols to middleware API and high level software for management. AMSIO PoE Manager is ideal for integration with specific embedded systems, and comes with powerful PoE managerial abilities suited for various vertical applications.



Layer structure

### 3.2 AMSIO PoE Manager

AMSIO PoE Manager is a software program that helps to monitor and manage PoE (Power over Ethernet) operations. The major task of PoE manager is to routinely monitor each PoE port's power consumption and status. If any problem happens to a port, it will display info imagery for the user.

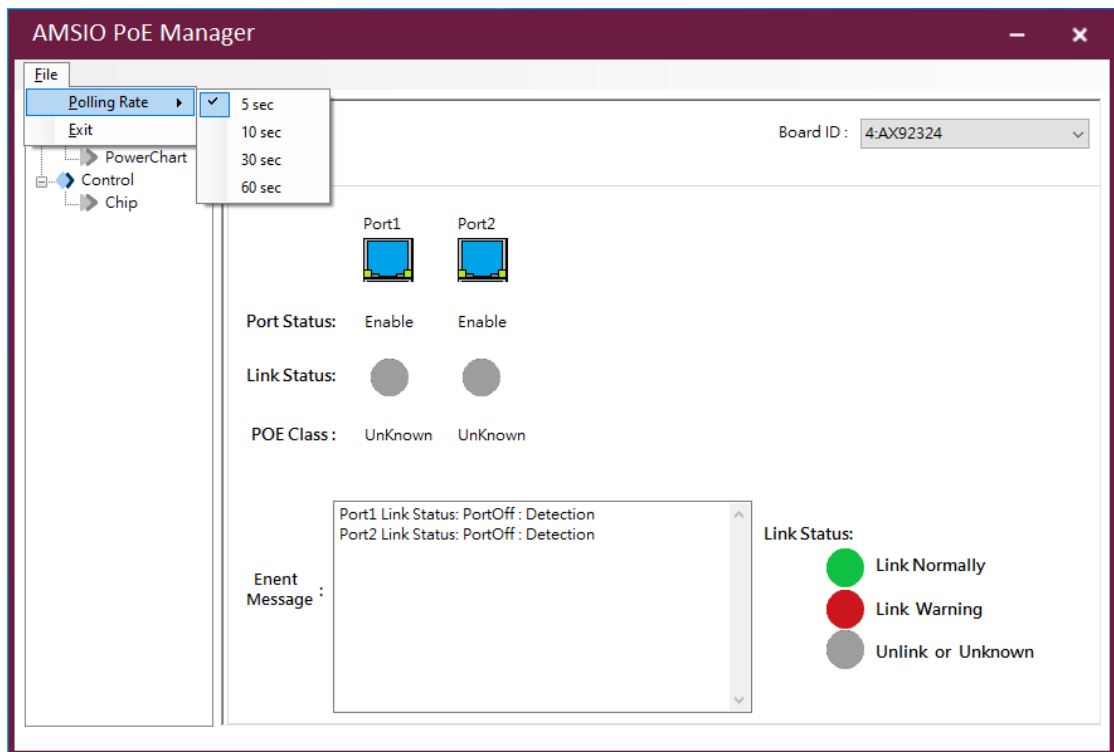


PoE Manager interface

### 3.3 Menu Bar

On the top of the main screen is the menu bar. Select the tab in this bar to go to the submenus.

#### 3.3.1 File



#### Polling rate

Set the polling rate to monitor PoE power consumption and port status. Polling rates include the following

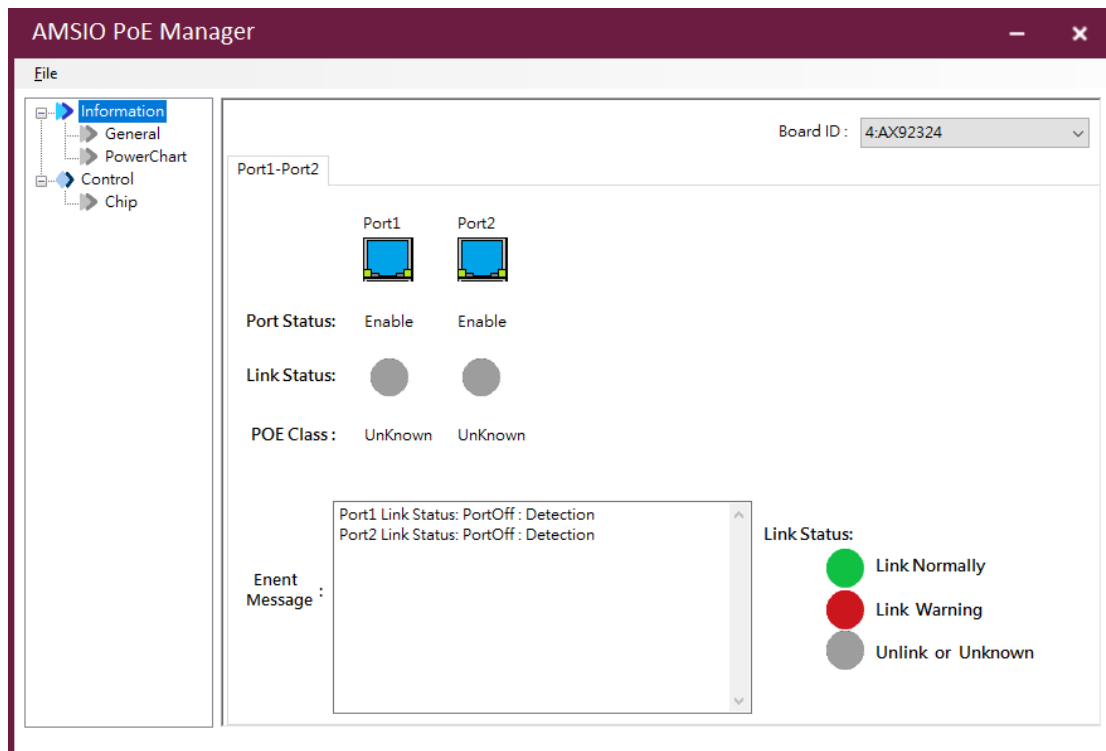
- 5 sec
- 10sec
- 30 sec
- 60 sec

#### Exit

Close the PoE manager program.

### 3.4 Menu List

The menu list is located on the left frame of the screen and contains all monitoring and control functions. It has two submenus: "Information" and "Control".



PoE Manager menu list

#### Information

The information menu includes the "General" and "PowerChart" options. "General" is responsible for showing each port's status, and "PowerChart" is responsible for showing the power consumption chart.

#### Control

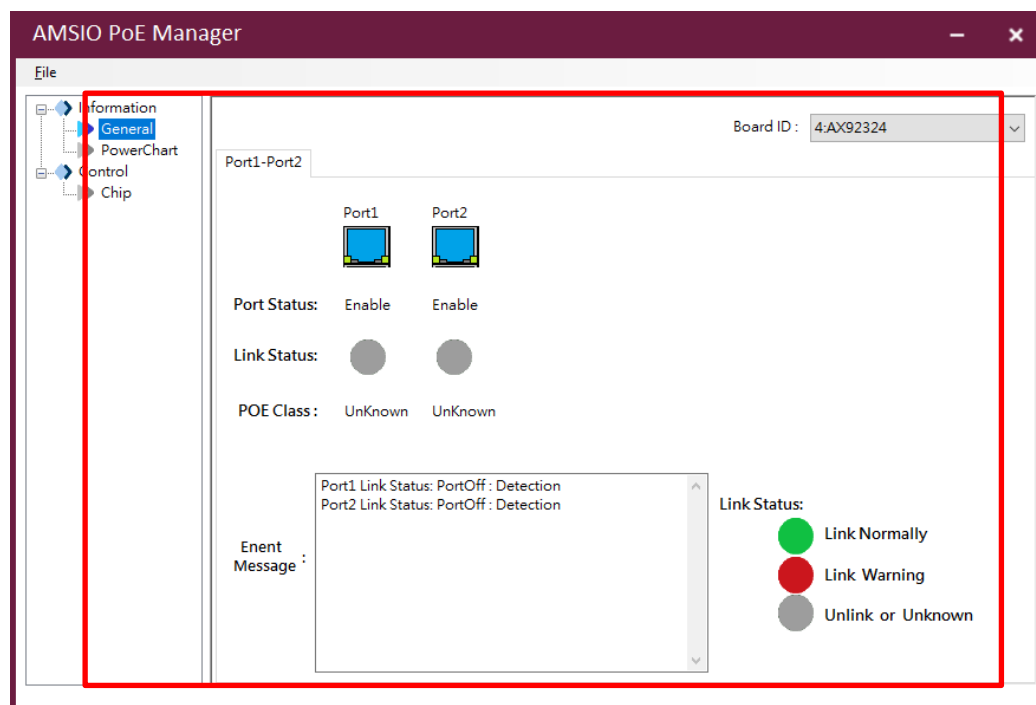
The control menu contains the "Chip" option, which provides the functions including each port's control switch, max power budget display and user-defined power budget, as well as a Save button for saving configurations.



## 3.5 Features

### 3.5.1 Information

- General




General page

**Board ID:** The board ID displays the board number and the module's name. The user can click the drop-down list to display other module information.

**Port1-2:** The tab sort shows all available device ports.

**Port Status:** The port status option displays the word "Enable" with a lit port icon



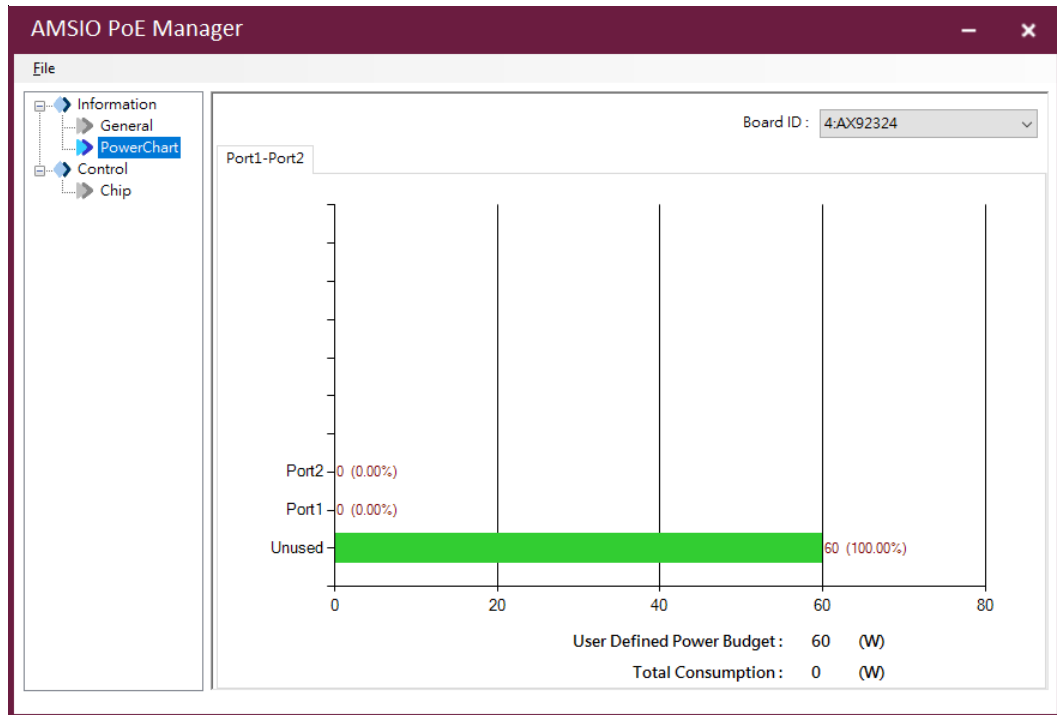
to indicate an enabled port, whereas it displays the word "Disable" with a dim port icon  to indicate a disabled port. (The user can control port status using the "Chip" function. Refer to "Chip" in section 3.5.2.)

**Link Status:** The link status can display connection status with a powered device (PD). The green icon indicates a normal connection with PD. The red icon warns of a connection problem with PD, and the user can search the port error code in the "Event Log" txt file to understand what has caused the problem. If the icon turns gray, it shows the system hasn't connected to PD or has connected to an undefined device.

**POE Class:** The POE class describes PD's classification, which follows the 802.3 af/at protocol to define.

**Event Message:** It displays detailed information on a port's link status. If the link status icon turns red to indicate a connection problem, the event message will report more detailed information.

- **Power Chart**



PowerChart page

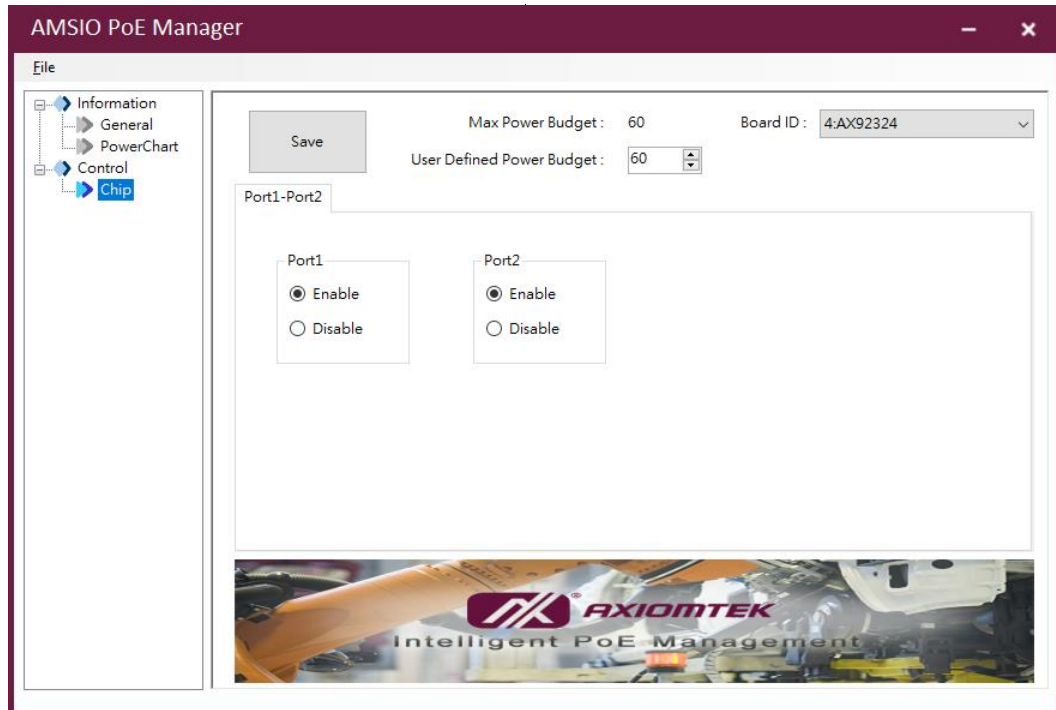
**Chart:** The chart describes power consumption by each port and total amount of unused power. It uses percentage to represent ratio of each port.

**User Defined Power Budget:** The power budget shows the upper limit of power consumption defined by the user. The user can go to the “Chip” option to set power budget, which cannot exceed the max power budget. Refer to “Chip” in section 2.5.2.

**Total Consumption:** The function displays total power consumption value of all ports by adding up every port’s power in use.

### 3.5.2 Control

- Chip



Chip page

**Max Power Budget:** This function shows the module's max power value. The user cannot set power budget higher than max power budget.

**User Defined Power Budget:** The user can define any power budget value, which cannot exceed max power budget.

**Port1 & 2 Switch:** The user can turn on a port by selecting "Enable", or turn off port by selecting "Disable". Each port's status can be monitored in the "General" menu.

**Save Button:** Click the "Save" button to save all user set values into the module's chip. All user defined settings will be reserved when the system is shut down or restarted.