

# Thunderbolt™ Product

**ARC-4607T2**

(Thunderbolt 2 to 16 Gbps FC Adapter)

## Quick Start Guide

Version: 1.0

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## **Copyright and Trademarks**

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## **FCC Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

## **Manufacturer's Declaration for CE Certification**

We confirm ARC-4607T2 has been tested and found compliant with the requirements in the council directive relating to the EMC Directive 2004/108/EC. Regarding to the electromagnetic compatibility, the following standards were applied:

EN 55022: 2006, Class B  
EN 61000-3-2: 2006  
EN 61000-3-3: 1995+A1: 2001+A2: 2005

EN 55024:1998+A1:2001=A2:2003  
IEC61000-4-2: 2001  
IEC61000-4-3: 2006  
IEC61000-4-4: 2004  
IEC61000-4-5: 2005  
IEC61000-4-6: 2006  
IEC61000-4-8: 2001  
IEC61000-4-11: 2004

# Contents

<b>1. Hardware Installation .....</b>	<b>4</b>
1.1 Before You First Installing.....	4
1.2 Summary of ARC-4607T2 Setup Steps .....	5
• For Mac OS X.....	5
• For Windows.....	5
1.3 ARC-4607T2 Expansion Adapter Box View .....	6
1.4 Setting Up ARC-4607T2 Expansion Adapter .....	7
1.4.1 Physically Install ARC-4607T2 .....	7
1.4.2 Mac Users .....	10
1.4.2.1 Install the ArcQFC Software .....	10
1.4.3 Windows Users .....	14
1.4.3.1 Install the ArcQFC Software .....	14
<b>2. Specification.....</b>	<b>18</b>
2.1 Overview .....	18
2.2 Features .....	19

# HARDWARE INSTALLATION

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## 1. Hardware Installation

This section describes how to install the ARC-4607T2 FC adapter to Thunderbolt 2 computer and devices.

### 1.1 Before You First Installing

Thanks for purchasing the ARC-4607T2 as your Fibre Channel expansion adapter. The following manual gives simple step-by-step instructions for installing and configuring the ARC-4607T2 Fibre Channel expansion adapter.

#### **Unpack**

Unpack and install the hardware in a static-free environment. ARC-4607T2 Fibre Channel expansion adapter is packed inside an anti-static bag between two sponge sheets. Remove it and inspect it for damage. If the ARC-4607T2 appears damaged, or if any items of the contents listed below are missing or damaged, please contact your dealer or distributor immediately.

#### **Checklist**

- 1 x ARC-4607T2 Fibre Channel expansion adapter
- 1 x Installation CD – containing driver, relative software, an electronic version of this manual and other related manual
- 1 x Thunderbolt cable (1m)
- 1 x Quick start guide
- 1 x Power cord

#### **System Requirements**

- Computer with Thunderbolt connector
- 16-Gb optical LC SFP+ module, one per port
- Mac OS X 10.8.5 and higher
- Windows 7&8

“For Windows PC: the Thunderbolt certified device driver must be installed before plugging in the device for it to function properly.”

# HARDWARE INSTALLATION

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## 1.2 Summary of ARC-4607T2 Setup Steps

### ● For Mac OS X

Step 1. Physically Install the Hardware (Chapter 1.4.1)

1. Connect power cord.
2. Connect Thunderbolt cable.

Step 2. Install the ArcQFC Software Package (Chapter 1.4.2.1)

1. Download the ArcQFC installer from the website at "[http://www.areca.com.tw/support/s\\_thunderbolt/4607T2.htm](http://www.areca.com.tw/support/s_thunderbolt/4607T2.htm)".
2. Double-click on the ArcQFC zipped file.
3. Double-click on the ArcQFC icon on the Finder.
4. Follow the installer on-screen steps to complete the installation.

### ● For Windows

Step 1. Physically Install the Hardware (Chapter 1.4.1)

1. Connect power cord.
2. Connect Thunderbolt cable.

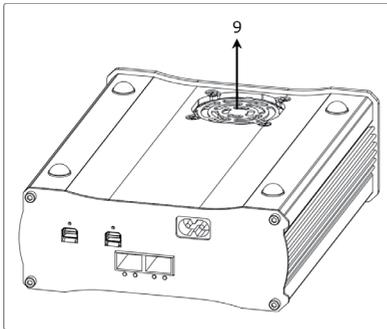
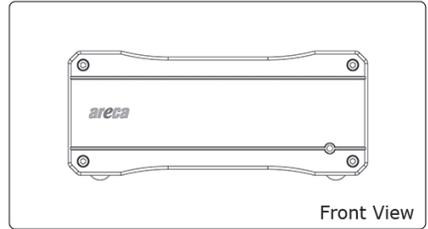
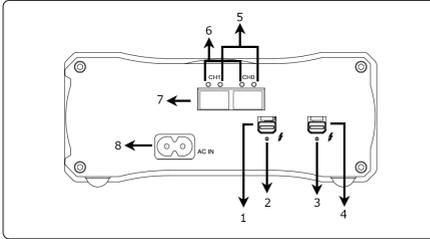
Step 2. Install the ArcQFC Software Package (Chapter 1.4.3.1)

1. Download the ArcQFC installer from the website at "[http://www.areca.com.tw/support/s\\_thunderbolt/4607T2.htm](http://www.areca.com.tw/support/s_thunderbolt/4607T2.htm)".
2. Double-click on the ArcQFC\_installer zipped file.
3. Double-click on the "setup.exe" unzip file.
4. Follow the installer on-screen steps to complete the installation.

# HARDWARE INSTALLATION

## 1.3 ARC-4607T2 Expansion Adapter Box View

The following diagram is the ARC-4607T2 front view and rear view.



Rear View	
1.	Thunderbolt Port1
2.	Thunderbolt Port1 Link LED
3.	Thunderbolt Port2
4.	Thunderbolt Port2 Link LED
5.	Fibre Host Port Access LED
6.	Fibre Host Port Link LED
7.	16 Gbps Fibre Channel ports
8.	Power Connector
9.	System Fan

The following table describes the ARC-4607T2 Thunderbolt port link LED behavior.

Thunderbolt Ports Link LED	Status
Green light	<ol style="list-style-type: none"> <li>Lit indicates Fibre Channel expansion adapter is powered and maintained the daisy chain with other Thunderbolt devices.</li> <li>Blinking (5 times/sec) that indicates Fibre Channel expansion adapter is in sleep mode.</li> <li>Blinking (1 time/sec) that indicates Fibre Channel expansion adapter is powered down and maintained the daisy chain with other Thunderbolt devices.</li> </ol>
Amber light	There is a proper DisplayPort connection on that Thunderbolt port.
Red light	There is a proper DisplayPort to DVI connection on that Thunderbolt port.

# SPECIFICATION

The following table describes the ARC-4607T2 Fibre Channel port access/link LED behavior.

Fibre Host Port LED	Status
Link LED (Green/Orange light)	Two LEDs (green/orange) are used to indicate the link speed of the operation of each Fibre Channel port. 1. On (green) when the Fibre Channel 16 Gbps link speed is connected and established. 2. On (orange) when the Fibre Channel 8 Gbps link speed is connected and established. 3. On (green and orange interactive flash) when the Fibre Channel 4 Gbps link speed is connected and established.
Access LED (Blue light)	The Fibre channel host accesses to the Fibre devices.

## 1.4 Setting Up ARC-4607T2 Expansion Adapter

Setting up your ARC-4607T2 involves these main steps:

- Physically Install the ARC-4607T2 with DAS or SAN solution
- Install the ArcQFC Software

Details about these steps are described in the following sections.

### 1.4.1 Physically Install ARC-4607T2

Please follow the steps below in order they are given to ensure that your ARC-4607T2 connected on your Thunderbolt computer.

#### Step 1. Installing the DAS or SAN Solution

The following figure shows how to connect the external FC cable from the ARC-4067T2 adapter that has external connectors to the external DAS subsystem or FC Switch (please follow the user manual of subsystem or FC switch to install disks and cables).

# HARDWARE INSTALLATION

- DAS Solution

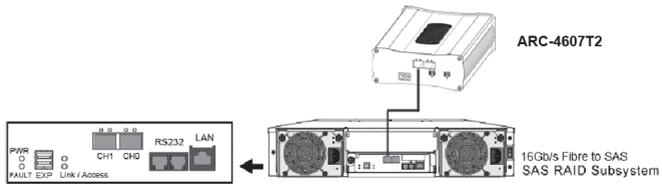


Figure 1-1, Connecting to FC DAS

- SAN Solution

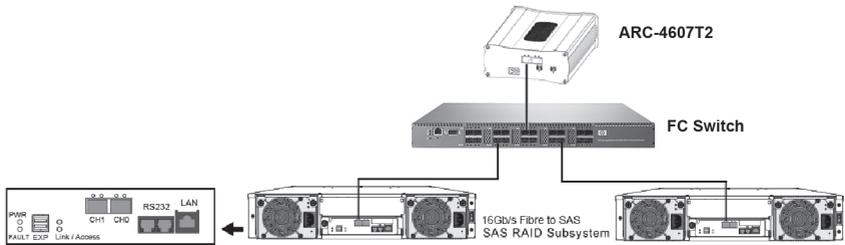


Figure 1-2, Connecting to FC Switch

## Step 2. Connecting Thunderbolt Ports

Thunderbolt connectors are provided on the back of the ARC-4607T2 for connecting to Thunderbolt host and next Thunderbolt devices. There are two Thunderbolt connectors on the rear of ARC-4607T2. You can plug-in two host ports.

1. Direct connection to a Thunderbolt technology capable computer.
2. Daisy chaining Thunderbolt capable devices and displays.

### • Thunderbolt Computer Port Connection

By installing Thunderbolt technology capable computer and ARC-4607T2 Thunderbolt port using the Thunderbolt cable which is included in your Thunderbolt capable computer. Then connect ARC-4607T2 and Thunderbolt technology capable computer port as shown below:

# HARDWARE INSTALLATION

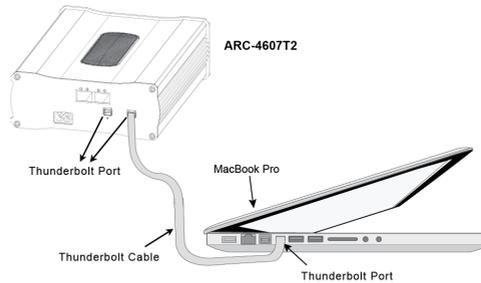


Figure 1-3, Connecting to Thunderbolt Computer

- **Daisy Chain Topologies**

A single Thunderbolt technology daisy chain can have seven devices, including the computer. Connect the cable to one of the interface ports on the back of your ARC-4607T2 and to your Thunderbolt capable computer. The additional port may be used to daisy chain compatible computer peripherals, such as hard drives, monitors, and much more. A single Thunderbolt port supports hubs as well as a daisy chain of up to seven Thunderbolt devices on, including the Thunderbolt capable computer.

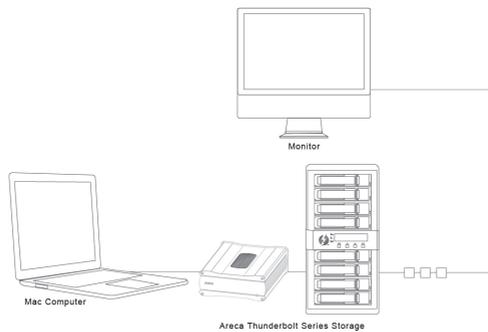


Figure 1-4, Thunderbolt Computer Daisy Chain

# HARDWARE INSTALLATION

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## Step 3. Connecting ARC-4607T2 Power

To power the ARC-4607 Fibre Channel expansion adapter:

1. Using the included power cord, connect this power cord to a grounded electrical outlet and to the ARC-4607T2.
2. ARC-4607T2 will automatically turn on when host computer power on status is received from the thunderbolt cable.

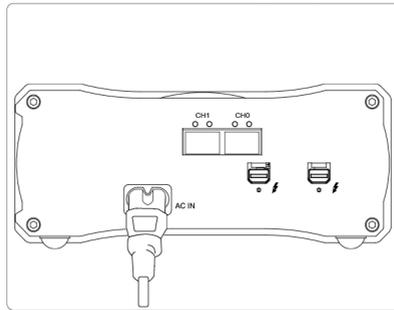


Figure 1-5, Connecting the Power to Adapter

3. ARC-4607T2 automatically turns off when the computer to which it is attached sleeps or is disconnected.

When you are finished installing the ARC-4607T2, you can set up the connected devices.

## 1.4.2 Mac Users

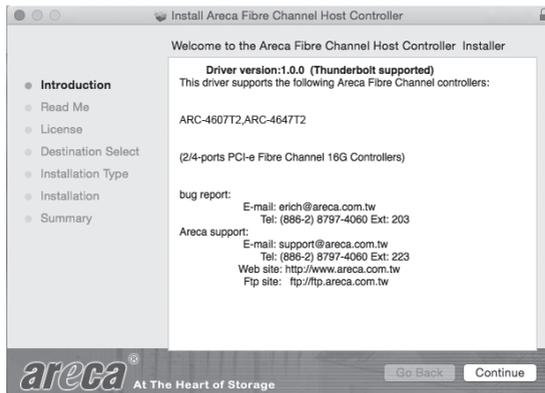
### 1.4.2.1 Install the ArcQFC Software

This section describes detailed instructions for installing the Mac driver for the ARC-4607T2 on your Apple Thunderbolt capable machine. You must have administrative level permissions to install Mac OS X driver. This can be done in just a few steps!

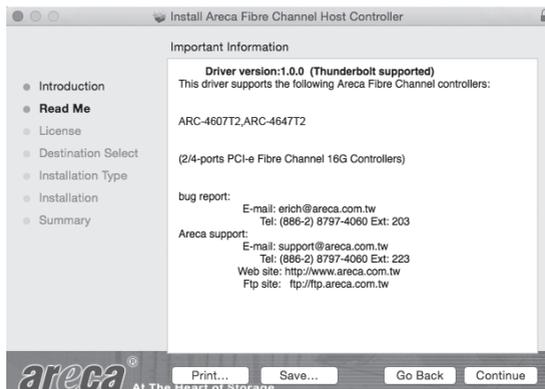
1. Download the ArcQFC installer from the website at "[http://www.areca.com.tw/support/s\\_thunderbolt/4607T2.htm](http://www.areca.com.tw/support/s_thunderbolt/4607T2.htm)", the file name begins with "ArcQFC" followed by the version control or insert the ARC-4607T2 software CD in the CD-ROM drive.

# HARDWARE INSTALLATION

2. Double-click on the zipped file that comes from the website or resides at <CDROM>\packages\MacOS to add the installer on the Finder.
3. Launch the installer by double-clicking the ArcQFC on the Finder. The ArcQFC Installer opens. Click on the "**Next**" button to begin the installation.
4. The ArcQFC Installer opens. Click on the "**Continue**" button to begin the installation.

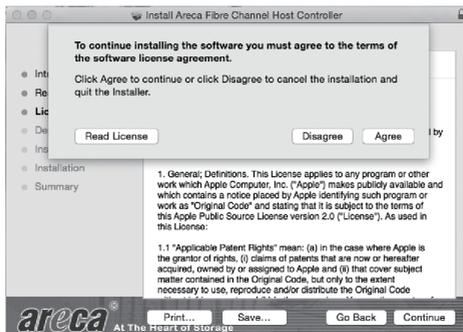
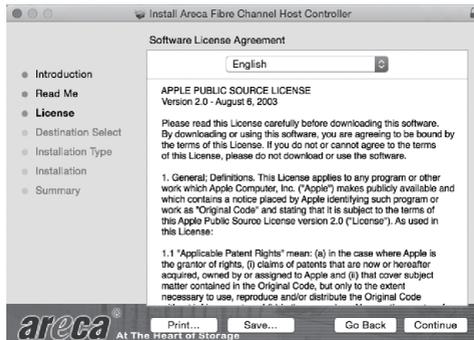


5. On the Read Me screen, skim through the information about controller and click on the "**Continue**" button to go on the installation procedure.

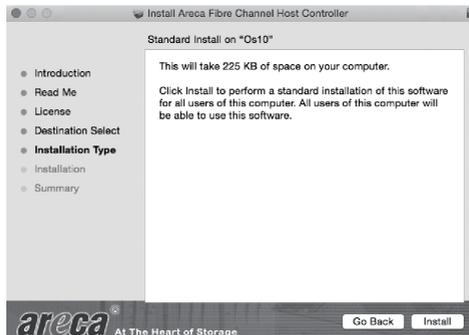


# HARDWARE INSTALLATION

6. On the License screen, select a language and read the Software License Agreement. Click on the **"Continue"** button to go on the installation procedure.

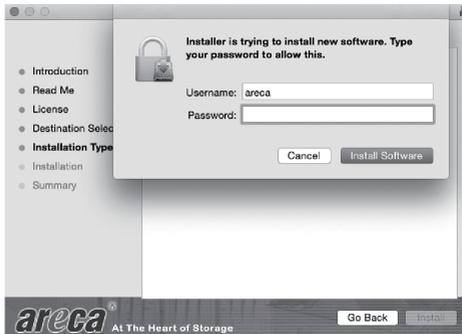


7. On the Installation Type screen, click on the **"Install"** button to continue the installation procedure. If you want to change any of your installation setting, click on the **"Go Back"** button.



# HARDWARE INSTALLATION

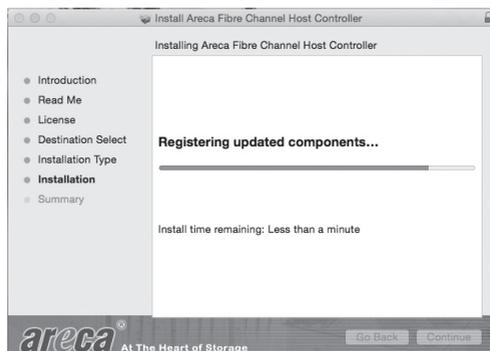
8. An alert window appears, please type your password to continue the installation procedure.



9. When this screen shows, it means that when the process finishes your computer will automatically restart. If you agree with that then click on the "**Install**" button to continue.



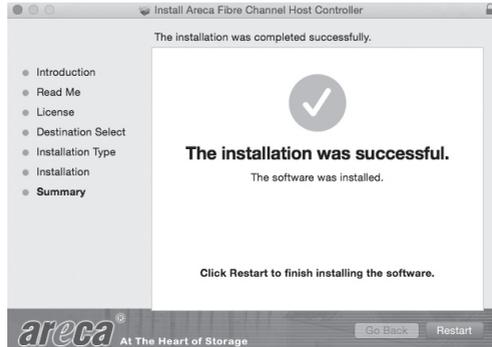
10. A program bar appears that measures the progress of the driver installation.



# HARDWARE INSTALLATION

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11. After installation is completed, click on the "**Restart**" button to reboot your computer in order to complete installation. A reboot is required to complete the installation.



## 1.4.3 Windows Users

### 1.4.3.1 Install the ArcQFC Software

This section describes how to install the ArcQFC software to your operating system. The software installation includes device driver.

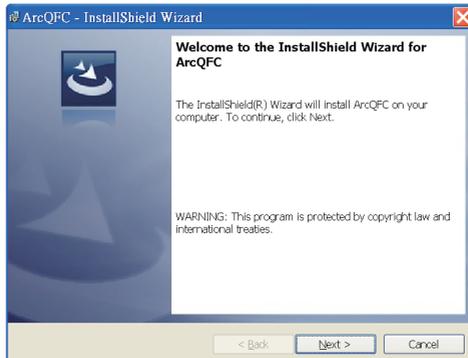
In this scenario, you are installing the ArcQFC software in an existing Windows system. You can use the installer to install driver. Follow the steps below to install the driver for Windows.

1. Download the ArcQFC installer from the website at "[http://www.areca.com.tw/support/s\\_thunderbolt/4607T2.htm](http://www.areca.com.tw/support/s_thunderbolt/4607T2.htm)", the file name begins with "ArcQFC\_installer" followed by the version control or insert the ARC-4607T2 software CD in the CD-ROM drive.
2. Double-click on the zipped file that comes from the website or resides at <CDROM>\PACKAGES\Windows to unzip it. Double-click on the "setup.exe" file for installing ArcQFC.
3. The screen shows Preparing to Install.

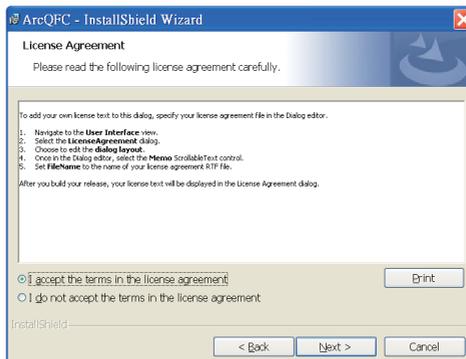
# HARDWARE INSTALLATION



4. The ArcQFC Installer (or InstallShield Wizard) opens, preparing to install and click on the **"Next"** button to continue.



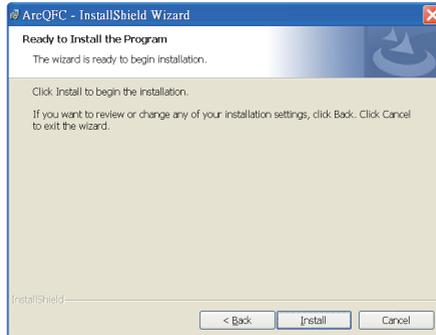
5. When the License Agreement screen appears, read and agree to the license information; then let the InstallShield Wizard guide you through the installation process.



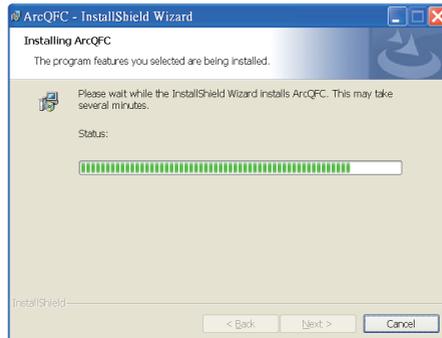
# HARDWARE INSTALLATION

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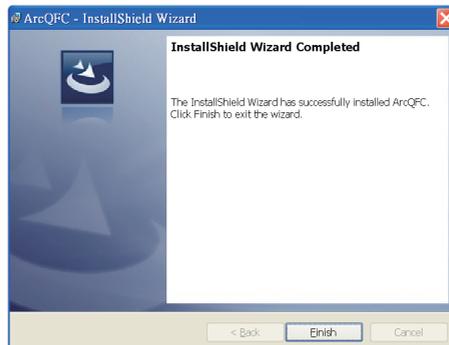
- When you reach the installation page, click on the **"Install"** button to continue.



- A program bar appears that measures the progress of the driver installation.



- After installation is complete, click on the **"Finish"** button to exit the InstallShield Wizard.



# HARDWARE INSTALLATION

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**Note:**

*"For Windows, Install Driver First"*

For Windows PC: the Thunderbolt certified device driver must be installed before plugging in the device for it to function properly.

# SPECIFICATION

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## 2. Specification

This section presents a brief overview of the Thunderbolt™ 2 to 16 Gbps Fibre Channel expansion adapter, ARC-4607T2 that is combined with ARC-4050T2 and ARC-8607 FC host adapter.

### 2.1 Overview

#### **Unleash Your Creativity Faster Than Ever**

Thunderbolt™ 2 is full backward compatibility to the same cables and connectors used with today's Thunderbolt. It pushes speed to 20 Gbps and enables 4K video file transfer and display simultaneously. ARC-4607T2 is equipped with dual Thunderbolt 2 ports for connecting to any Thunderbolt 2-enabled host such as the new Mac Pro, and offers an additional Thunderbolt 2 port for daisy-chaining other peripherals. The Thunderbolt daisy-chaining allows connection of up to six devices, so customers can connect ARC-4607T2 for massive amounts of video storage with a single Thunderbolt connection to their host computer. ARC-4607T2 can meet the demand of users when working with rich, ultra-high resolution media through Thunderbolt 2 interface.

#### **Enabling an Easy-to-Manage FC Solution**

ARC-4607T2, the 16 Gbps Fibre Channel solutions with Thunderbolt 2, specifically is designed for use in Apple new Mac Pro servers. The Thunderbolt 2 Solution from Areca provides the supreme performance so quick that it allows 4K video at the same time while daisy chaining storages devices and doing a simultaneous 4K in/output file transfers. ARC-4607T2, a Thunderbolt 2 to 16G Fibre Channel adapter, is used to connect Thunderbolt 2 host computers to 16Gb external Fibre Channel storage devices. ARC-4607 16GFC Thunderbolt 2 adapter offers dual 16 Gbps Fibre Channel ports that will auto negotiate with 16Gb, 8Gb, and 4Gb FC devices. With dual 16Gbps Fibre Channel ports and dual 20 Gbps Thunderbolt 2 ports configurations, the ARC-4607T2 is a best solution for hooking up to a high-speed Fibre channel SAN network to achieve high-performance storage solution for 4K video workflows.

# SPECIFICATION

The ARC-4607T2 adapter brings the fastest available connections to Fibre Channel SAN on any computer, and workstation with Thunderbolt 2 interface. ARC-4607T2 adapter provides a blazing-fast storage connectivity solution with enhanced reliability and performance to support any application and tiered storage solution. ARC-4607T2 16 Gbps dual channels expansion adapter is ideal for large capacity external storage RAID and FC switch.

## 2.2 Features

### **Technical specifications**

- Enables Fibre Channel connectivity on systems with a Thunderbolt 2 port
- Dual Fibre Channel Ports
- 16 Gigabits per second data transfer rates
- 3200 MB/sec maximum full-duplex throughput per channel
- Supports all FC topologies: direct fabric, arbitrated loop and point-to-point
- Dual 20 Gbps Thunderbolt 2 ports with DisplayPort and device daisy-chain support
- Auto Negotiation to 16Gb, 8Gb and 4Gb devices
- External LEDs for link and access status for each channel
- Thunderbolt cable included
- Two pluggable 16-Gb optical LC SFP+ modules (optional)
- Thunderbolt certified for Mac

### **Product Features**

Form Factor	Mini Box
Host Connection	Two 20 Gbps Thunderbolt Technology Ports
External Ports	2 x 16 Gbps Fibre Channel ports
OS Support	Mac OS X 10.8.5, 10.9 (Mavericks) and later & Windows 7/8
Enclosure Management	Thunderbolt Port
Cooling Fan	1 * noiseless cooling fan
Operating Temperature	0° ~ 35°C
Operation Humidity	5% ~ 95 %, Non-condensing
Power Supply/In/out	65W / 100-240V AC
Dimension (W x H x D)	4.97 x 2.13 x 6.35 in (150 x 64.4 x 191.7 mm)
Weight	2.64 lbs / 1.2Kg