Alacritech® Scalable Networking Accelerator Hardware Installation Guide (Fiber)

Preface

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Organization of This Guide

This guide covers the installation of Alacritech® Accelerators with fiber-based (LC, SC) connectors and contains the following sections:

Chapter 1 - Introduction, provides a general introduction to the Alacritech Accelerators and the SLIC Technology® on which they are based.

Chapter 2 - Hardware Installation, includes the specifications for the hardware and the procedure required to install the hardware component.

Chapter 3 – Software Installation and Support, provides information on installing the software and receiving technical support.

Appendix A – Hardware Warranty and Information, provides the text of the Limited Lifetime Hardware Warranty for the hardware component. This section also includes instructions for returning a defective product, the text of the Limitation of Liability and Remedies statement, and Compliance and Conformity statements.

Table of Contents

1 Introduction

1.1 About this Guide

This guide describes how to install the Alacritech® Accelerators in standard PCI and PCI-X based servers. The following products are covered by this document:

1000 Series:	2000 Series:
1000x1F Server and Storage Accelerator	SEN2002XF Accelerator
SES1001F iSCSI Accelerator	SEN2001XF Accelerator
	SEN2104EF Accelerator
	SEN2102EF Accelerator
	SES2002XF iSCSI Accelerator
	SES2001XF iSCSI Accelerator
	SES2104EF iSCSI Accelerator
	SES2102EF iSCSI Accelerator

1.2 Description

Alacritech 1000 and 2000 Series Accelerators are Gigabit Ethernet Accelerators that employ Alacritech's patented SLIC Technology architecture, a Dynamic TCP Offload™ methodology, which uses an innovative application-specific integrated circuit (ASIC) for protocol processing.
Products using SLIC Technology architecture increase server performance and efficiency in a number of ways:

- Protocol processing is offloaded onto the Accelerator, freeing the CPU for application processing and maximizing throughput.

- The Alacritech Internet Protocol Processor (IPP) programmable ASIC, optimized for protocol processing, delivers faster performance than general-purpose CPUs.

The SLIC Technology architecture eliminates the burden of protocol processing on the host CPU. By offloading protocol processing, Alacritech Accelerators free the system for application processing, boosting server and storage system performance.

1.3 Specifications

	PCI Based Accelerators	PCI-X Based Accelerators	PCIe Based Accelerators
Port Speeds	IEEE Auto Negotiation: 1000Mbps full duplex	IEEE Auto Negotiation: 1000Mbps full duplex	IEEE Auto Negotiation: 1000Mbps full duplex
Connectors	Duplex SC receptacle	Duplex LC receptacle	Duplex LC receptacle
Media	1000BaseSX: Multimode fiber (62.5/125μm or 50/125μm)	1000BaseSX: Multimode fiber (62.5/125μm or 50/125μm)	1000BaseSX: Multimode fiber (62.5/125μm or 50/125μm)
Bus Type	64-bit bus master PCI v2.2, Universal Card Low profile enabled	133 MHz/64-bit bus master PCI-X 1.0a Universal Card Compatible with 32-bit PCI 2.2 Low profile enabled	x4 PCI Express 1.0a
Reliability	MTBF 250,000 hours	MTBF 250,000 hours	MTBF 250,000 hours
Power	0.9A @ 3.3V typical	2A @5V typical	Dual-Port PCIe: 1.2A @3.3V; 1.0A @12V Quad-Port PCIe: 1.2A @3.3V; 1.5A @12V
Safety	UL, UL/c, IEC60950	UL, UL/c, IEC60950	UL, UL/c, IEC60950
Environmental Factors	Operating temperature: 0 to 55º C Relative humidity: 5% to 80% non-condensing	Operating temperature: 0 to 55º C Relative humidity: 8% to 80%, non-condensing	Operating temperature: 0 to 55º C Minimum Airflow: 150 LFM) Relative humidity: 8% to 80%, non-condensing
EMC Standards Compliance	ANSI/IEEE 802.3, 2000 Edition Ethernet. (1000BaseSX) FCC, CE, VCCI	ANSI/IEEE 802.3, 2000 Edition Ethernet. (1000BaseSX) FCC, CE, VCCI	ANSI/IEEE 802.3, 2000 Edition Ethernet. (1000BaseSX) FCC, CE, VCCI
Diagnostic LEDs	Link status, network activity and 3.3V LED status	Link status and network activity	Link status and network activity

1.4   Accelerator Diagrams

Figure 1 contains a diagram of the LED locations and port for the 1000x1F and
SES1001F Accelerator. LEDs show link and activity on the end bracket.
The LED on the top of the card shows that the card is being supplied with 3.3 V power.
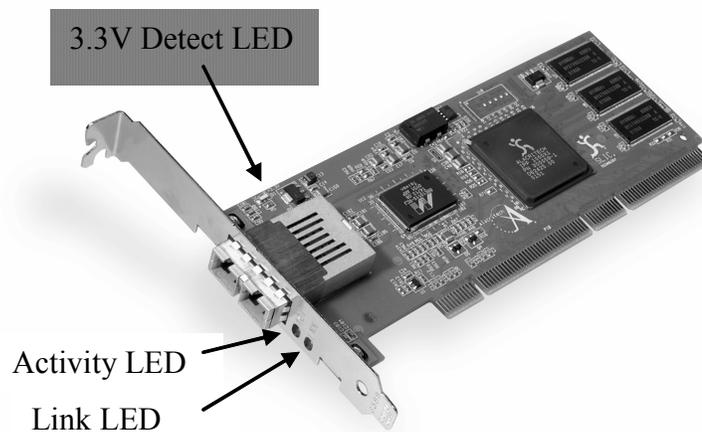The card will not operate unless this LED is lit.

Figure 1: PCI Accelerators

Figure 2 shows PCI-X based Accelerators. LEDs show link status and activity on the end bracket:
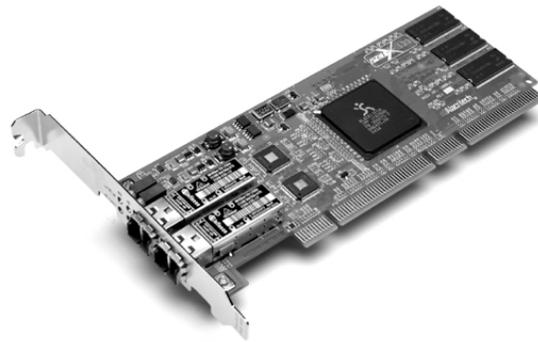

Figure 2: PCI-X Based Accelerators

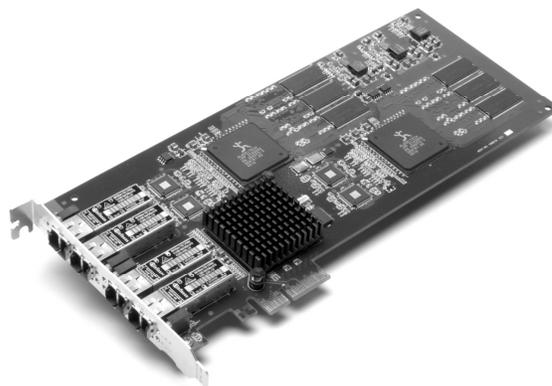Figure 3 shows PCIe based Accelerators. LEDs show link status and activity on the end bracket:

Figure 3: PCIe Based Accelerators

2 Hardware Installation

2.1 Hardware Installation Overview

Alacritech Accelerators are designed for servers and storage systems on a Gigabit Ethernet network using TCP/IP. The system they are installed in must have the following features:

- Supported operating system (see readme on CD for latest OS support)

- One available bus-mastering PCI or PCI-X slot, with 3.3 volt power supplied for the 1000 Series, and 5 volt power supplied for the 2000 Series Accelerators, or PCIe slot for PCIe based Accelerators

- CD-ROM or compatible drive, or network CD drive for software installation

The network should have the following features:

- 1000BASE-SX Gigabit Ethernet using Multimode fiber (62.5/125µm or 50/125µm), with SC connectors for the 1000 Series, and Duplex LC connectors for the 2000 Series Accelerators

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Note: The Accelerator is supplied with a dust cover protecting its fiber optic ports. To prevent dust from collecting on the fiber optic lenses, keep the dust cover on the ports at all times when they are not in use. Only remove the dust cover just before you plug in a connector.

2.2 Installing the Low Profile Bracket (PCI and PCI-X Accelerators Only)

The Accelerator includes a low profile bracket to facilitate installation in a low profile slot. To install an Accelerator in a low profile PCI slot, the bracket on the rear of the card will need to be changed with the included low profile bracket.

1. Remove the two 4-40 x 3/16 screws on the bottom side of the card.

2. Install the low profile PCI bracket, making sure that the mounting tabs are on the bottom side of the card and the screws secured from the component (top) side.

To convert an Accelerator from low profile to standard PCI, the bracket on the rear of the card will need to be changed to the original bracket.

1. Remove the two 4-40 x 3/16 screws from the topside of the card.

2. Install the standard PCI bracket, making sure that the mounting tabs are on the top (component) side of the card and the screws secured from the bottom side.

2.3 Hardware Installation

Eye safety: The laser-based transceivers used in fiber Accelerator are eye safe under normal operating conditions. However, it is recommended that you never look directly at an active connector (plug or receptacle) without eye protection.

Note: Alacritech Accelerators use components that are sensitive to ESD. Proper ESD handling and storage should be followed.

Note: The 1000 Series Accelerator is compatible with 32-bit and 64-bit PCI 2.2 slots or PCI 2.1 slots supplied with 3.3 volt power. When installed in a slot with the proper 3.3 volt supply, the LED on the top of the card adjacent to the mounting bracket will illuminate.

Turn off and unplug the computer. Failure to do so could endanger you, and may damage the accelerator or computer.

Remove the computer cover, and install the Accelerator in any available bus-mastering PCI or PCI-X slot. Use a 64-bit, 66 MHz PCI slot or 64-bit, 66/100/133MHz PCI-X slot to maximize system performance. Figure 4 shows a typical 64-bit PCI or PCI-X slot, however, the documentation for your system should be consulted to verify available PCI slots. Some PCI slots have fasteners, which must be secured in order for the accelerator to function correctly.

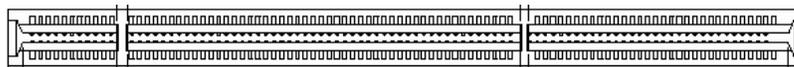Replace the computer cover, turn on and boot the computer.

Figure 4: Typical 3.3V keyed 64-bit PCI or PCI-X bus slot

3   Software Installation and Support

3.1   Alacritech Automated Customer Support

You can reach Alacritech's automated support service 24 hours a day, every day. The service contains the most up-to-date information about Alacritech products. You can access the most current drivers, installation instructions, troubleshooting information, and general product information.

Support: http://www.alacritech.com/html/techsupport.html
Corporate: http://www.alacritech.com

3.2   Readme Files on Your Product CD-ROM

For a range of product information available, please read the readme.html file on the Alacritech Driver Installation CD. To view the files, go to the Alacritech Driver Installation CD and open the file with any web browser.

3.3   Installing the Accelerator Software

For information about installing driver software, open the **Users Guide.pdf** file in the **doc** directory on the Alacritech Driver Installation CD. The PDF files can be read using Acrobat® Reader software available from Adobe Systems Incorporated at http://www.adobe.com.

Appendix A   Hardware Warranty and Information

LIMITED LIFETIME HARDWARE WARRANTY

Alacritech warrants to the original owner that the hardware product delivered in this package will be free from defects in material and workmanship. This warranty does not cover of the product if it is damaged in the process of being installed or improperly used.

THE ABOVE WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE ARISING OUT OF ANY PROPOSAL, SPECIFICATION, OR SAM-PLE.

This warranty does not cover replacement of accelerator products damaged by abuse, acci-dent, misuse, neglect, normal wear and tear, alteration, repair, disaster, improper installation, or improper testing. If the accelerator product is found to be defective, Alacritech, at its option, will replace or repair the hardware product at no charge except as set forth below provided that you deliver the accelerator product along with a Return Material Authorization (RMA) number (see below), along with proof of purchase, either to the dealer from whom you purchased it or to Alacritech with an explanation of any deficiency.

With the same RMA procedure, at your option, Alacritech will refund your purchase price if the product is found to be defective and is returned within three months of the purchase date.

If you ship the accelerator product, you must assume the risk of damage or loss in transit. You must use the original container and pay the shipping charge.

Alacritech may replace or repair the accelerator product with either new or reconditioned parts, and any accelerator product, or part thereof replaced by Alacritech becomes Alacritech's prop-erty. Repaired or replaced accelerator products will be returned to you at the same revision level as received or higher, at Alacritech's option. Alacritech reserves the right to replace dis-continued accelerator products with an equivalent current generation accelerator product.

Returning a Defective Product

Before returning any accelerator product, contact Alacritech Customer Support and obtain a Return Material Authorization (RMA) number by using the automated support service at http://www.alacritech.com/html/techsupport.html.

If the Customer Support Group verifies that the accelerator product is defective, they will have the RMA department issue you an RMA number to place on the outer package of the accelera-tor product. Alacritech cannot accept any product without an RMA number on the package.

Limitation of Liability and Remedies

ALACRITECH'S SOLE LIABILITY HEREUNDER SHALL BE LIMITED TO DIRECT, OBJEC-TIVELY MEASURABLE DAMAGES. IN NO EVENT SHALL ALACRITECH HAVE ANY LIABIL-ITY FOR ANY INDIRECT OR SPECULATIVE DAMAGES (INCLUDING, WITHOUT LIMITING THE FOREGOING, CONSEQUENTIAL, INCIDENTAL, AND SPECIAL DAMAGES) INCLUD-ING, BUT NOT LIMITED TO, INFRINGEMENT OF INTELLECTUAL PROPERTY, REPRO-CUREMENT COSTS, LOSS OF USE, BUSINESS INTERRUPTIONS, LOSS OF GOODWILL, AND LOSS OF PROFITS, WHETHER ANY SUCH DAMAGES ARISE OUT OF CONTRACT NEGLIGENCE, TORT, OR UNDER ANY WARRANTY, IRRESPECTIVE OF WHETHER ALACRITECH HAS ADVANCE NOTICE OF THE POSSIBILITY OF ANY SUCH DAMAGES.

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Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

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SOFTWARE: Software provided with the accelerator product is not covered under the hardware warranty described above. See the applicable software license agreement that shipped with the accelerator product for details on any software warranty.

Appendix B   Environmental Notices

FCC COMPLIANCE STATEMENT

We, Alacritech Inc., at
1995 N. 1st St
San Jose, CA 95112
(408) 287-9997
declare under our sole responsibility that the product(s):
100000, 100001, 100004, 100005, 100007, 100009, SEN1001T, SEN1001F, SES1001T, SES1001F, SEA1001T, SEA1001F, SEN1511XT, SEN1512XT, SEN1522XT, SEN1811XT, SEN1812XT, SEN1822XT, SEN2002XT, SEN2002XF, SEN2001XT, SEN2001XF, SES1811XT, SES1812XT, SES1822XT, SES2002XT, SES2002XF, SES2001XT, SES2001XF, SEA2002XT, SEA2002XF, SEA2001XT, SEA2001XF, SEN2104ET, SEN2104EF, SEN2102ET, SEN2102EF, SES2104ET, SES2104EF, SES2102ET and SES2102EF. Comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device. The device must however be listed as a Class A device because the support equipment used during the testing of the product did not have an FCC DoC. As such, the following FCC statement applies:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, Alacritech requires that you use network cables of a specific quality when connecting this device. For 100BASE-TX operation, your network cables must be Category 5, twisted pair wiring. For 10BASE-T operation, use Category 3, 4 or 5 twisted-pair wiring. If you use this adapter in a residential environment, you must use Category 5 cables.

Changes or modifications not expressly approved by Alacritech could void the user's authority to operate this equipment.

VCCI Declaration of Conformity

The 100000, 100001, 100004, 100005, 100007, 100009, SEN1001T, SEN1001F, SES1001T, SES1001F, SEA1001T, SEA1001F, SEN1511XT, SEN1512XT, SEN1522XT, SEN1811XT, SEN1812XT, SEN1822XT, SEN2002XT, SEN2002XF, SEN2001XT, SEN2001XF, SES1811XT, SES1812XT, SES1822XT, SES2002XT, SES2002XF, SES2001XT, SES2001XF, SEA2002XT, SEA2002XF, SEA2001XT, SEA2001XF, SEN2104ET, SEN2104EF, SEN2102ET, SEN2102EF, SES2104ET, SES2104EF, SES2102ET and SES2102EF are Class B products based on the standard of the Voluntary Control Council For Interference by Informa-

tion Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準
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EN Declaration of Conformity

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Compliance to class B may be dependent upon the use of shielded data cables depending upon the host hardware.

EU-RoHS Declaration of Conformity

Alacritech 1500, 1800, 2000 and 2100 product families are compliant with the European Parliament RoHS Directive 2002/95/EC the Council of 27 January 2003 on the restriction of certain hazardous substances in electrical and electronic equipment. The following table is provided regarding the names and concentration levels of Hazardous Substances

Name of the Component	Hazardous/Toxic Substance/Elements					
	Lead (PB)	Mercury (Hg)	Cadmium (CD)	Hexavalent Chromium (CR6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Printed Circuit Boards	X	O	O	O	O	O
Software / Documentation CDs	O	O	O	O	O	O
Mechanical brackets, Screws	O	O	O	O	O	O

X   represents that the concentration of a hazardous substance within one or more homogeneous materials of such component exists and that the substance is allowed through one or more exemptions associated with Storage and Networking products as listed within the Annex.

O   represents that no such substances are used or that the concentration is within the aforementioned limits.

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C-ROHS HS/TS Substance Concentration Chart

Information on HS/TS Substances according to Chinese Standards
In accordance with China's Administrative Measures on the Control of Pollution Caused by Electronic Information Products (EIP) # 39, also known as China RoHS, the following information is provided regarding the names and concentration levels of Toxic Substances (TS) or Hazardous Substances (HS) which may be contained in Alacritech Inc. products relative to the EIP standards set by China's Ministry of Information Industry (MII).

Name of the Component	Hazardous/Toxic Substance/Elements					
	Lead (PB)	Mercury (Hg)	Cadmium (CD)	Hexavalent Chromium (CR6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Printed Circuit Boards	X	O	O	O	O	O
Software / Documentation CDs	O	O	O	O	O	O
Mechanical brackets, Screws	O	O	O	O	O	O

X   represents that the concentration of such hazardous/toxic substance in all the units of homogeneous material of such component is higher than the SJ/Txxx-2006 Requirements for Concentration Limits.

O   represents that no such substances are used or that the concentration is within the aforementioned limits.

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C-ROHS 有害(HS)／有毒 (TS) 物質濃度圖表

根據中國標準的有害 (HS)／有毒 (TS) 物質相關資訊

根據中國《電子資訊產品 (EIP) 污染控制管理辦法》第 39 號，（也稱為中國RoHS）的
規定，以下提供了 Alacritech Inc. 產品中可能包含之有毒物質 (TS) 和有害物質 (HS)
的名稱和濃度等相關資訊，參照標準為中國資訊產業部 (MII) 規定的 EIP 標準。

成分名稱	有害／有毒物質／元素					
	鉛 **(PB)**	汞 **(Hg)**	鎘 **(CD)**	六價鉻(CR 6+)	多溴聯苯 **(PBB)**	多溴聯苯醚(PB DE)
印刷電路板	X	O	O	O	O	O
軟體/文件 CD	O	O	O	O	O	O
機械托架、螺釘	O	O	O	O	O	O

X   代表在此類成分中，所有均質材料單位所含的此類有害／有毒物質的濃度均高於
SJ/Txxx-2006 的
濃度限制要求。

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