PXI-3710/PXI-3710F

3U PXI Pentium-III System Controller

User's Manual



Recycled Paper

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

©Copyright 2004 ADLINK Technology Inc.

All Rights Reserved.

Manual Rev. 1.10: January 19, 2004

Part No. 50-17001-101

The information in this document is subject to change without prior notice in order to improve reliability, design, and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

Trademarks

PXI is registered trademarks of PXI Systems Alliance. Other product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

LRi Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Getting Service from ADLINK

Customer Satisfaction is top priority for ADLINK TECHNOLOGY INC. If you need any help or service, please contact us.

ADLINK TECHNOLOGY INC.			
Web Site	http://www.adlinktech.com		
Sales & Service	Service@adlinktech.com		
TEL	+886-2-82265877	FAX	+886-2-82265717
Address	9F, No. 166, Jian Yi Road, Chungho City, Taipei, 235 Taiwan		

Please email or FAX your detailed information for prompt, satisfactory, and consistent service.

Detailed Company Information			
Company/Organization			
Contact Person			
E-mail Address			
Address			
Country			
TEL		FAX	
Web Site			
Questions			
Product Model			
Environment	OS: Computer Brand: M/B: CPU: Chipset: BIOS: Video Card: NIC: Other:		
Detail Description			
Suggestions for ADLINK			

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Table of Contents

List of Tables ..... **iii**

List of Figures ..... **iii**

How to Use This Guide ..... **iv**

Chapter 1 Introduction **5**

1.1 Unpacking Checklist 6
1.2 Features 7
1.2.1 PXI-3710/3710F Features 7
1.3 Functional Block Diagram 8
1.3.1 PXI Bus Interface 8
1.3.2 CPU Support 9
1.3.3 Memory Support 9
1.3.4 Ethernet Interfaces 9
1.3.5 Graphic Interfaces 9
1.3.6 IDE Interfaces 10
1.3.7 Universal Serial Bus (USB) 10
1.3.8 Hot-swappable CF Interface 10
1.3.9 Floppy Disk Drive 11
1.3.10 Serial I/O 11
1.3.11 IEEE-1284 Parallel Port/Printer Interface 11
1.3.12 Power Ramp Circuitry 11
1.3.13 Watchdog Timer 11
1.4 Specifications 13
1.5 Peripheral Connectivity 16

Chapter 2 Jumpers and Connectors **17**

2.1 PXI-3710/3710F Board Outline and Illustratoin 18
2.1.1 PXI-3710/3710F Front View 18
2.1.2 PXI-3710 Right Hand Side View 18
2.1.3 DB-3710L2 Daughter Board 19
2.1.4 DB-3710L3 Daughter Board 19
2.2 PXI-3710/3710F Connector Pin Assignments 20
2.2.1 VGA Connector 20
2.2.2 USB Connectors 20
2.2.3 Ethernet (RJ-45) Connector 20
2.2.4 Parallel Port Connector 21
2.2.5 PS/2 Mouse/Keyboard Connector 21
2.2.6 COM1 Serial Ports (RS-232/422/485) 22
2.2.7 CPU Fan Power Connector 22
2.2.8 Power Output Connector 22
2.2.9 PXI Connector P1/J1 23

LRi Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.10 PXI Connector P2/J2 24
2.3 PXI-3710/3710F Jumpers Setting 25
2.3.1 Clear CMOS 25
2.3.2 CF1 Master Slave Selection 26
2.3.3 COM1 Operation Mode Selection 26
Chapter 3 Getting Started 27
3.1 CPU Installation 27
3.2 Memory Installation 27
3.3 HDD and CF Installation 28
3.3.1 HDD Installation 28
3.3.2 CompactFlash Installation 28
3.3 BIOS Configuration Overview 29
3.4 Operating System Installation 30
Chapter 4 Driver Installation 31
4.1 Hardware Configuration File Installation 31
4.1 VGA Drivers Installation 33
4.2 LAN Driver Installation 33
4.2.1 Software and Driver Support 33
4.2.2 LAN Driver Installation on Windows 2000/XP 34
4.2.3 LAN Driver Installation on Windows 98 35
4.2.4 LAN Driver Installation on Windows NT 36
Chapter 5 Utilities 37
5.1 Watchdog Timer Overview 37
5.1.1 Using the Watchdog in an Application 38
5.2 Intel Preboot Execution Environment (PXE) 39
5.3 PICMG 2.1 Hot Swap Support 40
Warranty Policy 41

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

List of Tables

Table 1: Peripheral Connectivity Table 16
Table 2: VGA Connector Pin Assignment 20
Table 3: USB Connector Pin Assignment 20
Table 4: Ethernet Connector Pin Assignment 20
Table 5: LED Indicators Definition on the Ethernet Connector 20
Table 6: Parallel Port Pin Assignment 21
Table 7: PS/2 Mouse Pin Assignment 21
Table 8: PS/2 Keyboard Pin Assignment 21
Table 9: COM1 Serial Port Pin Assignment 22
Table 10: CPU Fan Power Connector Pin Assignment 22
Table 11: Power Output Connector Pin Assignment 22
Table 12: J1 Pin Assignments 23
Table 13: J2 Pin Assignments 24
Table 14: Jumpers Definition on the PXI-3710 25
Table 15: Clear CMOS RTC RAM 25
Table 16: CF1 Master/Slave Jumper 26
Table 17: COM1 Operation Mode 26

List of Figures

Figure 1: Block Diagram of PXI-3710/3710F 8
Figure 2: PXI-3710/3710F Front View 18
Figure 3: PXI-3710 right hand side view 18
Figure 4: DB-3710L2 Daughter Board 19
Figure 5: DB-3710L3 Daughter Board 19
Figure 6: Watchdog Timer Architecture 37

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

How to Use This Guide

This user's guide is intended to assist users to configure the PXI-3710/3710F 3U PXI system controller. It is divided into 5 chapters:

Chapter 1 **Introduction**
Overview of product features, applications, and specifications.

Chapter 2 **Jumpers and Connectors**
Outlines all connectors and provides pin definitions.

Chapter 3 **Getting Started**
Provides a summary to setup an operating system using the PXI-3710/3710F, including hardware installation and BIOS overview.

Chapter 4 **Driver Installation**
Provides step-by-step instructions of how to install software drivers.

Chapter 5 **Utilities**
Explains the operation of the watchdog timer and PXE booting.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1

Introduction

The PXI-3710 series is the next generation 3U PXI controllers of the ADLINK PXI product line. This product is designed to meet the highest performance requirement for embedded computing. The PXI-3710 controller complies with PXI specifications Rev. 2.0 and features many new technologies such as up to 1.4GHz Pentium III CPU support, hot swappable CompactFlash cards. PXI-3710's extraordinary reliability and high performance provides a cost-effective choice for test and measurement applications.

By using an Intel Embedded Socket-370 Pentium III CPU and Intel 815E chipset, the PXI-3710 provides both long life and excellent driver support to meet the needs of the majority industrial applications. The PXI-3710's architecture supports the following operating systems: Windows NT, Windows 2000/XP, Linux, and VxWorks. With its rugged, industrial package, the PXI-3710 is ideally deployed in harsh environments.

This chapter gives an overview of the PXI-3710/3710F system controller, and covers the following topics:

- Unpacking Checklist
- Features
- Functional block diagram
- Specifications
- Peripheral Connectivity

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.1 Unpacking Checklist

Check the shipping carton for any visible damage. If the shipping carton and contents are damaged, notify the dealer for a replacement. Retain the shipping carton and packing materials for inspection by the dealer. Remember to obtain authorization before returning any products to ADLINK.

Check for the following in the package. If there are any missing items, contact your dealer:

- PXI-3710/3710F module (May be equipped with CPU, RAM and HDD at different speeds and capacities).
- This User's Manual
- ADLINK All-In-One CD
- 4-pin Power Cable
- IDE cover

Note: The package of the PXI-3710 OEM version (non-standard configuration, functionality, or package) may vary according to the different configuration requests



CAUTION: This board must be protected from static discharge and physical shock. Never remove any of the socketed parts except at a static-free workstation. Use the anti-static bag shipped with the product to handle the board. Wear a wrist strap grounded through one of the system's ESD Ground jacks when servicing system components.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.2 Features

1.2.1 PXI-3710/3710F Features

- Standard 3U PXI form factor
- PICMG 2.0 CompactPCI specification R3.0 compliant
- PXI specifications Rev. 2.0 (PICMG 2.8) compliant
- PICMG 2.1 R1.0 CompactPCI Hot Swap specification compliant
- Socket-370 Pentium III, Celeron, or VIA C3 CPU, FSB 100/133, CPU frequency up to 1.4GHz
- Two 144-pin SO-DIMM sockets supporting up to 512MB RAM
- One internal 44-pin EIDE for 2.5-inch hard disk, and one 40-pin EIDE connector on the front panel for HDD or optical storage device connection
- Two CompactFlash interfaces:
  - Internal CF1 uses the bootable IDE, and could be a hard disk replacement
  - The CF2 on the front panel is hot swappable, and could be a floppy disk drive replacement for higher capacity mobile storage media
- VGA output supports resolution up to 1600x1200. One 10/100Mb Ethernet port, two USB R1.1 ports, one serial port, and one parallel port are available on the front panel. The serial port COM1 is jumper selectable for RS-232/422/485 (With RS-485+ Auto-Direction Control).
- Programmable watchdog timer and hardware monitoring
- Built-in 2.5 inches low profile HDD, easy to install
- Supports 7 bus-master peripherals
- Optional floppy disk drive (PXI-3710F)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.3 Functional Block Diagram

The following topics overview the PXI-3710 main features as shown in the functional block diagram below.

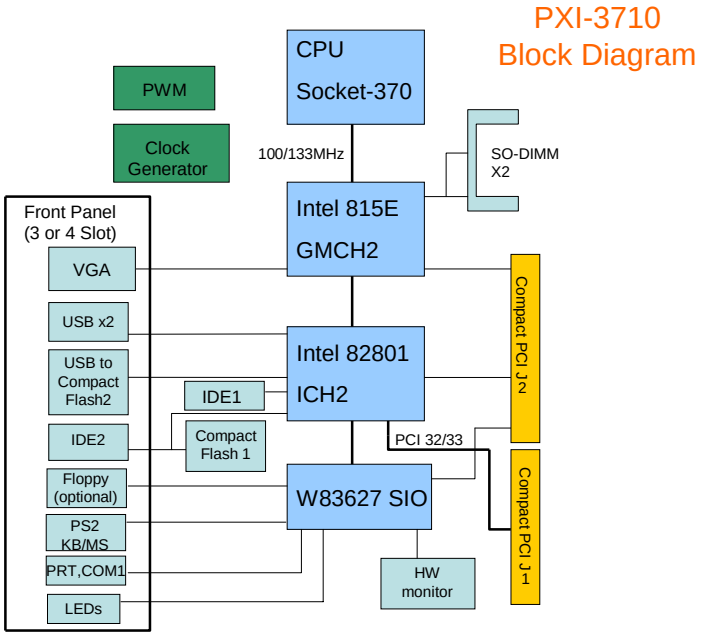


Figure 1: Block Diagram of PXI-3710/3710F

1.3.1 PXI Bus Interface

The system controller PXI-3710/3710F follows the PICMG 2.8 Instrumentation Extensions to CompactPCI specifications, otherwise known as the PXI specifications for measurement and automation applications. PXI specifications dedicate the leftmost slot of the PXI chassis to the system controller. PXI is electrically compatible with the PCI local bus standard, and provides enhanced instrumentation signals for synchronization or communication between peripherals. Based on the mechanical design of CompactPCI systems, PXI systems can work in harsh, shocking, and high temperature environments.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

The PXI-3710/3710F utilizes a 32-bit/33MHz PCI bus. The PXI-3710/3710F can be used in ADLINK PXI chassis, including:

- PXIS-2506, 6-slot 3U PXI instrument chassis
- PXIS-2630 series, 8-slot 3U PXI instrument chassis
- PXIS-2700, 18-slot 3U PXI instrument chassis.

NOTE: the PXI-3710F (with FDD) occupies 4 slots and can not be used in PXIS-2506 chassis.

Moreover, when used in a Hot Swap compliant backplane and in accordance to the *CompactPCI Hot Swap Specification, PICMG 2.1 R1.0,* the PXI-3710 system controller supports hot swappable peripherals in a powered system.

1.3.2 CPU Support

The PXI-3710/3710F CPU module supports an Intel Socket 370 FC-PGA Pentium III, Celeron, or VIA C3 CPU with an auto-selected front side bus (FSB) at 100 or 133MHz. The standard package of the PXI-3710/3710F uses the Pentium III 1.26GHz CPU and can be upgraded to 1.4GHz. ADLINK's factory can pre-mount the CPU for OEM projects. Please contact an ADLINK sales representative for available CPU configurations.

Because the heat dissipation of CPU varieties and the cooling capability of each chassis design are different, users need to evaluate PXI-3710/3710F from the system design point of view. It is possible to run the PXI-3710/3710F without a CPU fan, with limited types of CPUs, a special-designed heat sink, and a certified chassis cooling system.

1.3.3 Memory Support

The PXI-3710/3710F supports two 144-pin SO-DIMM sockets and up to a maximum total memory size of 512MB. The memory type must be 3.3V SDRAM and can come in sizes of 32MB, 64MB, 128MB, 256MB, or 512MB. The standard PXI-3710/3710F package uses 128MB SDRAM. ADLINK's factory can pre-mount memory for OEM projects. Please contact an ADLINK sales representative for available memory configurations.

1.3.4 Ethernet Interfaces

The PXI-3710/3710F provides one 10/100Base-Tx Ethernet channel through the Intel 82562EM Fast Ethernet Controller. The 82562EM consists of both the Media Access Controller (MAC) and the physical layer (PHY) interface in a single component. A RJ-45 connector is available on the faceplate.

1.3.5 Graphic Interfaces

The Intel 815E GMCH2 chip is integrated with an AGP 2X, ACPI and VESA compliant hyper-pipelined architecture 3D graphics engine. It shares up to 10MB, dynamically allocated from the host memory. Graphic resolutions can

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

be up to 1600x1200 for both VGA and on-chip digital video output (DVO) interfaces.

1.3.6 IDE Interfaces

PXI-3710/3710F supports both Primary IDE (PIDE) and secondary IDE interfaces. The primary IDE is connected to one 44-pin on-board connector. The secondary IDE is connected to the internal CompactFlash socket and one 40-pin IDE connector on the front panel. Both IDE interfaces support up to ATA100 interface.

Internal 44-pin IDE Interfaces

The 44-pin IDE connector is on the top-side of the PXI-3710. A 2.5-inch low profile 20GB HDD is mounted on the PXI-3710/3710F as the standard configuration. Contact an ADLINK representative for available 2.5-inch drive options. For OEM customers, a Flash Disk may be used for harsh environment applications.

Internal CompactFlash Socket

An internal CompactFlash socket is available on the PXI-3710/3710F. It is connected to the secondary IDE interface, which is also bootable. With the solid state CF card, PXI-3710/3710F can work in high-vibration environments.

IDE Interface on the Front Panel

A 40-pin IDE connector on the front panel is designed for users' convenience to connect an external CD-ROM drive or other optical storage device. Only one device can be connected with the IDE interface. In addition to the 40-pin IDE connector, a 4-pin power connector for external drives is also available. This feature makes OS or software installation easier than ever by simply connecting an IDE interface to the external IDE device.

1.3.7 Universal Serial Bus (USB)

The Universal Serial Bus (USB) R1.1 provides a common interface to low-speed peripherals such as keyboard, mouse, speakers, printer, etc., simplifying cabling needs. Data throughput is up to 12Mb/s. The USB ports also provide +5V power at 0.5A to the peripherals.

There are three USB ports on the PXI-3710/3710F. Both USB-1 and USB-2 are accessible on the front faceplate and the USB-3 is designed to support the CompactFlash interface on the front panel, which is the hot swappable.

1.3.8 Hot-swappable CF Interface

An external CompactFlash socket is available on the PXI-3710/3710F front panel. The external CompactFlash interface provides Plug and Play features that are also hot swappable. Therefore, a CompactFlash card can be used as a replacement for floppy disks and can also provide very large storage capability (up to 512MB or more). It is also possible to set this CF interface as

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

a boot device by selecting boot on USB in the BIOS menu. Note that drivers are needed for the external CompactFlash interface. Refer to section 3.3.2 for installation details.

1.3.9 Floppy Disk Drive

The PXI-3710, by default, does ***NOT*** come equipped with a Floppy Disk Drive. For most of the applications, the hot-swappable CF card can replace the functionality of a FDD. However, ADLINK still provides the FDD option on the model PXI-3710F, which occupies the 4 slot (16HP) spaces.

1.3.10 Serial I/O

The PXI-3710/3710F provides support for one 16C550 UARTS serial port. COM1 is accessible from the front faceplate through a DB-9 connector. COM1 is jumper-selectable to support a RS422/485 interface. The RS-485 mode supports auto direction control which can automatically sense the direction of data flow and switch the transmission direction accordingly. This feature will make half duplex RS-485 control under a multitasking OS (e.g. Windows) to be the same as the full duplex RS-232.

1.3.11 IEEE-1284 Parallel Port/Printer Interface

The parallel I/O interface signals are routed to the DB-25 connector on the front faceplate. This port supports the full IEEE-1284 specification and provides a basic printer interface. The BIOS will initialize the parallel port as LPT1 with an ISA I/O base address of 378h. This default configuration also assigns the parallel port to IRQ7. The printer interface mode (Normal, Extended, EPP, or ECP) is selectable through the BIOS menu.

1.3.12 Power Ramp Circuitry

The PXI-3710/3710F features a power controller with power ramp circuitry to allow the board's voltages to be ramped in a controlled manner. The power ramp circuitry eliminates any large voltage or current spikes caused by hot swapping boards. This controlled ramping is a requirement of the *CompactPCI Hot Swap specification, PICMG 2.1, Version 1.0*. The PXI-3710's power controller unconditionally resets the board when it detects that the 3.3V, 5V, and 12V supplies are below an acceptable operating limit: 3.0V (3.3V supply), 4.75V (5V supply), and 10.0V (+12V supply).

1.3.13 Watchdog Timer

The watchdog timer optionally monitors system operation and can be programmed for different timeout periods (from 1 to 255 seconds or 1 to 255 minutes). It is a two-stage watchdog, meaning that it can be enabled to produce a non-maskable interrupt (NMI) or a "CPU init" before it generates a reset. Failure to strobe the watchdog timer within the programmed time period may result in an NMI, a reset request, or both. A register bit can be enabled to indicate if the watchdog timer caused the reset event. This

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

watchdog timer register is cleared on power-up, enabling system software to take appropriate action if the watchdog generates the reboot. See Section 5.1, "Watchdog Timer Overview," for more information, including sample code.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.4 Specifications

General PXI/CompactPCI Features

- PICMG 2.0 CompactPCI specifications R3.0 compliant
- PXI specifications Rev. 2.0 (PICMG 2.8) compliant
- PICMG 2.1 R1.0 CompactPCI Hot Swap specifications compliant

CPU

- Supports Socket370 CPUs up to 1.4GHz, including: Intel socket370 Pentium III, Celeron, and VIA C3 CPU
- Front side bus (FSB) frequency: 100/133 MHz

Chipset

- Intel 815E chipset (in Intel Embedded Roadmap)

VGA

- 3D graphics visual enhancement
- 24-bit 230 MHz RAMDAC
- Up to 1600x1200 resolution (256 colors at 85Hz refresh rate)

BIOS

- Award PnP BIOS advanced by ADLINK
- Write protection and anti-virus capabilities
- DMI BIOS Support
- Supports Intel pre-boot execution environment (PXE)
- Optional remote console, upon OEM request
- Optional customized power-on screen, upon OEM request

Host Memory

- Two 144-pin SO-DIMM sockets, supporting maximum 512MB un-buffered SDRAM module

IDE Ports

- Primary IDE bus: one 44-pin ATA-100 EIDE interface on board to support one slim type EIDE hard disk drive.
- Secondary IDE bus: provides one 50-pin CompactFlash type II connector (CF1: jumper-selectable as master or slave) and one 40-pin ATA-100 IDE connector on the front panel

USB Interface

- Three USB ports, Specification Rev. 1.1 compliant
- USB-1, 2 on front panel.
- Over-current protection, with polyswitch reset-able fuse @ 500mA

On-board Ethernet

- One RJ-45 Ethernet port on the front panel.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- LAN controller integrated in ICH2 and Intel 82562EM PHY.
- IEEE 802.3 10Base-T/100Base-TX compatible
- Supports Intel pre-boot execution environment (PXE) for remote booting in Windows NT/2000

On Board Supper I/O

- **Chip:** Winbond W83627HF
- **LPT:** one high-speed bi-directional SPP/EPP/ECP parallel port,
- **FDD:** one high density FDD connector
- **COM Port:**
  - One 16C550 UARTs compatible COM port
  - COM1 available on front faceplate, RS-232/422/485 jumper selectable (With RS-485+ Auto-Direction Technology)
  - ESD protection to 2kV
- **Keyboard and Mouse interface:** one PS2 keyboard connector and one PS2 mouse connector
- **Watchdog Timer:**
  - Programmable intervals: 1-255 seconds or 1-255 minutes.
  - The watchdog timer time out will generate an interrupt to NMI or RESET, selectable in BIOS menu.
- **Hardware Monitoring:** Winbond W83627HF, monitors CPU temperature, system temperature and DC Voltages

Flash Disk Support Options

- User can select the 2.5 inches Flash disk options.
- Supports two CompactFlash type II sockets. CF1 socket is based on internal secondary IDE interface. CF2 socket is hot swappable interface on the front panel

LED

- System active LED: Green LED will light after POST, and turns dark when system power-off.
- IDE LED: Yellow LED flashes when accessing IDE ports.
- WDT LED: Red LED is dark when power on. After enabling the WDT via software, the LED will flash. When WDT timeout occurs, the LED will stay on.
- General purpose LED: This is a programmable BLUE LED.

Form factor

- PXI-3710: Standard 3U PXI/CompactPCI, 12HP wide (3-slot)
- PXI-3710F: Standard 3U PXI/CompactPCI, 16HP wide (4-slot)

Environment

- Operating ambient temperature: 0 to 55°C
- Storage temperature: -20 to 80°C

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Humidity**:** 5 to 95% noncondensing
- Shock**:** 15G peak-to-peak, 11ms duration, non-operation
- Vibration:
  - Non-operation: 1.88Grms, 5-500Hz
  - Operation: 0.5Grms, 5-500Hz

Certifications

- CE, FCC
- HALT (temperature and vibration stress)

Power Consumption

Configurations	*+5V*	*+3.3V*	*+12V*	*-12V*
Pentium-III 1.4G	*7A*	*3.5A*	*560mA*	*10mA*
Celeron 600	*4.2A*	*3.5A*	*560mA*	*10mA*

Note: The above power requirement values are measured on the PXI-3710 with a CPU, a CPU fan, 512MB RAM, one mouse, one keyboard, one internal 20GB slim-type HDD and one external 20GB HDD. The CPU is running under 100% loading. The power consumption will decrease 500mA for +5V and 300mA for +12V, if the external HDD is removed, and the power consumption for all the other peripheral devices such as add-on cards are not included.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.5 Peripheral Connectivity

Connectors	PXI-3710 Front Faceplate	PXI-3710 On-board
VGA	DB-15	---
10/100Mb Ethernet	RJ-45	---
Serial Port (COM1)	DB-9	---
Parallel Port	DB-25	---
Keyboard	PS/2	---
Mouse	PS/2	---
Floppy	Only on PXI-3710F	---
Primary IDE	---	44-pin
Secondary IDE	40-pin	---
CompactFlash on IDE	---	CF
Hot swappable CompactFlash	CF	---
USB 1,2	Y,	---
USB 3	---	---
LEDs	Y	---
Reset button	Y	---

Peripheral Connectivity Table

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2

Jumpers and Connectors

This chapter provides information about the board outline, connector definitions, and jumper settings to allow users to get familiar with the PXI-3710 before getting started. This chapter includes the following information:

- PXI-3710 Board Outline and Illustration
- PXI-3710 Connector Pin Assignments
- PXI-3710 Jumper Settings

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.1 PXI-3710/3710F Board Outline and Illustratoin

2.1.1 PXI-3710/3710F Front View

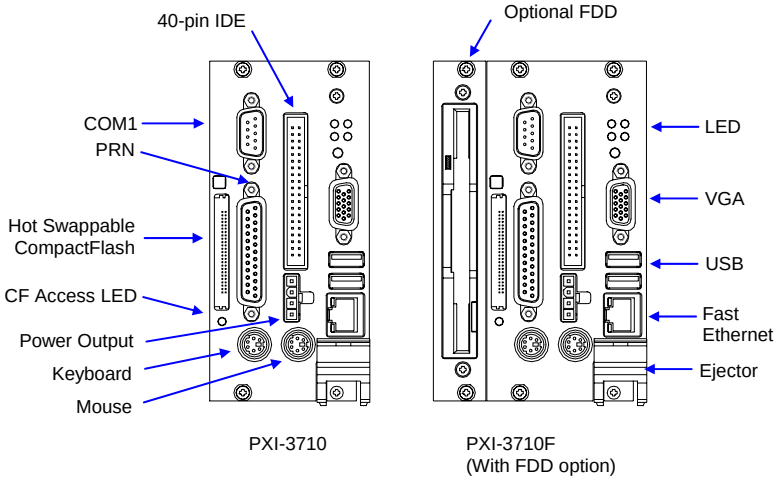


Figure 2: PXI-3710/3710F Front View

2.1.2 PXI-3710 Right Hand Side View

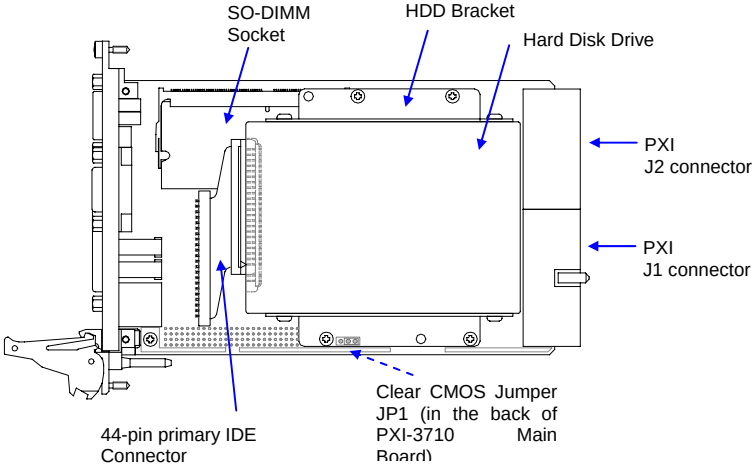


Figure 3: PXI-3710 right hand side view

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.1.3 DB-3710L2 Daughter Board

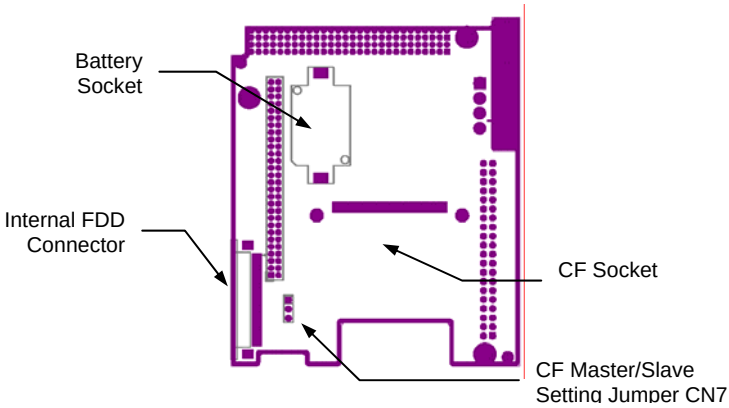


Figure 4: DB-3710L2 Daughter Board

2.1.4 DB-3710L3 Daughter Board

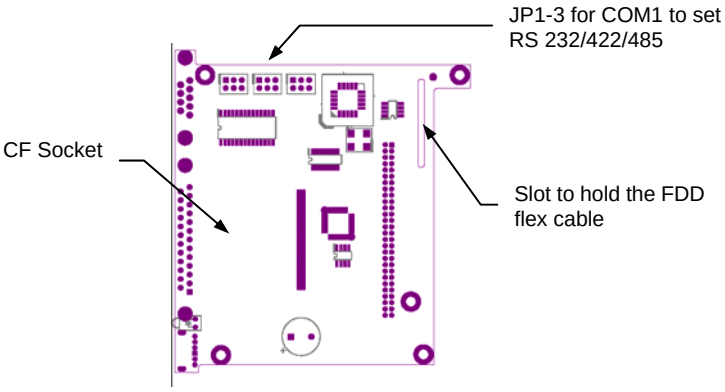
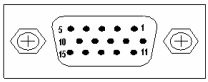


Figure 5: DB-3710L3 Daughter Board

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2 PXI-3710/3710F Connector Pin Assignments

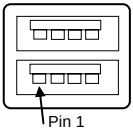
2.2.1 VGA Connector



Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

VGA Connector Pin Assignment

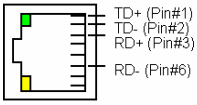
2.2.2 USB Connectors



Pin #	Signal Name
1	Vcc
2	USB-
3	USB+
4	Ground

USB Connector Pin Assignment

2.2.3 Ethernet (RJ-45) Connector



Pin	Signal	Function
1	TDP	Transmit Data (+)
2	TDN	Transmit Data (-)
3	RDP	Receive Data (+)
4	LANCT1	Termination
5	LANCT2	Termination
6	RDN	Receive Data (-)
7	NC	No Connect
8	GND	Ground

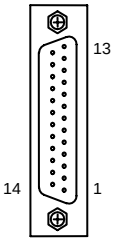
Ethernet Connector Pin Assignment

LED	Color	Status	Description
Link Speed LED	Amber	OFF	10Mbps transfer rate
		ON	100Mbps transfer rate
Link / Activity LED	Green	OFF	No link
		ON	Connecting
		Blinking	Active/Data transferring

LED Indicators Definition on the Ethernet Connector

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.4 Parallel Port Connector

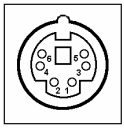


Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

Parallel Port Pin Assignment

2.2.5 PS/2 Mouse/Keyboard Connector

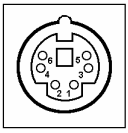
Mouse Connector



Pin #	Signal Name
1	Mouse data
2	N.C.
3	GND
4	5V
5	Mouse Clock
6	N.C.

PS/2 Mouse Pin Assignment

Keyboard Connector



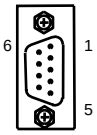
Pin #	Signal Name
1	Keyboard data
2	N.C.
3	GND
4	5V
5	Keyboard clock
6	N.C.

PS/2 Keyboard Pin Assignment

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.6 COM1 Serial Ports (RS-232/422/485)

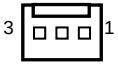
The PXI-3710/3710F COM1 serial port can be configured as RS232, RS422 or RS485 by setting the appropriate jumpers. Refer to section 2.3.3.



Pin #	RS-232	RS-422	RS-485
1	DCD, Data carrier detect	TX-	DATA-
2	RXD, Receive data	TX+	DATA+
3	TXD, Transmit data	RX+	NC
4	DTR, Data terminal ready	RX-	NC
5	GND, ground	GND	GND
6	DSR, Data set ready	NC	NC
7	RTS, Request to send	NC	NC
8	CTS, Clear to send	NC	NC
9	RI, Ring indicator	NC	NC

COM1 Serial Port Pin Assignment

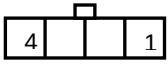
2.2.7 CPU Fan Power Connector



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation

CPU Fan Power Connector Pin Assignment

2.2.8 Power Output Connector



Pin #	Signal Name
P1	+5V
P2	GND
P3	GND
P4	+12V

Power Output Connector Pin Assignment

Note: This connector is used when the external IDE device is connected. Please do not short the power lines as it may damage the PXI-3710/3710F.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.9 PXI Connector P1/J1

Pin	Z	A	B	C	D	E	F
J1-25	GND	+5V	REQ64#(1)	ENUM#(2)	+3.3V	+5V	GND
J1-24	GND	AD[1]	+5V	V(I/O)	AD[0]	ACK64#(1)	GND
J1-23	GND	+3.3V	AD[4]	AD[3]	+5V	AD[2]	GND
J1-22	GND	AD[7]	GND	+3.3V	AD[6]	AD[5]	GND
J1-21	GND	+3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
J1-20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
J1-19	GND	+3.3V	AD[15]	AD[14]	GND	AD[13]	GND
J1-18	GND	SERR#	GND	+3.3V	PAR	C/BE[1]#	GND
J1-17	GND	+3.3V	NC(3)	NC(3)	GND	PERR#	GND
J1-16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
J1-15	GND	+3.3V	FRAME#	IRDY#	GND	TRDY#	GND
J1-12~14	Key Area						
J1-11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
J1-10	GND	AD[21]	GND	+3.3V	AD[20]	AD[19]	GND
J1-9	GND	C/BE[3]#	GND	AD[23]	GND	AD[22]	GND
J1-8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
J1-7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
J1-6	GND	REQ0#	GND	+3.3V	CLK0	AD[31]	GND
J1-5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT0#	GND
J1-4	GND	NC(3)	NC(3)	V(I/O)	NC	INTS	GND
J1-3	GND	INTA#	INTB#	INTC#	+5V	INTD#	GND
J1-2	GND	TCK(1)	+5V	TMS(1)	TDO(1)	TDI(1)	GND
J1-1	GND	+5V	-12V	TRST#(1)	+12V	+5V	GND
Pin	Z	A	B	C	D	E	F

J1 Pin Assignments

Note: 1. REQ64#, ACK64# and JTAG signals are pulled high to +5V through 4.7 ohms resistors.

2. EMUN# is connected to IRQ0.

3. The SM Bus on J1 is not implemented.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.10 PXI Connector P2/J2

Pin	Z	A	B	C	D	E	F
J2-22	GND	NC	NC	NC	NC	NC	GND
J2-21	GND	CLK6	GND	NC	NC	NC	GND
J2-20	GND	CLK5	GND	NC	GND	NC	GND
J2-19	GND	GND	GND	SMB_SDA	SMB_SCL	SMB_ALERT#	GND
J2-18	GND	NC	NC	NC	GND	NC	GND
J2-17	GND	NC	GND	PRST#	REQ6#	GNT6#	GND
J2-16	GND	NC	NC	DEG#	GND	NC	GND
J2-15	GND	NC	GND	FAL#	REQ5#	GNT5#	GND
J2-14	GND	NC	NC	NC	GND	NC	GND
J2-13	GND	NC	GND	V(I/O)	NC	NC	GND
J2-12	GND	NC	NC	NC	GND	NC	GND
J2-11	GND	NC	GND	V(I/O)	NC	NC	GND
J2-10	GND	NC	NC	NC	GND	NC	GND
J2-9	GND	NC	GND	V(I/O)	NC	NC	GND
J2-8	GND	NC	NC	NC	GND	NC	GND
J2-7	GND	NC	GND	V(I/O)	NC	NC	GND
J2-6	GND	NC	NC	NC	GND	NC	GND
J2-5	GND	NC	GND	V(I/O)	NC	PAR64(1)	GND
J2-4	GND	V(I/O)	NC	NC	GND	NC	GND
J2-3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
J2-2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
J2-1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND
Pin	Z	A	B	C	D	E	F

J2 Pin Assignments

Note: 1. PAR64 signal is pulled high to +5V through 4.7 ohms resistors.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.3 PXI-3710/3710F Jumpers Setting

The PXI-3710/3710F is designed for maximum flexibility with as few jumpers as possible. Most of the configuration options can be selected through the BIOS menu. However, some options still need to be configured by jumpers.

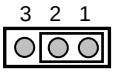
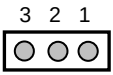
Note. There is no jumper for front side bus (FSB) or CPU frequency selection. The FSB and CPU frequency are set by auto-detection.

The PXI-3710/3710F is assembled with 3 boards including a main board and two daughter boards. Table 14 lists the functions of the jumpers on the PXI-3710/3710F. Please also refer the figures in the Section 2.1 for the location of the jumpers.

Description	Location	Name
Clear CMOS	PXI-3710/3710F Main board	JP1
CF1 Master/Slave Selection	DB-3710L2	CN7
COM1 RS232/422/RS485 Selection	DB-3710L3	JP1~3

Jumpers Definition on the PXI-3710

2.3.1 Clear CMOS

RTC status	PXI-3710 JP1
Normal operation 1-2 (Default)	
Clear CMOS 2-3	

Clear CMOS RTC RAM

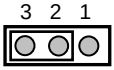
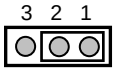
The CMOS RAM data for real time clock (RTC) contains the date/time and password information. The CMOS is powered by the button cell-battery when the system is power-off.

To erase the CMOS RAM data:

1. Unplug the PXI-3710/3710F.
2. Short pins 2 and 3 of JP1. Then reinstall the jumper back to normal location.
3. Plug the PXI-3710/3710F back to the chassis. Turn the power on.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.3.2 CF1 Master Slave Selection

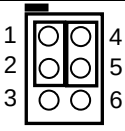
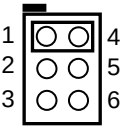
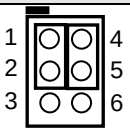
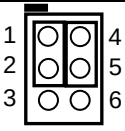
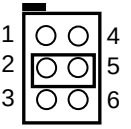
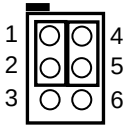
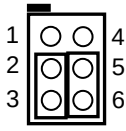
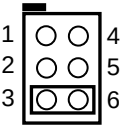
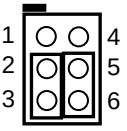
CF1 master/slave	DB-3710L2 CN7
CF1 Master 2-3 (Default)	
CF1 Slave 1-2	

CF1 Master/Slave Jumper

The CF1 Master/Slave jumper allows the selection of the CF card to be configured as either a master or slave IDE device if there is more than one storage device installed in the system.

2.3.3 COM1 Operation Mode Selection

By setting the JP1-JP3 jumpers on the DB-3710L3 daughter board, COM1 can be selected to operate under RS-232, RS-422, or RS-485 communications protocols. The default factory setting is the RS-232 mode.

Type	JP1	JP2	JP3
RS-232 (Default)			
RS-422			
RS-485			

COM1 Operation Mode

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3

Getting Started

This chapter gives a summary of what is required to setup an operating system using the PXI-3710/3710F. Hardware installation and BIOS overview are also discussed. Note that the PXI-3710/3710F is shipped with CPU, RAM and HDD preinstalled. The installations of the CPU, RAM, and HDD are done in an ADLINK factory and the procedures described in the following sections are for users' reference. If the default configuration does not fit in your application needs, contact a local ADLINK dealer for special configurations or OEM versions.

3.1 CPU Installation

The PXI-3710/3710F CPU module supports an Intel Socket 370 FC-PGA Pentium-III, Celeron, or VIA C3 CPU with a front side bus (FSB) of 100/133 MHz. ADLINK provides efficient CPU fan/cooler to guarantee system stability.

The Socket 370 uses a standard FC-PGA socket connector. To install the CPU, insert it to the socket by aligning the notch of the Socket 370 CPU with the notch of the FC-PGA socket.

Note:	Ensure that the CPU heat sink and the CPU top surface are in tight contact to avoid CPU overheating problems that can cause systems to hangs or crashing. The CPU heat sink and fan should be installed tightly together.

3.2 Memory Installation

ADLINK factory installs a standard 128 MB SDRAM in the PXI-3710/3710F. There are two 144-pin SO-DIMM sockets: DM1 and DM2. The DM1 socket is on the right-hand side of the PXI-3710/3710F. You have to disassemble the PXI-3710/3710F to install SDRAM in the DM1 or DM2 socket between the

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

PXI-3710/3710F main board and DB-3710L2 daughter board, so we recommend that users have RAM installed professionally by ADLINK.

For applications requiring the memory other than the standard 128 MB, please contact a local ADLINK dealer for details.

3.3 HDD and CF Installation

The PXI-3710/3710F is equipped with a set of slim-type HDD mounting brackets where a 2.5 inch IDE drive can be seated. A 20 GB HDD is installed by default. For applications requiring different HDDs, please contact a local ADLINK dealer for details.

You may purchase off-the-shelf 2.5" HDDs. Due to space limitations and for better ventilation consideration, a low profile 2.5" HDD that is not thicker than 9.5mm is recommended.

3.3.1 HDD Installation

To change the HDD, please follow the procedures carefully:

1. Check the master/slave setting of the 2.5" ATA HDD
2. Screw the HDD to the drive-mounting brackets. Please note the orientation of the HDD. The HDD's pin #1 must match the location of IDE connector pin #1
3. Install the HDD with the mounting bracket plate on the module of the PXI-3710/3710F
4. Use four copper stand-off screws on the HDD and tighten the HDD to the module
5. Connect the 44-pin HDD cable (44-pin) with the HDD. Check if pin #1 of the IDE connector, cable and the HDD are paired correctly

3.3.2 CompactFlash Installation

The CompactFlash Card (or called CF storage card) is widely applied on digital consumer devices like PDAs, Digital Cameras, and MP3 players. The CF has anti-shock and anti-vibration features, better environment tolerance, low power consumption, small form factor, and higher reliability. Plus, it has been also widely accepted in the industrial and embedded application field.

All models of the PXI-3710 modules have an internal CompactFlash socket as well as an external socket. For installing in the internal CompactFlash socket which can be used as HDD replacement, plug the CF card into the socket, and just pull it out if you want to remove it. Note that the internal CF interface is NOT hot swappable, and installation or removal should be done when the system power is off. The external CF interface is hot swappable so users can install or remove by examining the front panel.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.3 BIOS Configuration Overview

On the PXI-3710/3710F BIOS, ADLINK provides the following key features:

- **PCI Plug and Play support**
- **DMI BIOS Support**: Desktop Management Interface (DMI) allows users to download system hardware-level information such as CPU type, CPU speed, internal/external frequencies, and memory size.
- **Green Function**: Power management via the BIOS, activated through selectable power manager events.
- **Write protection and anti-virus capabilities**

For more detail information about the BIOS and other utilities, please refer to the BIOS Manual in the ADLINK All-In-One CD or visit the ADLINK website (www.adlinktech.com).

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.4 Operating System Installation

For more detailed information about the operating system, refer to the documentation provided by the operating system vendor.

PXI/CompactPCI devices are automatically configured by the BIOS during the boot sequence.

Most operating systems require initial installation on a hard drive from a floppy or a CD-ROM drive. These devices should be configured, installed, and tested with the supplied drivers before attempting to load the new operating system.

Read the release notes and installation documentation provided by the operating system vendor. Be sure to read all the *README* files or documents provided on the distribution disks, as these typically note documentation discrepancies or compatibility problems.

Select the appropriate boot device order in the SETUP/BIOS boot menu depending on the OS installation media used. For example, if the OS includes a bootable installation floppy, select Floppy as the first boot device and reboot the system with the installation floppy installed in the floppy drive. (Note that if the installation requires a non-bootable CD-ROM, it is necessary to boot an OS with the proper CD-ROM drivers in order to access the CD-ROM drive).

Proceed with the OS installation as directed and be sure to select appropriate device types if prompted. Refer to the appropriate hardware manuals for specific device types and compatibility modes of ADLINK PXI products.

When installation is complete, reboot the system and set the boot device order in the SETUP boot menu appropriately.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4

Driver Installation

4.1 Hardware Configuration File Installation

This section describes system requirements of the Intel 815E chipset device drivers. The drivers are designed for and tested with Windows 98/2000/XP. The system must contain a supported Intel processor and chipset configuration. Ensure that a mouse is connected to the system. One of the following versions of Windows 98/2000/XP must be installed on the system prior to running utility program.

- Windows XP Version 2002 (Original release)
- Windows 2000 5.00.2195 (Original release)
- Windows 98 Second Edition 4.10.2222 (Original Release)
- Windows 98 4.10.1998 (Original Release)

Installing Hardware Configuration File

This subsection describes how to install the hardware configuration file on a Windows 98/2000/XP system.

Note: Record the location of the Windows 98/2000 directory before installing the drivers.

Check the System Requirements. Windows 98/2000/XP must be fully installed and running on the system prior to running this software.

Close any running applications.

The files are stored in an integrated Windows 98/2000/XP application setup program.

Insert the ADLINK All-In-One CD, run `SETUP.EXE` at `X:\PXI_Platform\PXI Controller\PXI-3710_3710F\Chipset\I815\Win9x2k\Disk1` (where X is the CD-ROM drive).

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Click 'Next' on Welcome Screen to read and agree to the license agreement. Click ***Yes*** if you agree to continue. NOTE: If you click ***No***, the program will terminate.

Click ***'Finish***' to restart the system when prompted to do so.

Follow the screen instructions and use default settings to complete the setup when Windows is restarted. After restarting, Windows will display that it has found various new hardware and installs drivers for each one. If one **New Hardware Found** dialog box is displayed requesting the location of the drivers, use the mouse to click on the scrollbar and select the Windows directory.

Select ***Yes***, when prompted to restart Windows.

To install the Windows drivers for the PXI-3710/3710F system controller, refer to the installation information in this chapter. For installation information for non-Windows operating systems, please contact an ADLINK service center. The Windows drivers are located in the following directories of the ADLINK CD:

Chipset driver	\PXI_Platform\PXI Controller\ PXI-3710_3710F\Chipset\I815
VGA/AGP driver	\PXI_Platform\PXI Controller\ PXI-3710_3710F\815E VGA Driver
LAN driver	\PXI_Platform\PXI Controller\ PXI-3710_3710F\LAN\100PDISK
Watchdog library	\PXI_Platform\PXI Controller\ PXI-3710_3710F\WDT

The Bus-mastering IDE drivers are automatically installed by Windows.

Since Windows NT is not a Plug and Play OS, here are some useful tips for installing Windows NT drivers:

1. Install the LAN driver before installing any service pack.
2. Install the VGA/AGP driver after installing the service pack. Make sure the service pack supports AGP. Service pack 6 or higher is recommended.
3. If Windows NT boots with a warning message, check the Event Viewer to view the source generating the warning message. If it can't be solved, reinstall the Windows NT service pack, then install the drivers in a different sequence.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.1 VGA Drivers Installation

This section describes the VGA driver installation for the on-board VGA controller *Intel 815E GMCH2*. The relative drivers are located in *X:\PXI_Platform\PXI Controller\PXI-3710_3710F\815E* VGA Driver of the ADLINK All-In-One CD, where X: is the drive letter of the CD-ROM drive. The VGA drivers for Windows 98/ME, Windows NT, and Windows 2000/XP are included.

Windows 98/2000/NT/XP may try to install the standard VGA driver. To ensure compatibility, manually install the latest driver, which is included in the ADLINK All-In-One CD. To update to the new driver, follow these procedures:

1. Boot Windows and execute the setup program under this directory: *X:\PXI_Platform\PXI controller\PXI-3710_3710F\815E VGA Driver*
2. The VGA driver will automatically be installed to the system.
3. Restart the system.

Note:	After installing the VGA/AGP drivers in Windows NT system, you may find the drivers do not work correctly. This may be caused by not installing the Windows NT service pack beforehand. Make sure to install Windows NT service pack 6 or higher version to enable AGP capability.

4.2 LAN Driver Installation

This section describes the LAN driver installation procedures for the on-board *Intel 82562EM* Ethernet controller. The *Intel 82562EM* is a 32-bit 10/100 Mbps Ethernet controller for PCI local bus-compliant computers. It supports bus mastering architecture and Auto-negotiation features which make it possible to combine a common Ethernet cable (RJ-45 connector with twisted-pair cabling) for use with both 10Mbps and 100Mbps connections.

The relative drivers are located in the ADLINK All-In-One CD directory: *X: \PXI_Platform\PXI Controller\ PXI-3710_3710F\LAN\100PDISK*, where X: is the letter of the CD-ROM drive.

4.2.1 Software and Driver Support

The drivers support the following operating systems or platforms:

- Windows 98, Windows 2000, Windows NT, and Windows XP

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Novell Netware, DOS Setup for Novell NetWare DOS

All the above drivers are included in the ADLINK All-In-One CD. In the following section, driver installation for Windows 2000/XP, Windows 98 and Windows NT are outlined. For driver installation of non-Windows Operating Systems, refer to the readme file in the following path location.

X:\PXI_Platform\PXI Controller\PXI-3710_3710F\LAN\100PDisk

4.2.2 LAN Driver Installation on Windows 2000/XP

Windows 2000/XP will attempt to install a LAN driver automatically. To guarantee compatibility, manually install the latest LAN drivers, which are stored on the ADLINK CD. After installing Windows 2000/XP, update to the new drivers by following these procedures:

1. Boot Windows 2000/XP, Click ***Start***. Select ***Settings*** then double-click the ***Control Panel*** option.
2. Double-click the ***System*** icon, click the ***Hardware*** tab, and then click the ***Device Manager*** button.
3. Double-click the *Network Adapters* entry and selectthe *Intel 82562EM - based PCI Ethernet Adapter (10/100)*.
4. Click the ***Driver*** tab, then click the ***Update Driver…*** button.
5. An *Upgrade Device Driver Wizard* window will appear, click ***Next>***.
6. Select ***Display a list of ...*** and click ***Next>***. The next window shows a list of hardware models.
7. Insert the CD and click ***Have Disk***.
8. Browse the Intel 82562 driver in the following path location: ***X:\PXI_Platform\PXI Controller\PXI-3710_3710F\LAN\100PDisk***, highlight **oemsetup.inf**, click ***Open***, and then click ***OK***.
9. Highlight the model: ***Intel 8255x- based PCI Ethernet Adapter (10/100),*** then click ***Next>***. An *Update Driver Warning* window may pop up, click on ***Yes*** to continue.
10. A summary window appears, click ***Next>***, click the ***Finish*** button, and then ***CLOSE*** to finish the installation.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.2.3 LAN Driver Installation on Windows 98

Windows 98 will attempt to install a LAN driver automatically. To guarantee compatibility, manually install the latest LAN driver, which is stored in the ADLINK All-In-One CD. After installing Windows 98, update to the new driver by following these procedures:

1. Boot Windows 98, Click ***Start***. Select ***Settings*** then double-click the ***Control Panel*** option.
2. Double-click on the ***System*** icon, and then click on the ***Device Manager*** tab.
3. Double-click on the ***Network Adapters*** entry, select the ***Intel 8255x-based PCI Ethernet Adapter (10/100)*** entry. Then click the ***Properties*** button.
4. Click on the ***Driver*** button, then click the ***Update Driver…*** button.
5. ***Update Device Driver Wizard*** starts, click **Next.**
6. Select ***Display a list of ...*** and click ***Next***. Insert the CD and click ***Have Disk***.
7. Browse the Intel 82559 driver in the following path location: **`X:\PXI_Platform\PXI Controller\ PXI-3710_3710F\LAN\100PDisk`**, and click ***OK***. The *Update Wizard* displays the message that it has found the driver. Click ***OK*** again to update the driver. Note: Windows 98 may ask for the original Windows 98 CD to install the LAN protocols.
8. Click the ***Next*** button, a summary window appears.
9. Click the ***Finish*** button, and then restart the computer to active the new driver.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.2.4 LAN Driver Installation on Windows NT

Windows NT may ask to install a LAN driver from its own library of drivers. We recommend you to manually update the LAN driver, located on the ADLINK All-In-One CD, to guarantee compatibility. After installing Windows NT, please update the drivers by the following procedures:

1. From the ***Control Pane***l, double-click the ***Network*** icon, a Network Configuration window pop up, click ***Yes***.
2. In Network Setup Wizard, click ***Next***>, click ***Select From List…*** button.
3. Insert the ADLINK CD and click **Have Disk**.
4. In the dialog box of Insert Disk window, type ***X:*****\PXI_Platform\PXI Controller\PXI-3710_3710F\LAN\100PDisk**, Click ***OK***.
5. *Select OEM Option* window pops up, click ***OK***, and then click ***Next***>.
6. Select the necessary Network Protocols, click ***Next***>.
7. Select the necessary Network Services, click ***Next***>.
8. Click ***Next>*** until the *Windows NT Setup* dialog box pops up. Type ***X:\i386*** in the dialog box, then insert the original Windows NT CD, and click ***Continue***.
9. Then click ***OK*** until the setup completed.
10. Reboot the computer.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5

Utilities

This chapter explains extended functions of the PXI-3710/3710F controller, including watchdog timer, Intel Pre-boot Execution Environment (PXE), and hot swap introduction.

5.1 Watchdog Timer Overview

The primary function of the watchdog timer is to monitor the PXI-3710's operation and take corrective action if the software fails to function as programmed. The major features of the watchdog timer are:

- Two-stage
- Enabled and disabled through software control
- Armed and strobed through software control

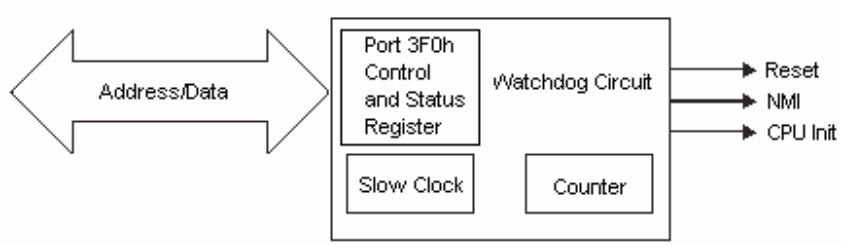


Figure 6: Watchdog Timer Architecture

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

The PXI-3710's custom watchdog timer circuit is implemented in a programmable logic device. The watchdog timer contains a "Control and Status Register." The register allows the BIOS or user application to determine if a watchdog time out was the source of a particular reset.

The watchdog timer drives the First and Second Stages as follows:

- The watchdog times out (First Stage) after a selected timeout interval.
- NMI or INIT (software selectable) is driven high.
- A hard reset occurs (Second Stage).

The timeout period is 1–255 seconds or 1–255 minutes. The watchdog is normally strobed by reading the Watchdog Register (3F0h). This clears the counter. Writes to this register also clear the counter.

5.1.1 Using the Watchdog in an Application

The following topic is provided to help users learn how to use the watchdog in an application. The Watchdog Reset function is also described. Sample code is provided below. The Watchdog Reset is controlled through the watchdog "Control and Status Register."

Watchdog Reset

An application using the reset feature enables the watchdog reset, sets the terminal count period, and then periodically strobes the watchdog to keep it from resetting the system. If a strobe is missed, the watchdog times out and resets the system hardware. The example shown below will reset the system after 15 seconds. ADLINK provides other examples and various sub functions on the CD.

WDT Programming

In order to simplify the programming code, ADLINK has provided a sub function for programmers to implement with their software. For DOS, Windows 98 and Window NT, the sub function format can be as shown below:

Out_port (int IOport_number, int Counter_value)

IOport_number:0x3F0 -->W83977EF's configuration port.
0x2E -->W83627HF's configuration port.
Counter_value: 0 ~ 15300 (255 minutes)
(write a zero to disable the timer)
Under DOS, Windows 98
Create a project program name `wdt.cpp` under Turbo C/C++.
Under Windows NT
The library installation procedure:

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

(1) Run the setup program under NT environment.

(2) Reboot the system.

You can also write your own DLL by referring to the DOS sourced ADLINK has provided.

5.2 Intel Preboot Execution Environment (PXE)

The PXI-3710 series supports the Intel Pre-boot Execution Environment (PXE), which provides the capability of boot-up or executing an OS installation through Ethernet ports. There should be a Windows NT or Windows 2000 DHCP server in the network with one or more servers running PXE and MTFTP services. This section describes the major items required for building a network environment with PXE support.

1.Setup a DHCP server with PXE tag configuration.

2.Install the PXE and MTFTP services

3.Make boot image file on PXE server (that is the boot server)

4.Enable the PXE boot function on the client computer

For more detailed information, please refer to `pdkrel30.pdf` under the directory:

X:\Utility\PXE_PDK\

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5.3 PICMG 2.1 Hot Swap Support

The PXI-3710/3710F Hot-Swap capability allows non-system slot boards to be added or removed while the system is powered up. PXI-3710/3710F provides independent clocks for each slot and accesses to the ENUM# signal on the backplane, which are compatible with PICMG 2.1 Hot Swap Specification. However, the PXI-3710/3710F itself is not hot swappable.

The hot swappable system is dependent on system controller, peripheral modules, backplane, and operating system, driver, and application support. If users use I/O modules that are designed to be hot-swappable, please contact ADLINK for hot swap function support.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Warranty Policy

Thank you for choosing ADLINK. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully:

1. Before using ADLINK's products please read the user manual and follow the instructions exactly.

2. When sending in damaged products for repair, please attach an RMA application form.

3. All ADLINK products come with a two-year guarantee, repaired free of charge.

   - The warranty period starts from the product's shipment date from ADLINK's factory.
   - Peripherals and third-party products not manufactured by ADLINK will be covered by the original manufacturers' warranty.
   - End users requiring maintenance services should contact their local dealers. Local warranty conditions will depend on local dealers.

4. This warranty will not cover repair costs due to:

   - Damage caused by not following instructions.
   - Damage caused by carelessness on the users' part during product transportation.
   - Damage caused by fire, earthquakes, floods, lightening, pollution, other acts of God, and/or incorrect usage of voltage transformers.
   - Damage caused by unsuitable storage environments (i.e. high temperatures, high humidity, or volatile chemicals.
   - Damage caused by leakage of battery fluid.
   - Damage from improper repair by unauthorized technicians.
   - Products with altered and/or damaged serial numbers.
   - Other categories not protected under our guarantees.

5. Customers are responsible for shipping costs to transport damaged products to our company or sales office.

6. To ensure the speed and quality of product repair, please use the RMA form attached in next page or you can download the form from our company website: http://www.adlinktech.com/news/Company/RMA.doc. Damaged products with attached RMA forms receive priority.

For further questions, please contact our FAE staff.

ADLINK:service@adlinktech.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

RMA Request & Confirmation Form

Dear Customer, **Page 1 of 2**

Please fill out and fax back this form to obtain the RMA number for your returned or repaired product. Thank you very much!

Your Company Name :	
Your Name :	
Invoice No. :	

Part No.	Qty.	Serial No.	The reason of defect	Received Qty. by ADLINK

ADLINK RMA #:

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Note:

1. Please give specific details of the defect. Do not give general reasons like, “not working, error, dead, etc. “

2. Please ship prepaid by Speed post (EMS) (If items are shipped via freight forwarder, we will not cover the extra handing charges)

3. Please show a value of US$10 for each item and include the RMA number. Also, be sure to write on shipping invoice, “for repair, no commercial value” for customs. (Please note that the amount must be under US$200 for customs purposes only)

4. Enclose this form (page 1 & 2) in the package for fast identification.

5. Please sign this form (page 1 & 2) and fax it back to us for confirmation within three days. Otherwise, we will process your request according the stated on the RMA Request Form.

6. We will charge for items no longer under warranty.

Please let us know your preferred shipping method for returning reworked items to you.

☐ Ship with your next shipment
☐ Ship separately by air parcel
(Note: we do not accept liability for items shipped by air parcel)

☐ Other _____

ADLINK Technology Inc.		Accepted & Confirmed by

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000