User Guide

for

3000

3U 8-Slot Portable PXI Chassis

3000B

3U 8-Slot Portable PXI Chassis with
Integrated LCD Touch Panel

3001B/3001C

3U System Controller

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Using this manual

Audience and scope

This manual guides you when using the portable Aeroflex PXI chassis and/or PXI system controller. This manual is intended for system integrators, computer programmers, and hardware engineers with advanced knowledge of PXI/cPCI systems and PXI-based test equipment.

How this manual is organized

Important Safety Instructions: lists important safety reminders that you should observe when using the chassis andor controller.

Chapter 1 Chassis Introduction: introduces the 3000 and 3000B chassis, including its features, specifications, and package contents.

Chapter 2 Chassis Overview: presents the chassis layout, location of basic components, dimensions, and backplane information.

Chapter 3 Installation: describes the procedures on how to install a system controller and peripheral modules into the 3000 or 3000B. It also contains information on OS and driver installations and touch panel usage.

Chapter 4 Remote Management: illustrates the remote management features of the 3000 and 3000B.

Chapter 5 Troubleshooting and Maintenance: contains a troubleshooting section for common installation problems and tells you how to maintain the 3000 and 3000B chassis.

Chapter 6 System Controller Introduction: introduces the 3001B and 3001C system controllers, including their features, specifications, and package contents.

Chapter 7 Hardware information: provides information about the 3001B/3001C board outline, connector definitions, and jumper settings.

Chapter 8 Getting Started with 3001B/3001C: gives a summary of what is required to set up an operating system using the 3001B/3001C system controllers.

Chapter 9 Driver Installation: installation instructions for the 3001B/3001C system controllers using Windows 2000 and Windows XP drivers.

Appendix A PXI Trigger Functions: provides a description of PXI trigger functions, including data types and function reference.

Appendix B Watchdog Timer Functions: describes the use of the watchdog timer (WDT) functions for the 3001B/3001C system controllers.

Appendix C No Video Output: what to do if you can see nothing on your external monitor.

Conventions

Take note of the following conventions used throughout the manual to make sure that you perform certain tasks and instructions properly.

WARNING	*Information that prevents physical injury.*
CAUTION	*Information that prevents data loss, module damage, program corruption etc. when trying to complete a particular task.*
IMPORTANT	*Critical information and instructions that you MUST perform to complete a task.*
NOTE	*Additional information, aids, and tips that help you perform particular tasks.*

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Important safety instructions

Read and follow all instructions marked on the product and in the documentation before operating the system. Retain all safety and operating instructions for future use.

Precautions



These terms have specific meanings in this manual:

WARNING	information to prevent personal injury.
CAUTION	information to prevent damage to the equipment.
Note	important general information.

Hazard symbols

The meaning of hazard symbols appearing on the equipment and in the documentation is as follows:

Symbol	Description
	Refer to the operating manual when this symbol is marked on the instrument. Familiarize yourself with the nature of the hazard and the actions that may have to be taken.
	Dangerous voltage
	Toxic hazard

General conditions of use

This product is designed and tested to comply with the requirements of IEC/EN61010-1 ‘Safety requirements for electrical equipment for measurement, control and laboratory use’, for Class III equipment and is for use in a pollution degree 2 environment. The equipment is designed to operate from an installation category I supply.

Equipment should be protected from the ingress of liquids and precipitation such as rain, snow, etc. When moving the equipment from a cold to a hot environment, it is important to allow the temperature of the equipment to stabilize before it is connected to the supply to avoid condensation forming. The equipment must only be operated within the environmental conditions specified in the data sheet, otherwise the protection provided by the equipment may be impaired.

This product is not approved for use in hazardous atmospheres or medical applications. If the equipment is to be used in a safety-related application, e.g. avionics or military applications, the suitability of the product must be assessed and approved for use by a competent person.

WARNING



Electrical hazards (DC supply voltage)

This equipment conforms with IEC safety Class III, meaning that for continued safety it must only be connected to supplies and signal sources which conform to 'Separated Extra-Low Voltage' (SELV and SELV-E) voltage and insulation requirements. No hazardous voltages are generated internally. See the data sheet for the maximum permitted voltage levels that can be applied.

Do not remove instrument covers as this may result in personal injury. There are no user-serviceable parts inside.

Refer all servicing to qualified personnel. See list of Service Centers at www.aeroflex.com.

WARNING



Toxic hazards

Some of the components used in this equipment may include resins and other materials which give off toxic fumes if incinerated. Take appropriate precautions, therefore, in the disposal of these items.

WARNING



Beryllium copper

It is possible that some mechanical components within this instrument may be manufactured from beryllium copper. This is an alloy with a beryllium content of approximately 5%. It represents no risk in normal use.

The material should not be machined, welded or subjected to any process where heat is involved.

It must be disposed of as “special waste”.

It must NOT be disposed of by incineration.

WARNING



Short circuited/bent pins in chassis

Before installing the module into the chassis, check inside the chassis that no foreign conductors are present between pins on the backplane connectors, and that no pins on the backplane connectors are bent or damaged.

CAUTION



Static sensitive components

This equipment contains static sensitive components which may be damaged by handling.

CAUTION

Suitability for use

This equipment has been designed and manufactured by Aeroflex to generate low-power RF signals for testing radio communications apparatus and to digitize and provide spectrum analysis of RF signals.

If the equipment is not used in a manner specified by Aeroflex, the protection provided by the equipment may be impaired.

Aeroflex has no control over the use of this equipment and cannot be held responsible for events arising from its use other than for its intended purpose.

Précautions

Les termes suivants ont, dans ce manuel, des significations particulières:

WARNING contient des informations pour éviter toute blessure au personnel.

CAUTION contient des informations pour éviter les dommages aux équipements.

Note contient d'importantes informations d'ordre général.

Symboles signalant un risque

La signification des symboles de danger apparaissant sur l'équipement et dans la documentation est la suivante:

Symbole	Nature du risque
	Reportez-vous au manuel d'utilisation quand ce symbole apparaît sur l'instrument. Familiarisez-vous avec la nature du danger et la conduite à tenir.
	Tension dangereuse
	Danger produits toxiques

Conditions générales d’utilisation

Ce produit a été conçu et testé pour être conforme aux exigences des normes CEI/EN61010-1 “Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire”, pour des équipements Classe III et pour une utilisation dans un environnement de pollution de niveau 2. Cet équipement est conçu pour fonctionner à partir d’une alimentation de catégorie I.

Cet équipement doit être protégé de l'introduction de liquides ainsi que des précipitations d'eau, de neige, etc... Lorsqu'on transporte cet équipement d'un environnement chaud vers un environnement froid, il est important de laisser l'équipement se stabiliser en température avant de le connecter à une alimentation afin d'éviter toute formation de condensation. L'appareil doit être utilisé uniquement dans le cadre des conditions d'environnement spécifiées dans la fiche technique, toute autre utilisation peut endommager les systèmes de protection.

Ce produit n'est pas garanti pour fonctionner dans des atmosphères dangereuses ou pour un usage médical. Si l'équipement doit être utilisé pour des applications en relation avec la sécurité, par exemple des applications militaires ou aéronautiques, la compatibilité du produit doit être établie et approuvée par une personne compétente.

WARNING

Sécurité électrique (tension d'alimentation continue)

Cet équipement est conforme aux normes de sécurité CEI Classe III, c'est-à-dire qu'il ne doit être connecté qu'à des sources d'alimentation ou de signaux qui suivent les recommandations de tension et d'isolement du type 'Tension extra-faible séparée' (SELV at SELV-E). Aucune tension dangereuse n'est générée en interne. La fiche technique précise les niveaux de tension maximum acceptables en entrée.

Ne démontez pas le capot de l'instrument, car ceci peut provoquer des blessures. Il n'y a pas de pièces remplaçables par l'utilisateur à l'intérieur.

Faites effectuer toute réparation par du personnel qualifié. Contacter un des Centres de Maintenance Internationaux à www.aeroflex.com.

WARNING



Danger produits toxiques

Certains composants utilisés dans cet appareil peuvent contenir des résines et d'autres matières qui dégagent des fumées toxiques lors de leur incinération. Les précautions d'usages doivent donc être prises lorsqu'on se débarrasse de ce type de composant.

WARNING



Bronze au béryllium

Il est possible que dans cet équipement,certaines pièces mécaniques sont à base de bronze au béryllium. Il s'agit d'un alliage dans lequel le pourcentage de béryllium ne dépasse pas 5%. Il ne présente aucun danger en utilisation normale.

Toutefois, cet alliage ne doit pas être travaillé, soudé ou soumis à un processus qui implique l'utilisation d'une source de chaleur.

En cas de destruction, il sera entreposé dans un container spécial. IL ne devra pas être détruit par incinération.

WARNING



Court circuit / broches tordues dans le châssis

Avant d'installer le module dans le châssis, vérifiez l'intérieur du châssis qu'aucun des conducteurs étrangers ne sont présents entre les broches sur les connecteurs de fond de panier et qu'aucune broches sur les connecteurs de fond de panier ne sont tordues ou endommagées.

CAUTION

Utilisation

Cet équipement a été conçu et fabriqué par Aeroflex pour générer des signaux RF de faible puissance pour le test d'appareils de radio communications et numériser et analyser le spectre de signaux RF.

La protection de l'équipement peut être altérée s'il n'est pas utilisé dans les conditions spécifiées par Aeroflex. Aeroflex n'a aucun contrôle sur l'usage de l'instrument, et ne pourra être tenu pour responsable en cas d'événement survenant suite à une utilisation différente de celle prévue.

Vorsichtsmaßnahmen

Diese Hinweise haben eine bestimmte Bedeutung in diesem Handbuch:

WARNING	dienen zur Vermeidung von Verletzungsrisiken.
CAUTION	dienen dem Schutz der Geräte.
Note	enthalten wichtige Informationen.

Gefahrensymbole

Die Bedeutung der Gefahrensymbole auf den Geräten und in der Dokumentation ist wie folgt:

Symbol	Gefahrenart
	Beziehen Sie sich auf die Bedienungsanleitung wenn das Messgerät mit diesem Symbol markiert ist. Machen Sie sich mit der Art der Gefahr und den Aktionen die getroffen werden müssen bekannt.
	Gefährliche Spannung
	Warnung vor giftigen Substanzen

Allgemeine Hinweise zur Verwendung

Dieses Produkt wurde entsprechend den Anforderungen von IEC/EN61010-1 “Sicherheitsanforderungen für elektrische Ausrüstung für Meßaufgaben, Steuerung und Laborbedarf”, Klasse III, zur Verwendung in einer Grad 2 verunreinigten Umgebung, entwickelt und getestet. Dieses Gerät ist für Netzversorgung Klasse I zugelassen.

Das Gerät sollte vor dem Eindringen von Flüssigkeiten sowie vor Regen, Schnee etc. geschützt werden. Bei Standorteränderung von kalter in wärmere Umgebung sollte das Gerät wegen der Kondensation erst nach Anpassung an die wärmere Umgebung mit dem Netz verbunden werden. Das Gerät darf nur in Umgebungsbedingungen wie im Datenblatt beschrieben, betrieben werden; ansonsten wird der vom Gerät vorgesehene Schutz des Anwenders beeinträchtigt.

Dieses Produkt ist nicht für den Einsatz in gefährlicher Umgebung (z.B. Ex-Bereich) und für medizinische Anwendungen geprüft. Sollte das Gerät für den Einsatz in sicherheitsrelevanten Anwendungen wie z.B. im Flugverkehr oder bei militaerischen Anwendungen vorgesehen sein, so ist dieser von einer für diesen Bereich zuständigen Person zu beurteilen und genehmigen.

WARNING



Elektrische Schläge (Gleichspannungsversorgung)

Dieses Gerät entspricht der IEC Sicherheitsklasse III. Aus Sicherheitsgründen darf es nur an Netzgeräte und Signalquellen angeschlossen werden, die in Spannung und Isolation der SELV und SELV-E Richtlinie genügen (“Getrennte Niederspannung”). Im Gerät werden keine gefährlichen Spannungen erzeugt. Im Datenblatt werden die anschließbaren Höchstspannungen definiert.

Öffnen Sie niemals das Gehäuse der Geräte das dies zu ernsthaften Verletzungen führen kann. Es gibt keine vom Anwender austauschbare Teile in diesem Gerät.

Lassen Sie alle Reparaturen durch qualifiziertes Personal durchführen. Eine Liste der Servicestellen finden Sie auf www.aeroflex.com.

WARNING



Warnung vor giftigen Substanzen

In einigen Bauelementen dieses Geräts können Epoxyharze oder andere Materialien enthalten sein, die im Brandfall giftige Gase erzeugen. Bei der Entsorgung müssen deshalb entsprechende Vorsichtsmaßnahmen getroffen werden.

WARNING



Beryllium Kupfer

Es ist möglich, dass in diesem Gerät sind einige mechanische Komponenten aus Berylium Kupfer gefertigt. Dies ist eine Verbindung welche aus einem Berylliumanteil von ca. 5 % besteht. Bei normaler Verwendung besteht kein Gesundheitsrisiko.

Das Metall darf nicht bearbeitet, geschweißt oder sonstiger Wärmebehandlung ausgesetzt werden.

Es muß als Sondermüll entsorgt werden.

Es darf nicht durch Verbrennung entsorgt werden.

WARNING



Kurzgeschlossen / verbogene Pins im Chassis

Vor dem Einbau des Moduls in das Chassis, überprüfen Sie innerhalb des Chassis, dass keine ausländischen Dirigenten präsentieren zwischen den Stiften auf der Backplane-Steckverbinder sind und dass keine Pins auf der Backplane-Steckverbinder verbogen oder beschädigt sind.

CAUTION

Eignung für Gebrauch

Dieses Gerät wurde von Aeroflex entwickelt und hergestellt um HF Signale geringer Leistung zum Test von Kommunikationseinrichtungen zu erzeugen und HF Signale zu digitalisieren und Spektrumanalyse an HF Signalen durchzuführen.

Sollte das Gerät nicht auf die von Aeroflex vorgesehene Art und Weise verwendet werden, kann die Schutzfunktion des Gerätes beeinträchtigt werden.

Aeroflex hat keinen Einfluß auf die Art der Verwendung und übernimmt keinerlei Verantwortung bei unsachgemässer Handhabung.

Precauzioni

Questi termini vengono utilizzati in questo manuale con significati specifici:

WARNING riportano informazioni atte ad evitare possibili pericoli alla persona.

CAUTION riportano informazioni per evitare possibili pericoli all'apparecchiatura.

Note riportano importanti informazioni di carattere generale.

Simboli di pericolo

Il significato del simbolo di pericolo riportato sugli strumenti e nella documentazione è il seguente:

Simbolo	Tipo di pericolo
	Fare riferimento al manuale operativo quando questo simbolo è riportato sullo strumento. Rendervi conto della natura del pericolo e delle precauzioni che dovrete prendere.
	Tensione pericolosa
	Pericolo sostanze tossiche

Condizioni generali d'uso

Questo prodotto è stato progettato e collaudato per rispondere ai requisiti della direttiva IEC/EN61010-1 'Safety requirements for electrical equipment for measurement, control and laboratory use' per apparati di classe III, per l'uso in un ambiente inquinato di grado 2. L'apparato è stato progettato per essere alimentato da un alimentatore di categoria I.

Lo strumento deve essere protetto dal possibile ingresso di liquidi quali, ad es., acqua, pioggia, neve, ecc. Qualora lo strumento venga portato da un ambiente freddo ad uno caldo, è importante lasciare che la temperatura all'interno dello strumento si stabilizzi prima di alimentarlo per evitare formazione di condense. Lo strumento deve essere utilizzato esclusivamente nelle condizioni ambientali descritte nella scheda tecnica, in caso contrario le protezioni previste nello strumento potrebbero risultare non sufficienti.

Questo prodotto non è stato approvato per essere usato in ambienti pericolosi o applicazioni medicali. Se lo strumento deve essere usato per applicazioni particolari collegate alla sicurezza (per esempio applicazioni militari o avioniche), occorre che una persona o un istituto competente ne certifichi l'uso.

WARNING



Pericoli da elettricità (alimentazione a c.c.)

Questo strumento rispetta le norme IEC, classe III, e quindi, per una completa sicurezza, deve essere collegato solo ad alimentatori e generatori di segnali che rispettano I requisiti di tensione ed isolamento SELV e SELV-E (Separated Extra-Low Voltage). Nessuna tensione pericolosa è generata al suo interno. Vedi la scheda tecnica per quanto concerne I livelli massimi di tensione applicabili.

Non rimuovete mai le coperture perché così potreste provocare danni a voi stessi. Non vi sono all'interno parti di interesse all'utilizzatore.

Tutte gli interventi sono di competenza del personale qualificato. Vedi elenco internazionale dei Centri di Assistenza in www.aeroflex.com.

WARNING



Pericolo sostanze tossiche

Alcuni dei componenti usati in questo strumento possono contenere resine o altri materiali che, se bruciati, possono emettere fumi tossici. Prendere quindi le opportune precauzioni nell'uso di tali parti.

WARNING



Rame berillio

E possibile que alcuni componenti meccanici in questo strumento sono realizzati in rame berillio. Si tratta di una lega con contenuto di berillio di circa il 5%, che non presenta alcun rischio in usi normali.

Questo materiale non deve essere lavorato, saldato o subire qualsiasi processo che coinvolge alte temperature.

Deve essere eliminato come "rifiuto speciale". Non deve essere eliminato tramite "inceneritore".

WARNING



Cortocircuito / pins piegati nello chassis

Prima di installare il modulo nello chassis, verificare all'interno dello chassis che non conduttori stranieri sono presenti tra i pin dei connettori backplane e che nessun pin del connettore backplane siano piegati o danneggiati.

CAUTION

Caratteristiche d’uso

Questo strumento è stato progettato e prodotto da Aeroflex generare segnali RF in bassa potenza per provare apparati di radio comunicazione e digitalizzare ed eseguire analisi di spettro su segnali RF.

Se lo strumento non è utilizzato nel modo specificato da Aeroflex, le protezioni previste sullo strumento potrebbero risultare inefficaci.

Aeroflex non può avere il controllo sull’uso di questo strumento e non può essere ritenuta responsabile per eventi risultanti da un uso diverso dallo scopo prefisso.

Precauciones

[redacted]

Estos términos tienen significados específicos en este manual:

WARNING contienen información referente a prevención de daños personales.

CAUTION contienen información referente a prevención de daños en equipos.

Note contienen información general importante.

Símbolos de peligro

El significado de los símbolos de peligro en el equipo y en la documentación es el siguiente:

Símbolo	Naturaleza del peligro
	Vea el manual de funcionamiento cuando este símbolo aparezca en el instrumento. Familiarícese con la naturaleza del riesgo y con las acciones que deban de tomarse.
	Voltaje peligroso
	Aviso de toxicidad

Condiciones generales de uso

Este producto ha sido diseñado y probado para cumplir los requerimientos de la normativa IEC/EN61010-1 “Requerimientos de la normativa para equipos eléctricos de medida, control y uso en laboratorio”, para equipos clase III, para uso en un ambiente con un grado de contaminación 2. El equipo ha sido diseñado para funcionar sobre una instalación de alimentación de categorías I.

Debe protegerse el equipo de la entrada de líquidos y precipitaciones como nieve, lluvia, etc. Cuando se traslada el equipo de entorno frío a un entorno caliente, es importante aguardar la estabilización el equipo para evitar la condensación. Solamente debe utilizarse el equipo bajo las condiciones ambientales especificadas en la Hoja Técnica, en caso contrario la propia protección del equipo puede resultar dañada.

Este producto no ha sido aprobado para su utilización en entornos peligrosos o en aplicaciones médicas. Si se va a utilizar el equipo en una aplicación con implicaciones en cuanto a seguridad, como por ejemplo aplicaciones de aviónica o militares, es preciso que un experto competente en materia de seguridad apruebe su uso.

WARNING

Nivel peligroso de electricidad (tensión de alimentación DC)

Este equipo cumple con la norma de seguridad IEC clase III, lo que significa que para total seguridad debe ser conectado a alimentaciones y fuentes de señal que cumplan los requerimientos de tensión y aislamiento “Tensión Separada Extra-Baja” (SELV y SELV-E). Ninguna tensión generada internamente implica riesgo para el operario.

En la Hoja Técnica podrá encontrar los valores máximos permitidos que pueden aplicarse.

No retire las cubiertas del chasis del instrumento, ya que pudiera resultar dañado personalmente. No existen partes que puedan ser reparadas en su interior.

Deje todas las tareas relativas a reparación a un servicio técnico cualificado. Vea la lista de Centros de Servicios Internacionales en www.aeroflex.com.

WARNING



Aviso de toxicidad

Alguno de los componentes utilizados en este equipo pudieran incluir resinas u otro tipo de materiales que al arder produjeran sustancias tóxicas. Por tanto, tome las debidas precauciones en la manipulación de esas piezas.

WARNING



Berilio-cobre

Es posible que algunos componentes mecánicos contenidos en este instrumento incorporan berilio-cobre en su proceso de fabricación. Se trata de una aleación con un contenido aproximado de berilio del 5%, lo que no representa ningún riesgo durante su uso normal.

El material no debe ser manipulado, soldado, ni sometido a ningún proceso que implique la aplicación de calor.

Para su eliminación debe tratarse como un "residuo especial". El material NO DEBE eliminarse mediante incineración.

WARNING



Cortocircuito / pines doblados en el chasis

Antes de instalar el módulo en el chasis, revisar el interior del chasis que no conductores extranjeros están presentes entre los pines en los conectores de la placa madre y que no pines en los conectores del backplane están doblados o dañados.

CAUTION

Idoneidad de uso

Este equipo ha sido diseñado y fabricado por Aeroflex para generar señales de VHF y UHF de bajo nivel de potencia para prueba de equipos de radiocomunicaciones y para digitalizar y realizar análisis espectral de señales RF.

Si el equipo fuese utilizado de forma diferente a la especificada por Aeroflex, la protección ofrecida por el equipo pudiera quedar reducida.

Aeroflex no tiene control sobre el uso de este equipo y no puede, por tanto, exigirsele responsabilidades derivadas de una utilización distinta de aquellas para las que ha sido diseñado.

Part 1:
3000 and 3000B Chassis

3000 3U 8-Slot Portable PXI Chassis

3000B 3U 8-Slot Portable PXI Chassis with
Integrated LCD Touch Panel

See Part 2 for 3001B/3001C System Controller

Chapter 1

Introduction to 3000 and 3000B chassis

The Aeroflex 3000 and 3000B are highly portable 3U PXI chassis equipped with advanced features and functionalities that comply with PXI and CompactPCI specifications. Offering one system slot and seven peripheral slots, the 3000 and 3000B form a compact and lightweight chassis for superior portability, wider operating temperature range, lower operating noise, and robust system build.

The 3000 and 3000B are equipped with an intelligent control board and sensors to dynamically monitor and manage the chassis status including the fan speed, system voltages and internal temperature. Remote management is supported, as the control board exports these sensor readings directly to a remote computer using the standard RS-232 port.

The 3000B includes an integrated 8.4” LCD that supports an 800 x 600 resolution and touch panel capability. The integrated display allows you to carry the PXI-based testing equipment anytime and anywhere. When combined with the high-performance Aeroflex 3001B/3001C system controller, the 3000B delivers a complete testing equipment that is suitable for a variety of applications.

These PXI chassis are supplied with an industrial-grade 350 W AC power supply, front-panel LEDs, and easy-access PXI/CompactPCI slots with card guides for convenient installation and use. Innovative features and robust design make the 3000 and 3000B the best choices of PXI platform for all your test and measurement requirements.

Figure 1-1 Aeroflex 3000, shown fitted with 3001B controller



Figure 1-2 Aeroflex 3000B



Compatibility with earlier models

The Aeroflex 3000 PXI chassis controller slot can be used with any third-party external or embedded 3U cPCI or PXi-compliant system controller that occupies up to a maximum width of three slots.

The Aeroflex 3000B PXI chassis supersedes the 3000A chassis, and the Aeroflex 3001B/3001C PXI controller supersedes the 3001A controller.

The table below shows the compatibility of these controllers and chassis. Third-party controllers can be used, provided they occupy up to two expansion slots (equivalent to three module slots).

Controller	Rack compatibility		
	3000	3000A	3000B
3001A	√	√	X
3001B/3001C	√	X	√

Caution: if the chassis is not used with a PXI controller as recommended above, rear I/O functionality may be affected, and the PXI controller or rear transition module may be damaged.

Features (3000 and 3000B chassis)

- Compliant with PXI Specification Rev. 2.2
- Compact 8-slot PXI chassis with one system slot and seven PXI/CompactPCI peripheral slots
- 0°C to 55°C extended operating temperature range
- 41.6 dBA silent operation
- Intelligent chassis management
  - Automatic fan speed control
  - Round-the-clock chassis status monitoring
  - Remote chassis management including on/off control
- 5.9 kg lightweight aluminum-metal construction
- 8.4" built-in LCD with touch panel (3000B only)
- 350 W industrial-grade AC power supply
- Power, temperature, and fan monitoring LEDs

Specifications

Power supply	
AC Input	
Input voltage range	100 V to 240 V
Input voltage frequency	50 to 60 Hz
Input current rating	8 A/115 V or 4 A/230 V
DC Output[a]	
Total DC power output	350 W
Integrated devices *(3000B only)*	
Display	8.4” TFT LCD with 800x600 resolution
Input devices	Built-in touch panel
Cooling	
Fans	2 x 60 CFM fans with filters
Per slot cooling capacity	25 W (verified by 55°C chamber test)
Acoustic emissions	
Sound Pressure Level (dBA) *measure at operator position*[b]	
Minimum fan speed	41.6 dBA
Maximum fan speed	47.3 dBA
Sound Power (dBA)[c]	
Minimum fan speed	51.9 dBA
Maximum fan speed	55.5 dBA
Physical	
PXI slots	8 (1 system slot and 7 peripheral slots)
Dimension	280 mm x 177 mm x 303 mm (W x H x D)
Weight (chassis only)	
3000	5.9 kg (13 lbs)
3000B	6.4 kg (14 lbs)
Operating environment 3000, 3000B	
Ambient temperature	0°C to 55°C
Relative humidity	10% to 90%, non-condensing

Storage environment	
Ambient temperature	
3000	-20°C to 70°C
3000B	0°C to 70°C
Relative humidity 3000, 3000B	10% to 90%, non-condensing
Shock and vibration	
Functional shock 3000, 3000B	30 G half-sine, 11 ms pulse duration
Random vibration	
Operating 3000, 3000B	0.5 G, 5 Hz to 500 Hz, 3 axes
Non-operating 3000, 3000B	2.46 G, 5 Hz to 500 Hz, 3 axes
Certifications	
Safety	IEC 61010-1/EN 61010-1
Electromagnetic compatibility	
Emissions	EN 55011 Class A
Immunity	EN 61326-1
CE compliance	3000 and 3000B meet essential requirements of applicable EU Directives

[a] See DC Output Table below.

[b] Measured at operator position, tested in accordance with ISO 7779:1999/Amd.1:2003(E)

[c] Tested in accordance with ISO 7779:1999/Amd.1:2003(E)

**Specifications are subject to change without notice.*

DC output table

VDC	Minimum	Maximum	Load regulation	Max. ripple & noise
+5 V	3.0 A	35 A	±5%	50 mA
+12 V	2.0 A	18 A	±5%	120 mA
+3.3 V	1.0 A	20 A	±5%	50 mA
-12 V	0.1 A	2 A	±10%	150 mA

The combined output power of +5V and +3.3V supplies must not exceed 35A.

Unpacking checklist

Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Retain the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to Aeroflex.

Check that the following items are included in the package:

Item	3000	3000B
3U 8-slot PXI chassis with 350 W AC power supply	√	X
3U 8-slot PXI chassis with 8.4” touch panel LCD and 350 W AC power supply	X	√
Power cords	√	√
Filler panel kit for unused/reserved slots including one 3-slot panel and seven 1-slot panels	√	√
Two extra fan filters	√	√
User guide (on CD-ROM)	√	√

Chapter 2

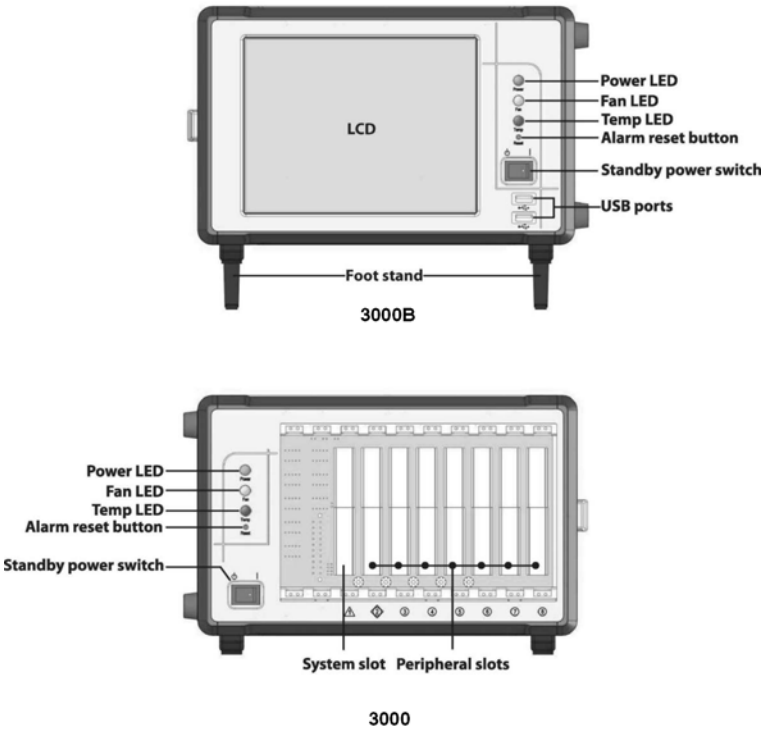
Chassis overview

This section describes the 3000 and 3000B chassis, including the location of basic components and controls, dimensions, and backplane features.

Views

Front panel

Figure 2-1 3000 and 3000B front panel



LED Indications

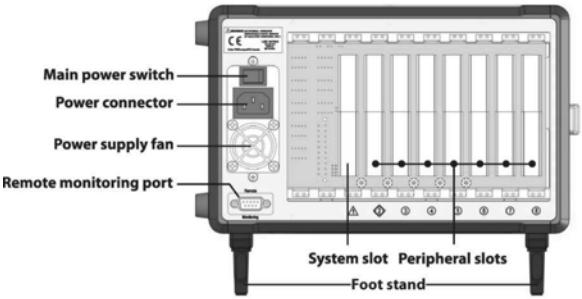
LED	Status		
	On	Off	Blinking
Power (Blue)	DC voltages are supplied normally	No DC power is supplied	• 5 V or 3.3 V exceeds ±7% range • 12 V or -12 V exceeds ±12% range
Fan (Green)	Fans are operating normally	The system is off	One or more of the fans is operating at a speed lower than 500 RPM
Temp (Amber)	Chassis temperature is normal	The system is off	Chassis temperature exceeds 50°C

Alarm reset button

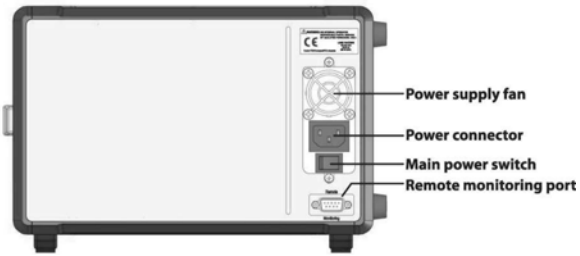
The alarm reset button enables you to stop the chassis alarm during an error or critical system event. To stop the alarm, press the alarm reset button.

Rear panel

Figure 2-2 3000 and 3000B rear panel



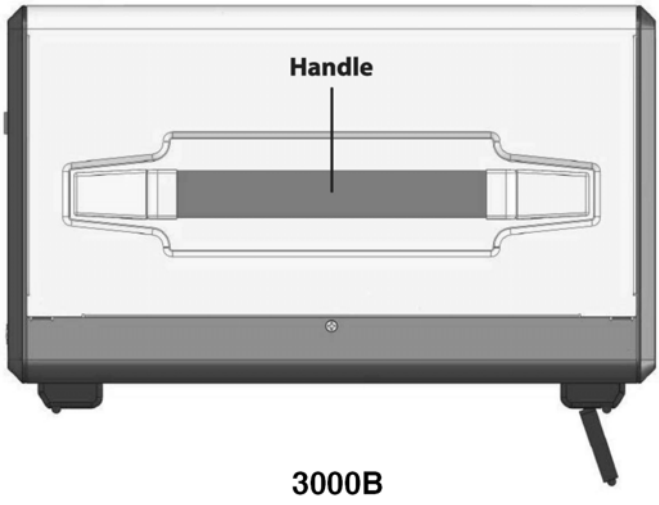
3000B



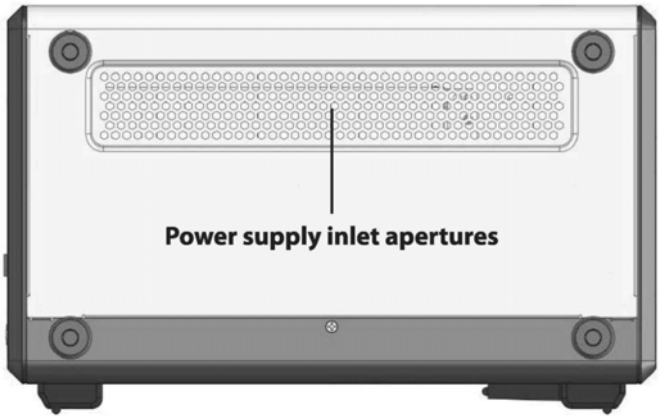
3000

Left panel

Figure 2-3 3000 and 3000B left panel



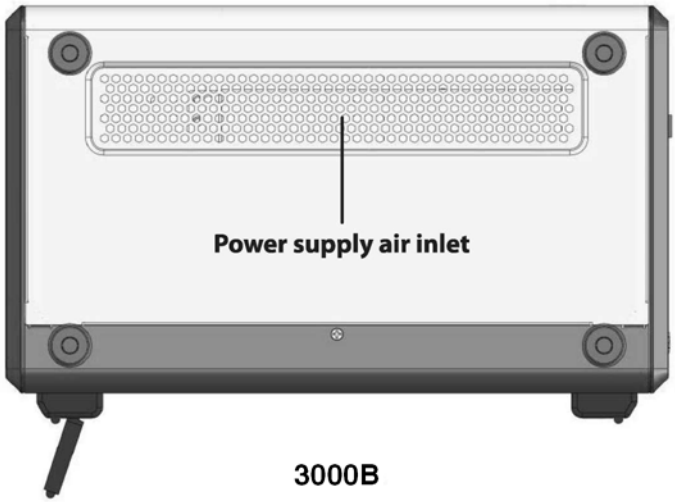
3000B



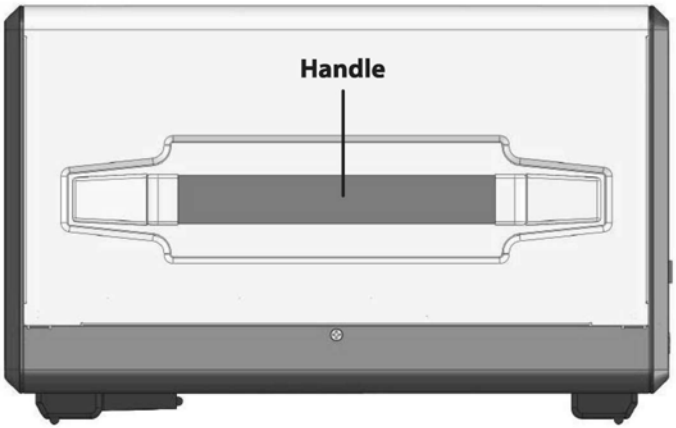
3000

Right panel

Figure 2-4 3000 and 3000B right panel



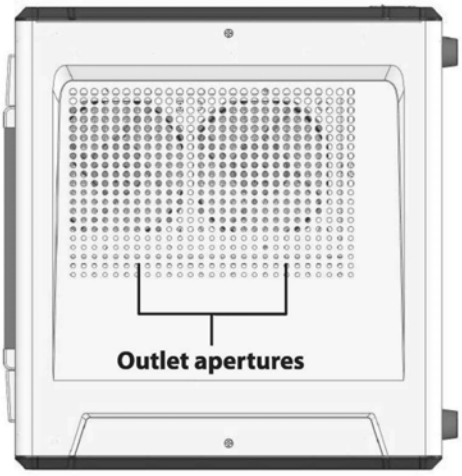
3000B



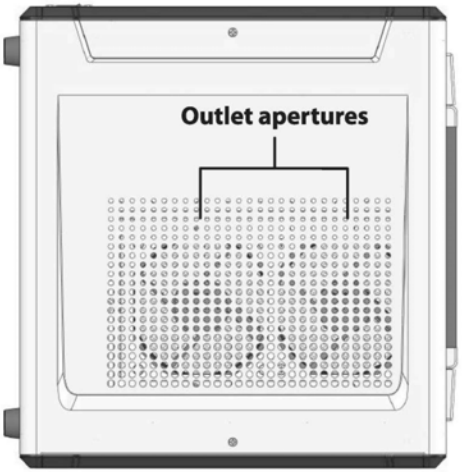
3000

Top panel

Figure 2-5 3000 and 3000B top panel



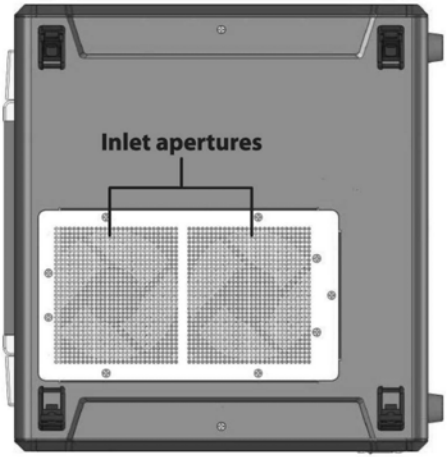
3000B



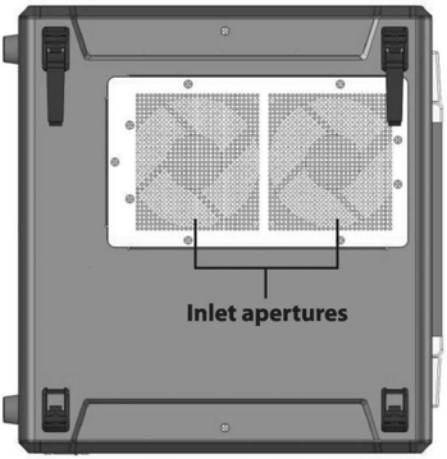
3000

Base panel

Figure 2-6 3000 and 3000B base panel



3000B



3000

Backplane features

Interoperability with CompactPCI

The 3000 and 3000B are designed to support both standard PXI and CompactPCI modules, with backplanes that are compliant with PXI Specification Rev. 2.2.

The signals on the backplane's P1 connector meet the requirements of CompactPCI specifications for both peripheral and system modules. The PXI-specific signals located on P2 are reserved or unused in CompactPCI 64-bit specifications. This allows peripheral modules with CompactPCI 64-bit specifications to function in both 3000 and 3000B.

NOTE *CompactPCI peripheral modules that operate with rear I/O modules may not work in 3000 and 3000B due to the conflict between rear I/O signals and PXI-specific signals on J2.*

System controller slot

Slot 1 is designated as the system controller slot, as defined by PXI specifications. The 3000 and 3000B can accommodate a PXI system controller up to 3 slots in width. As defined in PXI specifications, the system controller slot allows the controller to expand to the left to prevent it from occupying the peripheral slot space.

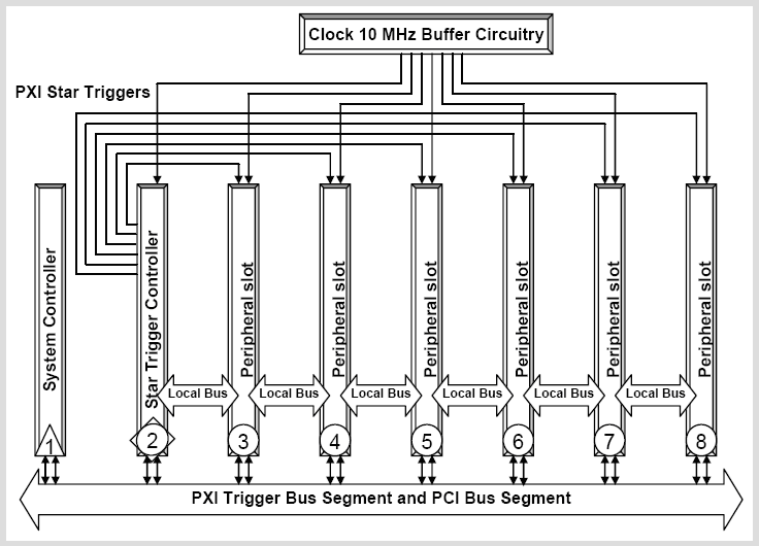
Star trigger slot

Slot 2 is designated as the star trigger (ST) slot. This slot has dedicated trigger lines between itself and peripheral slots 3 to 8. The star trigger functionality is intended to provide precise trigger signals to the peripheral modules by installing a specific star trigger controller module in the ST slot. The star trigger slot can be also used as a general peripheral slot if you do not use the star trigger functionality.

Peripheral slots

The 3000 and 3000B have seven peripheral slots including the star trigger slot. Each peripheral slot supports a 3U PXI/CompactPCI peripheral module.

Figure 2-7 PXI bus signal routing



Local bus

The PXI backplane local bus is a daisy-chained bus that connects each peripheral slot with its adjacent (left/right) peripheral slots. Each local bus has 13 lines and can transmit analog or digital signals between modules. It also provides a high speed sideband communication path that does not affect the PXI bandwidth.

Based on PXI specifications, the local bus connects all adjacent slots except slots 1 and 2.

Trigger bus

The trigger bus is an 8-line bus that connects all PXI slots in the same PCI segment. You can use the trigger bus as an intermodule synchronization mechanism. PXI modules can transmit trigger or clock signals to one another through the trigger bus, enabling precise timed responses to asynchronous external events that the system is monitoring or controlling.

System reference clock

The backplane contains a PXI 10 MHz system reference clock (PXI_CLK10). An independent buffer (source impedance matched to the backplane and a skew of less than 1 ns between slots) drives the clock signal generated from a high-precision oscillator to each peripheral slot. You can use this common reference clock signal to synchronize multiple modules in a PXI chassis.

Chapter 3

Installation

The chapter tells you how to install the system controller, peripheral modules and drivers into the 3000 and 3000B chassis. It also provides information on cooling considerations and installation/calibration of the touch panel (3000B only)

Installing the system controller

The 3000 and 3000B have a system controller slot that supports a PXI system controller, such as 3001B/3001C.

To install the system controller:

1 Make sure that the CPU, memory module(s) and storage device(s) are properly installed on the system controller module.

2 Locate the system controller slot (Slot 1).



3 Push down (loosen) the system controller module's ejector/injector handle(s).

4 Align the module's top and bottom edges to the card guides, then carefully slide the module into the chassis.

5 Pull up the ejector/injector handle(s) to engage the module's connectors with the chassis backplane.

6 Fasten the screws on the module front panel, then connect all devices to the system controller.

Installing peripheral modules

The 3000 and 3000B support up to seven PXI/cPCI peripheral modules, including a star trigger module.

To install a peripheral module:

1. Select an available peripheral slot (Slots 2 to 8).
2. Push down (loosen) the peripheral module's ejector/injector handle(s), then align the module's top and bottom edges to the card guides.
3. Carefully slide the module into the chassis.
4. Pull up the ejector/injector handle(s) to engage the module's connectors with the chassis backplane.
5. Fasten the screws on the module front panel, then connect all devices.

Cooling considerations

The 3000 and 3000B implement forced air-cooling to maintain a stable chassis and power supply temperature. Internal fans suck in air at room temperature through the air inlet apertures at the bottom of the chassis while hot air is exhausted though the air outlet apertures on top.



For bench-top installations, provide adequate clearance for the air inlet and outlet apertures. Keep other objects or equipment at least 5 cm (2 in) away from the outlet apertures and avoid covering these holes. For optimum airflow, provide ample clearance for the air inlet apertures and open the foot stands, if possible.

There are also air inlet apertures on one side of the chassis for power supply ventilation. Hot air from the power supply is exhausted through the chassis rear. Maintain a 2.5 cm (1 in) clearance on the chassis sides for adequate power supply ventilation.



Powering up the system

The 3000 and 3000B are equipped with a universal power supply unit that does not require input voltage selection.

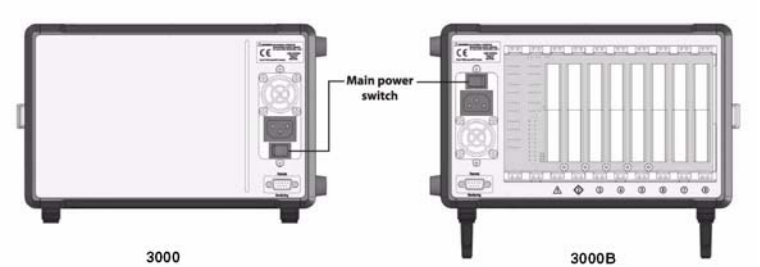
To turn on the system:

1 Connect one end of the supplied power cable to the power connector located at the rear of the chassis.

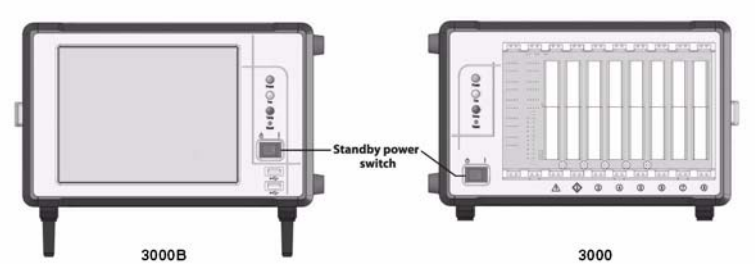


2 Plug the other end of the AC power cord into a properly grounded wall socket or power strip.

3 Turn on the main power switch (|).



4 Turn on the standby power switch on the front panel. The power LED on the front panel lights up green and the chassis fans start to operate.



To turn off the system:

1 Shut down the system via the operating system.

2 Move the standby power switch to standby position (⏻)

or

3 Turn off the main power switch (O).

CAUTION	*When you put the system into standby mode using the standby power switch, wait three seconds before you turn on the system again. This protects installed PXI modules from damage.* *If you turn on the system immediately from standby mode, it may take at least three seconds for the POST messages to appear on-screen.*

Operating system

The 3001B/3001C is supplied with Windows XP pre-installed. For more information, refer to the documentation provided by the operating system's vendor.

Consult the release notes and installation documentation provided by the operating system vendor for documentation discrepancies and/or compatibility issues, problems, and solutions.

Installing device drivers

Installing the chassis description file (chassis.ini)

To allow inter-operability of PXI platform and modules from different vendors, PXI specifications define the hardware description files to describe the hardware characteristics in ASCII text format. System integrators can use the hardware description files to configure the system with various PXI controllers, chassis and modules.

Aeroflex provides a complete list of chassis description files (chassis.ini) for the PXI chassis. You can find the chassis description files in `X:\PXIChassis\INI Files` (X: is the CD-ROM drive in which you inserted the Aeroflex CD-ROM).

Installing the VGA driver (3000B only)

Note that the VGA driver is normally supplied pre-installed.

The 3000B is equipped with a 21 cm (8.4”) LCD with touch-panel features. The correct drivers are required for the LCD and the touch panel to function.

You can find the VGA drivers on the Aeroflex CD-ROM. Refer to the list below:

- For a 3000B chassis with 3001B system controller, the VGA driver is located in this folder:

  `X:\PXIController\3001B\VGA\Win2kXP`
- For a 3000B chassis with 3001C system controller, the VGA driver is located in this folder:

  `X:\PXIController\3001C\VGA\Win2kXP`

To install the VGA driver:

1 Connect an external monitor to the VGA port of the PXI system controller.

2 Adjust the PXI system controller’s BIOS setup to output the video signals using the rear panel I/O. Refer to the PXI system controller documentation for details.

3 Install the correct VGA driver according to the PXI system controller. Refer to the list above.

4 If the VGA driver supports dual-display mode, make sure the video signal is output to both display devices (monitor and notebook). Refer to the PXI system controller documentation for details.

Installing the touch panel driver (3000B only)

Note that the touch panel driver is normally supplied pre-installed.

The 3000/3000B LCD is equipped with touch panel functionality for convenient data input and GUI navigation.

To install the touch panel driver:

1 Connect a USB CD-/DVD-ROM to the system or PXI controller.

2 Place the Aeroflex CD-ROM in the optical drive.

3 Locate the touch panel drivers in:

`X:\PXIChassis\3000B\Touch Panel\2K-XP`

then double-click on the Setup.exe file to begin installation.

4 After installation is finished, a calibration program appears. Refer to the next section for details.

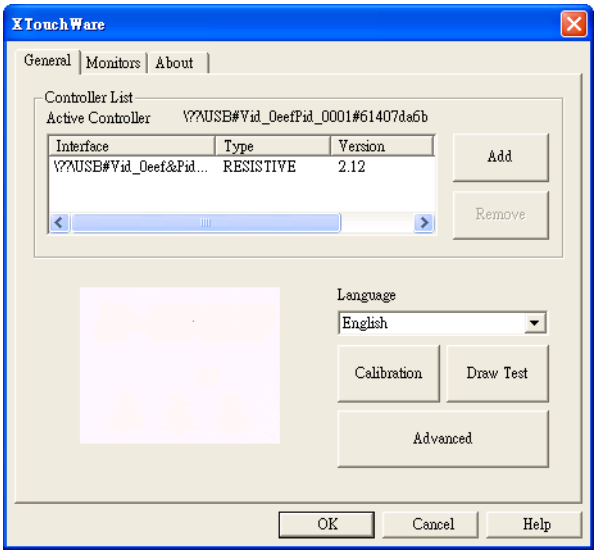
Calibrating the touch panel

The touch panel is normally supplied pre-calibrated. However, after reinstalling the touch panel driver, you need to recalibrate the screen for accurate touch operation. The calibration tool (XTouchware) is automatically installed together with the touch panel driver.

To calibrate the touch panel:

1 Tap or double-click on the XTouchWare icon from the desktop or launch the utility from the Windows Start menu.

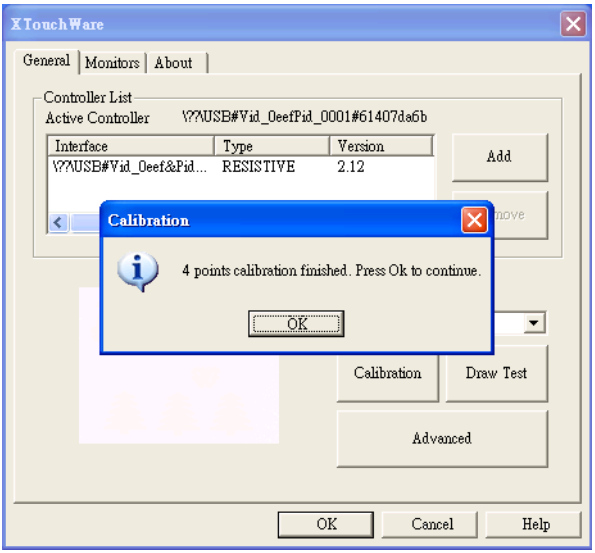
2 Tap or click on the **Calibration** button. A 4-point calibration window appears.



3 Tap or click on the center of the blinking **X** symbol, then hold for a few seconds until it stops blinking. Repeat the process for all X symbols that appear at the four corners of the screen.



4 When finished, click **OK** to store the calibration data.



Using the touch panel (3000B only)

The 3000B touch panel LCD provides an intuitive way to interact with the operating system. You can use the touch panel as a replacement for a mouse. Use your finger to move the cursor onscreen. The table below lists all mouse operations and their corresponding touch panel equivalents.

Mouse operation	Touch panel
Left-click	Tap the screen once
Right-click	Tap and hold the screen for 3 to 5 seconds
Double-click	Tap the screen twice
Drag and drop	Tap the screen, then drag the window by moving your finger

Chapter 4

Remote management

The 3000 and 3000B chassis provide advanced remote monitoring and control functions. The chassis status, including its internal temperature, fan speed, and DC voltages, is exported via the standard RS-232 port located in the rear panel, allowing you to monitor the system on a remote computer. You may also use a remote computer to turn the system on or off through the monitoring port by sending software commands.



To remotely monitor and control the 3000 or 3000B, you need to connect the remote monitoring port to a computer using a non-null-modem straight DB9 female to DB9 female RS-232 cable.

Installing the monitor utility

Note that the monitor utility is normally supplied pre-installed.

You can find a setup file to install the remote monitoring utility and function library on the CD-ROM.

To install the monitoring utility:

1 Connect a USB CD-/DVD-ROM drive to the system controller.

2 Place the CD-ROM in the optical drive.

3 Locate the monitoring utility in this folder:

`X:\PXIChassis\3000\RemoteMon`

or

`X:\PXIChassis\3000B\RemoteMon`

then double-click on the *setup.exe* file to begin installation.

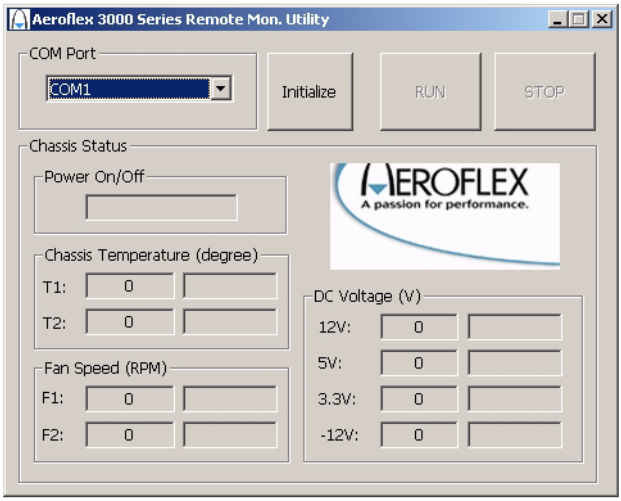
Monitoring the system

Using the monitor utility (PXISRemoteMonUtil)

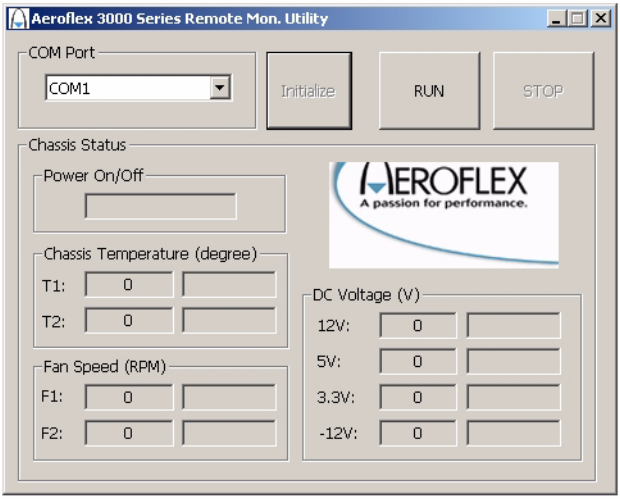
To monitor the system using the monitor utility:

1 Launch the PXISRemoteMonUtil.

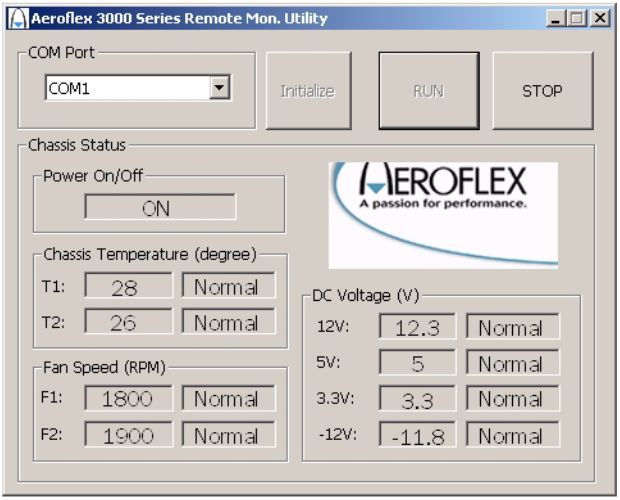
2 Select the COM port that connects the remote computer with the 3000 and 3000B (COM1 in this example).



3 Click **Initialize** to initialize the COM port. If the COM port is successfully initialized, the **RUN** button is enabled.



4 Click **RUN** to display the chassis temperature, fan speed and DC voltages. These values update automatically.



5 Click **STOP** to stop monitoring.

Using the monitoring/control function library

You can use the monitoring/control function library to create a customized program that monitors and controls the 3000 and 3000B. Refer to the data structure and function library below.

Data structure

In the library, a data structure is defined to describe the chassis status.

```
typedef struct tagChassisStatus
{
     BYTE       PowerStatus

     //Fan status and RPM
     BYTE       Fan1Status;
     BYTE       Fan2Status;
     BYTE       Fan3Status;
     BYTE       Fan4Status;
     BYTE       Fan5Status;
     BYTE       Fan6Status;
     float      Fan1RPM;
     float      Fan2RPM;
     float      Fan3RPM;
     float      Fan4RPM;
     float      Fan5RPM;
     float      Fan6RPM;

     //Temperature sensor status and reading in
     degree centigrade
     BYTE       Temp1Status;
     BYTE       Temp2Status;
     float      Temp1Reading;
     float      Temp2Reading;

     //DC status and reading
     BYTE       DC1Status;
     BYTE       DC2Status;
     BYTE       DC3Status;
     BYTE       DC4Status;
     float      DC1Reading;
     float      DC2Reading;
     float      DC3Reading;
     float      DC4Reading;
     BYTE       Reserve1;
     BYTE       Reserve2;
} ChassisStatus;
```

The variables in the data structure are illustrated below.

Variable	Description	Type	Value
PowerStatus	Power On/Off status	BYTE	0: Off 1: On
Fan1Status	Fan#1 operating status	BYTE	0: Normal 1: Abnormal
Fan2Status	Fan#2 operating status	BYTE	0: Normal 1: Abnormal
Fan3Status	Not used	BYTE	N/A
Fan4Status	Not used	BYTE	N/A
Fan5Status	Not used	BYTE	N/A
Fan6Status	Not used	BYTE	N/A
Fan1RPM	Fan#1 speed in RPM	float	RPM value
Fan2RPM	Fan#2 speed in RPM	float	RPM value
Fan3RPM	Not used	float	N/A
Fan4RPM	Not used	float	N/A
Fan5RPM	Not used	float	N/A
Fan5RPM	Not used	float	N/A
Temp1Status	Temperature sensor#1 status	BYTE	0: Normal 1: Abnormal
Temp2Status	Temperature sensor#1 status	BYTE	0: Normal 1: Abnormal
Temp1Reading	Reading of temperature sensor#1 in °C	float	Temperature value
Temp1Reading	Reading of temperature sensor#2 in °C	float	Temperature value
DC1Status	DC 12 V status	BYTE	0: Normal 1: Abnormal
DC2Status	DC 5 V status	BYTE	0: Normal 1: Abnormal
DC3Status	DC 3.3 V status	BYTE	0: Normal 1: Abnormal
DC4Status	DC -12 V status	BYTE	0: Normal 1: Abnormal
DC1Reading	DC 12 V voltage reading	float	Voltage value
DC2Reading	DC 5 V voltage reading	float	Voltage value
DC3Reading	DC 3.3 V voltage reading	float	Voltage value
DC4Reading	DC -12 V voltage reading	float	Voltage value

Function reference

InitCOM

Description

Initializes the remote computer COM port connected to the remote monitoring port of the 3000 and 3000B.

Syntax

```
HANDLE InitCOM(LPCSTR com)
```

Parameter

com	A string denotes the COM port. Can be COM1~COM8.

Return value

A handle to the initialized COM port. If the function returns NULL, the initialization of COM port failed.

Example

```
HANDLE     hCOM;
hCOM= InitCOM(“COM1”);
```

GetChassisStatus

Description

Gets the chassis status and stores the status in a ChassisStatus structure. You can invoke this function periodically to update the chassis status.

Syntax

```
BOOL GetChassisStatus(HANDLE hCom, ChassisStatus*
     Status)
```

Parameters

hCom	The initialized COM port.
Status	ChassisStatus data structure that stores the chassis status

Return value

TRUE if the function succeeded. FALSE if the function failed.

Example

```
ChassisStatus   status;
BOOL            ret;
ret= GetChassisStatus(hCom, &status);
```

SetChassisPowerOn

Description

Powers on the 3000/3000B.

Syntax

```
BOOL SetChassisPowerOn (HANDLE hCom)
```

Parameter

com The initialized COM port.

Return value

TRUE if the function succeeded. FALSE if the function failed.

Example

```
BOOL            ret;
ret= SetChassisPowerOn (hCom);
```

SetChassisPowerOff

Description

Powers off the 3000/3000B. You should shut down the system controller via the operating system before turning off the chassis power.

Syntax

```
BOOL SetChassisPowerOff (HANDLE hCom)
```

Parameter

com The initialized COM port.

Return value

TRUE if the function succeeded. FALSE if the function failed.

Example

```
BOOL            ret;
ret= SetChassisPowerOff (hCom);
```

CloseCOM

Description

Closes the initialized COM port.

Syntax

```
BOOL CloseCOM(HANDLE hCom)
```

Parameter

com The initialized COM port.

Return value

TRUE if the function succeeded. FALSE if the function failed.

Example

```
BOOL            ret;
ret= CloseCOM (hCom);
```

Chapter 5

Chassis troubleshooting and maintenance

Installation problems

Failure to start the system usually results from incorrect installation of the system controller, peripheral modules or other components. Go through the following checklist before you start up the system.

Check that:

- The system controller is properly installed and secured.
- All peripheral modules are properly seated in the slots.
- All cables are properly connected to the system controller/peripheral modules.
- All peripheral modules installed are compatible for use in the chassis.
- The power cord is properly plugged into the chassis power connector and power outlet/wall socket/power strip.

If the system fails to turn on even after all installation conditions are met, remove all peripheral modules that you installed, then try again. If the system turns on properly, try installing one peripheral module at a time, then test if the system powers up. You can also try installing the modules into different slots until you get the desired result.

BIOS beeps

BIOS beeps indicate errors in system initialization. These beeps are usually associated with video and memory errors. If the system beeps during start up, check if the display is properly connected to the system controller or if the integrated LCD drivers (3000B only) are properly installed. You can also check if the memory modules are properly installed in the system controller.

Basic troubleshooting

Problem	What to do
System fails to power up	• Check if the power cord is properly plugged into the chassis power connector and wall socket/power strip. • Check if the wall socket/power strip is live. • Check if the main power switch at the back of the chassis is turned on. • Make sure the standby power button on the chassis front panel is turned on.
There is no display on the LCD (3000B only)	• Make sure the system is turned on. • Connect an external display to the system controller's VGA port, then check if there is video output. • If video output is present on the external display, adjust your display settings and enable LCD video. • If video output is not present on the external display, check if the system controller is properly installed. • If there is no video output even when the system controller is properly installed, contact Aeroflex for further assistance.
There is no video output on the external display	• Redirect the video output to the integrated LCD (3000B only). • Check if your external display is functioning. • Check your display settings and make sure you enable external video. • Refer to Appendix C No video output.

Problem	What to do
The touch panel does not work	• Disconnect any external PS/2 or USB mouse cable from the system controller. • Make sure you installed the touch panel drivers.
The touch panel is not responsive enough or is very sensitive to stylus and/or finger tap.	• Run the XTouchware utility to recalibrate the touch panel. • Clean the LCD with a clean cloth.

Maintenance

Taking care of the touch panel LCD (3000B only)

Clean the LCD periodically with a moist cloth for a better display. Observe the following precautions when cleaning the LCD.

- Do not use any abrasive material to wipe the LCD screen, to avoid scratching its surface.
- Do not apply too much pressure to the surface when wiping the LCD screen.
- Do not use a cleaner that contains alcohol.
- Do not use a rough cloth that could scratch the LCD screen surface.
- Clean the LCD screen with gentle wipes in one direction.

Changing the fan filter

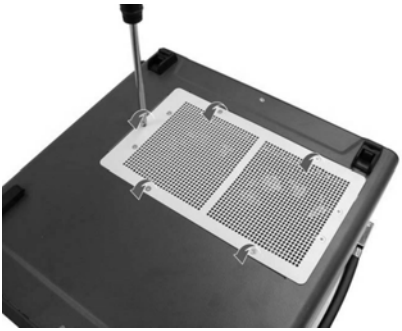
The air inlet fans installed at the bottom of the chassis have a filter that prevents dirt and dust from entering the chassis. You need to replace the air filter periodically to maintain good chassis airflow.

To change the fan filter:

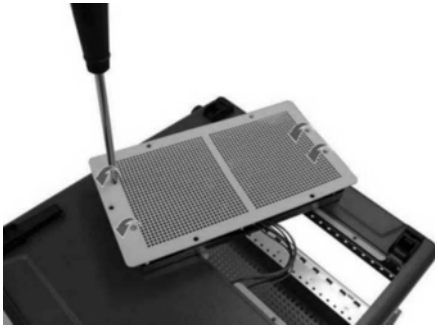
1 Turn off the chassis, then disconnect all cables connected to the chassis, system controller, and peripheral modules.

2 Lay the chassis upside down on a flat and stable surface.

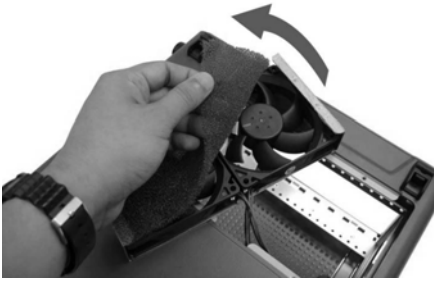
3 Loosen five screws, lift the fan tray carefully, then lay it on top of the chassis.



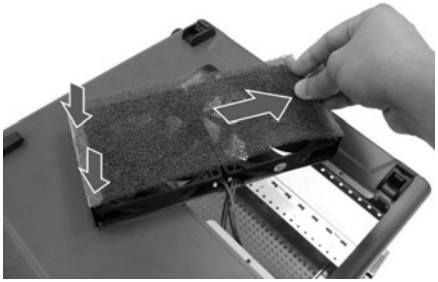
4 Loosen four screws to remove the fan tray cover.



5 Take off the old air filter.



6 Peel the adhesive on both ends of the new air filter, then stick them on the fan tray edges. Stretch the filter to cover the whole fan tray length.



CAUTION *Make sure the fan blades do not come into contact with the air filter.*

7 Replace the fan tray cover, then reinstall the fan tray into the chassis.

8 Connect all cables, then turn on the system.

Handling the chassis

While the 3000/3000B is an ultra-portable testing system, we recommended that you carry the chassis using the handles. They are designed to support the weight of the chassis to improve portability and balance.

Handling cables

Treat all cables with care. To prevent internal breakage, do not over-extend any cable. All cables and plugs must be handled and connected carefully.

Cleaning the exterior

Make sure that you turn the system off before cleaning the chassis exterior. Wipe the exterior with a clean cloth, starting from areas that easily accumulate dust or dirt such as the area in and around the air inlet apertures for the chassis and power supply.

Power requirements

Make sure that the power cord is in good condition before plugging it into the system. You also need to check the reliability of the power source. The 3000/3000B power supply is capable of handling 100 V to 240 V AC within the 50 Hz to 60 Hz range. Do not connect the 3000 or 3000B to an already overloaded circuit.

Part 2:
3001B/3001C System Controller

3001B/3001C 3U System Controller

See Part 1 for 3000 and 3000B Chassis

Chapter 6

Introduction

The 3001B and 3001C are 3U PXI system controllers for hybrid PXI-based testing systems. The 3001B incorporates an Intel® Pentium M 760 2.0 GHz processor and 915GME chipset. The 3001C combines an Intel® Core™2 Duo T7500 2.2 GHz processor, GME965 chipset, and 4 GB 667 MHz DDR2 memory.

The hybrid PXI-based testing system is usually composed of a PXI platform and diversified stand-alone instruments for elaborate testing tasks. 3001B and 3001C provide ample interfaces, including GPIB, USB, and COM ports for connecting and controlling instruments. Further, 3001B and 3001C are equipped with dual Giga-bit Ethernet ports so that you can use one for LAN connectivity and the other for controlling next-generation LXI instruments.

The 3001B and 3001C are designed to deliver excellent durability and reliability. The cable-free mechanical construction of the 3001B/3001C is extremely durable. All CPU and memory chips are soldered onto the PCB to increase resistance to shock and vibration. An alumni-copper composite heat sink helps to disperse heat uniformly to maintain a stable operating temperature.

The 3001C has two computing engines on a single processor, which can execute two independent tasks at the same time in a multi-tasking environment.

Features

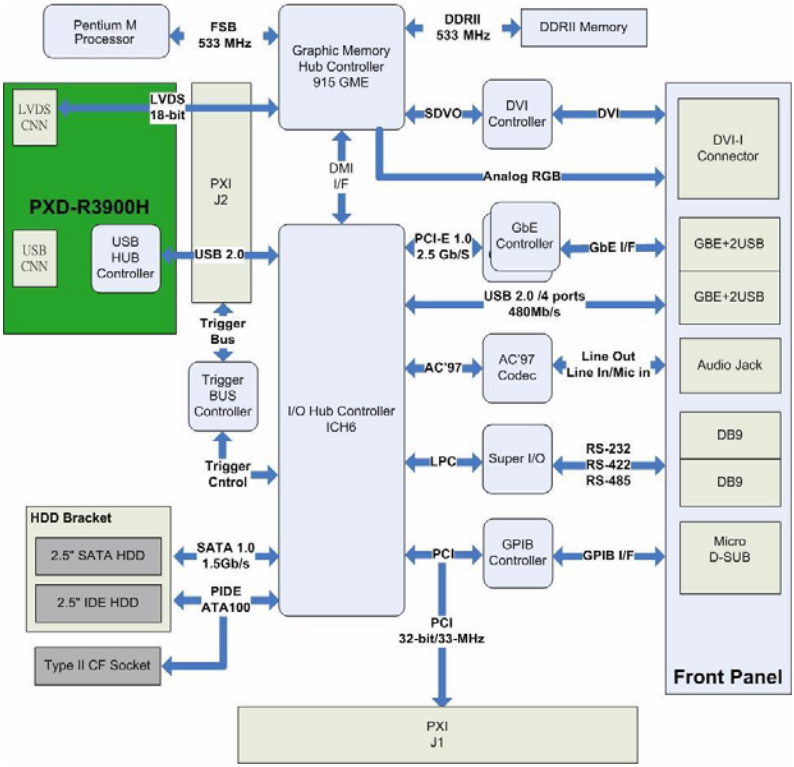
- PXI specification Rev. 2.2 Compliant
- Scalable computing power
  - Intel® Pentium M 760 2.0 GHz processor (3001B)
  - Intel® Core™2 Duo T7500 2.2 GHz processor (3001C)
- On-board soldered CPU and memory to provide excellent shock and vibration resistance
- On-board soldered 1.5 GB (3001B) or 4 GB (3001C) DDR2 memory
- Integrated 80 GB (3001B) or 120 GB (3001C) SATA hard drive
- One CompactFlash socket for HDD replacement
- Integrated I/O
  - Dual Gigabit Ethernet ports
  - Four USB 2.0 Ports
  - Built-in GPIB (IEEE488) controller
  - Two RS-232/422/485 ports
  - DVI-I video connector
  - High definition audio output and input
  - Trigger I/O for advanced PXI trigger functionality
- Programmable watchdog timer

Chapter 7

Hardware information

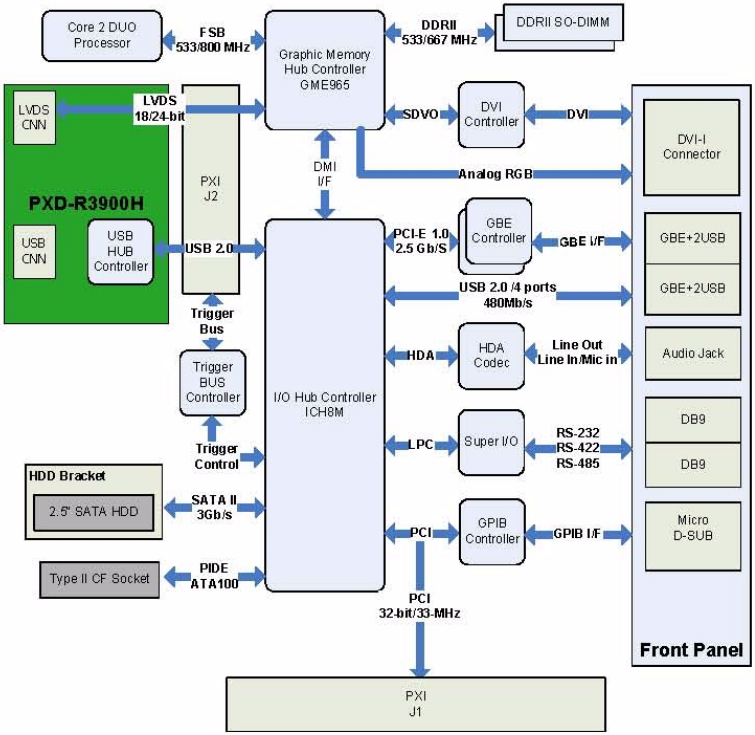
3001B block diagram

Figure 7-1 3001B block diagram



3001C block diagram

Figure 7-2 3001C block diagram



3001B specifications

Form Factor	• 3-slot 3U PXI module • One system slot and two controller expansion slots
Weight	• 0.9 kg
CPU	• Intel Pentium M 760 2.0 GHz processor, 2 MB L2 cache and 533 MHz FSB supported
Chipset	• Intel 915GME Graphic Memory Control HUB • Intel I/O Controller Hub 6 Mobile (ICH6-M)
RAM	• Supports dual channel DDR2 SDRAM, 533 MHz, Up to 1.5 GB memory capacity • 1.5 GB on-board soldered memory
BIOS	• Phoenix-Award BIOS in 4 Mb FWH
Display	• DVI-I connector for both digital and analog video signal outputs • Intel GMA 900 graphic media accelerator integrated in Intel 915GME Express Chipset **DVI output** • Single channel TMDS via SDVO to DVI controller • Supports up to 1600 x 1200 resolution **CRT output** • Analog CRT route to DVI-I connector on the faceplate • Supports up to 2048 x 1536 resolution **LVDS output (for rear I/O only)** • Single 18-bit LVDS Channel route to rear transition module • Supports LCD backlight control
Ethernet	• Dual Gigabit Ethernet controllers • Two RJ-45 connectors with speed/link/active LED on the faceplate
Hard Drive	• Supports Gen1 SATA interface, data transfer rate up to 150MB/s • Built-in 2.5", 80 GB SATA hard drive, 5400 RPM
CompactFlash	• One type II CF Socket, supporting ATA and PIO Type I and Type II CompactFlash card
USB	• Four USB 2.0 ports on the faceplate

GPIB	• On-board IEEE488 GPIB controller • Micro-D 25-pin connector on the faceplate (GPIB cable not included)
Serial Port	• Two 16C550 UART compatible COM ports on the faceplate • Supports RS-232, RS-422 and RS-485, configurable by jumper setting
Audio	• Supports High Definition Audio • Two audio jacks on the faceplate for line in and speaker out
Trigger I/O	• One SMB connector on the faceplate to route an external trigger signal to/from PXI trigger bus
OS Compatibility	• Microsoft Windows 2000 • Microsoft Windows XP • Other OS support upon request
Environment	**Temperature** • Operating: 0 °C to 55 °C • Storage: -20 °C to 80 °C • Humidity: 5% to 95% non-condensing • Shock: 30 G half-sine, 11 ms pulse duration **Vibration:** • Non-operating, 2.46 Grms, 5 Hz to 500 Hz, three axis • Operating, 0.5 Grms, 5 Hz to 500 Hz, three axis with HDD • Operating, 6 Grms, 5 Hz to 500 Hz, three axis with solid state disk
Safety Certificates and Tests	**Electromagnetic compatibility** • Emissions: EN 55011 Class A • Immunity: EN 61326-1 **CE Compliance** • 3001B meets the requirements of applicable European Directives.
Power Requirements	• 3.3 V: 1500 mA • 5 V: 7580 mA • 12 V: 550 mA

3001C specifications

Form Factor	• 3-slot 3U PXI module • One system slot and two controller expansion slots
Weight	• 0.9 kg
CPU	• Intel Core 2 Duo T7500 2.2 GHz processor, 800 MHz FSB supported
Chipset	• Mobile Intel GME965 Graphic Memory Control HUB • Intel I/O Controller Hub 8 Mobile (ICH8-M)
RAM	• Supports dual channel DDR2 SDRAM, 667 MHz • 4 GB on-board soldered memory
BIOS	• Phoenix-Award BIOS in 4 Mb FWH
Display	• DVI-I connector for both digital and analog video signal outputs • Intel GMA X3100 graphic media accelerator **DVI output** • Single channel TMDS via SDVO to DVI controller • Supports up to 1600 x 1200 resolution **CRT output** • Analog CRT route to DVI-I connector on the faceplate • Supports up to 2048 x 1536 resolution **LVDS output (for rear I/O only)** • Single 18-bit LVDS Channel route to rear transition module • Supports LCD backlight control
Ethernet	• Dual Gigabit Ethernet controllers • Two RJ-45 connectors with speed/link/active LED on the faceplate
Hard Drive	• Built-in 2.5", 120 GB SATA hard drive, 7200 RPM
CompactFlash	• One type II CF Socket, supporting DMA and PIO modes
USB	• Four USB 2.0 ports on the faceplate
GPIB	• On-board IEEE488 GPIB controller • Micro-D 25-pin connector on the faceplate (GPIB cable not included)

Serial Port	• Two 16C550 UART compatible COM ports on the faceplate • Supports RS-232, RS-422 and RS-485, configurable by jumper setting
Audio	• Supports High Definition Audio • Two audio jacks on the faceplate for line in and speaker out
Trigger I/O	• One SMB connector on the faceplate to route an external trigger signal to/from PXI trigger bus
Environment	**Temperature** • Operating: 0 °C to 55 °C • Storage: -20 °C to 80 °C • Humidity: 5% to 95% non-condensing • Shock: 30 G half-sine, 11 ms pulse duration **Vibration:** • Non-operating, 2.46 Grms, 5 Hz to 500 Hz, three axis • Operating, 0.5 Grms, 5 Hz to 500 Hz, three axis with HDD
Safety Certificates and Tests	**Electromagnetic compatibility** • Emissions: EN 55011 Class A • Immunity: EN 61326-1 **CE Compliance** • 3001C meets the requirements of applicable European Directives.
Power Requirements	• 3.3 V: 650 mA minimum, 820 mA maximum • 5 V: 4.2 A minimum, 13.5 A maximum

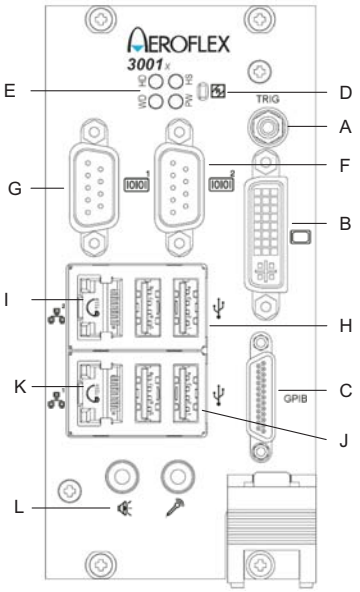
I/O connectors & pin assignments

Table 7-1: Peripheral connectivity

Peripheral	Faceplate Connector	On-board Connector
Video	DVI-I (DVI+VGA)	
Gigabit Ethernet	GbE#1 (RJ-45) GbE#2 (RJ-45)	
USB	USB#1 (Type A) USB#2 (Type A) USB#3 (Type A) USB#4 (Type A)	
GPIB	GPIB (Micro DB-25)	
Serial Port	COM#1 (DB-9) COM#2 (DB-9)	
HD Audio	Line-in + Speaker-out (audio jacks)	
PXI Trigger	TRIG (SMB)	
CompactFlash		Type II CF socket
SATA		SATA Gen 1 port

Faceplate connectors/indicators

Figure 7-3 3001B/3001C faceplate



Symbol	Function
A	PXI Trigger I/O (SMB Connector)
B	DVI-I Connector
C	GPIB Connector (Micro D-Sub 25P)
D	Reset Button
E	LED indicators
F	COM2 (DB9)
G	COM1 (DB9)
H	2x USB connectors (Type-A)
I	Gigabit Ethernet #2 (RJ-45)
J	2x USB connectors (Type-A)
K	Gigabit Ethernet #1 (RJ-45)
L	Audio Jack

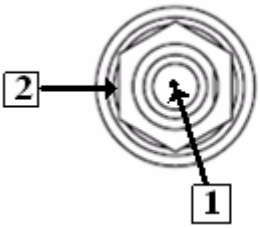
PXI trigger connector

The PXI trigger connector is a SMB connector and is used to route an external trigger signal to or from the PXI backplane. Trigger signals are TTL compatible and edge sensitive. The 3001B/C provides four trigger routing modes from/to the PXI trigger connector to synchronize PXI modules, including:

- From a selected trigger bus line to PXI trigger connector
- From the PXI trigger connector to a selected trigger bus line
- From software trigger to a selected trigger bus line
- From software trigger to PXI trigger connector.

All trigger modes are programmable by the driver provided with 3001B/C. Please refer to Appendix A for further information.

Figure 7-4 PXI trigger & pin assignments

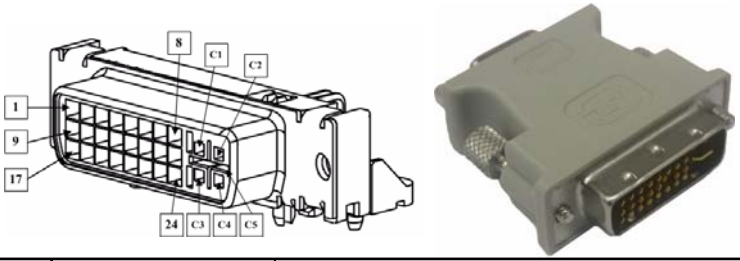


PIN	Signal
1	Trigger
2	Ground

DVI-I connector

The DVI-I connector is used to connect 3001B/C to the monitor. 3001B/C supports both digital (DVI) and analog (VGA) monitors. While connecting to an analog (VGA) monitor, you need to install the DVI-to-VGA adapter, which is shipped with 3001B/C controllers, on the DVI-I connector.

Figure 7-5 DVI connector & pin assignments



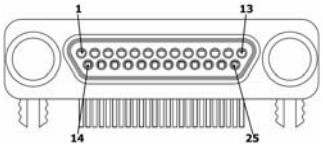
PIN	Signal	Description
1	TMDS Data2-	T.M.D.S link#0 Channel#2 Differential Pair
2	TMDS Data2+	
3	Shield Ground	T.M.D.S channel#0 Shield
4	Reserved	Reserved for link#1
5	Reserved	Reserved for link#1
6	DDC Clock	The clock line for the DDC I/F
7	DDC Data	The data line for the DDC I/F
8	Analog VSYNC	Vertical synchronization signal for the analog interface
9	TMDS Data1-	T.M.D.S link#0 Channel#1 Differential Pair
10	TMDS Data1+	
11	Shield Ground	T.M.D.S channel#1 Shield
12	Reserved	Reserved for link#1
13	Reserved	Reserved for link#1
14	+5V Power	Provide by the system to enable the monitor to provide EDID
15	Ground	Return for +5V,HSync and VSync
16	Hot Plug Detect	Driven by monitor to enable the system to identify the presence o
17	TMDS Data0-	T.M.D.S link#0 Channel#0 Differential Pair
18	TMDS Data0+	
19	Shield Ground	T.M.D.S channel#0 Shield
20	Reserved	Reserved for link#1
21	Reserved	Reserved for link#1
22	Ground	T.M.D.S Clock Shield
23	TMDS Clock+	T.M.D.S Clock Differential Pair
24	TMDS Clock-	
C1	Analog Red	Analog Red Signal
C2	Analog Green	Analog Green Signal
C3	Analog Blue	Analog Blue Signal
C4	Analog HSYNC	Vertical synchronization signal for the analog input
C5	Analog Ground	Analog R,G and B return

GPIB connector

The GPIB connector on 3001B/C is a micro D-sub 25P connector and is used to control external bench-top instruments. You need a 25-pin micro-D to GPIB cable to connect 3001B/C and any instruments. The on-board GPIB controller has the following features:

- Fully compatible with the IEEE 488 standard
- Up to 1.5 MB/s data transfer rates
- On-board 1 kB (3001B)/2 kB (3001C) FIFO for read/write operations
- Provides driver APIs compatible with NI-488.2 driver software
- Up to 14 instruments may be connected

Figure 7-6 GPIB connector & pin assignments



PIN	Signal	Description
1	DIO1#	GPIB Data 1
2	DIO2#	GPIB Data 2
3	DIO3#	GPIB Data 3
4	DIO4#	GPIB Data 4
5	EOI	End Or Identify
6	DAV	Data Valid
7	NRFD	Not Ready For Data
8	NDAC	Not Data Accepted
9	IFC	Interface Clear
10	SRQ	Service Request
11	ATN	Attention
12	Chassis Ground	Chassis Ground
13	Ground	Signal Ground
14	DIO5#	GPIB Data 5
15	DIO6#	GPIB Data 6
16	DIO7#	GPIB Data 7
17	DIO8#	GPIB Data 8
18	REN	Remote Enable
19	Ground	Signal Ground
20	Ground	Signal Ground
21	Ground	Signal Ground
22	Ground	Signal Ground
23	Ground	Signal Ground
24	Ground	Signal Ground
25	Ground	Signal Ground

Reset button

The reset button is used to perform hard reset for 3001B/C. Use a straightened paper clip to push the reset button.

LED indicators

There are four LED indicators on the faceplate to indicate the operating status of the 3001B/C. The following table describes the color and function of the LED indicators.

Table 7-2: LED indicators

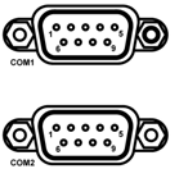
LED indicator	Color	Description
Power LED	Green	Indicates the system power status. If the LED is on, the system boots up normally and the main power supply is good.
HDD LED	Yellow	Indicates the operating state of the HDD. When the SATA hard drive or CF card is active, the LED indicator flashes.
Watchdog	Red	Indicates the status of the watchdog timer. When the watchdog timer expires, the LED is on. Refer to Appendix B for programming information of watchdog timer.
HS LED	Blue	Indicates system status. If the system status is good, the LED is on and then off during system boot-up. If the LED flashes, the system has a fault. Note: If you encounter faulty operation, try to clear CMOS and boot again. If the problem continues, contact Aeroflex for help.

COM ports

The 3001B provides two COM ports on the faceplate in D-sub 9P connectors. These two serial ports are 16C550 UART compatible and support RS-232/RS-422/RS-485 by jumper selection. See COM1/COM2 mode settings (JP1/2/3/4/5/6) for setting the COM ports.

Figure 7-7 COM ports & pin assignments

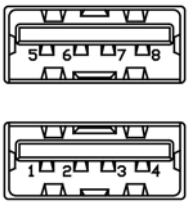
PIN	Signal Name		
	RS-232	RS-422	RS-485
1	DCD#	TXD422-	485DATA-
2	RXD#	TXD422+	485DATA+
3	TXD#	RXD422+	
4	DTR#	RXD422-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		



USB 2.0 ports

The 3001B/C provides four USB 2.0 ports via Type A USB connectors on the faceplate. All USB ports are compatible with high-speed, full-speed, and low-speed USB devices. The 3001B/C controller supports multiple boot devices, including USB flash drive, USB floppy, USB CD-ROM, etc. The boot priority and boot device can be configured in BIOS.

Figure 7-8 USB 2.0 ports & pin assignments



PIN	Signal
1/5	Power 5V
2/6	USB Data-
3/7	USB Data +
4/8	Ground

Additionally, the 3001B/C is shipped with a USB-to-PS2 cable for users who need to connect a PS/2 keyboard and mouse.

Figure 7-9 USB-to-PS/2 cable



Gigabit Ethernet port

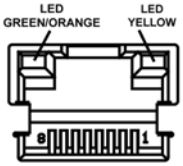
The 3001B integrates two Marvell 88E8053 Gigabit Ethernet controllers via an X1 PCI-Express interface to provide dual Ethernet connectivity.

The 3001C has one GbE port from an Intel ICH8M MAC/Intel 82566 PHY and one GbE port from a Marvell 88E8053 Gigabit Ethernet controller via an x1 PCI Express interface to provide dual Gigabit Ethernet connectivity.

The Ethernet controller supports the following features:

- x1 PCI Express interface with 2.5 GHz signaling
- Advanced error reporting
- Message signaled interrupts
- TCP segmentation off load/large-send support
- 802.3x flow control-compliant
- IEEE 802.1p and 802.1q support
- 10/100/1000 IEEE 802.3-compliant
- Automatic MDI/MDIX crossover at all speeds
- ACPI 2.0 specification
- Wake-On-Link feature
- Fully integrated ASF 2.0 functionality with on-chip µc
- SMBus 2.0 master interface for ASF functionality
- Serial Peripheral Interface (SPI) for ASF firmware

Figure 7-10 Gigabit Ethernet port & pin assignments



PIN	1000Base-T Signal	100/10Base-T Signal
1	MDI0+	TX+
2	MDI0-	TX-
3	MDI1+	RX+
4	MDI2+	Reserve
5	MDI2-	Reserve
6	MDI1-	RX-
7	MDI3+	Reserve
8	MDI3-	Reserve

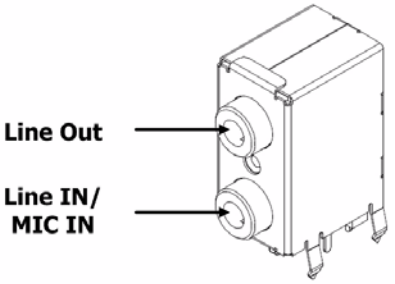
Table 7-3: Gigabit Ethernet LED status description

Active/Link LED		
}	Status	Description
Yellow	Off	Ethernet port is disconnected
	ON	Ethernet port is connected with no data transmission
	Flash	Ethernet port is connected and is transmitting/receiving data.
Speed LED		
LED Color	Status	Description
Green/Orange	Off	10 Mbps
	Green	100 Mbps
	Orange	1000 Mbps

High definition audio ports

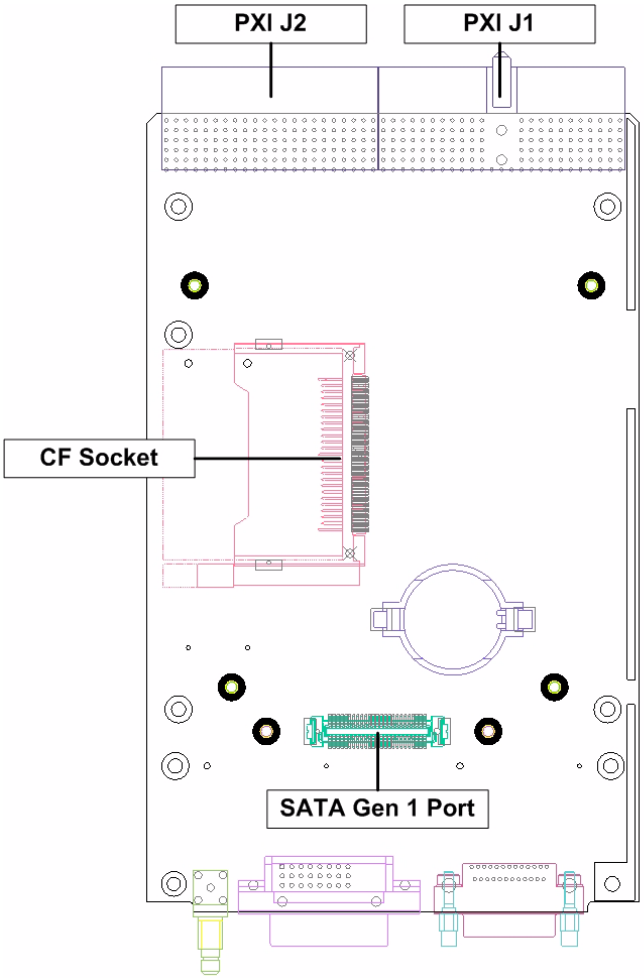
The 3001B/C implements Intel High Definition audio using the Realtek ALC260/262 chip. The HD audio supports up to 24-bit, 192 kbps high quality headphone/speaker output and line input. You can access the audio jacks on the module's faceplate.

Figure 7-11 High definition audio ports



On-board connectors layout

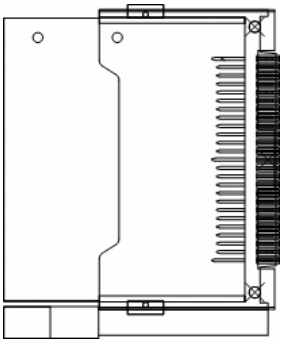
Figure 7-12 3001B/3001C board layout



CompactFlash socket

The 3001B/3001C is equipped with a type II CompactFlash socket which is located on the first layer of the PCB (under the CPU core module). The CF interface supports both ATA and PIO modes. You can use a CF card as replacement for the hard drive for better shock/vibration resistance.

Figure 7-13 CompactFlash socket & pin assignments

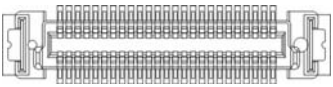


PIN	SIGNAL	PIN	SIGNAL
1	GND	26	GND
2	D03	27	D11
3	D04	28	D12
4	D05	29	D13
5	D06	30	D14
6	D07	31	D15
7	CS1#	32	CS3#
8	GND	33	GND
9	GND	34	IORDY#
10	GND	35	IOWR#
11	GND	36	WE#
12	GND	37	INTRQ
13	VCC	38	VCC
14	GND	39	CSEL#
15	GND	40	NC
16	GND	41	RESET#
17	GND	42	IORDY
18	A02	43	DMARQ
19	A01	44	DMACK#
20	A00	45	DASP#
21	D00	46	PDIAG#
22	D01	47	D08
23	D02	48	D09
24	IOCS16#	49	D10
25	GND	50	GND

SATA port

The 3001B/3001Cs provides a SATA Gen. 1 port and is shipped with a pre-installed 2.5" SATA hard drive. The SATA host controller supports two modes of operation: the legacy mode, using I/O space, and the AHCI mode, using memory space. You can also use a 2.5 in solid state disk (SSD) as a replacement SATA hard drive for shock/vibration resistance.

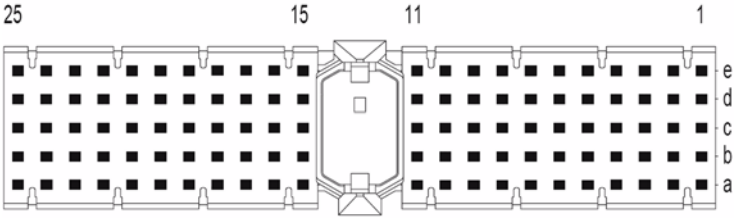
Figure 7-14 SATA Gen. 1 port & pin assignments



Signal	PIN	PIN	Signal
GND	1	2	GND
Reserve	3	4	Reserve
Reserve	5	6	Reserve
Reserve	7	8	Reserve
Reserve	9	10	Reserve
Reserve	11	12	Reserve
Reserve	13	14	Reserve
Reserve	15	16	Reserve
Reserve	17	18	Reserve
Reserve	19	20	GND
GND	21	22	Reserve
Reserve	23	24	Reserve
Reserve	25	26	Reserve
Reserve	27	28	Reserve
Reserve	29	30	GND
Reserve	31	32	+5V
Reserve	33	34	+5V
Reserve	35	36	+5V
Reserve	37	38	+12V
Reserve	39	40	+12V
Reserve	41	42	+12V
GND	43	44	GND
SATA_RXn	45	46	SATA_TXn
SATA_RXp	47	48	SATA_TXp
GND	49	50	GND

PXI J1

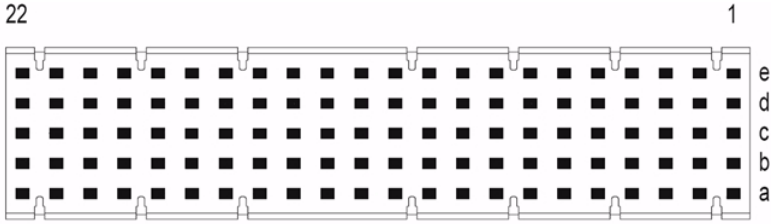
Figure 7-15 J1 connector & pin assignments



Pin	Z	A	B	C	D	E	G
J1-25	GND	+5V	REQ64#	ENUM#	+3.3V	+5V	GND
J1-24	GND	AD[1]	+5V	V(I/O)	AD[0]	ACK64#	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	+3.3 V	PAR	C/BE[1]#	GND
J1-17	GND	+3.3V	NC	NC	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	GND						
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	NC	NC	RST#	GND	GNT0#	GND
J1-4	GND	NC	HEALTHY#	V(I/O)	INTP	INTS	GND
J1-3	GND	INTA#	INTB#	INTC#	+5V	INTD#	GND
J1-2	GND	TCK	+5V	TMS	TDO	TDI	GND
J1-1	GND	+5V	-12V	TRST#	+12V	+5V	GND
Pin	Z	A	B	C	D	E	G

PXI J2

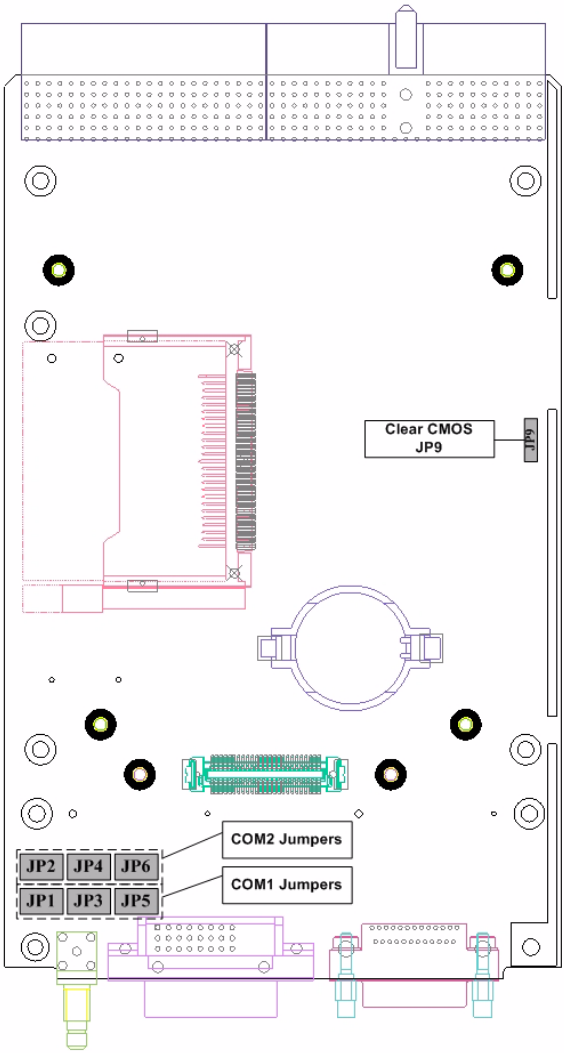
Figure 7-16 J2 connector & pin assignments



Pin	Z	A	B	C	D	E	G
J1-22	GND	NC	NC	NC	NC	NC	GND
J1-21	GND	CLK6	GND	NC	RSV	RSV#	GND
J1-20	GND	CLK5	GND	RSV	GND	RSV	GND
J1-19	GND	GND	GND				GND
J1-18	GND	PXI_TRIG3	PXI_TRIG4	PXI_TRIG5	GND	PXI_TRIG6	GND
J1-17	GND	PXI_TRIG2	GND	REST#	REQ6#	GNT6#	GND
J1-16	GND	PXI_TRIG1	PXI_TRIG0	DEG#	GND	PXI_TRIG7	GND
J1-15	GND	NC	GND	FAL#	REQ5#	GNT5#	GND
J1-14	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND
J1-13	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND
J1-12	GND	AD[45]	GND	V(I/O)	AD[44]	AD[43]	GND
J1-11	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND
J1-10	GND	AD[52]	GND	V(I/O)	AD[51]	AD[50]	GND
J1-9	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
J1-8	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
J1-7	GND	AD[59]	GND	V(I/O)	AD[58]	AD[57]	GND
J1-6	GND	AD[63]	AD[62]	AD[61]	GND]	AD[60	GND
J1-5	GND	C/BE[5]	GND	V(I/O)	C/BE[4]#	PAR64	GND
J1-4	GND	V(I/O)	NC	C/BE[7]#	GND	C/BE[6]#	GND
J1-3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
J1-2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
J1-1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND
Pin	Z	A	B	C	D	E	G

Jumper layout

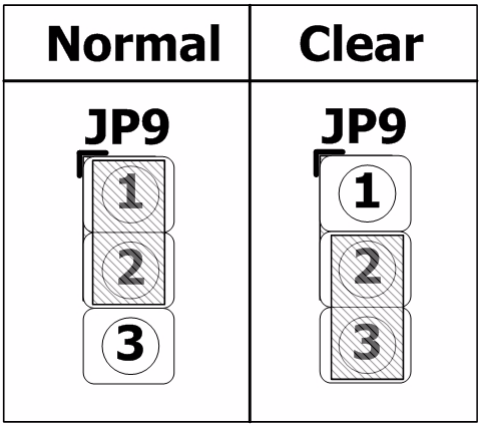
Figure 7-17 3001B/3001C jumper layout



Clear CMOS (JP9)

If you encounter an abnormal condition that causes the 3001B/3001C to halt or fail to boot, clear the CMOS and restore the controller BIOS to its default settings. To clear the CMOS, locate the JP9 jumper on the board, and short pins 2 and 3 together. After you have cleared the CMOS, restore the jumper by returning to normal mode (short pins 1 and 2 together).

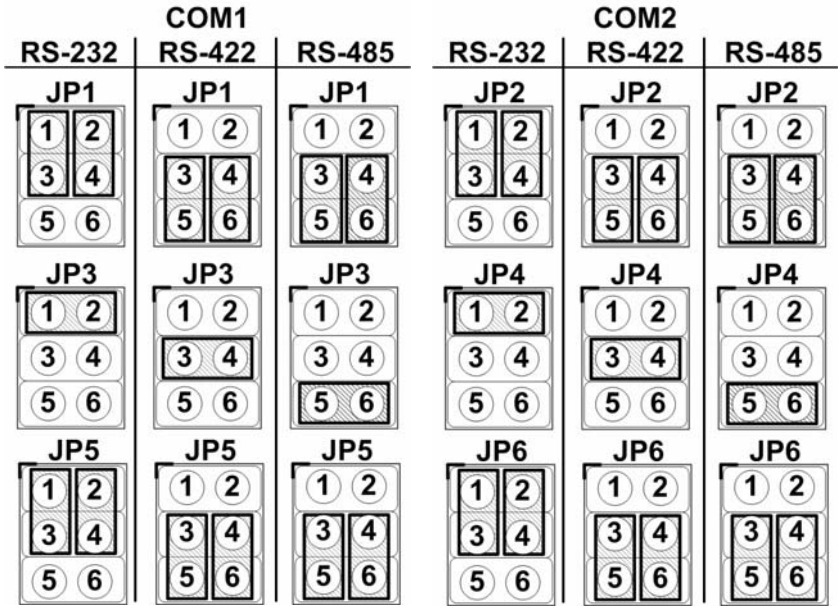
Figure 7-18 JP9 (clear CMOS) settings



COM1/COM2 mode settings (JP1/2/3/4/5/6)

COM1 and COM2 on 3001B controllers support RS-232, RS-422, and RS-485 specifications. JP1, JP2, JP3, JP4, JP5, and JP6 are used to set the operation mode of COM1 and COM2. Refer to the following table for mode settings.

Figure 7-19 COM1 & COM2 JP1 through JP6 settings



Chapter 8

Getting started

This chapter explains how to install a 3001B/3001C into your PXI system. Additional hardware installation and BIOS setup are also described. Note that the 3001B/3001C is shipped with CPU, RAM and HDD preinstalled. The procedures for installing the operating system and booting from a USB or CF device is also provided. Additional hardware installations are also discussed. Please contact Aeroflex or an authorized dealer if you have any problems during installation.

Installation environment

Whenever unpacking and preparing to install any equipment described in this manual, please refer to the ***Safety Instructions*** part of this manual.

Only install equipment in well-lit areas on flat, sturdy surfaces with access to basic tools such as flat- and cross-head screwdrivers (preferably with magnetic heads, as screws and standoffs are small and easily misplaced).

Recommended installation tools

- Phillips (cross-head) screwdriver
- Flat-head screwdriver
- Anti-static wrist strap
- Anti-static mat

Aeroflex 3001B/3001C system controllers are electrostatic-sensitive equipment that can be easily damaged by static electricity. Handle the equipment on a grounded anti-static mat. Wear an anti-static wristband, grounded at the same point as the anti-static mat.

Inspect the carton and packaging for damage. Shipping and handling could cause damage to the equipment inside. Make sure that the equipment and its associated components have no damage before installing.

> The equipment 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 equipment and wear a grounded wrist strap when servicing.

Compatible chassis

The 3001B/3001C implements rear I/O functions for inter-chassis signal transmissions. Before installing the 3001B/3001C, make sure your PXI chassis is compatible with it. Aeroflex recommends that you use a 3000 or 3000B chassis with the 3001B/3001C. The 3001B/3001C is **not** compatible with the Aeroflex 3000A chassis.

Package contents

Before continuing, check the package contents for any damage and check if the following items are included in the packaging.

- 3001B/3001C controller (equipped with CPU, RAM and HDD)
- USB-to-PS2 KB/MS cable
- DVI-to-VGA adapter
- Aeroflex CD-ROM

DO NOT install or apply power to equipment that is damaged or if there is missing or incomplete equipment. Retain the shipping carton and packing materials for inspection. Please contact your dealer immediately for assistance. Obtain authorization from your dealer before returning any product to Aeroflex.

The packaging of OEM versions with non-standard configurations, functionality, or package contents may vary according to different configuration requests.

Installing 3001B/3001C

1 Locate the system controller slot (Slot 1)

2 Push down (loosen) the ejector/injector handle of the controller.

3 Align the controller's top and bottom edges to the card guides, then carefully slide the controller into the chassis.

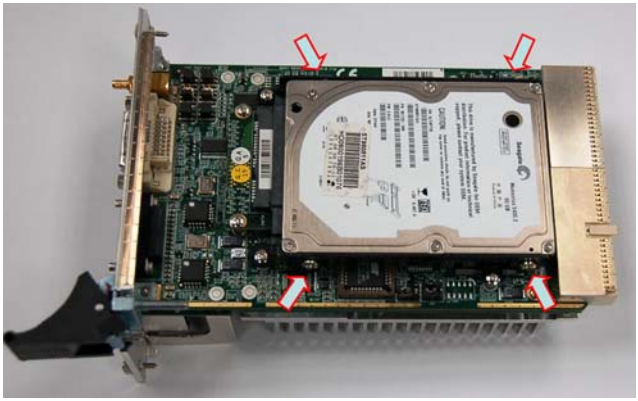
4 Pull up the ejector/injector handle until the controller is properly connected to the chassis backplane.

5 Fasten the screws on the faceplate of the controller, and then connect all peripheral devices to it.

Hard drive replacement

By default, the 3001B/3001C PXI controller is shipped with a 2.5" SATA hard drive pre-installed (80 GB for 3001B, 120 GB for 3001C) . If you need to change the hard drive or use a solid state disk (SSD) as the replacement hard drive, please follow the instructions below.

1 The hard drive is located on the back side of the controller. Locate the four screws that attach the hard drive to the bracket.



2 Loosen the screws.



3 Gently pull out the SATA hard drive. Be careful not to bend or break the SATA board-to-board connector.



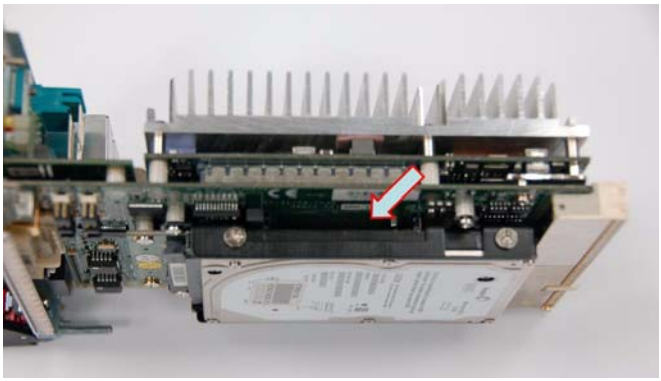
4 To replace the HD with your choice of solid state hard drive or other compatible SATA hard drive, follow the steps in reverse, and re-install the 3001B/3001C.



CompactFlash card installation

The 3001B/3001C provides a CompactFlash Type II socket to accommodate a CF card as a replacement hard drive. You can also install a SATA hard drive and CF card simultaneously and set the boot device preferences in BIOS (see Setting 3001B boot devices). Follow the instructions below to install the CF card.

1 Locate the CompactFlash socket. The socket is located under the SATA hard drive.



2 Insert the CF card and press down to make sure it is firmly attached in its socket.



BIOS configuration

The Basic Input/Output System (BIOS) is a program that provides a basic level of communication between the processor and peripherals. In addition, the BIOS also contains code for various advanced features applied to the 3001B/3001C controller. The BIOS setup program includes menus for configuring settings and enabling controller features. Most users do not need to use the BIOS setup program, as the controller ships with default settings that work well for most configurations.

Changing BIOS settings may lead to incorrect controller behavior and possibly an unbootable controller. If this happens, follow the instructions in section Clear CMOS (JP9) to clear CMOS and then restore the default settings. In general, do not change a BIOS setting unless you are absolutely certain of what it does.

Operating system installation

For more detailed information about the operating system, refer to the documentation provided by the operating system vendor. The preferred/supported operating systems for 3001B and 3001C are:

- Windows 2000
- Windows XP
- Windows Vista

For other OS support, please contact Aeroflex

Most operating systems require initial installation on a hard drive, floppy drive, or a CD-ROM drive. The 3001B/3001C controller supports USB CD-ROM drive, USB flash disk, USB external hard drive, or a USB floppy drive as the first boot device. Refer to Setting 3001B boot devices for information about setting the boot devices. 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 is distributed with a bootable installation CD, select USB CD-ROM as the first boot device and reboot the system with the installation CD installed in the USB 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 Aeroflex PXI products.

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

Setting 3001B boot devices

The 3001B/3001C controller boots up from the SATA hard drive by default. However, you can also set a USB device or a CF card as the boot device in BIOS. Please follow the instructions below to set the 3001B's boot device.

Boot from SATA hard drive

- Make sure the bootable SATA hard drive is installed in the hard drive bracket.
- Power up the controller, and enter BIOS to modify the setting of the boot device as follows:
- 3001B:
  - [Advanced BIOS Features] » [First Boot Device] » [Hard Disk]
  - [Advanced BIOS Features] » [Hard Disk Boot Priority] » [Ch2 M.]
- 3001C:
  - [Boot] » [Hard Disk Drives] » [1st Drive]

    If a CF card is installed, '1st Drive' and '2nd Drive' are shown. Identify the SATA hard drive and set it to '1st Drive'.
  - [Boot] » [1st Boot Device] » [SATA:XX]

    'SATA:XX' refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Boot from on-board CF card

- Make sure the bootable CF is firmly installed in the CF socket.
- Power up the controller and enter BIOS to modify the setting of the boot device as follows:
- 3001B:
  - [Advanced BIOS Features] » [First Boot Device] » [Hard Disk]
  - [Advanced BIOS Features] » [Hard Disk Boot Priority] » [Ch0 M.]
- 3001C:
  - [Boot] » [Hard Disk Drives] » [1st Drive]

    If a hard drive is installed, ‘1st Drive’ and ‘2nd Drive’ are shown. Identify the bootable CF hard drive and set it to ‘1st Drive’.
  - [Boot] » [1st Boot Device] » [HDD:XX]

    ‘HDD:XX’ refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Boot from USB CD-ROM drive

- Connect the USB CD-ROM drive via a USB port on the faceplate.
- Put a bootable CD in the USB CD-ROM Drive.
- Power up the controller and enter BIOS to modify the setting of the boot device as follows:
- 3001B:
  - [Advanced BIOS Features] » [First Boot Device] » [USB-CDROM]
- 3001C:
  - [Boot] » [USB Drives] » [1st Drive]

    If multiple USB external devices are installed, ‘1st Drive’, ‘2nd Drive’ etc. are shown. Identify the USB CD-ROM and set it to ‘1st Drive’.
  - [Boot] » [1st Boot Device] » [USB:XX]

    ‘USB:XX’ refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Boot from USB Flash disk

- Connect a bootable USB Flash disk via a USB port on the faceplate.
- Power up the controller and enter BIOS to modify the setting of the boot device as follows:
- 3001B:
  - [Advanced BIOS Features] » [First Boot Device] » [Hard Disk]
  - [Advanced BIOS Features] » [Hard Disk Boot Priority] » [USB-HDD0]

    If multiple USB external devices are installed, ‘USB-HDD0’, ‘USB-HDD1’ etc. are shown. Identify the boot device according to the model name following the USB-HDDx listing.
- 3001C:
  - [Boot] » [USB Drives] » [1st Drive]

    If multiple USB external devices are installed, ‘1st Drive’, ‘2nd Drive’ etc. are shown. Identify the USB Flash disk and set it to ‘1st Drive’.
  - [Boot] » [1st Boot Device] » [USB:XX]

    ‘USB:XX’ refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Boot from USB external hard drive

- Connect a bootable USB external hard drive via a USB port on the faceplate.
- Power up the controller and enter BIOS to modify the setting of the boot device as follows:
  - [Advanced BIOS Features] » [First Boot Device] » [Hard Disk]
  - [Advanced BIOS Features] » [Hard Disk Boot Priority] » [USB-HDD0]

    If multiple USB external devices are installed, ‘USB-HDD0’, ‘USB-HDD1’ etc. are shown. Identify the boot device according to the model name following the USB-HDDx listing.
- 3001C:
  - [Boot] » [USB Drives] » [1st Drive]

    If multiple USB external devices are installed, ‘1st Drive’, ‘2nd Drive’ etc. are shown. Identify the USB external hard drive and set it to ‘1st Drive’.
  - [Boot] » [1st Boot Device] » [USB:XX]

    ‘USB:XX’ refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Boot from USB floppy drive

- Connect the USB floppy drive via a USB port on the faceplate.
- Put a bootable disk in the USB floppy drive.
- Power up the controller and enter BIOS to modify the setting of the boot device as follows:
- 3001B:
  - [Advanced BIOS Features] » [First Boot Device] » [USB-FLOPPY]
- 3001C:
  - [Boot] » [USB Drives] » [1st Drive]

    If multiple USB external devices are installed, ‘1st Drive’, ‘2nd Drive’ etc. are shown. Identify the USB floppy drive and set it to ‘1st Drive’.
  - [Boot] » [1st Boot Device] » [USB:XX]

    ‘USB:XX’ refers to the model name selected in the last step.
- Save the changes
- Reboot the system

Using 3001B/3001C with a 3000B chassis

This section describes the use of the 3001B/3001C controller in a 3000B chassis. This chassis is unique in that it supports a built-in LCD display and supports special BIOS configurations to operate the system controller properly.

The 3001B/3001C controller offers a rear I/O option. The rear I/O option is designed to operate with a matching rear transition module that provides internal chassis I/O, including video signals, USB signals, etc. The Aeroflex 3000B is a 3U 8-slot PXI chassis with built-in LCD touch panel. It contains a matching rear transition module for 3001B/3001C to support internal signal transmission.

While installing 3001B/3001C in a 3000B chassis, make sure you configure the correct BIOS settings to turn on the LCD touch panel by following these steps:

- Press DEL while booting to enter the BIOS setup screen.
- Select the ‘Advanced Chipset Features’ option.
- Set the ‘Boot Display’ option to ‘CRT + LVDS’.
- Set ‘Panel Resolution’ to ‘800 x 600’.
- Save your settings and exit the BIOS.

Currently 3000B is the only PXI chassis with a built-in LCD touch panel that supports 3001B/3001C controllers. DO NOT install 3001B/3001C controllers in other chassis with built-in LCD panels (for example, 3000A).

Chapter 9

Driver installation

After installing the operating system, you need to install all related drivers to make your system work accordingly. In this section, we describe the drivers needed for Windows operating systems and the procedures to install them. For other OS support, please contact Aeroflex for further information.

The Windows operating system environment supports a wide array of drivers as it has extended plug and play support. Most standard I/O device drivers are automatically included.

Chipset drivers

This section describes the procedure to install the chipset drivers of the 3001B. The chipset drivers tell the operating system how to configure the Intel GME chipset components to ensure that the following features function properly:

- Core PCI and ISAPNP services
- PCIe support
- IDE/ATA33/ATA66/ATA100 storage support
- SATA storage support
- USB support
- Identification of Intel chipset components in the device manager

One of the following operating systems must be fully installed and running on the system before installing this software:

- Microsoft Windows XP
- Microsoft Windows 2000
- Microsoft windows Vista

Follow these steps to install chipset drivers for 3001B/3001C.

- Close any running applications.
- Insert the Aeroflex CD-ROM. The chipset driver is located as follows:

  `X:\PXIController\3001x\Chipset\Win2kXPVista`

  where `X:` denotes the CD-ROM drive, and `3001x` denotes 3001B or 3001C.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

Graphics driver

The 3001B/3001C controller is equipped with an Intel GMA graphic media accelerator, integrated in the Intel GME Express Chipset. The Intel GMA Driver package supports the following operating systems:

- Windows 2000
- Windows XP
- Windows Vista (3001C only)

Follow these steps to install graphics drivers for 3001B/3001C:

- Close any running application.
- Insert the Aeroflex CD-ROM. The chipset driver is located as follows:

  `X:\PXIController\3001x\VGA\Win2kXP`

and

`X:\PXIController\3001C\VGA\Vista`

where `X:` denotes the CD-ROM drive, and `3001x` denotes 3001B or 3001C.

- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

If you use 3001B/3001C with an Aeroflex 3000B chassis, set the graphic output as Dual Display mode to enable the LCD touch panel.

- If there is no display on the external monitor, refer to Appendix C No video output.

Ethernet drivers

The 3001B controller integrates two Marvell 88E8053 Gigabit Ethernet controllers to provide connectivity for LAN or LXI instruments. The 3001C controller has one GbE port from an Intel ICH8M MAC/Intel 82566 PHY and one GbE port from a Marvell 88E8053 Gigabit Ethernet controller to provide dual Gigabit Ethernet connectivity. Follow these steps to install Ethernet drivers for 3001B and 3001C:.

Note that you need to have installed both the Intel and Marvell GbE controllers prior to use

Install the Intel GbE driver (3001C only)

For Windows 2000 and XP:

- Close any running application.
- Insert the Aeroflex CD-ROM. The Intel driver is located in the directory:

  `X:\PXIController\3001C\LAN - Intel\Win2kXP`

  where `X:` denotes the CD-ROM drive.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

For Windows Vista:

- Close any running application.
- Insert the Aeroflex CD-ROM. The Intel driver is located in the directory:

  `X:\PXIController\3001C\LAN - Intel\Vista`

  where `X:` denotes the CD-ROM drive.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

Install the Marvell GbE driver

For 3001B, Windows 2000:

1 After booting the Windows system, there are two unidentified Ethernet controllers listed in the Device Manager.

2 Right-click on the Ethernet controller and select 'Update Driver …'

3 Follow the on-screen instructions to specify the location of the driver. The Ethernet driver is located as follows:

`X:\PXIController\3001B\LAN\Win2k`

where `X:` denotes the CD-ROM drive.

4 Repeat steps 2 and 3 to install the Ethernet driver for another Ethernet controller.

For 3001B, Windows XP:

1 After booting the Windows system, there are two unidentified Ethernet controllers listed in the Device Manager.

2 Right-click on the Ethernet controller and select 'Update Driver …'

3 Follow the on-screen instructions to specify the location of the driver. The Ethernet driver is located as follows:

`X:\PXIController\3001B\LAN\WinXP`

where `X:` denotes the CD-ROM drive.

4 Repeat steps 2 and 3 to install the Ethernet driver for another Ethernet controller.

For 3001C, Windows 2000, XP, Vista:

- Close any running application.
- Insert the Aeroflex CD-ROM. The Intel driver is located in the directory:

  `X:\PXIController\3001C\LAN - Marvell\Win2kXPVista`

  where `X:` denotes the CD-ROM drive.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

Audio drivers

This section describes the procedure to install the audio driver for 3001B/3001C. The controller supports Intel High Definition audio using a Realtek chip, which provides up to 24-bit, 192 kbps high quality audio input/output. Follow these steps to install the audio driver:

For 3001B, Windows 2000, XP:

1 Close any running applications.

2 For Windows 2000 and XP, you need to install Microsoft UAA (Universal Audio Architecture) driver first. Please install the corresponding UAA driver according to your operating system. UAA drivers can be found in the following directory:
`X:\PXIController\3001B\Audio\Win2kXP\MSHDQFE\Win2K_XP\us`

where `X:` denotes the CD-ROM drive.

Operating System	UAA Driver
Windows 2000 SP4	kb888111w2ksp4.exe
Windows XP SP1	kb888111xpsp1.exe
Windows XP SP2	kb888111xpsp2.exe

3 The audio driver is located in the directory:

`X:\PXIController\3001B\Audio\Win2kXP`

where `X:` denotes the CD-ROM drive.

4 Execute Setup.exe and follow the on-screen instructions to complete the setup.

5 Reboot your system.

For 3001B, Windows Vista:

1 Close any running applications.

2 The audio driver is located in the directory:

`X:\PXIController\3001B\Audio\Vista`

where `X:` denotes the CD-ROM drive.

3 Execute Setup.exe and follow the on-screen instructions to complete the setup.

4 Reboot your system.

For 3001C, Windows 2000, XP:

1 Close any running applications.

2 The audio driver is located in the directory:

`X:\PXIController\3001C\Audio\Win2kXP`

where `X:` denotes the CD-ROM drive.

3 Execute Setup.exe and follow the on-screen instructions to complete the setup.

4 Reboot your system.

For 3001C, Windows Vista:

1 Close any running applications.

2 The audio driver is located in the directory:

`X:\PXIController\3001C\Audio\Vista`

where `X:` denotes the CD-ROM drive.

3 Execute Setup.exe and follow the on-screen instructions to complete the setup.

GPIB driver

The 3001B/3001C controller has an on-board GPIB controller to provide connectivity between PXI and GPIB instruments. To use the GPIB controller, you need to install the Aeroflex GPIB driver package for Windows 2000/XP/Vista. The driver package also contains function libraries and a utility to interact with GPIB instruments. Follow these steps to install GPIB drivers:

- Close any running application.
- Insert the Aeroflex CD-ROM. The GPIB driver is located in the directory:

  `X:\PXIController\3001x\GPIB\Win2kXPVista`

  where `X:` denotes the CD-ROM drive, and `3001x` denotes 3001B or 3001C.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

PXI trigger driver

The 3001B/3001C controller provides a trigger I/O on the faceplate to route trigger signals to/from the PXI trigger bus. You need to install the trigger I/O driver to control the trigger route. Follow these steps to install PXI Trigger drivers for 3001B (for information on programming the PXI Trigger, refer to Appendix A).

- Close any running applications.
- Insert the Aeroflex CD-ROM. The PXI trigger driver is located in the directory:

  `X:\PXIController\3001x\PXI_Trigger\Win2kXPVista`

  where `X:` denotes the CD-ROM drive, and `3001x` denotes 3001B or 3001C.
- Execute Setup.exe and follow on-screen instructions to complete the setup.
- Reboot your system.

WDT driver

The WDT (watchdog timer) is a hardware mechanism that resets the system when the operating system or application is halted. A typical usage of the WDT is to start a timer and periodically reset it. If the timer expires, the system resets. You need to install the WDT driver to program the WDT. Follow these steps to install the driver for 3001B/3001C (for information on programming the watchdog timer, please refer to Appendix B).

- Close any running applications.
- Insert the Aeroflex CD-ROM. The PXI trigger driver is located in the directory:

  `X:\PXIController\3001x\WDT\Win2kXPVista`

  where `X:` denotes the CD-ROM drive, and `3001x` denotes 3001B or 3001C.
- Execute Setup.exe and follow the on-screen instructions to complete the setup.
- Reboot your system.

Appendix A

PXI trigger I/O function reference

This appendix describes the use of the PXI trigger I/O function library for 3001B/3001C controllers. You can use the function library to program the routing of the trigger signal between the trigger I/O SMB connector on the faceplate and the PXI trigger bus on the backplane.

Data types

We define several data types for PXI trigger I/O functions. The defined data types can be found in `pxitrigio.h` in the directory `X:\Adlink\PXI Trigger IO\include` after running the *setup.exe* file (where X is the drive you install the trigger I/O driver). These data types are used by the PXI trigger I/O function library. We recommend that you use these data types in your application programs. The following table lists the data type names, their ranges, and the corresponding data types in C/C++, Visual Basic and Delphi.

Type	Description	Range	Type in programming language		
			C/C++	VB	Delphi
U8	8-bit ASCII character	0 to 255	unsigned char	Byte	Byte
I16	16-bit signed integer	-32768 to 32767	short	Integer	SmallInt
U16	16-bit unsigned integer	0 to 65535	unsigned short	Not supported in VB, use Integer instead	Word
I32	32-bit signed integer	-2147483648 to 2147483647	long	Long	LongInt
U32	32-bit unsigned integer	0 to 4294967295	unsigned long	Not supported in VB, use Long instead	Cardinal
F32	32-bit single-precision floating-point	3.402823E38 to 3.402823E38	float	Single	Single
F64	64-bit double-precision floating-point	1.797683134862315E308 to 1.797683134862315E309	double	Double	Double

Function

TRIG_Init

Description

Initializes the trigger I/O function of the controller. TRIG_Init must be called before the invocation of any other trigger I/O function. TRIG_Init does not reset the current trigger routing.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
I16 TRIG_Init()
```

Visual Basic

```
TRIG_Init As Integer
```

Parameters

None

Return codes

```
ERR_NoError
ERR_BoardBusy
ERR_OpenDriverFail
ERR_GetGPIOAddress
```

TRIG_Close

Description

Closes the trigger I/O function of the controller. This function releases the resources allocated for the trigger I/O function. You must invoke TRIG_Close before exiting the application.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
I16 TRIG_Close()
```

Visual Basic

```
TRIG_Close() As Integer
```

Parameters

None

Return codes

```
ERR_NoError
ERR_BoardNoInit
```

TRIG_SetSoftTrg

Description

Generates a TTL trigger signal to the trigger I/O SMB connector on the faceplate or the PXI trigger bus on the backplane via software command.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
I16 TRIG_SetSoftTrg(U8 Status)
```

Visual Basic

```
TRIG_SetSoftTrg (ByVal status As Byte) As Integer
```

Parameters

```
Status
```

Trigger signal logic level

Available value	Description
0	Logic low
1	Logic high

Return codes

```
ERR_NoError
ERR_BoardNoInit
```

TRIG_Trigger_Route

Description

Routes the trigger signal between the trigger I/O SMB connector on the faceplate and the PXI trigger bus on the backplane. This function also allows you to route the software-generated trigger signal to the SMB connector or trigger bus.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
I16 TRIG_Trigger_Route (U32 source, U32 dest, U32
     halfway)
```

Visual Basic

```
TRIG_Trigger_Route (ByVal source As Long, ByVal
     dest As Long, ByVal halfway As Long) As
     Integer
```

Parameters

`source`

Source trigger routing

Available value	Description
PXI_TRIG_VAL_SMB	SMB connector on the faceplate
PXI_TRIG_VAL_SOFT	Software-generated trigger signal
PXI_TRIG_VAL_TRIG0	PXI trigger bus #0
PXI_TRIG_VAL_TRIG1	PXI trigger bus #1
PXI_TRIG_VAL_TRIG2	PXI trigger bus #2
PXI_TRIG_VAL_TRIG3	PXI trigger bus #3
PXI_TRIG_VAL_TRIG4	PXI trigger bus #4
PXI_TRIG_VAL_TRIG5	PXI trigger bus #5
PXI_TRIG_VAL_TRIG6	PXI trigger bus #6
PXI_TRIG_VAL_TRIG7	PXI trigger bus #7

`dest`

Destination trigger routing.

Available value	Description
PXI_TRIG_VAL_SMB	SMB connector on the faceplate
PXI_TRIG_VAL_TRIG0	PXI trigger bus #0
PXI_TRIG_VAL_TRIG1	PXI trigger bus #1
PXI_TRIG_VAL_TRIG2	PXI trigger bus #2
PXI_TRIG_VAL_TRIG3	PXI trigger bus #3
PXI_TRIG_VAL_TRIG4	PXI trigger bus #4
PXI_TRIG_VAL_TRIG5	PXI trigger bus #5
PXI_TRIG_VAL_TRIG6	PXI trigger bus #6
PXI_TRIG_VAL_TRIG7	PXI trigger bus #7

`halfway`

Halfway Point Trigger Routing. This parameter is used only when you want to route the software-generated trigger signal to the SMB connector on the faceplate. In this case, you should set the halfway as one of the trigger bus lines. Otherwise set the halfway as `PXI_TRIG_VAL_NONE`.

Available value	Description
PXI_TRIG_VAL_NONE	No halfway point
PXI_TRIG_VAL_TRIG0	PXI trigger bus #0
PXI_TRIG_VAL_TRIG1	PXI trigger bus #1
PXI_TRIG_VAL_TRIG2	PXI trigger bus #2
PXI_TRIG_VAL_TRIG3	PXI trigger bus #3
PXI_TRIG_VAL_TRIG4	PXI trigger bus #4
PXI_TRIG_VAL_TRIG5	PXI trigger bus #5
PXI_TRIG_VAL_TRIG6	PXI trigger bus #6
PXI_TRIG_VAL_TRIG7	PXI trigger bus #7

Return codes

```
ERR_NoError
ERR_BoardNoInit
ERR_Set_Path
```

TRIG_Trigger_Clear

Description

Clears the trigger routing settings.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
I16 TRIG_Trigger_Clear()
```

Visual Basic

```
TRIG_Trigger_Clear() As Integer
```

Parameters

None

Return codes

```
ERR_NoError
ERR_BoardNoInit
ERR_Trigger_Clr
```

Appendix B

Watchdog timer function reference

This appendix describes the use of the watchdog timer (WDT) function library for the 3001B/3001C controller. The watchdog timer is a hardware mechanism to reset the system in case the operating system or an application halts. After starting the watchdog timer, you need to periodically reset it in the application before the timer expires. If the watchdog timer expires, a hardware-generated signal is sent to reset the system.

Function

InitWDT

Description

Initializes the watchdog timer function of the controller. InitWDT must be called before any other WDT function.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
BOOL InitWDT()
```

Visual Basic

```
InitWDT() As Boolean
```

Parameters

None

Return codes

```
TRUE if watchdog timer is successfully
     initialized.
FALSE if watchdog timer fails to initialize.
```

SetWDT

Description

Sets the timeout value of the watchdog timer. The timeout value should be given in seconds. Call ResetWDT or StopWDT before the watchdog timer expires, or the system resets.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
BOOL SetWDT(unsigned long second)
```

Visual Basic

```
InitWDT(ByVal second as Long) As Boolean
```

Parameters

```
second
```

Specifies the timeout value of the watchdog timer.

Value	Description
0 to 255	If the value of the *second* parameter is between 0 to 255, the resolution of the watchdog timer is 1 s.
> 255	If the value of the *second* parameter is larger than 255, the resolution of the watchdog timer is 1 min. That is, if you give a value of 400, the actual timeout value is 400/60 + 1 = 7 minutes.

Return codes

```
TRUE if timeout value of watchdog timer is
     successfully set.
FALSE if timeout value of watchdog timer fails to
     set.
```

StartWDT

Description

Starts the watchdog timer function. Once the StartWDT is invoked, the watchdog timer countdown starts. Call ResetWDT or StopWDT before the watchdog timer expires, or the system resets.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
BOOL StartWDT()
```

Visual Basic

```
StartWDT() As Boolean
```

Parameters

None

Return codes

```
TRUE if watchdog timer is successfully started.
FALSE if watchdog timer fails to start.
```

ResetWDT

Description

Resets the watchdog timer. Invoking ResetWDT allows you to restore the watchdog timer to the initial timeout value specified in the SetWDT function. Call ResetWDT or StopWDT before the watchdog timer expires, or the system resets.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
BOOL ResetWDT()
```

Visual Basic

```
ResetWDT() As Boolean
```

Parameters

None

Return codes

```
TRUE if watchdog timer is successfully reset.
FALSE if watchdog timer fails to reset.
```

StopWDT

Description

Stops the watchdog timer.

Supported controllers

3001B, 3001C

Syntax

C/C++

```
BOOL StopWDT()
```

Visual Basic

```
StopWDT() As Boolean
```

Parameters

None

Return codes

```
TRUE if watchdog timer is successfully stopped.
FALSE if watchdog timer fails to stop.
```

Appendix C

No video output

It is possible under certain conditions to have no video output from the DVI-I (VGA) connector.

This is most likely if you power up the controller without an external monitor connected to the DVI-I (VGA) connector of the controller. The Intel graphics driver for Windows detects that the external monitor is missing, and reverts to the 'touch screen' (Notebook) output.

Reconnecting the external monitor after this has happened results in a blank display.

If you power cycle the chassis, you see the BIOS post and the Windows splash screen, but once Windows has loaded, the display disappears from the external monitor.

If you do not have the controller installed in a Aeroflex 3000B chassis, then you do not see any output.

Background

The Aeroflex 3001B/3001C controller is based on the Intel 915/965 GME chipset, which includes an Intel GMA900/X3100 graphics media accelerator. This chipset was originally designed for laptop computers, where the primary display would be the unit's built-in display, and an external monitor would be the secondary display device.

Possible solution

Use the Intel graphic driver 'Hot Keys'. When enabled, the following key sequences perform the functions detailed below:

<CTRL><ALT>F1	Enables VGA (Monitor) output.
<CTRL><ALT>F3	Enables touch screen (Notebook) output.

Notes:

- The Hot Keys function only when a user is logged on.
- You are not able to use 'remote desktop' to access the controller to use the Hot Keys, as Windows 'remote desktop' does not enable the Hot Keys.

If you have to log on, then you can do the following. Since there is no display, do everything using just the keyboard.

Logon — using Welcome Screen



- Press the tab key twice.

This moves the focus to the password field of the first user account.

- If you want to move to the next user account, then use the down arrow key.
- Enter the password, and then press Enter.

This should log you into Windows. Wait for up to 30 seconds to allow any applications to start after logon.

- Press the desired Hot Key sequence.

Logon — using classic logon prompt



Windows remembers the user name of the last successful login.

The focus defaults to the password field.

- If you wish to change the User Name, then press the tab key three times. This moves the focus to the User Name field.
- Enter the User Name.
- Press the tab key once to move the focus to the Password field.
- Enter the password, and then press Enter.

This should log you into Windows. Wait for up to 30 seconds to allow any applications to start after logon.

- Press the desired Hot Key sequence.