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SST-PFB3-PCI

Hardware Reference Guide

Document Edition: 1.0

Document #: 715-0060

Template Edition: 1.0

Template #: QMS-06-045

Document Edition: 1.0

Date: August 28, 2003

This document applies to the SST-PFB3-PCI interface card.

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Hardcopies are not controlled.

Preface

Preface Sections:

- Purpose of this Guide
- Conventions

Purpose of this Guide

This guide contains technical and product-related information on the SST-PFB3-PCI interface card and derivatives.

The SST-PFB3-PCI has its own CPU that executes downloadable application firmware modules. The main function of these modules is to enable application-level product behavior. For more details, refer to relevant firmware documentation.

Conventions

This guide uses stylistic conventions, special terms, and special notation to help enhance your understanding.

Style

The following stylistic conventions are used throughout this guide:

| | |
|--------------------|--|
| Bold | indicates field names, button names, tab names, and options or selections |
| <i>Italics</i> | indicates keywords (indexed) or instances of new terms and/or specialized words that need emphasis |
| CAPS | indicates a specific key selection, such as ENTER, TAB, CTRL, ALT, DELETE |
| Code Font | indicates command line entries or text that you'd type into a field |
| <u>Underlining</u> | indicates a hyperlink |
| “>” delimiter | indicates how to navigate through a hierarchy of menu selections/options |
| “0x” | indicates a hexadecimal value |

Special Terms

The following special terms are used throughout this guide:

Card the SST-PFB3-PCI interface card

Firmware the software running on the card

Module a synonym for *firmware*

Special Notation

The following special notations are used throughout this guide:



Warning

Warning messages alert the reader to situations where personal injury may result. Warnings are accompanied by the symbol shown, and precede the topic to which they refer.



Caution

Caution messages alert the reader to situations where equipment damage may result. Cautions are accompanied by the symbol shown, and precede the topic to which they refer.



Note

A note provides additional information, emphasizes a point, or gives a tip for easier operation. Notes are accompanied by the symbol shown, and follow the text to which they refer.

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1

Card Overview

Chapter Sections:

- Warnings and Cautions
- Card Features
- Hardware Description

1.1 Warnings and Cautions

The card is an electrical component and must be treated with the following precautions:



Warning

Only qualified electrical personnel familiar with the construction/operation of this equipment and the hazards involved should install, adjust, operate, and/or service this equipment. Read and understand this guide in its entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or, in extreme cases, loss of life.



Warning

You must provide an external, hand-wired emergency stop circuit outside the programmable controller circuitry. This circuit must disable the system in case of improper operation. Uncontrolled machine motion may result if this procedure is not followed. Failure to observe this precaution could result in bodily injury.



Caution

The card contains static-sensitive components. Careless handling may severely damage the card. Do not touch any of the connectors or pins on the card. When not in use, the card should be stored in an anti-static bag. Failure to observe this precaution could result in damage to or destruction of the equipment.

1.2 Card Features

The SST-PBF3-PCI is the next Generation Profibus PCI card. It can perform the following functions:

- Act as a DP master
- Act as a DP slave
- Send and receive FDL (layer 2) messages
- Support Master Class 1 and Master Class 2 messaging
- Support simultaneous operation in all of the above modes
- Support the standard Profibus baud rates of 9.6K, 19.2K, 93.75K, 187.5K, 500K, 1.5M, 3M, 6M and 12M baud

1.3 PCI Compatibility

1.3.1 Overview

The following table outlines the requirements of different PCI revisions and the PCI requirements of the SST-PFB3-PCI card.

Table 1: PCI Compatibility Table

| PCI Revision | Supply Voltage Provided by Motherboard | | PCI I/O signaling voltage level of Motherboard | |
|--------------------|--|----------|--|------------------------|
| | 3.3V | 5V | 3.3V | 5V |
| 2.1 | ¹ Optional | Required | Not supported | Supported |
| 2.2 | Required | Required | Supported | Supported |
| 2.3 | Required | Required | Supported | Not supported |
| SST Product | | | | |
| SST-PFB3-PCI | Required | Required | ² Supported | ² Supported |

¹ The SST-PFB3-PCI requires both 3.3V and 5V to be supplied by the motherboard. Because 3.3V supply voltage is optional in PCI revision 2.1, the SST-PFB3-PCI may not function in some PCI 2.1-compliant motherboards.

² The SST-PFB3-PCI will auto-detect the motherboard PCI I/O signaling level and adjust its signaling level accordingly, allowing it to function in PCI systems that support either 5V or 3.3V I/O signaling levels.

Summary

The SST-PFB3-PCI's compatibility can be summarized as follows:

- Will operate in PCI 2.2- and 2.3-compliant systems
- Will also operate in PCI 2.1-compliant systems that have implemented the optional 3.3V supply voltage

1.4 Hardware Description

The main features of the SST-PFB3-PCI interface card are described in more detail in the following sections:

Figure 1: The SST PFB3-PCI Interface Card

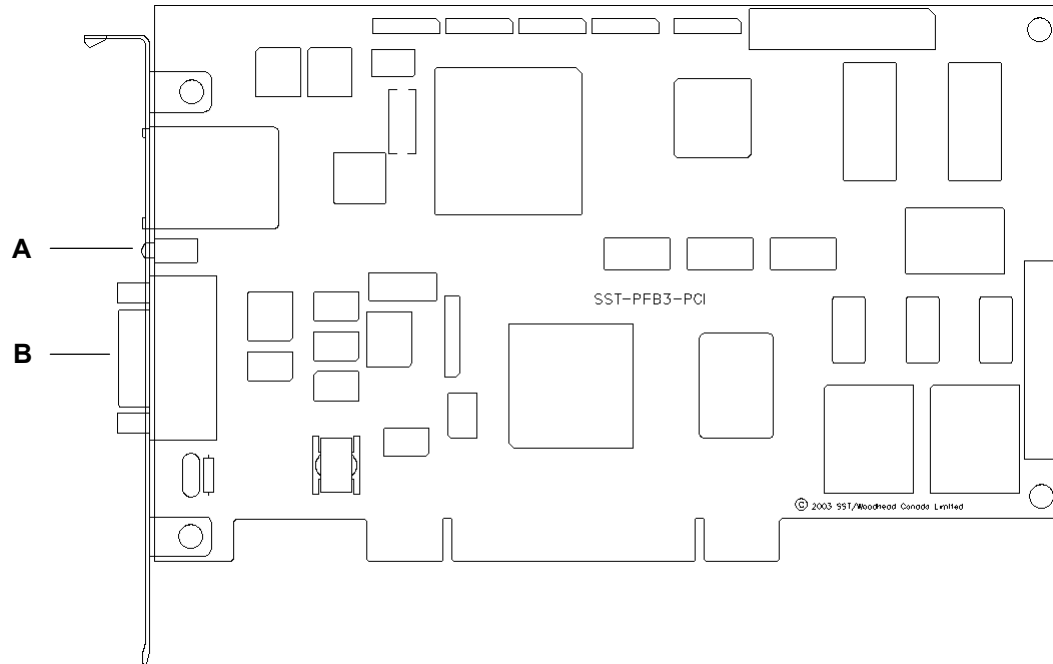


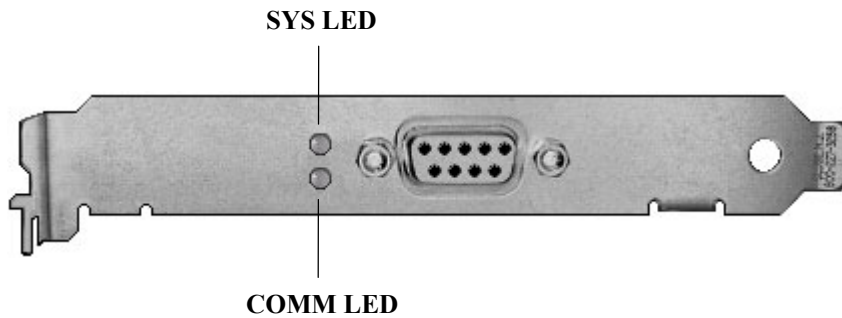
Table 2: Card Components

| Feature | Description |
|---------|------------------------|
| A | LEDs |
| B | Profibus DB9 Connector |

1.4.1 LEDs

There are two LEDs on the card: communications (COMM), and system (SYS). The LEDs are identified in the following figure.

Figure 2: Card Bracket



During power-up, the COMM LED is *off*, and the SYS LED is *amber*. Once a module has been loaded, the LEDs are under firmware control. Refer to the firmware reference guide for more details.

If, during power-up, a fault is detected by the boot code, an error is flashed on the SYS LED. Refer to Section A.3, [Fatal Hardware Self-Test Flash Codes](#), for more details.



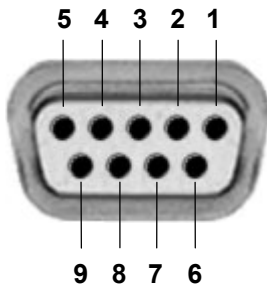
Note

For information on troubleshooting using LEDs, refer to Section 4.1, [SYS LED is Red](#).

1.4.2 Profibus Connector

The card contains a standard Profibus DB9 connector. Pin numbers are identified in the figure below.

Figure 3: The DB9 Connector



The recommended cable is Belden 3079A. Examples Include:

- Brad Harrison 85-0001 PVR 2 conductor with shield, UL-listed Profibus cable
- Bosch Comnet DP #913 548 Flexible Profibus Cable
- Bosch Comnet DP #917 201 Trailing Profibus Cable
- Bosch Comnet DP #917 202 Massive Profibus Cable



Note

For instructions on connecting to a Profibus network, refer to Section 2.4, [Connecting to a Profibus Network](#).

2

Installation

Chapter Sections:

- System Requirements
- Handling Precautions
- Installing the Card
- Connecting to a Profibus Network

2.1 System Requirements

To install and operate the card, the following system requirements must be met:

- An available PCI 2.2 or 2.3 slot. The card will also operate in some PCI 2.1-compliant systems. Refer to Section 1.3, [PCI Compatibility](#), for details.
- One physical interrupt

2.2 Handling Precautions

The card contains components that are sensitive to electrostatic discharge (ESD). Do not touch the card without following these precautions:



Caution

- Always follow correct ESD procedures before handling the card. We strongly recommend the use of a grounding wrist strap.
 - Never touch any of the card's connectors or pins. Handle the card by its edges.
 - When the card isn't in your computer, always store it in its protective bag.
-

2.3 Installing the Card

This section provides general directions for installing the SST-PFB3-PCI card in your computer.

To install the SST-PFB3-PCI:

1. Ensure that all power to your computer is *off*.
2. Adequately ground yourself, as explained in Section 2.2, [Handling Precautions](#).
3. Unplug the power cord, modem (if applicable), and any network cables.
4. Remove the computer cover. Consult your computer user's guide for information on installing add-in boards.
5. Take the card out of its shipping container, being careful not to touch any of the connectors or pins.
6. Firmly press the SST-PFB3-PCI interface card on to the PCI connector.
7. Secure the card to the case, according to the computer user's guide.
8. Replace the computer cover.

2.4 Connecting to a Profibus Network

2.4.1 DB9 Instructions

The following table describes how to connect the Profibus DB9.

Table 3: DB9 Instructions

| DB9 Pin Description | DB9 Pin # | DB9 Termination with SST-PFB3-PCI |
|---------------------|-----------|--|
| Chassis ground | 1 | |
| Reserved | 2 | |
| Data + | 3 | Connect this pin to Pin 8 (data -) with 220 ohm resistor |
| Tx enable | 4 | |
| Isolated ground | 5 | Connect this pin to Pin 8 (data -) with 390 ohm resistor |
| Voltage plus | 6 | Connect this pin to Pin 3 (data +) with 390 ohm resistor |
| Reserved | 7 | |
| Data - | 8 | |
| Reserved | 9 | |

2.4.2 Termination

Always refer to Profibus documentation for proper network termination and wiring directions.

3

Hardware Register Details

Chapter Sections:

- PFB3 Card Configuration Registers

3.1 PFB3-PCI Card Configuration Registers

This section provides hardware register details for the SST-PFB3-PCI card.

3.1.1 Host Register Layout

The SST-PFB3-PCI host registers are mapped into a separate region of PCI memory space (PCI Region 3). The base mapping address in the host system can be found by reading the PCI configuration space at offset 0x1C. Refer to Section 3.2, [SST-PFB3-PCI Configuration Space](#), for PCI configuration space information.



Note

When power is applied to the card, or after a physical reset from the system, it may take up to 2 seconds for the card to initialize. Successful initialization can be confirmed by monitoring the LEDs or by reading the HDR register, as described in Section C.1.1, [Verify Card Presence](#).

Table 4: Host Register Layout

The following table maps the host register layout.

| Offset | Register Name | Bit Name | | | | | | | |
|----------|---------------|------------------------------|----------|----------|----------|----------|----------|----------|----------|
| | | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 00h | Control | CardRun | MemEn | IntEn | WdTout | HostIrq1 | HostIrq0 | CardIrq1 | CardIrq0 |
| 01h | AddrMatch | 1 | AM18 | AM17 | AM16 | AM15 | AM14 | Reserved | Reserved |
| 02h | BankAddress | 0 | 0 | 0 | BA16 | BA15 | BA14 | Reserved | Reserved |
| 03h | WinSize | WS19 | WS18 | WS17 | WS16 | WS15 | WS14 | WS13 | WS12 |
| 04h | HostIrq | Reserved | Reserved | Reserved | Reserved | IrqLevel | | | |
| 05h | LedReg | Reserved | Reserved | Reserved | Reserved | CommRed | CommGrn | SYSRed | SYSGrn |
| 06h | | HWRReset | Reserved | Reserved | JTAGEN | CPUTRST | CPUTMS | CPUTDI | CPUTCK |
| 07h | HDR | HostDataReg (written by CPU) | | | | | | | |
| 08h-01Fh | | Reserved | | | | | | | |

3.1.2 Control Register

This register is a group of control and status bits.

Table 5: Control Register Settings

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|-------------------|---------|-------|-------|--------|----------|----------|----------|----------|
| Name | CardRun | MemEn | IntEn | WdTout | HostIrq1 | HostIrq0 | CardIrq1 | CardIrq0 |
| Read/Write | R/W | R/W | R/W | R | R/W | R/W | R/W | R/W |
| Reset | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 6: Control Register Bit Descriptions

| Bit Name | Description |
|----------|---|
| CardRun | <p>This bit controls and indicates whether or not the card's processor is running. It also affects the card's SYS LED.</p> <ul style="list-style-type: none"> When this bit is 0, the processor is halted, and the SYS LED is RED When this bit is 1, the processor is running normally, and the LED is under processor control When this bit is 1, and watchdog has timed out, processor is halted, and the SYS LED is RED <p>This bit must remain low for at least 50 μs to guarantee proper reset.</p> |
| MemEn | High (1) enables shared memory decoding of addresses in this board's range. This board's range is defined by the plug and play BIOS or operating system. |
| IntEn | <p>High (1) enables interrupts on IrqLevel when a HostIrq bit is high (1).</p> <ul style="list-style-type: none"> Writing 1 enables interrupts Writing 0 disables interrupts (the IrqPending flag still functions as described) |
| WdTout | WdTout high ('1') indicates that a watchdog timeout has occurred, or that the CPU has been held in RESET by some other means. To restore this bit to 0, clear CardRun. |
| HostIrq1 | <p>This bit is used by the card processor to send interrupts to channel 1 of the host</p> <ul style="list-style-type: none"> Writing 1 acknowledges the interrupt and clears it Writing 0 has no effect Reading 1 indicates interrupt in progress Reading 0 indicates interrupt complete |
| HostIrq0 | <p>This bit is used by the card processor to send interrupts to channel 0 of the host</p> <ul style="list-style-type: none"> Writing 1 acknowledges the interrupt and clears it Writing 0 has no effect Reading 1 indicates interrupt in progress Reading 0 indicates interrupt complete |
| CardIrq1 | <p>This bit is used by the host to send interrupts to channel 1 of the card processor</p> <ul style="list-style-type: none"> Writing 1 generates an interrupt to the card Writing 0 has no effect Reading 1 indicates interrupt in progress Reading 0 indicates interrupt complete |
| CardIrq0 | <p>This bit is used by the host to send interrupts to channel 0 of the card processor</p> <ul style="list-style-type: none"> Writing 1 generates an interrupt to the card Writing 0 has no effect Reading 1 indicates interrupt in progress Reading 0 indicates interrupt complete |

3.1.3 AddrMatch Register

Table 7: AddrMatch Register Bit Descriptions

| Bit Name | Description |
|-------------|--|
| AM19 – AM12 | Reserved. This register always reads zero, and writing these bits has no effect. |

3.1.4 WinSize Register

Table 8: WinSize Register Bit Descriptions

| Bit Name | Description |
|-----------|---|
| WS19-WS12 | Reserved. This register always reads 0x3F, and writing this register has no effect. |

3.1.5 Bank Address Register

This register is used to switch banks of shared memory into host memory space.

Table 9: Bank Address Register Bit Descriptions

| Bit Name | Description |
|----------|--|
| BA17-13 | Reserved. This register always reads zero, and writing these bits has no effect. |

3.1.6 HostIrq Register

Table 10: HostIrq Register Bit Descriptions

| Bit Name/ Value | Description |
|---------------------|--|
| IrqLevel3-IrqLevel0 | Reserved. This register always reads zero, and writing this register has no effect |

3.1.7 LedReg Register

This register reflects the state of card LEDs, allowing host software to monitor the LEDs and display them on-screen.

The LedReg register represents the state of the card LEDs. The state of this register is controlled by firmware. Reading the register will reflect the following LED states:

Table 11: LedReg Register Settings

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|-------------------|----------|---|---|---|---------|---------|--------|--------|
| Name | Reserved | | | | COMMRed | COMMGrn | SYSRed | SYSGrn |
| Read/Write | R | R | R | R | R | R | R | R |
| Reset | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 12: SYS and COMM LED Status

| Bit Name/Value | | Description |
|----------------|----------------|--|
| SYSGrn | SYSRed | These bits indicate the state of the card's SYS LED. |
| 0 | 0 | LED is off |
| 0 | 1 | LED is red |
| 1 | 0 | LED is green |
| 1 | 1 | LED is amber |
| CommGrn | CommRed | These bits indicate the state of the card's communications LED |
| 0 | 0 | LED is off |
| 0 | 1 | LED is red |
| 1 | 0 | LED is green |
| 1 | 1 | LED is amber |

3.1.8 Debug Register

Reserved for future use.

3.1.9 HDR Register

Reserved for future use.

3.2 SST-PFB3-PCI Configuration Space

Table 13: SST-PFB3-PCI Configuration Space

| PCI CFG Register Address | Register Function | | | | | PCI Writable | | |
|--------------------------------|---|-----------|---------------|----------------|-------------------------------|-----------------|---|--------|
| | 31 | 24 | 23 | 16 | 15 | | 8 | 7 |
| 0x00 | Device ID 0x0033 | | | | Vendor ID 0x133D | | | N |
| 0x04 | Status | | | | Command | | | Y |
| 0x08 | Class Code | | | | Revision ID | | | N |
| 0x0C | BIST | Header ID | PCI Latency | CacheLineSize | | | | Y[7:0] |
| 0x10 | PCI Base Address 0 Memory, 128 bytes, Reserved | | | | | | Y | |
| 0x14 | PCI Base Address 1 Not Used | | | | | | Y | |
| 0x18 | PCI Base Address 2 Memory, 256K bytes Profibus Interface Refer to the relevant firmware documentation for details. | | | | | | Y | |
| 0x1C | PCI Base Address 3 Memory, Host Interface Registers See Section 3.1, PFB3-PCI Card Configuration Registers , for details. | | | | | | Y | |
| 0x20 | PCI Base Address 4 Not Used | | | | | | Y | |
| 0x24 | PCI Base Address 5 Not Used | | | | | | Y | |
| 0x28 | Cardbus CIS Pointer (Not Supported) | | | | | | N | |
| 0x2C | Subsystem Device ID 0x9030 | | | | Subsystem Vendor ID 0x10B5 | | | N |
| 0x30 | PCI Base Address for Local Expansion ROM | | | | | | Y | |
| 0x34 | Reserved | | | | | | N | |
| 0x38 | Reserved | | | | | | N | |
| 0x3C | Max_Lat | Min_Gnt | Interrupt Pin | Interrupt Line | | Y[7:0] | | |



Note

Refer to the PCI specification and your particular OS documentation for the function of all other PCI configuration space registers and their typical uses.

**Note**

Typically, the PCI configuration space registers do not need to be written to by the host system driver. A plug and play BIOS and/or host operating system will ensure there are no resource conflicts in the system.

4

Troubleshooting

Chapter Sections:

- SYS LED is Red

For a list of hardware-related errors that can be generated by the card, refer to Appendix A, [Error Messages](#).



Warning

Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Failure to observe this precaution could result in severe bodily injury or loss of life.

4.1 SYS LED is Red

If the SYS LED is red, the card is not running or there's been a firmware run-time error. Check the WdTout bit for a timeout, and consult the appropriate firmware manual if necessary. If you continue to experience difficulties, contact technical support (refer to Section D.3, [Technical Support](#), for details).



Note

For information on LED flash codes, refer to Section A.3, [Fatal Hardware Self-Test Flash Codes](#).

A

Error Messages

Appendix Sections:

- Introduction
- HDR Messages
- Fatal Hardware Self-test Flash Codes

A.1 Introduction

The following errors may be reported during the card's startup self-test. Error messages are posted in the message area (0x0200) of the host interface and can be displayed using the status applications provided with the card.

A.2 HDR Messages

If HDR reads anything other than 0x41, the card hasn't been found. If you continue to experience difficulties, contact technical support (refer to Section D.3, [Technical Support](#), for details).

A.3 Fatal Hardware Self-Test Flash Codes

Fatal failures during startup are accompanied by one of the following 8-bit fault codes, flashed on the HealthLed.

Table 14: LED Flash Codes

| Value | Name | Description |
|-------|-------------------|---|
| 01 | BITTEST8 | Bit test failure of an 8-bit memory range |
| 02 | BITTEST16 | Bit test failure of a 16-bit memory range |
| 03 | BITTEST32 | Bit test failure of a 32-bit memory range |
| 04 | ADDRTEST8 | Address test failure of an 8-bit memory range |
| 05 | ADDRTEST16 | Address test failure of a 16-bit memory range |
| 06 | ADDRTEST32 | Address test failure of a 32-bit memory range |
| 07-10 | - | Reserved for future fatal start-up errors |
| 11 | JTAG_UNKNOWN | JTAG programming error |
| 12 | JTAG_TDOMISMATCH | JTAG output data failed to match expected pattern |
| 13 | JTAG_MAXRETRIES | JTAG output data failed to match expected pattern after several attempts |
| 14 | JTAG_ILLEGALCMD | JTAG programming file contained an unknown/malformed command |
| 15 | JTAG_ILLEGALSTATE | JTAG programming file commanded an illegal TAP state transition |
| 16 | JTAG_DATAOVERFLOW | JTAG programming file contained a shift pattern in excess of MAX_LEN * 8 bits |
| 20-FF | - | Reserved for firmware-specific fatal errors |

B

Technical Specifications

Appendix Sections:

- Technical Specifications

B.1 Technical Specifications

The following tables list the technical specifications for the card.

Table 15: Environmental Specifications

| | | |
|-----------------------------|-----------------|---|
| Ambient Conditions | Storage temp: | -40°C to +85°C |
| | Operating temp: | 0°C to 60°C |
| | Humidity: | 5% to 95% non-condensing |
| Typical Current Draw | | 600mA |
| PCI Compliance | | Compliant with PCI 2.2; will operate in 2.3 and some 2.1-compliant systems. Refer to Section 1.3, PCI Compatibility , for more information. |

Table 16: Network Specifications

| | |
|------------------|--------------------------------------|
| Isolation | 1000V |
| Protocol | RS485 |
| Data Rate | All Profibus data rates up to 12Mbps |

Table 17: PCI Bus Specifications

| | | |
|-------------------|---------|---|
| Dimensions | Height: | 4.2 inches |
| | Width: | 6.875 inches |
| Resources | | PCI Region 0 = 128 bytes of PCI memory PCI Region 2 = 256K of 32-bit PCI memory PCI Region 3 = 32 bytes of 32-bit PCI memory One PCI interrupt |

C

Loading Firmware

Appendix Sections:

- Loading Firmware



Note

This appendix describes how to load the card manually, or how to write your own loader. If you are using a Windows loader provided by SST, the following instructions are not required.

C.1 Loading Firmware

Firmware modules for the SST-PFB3-PCI card are supplied as .ss3 files, found on the software CD-ROM or on the website at <http://www.mysst.com/>.

If you are developing a driver for the card or producing a stand-alone embedded application, the following section describes the basic sequence of steps to manually load a module onto the SST-PFB3-PCI card.



Note

For register descriptions, refer to Chapter 3, [Hardware Register Details](#).

C.1.1 Verify Card Presence

To verify the card's presence, follow these steps:

1. Start up your computer.
2. Following release of the backplane reset, wait 2 seconds.
3. Query the BIOS/OS for a PCI card with Vendor ID 0x133D and Device ID 0x0033 (refer to Section 3.2, [SST-PFB3-PCI Configuration Space](#) for more information).

C.1.2 Load and Start the Firmware Module

To load and start the firmware module, follow these steps:

1. Bit-wise AND the value 0x00 to the Control Register.
2. Write the contents of the entire firmware file into shared memory, starting at offset zero (0). The location of shared RAM can be found by reading PCI Base Address 2 from the SST-PFB3-PCI configuration space. Refer to Section 3.2, [SST-PFB3-PCI Configuration Space](#), for details.
3. If the application requires interrupts from the card, write the interrupt level to the HostIrq register and bit-wise OR the value 0x20 (IntEn) to the Control register.
4. Bit-wise OR the value 0xC0 (CardRun and MemEn) to the Control register to start the firmware module.
5. Start a 2-second timeout timer and wait for bit 0 (HostIrq0) in the Control register to set.
6. If the timer expires, the firmware module failed to start. Write zero to the Control register to disable the card. If this problem persists, contact technical support for assistance.
7. Check the load status, as per the firmware manual.

D

Warranty and Support

Appendix Sections:

- Warranty
- Reference Documents
- Technical Support

D.1 Warranty

For warranty information pertaining to the card, refer to <http://www.mysst.com/warranty.asp>.

D.2 Reference Documents

For information on Profibus, refer to one of the following:

- Profibus standard DIN 19 245 parts 1, 2 and 3. Part 1 describes the low-level protocol and electrical characteristics, Part 2 describes FMS, and Part 3 describes DP.
- European Standard EN 50170

D.3 Technical Support

Please ensure that you have the following information readily available before calling for technical support:

- Card type and serial number
- Computer's make, model and hardware configuration (other cards installed)
- Operating system type and version
- Details of the problem you are experiencing: application module type and version, target network, and circumstances that may have caused the problem

D.3.1 Getting Help

Technical support is available during regular business hours by telephone, fax or email from any Woodhead Software & Electronics office, or from www.mySST.com. Documentation and software updates are also available on the Web site.



Note

If you are using the card with a third-party application, refer to the documentation for that package for information on configuring the software for the card.

North America

Canada:
Tel: 519-725-5136
Fax: 519-725-1515
Email: techsupport@mySST.com

Europe

France:
Tel: 33-2-32-96-04-20
Fax: 33-2-32-96-04-21
Email: supportfr@applicom-int.com

Germany:
Tel: 49-711-782374-0
Fax: 49-711-782374-11
Email: infode@applicom-int-com

Italy:
Tel: 30-9-10-59-30-77
Fax: 39-10-59-56-925
Email: imainfo@imaweb.it

United Kingdom:
Tel: 44-1495-35-04-36
Fax: 44-1495-35-08-77
Email: contact@wdhd.co.uk

Asia-Pacific

Japan:
Tel: 81-4-5224-3560
Fax: 81-4-5224-3561
Email: sst@woodhead.co.jp

Singapore:
Tel: 65-261-6533
Fax: 65-265-6605
Email: info@woodhead.com.sg



CE Compliance

Appendix Sections:

- CE Compliance

E.1 CE Compliance

This device meets or exceeds the requirements of the following standard:

- EN 61326:1998 including amendments A1 and A2: - Class A - “Electrical equipment for measurement, control and laboratory use - EMC requirements.




Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case you may be required to take adequate measures.



Caution

This equipment is neither designed for, nor intended for operation in installations where it is subject to hazardous voltages and hazardous currents.

Marking of this equipment with the symbol  indicates compliance with European Council Directive 89/336/EEC - The EMC Directive as amended by 92/31/EEC and 93/68/EEC.



Note

To maintain compliance with the limits and requirements of the EMC Directive, it is required to use quality interfacing cables and connectors when connecting to this device. Refer to the cable specifications in the Hardware Guide for selection of cable types.



Note

The backplane voltage supply for this equipment must be delivered as Separated Extra Low Voltage (SELV).

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