Sync Adapter Installation Guide

SmartSync/DCP
SyncPCI
SyncPlus

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Technical Support

Serengeti Systems provides technical support for as long as you use a Serengeti sync adapter at no additional cost to you. Support is available via the Internet from our web site or via e-mail, or by telephone.

- Access to Serengeti Technical Support may be available from within your Serengeti software product by way of your web browser or e-mail (assuming either or both of these are installed on the same PC) Open the **Help** menu, click **Technical Support**, and follow the links to Serengeti Web Page Technical Support or to access our support staff via e-mail.

- Visit the Serengeti Web Page (http://www.serengeti.com) directly and click on **Technical Support** to access our online technical database. You'll find answers to many of the most commonly asked questions at your fingertips.

- For fast response to your technical support issue, sum up your question or problem in writing and submit this via e-mail to Support@Serengeti.com. We'll respond to you by e-mail or a telephone call (if appropriate) as quickly as we can.

- If you cannot find the answers you're searching for online or you do not have e-mail access, you may call us at (512) 345-2211 and ask for technical support during our normal business hours of 9AM to 5PM Central Time Monday through Friday.

Hardware Warranties

Serengeti Systems warrants the SmartSync/DCP, SyncPCI, and SyncPlus adapter(s) to be free from defects in material and workmanship. Under this warranty, Serengeti's obligation is limited to repairing or replacing the adapter proved to be defective by our inspection within the following periods after the sale to the original purchaser:

- One (1) year (SyncPCI and SyncPlus)
- Three (3) years (SmartSync/DCP)

This warranty shall not apply to an adapter that has been repaired or altered by someone other than Serengeti, nor which has been operated in a manner exceeding its specifications, nor which has had the serial number removed. Serengeti does not assume any liability for consequential damages and, in any event, our liability shall not exceed the original purchase price.

The foregoing constitutes the sole and exclusive remedy of the Buyer and exclusive liability of Serengeti AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY AS TO MERCHANTABILITY, FITNESS FOR PURPOSE SOLD, DESCRIPTION, QUALITY, PRODUCTIVENESS OR ANY OTHER MATTER. Without limiting the foregoing, in no event shall Serengeti be liable for loss of use or profit or other collateral, special, or consequential damages.

Regulatory Approval Statements

Radio Frequency Interference (RFI) for SmartSync/DCP

The SmartSync/DCP adapter has been tested to meet the following standards:

UL recognized to UL1950
CUR recognized to CSA22.2, No. 950
TUV certified to EN60950
FCC Rules, Part 15, Class B
DOC Rules, Class B
EMC Directive 89/336/EEC

- EN55022, CISPR22/85, Class B
- EN50082-1

Telecom Directive 91/263/EEC

- CTR1 (NET 1:1994) for X.21 access
- CTR2 (NET 2:1994) for X.25 access

Statement of Compliance: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Part 15 of the FCC Rules requires that this Class B digital device be installed on computer equipment certified to comply with the Class B limits. FCC Rules and Regulations also require connections to this device be made with shielded cables with metallic RFI/EMI connector hoods. Operation of non-certified computers or non-shielded cables may result in interference with radio or television reception.

MODIFICATIONS: Any changes or modifications not expressly approved by the manufacturer may void the user's authority to operate the equipment.

Radio Frequency Interference (RFI) for SyncPCI

The SyncPCI adapter, to which this declaration relates, is in conformity with the provisions of 89/336/EEC Electromagnetic Compatibility Directive and has been tested to meet the following standards:

EN 55022:1994 Radiated Emissions (Class B)
EN 55022:1994 Conducted Emissions (Class B)
ENV 50140 RF Electromagnetic Fields Immunity (10V/m Level A)
ENV 50204 RF Electromagnetic Fields Immunity (keyed carrier Level A)
ENV 50141 Conducted RF Disturbances Immunity (signal/control lines Level A)
EN 61000-4-4 Electrical Fast Transient/Burst Immunity (signal/control lines .5kV Level B)
EN 61000-4-2 Electrostatic Discharge Immunity (8kV air/4kV contact Level B)

A "Declaration of Conformity" in accordance with the preceding standards is on file at Attachmate Corporation Europe, Sèvres, France.

Statement of Compliance: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Part 15 of the FCC Rules requires that this Class B digital device be installed on computer equipment certified to comply with the Class B limits. FCC Rules and Regulations also require connections to this device be made with shielded cables with metallic RFI/EMI connector hoods. Operation of non-certified computers or non-shielded cables may result in interference with radio or television reception.

MODIFICATIONS: Any changes or modifications not expressly approved by the manufacturer may void the user's authority to operate the equipment.

Canadian Radiation for SyncPCI

This digital apparatus does not exceed the Class B limits for radio noise emissions from a digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Cet présent appareil numérique n'émets pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Radio Frequency Interference (RFI) for SyncPlus

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Radiation for SyncPlus

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interface regulations of the Canadian Department of Communications.

Lé presént appareil numbérique n'émet pas de buits radioélectriques dépassant les limites applicables aux appareils numériques de le Classe A. Prescrites dans le réglement sur le brouillage radioélectrique edicté par le ministeré des Communications Du Canada.

Overview of this Installation Guide

This guide provides information related to the installation and configuration of the 8-port SmartSync/DCP, and the single port SyncPCI and SyncPlus adapters for use with one of Serengeti's emulation software products.

The guide contains the following sections:

- **SmartSync/DCP General Description** – Description of the features and PC requirements of the SmartSync/DCP
- **SyncPCI General Description** – Description of the features and PC requirements of the SyncPCI
- **SyncPlus General Description** – Description of the features and PC requirements of the SyncPlus
- **SyncPlus Configuration** – Description of the switches and jumpers found on the SyncPlus, and how to configure the adapter
- **Physical Installation** – Description of how to install the adapter in your PC
- **Driver Installation** – Description of how to install the device driver for the adapter
- **Troubleshooting** – Description of how to troubleshoot common installation problems of the adapters

SmartSync/DCP General Description

The SmartSync/DCP adapter is a PCI bus, Plug and Play compliant multi-port intelligent communications adapter. The SmartSync/DCP is designed to provide 8-ports of high reliability synchronous communications between PCs and bisync (BSC) host systems.

The SmartSync/DCP is sold by Serengeti Systems to provide up to eight synchronous communications ports for use with BSC (byte-synchronous) emulation software products. The SmartSync/DCP is also employed in asynchronous mode by these same products to support popular, low-cost auto-dial and auto-answer Hayes compatible 'AT' command set modems.

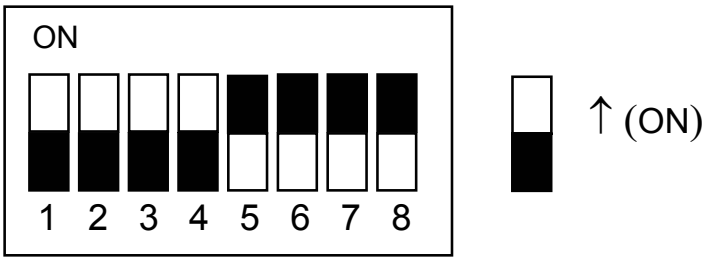
Specifications

- PCI 32-bit Bus Master interface
- Fully PCI v2.1, PnP compliant – no switches or jumpers to set, uses any available resource
- Eight ports based on Hitachi 64570 Communications Controller
- On-board 75 MHz 80486 micro-processor
- 1 MB on-board RAM memory
- Link speeds up to 56Kbps (all ports active); 224Kbps aggregate
- Auto-dial with SADL, V.25bis and 'AT' command set modems
- Auto-answer with most modems

- Supplied 8-connector "octopus" RS-232C cables
- Made in the USA

Switch Settings

There are eight 8-position switch blocks located on the daughter card of the SmartSync/DCP adapter. These switch blocks are labeled **DTE | DCE**. These switches are preset at the factory and should not be changed. The following diagram shows the proper setting of these switches.



SmartSync/DCP Resource Requirements

Resource Type	Requirement	Supports
Memory (1)	16KB	Any address between 1MB - 4GB
Memory (2)	16KB	Any address between 1MB - 4GB
Memory (3)	128 bytes	Any address between 1MB - 4GB
I/O	128 bytes	Any available I/O address
IRQ	None	n/a

SyncPCI General Description

The SyncPCI adapter is a PCI bus, Plug and Play compliant communications adapter. The SyncPCI is designed to provide high reliability synchronous communications between PCs and host systems.

The SyncPCI is sold by Serengeti Systems to provide a synchronous communications port for use with both BSC (byte-synchronous) and SDLC (bit-synchronous) emulation software products. The SyncPCI is also employed in asynchronous mode by these same products to support popular, low-cost auto-dial and auto-answer Hayes compatible 'AT' command set modems.

Specifications

- PCI 32-bit Bus Master interface
- Supports PCI Bus Master DMA transfers
- Fully PCI v2.1, PnP compliant – no switches or jumpers to set, uses any available resource
- Supports shared interrupts for greatest compatibility
- Link speeds up to 56Kbps
- Auto-dial with SADL, V.25bis and 'AT' command set modems

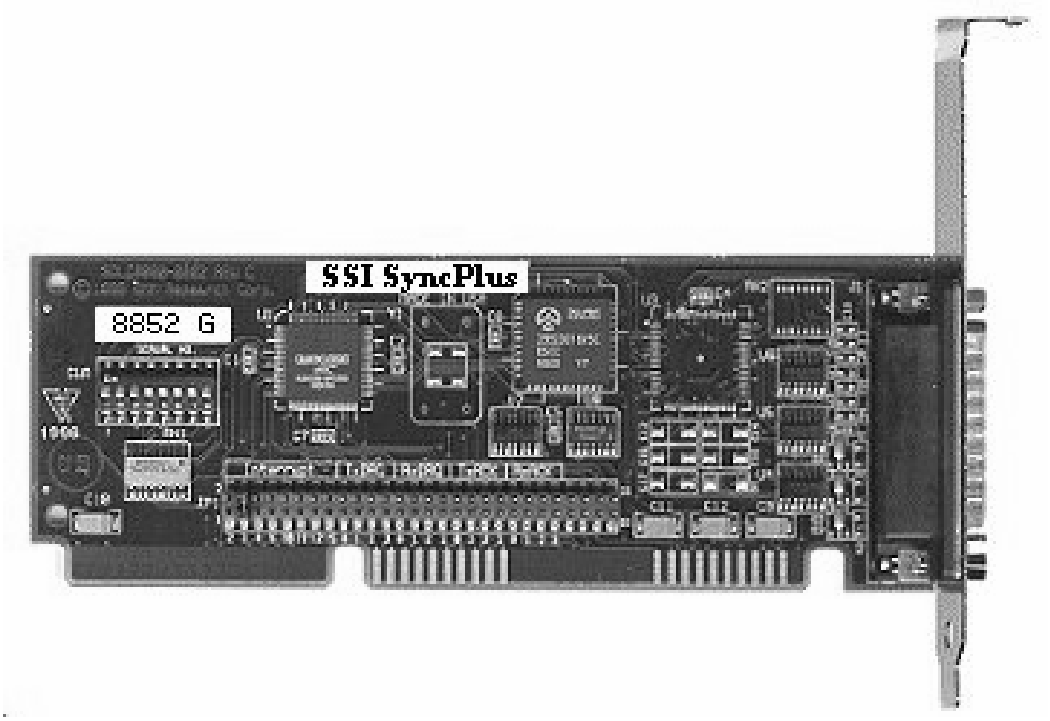
- Auto-answer with most modems
- Lower power consumption
- Virtual modem display software included (SDLC only)
- RS-232C interface
- Supplied with a 10’ (3m) RS-232 cable
- Diagnostic software with external loopback connector
- Made in the USA

Resource Requirements

Resource Type	Requirement	Supports
Memory (1)	128KB	Any address between 1MB - 4GB
Memory (2)	255 bytes	Any address between 1MB - 4GB
I/O	255 bytes	Any available I/O address
IRQ	1	Shareable; any available interrupt

SyncPlus General Description

The SyncPlus is a high-performance multi-protocol communications adapter for PC's and workstations equipped with the industry standard ISA expansion bus.



The SyncPlus is sold by Serengeti Systems to provide a synchronous communications port for use with both BSC (byte-synchronous) and SDLC (bit-synchronous) emulation software products. The SyncPlus is also employed in asynchronous mode by these same products to support popular, low-cost auto-dial and auto-answer Hayes compatible modems.

Specifications

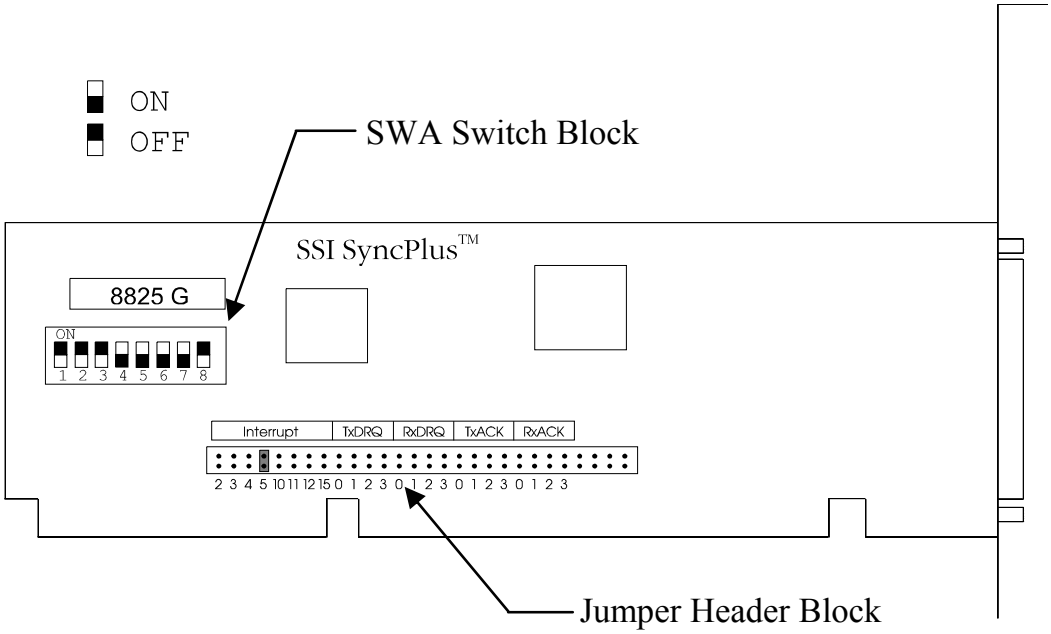
The essential features of the SyncPlus are listed below:

- 16-bit ISA adapter with single RS-232 DTE interface
- Pentium™ bus speed compatible
- High performance 16 MHz Z85230 ESCC chip
- Link speeds up to 56Kbps
- Six switch selectable I/O bus addresses
- Interrupt lines available: 2, 3, 4, 5, 10, 11, 12, and 15

- Dual-channel DMA support; eight (8) IRQ settings
- Four jumper selectable DMA channels - 0, 1, 2, and 3
- Auto-dial with V.25bis and ‘AT’ command set modems
- Auto-answer with most modems
- Lower power consumption
- Virtual modem display software included (SDLC only)
- Made in the USA

SyncPlus Configuration

This section describes the SyncPlus default configuration and tells you how to configure the adapter for your environment if changes to the factory defaults are required. See the following diagram for the layout of the SyncPlus:



There are two adapter settings that apply to the SyncPlus plus two more for the SyncPlus/SDLC. These settings are:

- I/O Base Address
- Interrupt (IRQ)
- Transmit (Tx) DMA Channel (SDLC operation only)
- Receive (Rx) DMA Channel (SDLC operation only)

Available Settings

The supported values for each of the SyncPlus adapter settings are:

- I/O Base Address: 300, 310, 320, 330, 340, 350, 360
- IRQ: 2, 3, 4, 5, 10, 11, 12, 15
- Tx DMA: Disabled, 0, 1, 2, 3
- Rx DMA: Disabled, 0, 1, 2, 3

Factory Default Settings

The SyncPlus is shipped with the following settings:

- I/O Base Address = 300
- IRQ = 5
- Tx DMA = Disabled
- Rx DMA = Disabled

If you use the default configuration you may skip to the Installation section.

Setting the I/O Base Address

The I/O Base Address of the SyncPlus is programmed on the SWA mini-dip switch located on the left side of the adapter. The mini-dip switch has eight switches. Switches 2 through 7 can be used to program the I/O Base Address. Switches 1 and 8 are not used and must be off. The factory default I/O Base Address is 300.

The address range used by the SyncPlus is from the base address to 15 positions past the base address. For example, the address range used by a SyncPlus installed at address 300 is 300→30f (these addresses are hexadecimal numbers.)

You must select an address for the SyncPlus that is unique within your PC. Failure to select a unique address may result in the SyncPlus not being recognized by a Serengeti software product and/or the temporary disabling of other hardware adapters (such as a network interface card) due to an addressing conflict.

The table below shows how to set the supported I/O Base Addresses of the SyncPlus.

I/O Address	Switch Settings 1	2	3	4	5	6	7	8
300	off	off	off	on	on	on	on	off
310	off	off	off	on	on	on	off	off
320	off	off	off	on	on	off	on	off
330	off	off	off	on	on	off	off	off
340	off	off	off	on	off	on	on	off
360	off	off	off	on	off	off	on	off

The following diagram shows the I/O Base Address switch settings for the default address of 300:

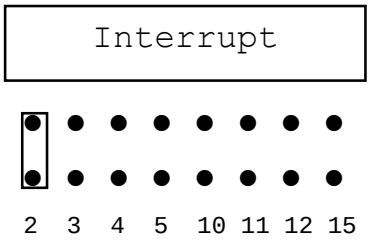
Setting the IRQ

The interrupt (IRQ) used by the SyncPlus is set by placing a jumper vertically across two pins on the "Interrupt" jumper header block. The SyncPlus has eight available interrupts and are labeled on the adapter as "2 3 4 5 10 11 12 15". The factory default is IRQ 5.

You must select an IRQ for the SyncPlus that is unique within your PC. Failure to select a unique IRQ will prevent a Serengeti software product from being able to send and receive, and/or the temporary disabling of other hardware adapters (such as a network interface card) due to an IRQ conflict.

When selecting an IRQ, most likely the IRQ setting may be set at either 2 or 5. Generally it is not recommended to select IRQ 3 and IRQ 4 because they are normally already used by COM2 and COM1 respectively unless these ports are absent from or disabled in your PC. If you are not sure what are appropriate values, consult your system administrator.

The following diagram shows the correct setting for IRQ 2:



On some PC's with a Plug-n-Play (PnP) BIOS, special attention is required when you install any ISA-bus adapter that is not PnP aware – the SyncPlus falls into this category. Often it is necessary to reserve the IRQ (and DMA channels) used by a non-PnP adapter in the BIOS configuration at boot time. If this applies to you, consult with your system administrator or the PC's documentation about how to reserve an IRQ for use with the SyncPlus (more on this later in this setup guide).

Setting the DMA Channels (SDLC operation only)

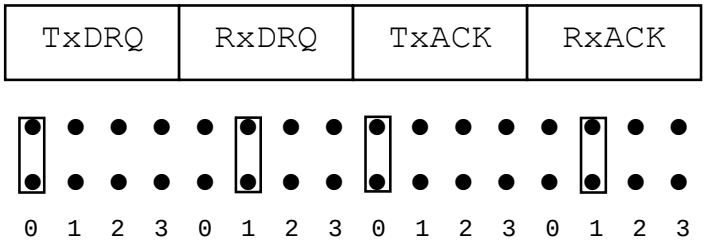
The use of Direct Memory Access (DMA) with the SyncPlus in SDLC operation is not required as long as the line speed does not exceed 19.2Kbps. However, for maximum performance or to achieve speeds up to 56Kbps, then you must enable DMA operation. DMA operation is supported only by the SyncPlus adapter when used in SDLC mode. The factory default disables DMA operation.

The SyncPlus has four available DMA channels. While it is possible to enable the use of a DMA channel for transmitting (Tx DMA) and not for receiving (Rx DMA) or vice versa, we always advise enabling DMA for both or not using DMA at all.

So, you must select *two* DMA channels for the SyncPlus that are unique within your PC. Failure to select unique DMA channels will prevent a Serengeti software product from being able to send and receive, and/or the temporary disabling of other hardware adapters (such as a network interface card) due to a DMA conflict. If you are not sure what are appropriate values, consult your system administrator.

The enabling of DMA operation is done by placing a jumper vertically across one of the pins labeled "0 1 2 3" beneath *each* of the labels "TxDRQ", "RxDRQ", "TxACK", and "RxACK". The "TxDRQ" and "TxACK" jumper settings must be set to the same value, just as the "RxDRQ" and "RxACK" must be set to the same but another value.

For example, to enable transmit operations to use DMA channel 0, place a jumper across the pins labeled "0" under **both** "TxDRQ" and "TxACK". Next, to enable receive operations to use DMA channel 1, place a jumper across the pins labeled "1" under **both** "RxDRQ" and "RxACK". The correct jumper settings are shown below:



It does not matter which DMA channel you use for transmit or receive as long as they are not the same and are otherwise unused by your PC.

As with the IRQ setting, it may be necessary to reserve the DMA channels for use by a non-PnP adapter. This reservation is normally done in the BIOS configuration at boot time. If this applies to you, consult with your system administrator or the PC's documentation about how to reserve DMA channels for the SyncPlus.

Physical Installation

This section describes how to install the adapter in your computer and to attach the modem cable. The following steps are applicable to most systems:

1. Turn off the power to the PC system unit and disconnect the power cord.

2. Remove the cover of the system unit to gain access to the expansion slots.

3. For the SmartSync/DCP or SyncPCI: Remove the slot cover from any unused PCI slot.

   For the SyncPlus: Remove the slot cover from any unused 16-bit ISA slot. The choice of slot is not significant except that in some systems with a PnP BIOS you may need to know which slot in which you inserted the SyncPlus so you can properly configure the BIOS. The slot is identified by number. If necessary, consult with your system administrator or the PC's documentation about how to determine an ISA slot number.

4. Slide the adapter into the empty slot. Press firmly to seat the adapter.

5. Secure the adapter with the screw you removed in step 3.

6. For the SmartSync/DCP: Attach the provided octopus cable to the connector and securely fasten the thumbscrews. Each 25-pin connector is labeled with a port number. Attach the desired port cable to the modem(s), or other device(s), that you intend to use. Only use the cable provided by Serengeti Systems.

   For the SyncPCI and SyncPlus: Attach the provided modem cable to the 25-pin connector on the adapter and then to the connector on the modem, or other device, that you intend to use. It is strongly recommended that you always use the cable provided by Serengeti Systems.

7. Replace the system unit cover and reconnect the power cord.

8. Reboot your PC.

9. For the SmartSync/DCP or SyncPCI: The physical installation is now complete and you can proceed to **Driver Installation**.

   For the SyncPlus: Configure your PC's BIOS to be aware of the SyncPlus.

   In some PC's with Plug-n-Play (PnP) BIOS's it is necessary to reserve the hardware resources needed by the SyncPlus – namely the IRQ and possibly two DMA channels since the SyncPlus is *not* Plug-n-Play compatible.

   Reservation of these resources would be done in the BIOS setup of your PC. Unfortunately, since one PC is very likely to be different from the next on how this hardware resource reservation is done – and even if it is necessary – we cannot give much more information how to complete this step. For example, many of the older Dell Pentium PC's do not require special BIOS configuration at all. However, you should always check your PC's BIOS setup for settings that might say things like:

   "Advanced"
   "Resource Configuration"
   "IRQ Reservation"
   "Reserve IRQ for use by Legacy ISA adapter"
   "PNP and PCI Setup"
   "IRQ *x* used by ISA (Yes/No)?"
   "DMA *x* used by ISA (Yes/No)?"

   If you see configuration settings or questions such as these, you must specify the IRQ and DMA channels (if appropriate) in the manner your particular BIOS requests it such that it matches how you physically set the SyncPlus.

10. Save and exit from the BIOS setup program and reboot your system. Once you install the accompanying Serengeti emulation software product, your SyncPlus should be ready for use.

If suddenly another hardware adapter in your PC fails to work or if the software you are using with the SyncPlus does not seem to work properly, then you may have a hardware conflict or configuration problem. Refer to the following **Troubleshooting** section for suggestions to resolve such problems.

Driver Installation

Now that you have installed the adapter in your PC and rebooted, Windows requires a device driver to make it operate.

The SmartSync/DCP and the SyncPCI adapters are Plug and Play (PnP) compatible with Windows 98, Windows Me, and Windows 2000. (Windows NT does not support PnP adapters.)

The SyncPlus is not PnP compatible.

Plug and Play Installation

(SmartSync/DCP and SyncPCI installation under Windows 98, Me, 2000)

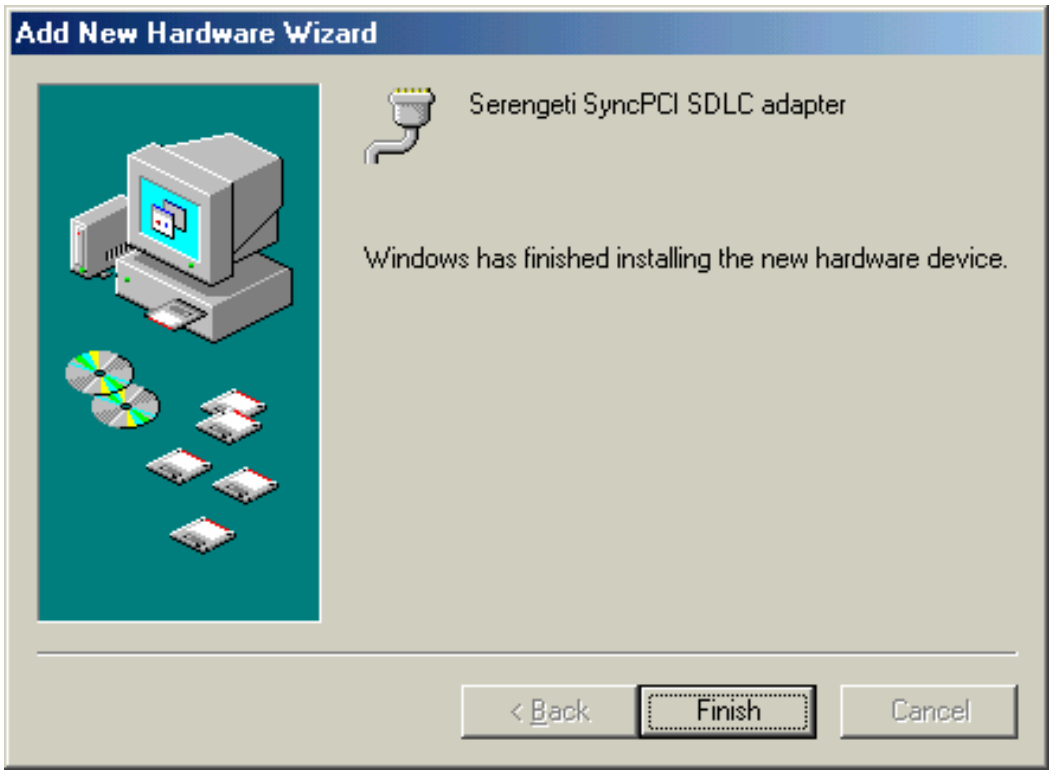
When Windows is starting up, it detects the presence of a new PnP adapter. Windows initially detects the SmartSync/DCP and SyncPCI adapters as a **PCI Network Controller** as shown in the Windows ME example below:

The Windows **Add New Hardware Wizard** is used to install the necessary driver software as shown below (example from Windows Me -- the dialog box you actually see may be different):

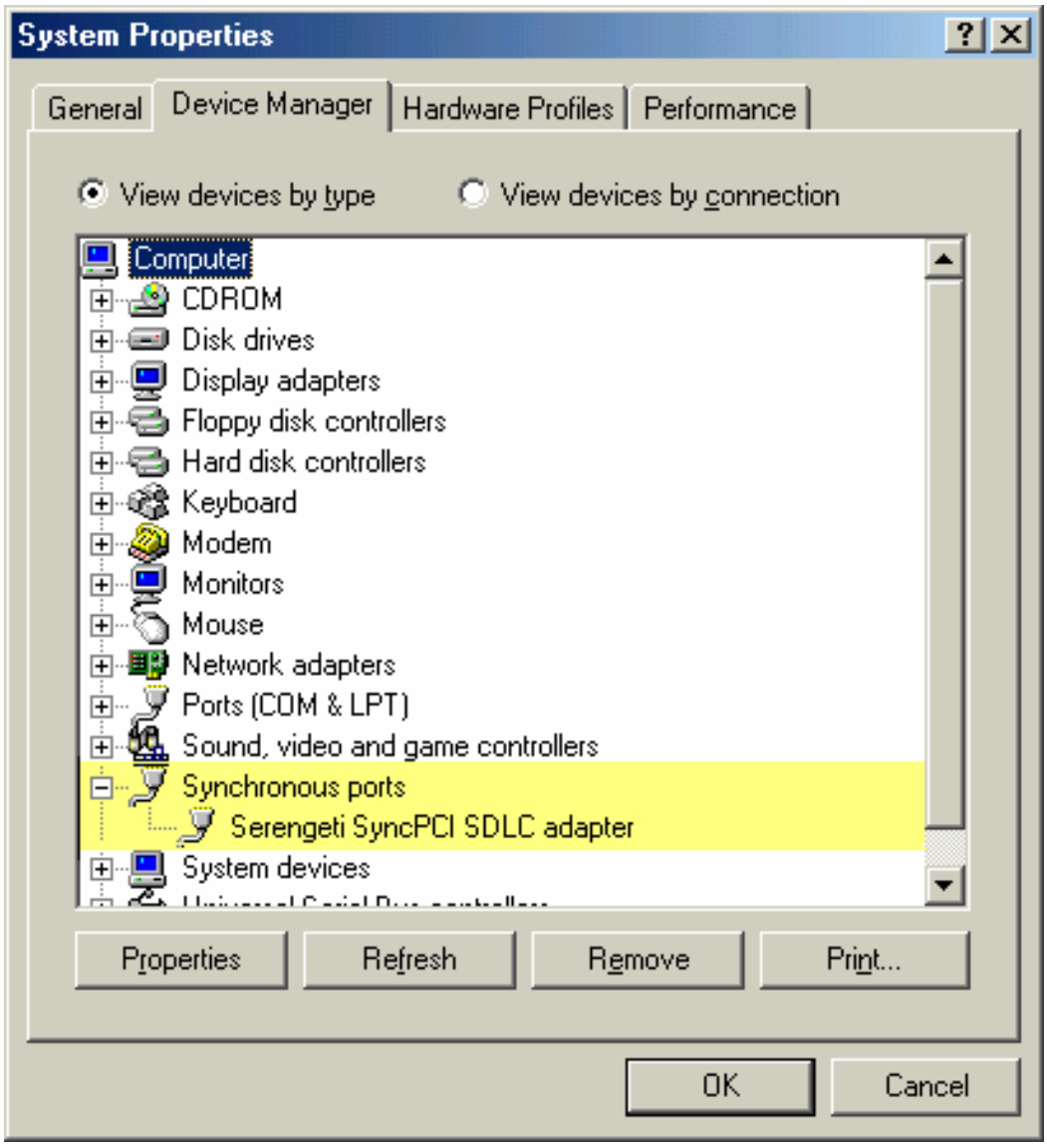
The driver for the SmartSync/DCP or SyncPCI is located in the root directory of the CD-ROM for the accompanying Serengeti emulation software product.

You may permit Windows to search for the driver automatically (if supported by the version of Windows you are using) or you may directly specify the CD-ROM drive depending what you are comfortable with. Once the wizard has the location of the driver, installation from that point is automatic.

When installation is complete, you will see something like (the following is an example installing the SyncPCI adapter and 3770Link under Windows Me):



You can tell if the driver had been successfully installed by running **Device Manager** and looking under "Synchronous ports" as shown in the highlighted area below (again the following is an example installing the SyncPCI adapter and 3770Link under Windows Me):



Non-Plug and Play Installation

(SyncPlus and any adapter under Windows NT)

The driver is installed automatically when you install the accompanying Serengeti emulation software product -- no separate driver installation is required

Troubleshooting

Some of the simple things need to be checked first in the case of trouble, so please scan the following list of questions and see if any apply to your situation:

1. Are you using the supplied or a fully-pinned straight-through cable?

2. Is the cable actually attached to the synchronous adapter (and not to a similar looking 25-pin connector)? Is the cable attached to the modem?

3. Are the cable connections securely attached?

4. Is the external modem turned on?

5. Does the modem you are using support synchronous communications? If you are using a Hayes compatible modem (also referred to as an "AT Command Set" modem), does it support the '&M1' command? For example, the Hayes Accura modem family and the U.S. Robotics Sportster modem family *do not* support this command.

6. If your modem supports configuration via a front panel (e.g., Motorola/UDS 3229), is it set to the factory default configuration?

7. Is the synchronous adapter securely seated in the slot?

8. Are the SyncPlus configuration switches and jumpers set properly? Are the settings correctly configured in the software that will be using the SyncPlus? (Does not apply to SyncPCI)

9. Did you configure your PC BIOS to reserve hardware resources for the ISA-bus SyncPlus adapter (if necessary on your PC)? (Does not apply to SyncPCI)

SyncPciDiag – SyncPCI Diagnostic Utility

The SyncPCI is fully tested before being shipped to you. While is it is unlikely that you will need it, Serengeti provides a diagnostic utility with the SyncPCI adapter to assist in troubleshooting any hardware problem you may encounter.

CAUTION

It is not recommended that you run these diagnostics unless requested to do so by Serengeti technical support.

Please refer to the online documentation provided with the utility for additional information. SyncPciDiag is provided on a single floppy disk when you purchase the SyncPCI. They can also be downloaded from our FTP site at:

ftp://ftp.serengeti.com/Serengeti/SyncPciDiag/SyncPciDiag.zip

The provided loopback connector should be attached when running the diagnostics. THIS LOOPBACK CONNECTOR IS NOT TO BE USED FOR ANY OTHER PROPOSE.

Diagnosing SyncPlus Problems

If your are installing the SyncPlus and none of the preceding steps apply, then the most common reasons the adapter not to function properly are either a hardware resource conflict or a Plug-n-Play BIOS configuration problem.

To assist in resolving hardware resource conflicts, Serengeti provides a test program named **Ssifind**. The following section tells you where to find **Ssifind** and how to use it.

SSIFIND – SyncPlus Hardware Locator Program

The **Ssifind** program (formerly named **mfind**) may be used to verify that the SyncPlus is set for a unique I/O Base Address and a free IRQ. DMA channel conflicts are not detected by **Ssifind**. The program is found on the first installation diskette of your Serengeti software product (it is not automatically installed during the normal installation procedure) or it may be downloaded from our FTP site at:

ftp://ftp.serengeti.com/Serengeti/ssifind/ssifind.exe

To use this program you must boot your computer with MS-DOS – normally from a diskette placed in drive A. Serengeti Systems recommends that you create an MS-DOS boot diskette and copy the 'ssifind.exe' file to this diskette. Next, use this diskette to boot MS-DOS.

IMPORTANT

You CANNOT run **Ssifind** from an MS-DOS session within Windows.

Once MS-DOS is loaded, run **Ssifind** by typing the following command at the MS-DOS command line prompt.

ssifind [-i*irqs***]**

-i *irqs* **Don't Test IRQs**

The optional **-i** switch specifies interrupt levels (IRQ's) NOT to test. You can list up to eight interrupts (2, 3, 4, 5, 10, 11, 12, 15) following the **-i** switch. You would only use the **-i** switch if you were certain that the SyncPlus was not set for a specific IRQ and you want to prevent **Ssifind** from "tampering" with this IRQ because it might affect another piece of hardware (e.g., an active network adapter).

The **Ssifind** program actually searches your PC for the SyncPlus. In some cases **Ssifind** can be fooled and return erroneous information or simply not

find it. Therefore we recommend that you run **Ssifind** at least three times before accepting the results.

Below is an example of using **Ssifind** using the **-i** switch:

```
A>ssifind -i24
SSI SyncCard Locator v3.0.0
Copyright (C) 1991-1998 Serengeti Systems Incorporated.
ALL RIGHTS RESERVED.
****************************
 SSI SyncPlus Found
   I/O Port: 310
        IRQ: 5
****************************
```

In the above example, **Ssifind** searched the PC for the SyncPlus adapter while ignoring IRQ's 2 and 4 and found it at I/O Base Address 310 with IRQ 5 set. With this result you can be reasonably sure that the selections you made in configuring the SyncPlus do not conflict with other hardware in your PC.

Unfortunately, this does not always rule out conflicts when you reboot your system especially if there are PnP adapters in your system – this is why performing the BIOS PnP setup is so important to reserve the settings for the SyncPlus.

One of the most typical problems detected by **Ssifind** is an incorrectly jumpered or conflicting IRQ. If there is an IRQ problem, **Ssifind** reports it as shown below:

```
A>ssifind
SSI SyncCard Locator v3.0.0
Copyright (C) 1991-1998 Serengeti Systems Incorporated.
ALL RIGHTS RESERVED.
****************************
 SSI SyncPlus Found
   I/O Port: 310
       IRQ: ?
```

```
*****************************
```

If you see the "?" then you know that the IRQ jumpered on the SyncPlus conflicts with other hardware in your PC. Consult with your system administrator or the documentation for any other adapters in your PC to determine an unused IRQ. On occasion you may simply have to resort to trial-and-error to locate an IRQ that is free.

Another commom problem detected by **Ssifind** is an incorrectly set or conflicting I/O Base Address. If there is an addressing problem, **Ssifind** reports it as shown below:

```
A>ssifind
SSI SyncCard Locator v3.0.0
Copyright (C) 1991-1998 Serengeti Systems Incorporated.
ALL RIGHTS RESERVED.
*********************************
 SSI SyncPlus Not Found
   I/O Port:
       IRQ:
*********************************
```

If you see this then you know that the I/O Base Address set in the SWA switch is either not one of the six supported addresses or the address conflicts with another adapter in your PC. Consult with your system administrator or the documentation for any other adapters in your PC to determine an unused I/O Base Address.

Finally, if the see the following message, the communications hardware installed in your PC is recognized but is not supported by your Serengeti software product. Contact Serengeti Technical Support for assistance.

```
non-SSI Hardware Found
```

Common SyncPlus Problems and Solutions

Common problems that you may encounter with the installation of your SyncPlus and their suggested solutions are presented below in a question and answer format.

Q: When I reboot my system after installing the SyncPlus my computer cannot access the network. (Or my tape drive no longer works. Or I can no longer access the Internet with my modem attached to COM2.) What happened?

A: This is usually caused by hardware configuration conflict between the SyncPlus and other hardware in your PC. You can confirm this by removing the SyncPlus and rebooting your system to see if the failure disappears. If it does, then you must determine what hardware resource (IRQ, I/O Base Address, and/or DMA channel) the SyncPlus and the affected device have in common and make sure that each configuration setting is unique.

Q: What does a "Hardware not found" error mean?

A: This is usually caused by an incorrect setting of the I/O Base Address of the SyncPlus or an incorrect configuration of your communications software with a different address then how the SWA switches are physically set on the SyncPlus.

Q: Why would my communications software issue a "Low Level Operation Time-out" or "Cannot transmit line bid" error when attempting to transmit a file?

A: This is usually caused by one of following three reasons:

1. The IRQ the SyncPlus board conflicts with another adapter in your PC or the selected IRQ has not been reserved in the Plug-n-Play BIOS.

2. The cable in use is not a fully-pinned 25-pin straight-through cable.

3. The modem in use does not support synchronous communications or may not be in its factory default configuration.

Q: Why would my communications software issue a "Cannot Install [8]" error when I try to run it?

A: This is usually because the IRQ the SyncPlus board conflicts with another adapter in your PC or the selected IRQ has not been reserved in the Plug-n-Play BIOS.

Q: Why would my communications software issue a "Cannot Install BSC Driver" error when I try to run it?

A: This is usually because the I/O Base Address is not configured in the software to match how the SyncPlus SWA switches are physically set or there is an I/O Base Address conflict. Running **Ssifind** is a good way to check this out. It is also possible that the hardware type is not set correctly.

Q: In a 19.2Kbps leased line environment, my SyncPlus/SDLC shows no conflicts when running **Ssifind** and my PnP BIOS is set to reserve the IRQ I have configured, but 3770Link does not see anything transmitted by the host. What could be wrong?

A: If you have DMA enabled on the SyncPlus, try disabling it. You may have a DMA conflict or configuration problem. This can be confirmed if the connection works with DMA disabled. In this case make sure the jumpers on the SyncPlus are correct and match how the SyncPlus is configured. If no problem is obvious, try different DMA channels or avoid using DMA completely. If the connection still fails with DMA disabled, then the problem is probably related to an IRQ problem – see the previous question for suggestions on how to resolve these.

Notes