INTERPHASE CORPORATION®

READ ME FIRST
5515/5575 Solaris ID1.5 Driver

Read This Before You Begin!

Description

1. Introduction

This README file describes the features in the Integrated Driver 1.5 (ID1.5) release of the 5515/5575 ATM adapter software for the following operating systems.

Table 1.

		Part-Version
System	**OS Version**	**Number**
Solaris x86	2.5.1 2.6	SX00321-C05
Solaris Sparc PCI	2.5.1 2.6	SX00325-C05

This file should be read carefully before the ID1.5 software is installed on your system. The ID1.5 driver has all the features that were in the ID1.2 release and several new features.

The following features in ID1.5 release are same as in the ID 1.2 release. All these functions can be enabled and used simultaneously.

- LAN Emulation (version 1.0) client (SVC).
  - o Ethernet
  - o Token Ring

- LAN Emulation (version 1.0) services (LES, BUS and LECS)..
  - o Ethernet
  - o Token Ring

- IP-ATM (RFC-1577) client (SVC)

- IP-ATM (RFC-1577) server

- Bridged PVCs based on RFC-1483
  - o LLC Encapsulated Ethernet/802.3
  - o LLC Encapsulated 802.5
  - o Null Encapsulated Ethernet/802.3
  - o Null Encapsulated 802.5

- Routed PVCs based on RFC-1483
  - o LLC Encapsulated
  - o Null Encapsulated

- Support of 16 LANE clients and 16 LES.
  This feature increases the maximum LANE clients and servers to 16.

- Use ILMI Service Registry as primary LECS Address definition.
  This feature allows the LEC to query the switch’s Service Registry MIB for a list of LECS addresses as well as support of Cisco’s "Simple Server Redundancy Protocol" (SSRP).

- Redundant Link Support.
  This feature allows user to define an adapter as a backup for primary adapters. Backup adapter replaces primary either due to a physical line failure or upon user request. After a backup adapter replaces a primary adapter, it takes on all the attributes of the primary adapter.

- Configuration of SONET or SDH.
  This feature allows the user to configure whether synchronous frame interfaces support either SONET or SDH framing. This can be configured via CellView for each adapter.

- Support up to 4K VCs.
  Drivers and interfaces are enhanced to recognize new server level adapters that can support 4K VCs and allows user to configure/enable this new extended range.

- Data Direct VC management.
  User can define via CellView that the LEC's Data Direct VCs will not be released after the LEC is removed from the ELAN.

- Dynamic Signalling Management.
  This feature allows the user to dynamically configure or disable signalling for each adapter and cause the new configuration to take affect without rebooting the system or restarting the signalling module.

- Configure a VPI other than VPI zero.
  This feature allows the user to configure on the transmit side, via CellView, a VPI to be used by all services on a specific adapter other than the default VPI of zero. This can be done anytime.

- Support of ILMI 4.0 Autoconfiguration.
  This feature allows signalling to query the switch MIB and negotiate parameter setup. The most visible of these is the UNI version. Users will be able to configure a specific UNI version via CellView or allow the interface to autoconfigure the UNI version.

- Support for NSAP E.164 addresses.
  Signalling and LANE/CIP support all three NSAP address forms: DCC, ICD, and E.164.

- SNMP enabled.
  Drivers support SNMP. The drivers include SNMP sub-agent software that support the following MIBs.
  o RFC 1595 (SONET MIB)
  o RFC 1695 (AToM MIB)
  o "ATM Forum Technical Committee specification af-lane-0038.000, September 1995" (LEC MIB).

The configuration and the statistics display of the driver software is done with a GUI based utility, CellView.

2. New Features

This section list the new features in ID 1.5 release.

- LAN Emulation (version 2.0) client (SVC).
  o Ethernet
  o Token Ring

- ABR Support..

3. Configuration

After the software is installed on a system, the system should be rebooted before the driver software can be configured with CellView. Once the software is configured, it does not have to be configured again after each system reboot.

In the ID1.5 release, all the configuration data is stored in a single configuration file, /etc/atm/cvconf. There is an on-line man page for cvconf that describes the format of this file.

When the ID1.5 package is removed from a system, the configuration file

/etc/atm/cvconf is saved as /etc/atm/cvconf.save. If an ID1.5 package is installed again, /etc/atm/cvconf.save can be moved to /etc/atm/cvconf to quickly restore the configuration of the previous installation.

4. CellView

CellView is a GUI based utility for ATM software configuration and statistic display. When an entity, such as LECS, is configured with CellView, in addition to configuring the software, the configuration information is stored in the configuration file so that upon subsequent system reboots, the software configuration can be restored without having to configure the software manually again. At the system boot time, all the software entities are initialized with the configuration information in the configuration file.

With the configuration capabilities of CellView, command line configuration utilities such as les, lecs, etc. are not needed. The command line configuration utilities are included in the package but their usage is not recommended unless for some reason you can not run CellView on your system. Command line configuration utilities configure the software based on the options specified, but do not update the configuration file.

In the “Setup” mode, CellView displays the configuration stored in the configuration file. In the “Stats” mode, CellView displays the actual configuration of the software. Normally the configuration file mirrors the software configuration. If the command line configuration utilities are used, the configuration file and the software configuration may get out of synchronization. This can cause subsequent configuration changed from CellView to not work properly.

5. PVCs

The LAN Emulation and IP-ATM clients include both SVC and PVC capabilities.

In LAN Emulation clients, SVC capabilities are based on ATM Forum's "LAN Emulation Over ATM Specification - Version 1.0". The PVCs supported are bridged PVCs as described in RFC-1483. Clients can be enabled in PVC only or PVC and SVC mode. A 6 byte unicast MAC address and a VCI number is associated with each PVC. Packets received from the upper layers whose destination MAC address match the MAC address of a PVC are transmitted on that PVC. Each PVC can be individually enabled as "Broadcast PVC". If enabled as "Broadcast PVC", all the broadcast/multicast packets received by that client from the upper layers are transmitted on that PVC. A maximum of 16 PVCs can be enabled as "Broadcast PVC". Users can also configure a PVC's rate, also known as Peak Cell Rate (PCR), and service type, either UBR or ABR. In addition to the PCR, ABR PVCs allow the following parameters to be configured:
MCR - Minimum Cell Rate
ICR - Initial Cell Rate
TBE - Transient Buffer Exposure
FRTT - Fixed Round Trip Time
NRM - Max Number of Cells for each forward RM Cell
TRM - Time between forward RM Cells
ADTF - Allowed Cell Rate (ACR) Decrease Time Factor
CDF - Cutoff Decrease Factor
RIF - Rate Increment Factor
RDF - Rate Decrement Factor.

When in doubt, use the defaults.

In IP-ATM clients, SVC capabilities are based on RFC-1577. The PVCs supported are routed PVCs as described in RFC-1483. Clients can be enabled in PVC only or PVC and SVC mode. An IP address and a VCI number is associated with each PVC. Packets received from the upper layers whose first hop (an end-station or a router) match the IP address of a PVC are transmitted on that PVC. Like RFC-1577, IP-ATM PVCs do not

support transmission of broadcast/multicast packets.

6. Other Notes

- The mapping of IP interface number to LANE and IP-ATM clients is as follows:

LANE clients:

IP interface number = (board number * 32) + client number

IP-ATM clients:

IP interface number = (board number * 32) + 16

If there are two primary adapters installed in the system, IP interface numbers for all the clients that can be enabled are shown below. ‘li’ is the IP interface prefix for Interphase ATM adapters.

li0 Board 0, LAN Emulation client 0
li1 Board 0, LAN Emulation client 1
li2 Board 0, LAN Emulation client 2
li3 Board 0, LAN Emulation client 3
li4 Board 0, LAN Emulation client 4
li5 Board 0, LAN Emulation client 5
li6 Board 0, LAN Emulation client 6
li7 Board 0, LAN Emulation client 7
li8 Board 0, LAN Emulation client 8
li9 Board 0, LAN Emulation client 9
li10 Board 0, LAN Emulation client 10
li11 Board 0, LAN Emulation client 11
li12 Board 0, LAN Emulation client 12
li13 Board 0, LAN Emulation client 13
li14 Board 0, LAN Emulation client 14
li15 Board 0, LAN Emulation client 15
li16 Board 0, IP-ATM client

li32 Board 1, LAN Emulation client 0
li33 Board 1, LAN Emulation client 1
li34 Board 1, LAN Emulation client 2
li35 Board 1, LAN Emulation client 3
li36 Board 1, LAN Emulation client 4
li37 Board 1, LAN Emulation client 5
li38 Board 1, LAN Emulation client 6
li39 Board 1, LAN Emulation client 7
li40 Board 1, LAN Emulation client 8
li41 Board 1, LAN Emulation client 9
li42 Board 1, LAN Emulation client 10
li43 Board 1, LAN Emulation client 11
li44 Board 1, LAN Emulation client 12
li45 Board 1, LAN Emulation client 13
li46 Board 1, LAN Emulation client 14
li47 Board 1, LAN Emulation client 15
li48 Board 1, IP-ATM client

- MAC address for Bridged PVCs should be entered in the natural order of the emulated LAN. For Ethernet emulation, the MAC address should be entered in the conical format. For Token Ring emulation, MAC address should be entered in the non-conical format.

- After the software package is installed, all the entities, including the LAN Emulation and IP-ATM clients, are initially configured as disabled. Run CellView or edit the file /etc/atm/cvconf to enable and configure desired entities.

- Set “Enable Advanced Settings” in the “Global” dialog box in CellView to access LAN Emulation services from CellView.

- Redundant Link adapters may be configured through CellView, or through the new command line utility /bin/rls. Although CellView is the preferred method, the user is encouraged to read the “rls” man pages

to learn more about redundant link support. A few more notes on using redundant link adapters:

o A primary adapter may be backed up by only one secondary adapter.
o A secondary adapter may back up multiple primary adapters.
o A primary adapter and its secondary adapter must be compatible. That is they must either both be 5515 adapters or 5575 adapters, they must both be either 4K VC adapters or 1K VC adapters, and they must both be either 155Mb/s adapters or 25Mb/s adapters.

- The SNMP functionality will work only if Sun's SNMP super-agent has been installed.

Before You Start

If an Interphase ATM driver is already installed on you system, it should be removed before the new driver is installed from this CD.

Installation

The 5515/5575 Solaris ID1.5 driver is installed with the pkgadd utility.

Change directory to the directory containing the driver.

For Solaris x86 enter

pkgadd -d ./SX00321-C05 INPHatm

and follow the instructions as they appear on the console.

For Solaris SPARC PCI enter

pkgadd -d ./SX00325-C05 INPHatm

and follow the instructions as they appear on the console.

Contact Information

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