READ ME FISRT
ATM (i)Chip IA Linux Driver Source

Read This Before You Begin!

Description

This is the README file for the Interphase PCI ATM (i)Chip IA Linux driver source release.

The features and limitations of this driver are as follows:

- A single VPI (VPI value of 0) is supported.
- Supports 4K VCs for the server board (with 512K control memory) and 1K VCs for the client board (with 128K control memory).
- UBR, ABR and CBR service categories are supported.
- Only AAL5 is supported.
- Supports setting of PCR on the VCs.
- Multiple adapters in a system are supported.
- All variants of Interphase ATM PCI (i)Chip adapter cards are supported, including x575 (OC3, control memory 128K , 512K and packet memory 128K, 512K and 1M), x525 (UTP25) and x531 (DS3 and E3). See

http://www.iphase.com/site/iphase-web/?epi_menuItemID=e196f04b4b3b40502f150882e21046a0

  for details.
- Only x86 platforms are supported.
- SMP is supported.

Before You Start

Installation

1. Installing the adapters in the system
   To install the ATM adapters in the system, follow the steps below.
   a. Login as root.
   b. Shut down the system and power off the system.
   c. Install one or more ATM adapters in the system.
   d. Connect each adapter to a port on an ATM switch. The green 'Link' LED on the front panel of the adapter will be on if the adapter is connected to the switch properly when the system is powered up.
   e. Power on and boot the system.

2. [Removed]

3. Rebuild kernel with ABR support
   [a. and b. removed]
   c. Reconfigure the kernel, choose the Interphase ia driver through "make menuconfig" or "make xconfig".
   d. Rebuild the kernel, loadable modules and the atm tools.

e. Install the new built kernel and modules and reboot.

4. Load the adapter hardware driver (ia driver) if it is built as a module
   a. Login as root.
   b. Change directory to /lib/modules/<kernel-version>/atm.
   c. Run "insmod suni.o;insmod iphase.o"
      The yellow 'status' LED on the front panel of the adapter will blink while the driver is loaded in the system.
   d. To verify that the 'ia' driver is loaded successfully, run the following command:

```
cat /proc/atm/devices
```

      If the driver is loaded successfully, the output of the command will be similar to the following lines:

```
Itf Type    ESI/"MAC"addr AAL(TX,err,RX,err,drop) ...
0   ia      xxxxxxxxx  0 ( 0 0 0 0 0 )  5 ( 0 0 0 0 0 )
```

      You can also check the system log file /var/log/messages for messages related to the ATM driver.

5. Ia Driver Configuration

5.1 Configuration of adapter buffers

The (i)Chip boards have 3 different packet RAM size variants: 128K, 512K and 1M. The RAM size decides the number of buffers and buffer size. The default size and number of buffers are set as following:

Total RAM size	Rx RAM size	Tx RAM size	Rx Buf size	Tx Buf size	Rx buf cnt	Tx buf cnt
128K	64K	64K	10K	10K	6	6
512K	256K	256K	10K	10K	25	25
1M	512K	512K	10K	10K	51	51

These setting should work well in most environments, but can be changed by typing the following command:

```
insmod <IA_DIR>/ia.o IA_RX_BUF=<RX_CNT> IA_RX_BUF_SZ=<RX_SIZE> \
        IA_TX_BUF=<TX_CNT> IA_TX_BUF_SZ=<TX_SIZE>
```

Where:

RX_CNT = number of receive buffers in the range (1-128)
RX_SIZE = size of receive buffers in the range (48-64K)
TX_CNT = number of transmit buffers in the range (1-128)
TX_SIZE = size of transmit buffers in the range (48-64K)

1. Transmit and receive buffer size must be a multiple of 4.
2. Care should be taken so that the memory required for the transmit and receive buffers is less than or equal to the total adapter packet memory.

5.2 Turn on ia debug trace

When the ia driver is built with the CONFIG_ATM_IA_DEBUG flag, the driver can provide more debug trace if needed. There is a bit mask variable,

IADebugFlag, which controls the output of the traces. You can find the bit map of the IADebugFlag in iphase.h.
The debug trace can be turn on through the insmod command line option, for example, "insmod iphase.o IADebugFlag=0xffffffff" can turn on all the debug traces together with loading the driver.

6. Ia Driver Test Using ttcp_atm and PVC

For the PVC setup, the test machines can either be connected back-to-back or through a switch. If connected through the switch, the switch must be configured for the PVC(s).

a. For UBR test:
   At the test machine intended to receive data, type:
      ttcp_atm -r -a -s 0.100
   At the other test machine, type:
      ttcp_atm -t -a -s 0.100 -n 10000
   Run "ttcp_atm -h" to display more options of the ttcp_atm tool.
b. For ABR test:
   It is the same as the UBR testing, but with an extra command option:
      -Pabr:max_pcr=<xxx>
      where:
          xxx = the maximum peak cell rate, from 170 - 353207.
      This option must be set on both the machines.
c. For CBR test:
   It is the same as the UBR testing, but with an extra command option:
      -Pcbr:max_pcr=<xxx>
      where:
          xxx = the maximum peak cell rate, from 170 - 353207.
      This option may only be set on the transmit machine.

OUTSTANDING ISSUES

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