

# **V.35 for NT InstallationGuide**

**for software release 1.X**

Zydacron, Inc. 7 Perimeter Road, Manchester, NH 03103  
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# Introduction

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## Product Overview

The V.35 is a high performance standards-based dual interface for access to switched digital telephone services. It will easily connect to the Zydacron family of codecs. The V.35 connects Zydacron's codecs to inverse multiplexers (IMUX's), CSU/DSUs, and other types of network communications equipment. When the V.35 is integrated with a Zydacron codec and Windows-based video teleconferencing application, the result is state-of-the-art communications capabilities.

The V.35 provides two high-speed synchronous data channel interfaces. Each interface can operate independently at rates of  $N \times 56\text{Kbps}$  in restricted mode or  $N \times 64\text{Kbps}$  in non-restricted mode, where  $N$  is from 1 to 32 (2.048 Mbits). You can configure the interface cable as either a CCITT V.35 connection or an RS-449 connection. RS-366 is provided in either case.

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## Prerequisites

This installation process assumes a basic understanding of installing printed circuit boards and cables into personal computers, system configuration and network setup for the site, and familiarity with the Windows User Interface.

## Requirements

To use the V.35 you must have a Zydacron codec and software. This section describes the V.35 hardware and software requirements.

### Hardware

- Pentium 90 PC or compatible ISA computer<sup>1</sup> with
  - one free 16 bit slot for the V.35
  - an installed Zydacron codec board
  - 32 Mb of RAM recommended
  - IRQ line, if implementing call control.
- Data Communication Equipment (DCE) or Inverse Multiplexer (IMUX) equipment for access to the digital telephone network.  
The V.35 has been tested with the Ascend DSU.

### Software

- Microsoft Windows NT 3.51 or greater.
- Zydacron drivers and Dynamic Link Libraries (DLLs) to control the V.35.

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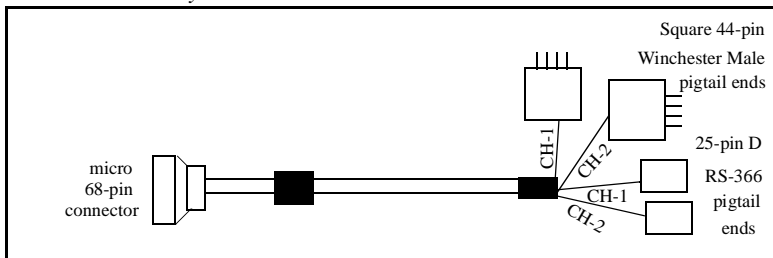
1. For the Zydacron unit to remain compliant to the CE mark, this unit should only be installed in a computer which carries the CE mark.

## V.35 Product Contents

### Hardware

1. (1) V.35 Communications board identified by one micro 68-pin edge connector.
2. (1) Micro 68-pin communications cable with dual V.35 (Winchester male, 34 pin) and dual DB-25 (RS-366) pigtail ends.

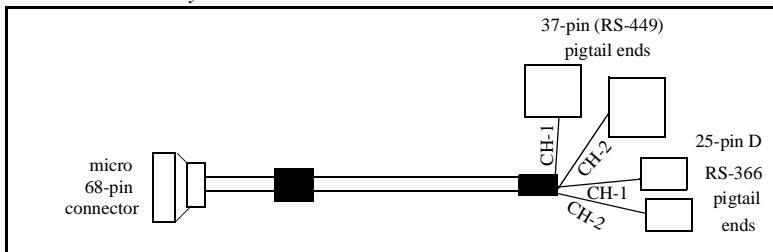
*Zydacron V.35 communications cable P/N: CB-1020-013.*



**or**

- (1) Micro 68-pin communications cable with dual DB-37(RS-449) and dual DB-25 (RS-366) pigtail ends.

*Zydacron V.35 communications cable P/N: CB-1020-012.*



See “Zydacron Communication Cables” on page 41 for details on these cable options.

## **Software**

- V.35 for NT installation software.

## **Documentation**

- The *Zydacron V.35 for NT Installation Guide* (this manual), P/N: MA40039.

# Hardware Installation

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**Note:** Before proceeding with the V.35 board installation, you must have successfully installed a Zydacron codec with its software.

**Note:** The V.35 has been tested with the Ascend DSU.

**Note:** If you are using the V.35 card in a point-to-point or dedicated scenario you do not need an IRQ. Remove the IRQ jumper from the V.35 card. You must dial from both ends of the call in a dedicated link where there is no signalling or D channel. It does not matter what number you dial. On the configuration screen set Dialing Type to External.

---

## Test the IRQ setting of the V.35 board<sup>1</sup>

1. Run Hardware Setup from the Program Window for your Zydacron codec.
2. Click the Next button and your codec board I/O and interrupt (IRQ) will be tested. They should pass if you followed the installation instructions provided with your Zydacron codec board.
3. When you receive the screen with the message “All configuration testing passed.” Note the IRQ address of the Zydacron codec.  
Click the <**Back** button to change the settings.
4. Enter the IRQ address of the V.35 board; it is factory set to IRQ 10.
5. Click **Next**> to test that IRQ address.
6. If IRQ 10 does not pass the test, select a different IRQ until one passes. Use this IRQ for the V.35 board.

---

1. If using a Dedicated T1, IRQ testing and selection is not necessary. Remove the IRQ jumper from the V.35 board before installing.

7. Move the jumpers on the V.35 board, if IRQ 10 failed, to the IRQ which passed.  
See Appendix C on page 39 to locate the V.35 IRQ jumpers and how to change the setting.
8. Return the IRQ of the codec board to the number you noted above, it's original confirmed setting. Run the Hardware Configuration test again to confirm the codec IRQ.

---

## Reserve the codec IRQ in BIOS<sup>1</sup>

Newer PC's support shared IRQs which would allow the codec IRQ test to pass when in actuality the IRQ is not free.

From your systems Plug-N-Play CMOS Configuration screen set the codec IRQ as "not available" or "Used by ISA". This will prevent your system from assigning the IRQ to another pci or plug-and-play device.

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1. Dell computers at the time of this printing do not have a Plug-N-Play complaint BIOS.

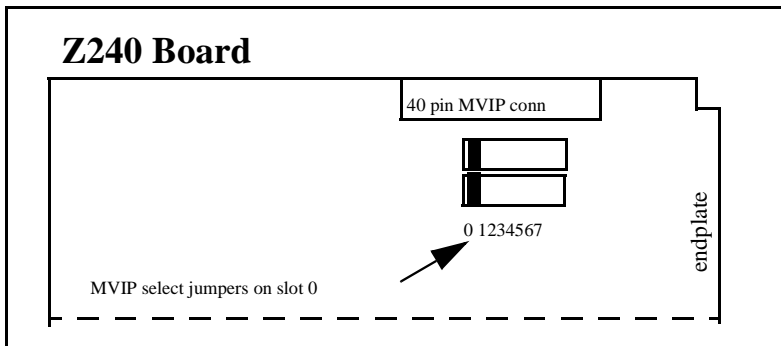
## Select the appropriate MVIP stream

The V.35 board communicates with the Zydacron codec via the MVIP interface. The V.35 board uses MVIP stream 0 for transmitting and receiving data. The Zydacron V.35 and codec boards comes factory set to MVIP stream 0.

**Note:** *MVIP stream is jumper (Z240) or software (Z220, Z250) selectable and can be changed as long as the MVIP stream on the V.35 and the codec match.*

The MVIP select jumpers on Zydacron Z240 codecs are located near the MVIP connector. See Appendix C “V.35 board diagram with Factory Settings” on page 39 for the location of the MVIP jumpers on the V.35 board

**Note:** *MVIP cable CB-1072-000 needs to be ordered in order to connect the V.35 to the Z250.*



## Install the V.35 board

1. Shut down and power off your computer system.

**Note:** *Be sure to avoid touching other PC components, such as SIMMs during board installation.*

2. Make sure that you are properly grounded and that the PC is powered off.

The V.35 comes preset to the default 16-bit hardware I/O address of 340. If you must alter these or any other jumper settings, refer to “V.35 board diagram with Factory Settings” on page 39 for switch locations and setting options. If you have an RS449 connection see “Configuration with RS449 DSU” on page 51.

3. Install the V.35 board into a 16 bit slot in the PC card cage beside the Zydacron codec. Seat it firmly.<sup>1</sup>
4. Fasten the board in place by inserting a screw in the bracket to the PC cardcage.

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1. When securing the Zydacron unit into the PC, please insure a good ground connection between the card's backplate and the PC chassis.

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## Connect the cables

1. A 40-pin MVIP flat ribbon cable connects the V.35 to the Zydacron codec. Insert one end of the 40-pin MVIP cable into the connector on the codec board and the other end into the J4 connector on the V.35 board. See “V.35 board diagram with Factory Settings” on page 39.
2. Attach the Zydacron V.35 cable to the external connector on the faceplate of the V.35. The snapping mechanism on the connector should allow it to lock in place.

Connecting this cable to the network device is described in the next section.



# Network Connection

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## DSUs

**Note:** *The Zydacron V.35 has been tested with the Ascend DSU.*

With switched 56kbps digital data service, most likely your carrier has provided DCE equipment such as CSU/DSU terminating unit(s).

You can configure the interface cable as either a CCITT V.35 connection or an RS-449 connection. RS-366 is provided in either case.

See the V.35 cable descriptions on page 3 to assist with the cable identification given below.

1. Attach the square V.35 pigtail end(s) of the Zydacron cable to the DSU port(s). The cable end labeled 1 (one) should attach to the first DSU port and the cable end labeled 2 (two) should attach to the second DSU port.
2. Attach the RS-366 pigtail end(s) of the Zydacron cable to the corresponding DSU ports, if applicable.

## Inverse Multiplexers

If you have a T1 or PRI (Primary Rate Interface) line or other large bandwidth service, you can connect the V.35 to the digital service through an inverse multiplexer. Inverse multiplexers aggregate the desired amount of bandwidth from the digital service, as necessary, for video teleconferencing calls.

1. Attach the square V.35 pigtail end(s) of the Zydacron cable to your inverse multiplexer access unit. If you are attaching to two host ports, ensure that the cable end labeled 1 (one) is attached to the first port, and the end labeled 2 (two) is attached to the second port. Your IMUX vendor may supply a conversion cable to connect the standard V.35 cable ends, if necessary.
2. Attach the RS-366 pigtail end(s) of the Zydacron cable to the corresponding dialing ports of the inverse multiplexer, if applicable.

The hardware installation is now complete.

The next chapter describes how to configure the V.35 board as the network option in the Zydacron videoconferencing software.

# Software Installation

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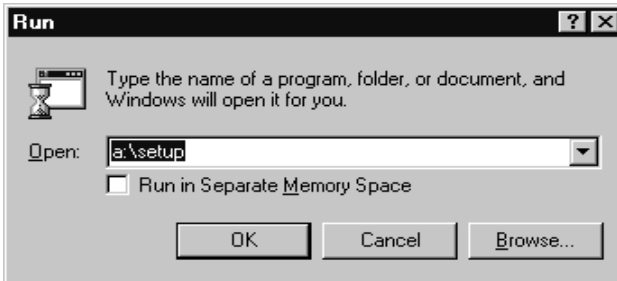
## Load the V.35 installation disk

The codec software must be installed prior to beginning the V.35 installation procedure.

To load the V.35 software onto your system, follow the procedure listed here. Perform each step in sequence.

**Note:** *Close all window applications before proceeding.*

1. Boot the PC and start Windows.
2. Insert the installation disk into the 3.5" disk drive.
3. From the Windows NT **Start** button select **Run...**



4. In the command line box, type **a:\setup** and click **OK**.

**Note:** *You may need to substitute b: as the appropriate drive designation depending on your system setup.*

The Welcome screen displays.



5. Click **N**ext> to continue.

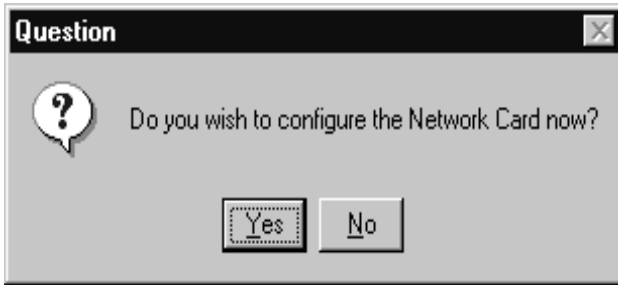
The Setup Installation Directory screen displays.



The default installation directory is where your Zydacron codec drivers are installed. (C:\Onwan or C:\Z250 for examples.) Accept the default directory or browse for a different location.

6. Click **N**ext> to continue.

You are asked if you want to configure the V.35 board now.



7. Select Yes to continue.

## V.35 Configuration

The Configuration screen displays.

DSU Type	Dialing Type	IRQ Number
Ascend	RS366 Ext 1	11
Ascend	External	None
Adtran III	RS366 Ext 1	10
Promptus	RS366 Ext 2	11
Other	Loopback	12

Escape Character: \* (200)  RS449

Base Address: 340 Board Version: 11

Buttons: Test settings, OK, Cancel

1. Type the hardware address into the **Base Address** box. The V.35 board default address is 340. This setting must match the hardware setting of the board.

If you have questions regarding the hardware setting of the base address, see “I/O Address Switch Setting Table” on page 37.

2. Specify the IRQ from the **IRQ Number** list. This setting must match the hardware setting of the board. The V.35 board default IRQ is 10.

You must set a V.35 IRQ for automatic dialing, answering and call control.

Choose **None** if you are connecting to a synchronous modem eliminator or if the dialing type is loopback.

If you have questions regarding the hardware setting of the IRQ, see “V.35 board diagram with Factory Settings” on page 39.

**Note:** Selection of IRQ vs. NONE: The selection of dialing type and IRQ will determine the type of call control used.

3. Specify the **dialing type** for your DSU or IMUX.
  - a. Choose **External** to disable RS366 dialing. Choose External when using a Dedicated T1.

Set Dialing Type to External: If you are using the V.35 card in a point-to-point or dedicated scenario you do not need an IRQ. Remove the IRQ jumper from the V.35 card. You must dial from both ends of the call in a dedicated link where there is no signalling or D channel. It does not matter what number you dial.

- b. Choose **RS-366 Extension 1 or 2**, depending on what dialing type your DSU or IMUX supports.
- c. **DTR** is selected to let the DSU or IMUX do the dialing. The **DTR** option is only seen when the RS449 checkbox is selected.

Dialing type: LOOPBACK then IRQ = NONE

If the dialing type is **LOOPBACK** there is no call control. The V.35 loops back the data from the CODEC. It acts as a nailed up connection and any type of call can be made from the dialing menu. This diagnostic tests all but the V.35 cable drivers and cable. **When the Dialing type selection is LOOPBACK the IRQ selection should be NONE.**

Dialing type: RS366 EXT x then IRQ = x

(Where x equals the IRQ #. The IRQ # has to agree with the IRQ jumper selection.) **If the Dialing type is RS366 EXT x, you must select an IRQ.**

Dialing type: EXTERNAL IRQ = NONE or IRQ = x

If the connection is “NAILED UP” and thus the DSU *is not* generating Carrier Detect when a call is active, then you must configure the IRQ to be IRQ = NONE. This requires both ends of the call to dial at the nailed up clock speed.

If the DSU generates a Carrier Detect when a call becomes active then you should select IRQ = x.

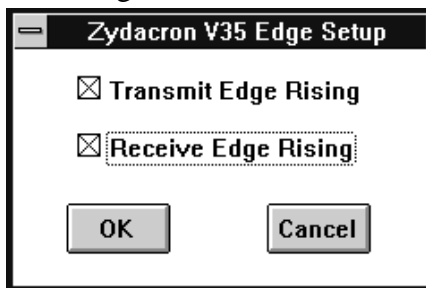
When using IRQ are enabled, the V.35 will measure the V.35 clock to figure out the incoming call type.

See “Configuration with RS449 DSU” on page 51.

4. Specify the **DSU Type**.

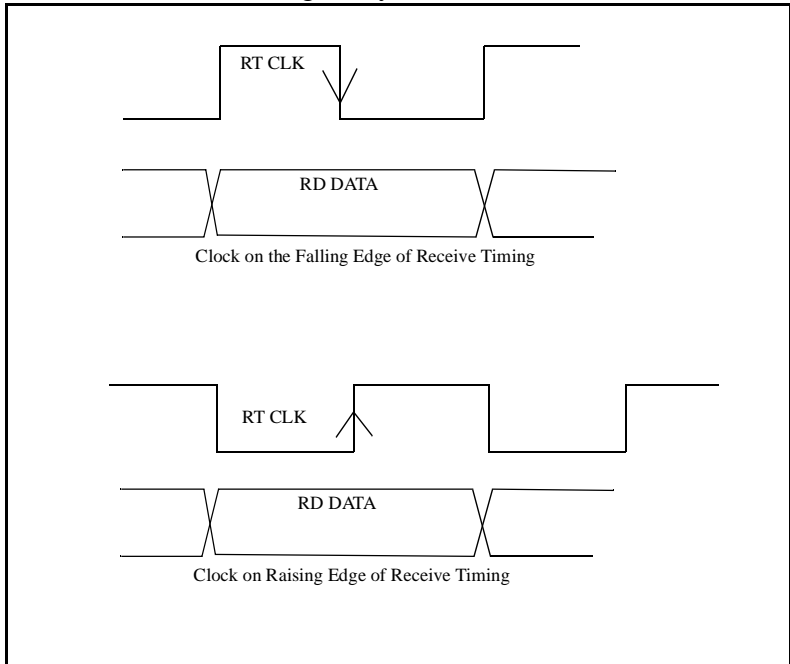
This setting is used to identify to the V.35 board where the data clock edges are found with respect to the DSU or IMUX. It is also used during installation to set call profile parameters in the initialization file.

Choose **OTHER** if your DSU is not on the list. When **OTHER** is chosen you can select the clock edge of the transmit and receive data. To change this setting, double-click on **OTHER** for a dialog box with settings for rising and falling clock edges.



These settings must match where your DSU/IMUX expects to clock data. A common set up is **Transmit edge rising** and **Receive edge falling**.

Typically, DSUs are set up as shown. Check with your DSU manufacturer regarding what edge they expect to receive the data and what edge they transmit the data.



- a. **Escape Character.** This value specifies the escape character that is sent with RS-366 EXT2 dialing. Click the down arrow to choose a new value or type a numeric value into this field. The default is (\*).
- b. **RS449 Checkbox.** Check this box by clicking on it. Check this box if you are using RS449 cables.
- c. Click **OK** on the V.35 Board Configuration screen to save the settings, close the window and return to the installation.

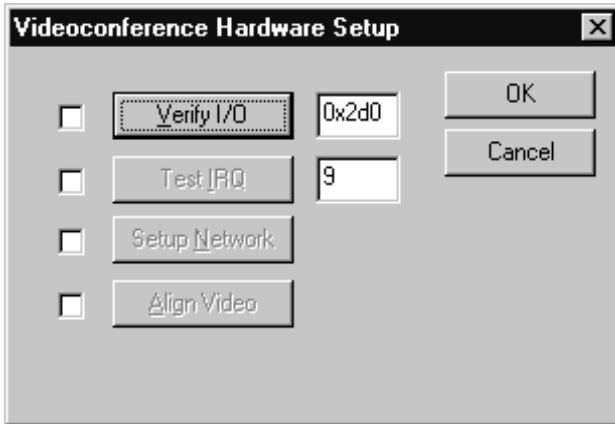
After configuring the V.35 per the directions above, select the Test Settings button. If the V.35 board has been installed correctly with the Zydacron codec and the correct configuration has been entered, the following screen will display.



To access the V.35 configuration screen after this installation, from the Start button select Programs>Codec(OnWAN NT)>Hardware Setup.



When you click the Setup Network button the V.35 configuration screen will display.





## BONDING Calls

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You must define special call profile parameters within the multiplexing equipment to service the different types of calls you can make. This is necessary because of the way certain DSUs and inverse multiplexers handle BONDING (bandwidth-on-demand) mode calls. For instance, one profile must be defined for a 1x384 Kbps domestic call, and another profile must be defined for a 1x224 Kbps international call.

You should define and store call profiles within your DSU or inverse multiplexer. There are 24 possible profiles to define for calls up to 384K. Include the parameters listed below.

1. Use BONDING mode 1 for call types with more than one B channel, National or International (for dialing domestically or internationally), using 1, 2, 3, 4, 5, or 6 B channels, and Restricted or Unrestricted access.
2. Set the DSU/IMUX ports to use a dialing type of RS366 Extension 1. This is a DSU specific setting, and should be explained in the DSU documentation.
3. Configure the V.35 software to use RS366 Ext 1 as the dialing type, as described on page 17.
4. Edit the AVCDRV.INI file to reflect the profiles loaded into the DSU. The file AVCDRV.INI is in the \AVCDRV\AVC directory.

In this file, find the section titled [CallProfiles]. The format of the entries in the [CallProfiles] section of AVCDRV.INI is:

Call[I or N][1-6, 8, 12, 18, 23, 24 B][U or R]=

where:

I or N stands for International or National,  
1-6, 8, 12, 18, 23, 24 B  
stands for the number of B channels in the call,  
U or R stands for unrestricted or restricted.

For example, the entry `CallI4BR=` specifies an international, 4B channel, restricted call (1x224 Kbps).

For each call type entry in the AVCDRV.INI file, the string to the right of the equals sign should exactly represent the RS366 Extension 1 digits required to load the call profile in the DSU. Your specific DSU or IMUX may require a different string to load an RS366 Extension 1 calling profile. Consult your DSU documentation.

### **Using the Ascend Multiband Plus inverse multiplexer**

The Ascend Multiband Plus inverse multiplexer, with dial ports set to RS366 extension 1, loads a call profile when presented with a phone number that starts with the # (pound) sign.

Following the # sign is a three digit profile number and then more digits for the phone number.

The profile number is a three-digit number from 1 to 32. Understanding that numbers 1 - 32 are one or two digit numbers, they would be entered as 001-032.

The Ascend unit loads the call profile specified by the three numbers, then dials the rest of the phone number.

The Ascend Multiband Plus inverse multiplexer has 4 ports each with 32 profiles. On its setup screen you would see ports 1, 2, 3, and 4 represented as 21, 22, 23, and 24 and the 32 profiles are preceded with a 100. So that port 1 profile 1 would display as 21-101. Port 1 profile 32 would be 21-132. Port 4 profile 30 would be 24-130.

The following is a section of the Zydacron AVCDRV.INI file.

- If this is a first time V.35 software installation these entries will be created.
- If this is not a new V.35 software installation the entries will be created and be blank after the = sign. Existing entries are not changed.

**[CallProfiles]**

```

CallN1BU=#001
CallI1BU=#002
CallN1BR=#003
CallI1BR=#004
CallN2BU=#005
CallI2BU=#006
CallN2BR=#007
CallI2BR=#008
CallN3BU=
CallI3BU=
CallN3BR=
CallI3BR=
CallN4BU=
CallI4BU=
CallN4BR=
CallI4BR=
CallN5BU=
CallI5BU=
CallN5BR=
CallI5BR=
CallN6BU=#009
CallI6BU=#010
CallN6BR=#011
CallI6BR=#012
CallN8BU=

```

CallI8BU=  
CallN8BR=  
CallI8BR=  
CallN12BU=#013  
CallI12BU=#014  
CallN12BR=#015  
CallI12BR=#016  
CallN18BU=  
CallI18BU=  
CallN18BR=  
CallI18BR=  
CallN23BU=#017  
CallI23BU=#018  
CallN23BR=#019  
CallI23BR=#020  
CallN24BU=#021  
CallI24BU=#022  
CallN24BR=#023  
CallI24BR=#024

**For example:**

Set profile number 12 on the Ascend unit for international, 6B channel, restricted (or 1x336Kbps), Bonding Mode 1. You need to refer to the Ascend manual for details on setting up call profiles.

The matching entry in the AVCDRV.INI file would read:

```
[CallProfiles]  
CallI6BR=#012
```

From the video teleconferencing application, to dial an international 1x364 (restricted) call to 33-1-647-123-456 (where 33 is the country code), enter the phone number in the phone list entry as follows:

```
call type: 1 channel  
channel width: 336k  
restricted on (box checked)  
phone number: 011-33-1-647-123-456 (dashes are  
optional, and ignored by the dialing software).
```

The Zydacron video teleconferencing software recognizes the 011 as the international prefix. The 011 is parsed out and the rest of the phone # is passed to the Ascend as an RS366 Extension 1 number (#012331647123456), which in turn instructs the Ascend to load the call profile for the type of call you requested. The international BONDING mode 1 call is set up and dialed.

### **Using the Promptus 200B inverse multiplexer**

The Promptus 200B inverse multiplexer, with dial ports set to RS366 extension 1, loads a call profile when presented with a phone number that starts with the #(pound) sign. Following the # sign is a one or two digit profile number, an asterisk, and then more digits for the phone number. The Promptus unit loads the call profile specified by the call profile numbers, then dials the rest of the phone number.

For example, if profile number 12 stored on the Promptus unit is set up for international, 6B channel, restricted (or 1x336Kbps). The matching entry in the avcdrv.ini file would read:

```
[CallProfiles]
CallI6BR=#12*
```

From the video teleconferencing application, to dial an international 1x336 (restricted) call to 33-1-647-123-456 (where 33 is the country code), the phone number in the phone list entry would be entered as follows:

```
call type: 1 channel
channel width: 336k
restricted on (box checked)
phone number: 011-33-1-647-123-456 (dashes are
optional, and ignored by the dialing software).
```

The phone number is translated by the video teleconferencing application, and passed to the Promptus as an RS366 Extension 1 number (#12\*331647123456), which in turn instructs the Promptus to load the call profile for the type of call you requested. The international BONDING mode 1 call is set up and dialed.



# TROUBLESHOOTING

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## Communications Cables

You must verify that the V.35 cable is compatible with your network access unit (DSU or IMUX). Most manufacturers who deviate from standard communications methods offer conversion cables that go between their unit and standard interface cabling. The Zydacron cables provide a standard V.35 or RS-449 interface, along with standard RS-366. Check your DSU or IMUX documentation to see if a conversion cable is necessary.

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## Clock Rate

The rate of network clock coming from the DSU must match the rate at which the V.35 board is attempting to connect. If the clock rate differs from what the V.35 board has been configured for (i.e...what rate of call you are trying to connect), the connection will fail.

For instance, a one channel 384Kbps call configures the V.35 board for a 384K network clock. On incoming calls when  $IRQ=x$  the V.35 measures the clock and sets it's internal configuration automatically.

## Clock Edges

It is also important that clock edges, where the DSU frames the data, match where the V.35 board expects to see the edges. By default, the Zydacron V.35 board expects the clock edges to be on the rising edge of transmit and falling edge of receive data frames. You may change this setting by modifying the DSU Type in the communications configuration screen. (You must double-click on “other” under DSU Type.) See “Specify the DSU Type.” on page 18.

---

## Clock Source

When selecting the clock in the DSU, IMUX, or DEC the network clock should be used as the master clock source.

---

## Loopback Tests

Loopback tests help to isolate where a problem may exist in your network.

These tests should be performed in the following order and preferably at both ends of the link:

1. Test your local equipment.

There is a LOOPBACK choice under Dialing Type in the V.35 card configuration window. Selecting Loopback as the dialing type and restarting the Zydacron application allows you to make a local loopback phone call without needing an external network connection. This exercise tests the codec and V.35 boards. If this test is successful, reconfigure the V.35 board to your normal dialing type, and restart the application.

2. Perform a local DSU loopback.

If you set your DSU(s) or IMUX into local loopback mode, attempt a call using the Zydacron application. Ensure that your call data rate is the same as the DSU clock rate, for instance, 56Kbps, 64Kbps, etc. This tests the codec, V.35 board and interface cable(s) to the DSU or IMUX equipment.

**3. Perform a remote loopback.**

Have someone at the remote end set the DSU(s) or IMUX into remote loopback mode, and attempt a call using the Zydacron application. Ensure that your call data rate is the same as the DSU clock rate. This tests the codec, V.35 board, interface cables, the local DSU or IMUX and the network integrity.

If these tests are successful at both ends of the link, and you are still having problems connecting, look for:

- bit inversion at one or more points along the link
- loose/intermittent cables or connectors
- unmatched network configuration at both ends.

---

## **RS-449 Carrier Detection (Differential)**

When using RS-449 cables, the jumpers J11 and J12 on the V.35 board should be removed; this assumes differential carrier detect, RS-422 signalling. In some cases, the ASCEND for example, carrier detect uses RS-423 (single-ended) driver which requires the J11 and J12 jumpers. See “V.35 board diagram with Factory Settings” on page 39.

## Running at T1

To run at T1 requires a V.35 board with Prom rev. 10 or later. If you do not have this revision the software will not give you the option of rates greater than 384. To confirm the rev. of the prom see “V.35 board diagram with Factory Settings” on page 39 for location of the Prom. There will be a label on the Prom stating the rev. You can also run the configuration program as explained in Chapter 7 and read the board rev. value from the screen.

# Appendix A

## Board Technical Overview

---

### Operating Parameters

- Temperature: 5 to 55 degrees C.
- Humidity: 20 to 80% (non-condensing)

### Electrical Rating

- +5 volts -- 2.3 amps
- -12 volts -- 100 ma

## EC Declaration of Conformity



Date: March 1996

Responsible Party: Zydacron, Inc.

Manufacturer: Zydacron, Inc.  
7 Perimeter Road  
Manchester, NH 03103  
U.S.A.

Apparatus: V.35

Standards Passed:

- EN55022: 1994 Class A (Emissions)
  - Radiated Disturbance, Class A
  - Conducted Disturbance, Class A
- EN50082-1: 1992 (Generic Immunity)
  - IEC 801-2:1991 (ESD)
  - IEC 801-3:1984 (Radiated RF Immunity)
  - IEC 801-4:1988 (EFT)
- 73/23/EEC (Low voltage directive) 60950

**Zydacron certifies that the apparatus above conforms to the protection requirements of the Council directive 89/336/EEC on the approximation of the laws of the Member States relating of electromagnetic compatibility.**

A signed copy of this document is available upon written request from the Manufacturer, Attn.: Documentation Mgr.

---

## Canadian Emissions and Safety Requirements

As required by the Canadian government the V.35 has been tested and verified to Canadian emission standards and found compliant to CSA-22.2-225 as dictated in UL1950/CSA 950 edition 3.

**“This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set in the Radio Interference Regulations of the Canadian Department of Communications.”**

**“Le present appareil numerique n’emet pas de bruits radioelectriques depassant les limits applicables aux appareils numeriques de la class A prescrites dans le Relement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.”**

## FCC Emissions Statement

As required by the Federal Communications commission of the United States the V.35 communications board has been tested and found to comply with the FCC emissions standards.

**Warning:** *Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

**Note:** *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 radiates radio frequency energy; if not installed and used in accordance with the instruction manual it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to 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.*

# Appendix B

## I/O Address Switch Setting Table

Use this switch setting map when setting I/O addresses for the Zydacron hardware. Dip switch settings for both six position and eight position switches are listed.

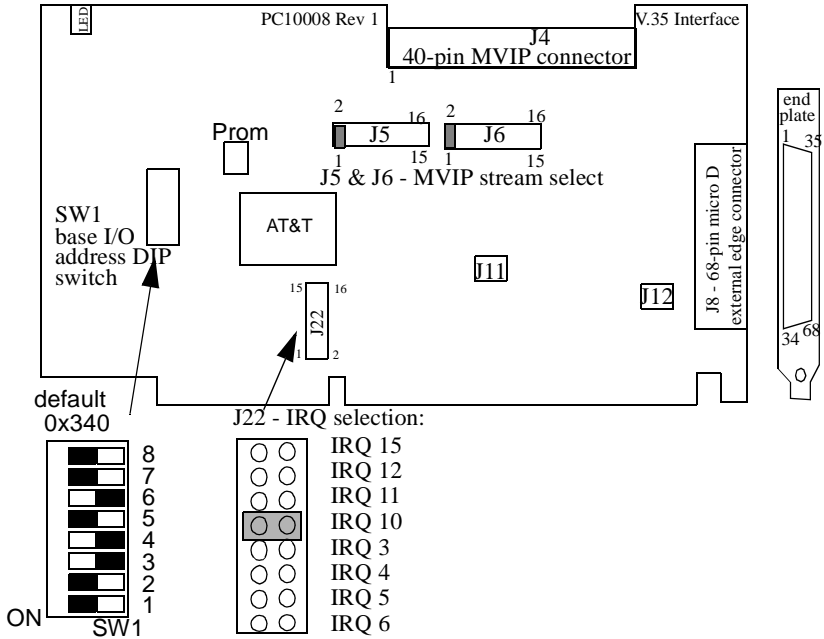
SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	Address
A11	A10	A9	A8	A7	A6	A5	A4	
ON	ON	ON	OFF	ON	ON	ON	ON	100
ON	ON	ON	OFF	ON	ON	ON	OFF	110
ON	ON	ON	OFF	ON	ON	OFF	ON	120
ON	ON	ON	OFF	ON	ON	OFF	OFF	130
ON	ON	ON	OFF	ON	OFF	ON	ON	140
ON	ON	ON	OFF	ON	OFF	ON	OFF	150
ON	ON	ON	OFF	ON	OFF	OFF	ON	160
ON	ON	ON	OFF	ON	OFF	OFF	OFF	170
ON	ON	ON	OFF	OFF	ON	ON	ON	180
ON	ON	ON	OFF	OFF	ON	ON	OFF	190
ON	ON	ON	OFF	OFF	ON	OFF	ON	1A0
ON	ON	ON	OFF	OFF	ON	OFF	OFF	1B0
ON	ON	ON	OFF	OFF	OFF	ON	ON	1C0
ON	ON	ON	OFF	OFF	OFF	ON	OFF	1D0
ON	ON	ON	OFF	OFF	OFF	OFF	ON	1E0
ON	ON	ON	OFF	OFF	OFF	OFF	OFF	1F0
ON	ON	OFF	ON	ON	ON	ON	ON	200
ON	ON	OFF	ON	ON	ON	ON	OFF	210
ON	ON	OFF	ON	ON	ON	OFF	ON	220
ON	ON	OFF	ON	ON	ON	OFF	OFF	230
ON	ON	OFF	ON	ON	OFF	ON	ON	240
ON	ON	OFF	ON	ON	OFF	ON	OFF	250
ON	ON	OFF	ON	ON	OFF	OFF	ON	260
ON	ON	OFF	ON	ON	OFF	OFF	OFF	270
ON	ON	OFF	ON	OFF	ON	ON	ON	280
ON	ON	OFF	ON	OFF	ON	ON	OFF	290
ON	ON	OFF	ON	OFF	ON	OFF	ON	2A0
ON	ON	OFF	ON	OFF	ON	OFF	OFF	2B0
ON	ON	OFF	ON	OFF	OFF	ON	ON	2C0
ON	ON	OFF	ON	OFF	OFF	ON	OFF	2D0
ON	ON	OFF	ON	OFF	OFF	OFF	ON	2E0
ON	ON	OFF	ON	OFF	OFF	OFF	OFF	2F0

**I/O Address Switch Setting Table**

								Address
<b>SW1</b>	<b>SW2</b>	<b>SW3</b>	<b>SW4</b>	<b>SW5</b>	<b>SW6</b>	<b>SW7</b>	<b>SW8</b>	
<b>A11</b>	<b>A10</b>	<b>A9</b>	<b>A8</b>	<b>A7</b>	<b>A6</b>	<b>A5</b>	<b>A4</b>	
ON	ON	OFF	OFF	ON	ON	ON	ON	300
ON	ON	OFF	OFF	ON	ON	ON	OFF	310
ON	ON	OFF	OFF	ON	ON	OFF	ON	320
ON	ON	OFF	OFF	ON	ON	OFF	OFF	330
ON	ON	OFF	OFF	ON	OFF	ON	ON	340
ON	ON	OFF	OFF	ON	OFF	ON	OFF	350
ON	ON	OFF	OFF	ON	OFF	OFF	ON	360
ON	ON	OFF	OFF	ON	OFF	OFF	OFF	370
ON	ON	OFF	OFF	OFF	ON	ON	ON	380
ON	ON	OFF	OFF	OFF	ON	ON	OFF	390
ON	ON	OFF	OFF	OFF	ON	OFF	ON	3A0
ON	ON	OFF	OFF	OFF	ON	OFF	OFF	3B0
ON	ON	OFF	OFF	OFF	OFF	ON	ON	3C0
ON	ON	OFF	OFF	OFF	OFF	ON	OFF	3D0
ON	ON	OFF	OFF	OFF	OFF	OFF	ON	3E0
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	3F0

# Appendix C

## V.35 board diagram with Factory Settings



**V.35 board diagram with Factory Settings**

Jumper	Factory Setting
J5	Jumper pins 1 and 2-- MVIP stream 0
J6	Jumper pins 1 and 2-- MVIP stream 0
J11	Installed -- V.35 carrier detect, out=449 differential. See J12 also
J12	Installed -- V35 carrier detect, out=449 differential. See J11 also
J22	Jumper pins 9 & 10 -- IRQ 10 selected

# Appendix D

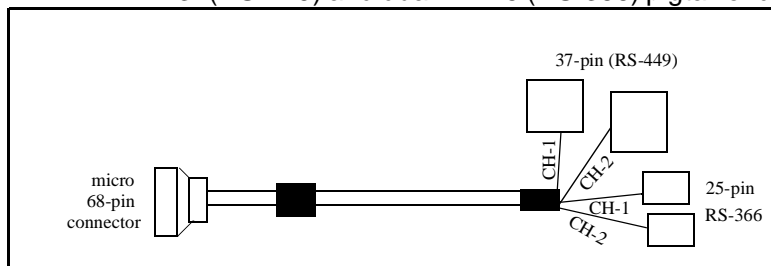
## Zydacron Communication Cables

The Dual V.35 Communications Board interface cable can be configured independently as either a CCITT V.35 connection or as a RS-449 connection. Both have dual RS-366 capability. Included with each V.35 board is one 6 foot micro 68-pin male connector with one of the following setups on the other end. All are male connectors:

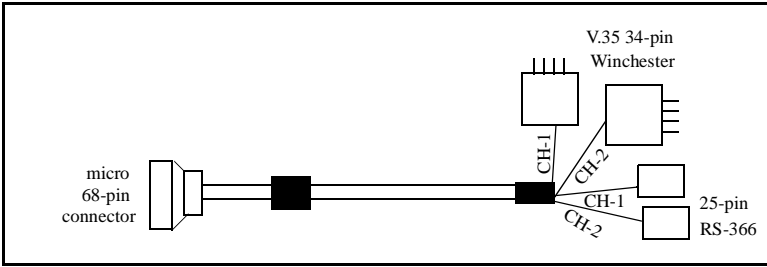
Cable Description	Part Number
Dual 37-pin DB37 RS-449 and Dual 25-pin DB25 RS-366	CB-1020-012*
Dual 34-pin V.35 Winchester and Dual 25-pin DB25 RS-366	CB-1020-013*

\*Custom cables will be quoted upon request.

- P/N: CB-1020-012  
Micro 68-pin communications cable with dual DB-37(RS-449) and dual DB-25 (RS-366) pigtail ends.

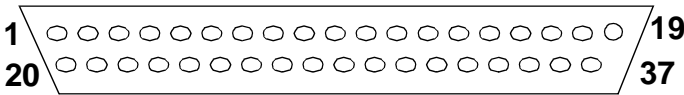


- P/N: CB-1020-013  
Micro 68-pin communications cable with dual V.35 (Winchester male, 34 pin) and dual DB-25 (RS-366) pigtail ends.



## Zydacron Cable: CB-1020-012

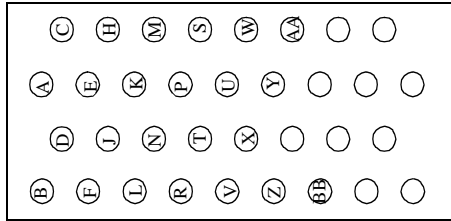
### 37 Pin, RS-449 Male Connector



Pin	Signal	Description
4	SD+	send data
22	SD-	send data
5	ST+	send timing
23	ST-	send timing
6	RD+	received data
24	RD-	received data
7	RS+	request to send
25	RS-	request to send
8	RT+	receive timing
26	RT-	receive timing
9	CS+	clear to send
27	CS-	clear to send
12	TR+	terminal ready
30	TR-	terminal ready
17	TT+	transmit timing
35	TT-	transmit timing
19	DGND	signal ground
15	IC	incoming call

## Zydacron Cable: CB-1020-013

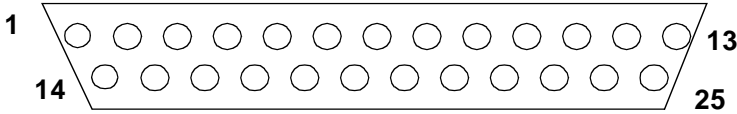
### 34-Pin, RS-366 V.35 Winchester Male Connector



Pin	Signal	Description
A	FGND	chassis ground
B	SGND	signal ground
P	TD+	transmitted data to V35 module
S	TD-	transmitted data to V35 module
R	RD+	received data from V35 module
T	RD-	received data from V35 module
C	RTS	request to send
D	CTS	clear to send
E	DSR	data set ready
H	DTR	data terminal ready
F	RLSD	receiver line signal detect to the DTE
K	LT	local test
Y	SCT+	serial clock, transmitter
AA	SCT-	serial clock, transmitter
V	SCR+	serial clock, receiver
X	SCR-	serial clock, receiver

## Zydacron Cable: CB-1020-012 and Zydacron Cable: CB-1020-013

### 25-Pin, RS-366 Connector



Pin	Signal	Description
1	GND	ground
2	DPR	call digit/tone
3	ACR	call abandon/retry
4	CRQ	call request
5	PND	present next number
7	GND	ground
14	NB1	call digit/tone
15	NB2	call digit/tone
16	NB4	call digit/tone
17	NB8	call digit/tone
22	DLO	data line occupied

## Zydacron Cable: CB-1020-012 and Zydacron Cable: CB-1020-013

### 68-Pin MALE MicroConnector



**Cable: CB-1020-012**  
**Dual 25 pin RS-366/Dual 37 pin RS-449**  
**Wiring Configuration Table**

SIGNAL/NA ME RS449/ RS366	WIRE/ STRIPE COLOR	68-	CHANNEL 1		CHANNEL 2	
			25 pin conn	rs366	25 pin conn	rs366
GND	GRY/VIO	3	7			
GND	WHT/BLU	5	18			
GND	VIO/BLU	7	19			
NB8_1	VIO/GRN	11			17	
PND1	GRN/VIO	12			5	
NB4_1	BLU/GRN	13			16	
CRQ1	GRN/BLU	14			4	
NB2_1	WHT/YEL	15			15	
ACR1	YEL/WHT	16			3	
NB1_1	GRY/YEL	17			14	
DPR1	YEL/GRY	18			2	
DLO1	YEL/BLU	20			22	
RING1		22				15
TR1-	VIO/ORN	25				30
TR1+	ORN/VIO	26				12
CD1-	GRN/ORN	27				31
CD1+	ORN/GRN	28				13
RT-	YEL/ORN	29				26
RT1+	ORN/YEL	30				8
RTS1-	WHT/RED	31				25
RTS1+	RED/WHT	32				7
RD1-	GRY/RED	33				24
RD1+	RED/GRY	34				6
ST1-	BLU/RED	35				23
ST1+	RED/BLU	36				5
SD1-	GRN/RED	37				22
SD1+	RED/GRN	38				4
NB8_0	YEL/RED	39	17			
PND0	RED/YEL	40	5			

SIGNAL/NAME ME RS449/ RS366	WIRE/ STRIPE COLOR	68-	CHANNEL 1		CHANNEL 2	
			25 pin conn	rs366	25 pin conn	rs366
NB4_0	ORN/RED	41	16			
CRQ0	RED/ORN	42	4			
NB2_0	WHT/BRN	43	15			
ACR0	BRN/WHT	44	3			
NB1_0	VIO/BRN	45	14			
DPR0	BRN/VIO	46	2			
GND	GRN/BRN	47			7	
DLO0	BRN/GRN	48	22			
GND	YEL/BRN	49			18	
RING0		50		15		
CD0-	RED/BRN	51		31		
CD0+	BRN/RED	52		13		
TR0-	WHT/BLK	53		30		
TR0+	BLK/WHT	54		12		
RT0-	BLU/BLK	57		26		
RT0+	BLK/BLU	58		8		
RTS0-	GRN/BLK	59		25		
RTS0+	BLK/GRN	60		7		
RD0-	YEL/BLK	61		24		
RD0+	BLK/YEL	62		6		
ST0-	ORN/BLK	63		23		
ST0+	BLK/ORN	64		5		
SD0_	RED/BLK	65		22		
SD0+	BLK/RED	66		4		
CHASSIS	BLK/BRN	68	1	1	1	1
GND		67			19	

**Cable: CB-1020-013**  
**Dual 25-pin RS-366/Dual 34-pin V.35**  
**Wiring Configuration Table**

SIGNALNAME V.35	WIRE/STRIPE COLOR	68-PINCOMM. HOST	CHANNEL 1		CHANNEL 2	
			25 pin conn rs366	34 pin conn	25 pin conn rs366	34 pin conn
Unassigned	WHT/GRY	1				F
Unassigned	GRY/WHT	2		F		
GND	GRY/VIO	3	7	B		
V35_DTR1	VIO/GRY	4				H
GND	WHT/BLU	5	18			
V35_DTR0	BLU/WHT	6		H		
GND	VIO/BLU	7	19			
V35_RTS1	BLU/VIO	8				C
NC	WHT/GRN	9				
V35_RTS0	GRN/WHT	10		C		
NB8_1	VIO/GRN	11			17	
PND1	GRN/VIO	12			5	
NB4_1	BLU/GRN	13			16	
CRQ1	GRN/BLU	14			4	
NB2_1	WHT/YEL	15			15	
ACR1	YEL/WHT	16			3	
NB1_1	GRY/YEL	17			14	
DPR1	YEL/GRY	18			2	
GND	BLU/YEL	19				
DLO1	YEL/BLU	20			22	
GND	GRN/YEL	21				
IN_CALL1	YEL/GRN	22				
GND	WHT/ORN	23				
DSR1	ORN/WHT	24				E
NC	VIO/ORN	25				
NC	ORN/VIO	26				
NC	GRN/ORN	27				
CTS1	ORN/GRN	28				D

SIGNALNAME V.35	WIRE/STRIPE COLOR	68-PINCOMM. HOST	CHANNEL 1		CHANNEL 2	
			25 pin conn rs366	34 pin conn	25 pin conn rs366	34 pin conn
SCRI-	YEL/ORN	29				X
SCRI+	ORN/YEL	30				V
NC	WHT/RED	31				
NC	RED/WHT	32				
RD1-	GRY/RED	33				T
RD1+	RED/GRY	34				R
SCT1-	BLU/RED	35				AA
SCT1+	RED/BLU	36				Y
TD1-	GRN/RED	37				S
TD1+	RED/GRN	38				P
NB8_0	YEL/RED	39	17			
PND0	RED/YEL	40	5			
NB4_0	ORN/RED	41	16			
CRQ0	RED/ORN	42	4			
NB2_0	WHT/BRN	43	15			
ACR0	BRN/WHT	44	3			
NB1_0	VIO/BRN	45	14			
DPR0	BRN/VIO	46	2			
GND	GRN/BRN	47			7	B
DLO0	BRN/GRN	48	22			
GND	YEL/BRN	49			18	
IN_CALL0	BRN/YEL	50				
GND	RED/BRN	51			19	
DSR0	BRN/RED	52		E		
NC	WHT/BLK	53				
NC	BLK/WHT	54				
NC	GRY/BLK	55				
CTS0	BLK/GRY	56		D		
SCR0-	BLU/BLK	57		X		
SCR0+	BLK/BLU	58		V		
NC	GRN/BLK	59				
NC	BLK/GRN	60				

SIGNALNAME V.35	WIRE/STRIPE COLOR	68-PINCOMM. HOST	CHANNEL 1		CHANNEL 2	
			25 pin conn rs366	34 pin conn	25 pin conn rs366	34 pin conn
RD0-	YEL/BLK	61		T		
RD0+	BLK/YEL	62		R		
SCT0-	ORN/BLK	63		AA		
SCT0+	BLK/ORN	64		Y		
TD0-	RED/BLK	65		S		
TD0+	BLK/RED	66		P		
GND	BRN/BLK	67				
CHASSIS	BLK/BRN	68	1	A	1	A

7	B
---	---

Denotes a jumper between the two connectors 7 & B and connected to the supplied ground pin 3/47 of 68 pin micro connector.



# Appendix E

## Configuration with RS449 DSU

---

---

Order Zydacron V.35 communication cable P/N:CB-1020-012 rev. D or greater.

---

### On the V.35 board

1. Remove J11 and J12 this is for differential carrier detect. See "V.35 board diagram with Factory Settings" on page 39. for their location.
2. Confirm that your V.35 board has prom rev. 9 or greater.

For V.35 boards shipped prior to 12/93 you may need to confirm the rev. of the prom. The prom is a square component located above the AT&T chip as noted on the board diagram in Appendix B. It will have a white label on it noting the rev.

---

### To setup the V.35

In Windows, select: Control Panel>Drivers> [MCI] Audio\Video Comm driver.

Telephone network board X installed.

Select Network Board: **Zydacron V35**

## Select **Configure Network Board**

- Check the RS449 Checkbox
- DSU Type: **Ascend**
- Dialing Type: **RS366 Ext 1**  
(if application is performing dialing)
- IRQ Number Select: # equal to jumper (default is 10)

**Note:** *With IRQ enabled the V.35 can detect an incoming call, and perform dialing if Dialing Type is not External. External means you will dial via the front panel of the DSU and the V.35 with IRQ enabled will see the call as if it were incoming.*

---

## Setting up the Promptus Oasis 200B

The Promptus Oasis 200B is an RS449 configuration. You must connect the channel 1 RS449 into the Promptus user port A and channel 1 RS366 into Promptus RS366 port A via a cable adapter.

**Note:** *The RS366 Ext 1 support Profiles - read Promptus manual.*

**Note:** *If you are performing 2x56 or 2x64 calls you will need to plug channel 2 RS449 into the Promptus user port B and channel 2 RS366 into Promptus RS366 port B via a cable adapter.*

## Under IMUX

- Timing mode DCE
- CTS Normal
- DCD Normal
- DSR Set ON
- Answer mode Automatic
- Disconnect mode DTR inactive
- Dialing Type RS366 or none
- 7x56K option off

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