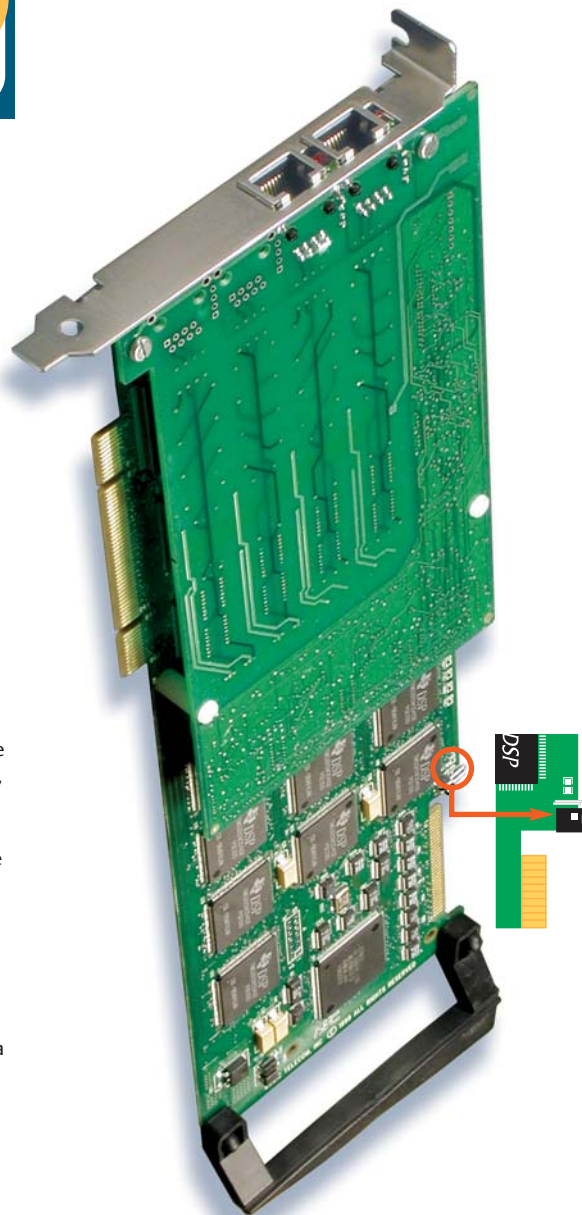# Installation Procedure

Step 1: Hardware Installation

Installing the SmartTAP DP into a PCI slot:

Assuming the hardware, platform, and power requirements are met, the SmartTAP DP is installed in a standard PCI slot. Multiple cards are usually connected by a TDM bus cable (MVIP or H.100).

Execute the following steps to install the SmartTAP DP hardware:

1. Turn off and unplug the host computer and any additional peripherals connected to it, and then remove the PC cover.

2. Before installing your board(s), write down the serial number(s) of the board(s).

3. Carefully insert the SmartTAP DP into an available PCI slot. You may need to remove a cover bracket before doing so. When the SmartTAP DP card is in the PCI slot, screw the card into the chassis using the screw of the bracket which was removed. If no screw is available, remove another bracket from the PC chassis and use the screw from that bracket. If you're using multiple boards, install the MVIP cable. Use clock termination jumper J8 if the SmartTAP DP is selected to terminate the TDM bus clocks (shown at right). LED CR18 (located on the flip side of the board directly behind J8) will illuminate when the jumper is properly terminated. The board ships with the jumper inserted half-way onto J8. If only a single board is to be intalled at this time, there is no need to terminate the board and the jumper can be left as is.

4. Restart your computer. Verify that LED indicator CR-17 is ON. See the figure on page 4 for the location of LED CR-17. Upon power-up, LED CR17 will be ON indicating presence of 3.3V. The process is complete.

The SmartTAP DP (Underside)

Step 2: Software Installation

The SmartTAP DP supports Microsoft Windows NT and Windows 2000. The installation methods for the two Operating Systems vary slightly. From this point you should skip to the section that suits your Operating System.

Microsoft Windows NT:

1. After the SmartWORKS hardware has been installed, power up the PC and insert the CD ROM that shipped with the product. An Installer Menu (shown below) will auto start.

2. To begin, click Products. and then click SmartWORKS Series.

3. Several Selections will appear on the right. Click Install SDK. An Install Shield Wizard will commence. Answer all prompts from the Wizard. When the installation is complete, you will be returned to the product's menu.

TIP:If necessary, you can also return to this screen to install Adobe's Acrobat Reader. Acrobat Reader is necessary for viewing Ai-Logix documentation. If Acrobat reader is not installed on your system, please do not opt to reboot when the Driver Installation Wizard prompts you. Return to this screen by following the previous steps and install Acrobat Reader which will then prompt you to reboot when its installer Wizard is complete.

4. The next step is to install the SmartWORKS Driver. Click Install Device Driver. An Install Shield Wizard will commence. Answer all prompts from the Wizard. When the installation is complete, you will be prompted to reboot. If you need to install Adobe's Acrobat Reader, do not reboot at this time. Simply decline the prompt to automatically reboot and you will be returned to the Install Products menu. If you do not need to install Acrobat, you should allow the Wizard to reboot your PC.

5. Note that the installer application also provides access to Ai-Logix's Internet resources, such as the company website and valuable email addresses. These options are available on the Main screen of the installer application. The main installation process is now complete.

Microsoft Windows 2000:

1. After the SmartWORKS hardware has been installed, power up the PC. Windows will detect your new PCI hardware on startup. Proceed with the Add New Hardware Wizard that will appear. Follow this sequence:

2. Click Next>

3. Select Add/Troubleshoot Device (default) and click Next>

4. Windows will find New PCI Hardware. When the Wizard reaches the point that it needs to install the driver for your new hardware, choose Have Disk in order to direct the Wizard to the SmartWORKS Driver and insert the SmartWORKS CDROM

5. The Ai-Logix installer application will auto-start. When installing SmartWORKS products under Windows 2000, it is recommended that you allow Window's Add New Hardware Wizard to complete the installation process instead of using Ai-Logix's installer. Simply click back into the Add New Hardware Wizard and proceed by directing the installer to the following path on the SmartWORKS CDROM (assuming D: is your CDROM drive): D:\SmartWORKS\Driver\2000.

6. The Wizard will complete the installation and reboot the PC after you press Finish. After the PC is rebooted, re-insert the SmartWORKS CDROM. The Installer application will auto start. The next step is to install the SDK and, if necessary, Adobe's Acrobat Reader. To begin, click Install Products.

7. Several product selections will appear. Click Install SmartWORKS SDK. An Install Shield Wizard will commence. Answer all prompts from the Wizard. When the installation is complete, you will be returned to the product's menu.

TIP: If necessary, you can also return to this screen to install Adobe's Acrobat Reader. Acrobat Reader is necessary for viewing Ai-Logix documentation. If Acrobat Reader is not installed on your system, please return to this screen by following the previous steps and install Acrobat Reader.

At this point you may quit the installer application, install Acrobat Reader, or view the product Documentation.

Note that the installer application also provides access to Ai-Logix's Internet resources, such as the company website and valuable email addresses. These options are available on the Main screen of the installer application. The main installation process is now complete.

SmartWORKS Installer Application

Step 3: Line Configuration

The SmartTAP DP is a Dual Passive Tap card. Essentially what that means is that the card taps the line before it reaches it's destination (either the Central Office-CO or the Customer Premises Equipment-CPE). Therefore the tap itself goes undetected and transparent to both the CO and the CPE (which usually consists of a PBX and individual phones or other communication equipment).

Connecting the DP to T1 and E1 Trunks:

Follow the adjacent diagram to make the connection between the SmartTAP DP card(s) and the T1 or E1 trunk that the card is meant to tap.

Wiring Preface:

What is a Passive Tap?

The SmartTAP DP has 2 RJ-45 ports on it's front bracket. In a typical configuration, standard Category 5 (Cat 5) network cable are used to connect the DP to a pair of T1 trunks through a Punch-Down block. Modifying the cables may be necessary to connect to the Punch-Down block may be necessary. See the documentation that accompanies the Punch-Down block for more information on it's connection to Cat 5 cables.
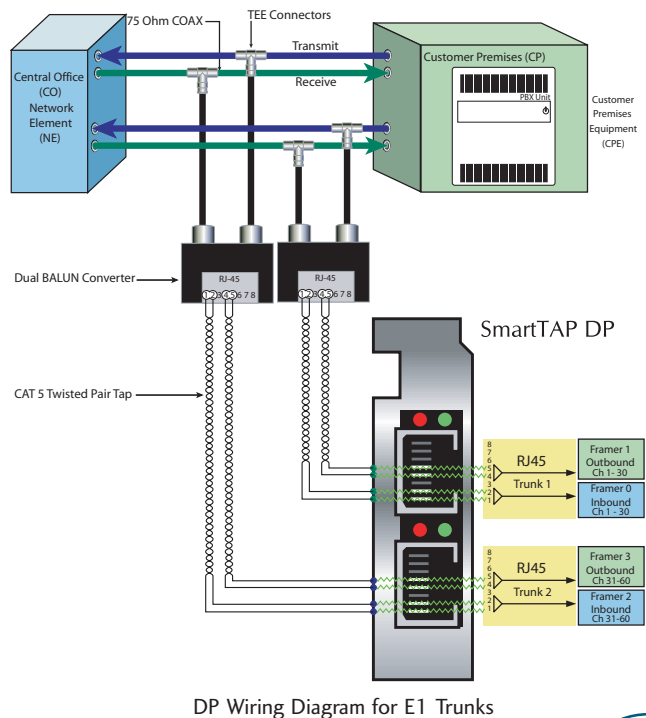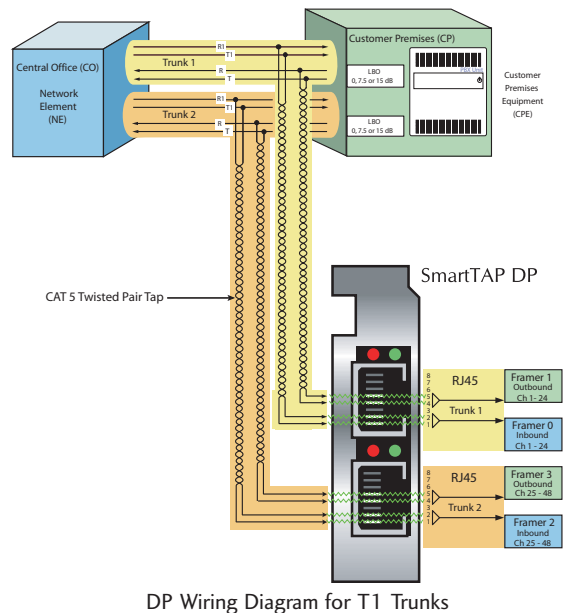
How Channels map to Framers:

Inbound and outbound calls on the T1 line are respectively handles by different framers on the DP. To illustrate this, observe the image to the right (DP Wiring Diagram for T1 Trunks) which shows Trunk 1 connected to Port 1 on the DP. This means that on a T1 line, channels 1-24 inbound are handled by Framer 0, and channels 1-24 outbound are handled by Framer 1. The same logic applies to Trunk 2 and its respective channels (25-48).

Some E1 Differences:

Passively tapping E1 trunks is no different than tapping T1 trunks, but there are a few differences in channel numbers and possibly hardware when it comes to European telephony:

Instead of Category 5 cable, some European networking and telephony lines run over standard Coaxial cable, so a Dual BALUN converter may be necessary to make the switch from Coaxial to RJ-45 (as shown below).
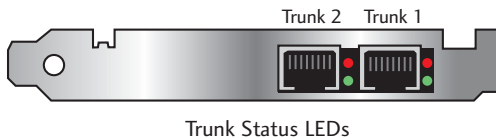
Also, tapping can be done through the use of common Coaxial TEE connectors if Coaxial is indeed the type of networking cable the E1 lines are running over.

DP Wiring Diagram for T1 Trunks

SmartTAP DP

DP Wiring Diagram for E1 Trunks

SmartTAP DP

Appendix A: LEDs

Trunk Status LEDs

There are two LEDs per trunk to display the status of the trunk interfaces. The LEDs are designed to help quickly troubleshoot installation problems. Location of LEDs is shown below.
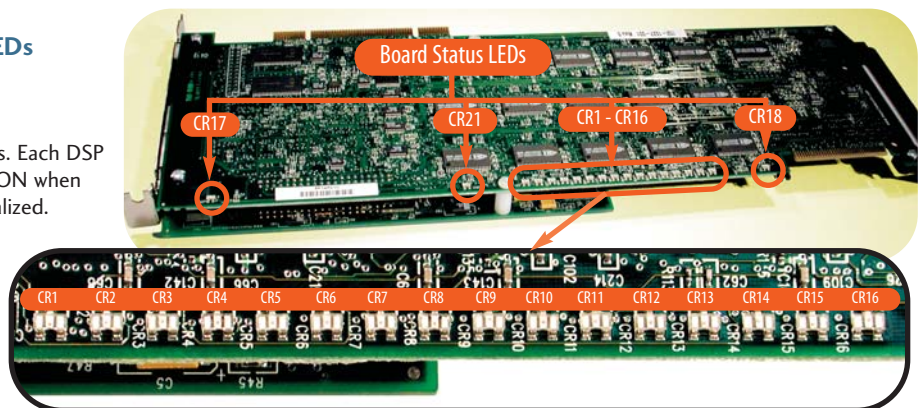

Trunk Status LEDs

The following table shows possible states of LEDs and describes the state of trunk interface.

Red	Green	Status
OFF	OFF	FramerReset
OFF	ON	Normal Operation
ON	ON	Signal Present & Alarm
ON	OFF	No Signal, Framer Started

CR17

Power LED. After power up this LED should be ON, indicating presence of a 3.3V power supply. The driver would then start the board and turn this LED OFF.

Blinking CR17 LED

Indicates board initialization failure.

Note: The API function MTBlinkBoard() when invoked will cause this LED to blink 10 times so that the user can match board location in a chassis with its board number.

CR18

TDM clock termination LED. This LED will be ON when TDM clocks are terminated on the card (insert JP8 to terminate the clocks).

CR21

CPU LED. This LED is turned ON by the local CPU upon successful initialization.

Board Status LEDs

CR1 - CR16

DSP started LEDs. Each DSP will turn its LED ON when successfully initialized.

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