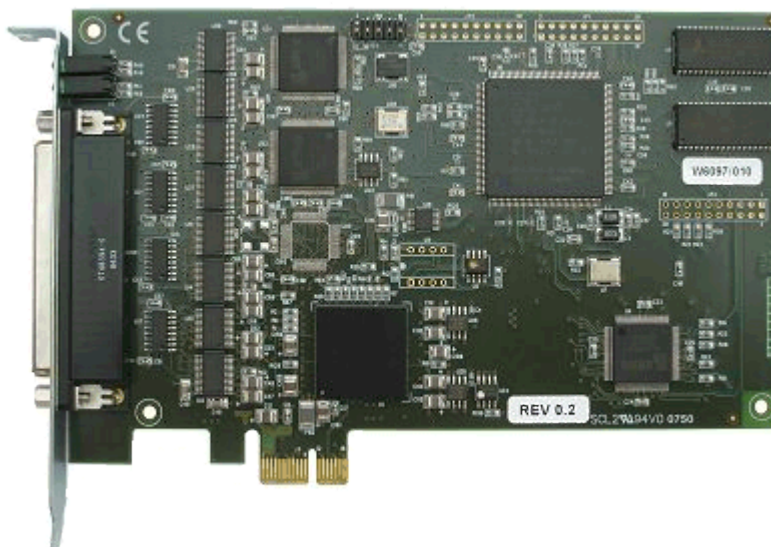


FarSync X25 T4Ue - A 4 line PCIe X.25 card



The FarSync X25 T4Ue PCIe card provides 4 high performance X.25 communications lines for Linux and Windows systems.

Overview

The FarSync X.25 T4Ue product is a high quality X.25 solution for business, government and military applications, it has been developed to provide high performance, versatile X.25 connectivity for Linux and Windows systems.

The PCIe card will support 4 X.25 lines at speeds to over 2.048 Mbits/s. The highly flexible universal network connector supports RS232C, X.21, RS530, RS449 and V.35 network interfaces.

Features under Linux:

- The T4Ue card installs seamlessly as a plug and play device under the popular Linux 32 and 64 bit distributions. The card supports Linux kernel version 2.6 in 32 and 64 bit formats, including the leading distributions supplied by Redhat, SuSE, Mandriva, Debian, Ubuntu, Fedora, Slackware and more. SMP (multi-processor) systems are supported. Configuration is by a Java based GUI.
- There are APIs to the X.25 layer, a Sockets based interface and a Java API. There is also an API to the ISO Transport layers (ISO 8073 - connection oriented).
- IP over X.25 support is included permitting TCP/IP operation over an X.25 network.
- XOT (X.25 over TCP/IP) support is available as an option, using the same API's as X.25. XOT can operate at the same time as X.25.
- Up to 254 connections per line are supported as standard or up to 4095 connections using the FarSync X25 High Capacity Pack.
- FarSite is committed to supporting the FarSync X25 T4Ue on new versions of Linux and Linux kernels as they are released. The source code for the driver and the libraries for the API are supplied with the product, allowing rebuilding by the end user for use with almost any of the current or future Linux variants.

Features under Windows:

- The T4Ue card installs seamlessly as a plug and play device under Windows XP, Server 2003, Server 2008 and Vista. 32 and 64 bit Windows operating systems are supported.
- The X.25 software has a host of features including ISO Transport (classes 0 to 3), support for *OpenFT* FTAM, a WinSock2 compliant Sockets API, a Java API, a COM Port API and a LAPB layer 2 (HDLC) that is also directly accessible by its own API. The Sockets API is also accessible from .NET applications.
- Up to 4095 connections can be supported using the FarSync
- X25 High Capacity Pack or 254 per line as standard.
- IP over X.25 support is included permitting TCP/IP operation over an X.25 network.

X.25 Developers Toolkit:

A comprehensive Developers Toolkit for development using APIs to X.25 and ISO Transport is included with each product covering Linux and Windows. In addition, the Windows product has a toolkit for the LAPB API. A multi-port Line Monitor and a Line Statistics application are also supplied.

Typical Applications

The FarSync X25 T4Ue card is suitable for connection to all types of X.25 networks, X.25 over the ISDN D channel and leased lines. Typical applications include:

- Private X.25 networks such as Lottery, Police, Customs, Military, Fishery, Financial, Government and Airline
- E-Commerce gateways for credit verification
- Mixed X.25 and IP networks
- SMS message gateways
- Billing and Mediation
- FTAM access
- Control applications requiring a HDLC link
- X.400
- PC/Server based X.25 switch and an XOT Option

The card is compatible with all public X.25 networks, such as Datex-P, BT X.25 Direct, Eirpac, Austpac, Transpac and Itapac to name just a few.

FarSync X25 T4Ue - Hardware Details

The FarSync X25 T4Ue 4 line card runs an AMD processor with SRAM and an embedded HDLC controller connected to the Server/PC through a PCIe bus.

Network Interfaces

The 4 line multi function drivers support X.21 (V.11), V.35, RS232C (V.24, X.21bis), RS530 (EIA530, RS422), RS449 (RS422), network interfaces, all soft configurable and ESD protected from static charges. Line speeds to over 2.048 Mbits/s are supported.

Clock Generation

External (line generated) clocking is supported. The T4Ue also supports card generated clocks speeds from 9600 baud to 8.192 Mbits/s, each line can be set to a different speed.

PCIe Bus Specification

The FarSync X25 T4Ue complies with the PCI Express Base Specification Revision 1.0a

Multiple Cards

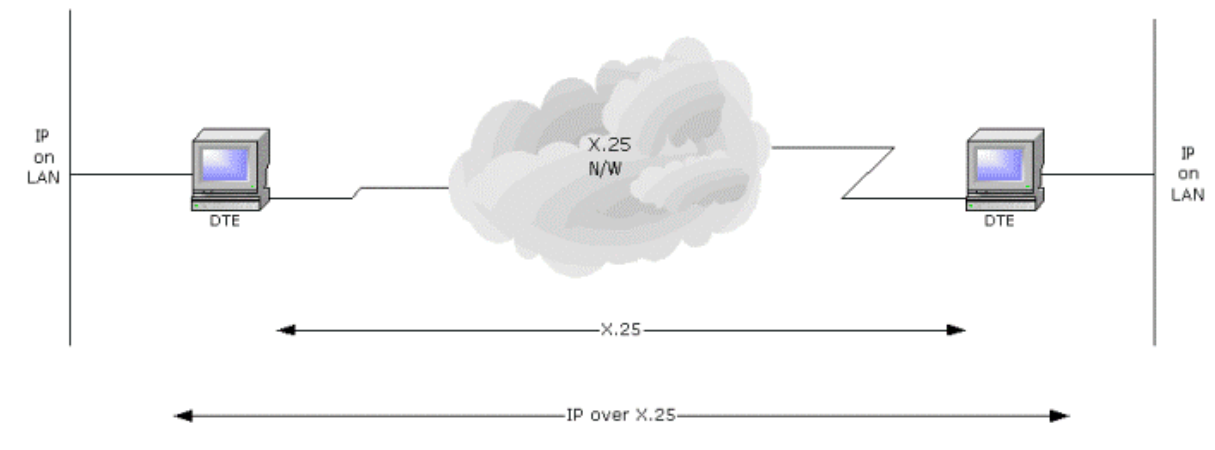
The drivers supplied with Windows and Linux allow large numbers of lines to be supported by the installation of multiple FarSync X25 T4Ue cards in a Server. Typically 12 or more cards can be supported (48+ lines); the card limit is only dependent on the PCIe slot count and resources available in the host Server and the total bandwidth of the PCIe bus.

TCP/IP over X.25

The IP over X.25 support is included as part of the FarSync X25 T4Ue product and is integrated into Linux and Windows.

Linux Features: IP over X.25 support complies with RFC 1356 (IP over X.25). Higher level protocols that run over IP including TCP, UDP, HTTP and FTP are supported.

Windows Features: The IP over X.25 support complies with RFC 1356 (IP over X.25), for single and multiple X.25 destinations. Higher level protocols that run over IP including TCP, UDP, HTTP and FTP are supported.



APIs and X.25 Developers Toolkit

Application developers have a choice of APIs for X.25, ISO Transport and accessing HDLC (LAPB). An API selector guide is provided to assist the developer in choosing the most appropriate interface. The comprehensive Developers Toolkit is included with the product.

FarSync XOT Extension for Linux option

The XOT extension allows applications using the same API to transmit data over XOT (X.25 over TCP/IP). TCP/IP is normally routed over Ethernet on PCs and Servers. The XOT support is compatible with FarSite's FarLinX X25 Gateway and also other manufacturers XOT products. The XOT and X.25 interfaces can be used simultaneously.

The FarSync XOT Extension for Linux is available under product code FS9508, it should be ordered at the same time that the FarSync X25 card is purchased, although a retrofit is possible.

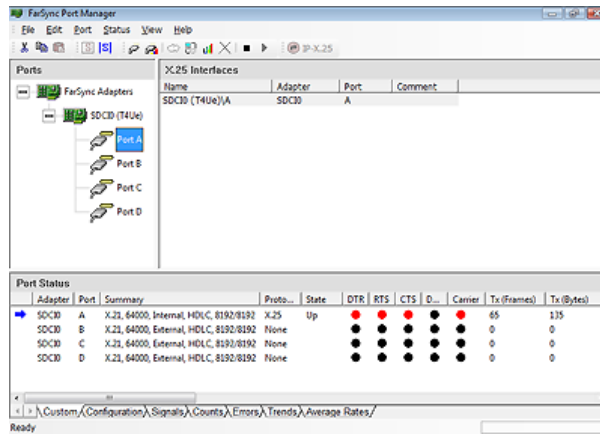
Note: There is also FarSync XOT Runtime software available that allows XOT to run over the PCs standard TCP/IP connection such as an Ethernet card.

FarSync X.25 High Capacity Pack option

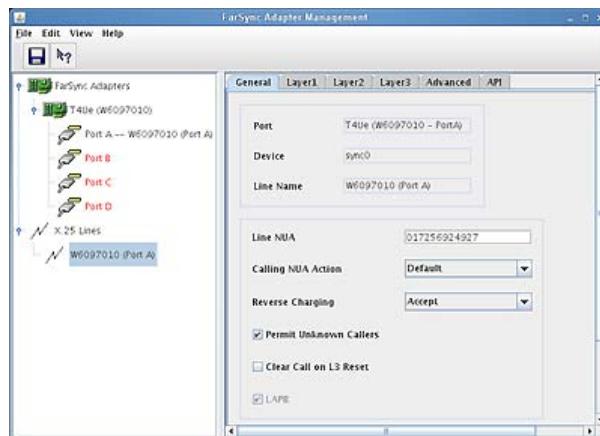
An optional high capacity pack is available for the FarSync X25 T4Ue. The FarSync X.25 High Capacity Pack allows up to 4,095 simultaneous connections to be made, a huge increase from the standard 254 on each line. The expanded capacity applies to SVC, PVC and ISO Transport connections.

Customer applications developed to use the standard X.25 Sockets API are compatible with the FarSync X25 High Capacity Pack.

The FarSync X.25 High Capacity Pack is available under product code FS9504 for Windows and FS9505 for Linux, it should be ordered at the same time that the FarSync X.25 T4Ue is purchased although a retrofit upgrade is possible. One FarSync X.25 High Capacity Pack is required per card.



Windows Port Manager showing configuration of a T4Ue for X.25



Linux Adapter Manager showing X.25 configuration of a T4Ue

Configuration

For both Windows and Linux configuration is by a GUI configuration application, rapid installation and easy configuration are key features of the product. See sample screens below.

The X.25 line can be reconfigured and restarted without reloading the software.

There is context sensitive help and an on-line manual should it be required. Many of the parameters such as DTE / DCE selection are determined automatically. Selecting the line speed by default automatically sets suitable timer and retry values. An advanced tab permits users to exactly specify the configuration of the line if necessary.

Packaging

The X.25 software firmware, drivers, utilities and the X.25 Developers Toolkit are all included on the CD-ROM supplied with the FarSync card. Cables are ordered separately.

The CD-ROM supplied with the FarSync X25 T4Ue includes:

- Drivers for Linux, Windows XP, Vista, Server 2003 and Server 2008
- Numerous example applications with source code
- Documentation for all the APIs in Adobe PDF format
- Source code for Linux drivers and API Libraries
- Network monitor and various useful utility programs

Software Technical Specifications

Operation Systems supported	Windows XP, Windows Server 2003, Vista, Windows Server 2008.
Linux Kernel support	Linux distributions supplied by Redhat, SuSE, Mandriva, Debian, Ubuntu, Fedora, Slackware and others with kernel version 2.6. All sub versions of kernel releases from 2.6.12 onward. The products may operate successfully with earlier versions of the kernel but no specific testing has been undertaken by FarSite.
SMP (Multi-Processor Systems)	The software has been designed for and tested on SMP Servers
32 and 64 bit systems	The FarSync X25 T4Ue can be used on 32 and 64 bit systems under Windows and Linux
X.25 Features	
X.25 CCITT compliance	1980, 84 & 88
DTE/DCE operation	Both and Automatic detection and selection
Maximum SVCs (all types)	254 sessions on each line, any mix of bothway, incoming and outgoing 4,095 sessions using the High Capacity Pack, any mix of bothway, incoming and outgoing
Maximum PVCs	254 sessions on each line 4,095 sessions using the High Capacity Pack
Maximum simultaneous connections	254 connections on each line 4095 connections with the High Capacity Pack
Data Packet size range	0 to 4096 bytes
Data packets per second throughput	more than 2000 pps
X25 facilities supported	Reverse charging, Closed User Group (CUG), Network User Identifier (NUI), Fast Select, Packet and Windows size negotiation, Extended sequence numbering (128), Throughput Class Negotiation.
Types of network connection	X.25 packet switch, leased line, dial up (X.32 and dial on DTR)
Accessible via API	Yes, a number of different APIs to suit various requirements
IP over X.25	Supported, complies with RFC 1356
X.25 switch	X.25 Switch daemon available on Linux for free download for use with the FarSync X25 T4Ue

XOT Option Features (Linux only)

XOT Specification	Complies with RFC 1613 - X.25 over TCP (XOT)
Maximum XOT connections	4,095
Maximum SVCs and PVCs	4,095, any mix of SVCs and PVCs
Data packets size range	0 to 4,096 bytes
OOB (Out of Band) data	Supported for Interrupts, Resets and the D bit
X25 facilities supported	Closed User Group (CUG), Network User Identifier (NUI), Fast Select, Packet and Windows size negotiation, Throughput Class Negotiation.
Accessible via API	Two APIs, a Sockets based interface, a Java API
ISO Transport Features	
Supplied with the X.25 software	Included with both the standard product and the High Capacity Pack
Standard supported	ISO 8073 (connection oriented)
Classes supported	Classes 0, 1, 2 and 3
Negotiation between classes	Yes
Simultaneous transport connections	254 sessions on each line, 4,095 sessions using the High Capacity Pack
Accessible via API	Yes

HDLC Features (Windows only)

Protocol	LAPB (layer 2) and raw HDLC frame mode
Accessible via API	Yes, using a DLL
Developers Toolkit	

Hardware Technical Specifications

Card type and PCIe Specification	AMD processor with SRAM and quad port synchronous controller, PCIe bus compliant with PCI Express Base Specification Revision 1.0a Bus mastering card
Physical characteristics	Short card (height 107mm, length 167mm)
Multiple cards	Yes, typically 12 or more cards (48+ lines) can be supported; the card limit is only dependent on the resources available in the host Server
Network connections supported	X.21 (V.11) - DTE 15 pin male D type, V.35 - DTE MRAC-34 male 'brick' type, RS232C (V.24, X.21bis) - DTE 25 pin male D type, RS530 (RS422) - DTE 25 pin male D type, RS449 - DTE 37 pin male D type
Link speed range	RS232C: 75 baud up to 128 Kbits/s X.21, V.35, RS530, RS449, RS422: 75 baud to over 2.048 Mbits/s
ESD protection	Yes, Littelfuse high speed ESD and over-voltage protection
LED line status indicators	4 line status
Approvals	EN55022 class B, CE, FCC class B
Power requirements	< 1.75 A @ +3.3v < 10mA @ +/- 12v < 6 watts
MTBF	229,044 hours - calculation based on Bellcore Method 1 Case 3, 40 deg.C ambient, 15 deg.C case temperature rise above ambient.
Line clocking (external and card generated)	Card generated and External supported Card generated clock range 9,600 baud to 8,192 Mbits/s. No special cables are required to use card generated clocks on RS232C, X.21 and RS530 (RS422). Card generated clocking is supported on V.35 and RS449 with the use of cables designed for card generated clocks.
Warranty	5 years
RoHS Compliant	Yes

Order Information

Product Name	Description	Product Code
FarSync X25 T4Ue	Intelligent 4 X.25 line PCIe card with X.25 Software supplied with the X.25 Developers Toolkit for Windows and Linux	FS6450
Software Options		
FarSync X.25 High Capacity Pack for Windows	Upgrade to the standard Windows FarSync X.25 software that allows up to 4095 simultaneous sessions	FS9504
FarSync X.25 High Capacity Pack for Linux	Upgrade to the standard Linux FarSync X.25 software that allows up to 4095 simultaneous sessions	FS9505
FarSync XOT Extension	An optional upgrade to add XOT (X.25 over TCP/IP) with FarSync X.25 cards on Linux. A FarSync X25 card must be purchased with this product.	FS9508