

Key Features

- Universal PCI bus mastering WAN adapter
- 1 synchronous port
- Network interfaces for RS232, X.21, RS530, RS449 and V.35
- Wide speed range - up to 10 Mbits/s
- Transparent bitstream & HDLC framed data
- APIs for Windows and Linux
- Interoperates with TCP/IP
- Comprehensive Developers Toolkit available



Overview

The FarSync T1U adapter and software is designed to provide high performance hardware communications solutions for business, government and military applications which need a PCI synchronous communications adapter. The product includes a low level driver that allows access to the communications features available in the hardware. The adapter can optionally use the host's standard TCP/IP protocol stack to allow access to IP based networks such as the Internet. The FarSync SDK provides a Developers Toolkit for the product.

The adapter will support a synchronous line at speeds of up to 10Mbits/s continuous. The highly flexible universal network connector supports RS232, X.21, RS530 (RS422 signalling), RS449 and V.35 network interfaces.

Features under Windows: The products include support for the Microsoft standard Windows SDCI API, providing applications with direct access to the adapter's communications port/s for bit synchronous (HDLC) framing and also transparent bitstream operation for video and voice type applications.

The adapter installs seamlessly under Windows on both 32 and 64 bit, single and multi-core systems. The FarSync drivers are signed by Microsoft for easy installation.

The FarSync T1U can also be installed to appear as a NDIS (LAN) interface so it can simply use the TCP/IP stack to allow access to IP based networks such as the Internet.

Features under Linux: The low level API is based on the raw socket interface and supports bit synchronous (HDLC) framed and transparent bit stream data. The adapter can also use the TCP/IP stack to allow access to IP based networks such as the Internet.

The T1U adapter installs seamlessly as a plug and play device under the popular Linux 32 and 64 bit multi-processor distributions. The adapters supports Linux kernel versions 2.6 and onwards in 32 and 64 bit formats, on leading distributions.

FarSite is committed to supporting the FarSync T1U on new versions of Linux and Linux kernels as they are released. The source code for the driver is supplied with the product allowing rebuilding by the end user for use with almost any of the current or future Linux variants.

Developers Toolkit: The FarSync SDK provides a Developers Toolkit with full documentation, useful utilities, such as a line monitor, and many sample applications for Linux and Windows. Free support from FarSite's Engineering department is provided to customers purchasing the FarSync SDK who have technical questions using the API.

Typical Applications

The FarSync T1U adapter is suitable for a very wide variety of applications, including, for example:

- High speed HDLC framing support for non standard or specialist protocols
- Interfacing DAB ETI (Ensemble Transport Interface - ETSI EN 300 799) transparent bit streams to Servers
- Interfacing MPEG Video bit streams T-DMB ETI to Servers
- Interfacing high speed MPEG Video bit streams to Servers
- Watchdog systems
- Data generators for test systems
- Engineering monitoring and control systems
- HDLC framing support for non standard or specialist protocols

FarSync T1U - Product Details

The FarSync T1U is supplied with software drivers for Windows and Linux. This includes a low level driver that allows access to the communications features available in the hardware and an optionally installable driver that connects with the standard TCP/IP protocol stack to allow access to IP based networks such as the Internet.

Network Interfaces

The multi function line drivers available support **RS232 (V.24), X.21 (V.11), V.35, EIA530 (RS422) and RS449 network interfaces, all soft configurable** and ESD protected from static charges. The maximum supported line speed is 10 Mbits/s full duplex.

Clock Generation

As well as external clocking the T1U supports card generated clocks at 9600, 19200, 38400 and 76800 speeds. Note: if a wider range of clock speeds are required the 2 port FarSync T2U should be used instead.

PCI Bus Specification

The FarSync T1U card is suitable for systems with a PCI or PCI-X bus, covering single processor systems, multi-processor systems. The card is PCI revision 2.2 compliant with support for both 3.3 and 5 volt signalling, the power for the card is taken from the 3.3 volt supply rail. The FarSync T1U card may be fitted in either 32-bit PCI bus slots or 64-bit PCI-X bus slots as this Universal PCI card will work perfectly well in both.

Key Features supported on Linux

The FarSync T1U installs seamlessly under Linux kernel series 2.6 and onwards on both single and multi-core 32 and 64 bit systems. All the popular distributions are supported including Red Hat, SuSE, Slackware, Ubuntu, CentOS, Debian and Fedora.

Installation is simple, the driver is dynamically loadable so a kernel rebuild is not required for the driver to be installed. The driver acts as a dynamically loadable module. The link level protocol can be PPP, Cisco HDLC or Frame Relay with optional authentication by CHAP, MSCHAP or PAP (RFC 1334) providing a standard point-to-point network interface. The driver is supplied with source code.

The Raw Sockets API allows applications developed using the FarSync SDK to access the full feature set of the hardware, these include bit synchronous (HDLC framed) data, and transparent bitstream data in signal mode NRZ.

A configuration utility is provided to set the line speed, interface type and protocol, after which the ports may be configured with standard networking tools.

Key Features supported on Windows

The FarSync T1U installs easily under Windows 10, 8, 7; Windows Server 2019, 2016 and 2012 on single or multi-core 32 and 64 bit systems. A low level SDCI driver is installed with the optional installation of an NDIS (LAN) driver.

The NDIS driver supports TCP/IP running over PPP with optional authentication by CHAP or PAP (RFC 1334) providing a standard point-to-point network interface. The drivers are signed by Microsoft for easy installation and a minimum of prompts to respond to.

The product is supplied with a comprehensive configuration utility and its own Line Monitor that allows the user to record, display and store line traffic with WAN protocol decoding for fast debugging.

The FarSync T1U enhanced SDCI API allows applications to exactly control the type of data sent and received in bit synchronous (HDLC framed) data and transparent bitstream formats in NRZ signal mode.

FarSync SDK - The Developers Toolkit

The SDK includes support for writing applications on both Linux and Windows and contains documentation, working sample applications, development and test utility applications. There is everything a user needs to rapidly develop and test a wide variety of applications such as specialist synchronous (HDLC framed) protocols or transparent bitstream data requirements including Audio, MPEG Video T-DMB and DAB ETI.

The FarSync SDK is ordered separately from the FarSync T1U.

Our Engineering department provides free email and telephone assistance to application developers using the API as part of the package provided when the FarSync SDK is purchased.

See full details in: [FarSync SDK Datasheet](#).

Windows SDCI API

The SDCI API allows applications to exactly control the type of data sent and received in both bit synchronous data and transparent bitstream formats. The SDCI API manual in Adobe PDF format provides a comprehensive set of function call definitions and helpful advice on the best way to utilise the interface. The sample applications for HDLC and bitstream operation are written in C.

Synchronous data

The SDCI API has been extended to allow applications to exactly control the type of data sent and received in both bit synchronous (HDLC framed) data and transparent bitstream formats. The SDCI SDK contains everything a user needs to rapidly develop and test applications for such requirements as supporting specialist synchronous protocols or transparent data requirements such as Audio, MPEG Video T-DMB and DAB ETI. The clocking options are selectable and configurable from the API.

Sample Applications

A number of easy to follow sample applications are provided demonstrating the wide variety of features available with the adapter. This includes a kernel mode sample for those customers who require the ultimate performance. GUI based demonstration and test utilities are supplied capable of utilizing the wide range of features supported by the adapter.

Linux Raw Sockets API

The Linux API allows applications to send and receive HDLC format (bitsync) frames and also transparent bitstreams with the raw sockets based API. The sample application supplied with the Developers Toolkit demonstrates both modes of operation.

Data rates of up to 10 Mbits/s are supported, with all the ports individually selectable for speed, clocking direction and mode of operation (HDLC or Transparent). Frame sizes up to 32 Kbytes are supported in HDLC mode to allow support for a wide variety of specialist synchronous protocols. The transparent bit stream is suitable for transparent data requirements such as Audio, MPEG Video T-DMB and DAB ETI.

The source for the application and drivers is included, with the Linux API manual provided in Adobe PDF format. The driver is supported under kernel versions 2.6 and onwards for both single CPU and multi-processor 32 and 64 bit machines.

Order Information		
Name	Description	Product Code
FarSync T1U	1 port synchronous Universal PCI adapter, supplied with drivers and utilities for Windows and Linux	FS4140
FarSync SDK	Linux and Windows Developers Toolkit	FS9610
Compatible Cables		
UCR1	Single RS232 (V.24, X.21bis) DTE cable with DB25M type connector, 1.5m	FS6061
UCX1	Single X.21 (V.11) DTE cable with DB15M type connector, 1.5m	FS6062
UCV1	Single V.35 DTE cable with standard M34M V.35 connector, 1.5m	FS6063
U530	Single RS530 (EIA-530, RS422) DTE cable with DB25M type connector, 1.5m	FS6064
X21-449-INT	X.21 - RS449 DCE - conversion cable when the adapter generates the clock DB37F connector, 0.5m	FS6093
X21-449-EXT	X.21 - RS449 DTE - conversion cable for externally generated clock (DCE Clock), DB37M type connector, 0.5 metres	FS6094
Cross Over Cables (DTE to DCE)		
Null-MX	X.21 (V.11) double shielded crossover cable , DB15F connectors, 0.5m. Converts the DTE presentation into a DCE.	FS6090
Null-MR4	RS530 (EIA530, RS422) and RS232 (V.24) crossover DTE to DCE conversion cable , DB25F to DB25F connectors, 0.5 metres.	FS6097

Technical Specification - Software	
Linux	
Distribution Support	Distributions by Red Hat, SuSE, Slackware, CentOS, Ubuntu, Debian, Fedora and more. Drivers for kernel series 2.6 and onwards on both single and multi-core 32 and 64 bit systems
Protocols Supported	TCP/IP, PPP, Cisco HDLC, Frame Relay, CHAP, MSCHAP, PAP (RFCs 1661, 1332, 1334)
API and Interfaces	Raw Sockets API
Windows	
O/S types	32 bit version of Windows 10, 8, 7; Windows Server 2019, 2016 and 2012
Protocols Supported	TCP/IP, PPP, CHAP, PAP (RFCs 1661, 1332, 1334)
API and Interfaces	Extended SDCI API, NDIS (LAN) where the line appears as a LAN interface
Utilities	Line monitor is included to record, display and store line traffic
FarSync SDK - Developers Toolkit	
API reference manuals	Windows SDCI user manual, Linux Raw Sockets user manual
Sample programs	Sample applications that use the SDCI and Raw Sockets APIs. Adapter performance and function test applications
Source code	Sample C applications and Linux drivers source code supplied
Customer Support	We provide free email and telephone assistance to the application developer using the API as part of the package provided when the FarSync SDK is purchased.

Technical Specifications—Hardware Features

Adapter type and PCI specification	AMD processor with SRAM and synchronous controller, Universal PCI (PCI-X compatible, PCI v2.2 compliant), bus mastering, DMA enabled, Supports 3.3 & 5 volt PCI signalling, Suitable for 32 and 64 bit PCI bus slots
Physical characteristics	Short adapter: height 107mm, length 167mm
Network connections	1 synchronous port X.21 (V.11) - DB15M type, RS232 (V.24, X.21bis) - DB25M type, V.35 - M34M V.35 type, RS530 (RS422) - DB25M type, RS449 (RS422) - DB37M type, Cables with above DTE interfaces are ordered separately, DCE cables also available
Link speed range Sync	RS232: up to 128 Kbits/s X21, V35, RS530 (RS422), RS449: up to 10 Mbits/s
Line signal mode	NRZ
ESD line protection	Yes, Littelfuse high speed ESD and over-voltage protection
Max total bandwidth	20 Mbits/s
Indicators	LED indicating line status
Approvals	EN55022 class B, CE, FCC class B
Power requirements	< 850 mA @ +3.3v < 5 mA @ +/- 12v (for ESD suppression) < 2.8 watts
MTBF	339,766 hours - Bellcore Method 1 Case 3, 40 deg.C ambient, 15 deg.C case temperature rise above ambient
Line clocking (internal / external)	External and adapter generated line clocking is supported. Adapter generated clock range 9600, 19200, 38400 and 76800 baud on RS232, X.21, V.35 and RS449 connections. No special cables are required to use adapter generated clocks on RS232, X.21 and RS530 (RS422). Internal clocking is supported on V.35 and RS449 with the use of cables designed for adapter generated clocks
Cables	Cables are ordered separately, see the Order Information section on the page 4
Warranty	5 years
Compliance	RoHS2, REACH

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