



Versa T1-E1 NIC Module for CSG Platforms

Versa CSG appliances can be optionally equipped with T1-E1 NIC module.

T1-E1 NIC provides built-in secure and cost-effective connectivity solution to our customers directly from CSG platforms without the need to deploy a separate T1-E1 router. Regularly, T1-E1 interfaces are found on legacy routers, however Versa extends its hardware support to be deployed seamlessly in legacy networks and operate cutting edge SD-WAN, latest Security features and carrier class Routing w/out the limitations or the obsolete coverage of legacy routers. Versa T1-E1 NIC module supports four WAN ports that allow our customers to connect to up to 4 T1 or E1 network connections.

Versa Secure SD-WAN solution with built-in T1-E1 WAN connection addresses needs of our customers ranging from small businesses to large enterprise branch offices, utilizing existing T1-E1 WAN infrastructure. Native integration gives unparalleled WAN visibility, ability to manage traffic and gather statistics on the WAN network to manage traffic dynamically for best user and application experience. Integrated solution allows our customers to manage natively terminated T1-E1 WAN connections from single pane of glass, Versa Director and Versa Analytics.

Our customers can now deploy rich set of SD-WAN, Security and Routing features directly on T1 or E1 interfaces driving business-class security; voice, video, and data along with differentiated classes of service (CoS), and market leading Application Intelligence and Network Performance Management.

PRODUCTS OVERVIEW

Versa's T1-E1 NIC is built on highly capable, proven, industry leading TDM chipset featuring compatibility with wide variety of T1-E1 vendor solutions. Versa's T1-E1 implementation in hardware and in software is a feature-rich implementation with high degree of configurable features running at line rate. Rich set of T1-E1 features are configurable natively via Versa OS, giving our customers options to connect to different providers, using different modes of operation from single hardware.

T1-E1 NIC mode is configurable to operate in T1 networks (ie: in North America), or E1 networks (rest of the world). T1-E1 interfaces with built-in CSU/DSU provide sufficient power to drive signals over 200 mt (up to 654 ft).

Versa T1-E1 interfaces support popular line coding, framing options with very rich set of diagnostics options

that can come handy to test and troubleshoot connectivity issues when needed.

T1-E1 NIC facilitates two major chips; framing chipset runs low level T1/E1 functions, such as line level functions, while controller chipset runs all the control functions, including WAN interface level control plane and encapsulation/decapsulation (ie: PPP, F.Relay, HDLC etc). This separation in hardware also provides data and control plane separation in functionalities and in software.

SPECIFICATIONS

Overall Features	<ul style="list-style-type: none"> • Built-in T1/E1 framers and line interfaces • Meets or exceeds T1 and E1 network access specifications including ANSI T1.102, T1.403, T1.408, AT&T TR 62411, ITUT G.703, G.704 as well as ETSI 300-011, CTR-4, CTR-12 and CTR-13. • Software selectable between T1 and E1 operation for the whole NIC • Supports encoding and decoding of B8ZS, HDB3 and AMI line codes • Built-in receive equalization, clock recovery and line performance monitoring • Provides transmit and receive jitter attenuation • Uses line rate system clock
Receiver Features	<ul style="list-style-type: none"> • Typical signal recovery of up to -43 dB at 1024 kHz (E1) and up to -44 dB at 772 kHz (T1). • Guaranteed minimum signal recovery of -32 dB at 1024 kHz (E1) and -36 dB at 772 kHz (T1/J1) using PIC-22 gauge cable emulation • Frames to DSX/DS-1 signals in ESF format • Frames to ITU-T G.704 basic and CRC-4 multiframe formatted E1 signals. The framing procedures are consistent with ITU-T G.706 specifications • Tolerates more than 0.4 UI peak-to-peak, high frequency jitter as required by AT&T TR 62411 and Bellcore TRTSY-000170
Transceiver Features	<ul style="list-style-type: none"> • Generates DSX-1 pulses compatible with AT&T, ANSI and ITU requirements • Generates E1 pulses compliant to G.703 recommendations. • Provides line outputs that are current limited and may be tri-stated for protection or in redundant applications. • Provides a digital phase locked loop for generation of a low jitter transmit clock complying with all jitter attenuation jitter transfer and residual jitter specifications of AT&T TR 62411 and ETSI CTR 12 and CTR 13. Internal clock to be mainly advised for loopback or lab connections • Provides a FIFO buffer for jitter attenuation and rate conversion in the transmit path. • Supports unframed mode and framing bit, CRC
Diagnostic Functions	<ul style="list-style-type: none"> • Loopback: Support for standards driven loopback capabilities • Alarm detection – support for variety of alarm conditions • Onboard control processor for advanced testing, error management, alarm management and performance monitoring
LEDs	<p>Each port supports two LEDs</p> <ul style="list-style-type: none"> • 1st LED: CD/LP (two color LED) • 2nd LED: AL <p>LP/CD LED</p> <ul style="list-style-type: none"> • Amber color: port is put to loopback mode by the user. • Green color: carrier has been detected and the internal DSU/CSU is communicating with another DSU/CSU. <p>AL LED</p> <ul style="list-style-type: none"> • On means that there is a local or remote alarm state. This LED is off during normal operation. Color: Amber
Voice, Data support	<p>Data only</p>
Encapsulations supported	<p>PPP, HDLC, Frame Relay MLPPP (*), MLFR (*) (*) Considered for future delivery</p>
Number of ports	<p>4x RJ45 ports</p>
Clocking	<p>Internal, or External</p>

Channelization Support	DS0 channels not supported at this moment
ISDN support	Not supported at this moment

ORDERING INFORMATION

Versa T1-E1-NIC module adds T1 and E1 connectivity capability to CSG Series appliances. Versa T1-E1-NIC is available as a separate option when ordering CSG300 series appliances and it can be installed upfront or afterwards. T1E1-NIC needs to be ordered in built-in form for CSG700 Series. For further details, please refer to the Versa ordering guide.

Learn more at <http://www.versa-networks.com> and follow us on Twitter [@versanetworks](https://twitter.com/versanetworks).