

VALIANT COMMUNICATIONS LIMITED



4 x Ethernet over T1 (IP over TDM)

Data Sheet & Product Brochure

INDIA

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Product Overview

4 x Ethernet over T1

Valiant offers its 4 x Ethernet over T1 (IP over TDM) package in a 1U High, 19-inch rack-mountable chassis. It provides four 10/100BaseT (4 RJ-45) data interfaces on the user side which may be used to transport Ethernet traffic over a T1 link. The converter provides a simple and cost effective method to convert and transport Ethernet data over a T1 link.



Front View

Ethernet over T1 is an Ethernet extension device utilizing TDM telecom infrastructure (of T1, DS3, SDH or microwave links carrying T1s). It converts the Ethernet data into T1 frame format for transmission over the existing TDM (T1) links and then re-converts the T1 back into Ethernet data the far-end terminal, to BRIDGE two Ethernet LANs over the existing T1-based telecom network. The device can effectively utilize the existing TDM network to transport Ethernet data with low investment.

The equipment must be always installed and used in pairs, with one terminal being installed at either end of the T1 link.

Features and Highlights

- Supports fractional T1, T1 time-slots can be selected in increments of 64 Kbps
- Bandwidth can be selected upto 1544 Kbps in steps of N*64 Kbps
- Minimum transmission rate of Ethernet data over T1 is 64 Kbps
- Maximum transmission rate of Ethernet data over T1 is 1.544 Mbps
- 4x10/100BaseT Ethernet interface in accordance with IEEE802.3
- AMI and B8ZS line code (user selectable) options available
- SF and ESF framing (user selectable) options available
- Robbed Bit Signaling option available
- Ethernet frame size 1916 bytes (max)
- Supports Jumbo Frames
- Accommodates up to 8192 frames with a maximum frame size of 1916 bytes
- Prevents any data overflows, or loss of packets in the event of a data burst
- Supports X.86, LAPS and HDLC transmission protocols
- Committed information rate controller
- Available with MAC address list filtration, learning, and updating functions
- A large external SDRAM buffering for handling data bursts
- Equipment supports two clock synchronization modes, Internal clock and Network clock (Loop-Timed clock)
- Local and Remote access and monitoring with either serial RS232, USB or 10/100BaseT
- Supports SNMP V2
- Power Supply: - 48 V DC or 110 V AC power supply options available
- Supports 1+1 redundant power supply inputs.

Indications and Alarm Monitoring

- T1 Loss of signal
- Presence of incoming signal at 10/100 BaseT Ethernet
- Loss of Ethernet packets, errored Ethernet packets, over-sized Ethernet packets and under-sized Ethernet packets log
- Configuration error alarm
- Clock status
- - 48V DC or 110V AC present
- 3.3V DC present.

Status Monitoring

- Status of alarms on T1 Interface
- Status of the Ethernet Interfaces
- Monitoring data through put speed of the Ethernet Interfaces.

Programmable Features

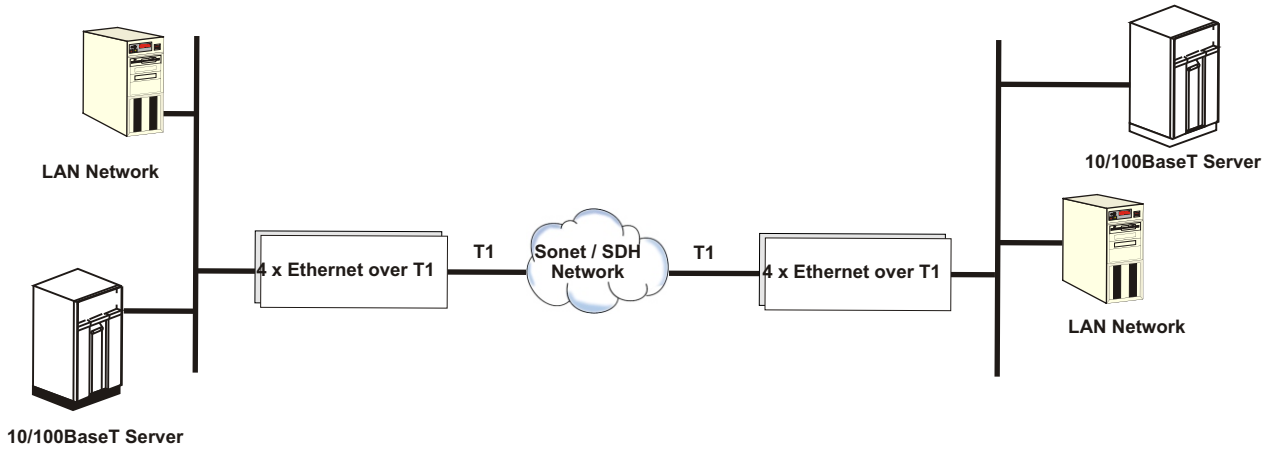
- Telnet interface for remote programming and monitoring by using CLI text commands.

Applications

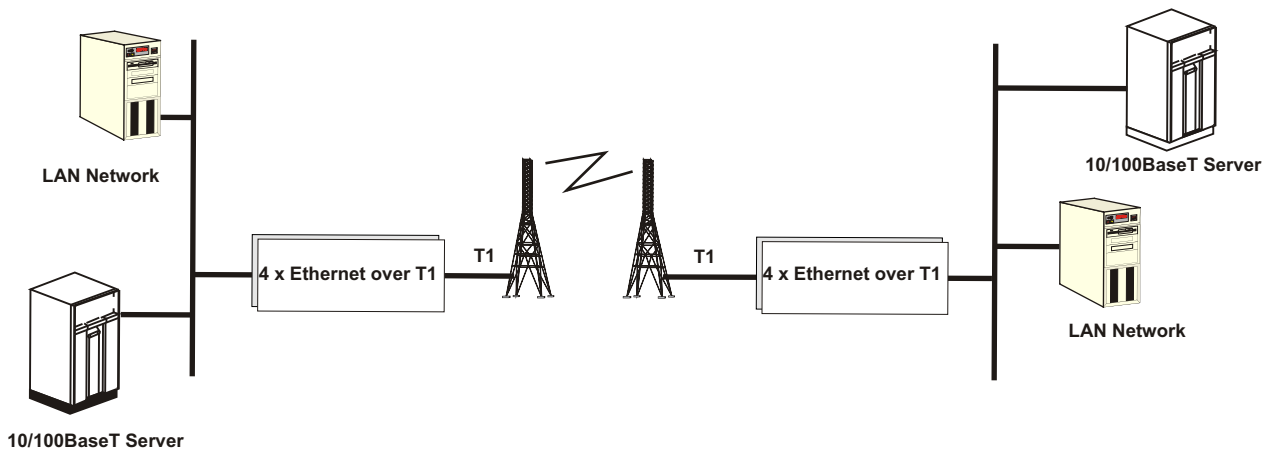
- 10/100 BaseT Ethernet to T1 Conversion (100BaseT over a T1 Interface).

Application Diagrams

Remote LAN Connections over Optical Sonet/SDH Network



Remote LAN Connections over Wireless Network



Technical Specifications

T1 Interface

| | |
|---------------------------|---------------------------------|
| Number of T1 Interfaces | One |
| Bit rate | T1 (1.544 Mbps \pm 50 bps) |
| Electrical | ITU-T G.703 |
| Available time slots | 1-24 user selectable |
| Framing structure | As per ITU G.704 |
| Frame alignment and CRC-6 | As per ITU-T G.706 |
| Framing options | SF, ESF user selectable |
| Line code | AMI, B8ZS user selectable |
| Jitter | As per ITU-T G.823, ITU-T 1.431 |
| Connectors | RJ-45F |
| Impedance | 100 Ohms |

10/100BaseT Interface

| | |
|----------------------|---|
| Number of interfaces | Four |
| Interface types | 10/100BaseT (4 Electrical) |
| Standards compliance | IEEE 802.3-2002 RFC1662 RFC2615 X.86 RMII |
| Interface rate | 100BaseT limited to 1 (one) T1 transmission rate |
| Protocol | HDLC/X.86 (LAPS) Encapsulation |
| Connectors | RJ-45 (100 BaseT electrical) |
| Max. Frame size | 1916 Bytes |

AC Power Supply Specifications (AC Option)

| | |
|-----------------------------------|---|
| Input AC voltage of AC adapter | 100 - 240 Volt AC |
| Range of input AC voltage | 100 V to 240 V AC, 50Hz / 60Hz. |
| System Input voltage | 7.5 V DC to 9.0 V DC, DC input polarity protection. |
| Maximum full load output current | 2.5 A at 7.5 V DC |
| Input voltage reversal protection | Provided in the card |

DC Power Supply Specifications (DC Option)

| | |
|-----------------------------------|---|
| Power supply | - 48V DC (- 36V DC to - 72V DC) |
| Input DC voltage | - 48V DC (nominal) |
| Range of input | - 36V to - 72V DC |
| Output voltage | 5V |
| Input voltage reversal protection | Provided in the Card |
| Under voltage protection | < 4.85V |
| Over voltage protection | > 5.15V |
| Efficiency at full load | > 91%@5V/10A (when input voltage - 48V) |
| Efficiency at full load | > 90%@5V/8A (when input voltage - 24V) |
| Ripple at full load | < 5mVrms |
| Spike at full load | < 50mV |

Power Supply options

| | |
|-------------------|---|
| Power supply (DC) | -48V DC (-36V DC to -72V DC) (optional)* |
| Power supply (AC) | AC input (optional)*, 100V AC to 240V AC, 50Hz / 60Hz |

* Please specify the Power Supply Option (AC or DC) which is required before placing the order. Please see ordering information for details.

Power Consumption

| | |
|-------------------|-----------|
| Power consumption | < 9 Watts |
|-------------------|-----------|

Chassis

| |
|------------------------------|
| 1U High (42 mm) |
| 19-inch rack-mounting shelf. |

Mechanical Specification

| | |
|--------|--------|
| Height | 44 mm |
| Depth | 260 mm |
| Width | 480 mm |
| Weight | 4 Kgs. |

Clock (User Selectable Options)

| | |
|------------|---|
| Internal | System internal clock |
| Loop-Timed | Recovered from T1 Interface |
| External | 2MHz TTL Clock from any external source |

Management and Control Interfaces

| |
|--|
| Serial Management Port (RS232) - COM Port |
| USB Serial Port |
| 10/100BaseT for Remote Management over a LAN |
| 10/100BaseT Telnet over a TCP/IP Network |
| SNMP V2 |

Command Language

| |
|--|
| Command Line Interface (english text commands) |
| Windows based GUI (Graphical User Interface) |

NMS (with Telnet) OAM port Specifications

| | |
|---------------------|---|
| Network interface | RJ-45 Ethernet 10BaseT or 100BaseT-TX (auto sensing) |
| Compatibility | Ethernet Version 2.0 IEEE802.3 |
| Protocols supported | ARP, UDP/IP, TCP/IP, Telnet, ICMP, SNMP |
| LEDs | 10Base-T and 100Base-TX Activity, Full/half duplex. |
| Management | SNMP , Serial login, Telnet login |
| EMI Compliance | Radiated and conducted emissions – complies with Class B limits of EN55022:1998 |
| | Direct and Indirect ESD – complies with EN55024:1998 |
| | RF Electromagnetic Field Immunity – complies with EN55024:1998 |
| | Electrical Fast Transient/Burst Immunity – complies with EN55024:1998 |
| | Power Frequency Magnetic Field Immunity – complies with EN55024:1998 |
| | RF Common Mode Conducted Susceptibility – complies with EN55024:1998 |

Ordering Information

| S. No. | Part # | Product Description |
|--------|-------------------------------|--|
| 1 | VCL-1482_1458 -4ETH-T1-DC | 4 x Ethernet over T1 with dual - 48V DC Input Includes: <ul style="list-style-type: none"> › 19 inch shelf 1U high rack mount Version › Dual DC Power Input › 2 Power Connectors (2 Pin) › 1 Ethernet Crossover Cable › 1 USB Cable |
| 2 | VCL-1482_1458 -4ETH-T1-AC | 4 x Ethernet over T1 with 1xAC Power Input Includes: <ul style="list-style-type: none"> › 19 inch shelf 1U high rack mount Version › 1 Universal AC Power Adapter with Power Cord › 1 Ethernet Crossover Cable › 1 USB Cable |
| 3 | VCL-1482_1458 -4ETH-T1-2AC | 4 x Ethernet over T1 with 2xAC Power Input Includes: <ul style="list-style-type: none"> › 19 inch shelf 1U high rack mount Version › 2 Universal AC Power Adapters with 2 Power Cords › 1 Ethernet Crossover Cable › 1 USB Cable |

Technical specifications are subject to changes without notice.

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