Modems

Routers

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Converters

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TAHOE PRODUCTS

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TAHOE
FREEDOM OF COMMUNICATION

Tahoe manufactures data transmission equipment that facilitates communication between computer as well as telecommunications networks. Tahoe products have gained recognition all over the world from America to the Far East. We currently offer leased line modems, routers supporting HDLC, Frame Relay and PPP protocols as well as other equipment tested by the largest telecommunications operators. Our offer is targeted towards all companies using the Internet, in particular telecommunications companies, ISPs, and large companies with many branches.

Our headquarters are located in Wrocław, Poland and, as a result of a growing number of distributors in various countries and cooperation with the most reliable messenger companies our products reach the customers quickly and safely. We offer the best practical solutions and attractive terms and conditions. We are eager to share our experience in choosing the best equipment and we offer technical support during the whole lifetime of our products. We also offer fast, reliable warranty service and include advanced replacement as a standard option.

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Tahoe 684

8-wire (4-pair) G.shdsl+ modem with FastEthernet interface

Leased-line modems

Leased-line modems - including the newest G.shdsl+ models, unfold new, unprecedented opportunities in the use of copper lines.

G.shdsl+ modems

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Tahoe 684 is a new member of the successful and popular Tahoe G.shdsl+ modem family based on TCPAM-32 modulation.

Thanks to the TCPAM-32, we can achieve higher flow capacity and greater reach on the copper lines. The modem achieves data transmission speeds of up to 22 Mbps on distances of a few kilometres. significantly more than any other xDSL modem technology can provide.

Balanced division of transferred data for four pairs not only increases throughput, but also extends the reach at lower speeds.

Modem Reach:

The values below were measured on an 0.5mm diameter test line and should be treated as approximate values. The real values may be different than those provided below – they can be higher on high quality lines and lower on lines of inferior quality.

Throughput	Reach
22784 kbps	2600 m
16896 kbps	2900 m
14336 kbps	3200 m
12344 kbps	3500 m
9728 kbps	3800 m
6272 kbps	4200 m
4864 kbps	4800 m
3072 kbps	5900 m
2048 kbps	6900 m
1024 kbps	7500 m

Technical Details:

Processor	Motorola PowerPC 100MHz
Memory	4MB SDRAM, 1MB Flash
Efficiency	up to 15 000 packets per second
Network Protocols	TCP, IP, UDP, ICMP, TFTP, SNMP, DHCP, BOOTP, PPP, Frame Relay, HDLC, Cisco® HDLC, IEEE 802.1q
WAN Encapsulation	ATM AAL5
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	15V, 700 mA, 11W external 100-240VAC/50-60Hz power supply included optional 48 VDC power supply

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

up to 22.7 Mbps on an 8-wire (4-pair) line

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL modems
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

Interface

Ethernet 10/100 Base-T

Features

• TCP/IP router
• NAT/masquerade
• firewall
• built-in LCD and keyboard for easy configuration
• telnet management
• SNMP management
• serial console management
• DHCP/BOOTP server (dynamic assigning of IP addresses and other parameters to each network station)
• DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to a central server)
• firmware upgrade using TFTP
• managed or unmanaged bridge functionality
• logging through syslog
• VLAN support
• additional protection against unauthorized LAN access
• measurement of inside temperature
• automatic traffic balancing among four DSL lines
• individual throughput settings for each line (in case of quality differences between the lines)
• automatic fall back to 6-, 4- or 2-wire transmission in case of line failure

Tahoe 681 / 682

G.shdsl+ modems with Ethernet interface

Tahoe DSL Access Multiplexer

19" rack-mountable 3U high DSLAM

Tahoe 681 and Tahoe 682 modems take advantage of the latest G.shdsl technology unfolding unprecedented possibilities for copper leased lines.

Throughputs of over 11 Mbps on distance of up to a few kilometres are possible - faster and further than any other modem technology.

In addition to typical G.shdsl modulations, TCPAM-32 coding - much more efficient than the standard TCPAM-16, offering higher speeds and greater reach, is provided.

The Tahoe DSL Access Multiplexer is a 19" rack-mountable 3U high unit designed to gather multiple G.shdsl+ modems in one space saving case.

It has eight slots for Tahoe 4681 cards containing 4 modems each giving a total capacity of 32 G.shdsl+ lines. Each line may work separately or they may be bundled into 4-wire or 8-wire trunks.

By default the DSLAM is equipped with a management card and two redundant power supplies. The management card has a 4" color LCD display, 4-button keyboard, Ethernet port and serial console port. It allows a centralized control of all devices in the DSLAM. Besides gathering statistics and setting up all the modem cards you can connect to the management card using telnet and then connect to the modem's console using DSLAM's internal serial connection.

The power supplies provide full redundancy and can be hot swapped in case of power problems.

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

Tahoe 681: up to 5.6 Mbps on a 2-wire line
Tahoe 682: up to 11.2 Mbps on a 4-wire line

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

Interface

Ethernet 10/100 Base-T

Features

• TCP/IP router
• NAT/masquerade
• firewall
• built-in LCD and keyboard for easy configuration
• telnet management
• SNMP management
• serial console management
• DHCP/BOOTP server (dynamic assigning of IP addresses and other parameters to each network station)
• DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to central server)
• firmware upgrade using TFTP
• managed or unmanaged bridge functionality
• logging through syslog
• VLAN support
• additional protection against unauthorized LAN access
• measurement of inside temperature

Additional Tahoe 682 features:

• Automatic traffic balancing between two DSL lines
• Individual throughput settings for each line (in case of quality differences between the lines)
• Automatic fall back to 2-wire transmission in case of line failure

Modem Reach:

The values below were measured on an 0.5mm diameter test line and should be treated as approximate values. The real values can differ from those provided below – they can be higher on high quality lines and lower on lines of inferior quality.

Throughput	Tahoe 681	Tahoe 682
11392 kbps	-	2600 m
8448 kbps	-	2900 m
7168 kbps	-	3200 m
6272 kbps	-	3500 m
5696 kbps	2600 m	3800 m
3072 kbps	3500 m	4200 m
2048 kbps	3900 m	5000 m
1024 kbps	5000 m	6900 m

Technical Details:

Processor	Motorola PowerPC 50MHz
Memory	4MB SDRAM, 1MB Flash
Network Protocols	TCP, IP, UDP, ICMP, TFTP, SNMP, DHCP, BOOTP, PPP, Frame Relay, HDLC, Cisco® HDLC, IEEE 802.1q
WAN Encapsulation	ATM AAL5
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Technical Details:

Management Card:

Processor	Motorola PowerPC 100MHz
Memory	64 MB RAM, 16 MB Flash
Network Protocols	TCP, IP, UDP, ICMP, TFTP, SNMP, DHCP, BOOTP, IEEE 802.1q

Power Supplies:

Voltage	100-240 VAC, 50-60 Hz
Power consumption	100W

Case:

Dimensions	483 mm (width, 19") x 132 mm (height, 3U) x 242 mm (depth)
Weight (including power supplies and management card, excluding modem cards)	4.4 kg

Tahoe 4681

8-wire (4-pair) G.shdsl+ modem card with FastEthernet interface

Tahoe 635

2-wire G.shdsl+ modem with V.35 interface

The Tahoe 4681 card is the same as the Tahoe 684 modem, but it has a form of a card that can be inserted into the Tahoe DSL Access Multiplexer.

Each pair of the card achieves data transmission with speeds up to 5 Mbps on the distance of a few kilometres. The pairs can be bundled into 4-wire or 8-wire trunks giving speeds reaching 22 Mbps - much more than any other xDSL modem technology can provide.

Balanced division of transferred data for four pairs not only increases throughput, but also extends the reach at lower speeds.

Thanks to the line bundling you can connect four Tahoe 681 modems, two Tahoe 682 modems or one Tahoe 684 on the other end of the lines. The traffic on these lines may be mixed together in bridge mode or separated using VLANs. In the latter case you may define a DSL port as an untagged and the Ethernet port as tagged one and separate traffic on an external Ethernet switch.

Modem Reach:

The values below were measured on an 0.5mm diameter test line and should be treated as approximate values. The real values may be different than those provided below – they can be higher on high quality lines and lower on lines of inferior quality.

Tahoe 635 modem takes advantage of the latest G.shdsl technology. It offers throughputs up to 4.6 Mbps on a 2-wire (1-pair) with higher reach than HDSL modems.

In addition to typical G.shdsl modulations, TCPAM-32 coding - much more efficient than the standard TCPAM-16, offering higher speeds and greater reach, is provided.

Tahoe 4681

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

up to 22.7 Mbps on an 8-wire (4-pair) line

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL modems
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

Interface

Ethernet 10/100 Base-T

Features

• TCP/IP router
• NAT/masquerade
• firewall
• telnet management
• SNMP management
• serial console management
• DHCP/BOOTP server (dynamic assigning of IP addresses and other parameters to each network station)
• DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to a central server)
• firmware upgrade using TFTP
• managed or unmanaged bridge functionality
• logging through syslog
• VLAN support
• additional protection against unauthorized LAN access
• measurement of inside temperature
• automatic traffic balancing among four DSL lines
• individual throughput settings for each line (in case of quality differences between the lines)
• automatic fall back to 6-, 4- or 2-wire transmission in case of line failure

Throughput	Reach
22784 kbps	2600 m
16896 kbps	2900 m
14336 kbps	3200 m
12344 kbps	3500 m
9728 kbps	3800 m
6272 kbps	4200 m
4864 kbps	4800 m
3072 kbps	5900 m
2048 kbps	6900 m
1024 kbps	7500 m

Technical Details:

Processor	Motorola PowerPC 100MHz
Memory	4MB SDRAM, 1MB Flash
Efficiency	up to 15 000 packets per second
Network Protocols	TCP, IP, UDP, ICMP, TFTP, SNMP, DHCP, BOOTP, PPP, Frame Relay, HDLC, Cisco® HDLC, IEEE 802.1q
WAN Encapsulation	ATM AAL5
Dimensions	30 mm (width) x 128 mm (height) x 185 mm (depth)
Weight	190 g

Tahoe 635

Throughput	Range
4864 kbps	2700 m
3072 kbps	3500 m
2048 kbps	3900 m
1024 kbps	5000 m
512 kbps	6900 m

Technical Details:

Processor	Motorola MC68302
Modulations	TCPAM-32, TCPAM-16, TCPAM-8, TCPAM-4, PAM-16, PAM-8, PAM-4 (2B1Q)
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included

optional 48 VDC power supply |

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

from 64 kbps to 4664 kbps on a 2-wire (1-pair) (set with 64 kbps step)

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

Interface

V.35 conforming to ISO-2539 (Winchester connector)

Features

• built-in LCD and keyboard for easy configuration
• serial console management
• remote modem management through leased line
• external alarm monitoring
• automatic traffic shifting to the remaining pairs in the case of line failure.

Tahoe 637

Tahoe 637 modem is a combination of Tahoe 635 and Tahoe 671 modems. It allows for the selection of one of two interfaces, depending on installation conditions. As a result, you get the most out of your money since the scope of possible applications is enchanced and the variety of installed models limited.

The modem offers throughput of up to 4.6 Mbps on a 2-wire (1-pair) line, with greater reach than HDSL modems.

In addition to typical G.shdsl modulations, TCPAM-32 coding - much more efficient than the standard TCPAM-16, is provided.

The G.703 interface has two modes of operation, framed and unframed. In the framed mode, it is possible - apart from sending the whole E1 stream, to send only a part of the E1 stream if the leased line does not allow for achieving 2048 kbps.

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

from 64 kbps to 4664 kbps on an 2-wire (1-pair) (set with 64 kbps step)

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

Interface

G.703 - symmetrical 120 Ω, RJ45 connector
V.35 conforming to ISO-2539 (Winchester connector)

The interface is selected automatically or set from the console

Features

• built-in LCD and keyboard for easy configuration
• serial console management
• remote modem management through leased line
• external alarm monitoring
• two interfaces used interchangeably
• automatic or manual method of interface selecting

Modem Reach:

The values below were measured on an 0.5mm diameter test line and should be treated as approximate values. The real values can differ from those provided below – they can be higher on high quality lines and lower on lines of inferior quality.

Throughput	Range
4864 kbps	2700 m
3072 kbps	3500 m
2048 kbps	3900 m
1024 kbps	5000 m
512 kbps	6900 m

Note
In the case of G.703 interface the maximal throughput is 2048 kbps

Technical Details:

Processor	Motorola MC68302
Network Protocols	TCPAM-32, TCPAM-16, TCPAM-8, TCPAM-4, PAM-16, PAM-8, PAM-4 (2B1Q)
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Tahoe 671

The Tahoe 671 modem takes advantage of the latest G.shdsl technology, which allows for data transmission of up to 2048 kbps on a 2-wire (1-pair) line with greater reach than HDSL modems.

The G.703 interface has two modes of operation, framed and unframed. In the framed mode, it is possible - apart from sending the whole E1 stream, to send only a part of the E1 stream if the leased line does not allow for achieving 2048 kbps.

In addition to typical G.shdsl modulations, TCPAM-32 coding - much more efficient than the standard TCPAM-16, is provided.

Modem Reach:

The values below were measured on an 0.5mm diameter test line and should be treated as approximate values. The real values can differ from those provided below – they can be higher on high quality lines and lower on lines of inferior quality.

Throughput	Range
2048 kbps	3900 m
1024 kbps	5000 m
512 kbps	6900 m

Technical Details:

Processor	Motorola MC68302
Modulations	TCPAM-32, TCPAM-16, TCPAM-8, TCPAM-4, PAM-16, PAM-8, PAM-4 (2B1Q)
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Standards

G.shdsl modem, conforms to ITU G.991.2

Throughput

from 128 kbps to 2048 kbps on a 2-wire line (set with 64 kbps step)

Modulation

TCPAM-32
• up to 30% greater reach in comparison to HDSL
• up to three times higher throughput over the lines with bandwidth limiting devices such as low-pass filters

TCPAM-16 and other provided to ensure compatibility with equipment of other manufacturers.

Interface

G.703 - symmetrical 120 Ω, RJ45 connector and coaxial 75 Ω two BNC connectors

Features

• built-in LCD and keyboard for easy configuration
• serial console management
• remote modem management through leased line
• external alarm monitoring

Tahoe 320

Tahoe 320 - IDSL modem with RS232 interface

The Tahoe 320 modem is an inexpensive solution with throughput of up to 115.2 kbps, which allows for the connection of PCs over long distances or automotive appliances or any other devices communicating through the RS-232 interface.

Modem Reach:

Example values shown below depend on the wire diameter used for modem connections.

Wire diameter (mm)	Reach (km)
0.4	6.1
0.5	8.8
0.6	11.3
0.8	14.5
1.0	19.6

Technical Details:

Processor	Motorola MC68302
Modulation	2B1Q
Dimensions	100 mm (width) x 60 mm (lenght) x 30 mm (height) also available in subminature version in DB25 enclosure: 58 mm (width) x 95 mm (lenght) x 23 mm (height)
Power Supply	7.5V/400mA external 100-240VAC/50-60Hz power supply included

Remote power management

Rack-mountable power management systems facilitate remote control of mains outlets and measurement of power demand. Web-based, telnet, SSH and GSM access allows rebooting devices even in most difficult circumstances

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Tahoe 8216

Remote Power Management System - main unit

Tahoe 8116

Remote Power Management System - extension unit

Tahoe 8216 increases availability of your network infrastructure by monitoring and managing power supplied to your equipment. You can switch selected outlets on and off remotely using a web-based, telnet or encrypted SSH connection. Optional GSM access allows power control even in situations where whole network is inaccessible. Moreover, the connected devices may be rebooted automatically in case of non-responsiveness.

Tahoe 8216 can be stacked with several (up to 32) Tahoe 8116 extension units to provide additional power outlets at lower cost. Input voltage, current and active power consumption of each unit can be remotely monitored.

Each power outlet may be assigned to separate user which is useful in case of dedicated hosting services where each server is assigned to different customer.

Tahoe 8116 is a cost-effective solution to extend the number of available power outlets of Tahoe 8216 Remote Power Management System. Each extension unit contains 10 additional sockets. Whole stack of Tahoe 8216 and Tahoe 8116 devices is controlled by the main Tahoe 8216 unit.

Features

- 10 independently controllable outlets
- 1U high
- web, telnet, SSH, SNMP, RS-232 access
- voltage, current and active power monitoring
- stackable with up to 32 Tahoe 8116 extension units providing 320 manageable power outlets

Technical Details:

maximum output current	5A (per outlet)
maximum aggregate output current	16A
GSM	900/1800 MHz (optional)
Dimensions	483 mm (width) x 44 mm (height, 1U) x 291 mm (depth)
Power Supply	100-240VAC, 50-60Hz

Technical Details:

maximum output current	5A (per outlet)
maximum aggregate output current	16A
Dimensions	483 mm (width) x 44 mm (height, 1U) x 291 mm (depth)
Power Supply	100-240VAC, 50-60Hz

Features

- 10 independently controllable outlets
- 1U high
- access through the main Tahoe 8216 unit in the stack
- voltage, current and active power monitoring

Routers

Routers with V.35 and G.703 interfaces connect LAN with Frame Relay, V.35 terminated leased lines or E1 streams.

Tahoe 1701

E1 Router – G.703 unframed

The Tahoe 1701 router is equipped with one G.703 serial port interface (unframed) with RJ-45 connector and one Ethernet 10Base-T port. It is designed for connecting LAN through E1 links (2Mbps, full-duplex) terminated with a G.703 interface.

Synchronous PPP, Frame Relay, or complete Ethernet frames in transparent bridge mode may be used. In the latter case, two connected networks work as one - PCs, working under MS Windows operating system, see each other in the network neighbourhood, and the assigned IP addresses may be part of one subnet.

Technical Details:

Processor	Motorola MC68302 25MHz
Supported Protocols	IP, TCP, UDP, SNMP, TFTP, HTTP, RFC1490, InverseARP, PPP, FrameRelay
Frame Relay LMI	ITU Q.933 Annex A, ANSI T1.617 Annex D, Cisco LMI
G.703 Interface	Unframed, balanced 120 Ω 2048 kbps HDB3 coding RJ-45 connector
Dimensions	229 mm (width) x 57 mm (height) x 152 mm (lenght)
Power Supply	external 100-240VAC/50-60Hz power supply included optional 48 VDC power supply

Features

- telnet management
- SNMP management
- NAT/masquerade
- firewall
- DHCP/BOOTP server (dynamic assigning of IP addresses and other parameters to each network station)
- DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to a central server)
- firmware upgrade using TFTP
- managed or unmanaged bridge functionality
- VLAN support
- logging through syslog
- additional protection against unauthorized LAN access

Tahoe 1741

The Tahoe 1741 router is equipped with one G.703 serial port (framed) with RJ-45 connector and one Ethernet 10Base-T port. It is designed for connecting LANs through E1 links (2 Mbps) terminated with G.703 interface, using all available timeslots or only selected ones.

Synchronous PPP, Frame Relay, Cisco HDLC or complete Ethernet frames in transparent bridge mode may be used. In the latter case, two connected networks work as one - PCs, working under MS Windows operating system, see each other in the network neighbourhood, and the assigned IP addresses may be part of one subnet.

The G.703 controller supports CRC4 framing, HDB3 coding, and Long Haul and Short Haul modes (differing in receiver sensitivity). It allows using any combination of 31 available slots and, in addition to this, it can work in the unframed mode.

Features

• telnet management
• SNMP management
• NAT/masquerade
• firewall
• DHCP/BOOTP server (dynamic assigning of IP addresses and other and other parameters to each network station)
• DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to a central server)
• firmware upgrade using TFTP
• managed or unmanaged bridge functionality
• VLAN support
• logging through syslog
• additional protection against unauthorized LAN access

Technical Details:

Processor	Motorola MC68302 25MHz
Supported Protocols	IP, TCP, UDP, SNMP, TFTP, HTTP, PPP, Frame Relay, InverseARP
G.703 Parameters	AMI/HDB3 coding, CRC4/FA framing
LMI signalling	ITU Q.933 Annex A, ANSI T1.617 Annex D, Cisco LMI
Dimensions	229 mm (width) x 57 mm (height) x 152 mm (lenght)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Tahoe 1801

Tahoe 1801 router is equipped with one serial port with V.35 interface and one Ethernet 10Base-T port. It operates with Frame Relay networks, synchronous PPP or HDLC links.

The configuration procedure is as simplified as it could be - usually one or two commands are enough to make it work with the Frame Relay networks.

Technical Details:

Processor	Motorola MC68302 25MHz
WAN port	V.35, do 2Mb/s
Supported Protocols	IP, TCP, UDP, SNMP, TFTP, HTTP, RFC1490, InverseARP, PPP, FrameRelay
LMI signalling	ITU Q.933 Annex A, ANSI T1.617 Annex D, Cisco
Dimensions	229 mm (width) x 57 mm (height) x 152 mm (lenght)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optionally 48VDC

Features

• telnet management
• SNMP management
• NAT/masquerade
• firewall
• DHCP/BOOTP server (dynamic assigning of IP addresses and other parameters to each network station)
• DHCP/BOOTP Relay Agent (relaying of the DHCP/BOOTP requests to a central server)
• firmware upgrade using TFTP
• managed or unmanaged bridge functionality (bridge over Frame Relay, over HDLC)
• additional protection against unauthorized LAN access
• VLAN support
• logging through syslog

Converters

Convert between various interfaces - V.35, G.703 and 10/100Base-T Ethernet.

Tahoe 283 allows connecting two LANs using an E1 line - without any initial configuration.

Works as a transparent bridge and may be an economical alternative to a fully featured router in applications where remote management or traffic control is not necessary.

G.703 interface works in an unframed mode - user has access to the whole 2048 kbps stream.

Technical Details:

Processsor	ARM
Memory	8MB SDRAM
MAC Table	10.000 entries automatic address learning and removal after 30s or 300s
G.703 Port Range (distance between converter and E1 line terminating device)	up to 2000m
G.703 Interface	RJ-45 (balanced 120 Ω)
WAN Protocol	HDLC
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Throughput

2048 kbps

WAN Interface

• G.703
• unframed
• balanced 120 Ω
• HDB3 coding

LAN Interface

Ethernet 10/100 Base-T
802.1q VLAN support

Features

• automatic 10/100 Base-T link negotiation
• G.703 link state LED
• WAN and LAN activity LEDs

Tahoe 284

Tahoe 284 allows connecting two LANs through an E1 line using selected timeslots.

Works as a transparent bridge and may be an economical alternative to a fully featured router in applications, where management through TCP/IP network or traffic control is not necessary. Nevertheless management is still possible using serial console or built-in LCD and keyboard.

G.703 interface works in unframed or framed mode. In the latter case any combination of timeslots may be used and throughput ranging from 64 to 1984 kbps may be achieved. In the unframed mode, user has access to whole 2048 kbps stream.

Throughput

64-2048 kbps

WAN Interface

- G.703
- framed or unframed
- balanced 120 Ω
- HDB3 coding
- CRC4 support
- transmission using any combination of timeslots

LAN Interface

Ethernet 10/100 Base-T
802.1q VLAN support

Features

- management using built-in LCD and keyboard
- management using RS232 serial console
- manual or automatic 10/100 Base-T link negotiation
- G.703 link state monitoring
- WAN and LAN activity LEDs
- test loopbacks
- measurement of inside temperature

Technical Details:

Processor	ARM + PIC
Memory	8MB SDRAM
MAC Table	10.000 entries automatic address learning and removal after 30s or 300s
G.703 Port Range (distance between converter and E1 line terminating device)	up to 2000m
G.703 Interface	RJ-45 (balanced 120 Ω)
WAN Protocol	HDLC
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included

optional 48 VDC power supply |

Tahoe 285

Tahoe 285 allows connecting two LANs using a line terminated with V.35 interfaces.

Works as a transparent bridge and may be an economical alternative to a fully featured router in applications where remote management or traffic control is not necessary

Technical Details:

Processor	ARM
Memory	8MB SDRAM
MAC Table	10.000 entries automatic address learning and removal after 30s
V.35 Interface	DB25 connector, cable terminated with 34-pin Winchester connector available separately
WAN Protocol	HDLC
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included

optional 48 VDC power supply |

Throughput

up to 5 Mbps

WAN Interface

V.35

LAN Interface

- Ethernet 10/100 Base-T
- 802.1q VLAN support

Features

- automatic 10/100 Base-T link negotiation
- WAN and LAN activity LEDs

Tahoe 289

The Tahoe 289 converter allows connecting two LANs over an E3, T3 or STS-1 link.

These converters are a cost-effective alternative to the expensive E3/T3/STS-1 routers. They do not require any additional configuration - you just plug in the WAN and LAN links.

The converters work as a transparent bridge between two LANs, forwarding both regular and VLAN traffic at theoretical rate of 150.000 packets per second. They utilize whole available bandwidth without the overhead associated with the ATM technology.

Throughput

34.368 Mbps (E3)
44.736 Mbps (T3)
51.840 Mbps (STS-1)

WAN Interface

• unframed
• unbalanced 75 Ω
• BNC (coaxial) connectors

LAN Interface

• Ethernet 10/100 Base-T
• 802.1q VLAN support

Features

• automatic 10/100 Base-T link negotiation
• E3/T3/STS-1 link state LED
• WAN and LAN activity LEDs

Technical Details:

Processor	ARM
Memory	8MB SDRAM
Efficiency	do 150.000 packets per second
E3/T3/STS-1 Interface	two BNC (coaxial) connectors (unbalanced 75 Ω)
WAN Protocol	HDLC
Dimensions	200 mm (width) x 130 mm (lenght) x 45 mm (height)
Power Supply	external 100-240V/50-60Hz power supply included
	optional 48 VDC power supply

Tahoe 235

Tahoe 235 converter is equipped with one G.703 interface (2048 kbps, unframed) with RJ-45 connector and one V.35 interface with 34-pin Winchester connector.

Converter may be used to connect a device terminated with G.703 port to another device with a V.35 port. The V.35 port works as a DCE - like a modem, so it can be connected to a V.35 router. Integrated 128-bit buffer prevents errors caused by G.703 signal frequency instability (high jitter).

Three V.35 transmit data clocking sources can be selected:

• synchronized to the received G.703 stream (default)
• taken from internal 2.048 MHz generator
• taken from SCT(a)/SCT(b) pins on the V.35 interface (so called secondary timing - given by the DTE, e.g. a router)

Moreover, the user may select G.703 receiver sensitivity and range (i.e. the distance between converter and E1 line terminating device):

• short haul, -12 dB sensitivity, 50m range
• long haul, -43 dB sensitivity, 2000m range

The device is very small - only 100 mm x 60 mm x 30 mm – and the power consumption is also very low.

Technical Details:

Throughput	2048 kbps, full-duplex
G.703 Interface	RJ-45 (balanced 120 Ω)
V.35 Interface	34-pin Winchester connector, female (DCE), conforming to ISO-2539
Range (distance between converter and E1 line terminating device)	50 m or 2000 m
Clocking source	from received G.703 stream, from internal generator, from DTE
Dimensions	100 mm (width) x 60 mm (lenght) x 30 mm (height)
Power Supply	external 100-240VAC/50-60Hz power supply included
	optional 48 VDC power supply

Synchronous cards

Synchronous cards add functionality of a WAN router to a regular PC working under control of Linux or FreeBSD operating systems.

Tahoe 931 / 932

One or two V.35 interfaces capable of transferring data at speeds up to 5 Mbps each.

Tahoe 931 and Tahoe 932 cards are equipped with, respectively, one and two V.35 interfaces capable of transferring data at speeds up to 5 Mbps each.

Built-in hardware HDLC controller fully takes care of the serial communication without any significant load added to the server's CPU.

Linux and FreeBSD drivers are also available, supporting Frame Relay, synchronous PPP and HDLC.

CD-ROM delivered with the card contains current drivers, Linux kernel sources (unmodified and with patches applied) and user manuals for all Tahoe products.

Technical Details:

Controller	HD64570
Data Buffer	256 kB
Throughput	up to **5 Mbps** per port (full duplex)
V.35 Port	DB25, cable terminated with 34-pin **Winchester (ISO-2539)** connector available separately

Tahoe 971 / 972

One or two G.703 interfaces capable of transferring data at speeds up to 2048 kbps each

PCI card Tahoe 931 and Tahoe 932 cards are equipped with, respectively, one and two V.35 interfaces. They may work in both unframed or framed mode.

Each G.703 port supports one E1 stream, where the data may be transmitted over any combination of timeslots with throughputs ranging from 64 to 2048 kbps.

Built-in hardware HDLC controller fully takes care of the serial communication without any significant load added to the server's CPU.

Linux and FreeBSD drivers are also available, supporting Frame Relay, synchronous PPP and HDLC.

CD-ROM delivered with the card contains current drivers, Linux kernel sources (unmodified and with patches applied) and user manuals for all Tahoe products.

Technical Details:

Controller	HD64570
Data Buffer	256 kB
Throughput	up to **2048 kbps** per port (full duplex)
G.703 coding	HDB3
CRC4 support	software selectable

Our distributor in your area:

TAHOE®
FREEDOM OF COMMUNICATION

ul. Hercena 3/5
50-453 Wrocław
Poland

tel. +48 71 344 26 37
fax +48 71 344 26 42

www.tahoe-group.com