Phybridge

Datasheet

LB-UA2324 / LB-UA2348 UniPhyer

Patent Pending

Features:

- An Independent Parallel Voice Network (PVN) for VoIP
- PoE & Ethernet over single pair
- Up to 5 times the standard Ethernet reach
- Centralized UPS management
- Quality of Service
- Risk-free & predictable IPT deployment
- Plug & Play
- VoIP vendor and protocol agnostic
- Powers IEEE 802.3af compliant IP phones
- 24 & 48 port units
- Scalable
- Rack Mountable
- SNMP manageable

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Overview

UniPhyer LB-UA2324/LB-UA2348 leverages telephone cabling infrastructure to create a parallel network with Power-over-Ethernet. This is a plug and play solution that can be deployed quickly and easily with the default configuration.

The UniPhyer provides a permanent point-to-point link between the IP Phone jack on the PhyAdapter and Phybridge UniPhyer and is thus able to guarantee predictable communication between the two end points. IP Telephony deployed on a Phybridge platform benefits from this topology and does not require elaborate buffer mechanisms to handle out-of-sequence packets and delays due to the multiple hops and multiple paths that packets take in a traditional LAN. IP Telephony systems deployed over the UniPhyer can thus offer the robustness of traditional telephony systems and the easy mobility of IP devices. The LAN independence of the UniPhyer platform makes IPT systems better able to handle network outages. The UniPhyer provides a singular power source eliminating the need for distributed UPS wiring.

Technical Specifications

Physical

Dimensions:	2U - 3.47" x 17 " x 15 " (H x W x D) (88 x 432 x 381mm)
Weight:	11.8 pounds (5.345 Kg)

Environmental

Operating Temperature:	-10 to 50°C
Relative Humidity:	10% to 95% (non-condensing) at 35°C

Power

Interface AC:	Autosensing 100-240VAC, 50/60 Hz.
Consumption:	
LB-UA2348 Full Load with 48 PhyAdapters (no IP devices):	250 W
IP Device POE Budget 48 Ports:	390 W
LB-UA2324 Full Load with 24 PhyAdapters (no IP devices):	136 W
IP Device POE Budget 24 Ports:	255 W

(POE budget includes line loss, maximum 10.6 W per port)

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Trunk Interface

- Support both RJ45 and optical mini-GBIC (SFP) connectors for each uplink port (total 2 ports per box).

Electrical interface

- Support IEEE 802.3 10/100/1000 Base-T auto-sensing GBE; the selection of speed for each port is independent.
- Support auto-adaptive between full-duplex and half-duplex operation modes for 10 and 100 Mbps operation speed on a per trunk port basis. The system only supports full-duplex mode for 1000 Mbps.

Optical interface

- Support 1000 Base-TX/SX/LX/EX/ZX/LHX fiber interfaces (defined in IEEE 802.3z) depending on plug-in SFP transceiver
- Support Ethernet frame that complies with IEEE 802.3z

Line Interface

- Support a total of 24/48 lines of 24 or 26 AWG intra-office two wire twisted pair.
- ADSL2+ operation mode that comply with G.992.5 Annex M (extended upstream bandwidth).
- Supported signaling data rate:
  up to 25 Mbit/s downstream (to PhyAdapter).
  up to 1.4 Mbit/s upstream (from PhyAdapter).
- Support rate adaptation modes defined in ITU-T G.992.5 and G.997.1 including Manual, Rate Adaptive at Init, and Dynamic Rate Adaptation modes
- Support Seamless Rate Adaptation (SRA) to on-line reconfigure the total data rate according to the line condition
- The subscriber interface is able to support Fast Channel or Interleaved Channel independently for each ADSL port.
- Support loop diagnostic function specified in ITU-T G.992.5 for each ADSL port independently (support DELT loop diagnostics).

POE

- The PhyAdapter functions as a PSE, providing up to 10.6W POE to IEEE 802.3af compliant IP Phones.

Management Interface

- In-band management: provide all system OAM&P functions: software updates, configurations import/export, and management system interaction through Ethernet trunk port.
- Out-band management: provide management interfaces through a 100 Base-T auto-sensing Ethernet Interface.

OAM&P

- Configuration Management
- Performance Management
- Fault Management
- Status Monitoring

Ethernet/IP Functionality

General Bridging Function

- Support IPv4 packet
- Support IEEE802.1d Ethernet bridge function between trunk Ether port and ATM VCs
- Support Rapid Spanning Tree Protocol (RSTP) for the trunk interfaces per IEEE 802.1w
- Support static source MAC table provisioning, automatic source MAC learning and block duplicate MAC addresses
- The system is able to maintain 4K entries in its own static MAC address table and to provision up to a maximum of 128 MAC entries per line port .

VLAN

- Support IEEE 802.1q Port-based VLAN and Protocol-based VLAN
- Support 512 non-stacked VLAN-ID simultaneously ranging from 1 to 4095
- Support VLAN stacking and VLAN cross-connect
- Support IP Spoofing prevention and MAC anti-Spoofing
- Support port isolation functionality. When port isolation is enabled, no Layer-2 bridging between different ports (or subscriber lines) is supported in a VLAN
- Support static VLAN group and membership provisioning

*The maximum performance for the line interface is derived from ADSL2+ Annex M specifications. Actual performance can vary, including lower data throughput rates, reach and POE. Performance depends on many factors, conditions and variables including distance of the endpoint IP Device from the UniPhyer, number of concurrently active lines, interference etc.

Multicast

- Support IP multicast forwarding and the multicast works well for RFC2684 bridged payload encapsulation mode
- Support up to 256 multicast groups and 256 copies simultaneously
- Support profile-based Multicast Access Control (up to 48 profiles) and assign any profile to a subscriber interface (the number of multicast channels within a profile is 256)
- Support to limit maximum number of IGMP groups joined per bridge port
- Support IGMP snooping/proxy per IGMP v1, v2, and v3
- Support selection between IGMP proxy or snooping

ACL/Filtering

- Support Layer-2 frame filtering based on source/destination MAC addresses and EtherType
- Support Layer-3 filtering based on IP header including source/destination IP address, protocol ID, and TCP/UDP destination port number

Relay Functionality

- Support DHCP forward and DHCP relay agent option-82 functionality. The value within Circuit ID and Remote ID sub-options is configurable.
- Support PPPoE relay

QoS

- The system is able to control the bandwidth occupied by broadcast, multicast, and unknown unicast (flooding) traffic respectively on a per VLAN basis.
- Support rate-limit profile binding per bridge port
- Support Three Color Marking (TCM) policer
  - Support Ethernet rate limit per bridge port
  - Support ToS (type of service) /DiffServ (differentiated services) stripping and priority queuing
  - Support DSCP mapping to 802.1p
  - Support selectable adopted priority queue mechanisms according to Strict Priority Queue (SPQ) and Weighted Fair Queue (WFQ)
- Support configurable mapping function between ATM PVC and 802.1p priority queue
- Support IP CoS technology

ICMP

- Support ICMP (Internet Control Message Protocol) function; can send/respond the ICMP request message to/ from other system
- Support IPSec/L2TP/PPTP VPN pass-through function

ATM and Interworking Function (IWF)

- Support 8 PVCs per subscriber line; VPI range is from 0 to 255 and VCI range from 32 to 65535 (ATM Forum UNI 3.1/4.0, PVCs only). The VPI and VCI value can be created and deleted via CLI, Web-GUI, and EMS.
- Support multi-protocol encapsulation over ATM per RFC 2684 / RFC 1483 for bridged mode and routed mode IPoA).
- Comply with ITU-T I.361 UNI cell format and support AAL5 per ITU-T I.363.5.
- Support line-level fault management ITU-T Rec. I.610 OA&M F5 loopback on DSL ports including both origination and reception/return of F5 loopback cells.
- Commit the supported ATM service categories in the increasing order of UBR, nrt-VBR, rt -VBR, and CBR on a per port basis.
- Provide PCR (peak cell rate) configurable parameter for UBR and CBR service; PCR and SCR (sustainable cell rate) configurable parameters for rt-VBR and nrt-VBR.
- Support upstream and downstream traffic shaping and policing on per PVC basis.
- Support profile-based ATM traffic management (up to 252 profiles with one default and 251 user-configurable profiles, independent downstream/upstream ATM profile assignments
- Support PPPoE transparent forwarding and PPPoE intermediate agent
- Support PPPoE/PPPoA interworking as defined in section 3.5.4 of TR-101.

Compliance and Agency Approval

This equipment does not connect to a Public Telephone Network. The UniPhyer complies with or has obtained Regulatory Agency approvals at least against the following standards.

- EMC—Emissions (Class A) : FCC Part 15, EN 55022:2006
- EMC—Immunity: EN55024:1998 + A1 + A2
- Safety: UL 60950-1, 1st Edition, CSA C22.2 N°60950-1-03
  EN60950-1:2006 + A11
- Environmental: EU RoHS Directive 2002/95/EC

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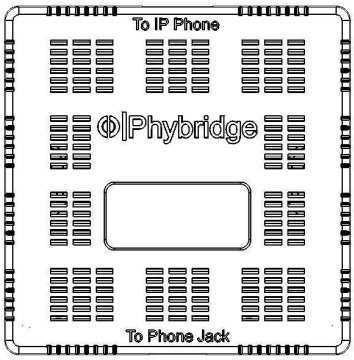
LB-PA111 PhyAdapter

Patent Pending



Features:

- Used with LB-UA2324 and LB-UA2348 UniPhyers
- 10/100 BASE-T PoE port
- Powers Class 1, Class 2 and some Class 3 IEEE 802.3af compliant IP devices

PhyAdapter Technical Specifications

Physical

Dimensions:	3.26 x 3.26 x 1.07 " (H x W x D) (83 x 83 x 27 mm)
Weight:	3.17 oz (90 g)

Environmental

Operating Temperature:	0 to 40°C
Relative Humidity:	10% to 95% (non-condensing) at 35°C

Power

Power Supply Interface:	Powered off the UniPhyer
Power Consumption:	2.5 W maximum (not including line or UniPhyer port power consumption which can add from 0.2 W to 0.7 W).
POE (LB-PA111 model)	Provides IEEE 802.3af compliant voltage to RJ45 port with maximum of 10.6 W

Line Length

LB-PA111	up to 1200 feet over single untwisted pair

Compliance

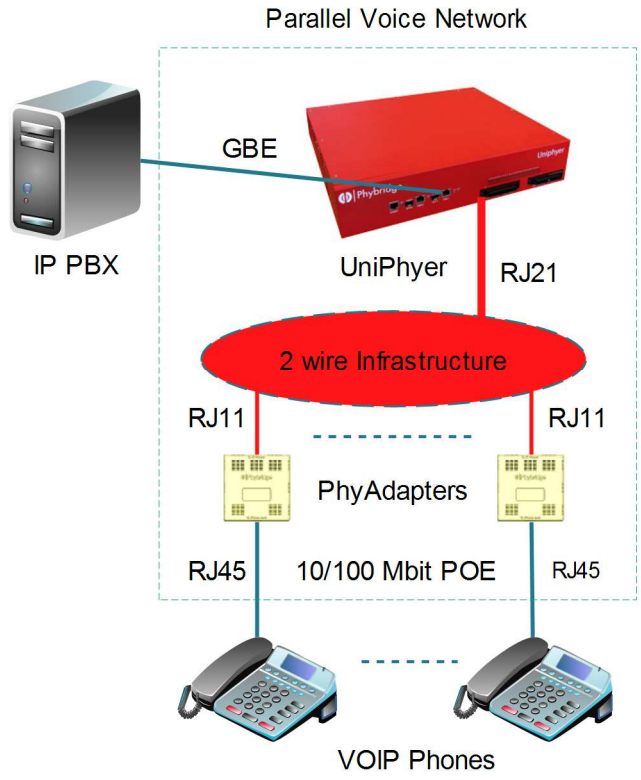
EMC-Emissions (Class B) :	FCC Part 15, EN 55022:2006
EMC—Immunity:	EN55024:1998 + A1 + A2
Safety:	UL 60950-1, 1st Edition CSA C22.2 N°60950-1-03 EN60950-1:2006 + A11
Environmental:	EU RoHS Directive 2002/95/EC

A Typical Deployment

A parallel voice network deployment with the UniPhyer is quick and easy and can be operational within an hour.

- Install UniPhyer in desired location and power it up.
- Removed all legacy phones and PBX equipment from two wire infrastructure you will be using for UniPhyer.
- Connect an RJ21 cable from your two wire infrastructure to UniPhyer.
- Connect UniPhyer GBE trunk port to IP PBX.
- Connect PhyAdapters at RJ11 jack of the two wire infrastructure and connect the IP device to the RJ45 connector.

The UniPhyer and PhyAdapters now provide a permanent point-to-point line bridge between the IP phone jack on the PhyAdapter and the GBE uplink trunks on the UniPhyer.



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