AI Cloud Network Switch

Tailor-made network hardware & software development

PRODUCT OVERVIEW

LN-4732Z1T

The Larch LN-4732Z4T is a high-performance 400G data center switch family purpose-built for AI infrastructure, large-scale AI training and inference, and high-performance computing (HPC). Powered by the Marvell Teralynx 7 switch ASIC, it delivers line-rate 100GbE, 200GbE and 400GbE switching with ultra-low latency of approximately 500 ns, enabling high-throughput, low-latency and scalable AI networking fabrics. Advanced RoCEv2 support with PFC and ECN, combined with intelligent congestion monitoring and in-band telemetry, helps optimize GPU-to-GPU communication and maintain predictable performance under demanding AI workloads. Flexible port breakout and multi-speed connectivity enable efficient, high-density spine-leaf architectures for next-generation AI data centers.

Highlights

- **~500 ns cut-through latency:** Marvell Teralynx7® ASIC, 3.2 Tbps non-blocking, jumbo frames up to 9216 bytes
- **Flexible, high-density ports:** 32x QSFP28 100GbE ports with breakout to 2x 50G or 4x 25G (40G to 4x 10G)
- **Built for AI and storage fabrics:** RoCEv2 lossless Ethernet with PFC, ECN marking, shared packet buffer and 8 queues per port
- **Hardware in-band telemetry:** Teralynx Flashlight™ with HDC latency histograms, BDC buffer snapshots and IPT per-hop telemetry
- **Open, NOS-agnostic hardware:** ONIE-ready; Intel Denverton COMe with 16 GB ECC DDR, 128 GB storage and Aspeed BMC
- **Redundant, serviceable design:** 1+1 hot-swap CRPS PSUs, 5+1 hot-swap fans, front-to-back airflow
- **SONiC OS support**

HARDWARE SPECIFICATIONS

Switching Hardware

Switching Ports 100G QSFP28	32
Switching Chip	Marvell Teralynx7
CPU	Intel Denverton COMe Type 7 Module
Capacity	3.2 Tbps
Memory	16GB with ECC support
Storage	128GB
VLANs Support	4096
Maximum Jumbo Frame Size	9,216 bytes

Management Port

USB	1
Serial Console	1
Management Port	1

Physical and Environmental

Power Supply Units	AC CRPS 800W, Hot-Swappable, 1+1 Redundancy
Power Consumption	≤800 Watts
Fan Unit	6 (5+1 redundant) Hot swappable
Form Factor and Dimension	445×515×44mm (WxDxH)
Net Weight (kg)	9.6 Kgs
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 70°C
Relative Humidity	Operating 10%-85%, storage 5%-95% (non-condensing)
Operating Altitude	3000m max
Predicted MTBF	350000 hours

SONIC OS SOFTWARE FEATURES

Management

SSH	Telnet
HTTPS / XMP / REST APIs	SCP
NTP Client	NTP Server
SNTP	Console Port
Management Port	SNMP v1, v2c and v3
Ping (ICMP)	L2 Traceroute
Configuration Backup	System Reset
Restoration	System Soft and Hard Reboot
File Operations (upload and download)	DNS resolver / Client
sFlow	Telemetry
ZTP	DHCPv4 Server
DHCPv4 Client	DHCPv6 Server
DHCPv6 Client	Syslog
Dying Gasp (board specific)	RMON 2.0
Port Mirroring	DHCP v4 Relay Agent
DHCP v6 Relay Agent	Hostname Setting
CLI Modes: Operational, Configure and Diagnose	LLDP / LLDP-MED
Jumbo MTU	MTU setting (Automatic and Manual)
L3 Interfaces (IVI)	Remote SPAN
MLD Snooping	MLD v1, v2
BootP	Single IP Management
WebGUI / SSL	DHCP Auto config
Traceroute	SMTP

VLAN

VLAN trunking	VLAN Auto-state

L2 Features

Jumbo frames	802.1Q Tagged/Untagged
MAC address learning enable/disable	Setting MAC address expiry interval

SONIC OS SOFTWARE FEATURES

L2 Features

EVPN over VxLAN	VXLAN
Unknown destination flooding	Setting forwarding table size
Notifying MAC address events	STP / RSTP (802.1d/802.1w)
MSTP (802.1s)	MTU setting per VLAN/Port
IGMPv1/v2/v3 Snooping	IGMP Snooping plain mode
IGMP Snooping proxy mode	IGMP Querier
IGMP IPv4 Proxy	Multicast access control / Filtering
Static Multicast Subscription Groups	IGMP subscription limit setting
VLAN access port creation	VLAN Trunk port creation
Default VLAN setting on a port	Protocol based VLAN
ARP cache timeout setting	ARP unsolicited-learning
NDP cache timeout setting	NDP unsolicited-learning
port description setting	port duplex setting
port auto-negotiation setting	port loopback mode setting
port speed setting	Ethernet LAG (LACP based load share)
Maximum Active Links Setting in LACP and Static LAG: 64	Multi-chassis LAG
Inventory Information	Environmental Information
Cooling Unit Information	Active alarms
IPv4 and IPv6 Loopback Interface Creation	Per Protocol Resource Utilization Information
Flow Control	Auto MDI/MDIX
Static LAG	

Security

Storm Control (Unknown Unicast, Multicast and Broadcast)	802.1X Port Security
802.1X EAP Authentication	802.1X MAC Authentication
802.1X MAC access bypass	802.1X Radius and Local Authentications
802.1X Dynamic VLANs (Unauthenticated/Guest VLAN)	802.1X Accounting
RadSec (RADIUS over TLS) for 802.1X	L2/L3/L4 ACLs

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Security

Time Based ACLs	Mask based MAC ACL
Flow based ACL mirroring	DHCP snooping
IP Anti Spoofing / IP Source Guard	Dynamic ARP Inspection
Max Login Attempt	Pre-Login & Post-Login Banner Configuration
Password Expiry Setting	Password Length Setting
Password Constraints	Password Topology
User Lockout Time	TACACS AAA
Radius AAA	Local Proxy ARP
VLAN ACL	IPv6 packet prioritization (hardware based)
BPDU Guard	

QoS

QoS Packet Classifiers	Traffic Marking
Traffic Scheduling (SP, WFQ and CIR/EIR)	Ingress Policing / Rate Limiting
Traffic Shaping	Congestion Avoidance
Queue scheduling: SP, WRR, SP+WRR	Ingress: minimum granularity 8 Kbps
Egress: minimum granularity 64 Kbps	Class of Service
DSCP	WRED
ECN	

IP Interface

Support IPv4 interface	Support IPv6 interface
Support 0.0.0.0 to prevent occupying of IPv4 address	Max loopback interface number

Loopback Interface

Support IPv4 interface	Support IPv6 interface

ARP

RFC826	Static ARP Entries

SONIC OS SOFTWARE FEATURES

ND Entries

IPv6 Neighbor Discovery (ND) RFC2461, RFC4861	ND Entries
Static ND entries	

OSPFv2

RFC3509, RFC1370, RFC1583, RFC1587, RFC1765, RFC2178, RFC2328, RFC2370	Max number of OSPF areas
Stub area	NSSA (Not So Stubby Area)
Announcement on loopback interface	Passive Interface
Text authentication	MD5 authentication

OSPFv3

Max number of OSPF areas	Stub area
NSSA (Not So Stubby Area)	Announcement on loopback interface
Passive Interface	Text authentication
MD5 authentication	

BGP4

RFC1771, RFC1772, RFC1965, RFC1997, RFC2439, RFC2796, RFC2842, RFC2918	Max BGP neighbors
4bytes AS	Passive Interface
Text Authentication	MD5 Authentication (RFC2385)
Encapsulation Extended Community	Router MAC Extended Community

BGP4+

RFC 2545, RFC 4760	Max BGP neighbors
4bytes AS	Passive Interface
Text Authentication	MD5 Authentication
Announce on loopback interface	

L3 Multicast

PIM, PIM-SM, PIM-DM, PIM-SSM

SONIC OS SOFTWARE FEATURES

L3 Routing

Default Route, Support IPv4	Default Route, Support IPv6
Static Routing	RIPv1/v2, RIPng
ISIS	BGPv4, v6
ECMP	Policy Based Routing (ACL next-hop redirect)
VRRPv3	

Equal-Cost Multi-Path Route (ECMP)

Max Multi-Path route	Max path per Multi-Path route
Support static route	Support OSPF

Weighted-Cost Multi-Path Route (WCMP)

Max Multi-Path route	Max path per Multi-Path route
Support static route	

Route Redistribution

Redistribute default route to all protocols	Redistribute static route
Redistribute RIP	Redistribute RIPng
Redistribute OSPF Intra / Inter / External 1 / External 2	Redistribute OSPFv3
Redistribute BGP	Redistribute BGP+
Redistribute null route	

Graceful Restart (GR)

Graceful Restart for RIP	Graceful Restart for OSPF
Graceful Restart for BGP	

Bidirectional Forwarding Detection (BFD)

BFD for IPv4 Static Route	BFD for IPv6 Static Route
BFD for RIP	BFD for OSPF
BFD for RIPng	BFD for BGP
BFD for IS-IS	

SONIC OS SOFTWARE FEATURES

Firmware

Dual images/Modular OS	Upgrade through (HTTP/HTTPS, TFTP, Telnet, SSH, SCP over SSH, Console port, schedule based, X modem)
Non-disruptive firmware update	

MPLS

Multi Protocol Label Switching Architecture as per RFC 3031	MPLS Label Stack Encoding as per RFC 3032
Time To Live (TTL) Processing in MPLS Networks as per RFC 3443	MPLS-based Recovery as per RFC 3469
MPLS Label Switch Router/Label Switch Controller software (LSR)	Dynamic MPLS LSP setup with signaling protocol on all the router interfaces
MPLS class of service (EXP)	MPLS Label Stack Entry: "EXP" Field Renamed to "Traffic Class" Field as per RFC 5462
LDP specification as per RFC5036	LDP Applicability as per RFC 3037
Graceful Restart Mechanism for Label Distribution Protocol as per RFC 3478	MPLS L3VPN over LDP
Layer 2 Virtual Private Networks (L2VPN) as per RFC 4664	MPLS-based point-to-point VPN: Transport of Layer 2 Frames Over MPLS as per RFC 4906
Graceful Restart Mechanism for Label Distribution Protocol as per RFC 3482	Virtual Private LAN Service (VPLS) using LDP Signaling as per RFC 4762
BGP/MPLS IP Virtual Private Networks (VPNs) as per RFC 4365	

System

Dynamic Port Breakout	DOM Information Display
System Locator LED Support (Beacon) (board specific)	Hardware Watchdog (board specific)
1G/10G BASE-T copper Support (board specific)	Transceiver Parameter Tuning (board specific)

SONIC OS SOFTWARE FEATURES

System

100 Mbps and 10 Mbps Support	Kdump
Link Flap Error-Disable	Memory Histogram
Interface Aliasing	RoCE
uCentral Client, OpenLAN Ready	HW BFD
SR-MPLS	

Other

EVPN-Multihoming	Fast Reroute

Dying Gasp

Dying gasp for power failure (board specific)	Dying gasp for device reboot (board specific)
Dying gasp for all fans fail (board specific)	

Optical Transceiver Digital Diagnostic Monitoring (DDM)

Support log for warning/alarm thresholds	CPU utilization monitoring
Memory usage monitoring	Plug-in module status monitoring
Port administration and operation status monitoring	Port link state, duplex mode and autonegotiation state monitoring
Per port source MAC address information monitoring	Per port traffic packet counter
Per VLAN traffic packet counter	Per port traffic byte counter
Per VLAN traffic byte counter	Statistics for IGMP join, leave and active multicast groups per port
Statistics for IGMP join, leave and active multicast groups per ISM VLAN	Statistics of active member ports per multicast group

ORDERING INFORMATION

SKU	Model	Description
000257	LN-4732Z1T	32x QSFP28 ports