Overview

The Asterfusion ET3600 is a 1U compact, open intelligent gateway designed specifically for large-scale enterprise edge, carrier, and data center environments. It supports up to two Marvell OCTEON 10 CN103XX DPUs, each integrating an 8-core ARM Neoverse N2 processor, programmable Ethernet ports with a bidirectional throughput of 100Gbps, and an embedded encryption/decryption engine with a processing capacity of 80Gbps.

The ET3600 is compatible with Linux distributions such as Ubuntu, Debian, and SONiC, and supports a robust software ecosystem including VPP, KVM, Kubernetes, iptables, and O-RAN SC, allowing multiple applications to run concurrently on a single device.

Target applications encompass any appliance benefiting from comprehensive hardware accelerators including hardware based VPP accelerator, true inline crypto, and programmable packet processors.

ET3608-2P2S

ET3616-4P4S

Key Features and Benefits

- Compact 1RU standard open Intelligent gateway
- Multiple interface combination:
  - 2x 2x100GE (QSFP28) + 2x 2x10GE (SFP+)
  - 2x100GE (QSFP28) + 2x10GE (SFP+)
- 2 x 8 x 2.5GHz ARM64 Neoverse N2 Core
- 2 x 16GB pluggable DDR5 SO-DIMM, up to 48G
- True inline crypto
- Optional M.2 SSD up to 4TB
- Optional 5G/LTE extensible module
- Optional PTP module with 20ns accuracy and BC support, featuring holdover > 8 hours
- Up to 2 x 100Gbps intelligent data processing for routing, 2 x 80Gbps for firewall, IPSec and SSL/TLS

Application Scenarios

Based on the open hardware-software decoupled architecture, the ET3600 combines a rich array of opensource software for control plane with hardware-optimized data plane. Here are some typical scenarios that can be used individually or in combination:

- **Cloud Edge Gateway:** Sonic-VPP
  - The Cloud Edge Gateway facilitates deployment in sophisticated edge routing scenarios, including Cloud-to-Public Internet Interconnectivity for efficient egress traffic management, Multi-Cloud/Multi-Fabric Interconnectivity Routing for secure and scalable cloud federation
  - BGP Gateway: Hardware-optimized vector packet technology and DPDK accelerate data plane forwarding, delivering up to 2 x 100Gbps forwarding performance
  - Border Leaf: Enables VRF for tenant traffic isolation, with vFirewall enforcing access control between tenants
  - DCI Leaf: Establishes VXLAN Tunnels for L2 extension across data centers, leveraging eBGP EVPN to support L2/L3 VPN functionalities

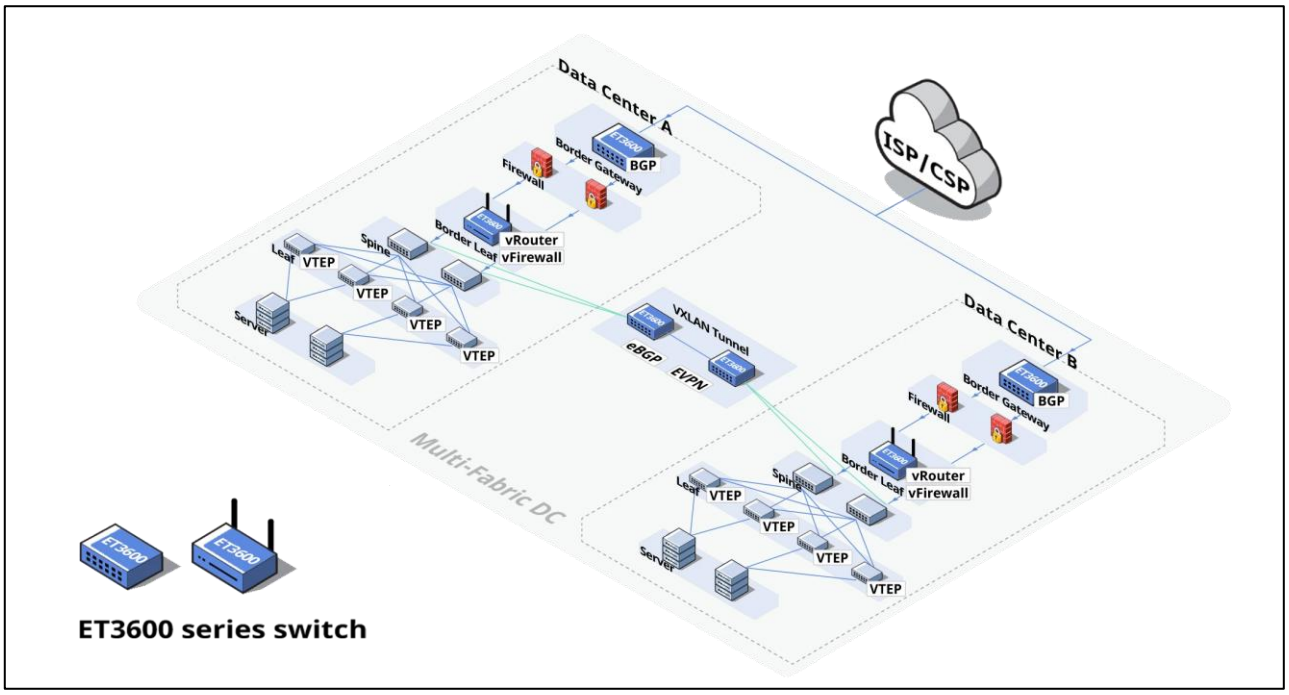


Figure 1. Cloud Edge Gateway

- **VPN Gateway:** SONiC-VPP +IPsec/Wireguard
  - SONiC-VPP with IPsec/ Wireguard VPN can serve as a flexible and high-performance vpn gateway
  - Hardware-accelerated VPN with encryption/decryption engine supports up to 2 x 80Gbps throughput

- Installation of the latest VPN software on demand to adapt to changing network environments

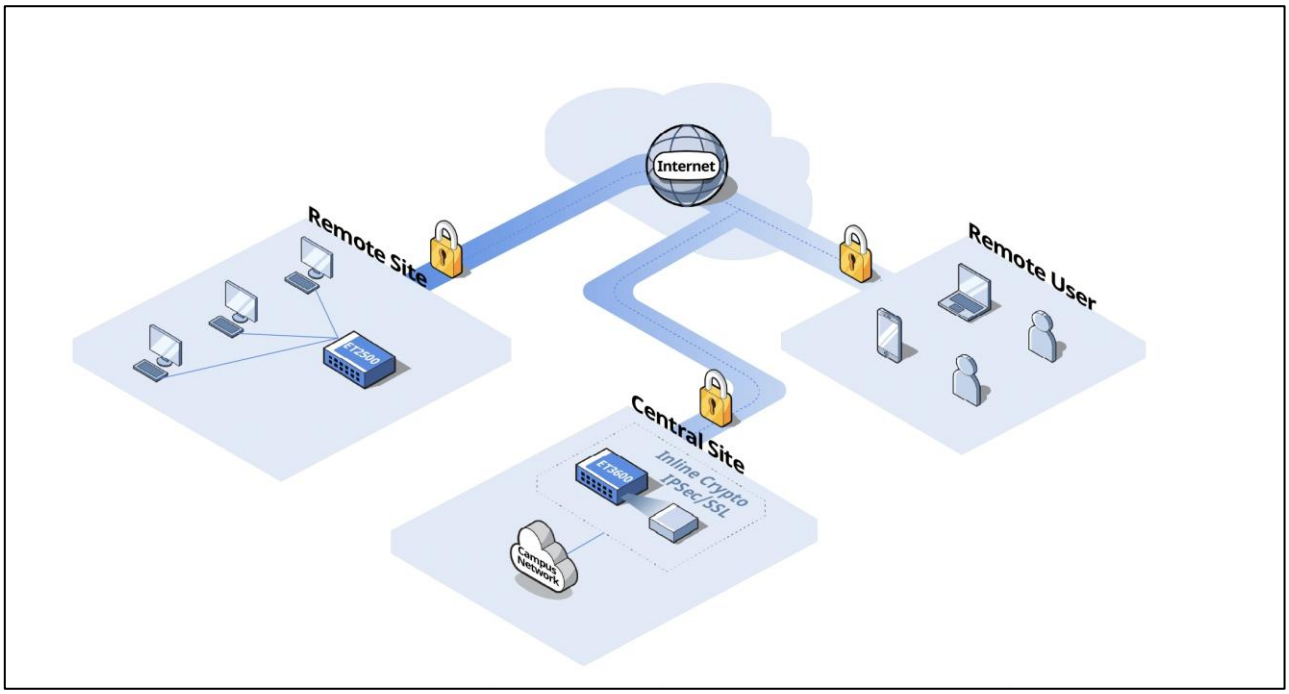


Figure 2. VPN Gateway

Additionally, users have the flexibility to install new software or develop their own software using the built-in toolchain as needed to address additional use cases.

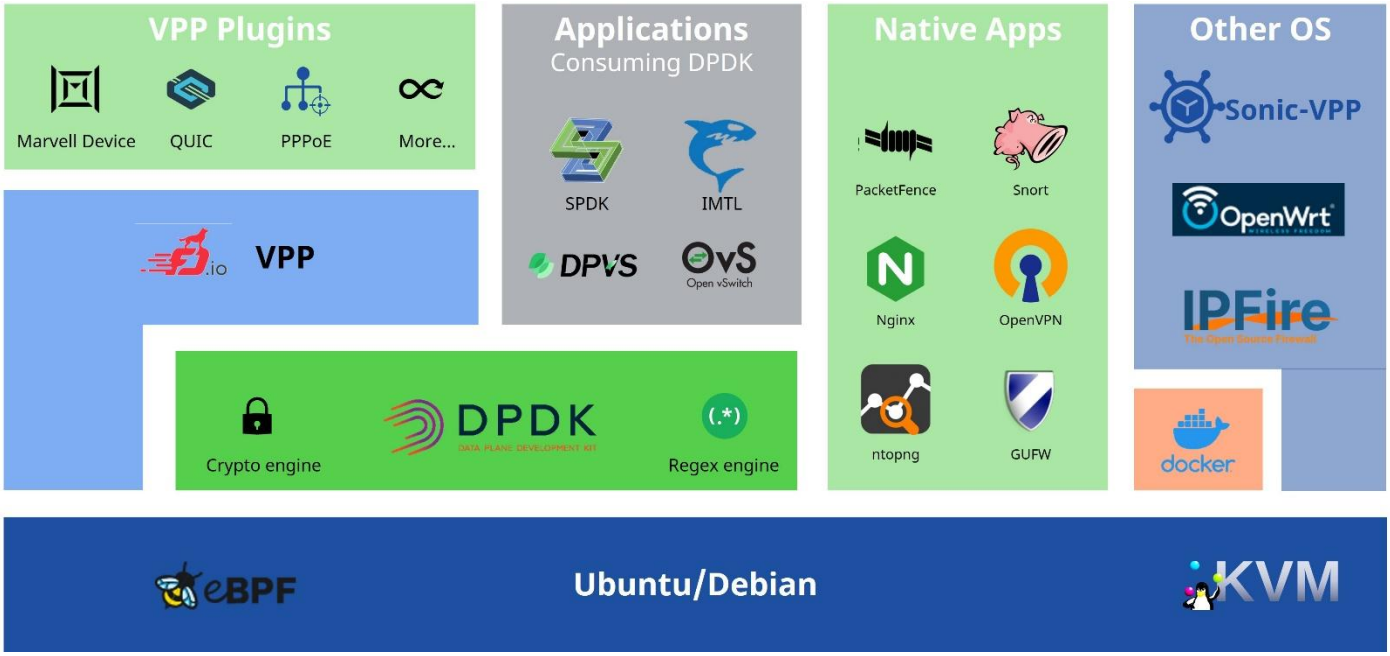
Operating System

- Supports Ubuntu, Debian, SONiC and other Linux distribution, such as CentOS, OpenSUSE, Arch Linux, AlmaLinux, Rocky Linux, Linux Mint and Elementary OS
- Licensed support for pfSense, OPNsense
- Install and upgrade the OS using a USB disk with Arm Trusted Firmware and UEFI
- Embedded eBPF (extended Berkeley Packet Filter) in Linux kernel via XDP

Software

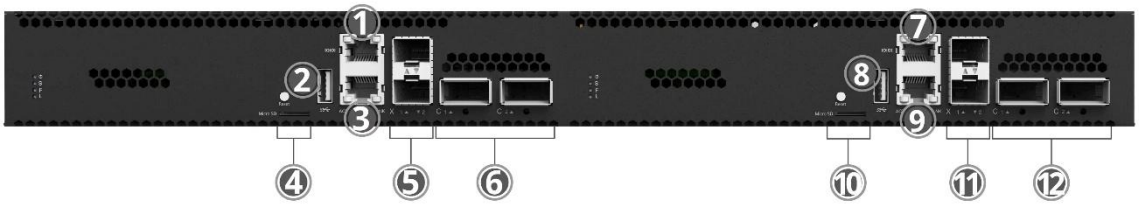
- Optimized DPDK (Data Plane Development Kit) tied to HW Acceleration
- Open-source routers, including VPP (Vector Packet Processing), OpenWRT, DD-WRT, etc.
- Open-source firewalls, including iptables, UFW, pfSense, OPNsense, IPFire, nftables, Firewalld, Shorewall, Untangle, etc.
- Open-source VPNs, including OpenVPN, WireGuard, IPSec, L2TP, Shadowsocks, Trojan, VMess, etc.
- Open-source IDS/IPS, including Snort, Suricata, Zeek, etc.
- Open-source load balances, including HAProxy, Nginx, Traefik, etc.

- Open-source Network Traffic Analyzers, including ntopng, Elasticsearch + Kibana + Beats, Argus, Softflowd, etc.
- Open-source projects consuming DPDK, including DPVS, Gatekeeper, IMTL, Open vSwitch, SPDK, etc.
- Rich VPP plugins, including Marvel device plugin, QUIC, SRv6, LLDP, NAT64, LACP, SRTP etc.
- GCC, GDB, BinUtils, Buildroot and other tool chains
- C/C++/Python/Go/Rust/Java/Lua and other programming languages
- PyTorch/Tensorflow/TF Lite/Keras/ONNX
- Applications from other Linux distributions on Ubuntu/Debian using Docker with direct access to the host network
- Any software for ARM64 + Linux



Interfaces

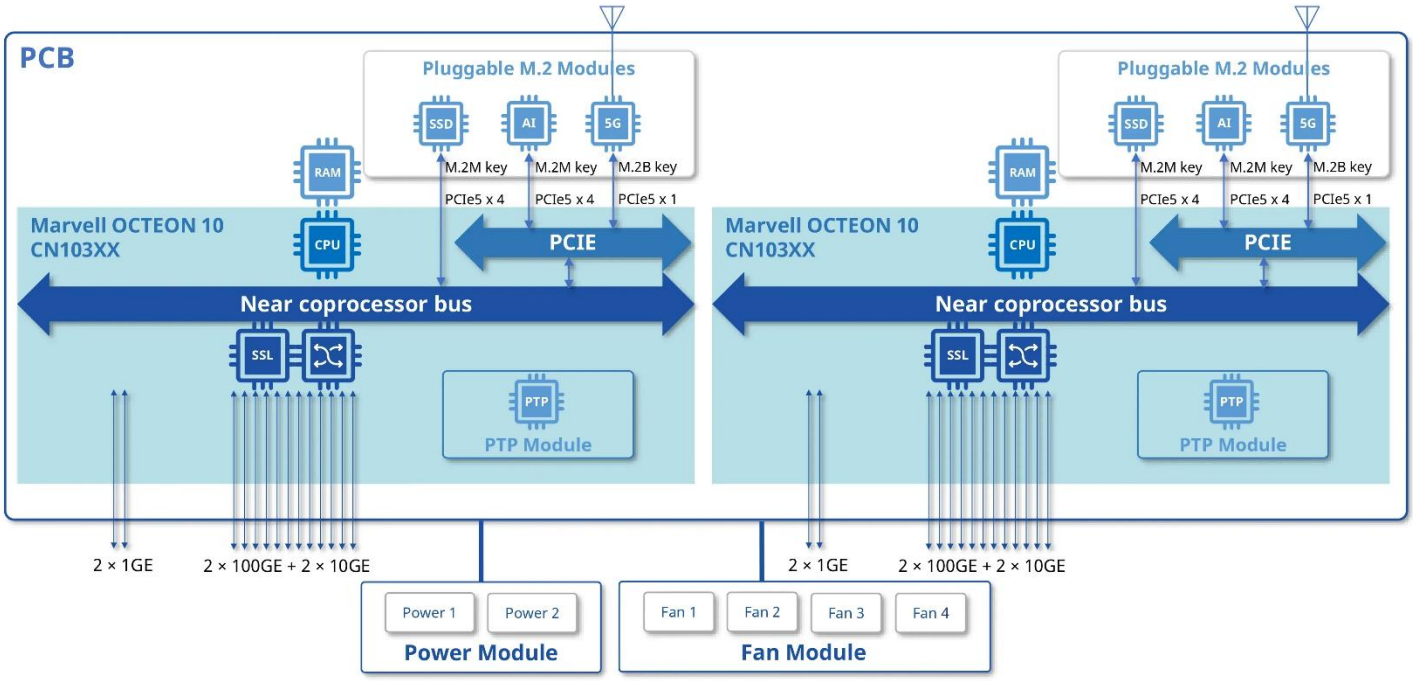
ET3608-2P2S


①(1) Console RJ45
②(1) USB3.0
③(1) MGMT RJ45
⑦(1) Console RJ45
⑧(1) USB3.0
⑨(1) MGMT RJ45
④(1) Micro SD
⑤(2) 10GbE SFP+
⑥(2) 100GbE QSFP28
⑩(1) Micro SD
⑪(2) 10GbE SFP+
⑫(2) 100GbE QSFP28


⑬(3+1) Hot Pluggable Fan Modules
⑭(1+1) Hot Pluggable PSU Modules

ET3616-4P4S

System Architecture



ET3600 series Open Intelligent Gateway system architecture

Specifications

Product Model		ET3608-2P2S	ET3616-4P4S
Network interface	100GE (QSFP28)	2	2 x 2
	10GE (SFP+)	2	2 x 2
	5G/LTE (Option)	2 SIM cards, M.2 B key	4 SIM cards, M.2 B key
Management interface	USB	1 x USB3.0	2 x USB3.0
	Console	1 x Console RJ45	2 x Console RJ45
	MGMT	1 x MGMT GE RJ45	2 x MGMT GE RJ45
DPU	DPU model	1 x Marvell CN103 8-core ARM64 2.5GHz	2 x Marvell CN103 8-core ARM64 2.5GHz
	Cache capacity	L2 8MB, L3 16MB	
	Memory	16GB DDR5, maximum 48GB	2 x 16GB DDR5, maximum 2 x 48GB
	Flash (option)	1 x TF	2 x TF
	SSD	1 x M.2 NVME > 120GB	2 x M.2 NVME > 120GB
Network performance	L2/L3 Switching capacity	200Gbps	2 x 200Gbps
	Routing capacity	100Gbps	2 x 100Gbps
	Firewall capacity	80Gbps	2 x 80Gbps
	Encryption and Decryption capacity	80Gbps	2 x 80Gbps
	PTP/SyncE accuracy	20ns	
	PTP/SyncE holdover time	> 8hours	
Electrical characteristics	Fan Module	3 + 1	3 + 1
	Power Module	1 + 1	
	Input voltage	100~240VAC	

	Maximum power consumption	100W (FULL configuration and workload)	200W (FULL configuration and workload)
Dimensions	Height	1U	
	Dimensions (W x H x D, mm)	440 x 44 x 470	
Operating conditions	Operating temperature	0 - 45 ℃	
	Relative humidity	5% - 95%(non-condensing)	

Ordering Information

Part Number	Description
ET3608-2P2S	Open Intelligent Gateway, 8 x ARM64 N2 CPU, 16GB DDR5, 1 x M.2 NVME SSD > 120GB, 2 x 100GE + 2 x 10GE, Gateway, 100W Power
ET3616-4P4S	Open Intelligent Gateway, 2 x 8 x ARM64 N2 CPU, 2 x 16GB DDR5, 2 x M.2 NVME SSD > 120GB, 2 x 2 x 100GE + 2 x 2 x 10GE, Gateway, 200W Power
Optional components and spares	
SSD-M2-NVME-1TB	SSD,1TB, NVME, M.2 M Key 2280, PCIe5 x4
SSD-M2-NVME-2TB	SSD,2TB, NVME, M.2 M Key 2280, PCIe5 x4
SSD-M2-NVME-4TB	SSD,4TB, NVME, M.2 M Key 2280, PCIe5 x4
5G-M2-5Gbps	5G Module, USB2.0/3.0, M.2 B key, 5G NR, LTE, GNSS, 5.0Gbps (DL) / 650Mbps (UL)
PTP-20ns	PTP module, 20ns accuracy, BC support with holdover > 8hours
topAI-M2-40TOPS	AI Accelerator, 40 Tera-Operations Per Second, 8GB LPDDR4 ON-Module DDR, M.2 M Key 2280, PCIe3 x4, 3.5W
SVC-Basic-1Y-ET	Basic H/W Service and Warranty

Warranty and Service Support

Asterfusion ET3600 series gateways come with 2-year Basic H/W service and warranty.

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