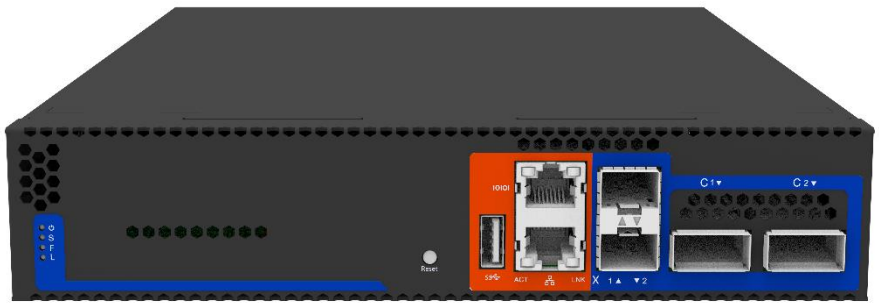
Overview

The Asterfusion ET2700 is an open intelligent gateway designed specifically for large-scale enterprise edge, carrier, and data center environments. It uses Marvell OCTEON 10 CN103 DPU, integrating an 8-core ARM Neoverse N2 processor, delivering up to 100Gbps bidirectional throughput, along with an embedded encryption/decryption engine supporting up to 80Gbps processing capacity.

The ET2700 is compatible with major 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. It also supports preloading our AsterNOS-VPP(SONiC-VPP) software, enabling rapid deployment as a white-labeled enterprise-grade router.

Target applications encompass any appliance benefiting from hardware packet acceleration with VPP optimization, true inline crypto, and programmable packet processors.



ET2700-2P2S

Key Features and Benefits

- Half-width 1U open intelligent gateway
- 2 x 100GE (QSFP28) + 2 x 10GE (SFP+)
- 8 x 2.5GHz ARM64 Neoverse N2 Core
- 16GB pluggable DDR5 SO-DIMM, up to 48G
- True inline crypto
- Optional M.2 SSD up to 4TB
- Optional AI inference engine with 160TOPS INT8 inference performance
- Optional 5G/LTE extensible module
- Optional PTP module with 20ns accuracy and BC support, featuring holdover > 8 hours
- 100Gbps intelligent data processing for routing, 80Gbps for firewall, IPSec and SSL/TLS
- <85 Watt with FULL configuration and workload

Application Scenarios

Based on the open hardware-software decoupled architecture, the ET2700 combines a rich array of opensource software for control plane with hardware-optimized data plane. Here are some typical scenarios that can be used in combination:

- **Cloud Edge Gateway:** AsterNOS-VPP (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 100Gbps forwarding performance.

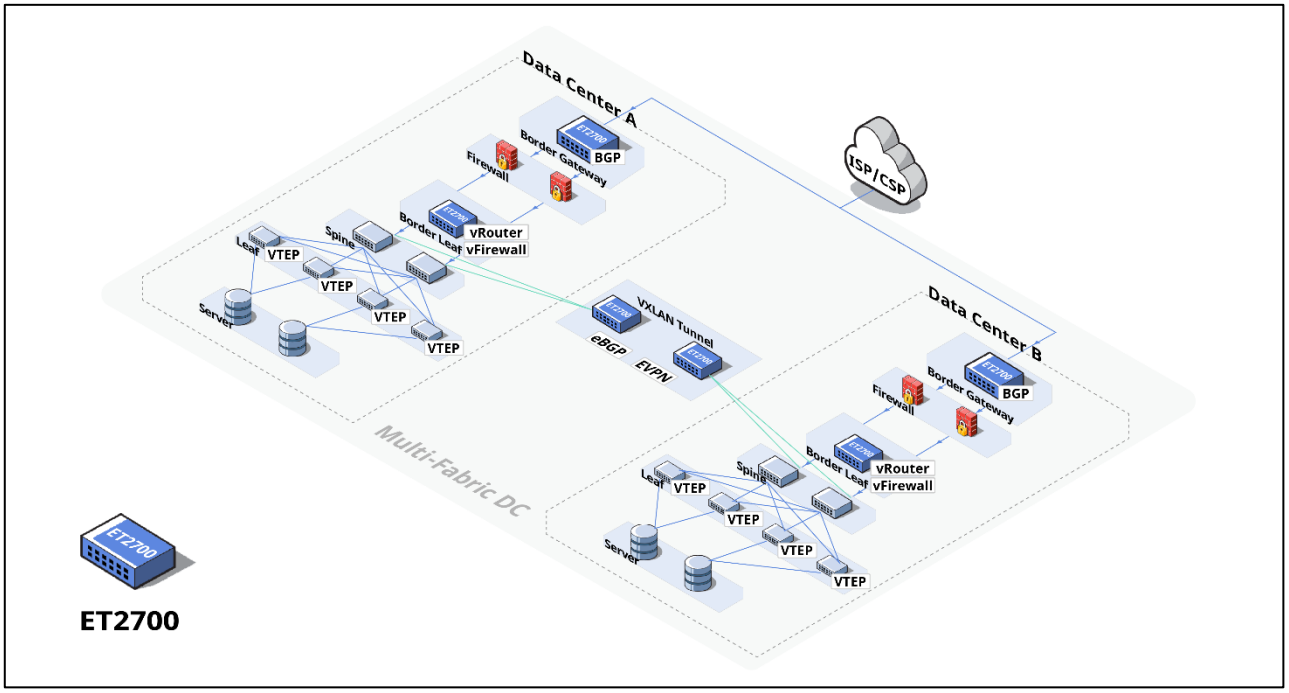


Figure 1. Cloud Edge Gateway

- **VPN Gateway:** AsterNOS-VPP (SONiC-VPP)
  - AsterNOS-VPP supports IPsec/Wireguard, enabling the platform to function as a flexible and high-performance VPN gateway.
  - Hardware-accelerated VPN with encryption/decryption engine delivers up to 80Gbps throughput.

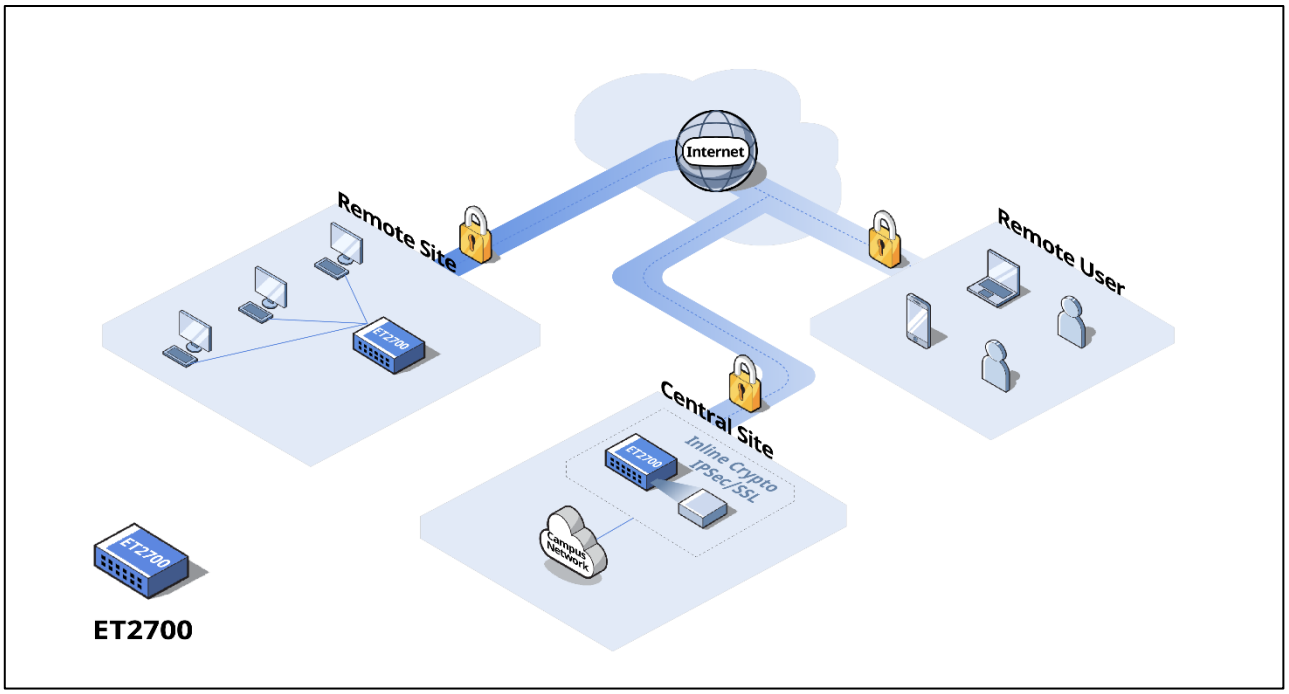


Figure 2. VPN Gateway

- **Broadband Network Gateway (BNG):** AsterNOS-VPP (Sonic-VPP)
  - AsterNOS-VPP supports subscriber management features such as PPPoE server and hierarchical QoS (HQoS), enabling deployment as a BNG/BRAS for broadband access networks.
  - The platform supports up to 20K concurrent PPPoE sessions, making it well-suited for small ISP deployments and low-density subscriber regions such as rural or remote access sites.

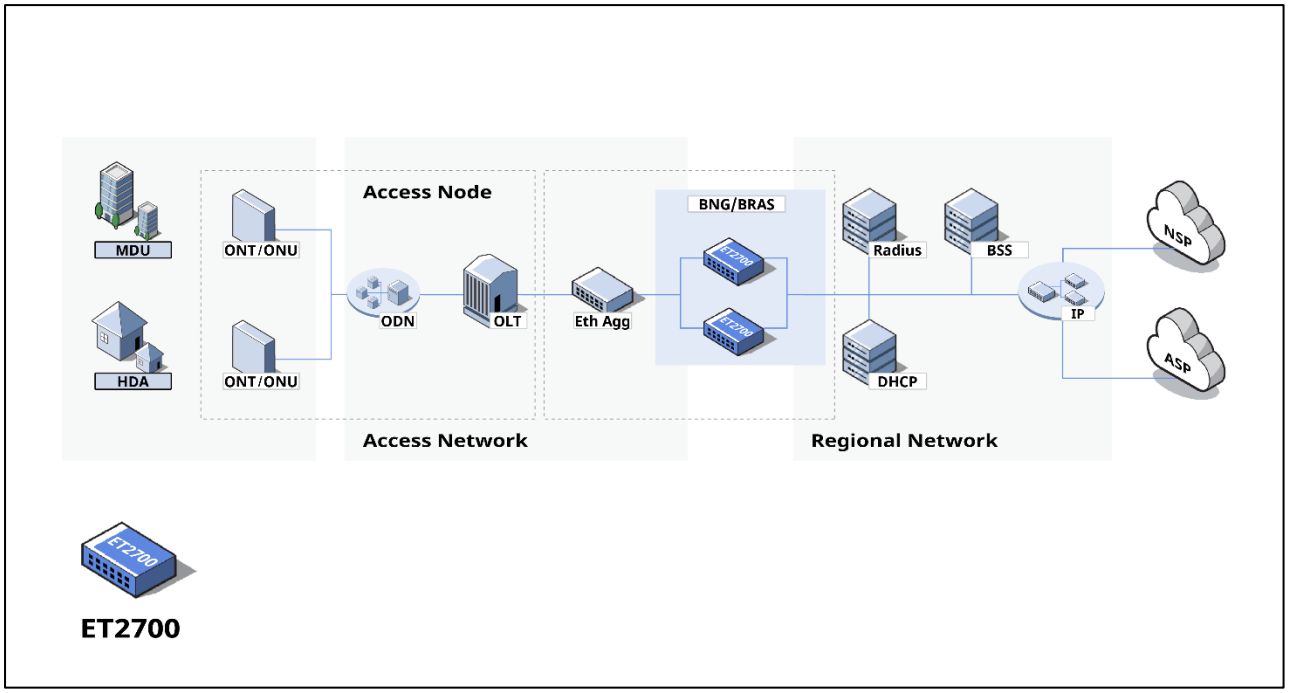


Figure 3. BNG/BRAS

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), AsterNOS-VPP, OpenWRT, 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

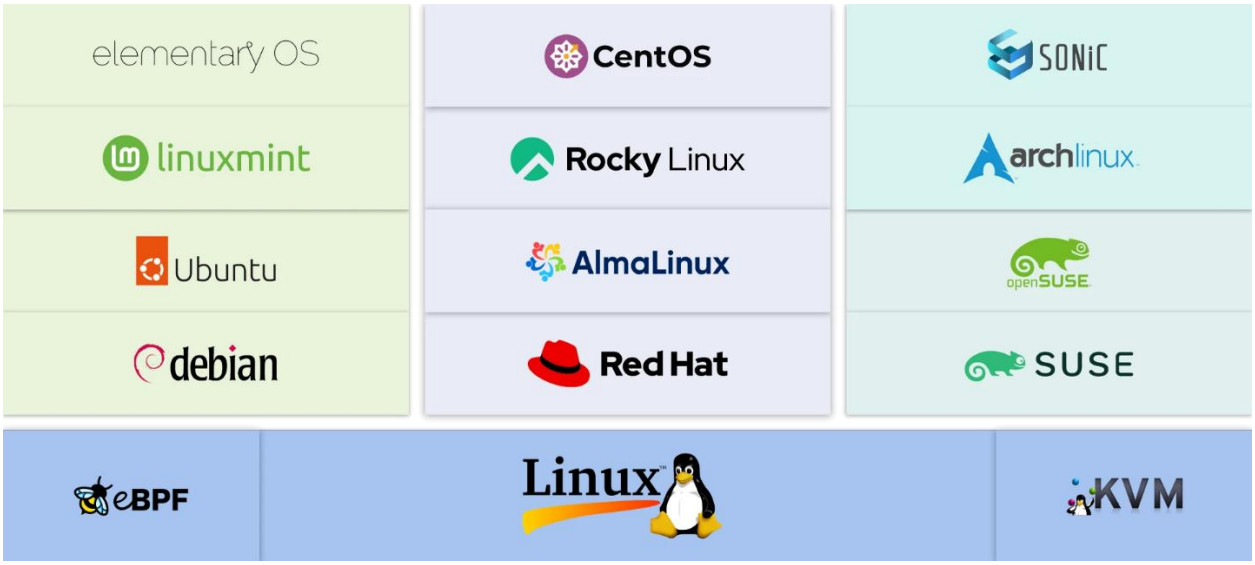


Figure 4. Operating System

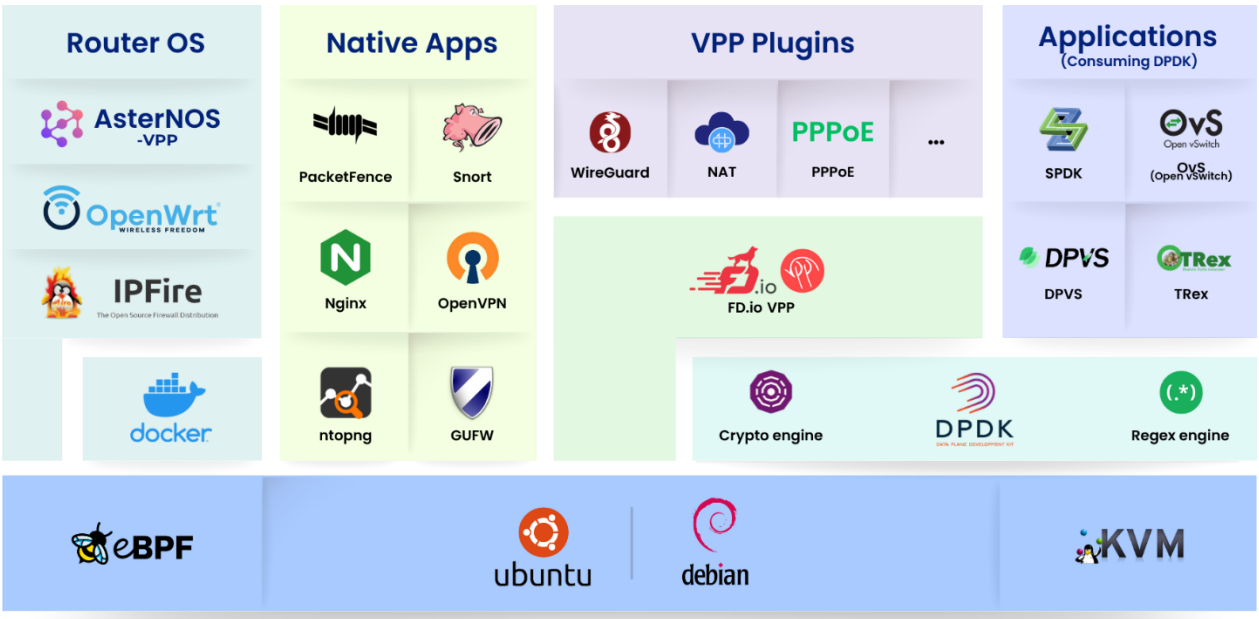
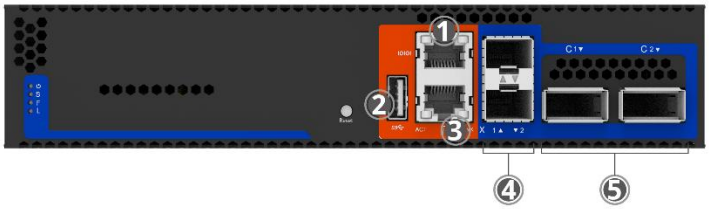


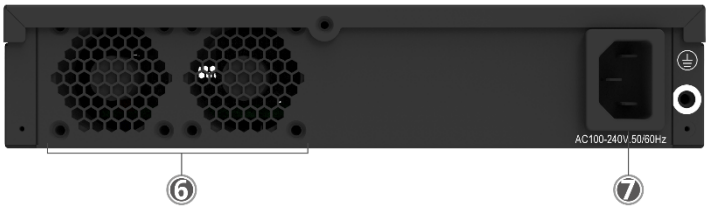
Figure 5. Software Ecosystem

Interfaces

①(1) Console RJ45
②(1) USB3.0
③(1) MGMT RJ45



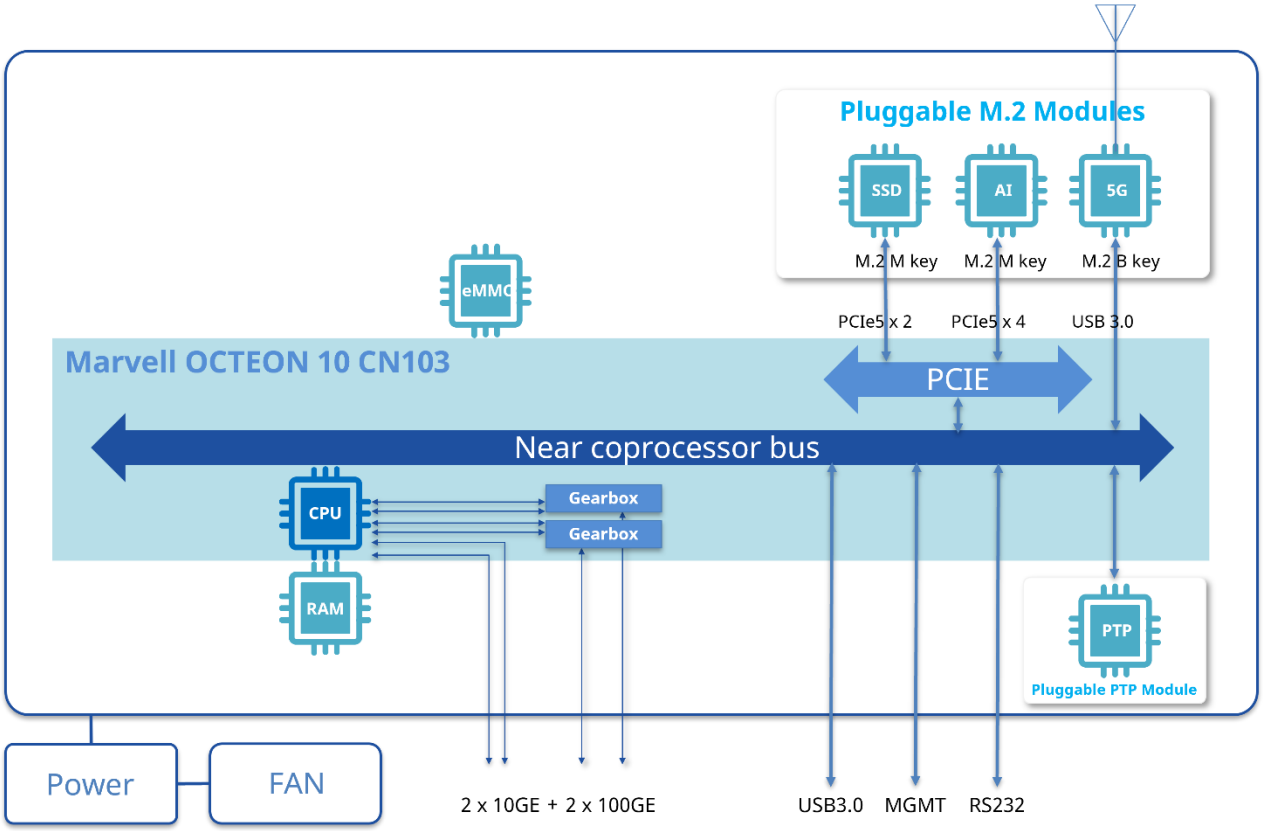
④ (2) 10GbE SFP+ ⑤ (2) 100GbE QSFP28



⑥ (2) Fixed Fan Modules ⑦ (1) Fixed PSU Modules

ET2700-2P2S

System Architecture



ET2700 series Open Intelligent Gateway System Architecture

Platform Specifications

Product Model		ET2700-2P2S
Network interface	100GE (QSFP28)	2
	10GE (SFP+)	2
	5G/LTE (Option)	2 SIM cards, M.2 B key
Management interface	USB	1 x USB3.0
	Console	1 x Console RJ45
	MGMT	1 x MGMT GE RJ45
DPU	DPU model	1 x Marvell CN103 8-core ARM64 2.5GHz
	Cache capacity	L2 8MB, L3 16MB
Memory & Storage	Memory	16GB DDR5, maximum 48GB
	Boot Storage	64GB eMMC
	Data Storage	1 x M.2 NVME SSD 240GB
Network performance	L2/L3 Switching capacity	200Gbps
	Routing capacity	100Gbps
	Firewall capacity	80Gbps
	Encryption and Decryption capacity	80Gbps
	PTP/SyncE accuracy	20ns
	PTP/SyncE holdover time	> 8hours
Electrical characteristics	Fan Module	2
	Power Module	1
	Input voltage	100~240VAC
	Maximum power consumption	85W (FULL configuration and workload)

Dimensions	Height	1U
	Dimensions (W x H x D, mm)	215 x 44 x 310
Operating conditions	Operating temperature	0 - 45 ℃
	Relative humidity	5% - 95%(non-condensing)

AI Inference Engine

Specification

Model	M2-AI-INFERENCE-12GB	M2-AI-INFERENCE-24GB
AI Compute Perf.	• Up to 160 TOPS elastic AI computing performance • Up to 100 TFLOPS @ bFP16	
Memory	• 12 GB LPDDR5 / LPDDR5X • Memory bandwidth: 153.6 GB/s	• 24 GB LPDDR5 / LPDDR5X • Memory bandwidth: 153.6 GB/s
Storage	1 × 32 MB NOR Flash	
Interface Type	M.2 Key M	
PCIe Interface	1 × PCIe Gen4 interface Supports up to x4 lanes, compatible with x3 / x2 / x1 Maximum bandwidth up to 8 GB/s per interface	
UART	Supports 2 × UART interfaces Standard baud rates supported, up to 921600 bps	
I2C	1 × I²C controller Supports 100 kHz and 400 kHz communication rates	
Dimensions (mm)	22 x 80 x 2.58	
Weight	9 g (±10 g)	
Operating Temperature	-10°C to +60°C	
Storage Temperature	-20°C to +65°C	
Operating Humidity	10% RH – 90% RH (non-condensing)	
Storage Humidity	5% RH – 95% RH (non-condensing)	
Supply Voltage	3.3 V ± 5%	
Maximum Continuous Operating Current	9 A	

Supported AI Capability Models:

- ASR: whisper, Whisper-large-v3-turbo-0.8B
- AutoDrive: yolop
- Backbone: resnet50, mobilenetv2, efficientnet, vit-base, yolov8m-cls, mobilenetv3
- Detection: yolov5s, yolov3, yolov8m, lprnet, yolov7, yolov9m, yolov10m, yolo11m, yolo12m, yolox
- Embedding: bge, gte-gwen2-1.5b, Qwen3 Embedding 4B
- Estimation: yolov8m-pose
- LLM: qwen3-14b, qwen2.5-7b, deepseek-8b, qwen3-30b-a3b, gpt-oss-20b-a3b, qwen3-32b, cpm-9g-8b
- MLLM: minicpm-o-2_6
- OCR: ppocrv3, ppocrv5
- Segmentation: yolov8m-seg
- VLA: pi0.5
- VLLM: qwen2.5-vl-7b, qwen3-vl-2b, qwen3-vl-4b, qwen3-vl-8b, qwen3-vl-30b-a3b

User Case:

- **AI Operation Platform(AIOps)：** Collector (e.g., Netflow) + LLM
  - The DPU can run NetFlow or collectors to gather telemetry, logs, and traffic data across the network, performing aggregation and preprocessing.
  - The AI module, with 160 TOPS and 24 GB LPDDR5, hosts local LLMs (e.g., GPT-OSS-20B, Qwen-27B, LLaMA 3) for log summarization, anomaly detection, and incident classification.
  - Preprocessed data is sent to the AI module for analysis, and the DPU triggers Ansible—local or remote—to execute actions, enabling automated network self-healing.

Ordering Information

Part Number	Description
ET2700-2P2S	Open Intelligent Gateway, 8 x ARM64 N2 CPU, 16GB DDR5, 1 x M.2 NVME SSD 240GB, 2 x 100GE + 2 x 10GE, Gateway, 100W 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
M2-AI-INFERENCE-24GB	AI Accelerator, 160 Tera-Operations Per Second, 32MB Flash, 24GB LPDDR5 with memory bandwidth 153.6GB, M.2 M Key 2280
SVC-Basic-1Y-ET	Basic H/W Service and Warranty

Warranty and Service Support

Asterfusion ET2700 series gateways come with 2-year Basic H/W service and warranty.

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