



Asterfusion Bare Metal Programmable Switch X-T Series

X312P-48Y-T



Highlights

- Compact 1RU OCP standard bare metal hardware
- 48x25G/10G (SPF28) + 2x25G/10G/1G (SFP28) + 12x100G (QSFP28) Ethernet interfaces
- Deployment-proven Intel Tofino programmable switching ASIC with P4 development support
- Optional 2x Marvell OcteonTX2 ARM64 DPU modules provide 200Gbps L3~L7 traffic processing ability
- Open-source software supported:
 - ONIE, SONiC and Stratum for switch
 - DPDK, VPP for DPU
- Production ready enterprise SONiC distribution AsterNOS included

Product Overview

The Asterfusion X312P-48Y-T is a best-in-class, bare metal programmable switch that provides standards-based



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networking connectivity to meet the stringent requirements of high-performance enterprise and service provider data centers. It is a unique combination of a multi-core X86-based control/management plane, a forwarding plane based on an Intel Tofino programmable switching chip, and optional high-performance Marvell OcteonTX DPU-based modules which can provide extra L4 -L7 in-depth data processing capability. The AsterfusionX312P-48Y-T switch is optimized to make networks more open, flexible, programmable, and powerful.

The Asterfusion X312P-48Y-T switch follows with OCP (Open Compute Project) standard. The community version of SONiC and Stratum can be installed through the pre-loaded white box install environment ONIE. We also provide our production-ready enterprise SONiC distribution AsterNOS that provides a complete quality assurance procedure, protocol and feature enhancement, and control/management APIs for quick integration with orchestration controllers such as Openstack., which greatly simplifies and eases the development and deployment of applications when using the Tofino switch.

After installing the software, the X312P-48Y-T can be deployed as a top-of-rack (ToR) switch as well as smart gateway for tasks such as traffic management, load balance, and security processing, with its ASIC level programmability enabling flexibility in dealing with different network scenarios. When employed with more complex applications, such as those which need deep buffer, stateful processing, or L7 processing, the pluggable DPU module can be chosen to provide high performance software data processing, where the DPDK and VPP framework can be used to provide developers a quick start development environment in a similar way to the Intel X86.

System Hardware Feature Highlights

- Barefoot Tofino programmable switching ASIC.
- Wire-speed, full-duplex across all ports, Layer 2 and Layer 3 forwarding up to 4.9Tbps.
- Ethernet Interface:
 - 48 x 25G/10G (SFP28) – Each port supports single-mode and multi-mode fibers (duplex or MPO) and copper transceivers or cables.
 - 12 x 100G/40G (QSFP28) – Each port can be configured as 4x 25GbE or 4x 10GbE via breakout cables.
 - 2 x 25G/10G/1G (SFP28).
- Multi-core x86 CPU as a control and management plane.
- 8GB DDR4 (extended to 32G) 64G/- m.2 SATA.
- All Ethernet ports on front; PSUs and fans accessible from rear.
- Dual-redundant, load-sharing, hot-swappable PSUs.
- **4+1 redundant**, hot-swappable fan modules.



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Multiple Software Choices

- AsterNOS: Enterprise NOS based on SONiC

By default, we provide an enterprise distribution SONiC NOS with feature enhancement and quality assurance with complete code review and system testing. The current SONiC version is based on 202012 and SAI version 1.6.3

- AsterNOS Framework: as P4 application development environment

The AsterNOS Framework integrates P4Runtime into a reduced-SONiC version in a docker container. By re-using the maturity and flexibility of SONiC architecture and its p4 data plane programmability, developers can combine powerful management and control planes such as BSPs, hardware drivers, and device management in a single software system.

- Community version of SONiC

The community version of SONiC can be installed with the pre-loaded ONIE.

Data Processing Module (Optional) Hardware Feature Highlights

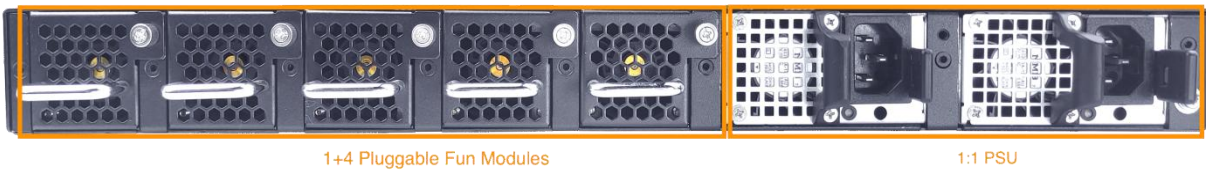
- Marvell Octeon DPU: 24-core ARM64 CN9670 1.8GHz
- Memory: 3xDDR4 SO-DIMM, up to 96GB
- Storage:
 - 32GB eMMC5.1 for OS or system software
 - 2xM.2 NVME SSD, up to 2T data storage
- 2x100G Ethernet interface connecting to Tofino switch
- Maximum 2x Data Processing Module in the system
- Software Supported:
 - Debian 10 with Linux kernel 4.14
 - DPDK 20.x
 - VPP

System Architecture and Panel Illustration

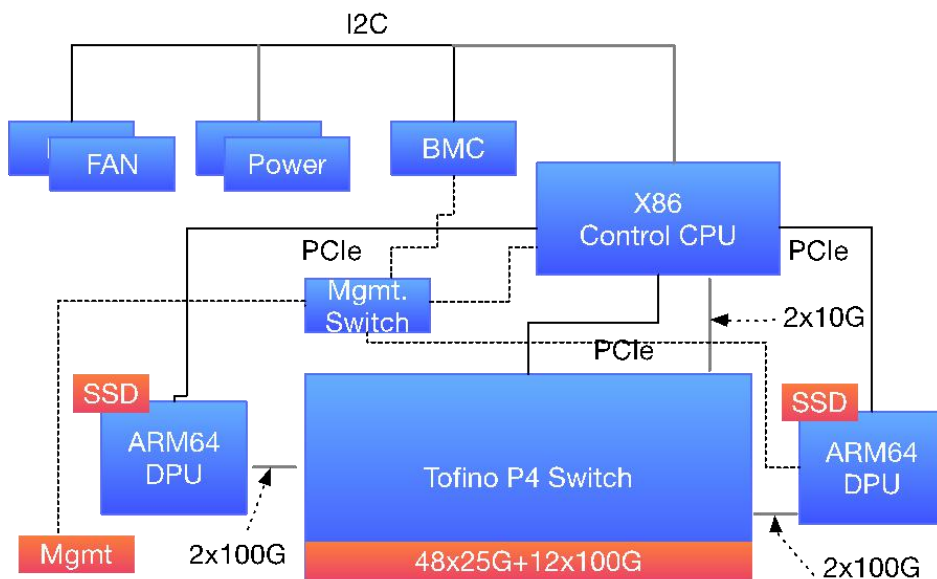
- **Front Panel**



- Rear Panel



- System Architecture





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Order Information

X308P-48Y-T	Programmable bare metal switch, 8x100G+48x25G, ONIE pre-installed, 5xFAN and 2 CRPS Power included
SW-AsterNOS-X312P-T	AsterNOS software
SVC-Basic-1Y-X312P-T	1 Year H/W warranty
GHC2024-S1-MEM-8x(1/2/3)	DPU module, eMMC included, with 1/2/3 8GB SO-DIMM
GHC2024-S1-MEM-16x(1/2/3)	DPU module, eMMC included, with 1/2/3 16GB SO-DIMM
PWR-CRPS-AC-550	550w AC Power
PWR-CRPS-DC48-550	550w DC-48v Power
FAN-II	FAN module