Helium DPU SNIC

Product Overview

Helium is a 25GE/100GE Ethernet smart network card based on a high-performance DPU chip independently developed by Asterfusion. It supports standard PCIe*16 Gen3.0/Gen-4.0 interface and can be easily plugged into the PCIe slots of commercial data center servers。While Asterfusion provides Helium hardware, it also provides Linux kernel operating systems and development kits. The customer's various DPDK applications, VPP applications and ordinary Linux driver applications originally running on the x86 server can be quickly transplanted to the Helium smart network card with a simple compilation.This combination of VPP, DPDK and Linux technologies provides a powerful platform for easy and rapid expansions on new or emerging business applications and hence allows cloud data center administrators to build up their highly-efficient, highly-intelligent and highly-flexible networks operations while at the same time, minimize computing resource consumption in their data center servers and optimize their overall cost of operations.

Figure 1: Helium DPU SNIC

Key Product Features

- 4 Ports of 25Gbps SFP28 or 2 Ports of 100Gbps QSFP28 Interfaces: with upto 100Gbps processing of network functional services
- High-performance DPU chip, up to 24-core high-performance ARM processor, integrated various

hardware acceleration coprocessors (such as hardware encryption and decryption coprocessors, compression and decompression coprocessors, etc.)

- Host Software Supports: DPDK & VPP driver
- SNIC Firmware Supports: Standard Linux kernel & container environment, DPDK and VPP Driver
- Large Capacity ACL & Connection Tables: support over 10 Million concurrent sessions with 64GB internal memory
- SSL Offload Acceleration: with asymmetric & symmetric crypto engines
- Dedicated OOB Port - for independent network management functions
- Cost Efficient: ~1/3 of the cost of comparative-performance FPGA-based NICs
- Rapid CI/CD Supports: with online NIC firmware upgrade through the PCIe interface

Product Specifications

Category		Helium EC2004Y	Helium EC2002P
Interface	Network Interface	4*25GE SFP28	2*100GE QSFP28
	Host Interface	PCIe*16 Gen3.0/Gen4.0	
	Management Interface	1*Console Micro USB，1*GE RJ45 OOB Port	
Power & Dimension	Power Consumption	60W	
	Dimension (W*H*D, mm)	111.15mm*21.8mm *167.65mm	111.15mm*21.8mm *184.16mm
	Weight (kg)	0.8	
	Operating Temperature	0~35℃	
	Operating Humidity	10%~90%(non-condensing)	
Core CPU	Architecture	DPU	
	Part Number	CN96XX	
	Number of Processor Cores	24	
	Core Clock Frequency	1.8GHz	
	Number of CPU Part	1	
	Cache Capacity (MB)	L2 5MB，L3 14MB	
Memory & Storage	Memory Capacity	Single memory 8GB, 16GB or 32GB, configurable up to 2	
	Memory Type	DDR4 ECC SODIMM	
	Memory Capacity Expansion	64GB	
	Flash Storage (GB)	64GB EMMC 5.1	

Application Scenarios

- For Cloud Data Center Applications

- OVS Offload
- OVS Offload + 3rd-Party Applications
- VxLAN (VTEP) Offload
- ECN/QCN/DCTCP/NVMEoF(TCP) Offload
- Virtual NPB for VM/Container
- Virtual Inband Network Telemetry

- For MEC & Gateway Applications
  - 5G UPF Offload
  - eBPF Offload
  - SSL Offload
  - Gateway NFV(vLB/vFW/vR) Offload
  - User-Defined ACL Rules for Enhanced Network Security

While Asterfusion provides Helium hardware, it also provides Linux kernel operating systems and development kits. The customer's various DPDK applications, VPP applications and ordinary Linux driver applications originally running on the x86 server can be quickly transplanted to the Helium smart network card with a simple compilation. Asterfusion provides a complete development kits support, customers can flexibly combine functions according to the actual functional requirements of their own networks to meet the deployment needs in different environments, just like people install various APPs on their mobile phones according to their own preferences.

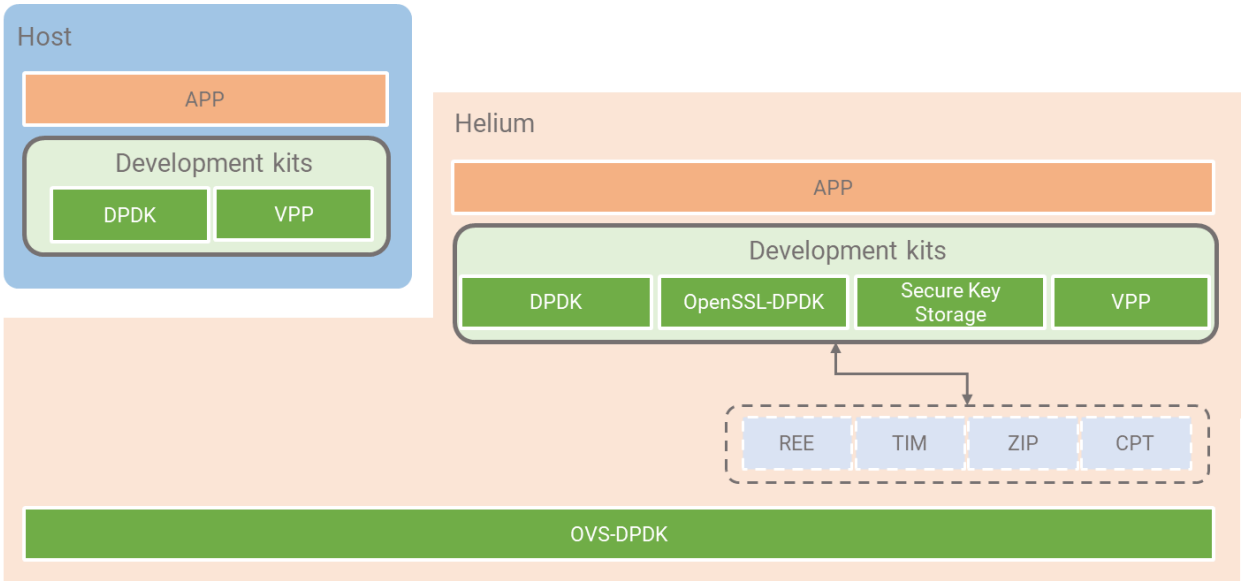

Figure 2: Open Network Ecology

About Asterfusion

As a solution provider for next-generation cloud network architecture, Asterfusion helps its customers redefine their cloud network infrastructure with a leading generic software-defined-network solution and combining with the collaborations from its ecosystem partners, fulfills its ultimate goal of "Re-Engineering the Cloud Networks". With its patented packet processing and distributed routing technologies, a complete open-source network OS, a generic programmable hardware platform and a fabric controller closely aligned with cloud data center OS, Asterfusion provides completely open and ultra-high performance virtual network solutions to its cloud users along with the capabilities of application visibility, auto provisioning and deployment scheduling. For more information on Asterfusion's products and solutions, please visit www.asterfusion.com or follow us on Wechat public account. For sales inquiries, please send an email to sales@asterfusion.com.