



## GX 4x10GbE Product Brief

**FEATURENIC FOR FLEXIBLE HIGH-PERFORMANCE NETWORKING,  
PROVIDING FLEXIBLE DEPLOYMENT SOLUTIONS AND SCALABILITY FOR  
CLOUD COMPUTING AND DATA CENTERS.**

The Corigine GX series 4x10GbE NIC is equipped with Corigine’s custom NFP high-performance network processor chip, supporting the standard Ethernet protocol. Comprehensive functionality and excellent performance ensure a reliable connection to the server. It has passed ecological certifications, and partner support, including INTEL, AMD, HYGON, KUNPENG, ZHAOXIN, LOONGSON, and PHYTIUM CPU platforms. Compatible with Linux, Windows, VMWare, and other operating systems. Designed for industries including cloud computing, data centers, 5G networks, distributed storage, high performance computing, and other specific industries. The Corigine GX 4x10GbE NIC is a key component in data center applications.

### Specification Parameters

Interfaces	4-port SFP+ (10GbE), backwards compatible to SFP (1GbE)
Port Speeds	1/10G speed auto-negotiation
Dimension	PCIe half-height, half-length, single width (full-height bracket included) 68.9mm (H) x 167.65mm (L) x 18.71mm (W)
Weight	140g (not including optical modules)
PCIe Base	PCIe gen 3.0 x8, compatible with gen 1.1 and 2.0, MSI/MSI-X compatible, 2.5, 5.0, 8.0GT/s link rate x8/x4/x2/x1 lanes
LED Indicators	LINK (Green solid), ACTIVITY (Green blinking) LINK SPEED (Green=10GbE, Yellow=1GbE)
Network Flow Processor	Corigine, Inc. Network Flow Processor 3800
IEEE Standards	IEEE 802.3z 1 Gigabit Ethernet IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3ap based auto-negotiation and KR startup IEEE 802.3ab (LLDP) IEEE 802.3ad, 802.1AX Link aggregation IEEE 802.1q, 802.1p VLAN tags and priority IEEE 802.1au (QCN) IEEE 802.1Qbb (PFC)

## Supported Operating Systems

Operating Systems	Version Requirement
RHEL/CentOS	RHEL/CentOS 7.6 and later
Kylin OS	V10 SP2/SP3
UnionTech OS (UOS)	UnionTech OS Server 20 and later
Open EulerOS	20.03 LTS, 22.03 LTS
Anolis OS	7.9, 8.6, 8.8
Ubuntu	Ubuntu 16.04 and later
VMware	VMware EXSi 7.0.3 and later
Windows	Windows Server 2012/R2, 2016, 2019, 2022

## Basic Features

Features	Description
Auto-negotiation Mode for Ports	Support auto-negotiation of connection rate and duplex mode.
In-Band info and Optical Module info	View driver and firmware version info, etc.
Interrupt Affinity and Aggregation	Set interrupt condition and generate a single interrupt for multiple packets.
RSS/TSS, RSS/TSS for Tunnel Inner	RX, TX hash to multi-queue. The hash field is configurable.
Flow Steering (Flow Director)	Support up to 1k flow steering rules. Based on the connection 5-tuple, traffic flows are classified, and match-action rules are used in combination with RSS to direct traffic to specified queues / cores.
In-Band Upgrade/Downgrade of Firmware/Driver	Update the driver and firmware version in in-band mode.
IPv4/IPv6 Dual-stack	Support IPv4 and IPv6 dual stack.
TSO/GSO/GRO Stateless Offload	Acceleration of segmentation/aggregation processing of packets to reduce CPU usage and improve network performance.
Kernel Bypass Acceleration	Support DPDK PMD driver.
Checksum Offload (VXLAN/GENEVE/NVGRE)	Checksum calculation and checking for packets.
Jumbo Frames	Support jumbo frames with a maximum MTU of 9KB.
PAUSE Frames	Support automatic sending and handling of pause frames. If the receiving peer's buffers are overloaded by incoming frames, a pause frame is sent to stop the transmitting peer from sending more frames.
Promiscuous Mode	Support Ethernet promiscuous mode. When enabled, all frames received from physical ports are sent to driver.
VLAN Protocol Offload	Support up to 4096 VLAN IDs, with VLAN processing on the NIC.
VLAN-based Rate Limiting	Support rate limiting of VLANs on physical ports.
LLDP (Link Layer Discovery Protocol)	Support both hardware and host-software sending modes for LLDP. Received LLDP messages are highly optimized for transmission to the host.
Teaming	Linux Bonding 0/1/2/3/4/5/6 DPDK Bonding 0/1/2/4
Tools and Packet Statistics	Support mainstream Linux tools such as ethtool, iproute, devlink, etc. Support various packet statistics such as length, TX, RX, queue, etc.

## Advanced Offload Features

Features	Description
Remote DMA (RDMA) Offload	Support RoCEv2 protocol. Support DCQCN, PFC lossless flow control protocol. Support GPU Direct RDMA.
IPSec Offload	Support IPSec tunnel offload for user space and kernel space (Inline mode.)

## Hardware Virtualization Features

Features	Description
SR-IOV	Single Root I/O Virtualization. (Note: CPU needs to support virtualization.)
Virtual Functions	Support up to 64 SR-IOV virtual functions (VFs). Number of VFs is configurable.
VF Multi-queue	Support up to 32 queues for a single VF. Number of queues is configurable.
VF QoS	Support VF-based QoS services to solve problems such as network latency and blocking.
Virtual Ethernet Bridge (VEB)	Support virtual Ethernet switching bridge capability, realizing mutual communication between physical ports and virtual ports through MAC and VLAN-based Layer 2 port switching and forwarding function.
Virtual Ethernet Port Aggregator (VEPA)	Support Virtual Ethernet Port Aggregator (VEPA) mode, which forcibly forwards network traffic (including local and external traffic) from virtual ports to the upstream switch connected to the NIC for processing, avoiding the monitoring black hole problem of VEB mode. (Note: The upstream switch needs to support Hairpin function.)
VF Flow Steering (Flow Director)	VF-based Ethernet quintuple flow rule match and action, forwarding specific traffic to specified queues to implement flow classifications and support maximum to 1K rule.

## Manageability Features

Features	Description
UEFI/Legacy PXE Boot	Advertise NIC ports as PXE booting devices in UEFI and Legacy boot modes. This enables the computer to load boot media remotely over the network.
BIOS/UEFI HII Component	In UEFI BIOS mode, support displaying basic info of NIC, including NIC name, BDF device number, vendor ID, etc.
Out-of-band Management	FRU over I2C, MCTP over SMBus, NCSI/PLDM over MCTP. Support dynamic information monitoring, including static info of NIC, temperature, power, speed and optical module info.
Collect Log in One-Click	Collect log info of NIC operation in one-click.

## Power Consumption

Typical Power	11 W
Maximum Power	15 W
Optical Module Power (for reference)	3 W (four SFP+ SR)

## Environmental Requirement

Operating Temperature	0°C~55°C (Cold flow, Hot flow)
Air Flow	400LFM (Min)
Relative Humidity	5%~90%, non-condensing
Storage Temperature	-40°C~+70°C

## Product Order Code

Basic Version (Basic features)	CGX11-A4PSNN
Advanced Version (Advanced offload features)	CGX11-A4PSNM

## Other

Firmware, Driver and User guide Download Link	<a href="https://www.corigine.com/DPUDownload.html">https://www.corigine.com/DPUDownload.html</a>
Optical Module Cable Compatible List	<a href="https://www.corigine.com/testedCablesAndOptics.html">https://www.corigine.com/testedCablesAndOptics.html</a>



Business Cooperation [sales@corigine.com](mailto:sales@corigine.com)  
Market Cooperation [marcom@corigine.com](mailto:marcom@corigine.com)  
Corigine Website [www.corigine.com](http://www.corigine.com)  
Customer Support Tel 400-615-0098  
Copyright ©2023 Corigine. All rights reserved. Unauthorized distribution prohibited.