# Neterion's (Formerly S2io) X3100 Series 10GbE PCIe Server Adapter Linux driver

## 1. Introduction

This Linux driver supports all Neterion's X3100 series 10 GbE PCIe I/O Virtualized Server adapters.

The X3100 series supports four modes of operation, configurable via firmware:

- Single function mode
- Multi function mode
- SRIOV mode
- MRIOV mode

The functions share a 10GbE link and the pci-e bus, but hardly anything else inside the ASIC. Features like independent hw reset, statistics, bandwidth/ priority allocation and guarantees, GRO, TSO, interrupt moderation etc are supported independently on each function.

(See below for a complete list of features supported for both IPv4 and IPv6)

## 2. Features supported

i. Single function mode (up to 17 queues)

ii. Multi function mode (up to 17 functions)

iii. PCI-SIG's I/O Virtualization

- Single Root mode: v1.0 (up to 17 functions)
- Multi-Root mode: v1.0 (up to 17 functions)

iv. Jumbo frames

X3100 Series supports MTU up to 9600 bytes, modifiable using ip command.

v. Offloads supported: (Enabled by default)

- Checksum offload (TCP/UDP/IP) on transmit and receive paths
- TCP Segmentation Offload (TSO) on transmit path
- Generic Receive Offload (GRO) on receive path

vi. MSI-X: (Enabled by default)

Resulting in noticeable performance improvement (up to 7% on certain platforms).

vii. NAPI: (Enabled by default)

For better Rx interrupt moderation.

viii)RTH (Receive Traffic Hash): (Enabled by default)

Receive side steering for better scaling.

ix. Statistics

Comprehensive MAC-level and software statistics displayed using "ethtool -S" option.

x. Multiple hardware queues: (Enabled by default)

Up to 17 hardware based transmit and receive data channels, with multiple steering options (transmit multiqueue enabled by default).

### 3) Configurable driver parameters:

i. max_config_dev

Specifies maximum device functions to be enabled.

Valid range: 1-8

ii. max_config_port

Specifies number of ports to be enabled.

Valid range: 1,2

Default: 1

iii. max_config_vpath

Specifies maximum VPATH(s) configured for each device function.

Valid range: 1-17

iv. vlan_tag_strip

Enables/disables vlan tag stripping from all received tagged frames that are not replicated at the internal L2 switch.

Valid range: 0,1 (disabled, enabled respectively)

Default: 1

v. addr_learn_en

Enable learning the mac address of the guest OS interface in virtualization environment.

Valid range: 0,1 (disabled, enabled respectively)

Default: 0