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

4) Troubleshooting:

To resolve an issue with the source code or X3100 series adapter, please collect
the statistics, register dumps using ethool, relevant logs and email them to
support@neterion.com.