



Intel[®] Ethernet Controller Products

29.5 Release Notes

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Revision History

Revision	Date	Comments
1.9	December 2024	Release Note 29.5: <ul style="list-style-type: none"> Introducing New OS support:FreeBSD 13.4 2024R5 Updates
1.8	November 2024	Release Note 29.4.1: <ul style="list-style-type: none"> Introducing New OS support:Red Hat Enterprise Linux 9.5
1.7	October 2024	Release Note 29.4: <ul style="list-style-type: none"> Introducing New OS support:Windows Server 2025 and Windows 11 24H2 OSes
1.6	August 2024	Release Note 29.3.1: <ul style="list-style-type: none"> Introducing New OS support: Ubuntu 24.04 LTS
1.5	August 2024	Release Note 29.3: <ul style="list-style-type: none"> Generic update for FVL, CVL and CPK NIC OEM and FreeBSD 14.1
1.4	July 2024	Release 29.2.1: <ul style="list-style-type: none"> Introducing New OS support: SLES 15 SP6
1.3	July 2024	Release 29.2: <ul style="list-style-type: none"> Introducing New OS support: VMware ESXi 8.0u3
1.2	June 2024	Release 29.1.2: <ul style="list-style-type: none"> Introducing New OS Support: Red Hat Enterprise Linux 9.4 and Red Hat Enterprise Linux 8.10
1.0	May 2024	Release Note 29.1: <ul style="list-style-type: none"> Dot release, ESXi drivers update. Full OEM Gen container release for E810, E700 and E820.

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1.0 Overview

This document provides an overview of the changes introduced in the latest Intel® Ethernet Controller/ Adapter family of products. References to more detailed information are provided where necessary. The information contained in this document is intended as supplemental information only; it should be used in conjunction with the documentation provided for each component.

These release notes list the features supported in this software release, known issues, and issues that were resolved during release development.

1.1 New Features

1.1.1 Hardware Support

Release	New Hardware Support
29.5	<ul style="list-style-type: none"> None for this release.

1.1.2 Software Features

Release	New Software Support
29.5	<ul style="list-style-type: none"> PCI Segment Domain ID added to PCI Address presented in UEFI HII for devices identification PTP Low Latency PHY Timer Updates on E810 Introduced SUSE SolidDriver KMP/RPMs support for all Linux drivers Restore IOMMU BME disablement in the UEFI UNDI Drivers Columbiaville Linux NVMe-oF RDMA Performance Targets Support for software Cross Timestamping for Linux ICE Introduced PFA editor system for specific TLVs New OS Support: Kylin Linux Advanced Server V10 for ARM architecture compatibility for E810 Documentation for Linux 10G/40G/100G Flow Director flow-type ip4/ip6 behavior Updated QoS Presented Text to indicate FW LLDP Agent for NDIS Introduced new 4-part ID's for Dell Springville Constantine Ford I210 LOM Documentation Update - Remove WinZip/Self Extraction Support from Webpacks, MSI Installer Support for Ethernet Cmdlets Introduced Salem Channel with reversed Port Order New OS support: FreeBSD 13.4

1.1.3 Firmware Features

Release	New Firmware Support
29.5	<ul style="list-style-type: none"> Supports NCSI command to configure PXE VLAN from BMC on x550 Supports Increased PCIe Replay Timer on x550 PTP Low Latency PHY Timer Updates on E810 Defeature PLDM FWU over MCTP over SMBUS Add support for the RDE InterfaceEnable property in the Port resource allowing Ports to be dynamically enabled/disabled by the BMC Prevent up to 200ns PTP time error when switching to SyncE recovered clock Added custom DPLL input and output labeling capability

1.2 Removed Features

Release	Hardware/Feature Support
29.5	<ul style="list-style-type: none">• Legacy PXE Preboot ROM for pre-11th Generation Intel® Core™ Processor Family devices• End of OS Support (EOL) - RHEL 8.1• End of OS Support (EOL) - FreeBSD 11.x• End of OS Support (EOL) - FreeBSD 12.x• End of OS Support (EOL) - FreeBSD 13.0, 13.1• End of OS Support (EOL) - RHEL 7.0

1.3 Operating Systems Supported

1.3.1 Linux

Operating Systems supported:

- Linux Real Time Kernel 5.x and 4.x (only on Intel Ethernet E810 Series)
- Linux, v2.4 kernel or higher
- Kyline Linux Advance Server V10 (only for Intel Ethernet E810 Series)
- Red Hat *Enterprise Linux* (RHEL) 9.5
- Red Hat Enterprise Linux (RHEL) 8.10
- SUSE Linux Enterprise Server 15 SP6
- SUSE Linux Enterprise Server 12 SP5
- Canonical Ubuntu 24.04 LTS
- Canonical *Ubuntu* 22.04 LTS
- Debian* 11
- openEuler

Table 1. Supported Operating Systems: Linux

Product	PF Driver	VF Driver	RDMA Driver
Intel® Ethernet 810/820 Series	1.16.3	4.13.3	1.16.10
Intel® Ethernet 700 Series	2.27.8	4.13.3	1.16.10
Intel® Ethernet 10 Gigabit Adapters	5.22.25	4.21.25	Not Supported
Intel® Ethernet Gigabit Adapters	5.18.7	Not Supported	Not Supported

1.4 Windows Server

Operating Systems supported:

- Microsoft Windows Server 2025
- Microsoft Windows Server 2022
- Microsoft Windows Server 2019, Version 1903
- Microsoft Windows Server 2016
- Microsoft Azure Stack HCI

Table 2. Supported Operating Systems: Windows Server

Driver	Windows Server 2025	Windows Server 2022	Windows Server 2019	Windows Server 2016
Intel® Ethernet 800 Series				
icea	1.15.302.0	1.15.121.0	1.15.121.0	1.14.104.0
scea	1.14.307.0	1.14.222.0	1.14.222.0	Not Supported
Intel® Ethernet 700 Series				
i40ea	1.20.100.0	1.20.100.0	1.20.100.0	1.18.369.0
i40eb	1.20.100.0	1.20.100.0	1.20.100.0	1.18.369.0
Intel® Ethernet Adaptive Virtual Function				
iavf	1.16.100.0	1.16.100.0	1.16.100.0	1.14.203.0
Intel® Ethernet 10 Gigabit Adapters and Connections				
ixs	4.2.6.0	4.1.254.0	4.1.254.0	4.1.254.0
sxa	4.2.9.0	4.1.254.0	4.1.254.0	4.1.254.0
sxb	4.1.254.0	4.1.254.0	4.1.254.0	4.1.254.0
ixt	Not Supported	Not Supported	4.1.228.0	4.1.229.0
ixn	Not Supported	Not Supported	4.1.254.0	4.1.254.0
vxs	2.2.10.0	2.1.252.0	2.1.252.0	2.1.232.0
vxn	Not Supported	Not Supported	2.1.252.0	2.1.252.0
Intel® Ethernet 2.5 Gigabit Adapters and Connections				
e2f	2.1.4.3	1.1.4.43	1.1.4.43	Not Supported
Intel® Ethernet Gigabit Adapters and Connections				
e1r	14.1.5.0	14.1.5.0	14.0.5.0	14.0.6.0
v1q	Not Supported	Not Supported	1.4.7.3	1.4.7.3

1.4.1 Windows Client

Operating Systems Supported:

- Microsoft Windows 11 24H2
- Microsoft Windows 11 23H2
- Microsoft Windows 11 22H2
- Microsoft Windows 10 21H2
- Microsoft Windows 10 RS5, Version 1809

Table 3. Supported Operating Systems: Windows Client

Driver	Windows 11	Windows 10 21H2 / Windows 10 RS5
Intel® Ethernet 800 Series		
icea	1.15.208.0	1.15.208.0
Intel® Ethernet 700 Series		
i40ea	1.20.100.0	1.20.100.0
i40eb	1.20.100.0	Not Supported
Intel® Ethernet Adaptive Virtual Function		
iavf	1.16.100	1.16.100.0
Intel® Ethernet 10 Gigabit Adapters and Connections		
ixs	4.1.260.0	4.1.254.0
ixt	Not Supported	4.1.228.0
ixn	Not Supported	4.1.254.0
vxs	2.1.252.0	2.1.252.0
vxn	Not Supported	2.1.252.0
Intel® Ethernet 2.5 Gigabit Adapters and Connections		
e2fn	2.1.4.3	1.1.4.43
Intel® Ethernet Gigabit Adapters and Connections		
e1r	14.0.5.0	14.0.5.0
e1d	12.19.2.60	21H2: 12.19.2.60 RS5: 12.18.9.10
e1c	Not Supported	Not Supported
v1q	Not Supported	1.4.7.3

1.4.2 FreeBSD

Operating Systems supported:

- FreeBSD 14.1
- FreeBSD 13.4

Table 4. Supported Operating Systems: FreeBSD

Driver	PF Driver	VF Driver	RDMA Driver
Intel® Ethernet 810/820 Series	1.42.10	3.1.2	1.3.9
Intel® Ethernet 700 Series	1.14.2	3.1.2	1.3.9
Intel® Ethernet 10 Gigabit Adapters	3.3.38	1.5.38	Not Supported
Intel® Ethernet Gigabit Adapters	2.5.31	Not Supported	Not Supported

1.4.3 ESXi Drivers

Note: Intel® ESXi drivers are available from VMware.

- VMWare ESXi 8.0
- VMware ESXi 7.0

Refer to VMWare's download site for the latest ESXi drivers for Intel® Ethernet® devices.

1.5 NVM Versions Supported

The following table shows the NVM versions supported in this release.

Table 5. Current NVM

Product	NVM Version
810 Series	
E810	4.70
820 Series	
E822	3.42
E823-C	3.42
E823-L	3.42
700 Series	
X710	9.53
X722	6.50
500 Series	
X550	3.70
X552NS	2.10
X552DE	2.10
X553	2.10
200 Series	
I210	1.00

1.6 DDP Versions Supported

The following table shows the versions supported in this release.

Table 6. Current DDP

Package	DDP Version
OS Package	1.3.36.0
Comms Package	1.3.46.0
Wireless Edge Package	1.3.14.0

2.0 Fixed Issues

2.1 Intel® Ethernet 800 Series Network Adapters

2.1.1 Intel® Ethernet 810 Series

2.1.1.1 General

- None in this release.

2.1.1.2 Firmware/NVM/NVM Update

- RDE: Setting property (AutoSpeedNegotiationEnabled.) not causing property value update.
- The PFA checksum won't be recalculated correspondingly when patching to certain property with RDE. Fix the RDE patching flow so that PFA checksum will be recalculated.
- The Intel® Ethernet 800 Series might have a PCIe downgrade to Gen3 problem because of Eq.Phase 2 timeout. This issue can be fixed by using NVM 4.7 or later.
- FW didn't report flow control as enabled when only asymmetric TX only is set.
- Occasionally, modified RDE settings are not applied after reboot/PCIR.

2.1.1.3 Linux

- When there was no DDP package on the filesystem, it was observed that OpenEuler system (22.03) was rebooted after ICE Linux driver went into SafeMode.
- I/O error on the network interfaces with "Transmit Balance" enabled in Linux environment. Tx Topology Option data was updated and programmed with correct data.

2.1.1.4 Windows Server

- None for this release.

2.1.1.5 ESX Driver

- VMWARE - Using Native Mode and ENS Mode ICEN driver with the latest DDP can cause queue configuration issues.

2.1.1.6 Pre-Boot

- None for this release.

2.1.2 Intel® Ethernet 820 Series

2.1.2.1 Firmware/NVM/NVM Update

- None for this release.

2.1.2.2 Linux Driver

- The system reboot was observed after bringing up the VF instance in the switchdev mode.

2.1.3 Intel® Ethernet 700 Series Network Adapters

2.1.3.1 Firmware/NVM/NVM Update

- Post reboot, Port 1 LLDP did not reset to default after "NetworkAdapter.ResetSettingsToDefault.
- 40G QSFP modules from Intel can not support NC-SI OEM command 0x4b02 to query temperature with reason code 0x5089. fixed in NVM V9.3 of XL710.
- When sending PLDM GetTerminusUID command, the last six bytes of TerminusUID are all zero. It should be same as MCTP UUID, indicating the MAC address.

2.1.3.2 Windows Driver

- Fix the previous implementation, the version 4.1.255.0 was introduced where DmaRemappingCompatible was set to 2 according to DCR4564 requirement.

2.1.3.3 ESX Driver

- None for this release

2.1.4 Intel® Ethernet I211/I210 Series Network Adapters

2.1.4.1 General

- Driver package for PRO1000 and PROXGB missing cert tag vb.
- Driver package(PRO1000, PROXGB, PROCGB and PRO40GB), the declarative is "False".

3.0 Known Issues

3.1 Intel® Ethernet 800 Series Network Adapters

3.1.1 Intel® Ethernet 810 Series

3.1.1.1 General

- Intel's validation team found issue in Windows Server 21H1. This OS version is unable to save memory dump (crash dump) on disk. It is considered to be OS defect.
- DPDK traffic is stopped after FLR reset. This issue has been documented in the `rte_eth_dev_reset` API.

Workaround: `testpmd` can be used to recover a VF after a reset.

- When a VF reset happens, `testpmd` will print out "port reset" event to the console.
- Use the "port reset" command to call `rte_eth_dev_reset`, and everything will go back to normal

3.1.1.2 Running Unreliable Datagram (UD) RDMA mixed traffic with more than 2 QPs may lead to a receiver side UD application hang.

Workaround: Restart the RDMA UD application. This is not expected to impact storage (NVMeoF, iSER, VSAN) applications since they do not rely on UD communication. [Firmware/NVM/NVM Update](#)

- When updating "ChassisIdSubtype" with the payload of "FlowControlConfiguration", the "ChassisIdSubtype" won't be updated with the annotation message of "PropertyNotUpdated".

3.1.1.3 Linux

- Support for Software Cross Timestamping - This release introduces support for software cross timestamping in the Linux ICE driver. Details about this feature will be provided in the next release of the Linux README.

NOTE: The following functionality is not yet documented in the Linux README.

- The Intel SIOV does not work on RHEL, due to backports applied by Red Hat.
- DPDK traffic is stopped after FLR reset. This issue has been documented in the `rte_eth_dev_reset` API.

Workaround: `testpmd` can be used to recover a VF after a reset.

- When a VF reset happens, `testpmd` will print out "port reset" event to the console.
- Use the "port reset" command to call `rte_eth_dev_reset`, and everything will go back to normal.

- In FreeBSD-13.0, iavf virtual interfaces guests may experience poor receive performance during stress.
- Changing the inner or outer VLAN tag protocols after setting the private flag "vf-true-promisc-support" disables the promiscuity on the VF's VLAN interfaces.
- When trust is enabled on VF with more than 8 VLAN filters, disabling trust makes all VLAN filters non functional.

Workaround: The workaround for this behavior is to do the power cycle of the setup to see the assigned DCB-MAP is reflecting.

- When user sets more than 8 VLANs for trusted VF, and then moves VF as untrusted, the VLAN configuration will be lost.

Workaround: To avoid losing VLAN configuration, user shall first reduce VLANs configuration allowed for untrusted VF (not more than 8 VLANs per VF), and then switched the VF to untrusted mode.

3.1.1.4 FreeBSD Driver

- During traffic in RoCEv2 mode, using large number of QPs (>64), a PE Critical Error may occur. In such circumstances the card may become inoperational, and reboot is required to restore RDMA capability.
- iavf virtual interfaces in FreeBSD-13.0 guests may experience a poor receive performance during stress.

3.1.1.5 RDMA Driver

- None for this release.

3.1.1.6 VMware Driver

- None for this release.

3.1.1.7 Windows Driver

- When Large Send Offload (LSO) V2 is enabled, the network adapter is unable to transmit frames larger than the MTU, which can impact network performance. Additionally, the incorrect incrementing of checksums `OID_INTEL_OFFLOAD_LARGE_SEND_VXLAN_COUNT` may lead to inaccurate network statistics.

Workaround: Users can temporarily disable Large Send Offload V2 on their network adapters to allow the transmission of frames larger than the MTU. However, note that this workaround may impact other aspects of network performance. We recommend using this workaround only if absolutely necessary and awaiting the software update for a comprehensive solution.

3.1.1.8 ESX Driver

- Running Unreliable Datagram (UD) RDMA mixed traffic with more than 2 QPs may lead to a receiver side UD application hang.
Workaround: Restart the RDMA UD application. This is not expected to impact storage (NVMeoF, iSER, VSAN) applications since they do not rely on UD communication.

3.1.1.9 VMWARE - When instantiating the maximum number of VFs in NSX-T, adding a Transport Node afterwards might fail due to timeout. **Application Device Queues (ADQ)**

- None for this release.

3.1.2 Intel® Ethernet 820 Series

3.1.2.1 General

- None for this release.

3.1.2.2 Firmware/NVM/NVM Update

- The incorrect PHY FW could get programmed resulting in the controller failing INIT. LANconf is showing the wrong PHY FW version for device 0x37.
- The 100 MB option, is visible in Windows Device Manager. However, when it is selected, a link cannot be established.
- Lane Reversal broken preventing proper functionality of 2x1x50g port option on quad 1. CPI opcode 0x67 PortLaneOrder does not support setting lane 1 as the autoneg lane and returns error code 1 (Configuration Error).

3.1.2.3 Linux Driver

- None for this release.

3.1.2.4 FreeBSD Driver

- None for this release.

3.1.2.5 Windows Driver

- None for this release.

3.1.2.6 VMware Driver

- None for this release.

3.2 Intel® Ethernet 700 Series Network Adapters

3.2.1 Windows Driver

- None for this release.

3.2.2 Intel® Ethernet Controller V710-AT2/X710-AT2/TM4

- None in this release.

3.2.3 Linux Driver

- In some cases ./nvmupdate64e can't initialize the XL710 card in recovery mode.

```
Intel® Ethernet NVM Update Tool  
NVMUpdate version 1.41.3.1  
Copyright © 2013 - 2024 Intel Corporation.
```

```
Config file read.
```

```
Warning: Cannot initialize port: [00:059:00:00] Intel® Ethernet Converged Network  
Adapter XL710-Q2
```


Warning: Cannot initialize port: [00:059:00:01] Intel® Ethernet Controller XL710
Generic ID

3.2.4 Pre-Boot

- The blink LED test executed from the UEFI setup menu may not work correctly for 10G speed when the link is up for the given port.

3.2.5 VMware Driver

- None for this release.

3.2.6 Firmware/NVM/NVM Update

- After updating to NVM 4.11 in some servers, one port of X557/X527 OCP adapter appears link down from Windows Device Manager after reboot. (disabling SR-IOV increases repro rate)

Workaround: Link status is restored back to normal after unplug/plug cable or disable/enable the affected port from Windows Device Manager.

- NVM content might be corrupted after nvupdate due to old FW version generating errors. In this cases "**i40e: eeprom check failed (-5), Tx/Rx traffic disabled**" will appear.
- After patch RDE AutoSpeedNegotiationEnabled property the value will maintain current value.

3.3 Intel® Ethernet 500 Series Network Adapters

- For X550 windows driver design, vectors 0 through 7 are enabled at driver init and all Rss queues and queues from various TCs are mapped to it. But more vectors are available to use (GetVectorsAvailableForRssQueues = 16 , NumRssQueues = 8). After getting an RSS indirection table update, a new vector outside of 0 to 7 range can be chosen for a queue while doing the queue to CPU remapping process. If that vector is outside of the 0-7 range, current design will have trouble for the queue to CPU remapping process and cause 10400 event.

Workaround: Change RSS processor count & queue count max/default value to 8 to align with max 8 queue mapping support on driver to avoid issue.

- Intermittent Traffic Delivery Failure on SLES 15 SP5/SP6 with VF Connected to SW Bridge: an issue has been identified in SLES 15 SP5/SP6 where network traffic from a Virtual Function (VF) connected to a software bridge (SW bridge) may intermittently fail to reach the intended client. This problem is impacting the reliability of network communications in virtualized environments utilizing software bridges.

Result: traffic from vf connected to SW bridge sometimes may not reach a client.

3.4 Legacy Devices

- None for this release.

4.0 NVM Upgrade/Downgrade 800 Series/700 Series and X550

Refer to the Feature Support Matrix (FSM) links listed in [Feature Support Matrix](#) for more detail. FSMs list the exact feature support provided by the NVM and software device drivers for a given release.

5.0 Languages Supported

Note: This only applies to Microsoft Windows and Windows Server Operating Systems.

This release supports the following languages:

Languages	
English French German Italian Japanese	Spanish Simplified Chinese Traditional Chinese Korean Portuguese

6.0 Related Documents

Contact your Intel representative for technical support about Intel® Ethernet Series devices/adapters.

6.1 Feature Support Matrix

These documents contain additional details of features supported, operating system support, cable/modules, etc.

Device Series	Support Link
Intel® Ethernet 800 Series: – E810 – E820 Intel® Ethernet Controller E810 and Intel® Ethernet Connection E82X Feature Comparison Matrix	https://cdrdv2.intel.com/v1/dl/getContent/630155 https://cdrdv2.intel.com/v1/dl/getContent/739764 https://cdrdv2.intel.com/v1/dl/getContent/751546
Intel® Ethernet 700 Series: – X710/XXV710/XL710 – X722 – X710-TM4/AT2 and V710-AT2	https://cdrdv2.intel.com/v1/dl/getContent/332191 https://cdrdv2.intel.com/v1/dl/getContent/336882 https://cdrdv2.intel.com/v1/dl/getContent/619407
Intel® Ethernet 500 Series	https://cdrdv2.intel.com/v1/dl/getContent/335253

6.2 Specification Updates

These documents provide the latest information on hardware errata as well as device marking information, SKU information, etc.

Device Series	Support Link
Intel® Ethernet 800 Series	https://cdrdv2.intel.com/v1/dl/getContent/616943
Intel® Ethernet 700 Series: – X710/XXV710/XL710 – X710-TM4/AT2 and V710-AT2	https://cdrdv2.intel.com/v1/dl/getContent/331430 https://cdrdv2.intel.com/v1/dl/getContent/615119
Intel® Ethernet 500 Series – X550 – X540	https://cdrdv2.intel.com/v1/dl/getContent/333717 https://cdrdv2.intel.com/v1/dl/getContent/334566
Intel® Ethernet 300 Series	https://cdrdv2.intel.com/v1/dl/getContent/333066
Intel® Ethernet 200 Series – I210 – I211	https://cdrdv2.intel.com/v1/dl/getContent/332763 https://cdrdv2.intel.com/v1/dl/getContent/333015

6.3 Software Download Package

The release software download package can be found [here](#).

6.4 GitHub Ethernet Drivers and Utilities

For additional information regarding Linux kernel drivers, refer to the [GitHub](#) driver repositories.

6.5 Intel Product Security Center Advisories

Intel product security center advisories can be found at:

<https://www.intel.com/content/www/us/en/security-center/default.html>



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