Intel® Ethernet Controller Products

29.4.1 Release Notes

December 2024

Revision 1.8
778690-001

Revision History

Revision	Date	Comments
1.8	November 2024	• Introducing New OS support:Red Hat Enterprise Linux 9.5
1.7	October 2024	• Introducing New OS support:Windows Server 2025 and Windows 11 24H2 OSes
1.6	August 2024	• Introducing New OS support: Ubuntu 24.04 LTS
1.5	August 2024	• Generic update for FVL, CVL and CPK NIC OEM and FreeBSD 14.1
1.4	July 2024	• Introducing New OS support: SLES 15 **SP6**
1.3	July 2024	• Introducing New OS support: VMware ESXi **8.0u3**
1.2	June 2024	• Introducing New OS Support: Red Hat Enterprise Linux **9.4** and Red Hat Enterprise Linux **8.10**
1.0	May 2024	• Dot release, ESXi drivers update.

Contents

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
29.4.1	• None for this release

1.1.2 Software Features

Release	New Software Support
29.4.1	• New OS support: Red Hat Enterprise Linux 9.5

1.1.3 Firmware Features

Release	New Firmware Support
29.4.1	• None for this release

1.2 Removed Features

Release	Hardware/Feature Support
29.4.1	• None for this release

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
- Red Hat* Enterprise Linux* (RHEL) 9.5
- Red Hat Enterprise Linux 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	1.15.5	4.12.6	1.15.15
Intel® Ethernet 700 Series	2.26.11	4.12.6	1.15.15
Intel® Ethernet 10 Gigabit Adapters	5.21.6	4.20.6	Not Supported
Intel® Ethernet Gigabit Adapters	5.17.5	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	1.19.267.0	1.19.165.0	1.19.164.0	1.18.369.0
i40eb	1.19.267.0	1.19.164.0	1.19.164.0	1.18.369.0
Intel® Ethernet Adaptive Virtual Function				
iavf	1.15.316.0	1.14.203.0	1.14.203.0	1.14.203.0
v40e	Not Supported	Not Supported	Not Supported	Not Supported
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
ixe	Not Supported	Not Supported	Not Supported	Not Supported
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	Windows 10 RS1
Intel® Ethernet 800 Series			
icea	1.15.208.0	1.15.121.0	Not Supported
Intel® Ethernet 700 Series			
i40ea	1.19.248.0	1.19.164.0	Not Supported
Intel® Ethernet Adaptive Virtual Function			
iavf	1.14.203.0	1.14.203.0	1.14.203.0
Intel® Ethernet 10 Gigabit Adapters and Connections			
ixs	4.1.260.0	4.1.254.0	4.1.254.0
ixt	Not Supported	4.1.228.0	4.1.229.0
ixn	Not Supported	4.1.254.0	4.1.254.0
vxs	2.1.252.0	2.1.252.0	2.1.232.0
vxn	Not Supported	2.1.252.0	2.1.252.0
Intel® Ethernet 2.5 Gigabit Adapters and Connections			
e2fn	2.1.4.3	1.1.4.43	Not Supported
Intel® Ethernet Gigabit Adapters and Connections			
e1r	14.0.5.0	14.0.5.0	14.0.6.0
e1d	12.19.2.60	21H2: 12.19.2.60 RS5: 12.18.9.10	12.18.9.10
e1c	Not Supported	Not Supported	23.15.31.4
v1q	Not Supported	1.4.7.3	2.4.7.3

1.4.2 FreeBSD

Operating Systems supported:

- FreeBSD 14.1
- FreeBSD 13.3

Table 4. Supported Operating Systems: FreeBSD

Driver	PF Driver	VF Driver	RDMA Driver
Intel® Ethernet 810/820 Series	1.41.10	3.0.33	1.3.9
Intel® Ethernet 700 Series	1.14.2	3.0.33	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	4.60
820 Series	
E822	3.39
E823-C	3.39
E823-L	3.39
700 Series	
X710	9.52
X722	6.50
500 Series	
X550	3.60
X552NS	2.10
X552DE	2.10
X553	2.10
200 Series	
I210	2.00

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

- Removed the need for EMPR after temperature fatal threshold is exceeded.
- Occasionally, modified RDE settings are not applied after reboot/PCIR.
- The NVMUpdate tool cannot properly recognize devices which are installed on PCI segment different than 0 when running under efi shell.

2.1.1.3 Linux

- When Firmware is operating in mode when LLDP is ON, the DCB-MAP is not reflecting as configured in both switch and back to back.
- Triggering 2 or more VF resets in immediate succession across many VF's may cause unstable behavior of the ice driver if the VF's in question have different numbers of allocated queues. This also applies to commands that can trigger VF resets internally such as setting MAC address, trust value, port VLANs or LUT settings.

  Workaround: Adding small delay between reset-triggering commands.

2.1.1.4 Windows Server

- Running the command /dxsetup.exe PROSET=0 ANS=0 was resulting in a initialization of a logging subsystem that is no longer used. This subsequently resulted in the file "rule.txt" being created on the system under C:\. This has been fixed, and the "rule.txt" file is no longer created.

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

- It is expected that after modifying port options the user is not able to apply any additional configuration changes before the platform is rebooted. Due the error in the driver no warning messages are displayed and the user is able to perform additional changes that can lead to incorrect card configuration.

2.1.2 Intel® Ethernet 820 Series

2.1.2.1 Firmware/NVM/NVM Update

- In combination with some specific VF-PF drivers timestamp may not work at all on Intel® Ethernet 820 Series devices.

2.1.3 Intel® Ethernet 700 Series Network Adapters

2.1.3.1 Firmware/NVM/NVM Update

- Regression of an issue where POST to the "NetworkAdapter.ResetSettingsToDefault" looked successful from postman, but after reboot the adapter's Port 1 LLDP setting did not reset to default.
- Incorrectly reported version for NC-SI over MCTP - reports 1.0.1 and 1.1.0 instead of correct 1.0.0 and 1.1.0.

2.1.3.2 ESX Driver

- None for this release

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
- 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.

3.1.1.2

Due to third party tool limitations, DxSetup could fail if the installer source path contains characters not supported by the currently enabled OS language.
Workaround: DxSetup will now detect, return an error and fail the install, if characters used in the installer source path are unsupported by the currently enabled OS language. **Firmware/NVM/NVM Update**

- RDE: Setting property (AutoSpeedNegotiationEnabled.) not causing property value 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

- 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.
- During TC configuration, using the "ethtool -S <vf_interface>" command results in a crash due to invalid memory access during reconfiguration of queues.
- 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 in 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.
- On SLES15SP6 it is possible that the kernel will release the second interface from a bond immediately upon adding it. This is the result of a kernel issue.

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 100 MB option, is visible in Windows* Device Manager. However, when it is selected, a link cannot be established.

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
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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.
- 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. Issue under investigation.
- 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 XL71.
- NVM content corrupted after nvmupdate. The bug affects users only at the time when they try to update NVM, and only Firmware versions that generate errors while nvmupdate such as X710DA2 with 0x8000ECB7.

  In the log instead of:
  ```
  i40e_nvmupd_exec_aq err I40E_ERR_ADMIN_QUEUE_ERROR aq_err I40E_AQ_RC_ENOMEM)
  ```

  Output:
  ```
  i40e_nvmupd_exec_aq err -EIO aq_err I40E_AQ_RC_ENOMEM
  i40e: eeprom check failed (-5), Tx/Rx traffic disabled
  ```
- 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 form 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 SourceForge Ethernet Drivers and Utilities

For additional information regarding Linux kernel drivers, refer to the *Intel® Ethernet Drivers and Utilities* SourceForge project page.

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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