# Release Notes for NXP S32G PFE Linux driver

**Rev. 1.5.0 — 27 September 2023**                    **Release notes**

## Revision History

**Revision history**

| Revision | Date |
|---|---|
| EAR 0.8.0 | 04.05.2020 |
| BETA 0.9.0 | 03.09.2020 |
| BETA 0.9.1 | 19.10.2020 |
| BETA 0.9.2 | 17.12.2020 |
| BETA 0.9.3 | 12.02.2021 |
| BETA 0.9.4 | 14.05.2021 |
| BETA 0.9.5 | 31.08.2021 |
| BETA 0.9.6 | 06.12.2021 |
| BETA 0.9.7 | 31.03.2022 |
| RTM 1.0.0 | 01.07.2022 |
| RTM 1.1.0 | 30.09.2022 |
| 1.2.0 | 16.12.2022 |
| 1.3.0 | 13.04.2023 |
| 1.4.0 | 29.06.2023 |
| 1.5.0 | 27.09.2023 |

# 1 Introduction

Release Notes for NXP S32G PFE Linux driver Version 1.5.0.

NXP and the NXP logo are trademarks of NXP.

All product or service names are the property of their respective owners.

Copyright (C) 2018-2023 NXP

# 2 What is new in this release

This release has the following status in terms of testing and quality documentation:

- ORTM for S32G3
- ORTM for S32G2

The main goals of this release are:

1. Support for PFE FW 1.4.0/1.5.0/1.6.0/1.7.0/1.7.1
2. PTP supports in PFE slave
3. Support for Linux Slave STR when resetting master
4. Slave coalesce support

The release includes also other features and many improvements, as well as an important number of bug fixes (see detailed list below).

***Note:***

*The optimal PFE performance is obtained when buffers are placed in SRAM.*

*More recommendations can be found in PFE_S32G_A53_LNX_UserManual.pdf - Performance Considerations chapter.*

# 3 Installation

Install the package into the desired directory and follow the enclosed user manual.

# 4 Release Location

This 1.5.0 release sources are internally stored at location:

https://bitbucket.sw.nxp.com/projects/AUTO_ETH/repos/pfe_linux/browse

GIT release tag: BLN_PFE-DRV_S32G_A53_LNX_1.5.0

# 5 Release Specifics

This release was developed and tested with:

- Geany IDE version 1.38
- editor VIM - Vi IMproved 8.2
- NXP Auto Linux BSP 38
- GCC 11.3/10.2/10.3/8.3

This release was developed and tested using:

- Evaluation board: S32G-VNP-EVB
  - S32GRV-PLATEVB SCH-30081
  - X-S32G-PROCEVB-S SCH-32170
- Evaluation board: S32G-VNP-EVB3
  - S32GRV-PLATEVB SCH-30081
  - S32G-PROCEVB3-S SCH-50784
- S32G2 Vehicle Networking Reference Design: S32G-VNP-RDB2 SCH-47440
- S32G3 Vehicle Networking Reference Design: S32G-VNP-RDB3 SCH-53060

# 6 Supported Features

- Integrates the S32G PFE Ethernet driver
- Supports slow-path functionality
- Supports fast-path features and configuration API

# 7 Supported Derivatives

The release integrates following derivatives:

- S32G2 PS32G274ABVUC 0P77B Rev. 2.0
- S32G2 PS32G274ABVUC 1P77B Rev. 2.1
- S32G3 P32G399AACVUC 0P72B Rev. 1.0[1]
- S32G3 PS32G399AACVUC 1P72B Rev. 1.1

# 8 Directory Structure

Release package directory structure:

- `sw/bpool`
  BPool library sources (dependency for the linux-pfeng)
- `sw/common`
  Common library sources (dependency for the linux-pfeng)
- `sw/linux-pfeng`
  Linux kernel driver sources (the driver project)
- `sw/elf`
  ELF library sources (dependency for linux-pfeng)
- `sw/fifo`
  FIFO library sources (dependency for linux-pfeng)
- `sw/hal`
  HAL library sources (dependency for linux-pfeng)
- `sw/oal`
  OAL library sources (dependency for linux-pfeng)
- `sw/pfe_hif_drv`
  Host interface library sources (dependency for linux-pfeng)
- `sw/pfe_platform`
  PFE Platform library sources (dependency for linux-pfeng)
- `sw/fci`

---

1 Supported but not tested.

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**3 / 27**

FCI endpoint library sources (dependency for linux-pfeng)
- `sw/xfci/libfci`
The FCI library sources (FCI library and dependency for linux-pfeng)
- `sw/libfci_cli`
FCI CLI DEMO example utility libfci_cli sources
- `doc/`
User's manual, FCI API Reference manual and device-tree
- `PFE_S32G_A53_LNX_1.5.0_ReleaseNotes.pdf`
Release notes file
- `LICENSE-GPL2.txt`
License text file
- `LICENSE-BSD3.txt`
License text file
- `PFE_S32G_A53_LNX_1.5.0_SCR.txt`
Software Content Register

# 9 Compiler Options

Compiler options are described within Makefile located in every SW module directory.

# 10 Assumptions

- Compatible firmware:
  - PFE-FW_S32G_1.4.0
  - PFE-FW_S32G_1.5.0
  - PFE-FW_S32G_1.6.0
  - PFE-FW_S32G_1.7.0
  - PFE-FW_S32G_1.7.1
- Compatible Linux BSP: Linux BSP 38

# 11 Known Issues

Limitations:

- Not implemented: FCI API: IEEE1588 Timer ownership control
- Not implemented: FCI API: SYN/FIN/RST fast-forward control

List of known issues:

- [AAVB-3527] - [PFE_DRV_LINUX] Platform doesn't clear all states on destroy (issue for suspend)
- [AAVB-4103] - [PFE_DRV_LINUX] Autoneg from 2.5 to 1G on PFE0 - Error from Aquantia PHY
- [AAVB-4505] - [PFE_DRV_LINUX] Slave AUX only scenario: Not able to access PHY registers over MDIO
- [AAVB-5568/4102] - [PFE_DRV_LINUX] Include file recursion pfe_log_if.h/pfe_phy_if.h
- [AAVB-5570/3776] - [PFE_DRV_LINUX] HIF channel DMA is active even when there is no traffic
- [AAVB-5574/3701] - [PFE_DRV_LINUX] HIF and HIF_NOCPY channels still receive data even if Rx path is disabled
- [AAVB-6647] - [PFE_DRV_LINUX] RMII PHY on pfe2 not working after IF down/up

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**4 / 27**

- [AAVB-7019] - Out of Order Packets - Slow Path Ipv4 RFC2544 forwarding tests (UDP)
- [AAVB-7022] - [PFE_DRV_LINUX] Logical interfaces are not fully probed in multiple instance mode
- [AAVB-7160] - [PFE_DRV_LINUX] All BMU buffers are allocated
- [AAVB-7545] - [PFE_DRV_LINUX] pfe_emac_del_addr may remove entries from emac MAC hash table belonging to other MAC address
- [AAVB-7796] - Correct handle pfeng_netif_logif_init_second_stage() in the Suspend and Resume scenario
- [AAVB-7856] - [PFE_DRV_LINUX] Unregister MDIO buses on driver shutdown
- [AAVB-7973] - Inappropriate oal_mutex_lock() implementation for preemptible kernel
- [AAVB-8053] - PFE TX timed out
- [AAVB-8062] - [PFE_DRV_LINUX] Failed to initialize PFE Linux Slave driver due to RPC dropped
- [AAVB-8160] - [PFE DRV LINUX] Rare SError exception in pfe_tmu_cfg_init() during Standalone driver load
- [AAVB-8861] - [PFE_DRV_LINUX] ethtool -s pfeX speed 1000 autoneg off command does not propagate speed change to driver

# 12  3rd Party Issues

List of 3rd party issues:

# 13  Changelog

## 13.1  What's Modified in 1.5.0

- **New Feature**
  - [AAVB-7631] - [PFE_DRV_LINUX] PTP supports in PFE slave
  - [AAVB-8097] - [PFE_DRV_LINUX] Support for Linux Slave STR when resetting master
- **Improvement**
  - [AAVB-8328] - [PFE_DRV_LINUX] Remove PFE_CFG_HIF_NOCPY_SUPPORT from logif FCI code
  - [AAVB-8561] - [PFE_DRV_LINUX] Slave coalesce support
  - [AAVB-8789] - [PFE_DRV_LINUX] Convert EMAC 'ts_mutex' to sleep-able mutex (mutex_lock())
- **Bug**
  - [AAVB-4031] - [PFE_DRV_LINUX] Driver crash: rcu_preempt self-detected stall on CPU (~ 1 in a 1000 times)
  - [AAVB-4870] - [PFE_DRV_LINUX] Coverity: CID 21531071: Structurally dead code
  - [AAVB-5091] - [PFE_DRV_LINUX] Warning info - Unable to get MAC address - when PFE master on A53 and slave on M7
  - [AAVB-6893] - [PFE_DRV_LINUX] PFE fails to sync gPTP time as a GM with linuxptp
  - [AAVB-6994] - [PFE_DRV_LINUX] TDQ and SHP address range for PHY5(Util) does not exist on G2
  - [AAVB-7611] - [PFE_DRV_LINUX] Slave MDIO returns garbage for non-existant PHY read access

–[AAVB-7682] - [PFE_DRV_LINUX] PFE driver crashes (very rarely) when repeatedly loaded and unloaded

–[AAVB-7751] - [PFE_DRV_LINUX] FCI: Wrong SIP6/DIP6 values in LOGIF QUERY response data

–[AAVB-7949] - [PFE_DRV_LINUX] PFE2 stops working after reload pfe driver

–[AAVB-8003] - [PFE_DRV_LINUX]Assembly instructions in fifo.h code may be generated out of order

–[AAVB-8209] - [PFE_DRV_LINUX] Missing dependency for the Slave ungraceful reset procedure

–[AAVB-8636] - [PFE_DRV_LINUX] Bug in finding RX WR BD index while ungraceful reset

–[AAVB-8706] - [PFE_DRV_LINUX] Slave shutdown disables HIF error interrupts

## 13.2 What's Modified in 1.4.0

- **New Feature**
  - [AAVB-7397] - [PFE_DRV_LINUX] Slave HIF ungraceful reset
  - [AAVB-7583] - [PFE_DRV_LINUX] Activate Jumbo Frames support for the Slave driver
- **Improvement**
  - [AAVB-6066] - [PFE_DRV_LINUX] remove kernel 5.4 backward compatibility
  - [AAVB-7589] - [PFE_DRV_LINUX] buildsystem: build submodules as libs
  - [AAVB-7721] - [PFE_DRV_LINUX] Remove remaining PFE_CFG_HIF_NOCPY_SUPPORT code and references
- **Bug**
  - [AAVB-3970] - [PFE_DRV_LINUX] IDEX: remove use of in_atomic()
  - [AAVB-4867] - [PFE_DRV_LINUX] Coverity: CID 21531074: 'Constant' variable guards dead code
  - [AAVB-6865] - [PFE_DRV_LINUX] Slave startup fails if PFE_CFG_HIF_RING_LENGTH is not 256
  - [AAVB-6887] - [PFE_DRV_LINUX] function pfe_mac_db_get_first_addr pfe_mac_db_get_next_addr return false match
  - [AAVB-7366] - SIOCSHWTSTAMP and SIOCGHWTSTAMP returns success in slave mode
  - [AAVB-7401] - [PFE_DRV_LINUX] fci_routes_cmd() returns with NXP error when output_device is HIF
  - [AAVB-7494] - [PFE_DRV_LINUX] PFE slave logical interfaces are not available after reload pfe slave
  - [AAVB-7560] - [PFE_DRV_LINUX] Slave supend fails because of wrong return value
  - [AAVB-7611] - [PFE_DRV_LINUX] Slave MDIO returns garbage for non-existant PHY read access
  - [AAVB-7678] - [PFE_DRV_LINUX] Mismatch in processing of FCI_MSG_CLIENT_UNREGISTER between libFCI and PFE driver
  - [AAVB-7735] - [PFE_DRV_LINUX] Limitation: Master driver doesn't support Suspend to RAM
  - [AAVB-7774] - [PFE_DRV_LINUX] Failed to initialize PFE Slave driver when PFE TX/RX is busy
  - [AAVB-7789] - [PFE_DRV_LINUX] Wrong process when pfe_log_if_write_to_class fails in pfe_log_if_create

– [AAVB-7942] - [PFE_DRV_LINUX] Slave shall not distinguish errno values on Slave IF_DB lock request

– [AAVB-8078] - [PFE_DRV_LINUX] Fix descriptor debug dump formatting - CTRL_OFFSET and WB seq/bufl

## 13.3  What's Modified in 1.3.0

- **New Feature**
  - [AAVB-3648] - [PFE_DRV_LINUX] Suspend to RAM for Slave mode
  - [AAVB-5020] - [PFE_DRV_LINUX] Allow PTP external time source for EMACs
  - [AAVB-5495] - [PFE_DRV_LINUX] Implement routing rule monitoring API
  - [AAVB-6179] - [PFE_DRV_LINUX] PFE slave driver MDIO access
  - [AAVB-6261] - [PFE_DRV_LINUX] Implement lossless Tx with indirect access to TMU counters, Host-to-EMAC
  - [AAVB-6542] - [PFE_DRV_LINUX] Implement HIF endpoints
  - [AAVB-6668] - [PFE_DRV_LINUX] Bridge vlan lookup in software table
  - [AAVB-6686] - [PFE_DRV_LINUX] Support for Jumbo Frames in Linux Driver
  - [AAVB-7057] - [PFE_DRV_LINUX] Supports graceful stop PFE when slave Linux is shut down or restarted

- **Improvement**
  - [AAVB-4418] - [PFE_DRV_LINUX] Show all FW features on driver startup
  - [AAVB-4805] - [PFE_DRV_LINUX] Don't log by default msg when frame comes from HIF and no AUX is involved
  - [AAVB-6682] - [PFE_DRV_LINUX] Activate PFE routing entries in LMEM on G3 by default
  - [AAVB-6842] - [PFE_DRV_LINUX] Don't shrink debugfs output
  - [AAVB-6886] - [PFE_DRV_LINUX] HW bridge lookup should be disabled, if not required by configured mode
  - [AAVB-6915] - [PFE_DRV_LINUX] Don't log error Unsubscribe from HIF message when detached netif
  - [AAVB-7081] - [PFE_DRV_LINUX] Slave driver support for IHC command retry
  - [AAVB-7260] - [PFE_DRV_LINUX] Slave support for managing HIF channels coherency

- **Bug**
  - [AAVB-3751] - [PFE_DRV_LINUX] Rare FW errors on unload
  - [AAVB-5117] - [PFE_DRV_LINUX] RPC transport failed after repeated load & unload of pfeng-slave driver
  - [AAVB-5760] - [PFE_DRV_LINUX] The PFE driver randomly generated time-out messages
  - [AAVB-5776] - [PFE_DRV_LINUX] G3: EMAC FSM errors is looping all the time
  - [AAVB-5904] - [PFE_DRV_LINUX] The PFE driver prints a large number of firmware messages#Mixed in with (Invalid error address from FW)
  - [AAVB-6316] - [PFE_DRV_LINUX] Health monitor parity event can be triggered only once
  - [AAVB-6386] - [PFE_DRV_LINUX] Various PE-related errors in dmesg if driver stressed with many phyif-print cli commands
  - [AAVB-6436] - [PFE_DRV_LINUX] Compile error in pfe_l2br_table.c
  - [AAVB-6444] - [PFE_DRV_LINUX] FCI clients lock failed and kernel stack overflow during driver shutdown when all log levels redirected to HM

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**　　　　**Rev. 1.5.0 — 27 September 2023**

**7 / 27**

- – [AAVB-6494] - [PFE_DRV_LINUX] Compile warning on GCC 12.1.1
- – [AAVB-6497] - [PFE_DRV_LINUX] Unrecoverable ECC reported when bridge is disabled
- – [AAVB-6596] - [PFE_DRV_LINUX] Slave can't read/write clause 45 of MDIO
- – [AAVB-6679] - [PFE_DRV_LINUX] MDIO ioctrl access fails on kernel 5.15
- – [AAVB-6807] - [PFE_DRV_LINUX] Inconsistent values returned by pfe_phy_if_get_name() and pfe_log_if_get_name()
- – [AAVB-6876] - [PFE_DRV_LINUX] Risk of PFE Linux driver crash before pfeng_netif_logif_init_second_stage completes
- – [AAVB-6918] - [PFE_DRV_LINUX] S32G3 PFE Linux driver Tx stalls (DXR_CSR_TX_TIMEOUT_CH1_INTT)
- – [AAVB-7064] - [PFE_DRV_LINUX] Memory leak when routing table entry timeouts
- – [AAVB-7075] - [PFE_DRV_LINUX] Slave "leaks" self-created HIF logif on shutdown
- – [AAVB-7115] - [PFE_DRV_LINUX] Memory leak if some fail during creation of static L2 bridge MAC entry
- – [AAVB-7119] - [PFE_DRV_LINUX] Risk of invalid pointer access when working with routing table database entries
- – [AAVB-7357] - [PFE_DRV_LINUX] Corrupted packets on some ports when replicate to multiple ports
- – [AAVB-7365] - [PFE_DRV_LINUX] HIF Tx header is included in SW Tx timestamped skbs

## 13.4 What's Modified in 1.2.0

- **New Feature**
  - – [AAVB-4682] - [PFE_DRV_LINUX] Add support for PFE routing entries in LMEM on G3
  - – [AAVB-6002] - [PFE_DRV_LINUX] Health monitor module (slave)
  - – [AAVB-6003] - [PFE_DRV_LINUX] Health monitor FCI API
  - – [AAVB-6037] - [PFE_DRV_LINUX] Port the PFE driver to kernel 5.15
  - – [AAVB-6179] - [PFE_DRV_LINUX] PFE slave driver MDIO access - Initial support - tested in Linux scenarios with stub on M7 core
- **Improvement**
  - – [AAVB-5499] - [PFE_DRV_LINUX] libfci_cli: Add support for catching driver events
  - – [AAVB-5589] - [PFE_DRV_LINUX] Re-factor pfe_pe_mem_write() for single-byte data
  - – [AAVB-5796] - [PFE_FW] aseq_len must be set to 0x10 on g3
  - – [AAVB-5900] - [PFE_DRV_LINUX] signal RX cksum offloading only for supported packet types
  - – [AAVB-5962] - [PFE_DRV_LINUX] Implement basic interface to search/get/set config/stats
  - – [AAVB-6230] - [PFE_DRV_LINUX] Connect runtime errors to health monitor
  - – [AAVB-6268] - [PFE_DRV_LINUX] PFE shutdown for A core domain standalone reset
- **Bug**
  - – [AAVB-5345] - [PFE_DRV_LINUX] libfci_cli hangs after traffic load test (Bridging fast path)
  - – [AAVB-5489] - [PFE_DRV_LINUX] Tx timestamp message of pfe timeout when it is under high load

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**8 / 27**

- – [AAVB-5566] - [PFE_DRV_LINUX] Thread deadlock in pfe_log_if
- – [AAVB-5572/3768] - [PFE_DRV_LINUX] Multi-Instance: RPC will not work after many logical interfaces were created
- – [AAVB-5836] - [PFE_DRV_LINUX] Ingress QoS classification based on L4 port ID range is not functional
- – [AAVB-5945] - [PFE_DRV_LINUX] S32G3 Wrong number of WDT IRQ number
- – [AAVB-6084] - [PFE_DRV_LINUX] risk of seconds and nanoseconds not aligning in get_ts()
- – [AAVB-6139] - [PFE_DRV_LINUX] Storing cleanup data for the last skb frag after triggering frame Tx is risky
- – [AAVB-6188] - [PFE_DRV_LINUX] The skb associated with tx timestamp contains the tx header
- – [AAVB-6199] - [PFE_DRV_LINUX] Software Tx timestamping not enabled for Slave aux0sl interface
- – [AAVB-6206] - [PFE_DRV_LINUX] The event FPP_CMD_ENDPOINT_SHUTDOWN is not asserted after perform suspend on RAM
- – [AAVB-6215] - [PFE_DRV_LINUX] Memory leaked for each routing table entry addition
- – [AAVB-6216] - [PFE_DRV_LINUX] Routing table conntrack stats report negative values
- – [AAVB-6313] - [PFE_DRV_LINUX] Traffic mirrored to HIF with ADD_VLAN_HDR corrupts packet

## 13.5 What's Modified in RTM_1.1.0

- **New Feature**
  - – [AAVB-2058] - [PFE_PLATFORM] PE stall/crash detection
  - – [AAVB-3962] - [PFE_PLATFORM] VLAN Statistics FCI API
  - – [AAVB-3991] - [PFE_PLATFORM] S32G3: report all errors
  - – [AAVB-5231] - [PFE_PLATFORM] EMAC events handling - EMACs ECC, Timeout and Parity checking and implement events processing
  - – [AAVB-5277] - [PFE_PLATFORM] Health monitor module in Master mode
  - – [AAVB-5497] - [PFE_DRV_LINUX] Implement FCI ownership negotiation
  - – [AAVB-5713] - [PFE_DRV_LINUX] PTP frames distribution FCI API
- **Improvement**
  - – [AAVB-2409] - [PFE_PLATFORM] Routing table hash algorithm update to be more benefical for symetric trafic routes
  - – [AAVB-5040] - [PFE_DRV_LINUX] FCI: Change mutex locking scheme of FCI module to better support FCI events
  - – [AAVB-5780] - [PFE_DRV_LINUX] The for loop for clearing LMEM is optimized as memset while pfe is built into kernel
- **Bug**
  - – [AAVB-4508] - [PFE_DRV_LINUX] Aquantia PHY driver allows to connect on unsupported speeds (speed higher than 2.5G)
  - – [AAVB-4755] - [PFE_DRV_LINUX] Coverity: CID 10134: Logically dead code
  - – [AAVB-5086] - [PFE_DRV_LINUX] The counter of conntrack does not work properly
  - – [AAVB-5555] - [PFE_DRV_LINUX] BMU2 buffer size should not be configurable
  - – [AAVB-5564/4863] - [PFE_DRV_LINUX] Coverity: CID 21531078: Logically dead code removal

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**9 / 27**

– [AAVB-5658] - [PFE_LINUX][develop]Receiving on PFE ethernet interface can get stalled with a lot of DDR traffic

– [AAVB-5768] - Frame reception is unreliable after Linux exits Out Of Memory (OOM) condition

## 13.6  What's Modified in BETA_1.0.0

- **New Feature**
  - [AAVB-4524] - [PFE_DRV_LINUX] libFCI: Add fci_fd()
  - [AAVB-4726] - [PFE_DRV_LINUX] Enable placement of BMU2 buffers and routing table in SRAM
- **Improvement**
  - [AAVB-2412] - [PFE_DRV_LINUX] Make routing table configurable
  - [AAVB-3202] - [PFE_DRV_LINUX] finalize pinctrl for EVB, RDB & RDB devboards
  - [AAVB-3295] - [PFE_DRV_LINUX] pfe driver should report phy timestamping support
  - [AAVB-3829] - [PFE_DRV_LINUX] Retry to request(clk_prepare_enable) RX clock
  - [AAVB-3874] - [PFE_DRV_LINUX] S32G3: allows 2500 Mbps over SGMII
  - [AAVB-4028] - [PFE_DRV_LINUX] Simplify DT: hide HIF config
  - [AAVB-4112] - [PFE_DRV_LINUX] Remove HIF NOCPY from driver
  - [AAVB-4880] - [PFE_DRV_LINUX] Clean-up: remove PFENG_CFG_LINUX_NO_SERDES_SUPPORT
  - [AAVB-5016] - [PFE_DRV_LINUX] Defeature reserved-memory support from the Slave driver
  - [AAVB-5207] - [PFE_DRV_LINUX] pfeng: remove silicon check
- **Bug**
  - [AAVB-3197] - [PFE_DRV_LINUX] pinctrl-0/pinctrl-names properties are ignored
  - [AAVB-4466] - [PFE_DRV_LINUX] eth0 logical interface can not work after perform suspend on ram
  - [AAVB-4607] - [PFE_DRV_LINUX] Failed to disable logical interface during driver unload
  - [AAVB-4674] - [PFE_DRV_LINUX] Napi schedule customer bug report
  - [AAVB-4675] - [PFE_DRV_LINUX] Preemption counter shouldn't be modified by drv
  - [AAVB-4677] - [PFE_DRV_LINUX] Can not ping from/to PFE0 after suspend on RAM
  - [AAVB-4721] - [PFE_DRV_LINUX] BUG: use-after-free Read in pfeng_netif_logif_xmit
  - [AAVB-4742] - [PFE_DRV_LINUX] Coverity: CID 21530842: Operands don't affect result
  - [AAVB-4743] - [PFE_DRV_LINUX] Coverity: CID 21530841: Uninitialized scalar variable
  - [AAVB-4744] - [PFE_DRV_LINUX] Coverity: CID 21530840: Resource leak
  - [AAVB-4745] - [PFE_DRV_LINUX] Coverity: CID 21530839: Uninitialized scalar variable
  - [AAVB-4746] - [PFE_DRV_LINUX] Coverity: CID 21530838: Resource leak
  - [AAVB-4747] - [PFE_DRV_LINUX] Coverity: CID 21530837: Dereference before null check
  - [AAVB-4748] - [PFE_DRV_LINUX] Coverity: CID 21530836: Unused value
  - [AAVB-4749] - [PFE_DRV_LINUX] Coverity: CID 21530835: Unused value
  - [AAVB-4750] - [PFE_DRV_LINUX] Coverity: CID 21530834: Unchecked return value

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**10 / 27**

- – [AAVB-4751] - [PFE_DRV_LINUX] Coverity: CID 21530833: Explicit null dereferenced
- – [AAVB-4752] - [PFE_DRV_LINUX] Coverity: CID 21530832: Dereference null return value
- – [AAVB-4753] - [PFE_DRV_LINUX] Coverity: CID 21272112: Out-of-bounds access
- – [AAVB-4754] - [PFE_DRV_LINUX] Coverity: CID 21099164: Logically dead code
- – [AAVB-4762] - [PFE_DRV_LINUX] OAL mem management init error causes seg fault
- – [AAVB-4763] - [PFE_DRV_LINUX] Slave driver: PFE_CFG_LINUX_RES_MEM_ENABLE cannot be enabled
- – [AAVB-4779] - [PFE_DRV_LINUX] driver doesn't receive traffic in AUX only mode
- – [AAVB-4864] - [PFE_DRV_LINUX] Coverity: CID 21531077: Uninitialized scalar variable
- – [AAVB-4865] - [PFE_DRV_LINUX] Coverity: CID 21531076: Dereference before null check
- – [AAVB-4866] - [PFE_DRV_LINUX] Coverity: CID 21531075: 'Constant' variable guards dead code
- – [AAVB-4868] - [PFE_DRV_LINUX] Coverity: CID 21531073: Uninitialized scalar variable
- – [AAVB-4869] - [PFE_DRV_LINUX] Coverity: CID 21531072: Uninitialized scalar variable
- – [AAVB-4993] - [PFE_DRV_LINUX] Fix kmalloc alignment checks for oal_mm_malloc_contig_*_aligned_cache
- – [AAVB-5035] - [PFE_DRV_LINUX] PFE2 SGMII mode doesn't up to speed 2.5 Gb
- – [AAVB-5039] - [PFE_DRV_LINUX] Master detect feature should not access registers during soft reset
- – [AAVB-5072] - [PFE_DRV_LINUX] Segmentation fault triggered by mii-tool aux0
- – [AAVB-5073] - [PFE_DRV_LINUX] Kernel panic when running ptp4l with aux0
- – [AAVB-5205] - [PFE_DRV_LINUX] Coverity: CID 21764888,21764889: Out-of-bounds write
- – [AAVB-5206] - [PFE_DRV_LINUX] Coverity: CID 21764890: Dereference null return value
- – [AAVB-5212] - [PFE_DRV_LINUX] oal_mm reserved-memory nodes parsing fixes
- – [AAVB-5236] - [PFE_DRV_LINUX] PFE stops working along with HIF channel timeout
- **PFE Platform - New Feature**
  - – [AAVB-4117] - [PFE_PLATFORM] Implement soft_reset_done bit on G3
  - – [AAVB-4673] - [PFE_PLATFORM] Routing table statistics FCI API
- **PFE Platform - Improvement**
  - – [AAVB-3027] - [PFE_PLATFORM] Flush MAC table when interface is removed from bridge domain
  - – [AAVB-3523] - [PFE_PLATFORM] Avoid modifying elf binary buffer when it is being loaded
  - – [AAVB-3969] - [PFE_PLATFORM] Remove global flexible filter: FCI part
  - – [AAVB-4680] - [PFE_PLATFORM] ERR051211: Driver shall update queue data in firmware before setting new queue sizes in TMU

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**11 / 27**

- – [AAVB-4890] - [PFE_PLATFORM] Disable dynamic TMU configuration for UTIL interface
- **PFE Platform - Bug**
  - – [AAVB-3968] - [PFE_PLATFORM] FCI: isl value of QoS shaper is decremented with each shaper update
  - – [AAVB-4218] - [PFE_PLATFORM] MMC interrupt may be triggered without being handled
  - – [AAVB-4273] - [PFE_PLATFORM] pfe_phy_if_create() will cause a segmentation fault if mac db not created successfully
  - – [AAVB-4308] - [PFE_PLATFORM] 'Unmanaged' packets are not dropped if DMEM queue level above WRED MAX threshold
  - – [AAVB-4492] - [PFE_PLATFORM] Dynamic activation of the Ingress QoS policer block not reliable
  - – [AAVB-4713] - [PFE_PLATFORM] FCI: cannot set conntrack timeout for TCP and UDP traffic via FPP_CMD_IPV4_SET_TIMEOUT
  - – [AAVB-4740] - [PFE_PLATFORM] Driver crash during unload if conntrack FCI events are issued
  - – [AAVB-4808] - [PFE_PLATFORM] pfe_l2br_domain_create() does not return failure code when malloc 'domain' fails
  - – [AAVB-4828] - [PFE_PLATFORM] Logical interface name requested by slave driver is null string
  - – [AAVB-5082] - [PFE_PLATFORM] ERR051211 - Wrong default optimal queue size for TMU Q1-7

## 13.7  What's Modified in BETA_0.9.7

- **New Feature**
  - – [AAVB-4226] - [PFE_DRV_LINUX][PFE_PLATFORM] Support for PFE Configuration using FCI API from Linux Slave Driver through MCAL Master Driver as a Proxy
  - – [AAVB-4628] - [IMPLEMENTATION] Support RDB3 board in 2022 Q1 Releases
- **Improvement**
  - – [AAVB-2128] - [PFE_QNX/LINUX] Create a common database module and use it in FCI
  - – [AAVB-2397] - [PFE_DRV_LINUX] pfeng: dt: move to reg-names
  - – [AAVB-3343] - [PFE_DRV_LINUX] mtu 64: Network is unreachable
  - – [AAVB-4144] - [PFE_DRV_LINUX] Driver message logging refactor
  - – [AAVB-4180] - [PFE_DRV_LINUX] Master warn about IHC msg on wrong HIF channel
  - – [AAVB-4316] - [PFE_DRV_LINUX] Improve IHC: optimize tx spinlock usage and reduce wait queue overhead
  - – [AAVB-4331] - [PFE_DRV_LINUX] Update documentation with details about FCI Proxy
  - – [AAVB-4360] - [PFE_DRV_LINUX] When HIF is used for AUX and Log interfaces it is not possible to bridge traffic
  - – [AAVB-4431] - [PFE_DRV_LINUX] ERR051211 - Update all comments in Source Code to make refference to ERR051211

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**12 / 27**

- – [AAVB-4472] - [PFE_DRV_LINUX] Rx datapath corner case fixes, optimizations and cleanup
- **Bug**
  - – [AAVB-3908] - [PFE_DRV_LINUX] Slave driver corrupts L2 bridge behavior when using EMAC
  - – [AAVB-4140] - [PFE_DRV_LINUX] Slave: ifconfig doesn't update MAC address forwarding rule on EMAC logif
  - – [AAVB-4244] - [PFE_DRV_LINUX] Ingress QoS IP address classification fails
  - – [AAVB-4276] - [PFE_DRV_LINUX] tcpdump exit or 'ifconfig up' breaks bridging
  - – [AAVB-4277] - [PFE_DRV_LINUX] typo in EMAC autoconfig
  - – [AAVB-4296] - [PFE_DRV_LINUX] Reload pfeng driver fails and hang DUT
  - – [AAVB-4318] - [PFE_DRV_LINUX] FCI proxy - occasional crash when executing LOGIF-related FCI commands
  - – [AAVB-4323] - [PFE_DRV_LINUX] phydev is not dettached when placed on external mdio bus
  - – [AAVB-4330] - [PFE_DRV_LINUX] Inter host communication (IHC) sleep in atomic context bugs for Linux SLAVE and MASTER drivers
  - – [AAVB-4344] - [PFE_DRV_LINUX] Driver can crash when receiving IHC on not-ihc channel
  - – [AAVB-4349] - [PFE_DRV_LINUX] Buffer allocation error after repeated driver load unload
  - – [AAVB-4362] - [PFE_DRV_LINUX] PFE unresponsive after Tx of IP fragmented UDP packet of certain size
  - – [AAVB-4493] - [PFE_DRV_LINUX] Failed to unload the PFE Slave driver in Linux
  - – [AAVB-4561] - [PFE_DRV_LINUX] slave pfe and slave aux logical interfaces can not be exposed to the OS
- **PFE Platform - New Feature**
  - – [AAVB-3911] - [PFE_PLATFORM] Statistics for conntrack
  - – [AAVB-4315] - [PFE_PLATFORM] Improve granularity of statistics of idex communication
- **PFE Platform - Improvement**
  - – [AAVB-4008] - [PFE_PLATFORM] Print error names in libfci_cli error messages
  - – [AAVB-4079] - [PFE_PLATFORM] Master/Slave: It should be possible to check if master was started using PFE Platform support
  - – [AAVB-4088] - [PFE_PLATFORM] pfe_hif_drv_client_receive_pkt() return NULL even HIFs have frames in receive buffer when send and loopback PTP packets in single client mode
  - – [AAVB-4099] - [PFE_PLATFORM] Master-detect: allow disable
  - – [AAVB-4142] - [PFE_PLATFORM] Error messages - Platform shell discriminate between firmware and driver error messages
  - – [AAVB-4145] - [PFE_PLATFORM] Remove non-VLAN bridge algorithm
  - – [AAVB-4231] - [PFE_PLATFORM] Disable FW feature ERR051211 when not needed
  - – [AAVB-4421] - [PFE_PLATFORM] ERR051211 - TMU queues sizes should be limited to the number of available slots
  - – [AAVB-4443] - [PFE_PLATFORM] FCI: Remove unnecessary interface modifications from non-interface FCI commands
- **PFE Platform - Bug**
  - – [AAVB-3945] - [PFE_PLATFORM] FCI command always return EOK when using unuse rules from FP table

– [AAVB-4097] - [PFE_PLATFORM] Memory overrun in pfe_l2br_table_read_cmd
– [AAVB-4116] - [PFE_PLATFORM] TMU queue statistic is incorrect after driver probe
– [AAVB-4135] - [PFE_PLATFORM] TMU queues can have max 256 packets across all queues on single PHY
– [AAVB-4164] - [PFE_PLATFORM] RPC transport failed due to race condition between Rx and Tx confirmation
– [AAVB-4178] - [PFE_PLATFORM] GPI QOS reset timed-out in pfe_gpi_destroy()
– [AAVB-4322] - [PFE_PLATFORM] FCI: cannot set position 16 for Egress QoS shapers
– [AAVB-4345] - [PFE_PLATFORM] Accessing UTIL text statistics while UTIL Firmware is not loaded crashes the driver
– [AAVB-4420] - [PFE_PLATFORM] fw feature ERR051211 is disabled by default on platform start-up
– [AAVB-4437] - [PFE_PLATFORM] FCI: wrong conntrack timeout when configured via FPP_CMD_IPV4_SET_TIMEOUT
– [AAVB-4491] - [PFE_PLATFORM] Ingress QoS WRED DMEM threshold cannot exceed the limit of 512

## 13.8  What's Modified in BETA_0.9.6

- **New Feature**
  – [AAVB-4047] - [PFE_DRV_LINUX] M/S: IP-ready signalization
  – [AAVB-2830] - [PFE_DRV_LINUX] Ingress QoS
- **Bug**
  – [AAVB-3705] - [PFE_DRV_LINUX] Slave logical interface prints IDEX error messages when getting up
  – [AAVB-3754] - [PFE_DRV_LINUX] Slave driver does not accept HIF NOCPY as a master channel
  – [AAVB-3828] - [PFE_DRV_LINUX] "Kernel BUG at pfeng_hif_chnl_txconf_free_map_full" for high Tx rate on 2.5G link
  – [AAVB-3878] - [PFE_DRV_LINUX] Slave: Don't setup EMAC logif to promisc mode
  – [AAVB-3898] - [PFE_DRV_LINUX] BUG: KASAN: use-after-free in pfeng_hif_chnl_poll+0x570/0x644 [pfeng]
  – [AAVB-3946] - [PFE_DRV_LINUX] "Sleeping while atomic" bug in pfeng driver
  – [AAVB-4000] - [PFE_DRV_LINUX] Slave driver unload triggers Kernel BUG at gen_pool_destroy()
- **Improvement**
  – [AAVB-3660] - [PFE_DRV_LINUX] Make default VLAN ID configurable
  – [AAVB-3706] - [PFE_DRV_LINUX] SLAVE should not use reserved-memory
  – [AAVB-4050] - [PFE_DRV_LINUX] Divide Master/Slave driver code
  – [AAVB-4074] - [PFE_DRV_LINUX] M/S: Master-detection
- **PFE Platform - New Feature**
  – [AAVB-2191] - [PFE_PLATFORM] FCI should allow change of physical interface MAC address
  – [AAVB-2203] - [PFE_PLATFORM] Feature set recognition
  – [AAVB-2216] - [PFE_PLATFORM] Ingress QoS table API
  – [AAVB-2217] - [PFE_PLATFORM] Ingress QoS WRED config
  – [AAVB-2218] - [PFE_PLATFORM] Ingress QoS shaper control
  – [AAVB-2222] - [PFE_PLATFORM] FCI API for Ingress QoS

- – [AAVB-3913] - [PFE_PLATFORM] libfci_cli - add support for Ingress QoS
- – [AAVB-3928] - [PFE_PLATFORM] Vlan statistics bytes counters
- **PFE Platform - Bug**
  - – [AAVB-3616] - [PFE_PLATFORM] FCCU 101 - PFE TLITE reclaim memory causes ECC errors
  - – [AAVB-3657] - [PFE_PLATFORM] Can not return HIF NOCPY buffers into BMU
  - – [AAVB-3665] - [PFE_PLATFORM] blalloc clears the next area if called to free an empty area
  - – [AAVB-3735] - [PFE_PLATFORM] Master driver not support PFE_PLATFORM_RPC_PFE_LOG_IF_DEL_EGRESS_IF request
  - – [AAVB-3765] - [PFE PLATFORM] Driver crashes when FCI query for QoS queue is requested.
  - – [AAVB-3785] - [PFE_PLATFORM] HIF ring gets corrupted under heavy traffic load
  - – [AAVB-3880] - [PFE_PLATFORM] Can not get logical interface statistics on slave mode
  - – [AAVB-3905] - [PFE_PLATFORM] Missing mutex destroy in pfe_l2br_table_destroy() function
  - – [AAVB-3918] - [PFE_PLATFORM] Fci can't query rules from FP table when PFE_CFG_NULL_ARG_CHECK is defined
  - – [AAVB-3945] - [PFE_PLATFORM] FCI command always return EOK when using unuse rules from FP table
  - – [AAVB-3952] - [PFE_PLATFORM] If there are more than 20 vlans configured driver could access an invalid vector index
- **PFE Platform - Improvement**
  - – [AAVB-2414] - [PFE_PLATFORM] Routing table hash collisions reporting
  - – [AAVB-3121] - [PFE_PLATFORM] Optimize driver initialization time
  - – [AAVB-3260] - [PFE_PLATFORM] Disable routing lookup in case it is not used
  - – [AAVB-3297] - [PFE_FW] Extend the configurable features implementation to UTIL, have a common approach in driver
  - – [AAVB-3327] - [PFE_PLATFORM] Update libfci_cli mirroring support
  - – [AAVB-3416] - [PFE_PLATFORM] FCI: Remove FPP_IF_LOADBALANCE flag from manual and libfci_cli
  - – [AAVB-3420] - [PFE_PLATFORM] Update libFCI documentation with demo codes from libFCI_cli
  - – [AAVB-3435] - [PFE_PLATFORM] Fix HIFNOCPY pcls headers skip
  - – [AAVB-3449] - [PFE_PLATFORM] Master/Slave: It should be possible to check if master was started
  - – [AAVB-3731] - [PFE_PLATFORM] libfci_cli: Modify makefile to allow cleaner YOCTO recipe
  - – [AAVB-3749] - [PFE_PLATFORM] Improvement of FCI QoS driver
  - – [AAVB-3761] - [PFE_PLATFORM] Don't enable IRQ when enabling HIF and HIF_NOCPY channel RX/TX
  - – [AAVB-3773] - [PFE_PLATFORM] Create API to get value table entry of l2 bridge
  - – [AAVB-3912] - [PFE_PLATFORM] Create function to get Entry from L2 static entry
  - – [AAVB-3921] - [PFE_PLATFORM] G3 bring-up: minimal feature support
  - – [AAVB-3941] - [PFE_PLATFORM] Detect S32G silicon version on init

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**15 / 27**

## 13.9  What's Modified in BETA_0.9.5

- **New Feature**
  - [AAVB-2328] - [PFE_LINUX] HIF traffic steering
  - [AAVB-2827] - [PFE_LINUX] Aux interface support
  - [AAVB-3398] - [PFE_LINUX] Add support for multiple MAC unicast addresses (MAC unicast filtering)
  - [AAVB-3633] - [PFE_LINUX] Improved suspend to RAM (STR) support - restore net device configs
- **Bug**
  - [AAVB-2149] - [PFE_LINUX] Promiscuous mode not working
  - [AAVB-2973] - [PFE_LINUX] Configured Bridge outputs periodic backtrace dumps
  - [AAVB-3187] - [PFE_LINUX] Observed zero throughput results for slow path bi-directional tests
  - [AAVB-3196] - [PFE_LINUX] each pfeX interface should be found by of_find_net_device_by_node
  - [AAVB-3375] - [PFE_LINUX] "ERR: No timer was running" on rmmod
  - [AAVB-3496] - [PFE_LINUX] sw bridged traffic gets damaged on output
  - [AAVB-3580] - [PFE_LINUX] Transition to IDEX_REQ_STATE_TRANSMITTED failed
  - [AAVB-3611] - [PFE_LINUX] Replace pfe_log_if_*() MAC filtering API with pfe_phy_if_*() equivalent
  - [AAVB-3639] - [PFE_LINUX] linux interface in PFENG_LOGIF_MODE_TX_CLASS mode don't work
  - [AAVB-3671] - [PFE_LINUX][PFE_PLATFORM] use-after-free in _raw_spin_lock_irqsave
- **Improvement**
  - [AAVB-2700] - [PFE_LINUX] pfeng: follow SGMII configuration for PHY config
  - [AAVB-3066] - [PFE_LINUX] Move TX confirmation processing to NAPI
  - [AAVB-3340] - [PFE_LINUX] libfci_cli: Fix build warnings
  - [AAVB-3374] - [PFE_LINUX] STR: guard all necessary functions by pm_runtime_get_sync
  - [AAVB-3451] - [PFE_LINUX] use-case: run driver w/o u-boot dependency
  - [AAVB-3636] - [PFE_LINUX] Configure hif channel interrupt affinity hint to distribute interrupt load
- **PFE Platform - New Feature**
  - [AAVB-1602] - [PFE_PLATFORM] HIF NOCPY LMEM copy mode
  - [AAVB-1872] - [PFE_PLATFORM] All buffers shall be returned at driver shutdown phase
  - [AAVB-3404] - [PFE_PLATFORM] Fast path router uses phyif MAC as default source address make this configurable
- **PFE Platform - Bug**
  - [AAVB-2326] - [PFE_PLATFORM] Logical interface 'discard' API missing in slave variant
  - [AAVB-3377] - [PFE_PLATFORM] Driver reports a couple of build errors when PFE_CFG_NULL_ARG_CHECK is enabled
  - [AAVB-3378] - [PFE_PLATFORM] SIP/DIP replacement flags rewrite other flags.
  - [AAVB-3380] - [PFE_PLATFORM] Rx interrupt coalescing configuration failed
  - [AAVB-3385] - [PFE_PLATFORM] libFCI: FW feature struct has too small buffer for some FW feature names

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**16 / 27**

- [AAVB-3406] - [PFE_PLATFORM] Incorrect return value when reading QoS shaper idle slope
- [AAVB-3414] - [PFE_PLATFORM] Memory leak when mac address is already in db
- [AAVB-3415] - [PFE_PLATFORM] MAC database memory leak when MAC addr addition fails
- [AAVB-3417] - [PFE_PLATFORM] libFCI: Missing ntoh() conversions in conntrack handling
- [AAVB-3418] - [PFE_PLATFORM] libFCI: Wrong return value of ".vlan" and ".vlan_reply" fields in IPv4 conntracks
- [AAVB-3456] - [PFE_PLATFORM] Build error when router support is disabled
- [AAVB-3457] - [PFE_PLATFORM] Invalid cast while printing BMU buffer address
- [AAVB-3458] - [PFE_PLATFORM] Forwarding list of MAC static entry is not propagated to HW
- [AAVB-3478] - [PFE_PLATFORM] IDEX buffers not allocated from a controlled pool
- [AAVB-3482] - [PFE_PLATFORM] FCI: HIF_NOCPY is skipped when updating a logical interface
- [AAVB-3570] - [PFE_PLATFORM] pfe_idex_rpc not callable from atomic context
- [AAVB-3574] - [PFE_PLATFORM] Type pfe_ip_addr_t in pfe_rtable.h is too large
- [AAVB-3578] - [PFE_PLATFORM] pfe_idex_rpc RPC transport time-out when enabling MAC filtering on slave
- [AAVB-3579] - [PFE_PLATFORM] Physical interface flags are set incorrectly
- [AAVB-3658] - [PFE_PLATFORM] HIF NOCPY - Buffer descriptors wrap mechanism does not work
- [AAVB-3667] - [PFE_PLATFORM] pfe_tmu_sch_get_bound_sch_output returns wrong value
- **PFE Platform - Improvement**
  - [AAVB-1645] - [PFE_PLATFORM] Interrupt dispatchers
  - [AAVB-2086] - [PFE_PLATFORM] Move fci_msg_t definition to the fci_msg.h
  - [AAVB-2304] - [PFE_PLATFORM] Allow to set the physical interface to promiscuous mode via FCI
  - [AAVB-2350] - [PFE_PLATFORM] Add FCI usage examples, stage 3
  - [AAVB-2511] - [PFE_PLATFORM][PFE_FW] Remove PE ID passing
  - [AAVB-2807] - [PFE_FW] HIF no copy/LMEM copy mode
  - [AAVB-2938] - [PFE_PLATFORM] Static entry documentation update
  - [AAVB-3431] - [PFE_PLATFORM] Remove compilation warnings
  - [AAVB-3467] - [PFE_PLATFORM] Disable PFE_CFG_HIF_NOCPY_SUPPORT in PFE SLAVE mode
  - [AAVB-3471] - [PFE_PLATFORM] Optimize PE memory access locks
  - [AAVB-3649] - [PFE_PLATFORM] libfci_cli: Add rebuilding of libfci library to libfci_cli makefile
  - [AAVB-3669] - [PFE_PLATFORM] Fix master/slave to work again

## 13.10  What's Modified in BETA_0.9.4

- **Bug**
  - [AAVB-2224] - [PFE_LINUX] named memory API cannot be divided
  - [AAVB-2313] - [PFE_PLATFORM] In case of error pfe_class_create causes destruction of a mutex which does not exist
  - [AAVB-2430] - [PFE_PLATFORM] FCI conntrack query returns wrong IP address

- [AAVB-2441] - [ALB 26.0] VLAN forwarding is not working for pfe0 interface (pfe2 is working)
- [AAVB-2443] - [ALB 25.0]Observed "ping: getnameinfo: Temporary failure in name resolution" while doing ping6 from the DUT
- [AAVB-2446] - [ALB 25.0]ping6 traffic is started working when I run tcpdump on DUT,while doing ping6 from the Linux Host
- [AAVB-2447] - [ALB 25.0]IPerf3 session is not getting connected from the DUT while running UDP bi-directional traffic,if I start IPerf client in Linux Host first, then Iperf client in S32G
- [AAVB-2468] - [S32G Linux] SW forwarding doesn't work well with IPv6
- [AAVB-2469] - [PFE_LINUX] pfeng: udp reassembling failure
- [AAVB-2526] - [PFE_LINUX] pfeng: interface autonegotiation doesn't follow SGMII possibilities
- [AAVB-2538] - [PFE_DRV_LINUX] IPv6 fast-forward is not working
- [AAVB-2624] - [PFE_PLATFORM] Errata ERR050221 workaround: driver shall ensure that safety features are enabled
- [AAVB-2701] - [ALB 27.0-RDB2]Sometimes S32G DUT is getting hanged while adding 100 flexible parser rules
- [AAVB-2720] - [PFE_LINUX] pfeng: kernel 4.19: driver backtrace when util fw version requested
- [AAVB-2914] - [PFE_LINUX] pfeng: insmod reports success ($? = 0) even driver probe failed
- [AAVB-2944] - [PFE_FW] VLAN QinQ doesn't work with 802.1AD ethertype
- [AAVB-2983] - [PFE_PLATFORM] Adding new multicast will break existing multicast streams
- [AAVB-3100] - [PFE_PLATFORM] libFCI: LOGIF QUERY returns bad/wrong data for some match rule arguments
- [AAVB-3195] - [PFE_DRV_LINUX] devm_get_clk_from_child fails if the interface is rgmii-id/rgmii-txid/rgmii-rxid
- [AAVB-3200] - Observed "ADDR: No space left on device" while trying to change the MAC address S32G interface
- [AAVB-3244] - [PFE_PLATFORM] Pause frame is incorrectly generated and blocks transmittion
- [AAVB-3326] - [PFE_LINUX] Slave: hardcoded Master's HIF destination
- [AAVB-3329] - [PFE_PLATFORM] FPP_IF_LOOPBACK flag of logical interfaces is seemingly never set.
- [AAVB-3330] - [PFE_LINUX] Crash in qdisc on tx ring overrun (high rate ip fwding 2 opposite flows)
- **New Feature**
  - [AAVB-1924] - [PFE_PLATFORM] Enable by default the TTL decrement when the packet is routed
  - [AAVB-2201] - [PFE_PLATFORM] Flexible Parser statistics API
  - [AAVB-2210] - [PFE_PLATFORM] Add L2 bridge MAC table flush API
  - [AAVB-2295] - [PFE_LINUX] pfeng: add SGMII autonegotiation
  - [AAVB-2465] - [PFE_PLATFORM] Pause Support
  - [AAVB-2826] - [PFE_DRV_LINUX] Mulitple HIF channel support
  - [AAVB-2828] - [PFE_DRV_LINUX] Multiclient HIF support
  - [AAVB-2860] - [PFE_DRV_QNX] eMAC multicast group membership
  - [AAVB-3276] - [PFE_DRV_LINUX] Suspend to RAM support

- [AAVB-3277] - [PFE_DRV_LINUX] Integrate new SERDES driver
- [AAVB-3278] - [PFE_DRV_LINUX] Kernel 5.10 support
- **Improvement**
  - [AAVB-2129] - [PFE_Linux] MTU runtime configuration
  - [AAVB-2391] - [PFE_LINUX] pfeng: add per-HIF statistics
  - [AAVB-2410] - [PFE_PLATFORM] Make routing table configurable
  - [AAVB-2470] - [PFE_LINUX] pfeng: move of HIF ring allocated structs from uncachable memory to cachable
  - [AAVB-2471] - [PFE_LINUX] pfeng: allocate new RX buffers in chunks
  - [AAVB-2475] - [PFE_LINUX] Pause Support
  - [AAVB-2595] - [PFE_LINUX] pfeng: manage mdio_bus independently
  - [AAVB-2601] - [PFE_LINUX] pfeng: pfe_hif_drv: refactor linux hif driver to use skbuffs
  - [AAVB-2644] - [PFE_LINUX] HIF rings should be allocated from cached coherent memory
  - [AAVB-2863] - [PFE_DRV_LINUX] BMU memory allocator change
  - [AAVB-2991] - [PFE_FW] Discard packets that do not match the IEEE 802.1Q (VLAN) specifications
  - [AAVB-2992] - [PFE_FW] Discard packets that do not match the IEEE 802.1AS specifications
  - [AAVB-2994] - [PFE_FW] The network stack shall drop Ethernet frames with two or more VLAN tags
  - [AAVB-2995] - [PFE_FW] Drop Ethernet frames without a VLAN tag except selected cases
  - [AAVB-3049] - [LINUX_PFE] Linux driver includes some user space header files
  - [AAVB-3056] - [PFE_LINUX][PFE_QNX][PFE_PLATFORM] clean introduced warnings
  - [AAVB-3059] - [PFE_LINUX] Use triggered DMA instead of polling
  - [AAVB-3060] - [PFE_LINUX] Interrupt coalescing
  - [AAVB-3073] - [PFE_LINUX] Implement page allocation/reuse scheme for Rx buffers
  - [AAVB-3074] - [PFE_LINUX] PFE descriptor usage optimization
  - [AAVB-3077] - [PFE_PLATFORM] Should support APIs to enable the EMAC loop-back in slave mode
  - [AAVB-3098] - [PFE_LINUX] Optimize rx buffer handling, drop embedded skb, clean up pfeng-hif
  - [AAVB-3139] - [PFE_LINUX] pfeng: clean clocks on exit
  - [AAVB-3173] - [PFE_LINUX] pfeng: get rid of use emac_regs
  - [AAVB-3194] - [PFE_LINUX] build warnings being treated as errors
  - [AAVB-3205] - [PFE_LINUX] Enable DMA coherency from driver
  - [AAVB-3221] - [PFE_PLATFORM] Fix build warnings for SLAVE mode
  - [AAVB-3233] - [PFE_DRV_QNX, PFE_DRV_LINUX] Enable print of diagnostic messages
  - [AAVB-3300] - [PFE_LINUX] pfeng: support S32G2 cut 1.1/cut 2.0 dynamically
  - [AAVB-3322] - [PFE_PLATFORM] API to get rx/tx packet count

## 13.11 What's Modified in BETA_0.9.3

- **Bug**
  - [AAVB-2910] - [PFE_LINUX] pfeng: Slave: Backtraces on MII ioctl

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**19 / 27**

- [AAVB-2965] - Linux pfeng module crash at remove
- **New Feature**
  - [AAVB-1376] - [PFE_QNX][PFE_PLATFORM] Fast-path IPv4/IPv6 Forwarder/Router
  - [AAVB-1423] - [PFE_QNX][PFE_PLATFORM] Implement the conntrack manipulation FCI API
  - [AAVB-1429] - [PFE_PLATFORM][PFE_QNX] Extend rtable API by query functions
  - [AAVB-1495] - [PFE_PLATFORM] Create L2 bridge SW module
  - [AAVB-1509] - [PFE_PLATFORM][PFE_QNX] Implement L2 Bridge FCI API
  - [AAVB-2340] - [PFE_FW]Firmware variants support shall be added.
  - [AAVB-2500] - [PFE_QNX] Add IEEE1588 timestamping support
  - [AAVB-2746] - [PFE_PLATFORM] Allow use of NAT with IPv6
  - [AAVB-2836] - [PFE_DRV_LINUX] L2 bridge static entry configuration using FCI
  - [AAVB-2937] - [PFE_FW] FlexibleFilter per physical interface
- **Improvement**
  - [AAVB-2362] - [PFE_DRV_LINUX] Multicast address management
  - [AAVB-2630] - [PFE_LINUX] pfeng: use EMAC port mode specific clocks
  - [AAVB-2670] - [PFE_FW] Send egress timestamp report to respective HIF channel
  - [AAVB-2818] - [PFE_FW] L3 router with NAT
  - [AAVB-2837] - [PFE_DRV_LINUX] PFE 802.1as API
  - [AAVB-2845] - [PFE_DRV_LINUX] eMAC multicast group memebership support
  - [AAVB-2869] - [PFE_FW] VLAN tagging of L3 routed traffic
  - [AAVB-2986] - [PFE_PLATFORM] fix linux build warnings
  - [AAVB-2998] - [PFE_LINUX] pfeng: select correct TX clock name

## 13.12  What's Modified in BETA_0.9.2

- **Improvement**
  - [AAVB-1886] - [PFE_PLATFORM] Optimize BD ring access
  - [AAVB-1972] - [PFE_LINUX] add S/G support to TX path
  - [AAVB-2560] - [PFE_PLATFORM] Add support for adding logical interfaces to UTIL PHY
  - [AAVB-2570] - [PFE_PLATFORM] Dispatch HIF traffic using physical interfaces
  - [AAVB-2623] - [PFE_LINUX] DMA32 memory should be preferred for rx buffers
  - [AAVB-2669] - [PFE_LINUX] pfeng: notice about errata fix usage
- **Bug**
  - [AAVB-2499] - [S32G EVB:ALB 25]Low throughput observed for Bridge scenario
  - [AAVB-2523] - [PFE_LINUX] pfeng: phylink backtraces on interface changes
  - [AAVB-2586] - [PFE_PLATFORM] PTP-over-Ethernet + VLAN stall
  - [AAVB-2610] - [PFE_LINUX] Oal memory cached interface provides non-cached memory
  - [AAVB-2614] - [PFE_PLATFORM] Incorrect shaper weight calculation
  - [AAVB-2642] - [PFE_LINUX] pfeng: fix 100Base-T1 support
  - [AAVB-2643] - [PFE_LINUX] pfeng: fix rgmii-id, rgmii-txid, rgmii-rxid support
- **New Feature**
  - [AAVB-1945] - [PFE_FW,PFE_PLATFORM] Allow adding HIF interfaces to bridge (domain)
  - [AAVB-2211] - [PFE_PLATFORM] Add API to get PE firmware version
  - [AAVB-2276] - [PFE_FW]L2 bridge learning shall be switchable per port

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**20 / 27**

### 13.13 What's Modified in BETA_0.9.1

- **Improvement**
  - [AAVB-2067] - [PFE_LINUX][PFE_QNX] Notify FCI clients about FCI shutdown
  - [AAVB-2568] - [PFE_LINUX] pfeng: enable util fw loading
  - [AAVB-2571] - [PFE_PLATFORM] Firmware-based HIF traffic priority mgmt
  - [AAVB-2575] - [PFE_PLATFORM] Disable HIF stall workaround
- **Bug**
  - [AAVB-2442] - [ALB 25.0 ]Unable to create bridge configuration
- **New Feature**
  - [AAVB-2206] - [PFE_PLATFORM] Egress QoS topology change API
  - [AAVB-2472] - [PFE_FW] Implement SPD for IPsec
  - [AAVB-2510] - [PFE_LINUX] pfeng: support for master/slave mode
  - [AAVB-2534] - [PFE_QNX] PFE isolation support
  - [AAVB-2561] - [PFE_PLATFORM] Egress QoS FCI API

### 13.14 What's Modified in BETA_0.9.0

- **Improvement**
  - [AAVB-2436] - [PFE_PLATFORM] Code cleanup
  - [AAVB-2494] - [PFE_LINUX] Fix mistake in the sysfs + add new syfs files
- **Bug**
  - [AAVB-2008] - [PC-FPGA-PFE-Linux]: Bridging of the PFE-interfaces eth0/pfe-0 and rename4/pfe-1 is NOT WORKING as expected.
  - [AAVB-2297] - [PFE Linux] periodic load/unload of driver sometimes fails
  - [AAVB-2345] - [PFE_PLATFORM] Wrong IP address version detection
  - [AAVB-2380] - [PFE_LINUX] pfeng: incorrectly use highest speed of PHY
  - [AAVB-2444] - [ALB 25.0] Observed crash dump while running IPerf3 routing traffic
  - [AAVB-2501] - [S23G RDB - ALB25.0]: tcpdump crash on pfe0/pfe2 while running the IPv4 Fast path UDP traffic
- **New Feature**
  - [AAVB-1951] - [PFE_PLATFORM] Add FCI API to get physical/logical interface statistics
  - [AAVB-2190] - [PFE_PLATFORM] Let FCI API enable and disable log+phy interfaces
  - [AAVB-2212] - [PFE_PLATFORM] Port mirroring control
  - [AAVB-2213] - [PFE_PLATFORM] Port mirroring FCI API
  - [AAVB-2225] - [PFE_PLATFORM] Multi-instance HIF driver
  - [AAVB-2272] - [PFE_PLATFORM] Show required fw version
  - [AAVB-2348] - [PFE_DRV_LINUX] Add support for kernel 5.4 to PFE driver
  - [AAVB-2423] - [PFE_PLATFORM] Arbitrary data passing (FCI)

### 13.15 What's Modified in EAR_0.8.0 Patch1

- **List of Patched Files**
  - sw/xfci/libfci/Makefile
  - sw/pfe_platform/hw
  - sw/pfe_platform/hw/s32g
  - sw/pfe_platform/hw/s32g/pfe_platform_master.c
  - sw/pfe_platform/hw/s32g/pfe_emac_csr.c

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**21 / 27**

– sw/pfe_platform/hw/s32g/pfe_emac_csr.h
– sw/pfe_platform/public/pfe_platform_cfg.h
- **doc/PFE_S32G_A53_LNX_UserManual.pdf**
- **Improvement**
  – [AAVB-2424] - [PFE_LINUX] libfci: allow building library in Yocto
  – [AAVB-2390] - [PFE_LINUX] UM: add FCI chapter

## 13.16 What's Modified in EAR_0.8.0

- **Improvement**
  – [AAVB-1584] - [PFE_LINUX] pfeng: sync HIF api
  – [AAVB-1540] - [PFE_LINUX] create preallocated dma buffer for TX path
  – [AAVB-1541] - [PFE_LINUX] user manual: fix formatting
  – [AAVB-1572] - [PFE_LINUX] don't copy frame data to skbuf on receive
  – [AAVB-1657] - [PFE_PLATFORM] CLASS PE Interrupt Dispatcher
  – [AAVB-1878] - [[PFE_PLATFORM][PFE_LINUX] oal_irq: allow callback mask management
  – [AAVB-1910] - [[PFE_QNX][PFE_LINUX] OAL API to manage named memory
  – [AAVB-1913] - [[PFE_LINUX] Implement named memory management API
  – [AAVB-1977] - [[PFE_LINUX] remove debug ifs component when VDK released
  – [AAVB-2322] - [PFE_PLATFORM] Statistics for phy/log interface are reset with all updates on given interface
  – [AAVB-2332] - [PFE_PLATFORM] Add FCI usage examples, stage 1
  – [AAVB-2333] - [PFE_PLATFORM] Add FCI usage examples, stage 2
  – [AAVB-2342] - [PFE_PLATFORM] HIF SC TX workaround
- **Bug**
  – [AAVB-2142] - [PFE_Linux] 32k ping not working on pfe1
  – [AAVB-2268] - [PFE_PLATFORM] FPP_CMD_IPVx_RESET does not remove all routes
  – [AAVB-2292] - [PFE_PLATFORM] FCI conntracks query doesn't provide route ID
  – [AAVB-2305] - [PFE_LINUX] Reserved memory is detected one byte short then declared in DT
  – [AAVB-2312] - [PFE_LINUX] pfeng: fix clause 45 support
  – [AAVB-2379] - [PFE_LINUX] pfeng: evb: pfe2 clock setting looped forever on console
- **New Feature**
  – [AAVB-2202] - [PFE_PLATFORM] Multi-channel HIF driver
  – [AAVB-2273] - [PFE_FW] Logical interface shall have configurable drop action
  – [AAVB-2283] - [PFE_PLATFORM][PFE_QNX] Performance improvements stage 2
  – [AAVB-2325] - [PFE_PLATFORM] HIF traffic steering

## 13.17 What's Modified in PRE-EAR_0.4.4

- **Bug**
  – [AAVB-2014] - [PFE_PLATFORM] pfe_log_if_create should not call pfe_phy_if_add_log_if
  – [AAVB-2028] - [PFE_FW][PFE_PLATFORM] PFE HW calculates incorrect IPv4 checksums for small frames
  – [AAVB-2063] - [PFE_PLATFORM] Physical interfaces are not created correctly
  – [AAVB-2107] - [PFE_PLATFORM] mutex double locked from platform during fci call

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**22 / 27**

- – [AAVB-2112] - [PFE_LINUX] libfci_cli does compile under linux
- – [AAVB-2113] - [PFE_PLATFORM] TMU configuration
- – [AAVB-2131] - [PFE Linux] Fatal errors on driver unload
- – [AAVB-2149] - [PFE_LINUX] Promiscuous mode not working
- – [AAVB-2150] - [PFE_LINUX] driver crashes when detected non-compatible fw
- – [AAVB-2258] - [PFE_PLATFORM] pfe_l2br_table_init_cmd is writing wrong flags
- – [AAVB-2259] - [PFE_PLATFORM] Bridge accesses out of boundary memory
- – [AAVB-2261] - [PFE_PLATFORM] The initialization of L2 bridge is corrupted by soft reset
- – [AAVB-2289] - [PFE_LINUX] FCI is not functional
- **New Feature**
  - – [AAVB-1968] - [PFE_PLATFORM] HIF channel reset
  - – [AAVB-1985] - [PFE_PLATFORM] Split pfe_platform.c to master and slave variant
  - – [AAVB-1990] - [PFE_PLATFORM][PFE_QNX] FCI: Create core API to broadcast messages to all clients
  - – [AAVB-1992] - [PFE_PLATFORM] Multi-instance physical interfaces
  - – [AAVB-2016] - [PFE_PLATFORM] Multi-instance logical interfaces
  - – [AAVB-2019] - [PFE_PLATFORM] Add mdio Clause 45 support
  - – [AAVB-2053] - [PFE_FW] Implement exception handlers
  - – [AAVB-2054] - [PFE_FW] Implement a SW watchdog
  - – [AAVB-2075] - [PFE_FW] Add measurement of frame processing time by FW
  - – [AAVB-2111] - [PFE_PLATFORM] Extend interface-related RPC commands
  - – [AAVB-2189] - [PFE_LINUX] pfeng: add mdio support
  - – [AAVB-2199] - [PFE_FW]Add support for multicast replication
  - – [AAVB-2231] - [PFE_LINUX] Add total bytes into SG list in TX path
  - – [AAVB-2298] - [PFE_LINUX] pfeng: add more debug objects
  - – [AAVB-2300] - [PFE_LINUX] pfeng: support for GCC 9.2.0
- **Improvement**
  - – [AAVB-1334] - [PFE_PLATFORM] Unify the elf module
  - – [AAVB-1392] - [PFE_PLATFORM] Do not use -1 as unsigned integer
  - – [AAVB-1529] - [PFE_PLATFORM] HIF stops operating under heavy traffic conditions
  - – [AAVB-1656] - [PFE_QNX] Proper mbuf dequeue (IFQ_DEQUEUE)
  - – [AAVB-1659] - [PFE_PLATFORM] Watchdog timers
  - – [AAVB-1670] - [PFE_PLATFORM] Sync PE memory updates
  - – [AAVB-1974] - [PFE_LINUX] pfeng: optimize config storages
  - – [AAVB-1994] - [PFE_PLATFORM] DMEM heap allocator
  - – [AAVB-2015] - [PFE_PLATFORM] Physical and logical interface database
  - – [AAVB-2061] - [PFE_PLATFORM] Review registers against NPU v7.14
  - – [AAVB-2064] - [PFE_PLATFORM] Improve classifier startup
  - – [AAVB-2098] - [PFE_PLATFORM] Unify phy_if/log_if db between platfrom driver and fci
  - – [AAVB-2117] - [PFE_PLATFORM] Remove LS1012 code
  - – [AAVB-2118] - [PFE_PLATFORM] Allow static block allocator instances
  - – [AAVB-2147] - [PFE_FW] implement aggregated CLASS PE statistics
  - – [AAVB-2153] - [PFE_PLATFORM][PFE_FW] Move compiler checks out of pfe_ct.h
  - – [AAVB-2165] - [PFE_PLATFORM,PFE_LINUX,PFE_MCAL,PFE_QNX] Create global configuration header
  - – [AAVB-2169] - [PFE_PLATFORM] Extend EMAC text statistics

– [AAVB-2170] - [PFE_FW]Add CPU ID to the firmware.

– [AAVB-2241] - [PFE_PLATFORM] Update FCI reference

– [AAVB-2248] - [PFE_PLATFORM] Extend the sysfs by debug registers

– [AAVB-2250] - [PFE_PLATFORM] Update libfci doc to correct bridge add and bridge update order.

– [AAVB-2252] - [PFE_FW]Allow to pass a 32-bit number together with error message through FP_ERROR

– [AAVB-2302] - [PFE_LINUX] pfeng: add libfci build

## 13.18 What's modified in PRE-EAR_0.4.3

- **Bug**
  – AAVB-1983 [PFE_LINUX] get driver compilable without extra options
  – AAVB-1984 [PFE_LINUX] fix BMU2 buffers error
  – AAVB-1989 [PFE_FW] Missing cthdr field in the pfe_ct_version_t
  – AAVB-2042 [PFE_LINUX] pfeng: unloading driver never finish
- **Improvement**
  – AAVB-1640 [PFE_LINUX] Create oal util for linux
  – AAVB-1665 [PFE_LINUX] pfeng: add FCI subsystem
  – AAVB-1914 [PFE_FW] Error reporting
  – AAVB-1944 [PFE_LINUX] Create libfci for Linux
  – AAVB-2004 Update help text for libfci_cli.
  – AAVB-2051 [PFE_LINUX] pfeng: set explicit interface names
  – AAVB-2052 [PFE_PLATFORM] oal:mbox: implement timers for Linux
  – AAVB-2060 [PFE_LINUX] oal:thread: correctly signal thread join on linux
  – AAVB-2094 [PFE_FW] Implement flexible parser
  – AAVB-2119 [PFE_PLATFORM][PFE_LINUX][PFE_MCAL] remove VDK support
  – AAVB-2146 [PFE_LINUX] pfeng: S32G bringup

## 13.19 What's modified in PRE-EAR_0.4.2

- **Bug**
  – n/a
- **Improvement**
  – [AAVB-1387] [PFE_PLATFORM] Ensure correct HIF driver worker thread scheduling
  – [AAVB-1427] [PFE_PLATFORM] Make FCI endpoint OS-independent
  – [AAVB-1484] [PFE_PLATFORM] Optimize frequently used structures
  – [AAVB-1521] [PFE_PLATFORM] Set default interface operational mode when interface not being used
  – [AAVB-1536] [PFE_PLATFORM] oal_msg: improve msg_signal
  – [AAVB-1545] [PFE_PLATFORM] Make NULL argument checks switchable
  – [AAVB-1548] [PFE_PLATFORM] Rework the get_text_stat() functions
  – [AAVB-1553] [PFE_PLATFORM] HIF polling configurable
  – [AAVB-1559] [PFE_PLATFORM] Move HIF header types to pfe_ct.h
  – [AAVB-1621] [PFE_PLATFORM] Define firmware-driver control interface
  – [AAVB-1633] [PFE_PLATFORM] Sync with latest design (1.0.4)
  – [AAVB-1641] [PFE_PLATFORM] Get real system clock frequency for TMU shaper configuration

S32G_PFE_LNX_RN

**Release notes**

All information provided in this document is subject to legal disclaimers.

**Rev. 1.5.0 — 27 September 2023**

© NXP B.V. 2023. All rights reserved.

**24 / 27**

- – [AAVB-1648] [PFE_QNX][PFE_PLATFORM] Thread driven OAL IRQ
- – [AAVB-1650] [PFE_LINUX] Sync OAL IRQ module
- – [AAVB-1651] [PFE_PLATFORM] HIF Interrupt Dispatcher
- – [AAVB-1652] [PFE_PLATFORM] BMU Interrupt Dispatcher
- – [AAVB-1654] [PFE_PLATFORM] Remove HIF DRV worker thread
- – [AAVB-1655] [PFE_PLATFORM] Init PFE memories before soft reset
- – [AAVB-1658] [PFE_PLATFORM] HIF NOCPY Interrupt Dispatcher
- – [AAVB-1663] [PFE_PLATFORM][PFE_QNX] Create deferred job OAL abstraction module
- – [AAVB-1871] [PFE_PLATFORM] Return all HIF NOCPY BMU buffers on shutdown
- – [AAVB-1882] [PFE_PLATFORM] Fix HIF and HIF NOCPY interrupts
- – [AAVB-1887] [PFE_LINUX][PFE_PLATFORM] pfeng: integrate enhanced irq manager
- – [AAVB-1892] [PFE_PLATFORM] Uninstall IRQ when BMU instance is being destroyed
- – [AAVB-1896] [PFE_PLATFORM] Global interrupt dispatcher
- – [AAVB-1903] [PFE_PLATFORM] Improve RX buffer management
- – [AAVB-1906] [PFE_PLATFORM] PFE AXI address range restriction
- – [AAVB-1919] [PFE_PLATFORM] Out of HIF RX buffers event detection
- – [AAVB-1925] [PFE_PLATFORM] RX termination
- – [AAVB-1953] [PFE_QNX][PFE_LINUX][PFE_PLAFORM] Remove compiler warnings
- – [AAVB-1962] [PFE_PLATFORM] More robust HIF ring handling
- **New Feature**
  - – [AAVB-1435] [PFE_FW] Prepare statistics gathering
  - – [AAVB-1499] [PFE_PLATFORM][PFE_QNX][PFE_LINUX] Bind PFE logical interfaces with HIF driver clients
  - – [AAVB-1608] [PFE_LINUX][PFE_PLATFORM][PFE_QNX] support VDK platform
  - – [AAVB-1629] [PFE_PLATFORM] Create the TLITE platform driver
  - – [AAVB-1660] [PFE_PLATFORM] Fabric parity protection
  - – [AAVB-1920] [PFE_PLATFORM] Ignore the ELF section MIPS.abiflags
  - – [AAVB-1928] [PFE_PLATFORM][PFE_FW] Add HIF channel ID to HIF TX header (pfe_ct.h)
  - – [AAVB-1935] [PFE_PLATFORM][PFE_FW] Define IHC flags within HIF TX and RX headers
  - – [AAVB-1936] [PFE_PLATFORM] Implement the IHC API

## 13.20 What's modified in PRE-EAR_0.4.0

- **Bug**
  - – AAVB-1422 [PFE_PLATFORM] Read beyond size of object
- **New Feature**
  - – AAVB-1156 [PFE_PLATFORM][PFE_QNX] Port the PFE HW library to QNX environment
  - – AAVB-1157 [PFE_PLATFORM][PFE_QNX] Import the HW initialization module
  - – AAVB-1158 [PFE_PLATFORM][PFE_QNX] Import the HIF driver
  - – AAVB-1159 [PFE_PLATFORM][PFE_QNX] Import the firmware driver
  - – AAVB-1300 [PFE_PLATFORM][PFE_QNX] Add HIF channel abstraction class
  - – AAVB-1301 [PFE_PLATFORM][PFE_QNX] OS abstraction

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**25 / 27**

- AAVB-1337 [PFE_PLATFORM] Update the pfe_platform to support the latest x86 FPGA HW
- AAVB-1366 [PFE_PLATFORM] Make the HIF working on x86 FPGA HW
- AAVB-1378 [PFE_LINUX] Make sources Linux compilable
- AAVB-1486 [PFE_PLATFORM][PFE_QNX] Create SW module for L2 bridge tables
- AAVB-1488 [PPFE_LINUX] Implement PFE linux driver core
- AAVB-1498 [PFE_QNX][PFE_PLATFORM] Create PFE interface representation type
- **Improvement**
  - AAVB-1388 [PFE_PLATFORM][PFE_QNX] Command-line build
  - AAVB-1391 [PFE_PLATFORM] Replace native types by custom types
  - AAVB-1397 [PFE_PLATFORM][PFE_QNX] Make RELEASE as default build profile
  - AAVB-1398 [PFE_PLATFORM][PFE_QNX] Update headers in all deliverables
  - AAVB-1444 [PFE_PLATFORM] Simplify rtable entries representation
  - AAVB-1463 [PFE_PLATFORM] Improve PFE HIF ring handling
  - AAVB-1466 [PFE_PLATFORM] HIF driver improvement
  - AAVB-1534 [PFE_PLATFORM] Generalize the HW initialization

S32G_PFE_LNX_RN

All information provided in this document is subject to legal disclaimers.

© NXP B.V. 2023. All rights reserved.

**Release notes**

**Rev. 1.5.0 — 27 September 2023**

**26 / 27**

# Contents