SDK 6.5.27

Release Notes

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Section 1: About This Document

This document contains the release notes for DNX devices affected by the Broadcom network switching Software Development Kit (SDK) release 6.5.27.

The document provides a general description of the SDK and its new features. It also describes the DNX chips supported by the release, BCM API additions or changes, resolved issues, and any relevant open issues.

Only new features are described in this document. For a comprehensive review of the DNX SDK features and issues, refer to earlier release notes for SDK 6.5.x.

For the full resolved list (Both Bugs and Improvement), please reference the file SDK-6.5.27-Resolved-Issues-Improvements.xlsx in the RELDOCS directory in the release package.

Section 2: Devices supported in this release

For any given SDK release, support for certain devices may be provided in preview or supported status. Devices in “Supported DNX Switch Devices” have completed the full QA process and are intended for use in production systems. It is expected that customers would integrate the version of the SDK which provides "Supported" status for their use on actual development or production systems.

Devices in “Preview DNX Switch Devices” are provided to allow early integration of the customer's application with the SDK APIs that support that device. This software has not been fully tested on the physical target device and is not expected to fully function.

Section 2.1: Supported DNX Switch Devices

Family Devices	***Description***
BCM8828X	Q2U - GA quality
BCM8880X/BCM8882X	J2C - GA quality
BCM8848X	Q2A - GA quality
BCM8869X	J2 - GA quality
BCM8879X	Ramon - GA quality
BCM8868X	J+ - GA quality
BCM8837X/BCM8867X	JR - GA quality
BCM8877X	FE3600 - GA quality
BCM8827X	QUX - GA quality
BCM8847X	QAX - GA quality
BCM8829X	Q2n - GA quality

Section 3: Information per Device

This release is an incremental version for DPP, DNX, DNXF, DFE family devices.
The subsequent sections describe the increment in available features compared to 6.5.26 and 6.5.26-dnx.1, backward-compatible notes, major bug-fixes and known issues.

It is very important to carefully go over the release-notes prior to adapting a new release.

The following sections describe the features validated for this release, known issues and bring-up guidelines.

Section 3.1: DNX2-Family

This section includes the following family devices:

- **BCM8869X-Family (Jericho2)**
- **BCM8880X/BCM8882X-Family (Jericho2C)**
- **BCM8848X-Family (Qumran2A)**
- **BCM8828X-Family (Qumran2U)**
- **BCM8829X-Family (Qumran2N)**

Section 3.1.1: Important Notes

Before integrating the new release, review this section thoroughly.

JIRA	Module	Release-note	Affected Devices
SDK-303406	LAG	Verifciation was added to Trunk APIs. Please follow the guidelines according to the backward compatible note below.	88690_B0, 88800_A0, 88480_B0

Section 3.1.1.1: Backward Compatible Important Notes

SW Compatibility Guidelines to 6.5.27

Please go over the list carefully.

Note: This document is written with the assumption that upgrade is done from 6.5.26, 6.5.26-dnx.1. In case upgrade is done from older releases, users must first go over previous release notes.

JIRA	Module	Release-note	Affected Devices	From which SDK version backward compatible

				breakage is relevant 6.5.26 or 6.5.26-dnx.1 or both (i.e. 6.5.26 and 6.5.26-dnx.1)
SDK-303913	RCH	The Ethertype on RCH value is changed now to indicate that the header above is ETH. In the previous release it was 0x1234, from that release is it 0x6558 Field-Processor applications that qualify according to that number need to be adjusted accordingly.	88480_B0, 88690_B0, 88800_A0	6.5.26
SDK-298008	NIF-MIB	In previous releases, below counter types counted both received and transmitted packets/octets. It didn't comply with RFC 1757 in which only received packets/octets should be counted. From this release, it has been fixed. snmpEtherStatsOctets snmpEtherStatsPkts snmpEtherStatsBroadcastPkts snmpEtherStatsMulticastPkts snmpEtherStatsOversizePkts snmpEtherStatsPkts64Octets snmpEtherStatsPkts65to127Octets snmpEtherStatsPkts128to255Octets snmpEtherStatsPkts256to511Octets snmpEtherStatsPkts512to1023Octets snmpEtherStatsPkts1024to1518Octets	88480_B0, 88690_B0, 88800_A0	6.5.26
SDK-297089	Field-Processor	When a packet has a TCP header, the next field layer offset (unknown layer) is no longer valid. This means that any Field-Processor application that used negative offset from unknown layer to retrieve TCP fields cannot be used anymore. With this change, the following cases were handled: 1. header_size_err trap is no longer raised for a TCP packet that exceeds size limit. 2. TCP with options - its size is no longer calculated, up until this release it was calculated wrongly.	88480_B0, 88690_B0, 88800_A0	6.5.26

		Note: It's the user responsibility to check whether the data accessed inside the TCP header is in-bound, otherwise unexpected behavior can occur.		
SDK-295350	FL-TRAP	bcmRxTrapFwdDomainAssignmentModeTrap trap previously could be configured by bcm_rx_trap_type_create() and bcm_rx_trap_set() This trap wasn't actually supported, hence APIs now return an error as they should be.	88480_B0, 88800_A0	6.5.26
SDK-292216	IFA 2.0	1. By default IP-protocol 255 ("Reserved") is set to IFA2 2. IFA2 application can't run using default configurations. bcm_ifa_header_create() must be called with the desired ip_protocol.	88480_B0, 88690_B0, 88800_A0	6.5.26
SDK-286292	IP-BFD	In the previous releases, the NWK-QOS (Network-QOS) and Initial-TTL were always constant in the case of injected IP-BFD packets. NWK-QOS was set according to bcmOamControlOampInjectedNetworkQos (by default 255) and Initial-TTL was set to 0xFF. From this release, the NWK-QOS is inherited from IPv4.TOS/IPv6.TC header and the Initial-TTL is equal to IPv4.TTL/IPv6.hoplimit. This will allow having the same process between regular Routing processing and IP-BFD processing in regards to Egress QOS. Due to that, the following cases will now work differently: 1. API bcmOamControlOampInjectedNetworkQos doesn't work for IP BFD. NWK-QOS is inherited from IPv4.TOS/IPv6.TC header only. 2. The encapsulated ETH-header (EEDB ARP + Out-AC) that is being built by the egress pipeline is now affected by this when using the QoS-Model of Uniform/Initial. The VLAN-tag QOS (PRI,CFI) may have different values. When using the default egress VLAN-editing In the previous release, the PRI is always 0x7 and CFI is 1. In this release, the PRI is equal to IPv4.TOS[3:1]/IPv6.TC[3:1], the CFI is equal to IPv4.TOS[0]/IPv6.TC[0]. The user can change the QoS-Model of the EEDB entry to be Pipe in order to preserve the previous behavior.	88480_B0, 88690_B0, 88800_A0	6.5.26

		3. For IP BFD with additional encapsulation in the EEDB, the NWK-QOS and TTL in the outer-tunnel encapsulation will be affected in case of uniform/initial QOS mode. Customer can use Pipe QOS model for the TTL in outer tunnel to change the behavior. Note: The change will take affect in both interop mode and regular mode.		
SDK-307962	QOS-ECN	In previous release, forward plus remarking only updated 6 bits DSCP field of IPv4 header in case ECN was disabled. In this release, forward plus remarking updates all 8 bits of IPv4.TOS by default. To keep ECN bits no changed, the egress_qos_model should be set to bcmQosEgressModelInitial.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-307598	OAM	injected packet Y1711-DM and Y1711-LM from remote CPU wrongly increased OAM counter. The issue is addressed from this release. From this release, injected DM packets with 1588 over MPLS-TP doesn't increment LM counter In previous, it could be control by calling API bcm_oam_profile_action_set() with reserved egress acc profile based on DM opcode. custom_feature_oam_y1711_enable is added for enabling injected y1711-DM with LM-disabled from remote CPU increase low-level OAM counter. Please note: When custom_feature_oam_y1711_enable is set, the device only supports 1588 timestamp for injected MPLS DM packet.	88480_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-307275	BFD-IPV6	When an IPv6 BFD packet has an incorrect BFD checksum, the BFD ERR trap will override the existing trap without a strength comparison, i.e. the trap will always "win". The trap/snoop strength will be set according to the trap configuration.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1

SDK-306634	COSQ	When configuring PFC reception using API bcm_cosq_fc_path_add, only one PFC can be mapped to each Q-pair. If more than one PFC is mapped, only the highest one will have effect. A verification was added for this limitation. If it is required to map multiple PFCs to one Q-pair, flag BCM_COSQ_FC_PORT_OVER_PFC can be used, but a Generic PFC Bitmap resource will be consumed for each mapped Q-pair.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-306161	RX	In the previous release, when multiple RX callbacks were registered via API bcm_rx_queue_register() with different cos values, only the RX callback registered with cos value 0 was called. In this release, the RX callbacks registered via API bcm_rx_queue_register() are called per VLAN.PCP.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-303406	LAG	Added an enforcement of guideline to use bcm_trunk_set and other Trunk APIs with proper trunk_id as instructed in the user manual. - users must use BCM_TRUNK_ID_SET(trunk_id, pool, group) macro to create a trunk_id and not for example Trunk Gport. as a result, using of this API may fail for users who didn't follow the guidelines	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-301041	TRAP	bcmRxTrapFcoeSrcIdMismatchSa trap previously could be configured by bcm_rx_trap_type_create() and bcm_trap_action_profile_set() This trap wasn't actually supported, hence APIs now return an error as they should be.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-297720	TRAP	bcmRxTrapMyBmacUnknownISid trap previously could be configured by bcm_rx_trap_type_create() and bcm_rx_trap_set() This trap wasn't actually supported, hence APIs now return an error as they should be.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1
SDK-280094	OAM-CFM	bcm_l2_station_delete() for L2-stations created with BCM_L2_STATION_OAM now works as follows: 1. If the input LSB of the MAC address in bcm_l2_station_delete() is closer to the minimum configured LSB, new range will be configured-max to (input-LSB + 1) 2. If the input LSB is equal to the max of the existing range, range is cleared.	88480_B0, 88800_A0	6.5.26, 6.5.26-dnx.1

		3. If the input LSB of the MAC address in bcm_l2_station_delete() is closer to the maximum configured LSB, new range will be (input-LSB - 1) to configured-max In previous release, when LSB equal to the max, range can't be cleaned but max-1.		
SDK-300380	TWAMP	In the previous release, TWAMP TX used the ingress TOD for the timestamp(OAM-UP-MEP). But the timer stamped at the ingress cause negative/high difference between consecutive packets. It has been fixed by using the OAM-DOWN-MEP which uses the egress TOD for the timestamp. User needs to update its FIeld Application for TWAMP TX to align that. The Field action bcmFieldActionOam value needs to move from UP-Mep (1) to Down-Mep (0). See cint_dnx_twamp_field.c for more details.	88480_B0, 88690_B0, 88800_A0	6.5.26, 6.5.26-dnx.1

Section 3.1.2: SDK build & load

Compile and set config files :

setenv SDK `pwd`

Example of Intel GTS CPU compilation:

```
# Copy pre compiled mdb and kaps libraries into the relevant build folder.
# For Intel GTS CPU 64b build flavor, Following are the relevant 2 libraries and the
#  relevant build folder (names in build folder must be libkaps.a & libmdb.a):
mkdir -p $SDK/build/unix-user/x86-64-fc28/
cp  $SDK/libs/bin/dnx/GTS_64B_libkaps.a  $SDK/build/unix-user/x86-64-fc28/libkaps.a
cp  $SDK/libs/bin/dnx/GTS_64B_libmdb.a   $SDK/build/unix-user/x86-64-fc28/libmdb.a
# Additional mdb and kaps libraries flavors can be found under $SDK/libs/bin/.

# Compile SDK
cd $SDK/systems/linux/user/x86-64-fc28/
make -j 5 MAKE_LOCAL=$SDK/make/local/dnx/Make.custom.gts
```

Common config files:
ln -fs $SDK/rc/rc.soc
ln -fs $SDK/rc/dnx.soc
ln -fs $SDK/rc/jer2pemla-ucode.bcm
ln -fs $SDK/tools/sand/db
ln -fs $SDK/rc/config-skus.bcm
ln -fs $SDK/rc/dnx_dram
ln -fs $SDK/rc/cmicfw/linkscan_led_fw.bin
ln -fs $SDK/rc/cmicfw/custom_led.bin

BCM8869X specific links:
ln -fs $SDK/rc/config-jr2.bcm config.bcm
ln -fs $SDK/rc/bcm88690_revB_board.bcm
ln -fs $SDK/rc/bcm88690_board.bcm
ln -fs $SDK/rc/bcm88690_legacy_interop_board.bcm

BCM8880X/BCM8882X specific links:
ln -fs $SDK/rc/config-j2c.bcm config.bcm
ln -fs $SDK/rc/bcm88800_board.bcm

BCM8848X/BCM8828X specific links:
ln -fs $SDK/rc/config-q2a.bcm config.bcm
ln -fs $SDK/rc/bcm88480_board.bcm

Run :

./bcm.user

Section 3.2: DNXF-Family (BCM88790-Family)

Section 3.2.1: Supported SKUs

The following SKUs are supported:

- 88790
- 88795
- 88797

Section 3.2.2: Important Notes

Before integrating the new release, review this section thoroughly.

JIRA	Module	Release-note	Affected Devices
-	-	-	-

Section 3.2.2.1: Backward Compatible Important Notes

SW Compatibility Guidelines to 6.5.27

Note: This document is written with the assumption that upgrade is done from 6.5.26. In case upgrade is done from older releases, users must first go over previous release notes.

JIRA	Module	Release-note	Affected Devices
-	-	-	-

Section 3.5: DPP-Family - BCM88670/680/470/270 Family GA Release

This release is for:

- BCM88670 (Jericho) family product lines.
- BCM88270 (QUX) family product line
- BCM88470 (QAX) family product line
- BCM88680 (Jericho+) family product line

The subsequent sections describe the increment in available features compared to 6.5.26, major bug-fixes and known issues. Before integrating the new release, review the “Backward compatible important notes” section.

Section 3.5.1: Important Notes

Before integrating the new release, review this section thoroughly.

None

Section 3.5.2: Backward Compatible Important Notes

SW Compatibility Guidelines to 6.5.27

Note: This document is written with the assumption that upgrade is done from 6.5.26, 6.5.26-dnx.1. In case upgrade is done from earlier releases, it must first go over previous SDK release notes.

JIRA	Module	Release-note	Affected Devices	From which SDK version backward compatible breakage is relevant 6.5.26 or 6.5.26-dnx.1 or both (i.e. 6.5.26 and 6.5.26-dnx.1)

SDK-298008	NIF-MIB	In previous releases, below counter types counted both received and transmitted packets/octets. It didn't comply with RFC 1757 in which only received packets/octets should be counted. From this release, it has been fixed. snmpEtherStatsOctets snmpEtherStatsPkts snmpEtherStatsBroadcastPkts snmpEtherStatsMulticastPkts snmpEtherStatsOversizePkts snmpEtherStatsPkts64Octets snmpEtherStatsPkts65to127Octets snmpEtherStatsPkts128to255Octets snmpEtherStatsPkts256to511Octets snmpEtherStatsPkts512to1023Octets snmpEtherStatsPkts1024to1518Octets	88270_A0, 88470_B0, 88670_B0, 88680_A0	6.5.26
SDK-309393	NIF-PRD	In previous releases, the PRD drop counter was not added to "diag coun g" (drop counter). This issue has been fixed from this release. Please note that this is from this release both 'diag count g' and bcm_stat_get(snmpEtherStatsDropEvents) can get PRD drop counter which is clear-on-read. Due to it both affect each other result.	88270_A0, 88470_B0	6.5.26, 6.5.26-dnx.1

Section 3.6: DFE-Family - BCM88770 (FE3600) Release

The Broadcom BCM88770 (formerly named BCM88950) is the fourth generation in the DNX product line of Fabric Element (FE) devices.

This is a sustaining release.