

# **DNX Release Notes For Switch Software Development Kit**

## **SDK 6.5.9**

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## Section 1: About This Document

These are the Release Notes for the Broadcom Network Switching Software Development Kit Release 6.5.9 specifically for changes to DNX devices only.

This document provides a general description of the release and its new features. It also describes the chips supported by the release, BCM API additions or changes, resolved issues, and any relevant open issues. The reader should refer to prior release notes for 6.5.x, as only new features or issues are described in this version of the release notes.

Please refer to document RN-SDK6xx-R in the release package for details about the XGS device changes as well as common changes and issues in the SDK release.

## Section 2: New Devices added to this release

For any given SDK release, support for certain devices may be provided in Preview or Supported status. Devices in “Supported Switch Devices” and “Supported PHYs” 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 Switch Devices” and “Preview PHYs” 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 should not be expected to fully function.

### Section 2.1: Supported DNX Switch Devices

<i><b>Family</b></i>	<i><b>Devices</b></i>	<i><b>Description</b></i>
None in this release		

### Section 2.2: Preview DNX Switch Devices

<i><b>Family</b></i>	<i><b>Devices</b></i>	<i><b>Description</b></i>
None in this release		

## Section 3: New Features per Device

### Section 3.5: BCM88470 (Qumran) family General Availability (GA) Release

This release is the GA version for the BCM88470 Family product line, following previously released 6.5.8 GA version. The subsequent sections describe the increment in available features compared to 6.5.8, major bug-fixes and known issues.

It is extremely important to review “Backward compatible important notes” section before starting the integration of the new release.

#### Section 3.5.1: Backward compatibility important notes

**See Section 3.6.1: BCM88670 Family “Backward compatible important notes” section.**

#### Section 3.5.2: New Features

**See Section 3.6.2: BCM88670 Family “New Features” section.**

#### Section 3.5.3: Major Bug fixes

Packet Processing:

**See Section 3.6.3: BCM88670 Family “Major Bug fixes” section.**

Network Interface:

In QAX SKU 88471, some NIF links were not linked-up in some specific NIF configurations. This issue was fixed in 6.5.9 so now all 88471 links are linking-up properly

#### Section 3.5.5: Known issues

Network Interface:

Packet Processing:

**See Section 3.6.4: BCM88670 Family “Errata” section.**

#### Section 3.5.6: BCM88470 Family B0 revision support

BCM88470 Family B0 revision introduces bug fixes. For full information see:

## Section 3.5.7: Important Notes

## Section 3.6: BCM88670 Family GA Release

This release is for the BCM88370-Family and BCM88670-Family product lines.

In the continued SDK support, all features introduced in SDK 6.5.8 are also supported in SDK 6.5.9. The subsequent sections describe the increment in available features compared to 6.5.8, major bug-fixes and known issues.

It is extremely important to review “Backward compatible important notes” section before starting the integration of the new release.

### Section 3.6.1: Backward compatible important notes:

#### Section 3.6.1.2: SW compatibility guidelines 6.5.X (which is not 6.5.8) to 6.5.9

It is extremely important to read backward compatible important notes section over all SDK releases till 6.5.9. For example, in case upgrade from 6.5.4 to 6.5.9 is required, it is important to read backward compatible important notes section over SDK releases 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9 (this document Section 3.6.1.3).

#### Section 3.6.1.3: SW compatibility guidelines 6.5.8 to 6.5.9

Module	JIRA	Description	Devices affected
Mirror	SDK-118236	BCM_MIRROR_DEST_UPDATE_POLICER flag for bcm_mirror_destination_create was not supported for Arad devices and above. The code was fixed such that using this flag will result with an error.	All DNX devices
KBP/KAPS	SDK-120287	SDK is aligned to KBP SDK 1.4.11 KAPS and NL12K/OP (Optimus Prime) are functional with KBPSDK 1.4.11	All DNX devices

L3	SDK-121238	In the IPv6 UC forwarding flow, in order to perform a KAPS public lookup, the flag BCM_L3_INGRESS_GLOBAL_ROUTE needs to be passed to the relevant bcm_l3_ingress_create. This is now aligned to the IPv4 UC flow.	All DNX devices
ILKN	SDK-96201	Since both Ethernet and ILKN protocols are sharing the same Rx and Tx NIF memories, BCM88X7X datasheets describes some limitations when using both interfaces together. These limitations are better enforced in 6.5.9 version so if the data sheet directives for coexistence are violated - 6.5.9 SDK will report an error.	BCM88675, BCM88635, BCM88680

## Section 3.6.2: New Features

### Packet Processing:

#### Section 3.6.2.1: Parser speculative CW support

As part of the new parser mode that was introduced in 6.5.8 (using SOC property parser\_mode=1) a CW (control word) support was added to the speculation abilities over MPLS headers.

To speculate a CW the bcm\_switch\_control\_indexed\_set API will be used with the bcmSwitchMplsSpeculativeNibbleMap option (same as all the other speculative headers are set) with speculative type bcmSwitchMplsNextProtocolControlWord that was added in this version.

Note: identifying an ETH header over the CW will be possible with up to 6 MPLS labels, identifying the IP (version 4 or 6) over that ETH would be limited to a maximum of 3 MPLS labels.

The feature is available for 8867X, 8837X, 88470, 88680, 88270 devices.

### High Availability:

## Section 3.6.3: Major Bug fixes

The list below refers to major bugfixes, and does not provide a comprehensive coverage of various bugfixes on all levels.

Basic data path, connectivity and Traffic Management features:



Packet Processing:

OAM:

High Availability:

## Section 3.6.4: Errata

The list below relates to major open bugs that are not resolved:  
Basic data path, connectivity and Traffic Management features:

Packet Processing:

- Flexible hashing preselection on PLC (parser leaf context) which is required for the new load balancing scheme introduced in 6.5.8 is not functional.  
This is true for 8867X, 8837X, 88470, 88680, 88270 devices.

## Section 3.6.5: Important Notes

## Section 3.6.6: Connectivity with KBP Optimus Prime (OP) GA release

## Section 3.7: BCM88680 (Jericho+) Family GA Release

This release is a Sustain version for the BCM88680-Family product line, following previously released GA versions. The subsequent sections describe the increment in available features compared to 6.5.8, major bug-fixes and known issues.

It is extremely important to review “Backward compatible important notes” section before starting the integration of the new release.

### Section 3.7.1: Backward compatible important notes

**See Section 3.6.1: BCM88670 Family “Backward compatible important notes” section.**

### Section 3.7.2: New Features

Packet Processing:

**See Section 3.6.2: BCM88670 Family “New Features” section.**

In addition:

### **LPM hit bit lookup update**

To enable hitbits in KAPS for a specific table, run from the BCM shell\*:

```
kbp kaps_hitbit table="FLP IPv4 UC KAPS" enable=1
```

```
kbp kaps_hitbit table="FLP IPv4 MC KAPS" enable=1
```

```
kbp kaps_hitbit table="FLP IPv6 UC KAPS" enable=1
```

```
kbp kaps_hitbit table="FLP IPv6 MC KAPS" enable=1
```

The table names are as they appear in the output of "diag dbal Tables\_Info".

\*In 6.5.10 this shell interface will be replaced with the following BCM APIs:

bcm\_switch\_control\_indexed\_set with  
bcmSwitchL3LpmHitbitEnable as the key type and  
bcm\_switch\_l3\_lpm\_hitbit\_tables\_t as the key index.

Value can be either 1 (enable) or 0 (disable).

Enabling hitbits must be done on empty tables, if they are not empty they will be cleared.

Note that this additional functionality comes at a performance cost for the bcm\_l3\_route\_add/get/delete/traverse and bcm\_ipmc\_add/find/remove/traverse APIs as they interact with hitbits in addition to their regular operation.

For bcm\_l3\_route\_get and bcm\_l3\_route\_traverse, BCM\_L3\_HIT flag set on retrieved route indicates it was hit.

Use BCM\_L3\_HIT\_CLEAR with bcm\_l3\_route\_get or bcm\_l3\_route\_traverse to clear hitbits in UC routes.

For bcm\_ipmc\_find and bcm\_ipmc\_traverse, BCM\_IPMC\_HIT flag set on retrieved route indicates it was hit.

Use BCM\_IPMC\_HIT\_CLEAR with bcm\_ipmc\_find or bcm\_ipmc\_traverse to clear hitbits in MC routes.

Cint example available in cint\_kaps\_hitbits.c.

### Section 3.7.3: Major Bug fixes

Packet Processing:

**See Section 3.6.3: BCM88670 Family “Major Bug fixes” section.**

### Section 3.7.4: Known issues

Traffic Management and Data Path:

Packet Processing:

See BCM88670, BCM88470 families Known issues section

No Warmboot support for Ingress-PMF Large direct lookup (KAPS DMA).

## Section 3.8: BCM88770 (FE3600) Release

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

This is a sustaining release for BCM88950 driver, with all major features supported.

### Section 3.8.1: Important Notes

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### Section 3.8.2: Major Bugfixes

- None

## Section 3.9: BCM88270 (Qumran-UX) Family GA Release

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

It is extremely important to review “Backward compatible important notes” section before starting the integration of the new release.

### Section 3.9.1: Backward compatible important notes

See BCM88670-Family “Backward compatible important notes” section.

## Section 3.9.2: New Features

See Section 3.5.2: BCM88470 Family “New Features” section.

## Section 3.9.3: Major Bug fixes

See Section 3.5.3: BCM88470 Family “Major Bug fixes” section.

## Section 3.9.4: Known issues

See Section 3.5.5: BCM88470 Family “Known issues” section.

# Section 3.10: BCM88660 (ARAD+), BCM88650 (ARAD) Release

This is a sustain release of BCM88660, BCM88650 driver, with all major features supported.

## Section 3.10.1: Important notes

See BCM88670-Family GA release section, SW compatible important notes

## Section 3.10.2: Major Bugfixes

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## Section 3.10.3: Errata

None

## Section 3.10.4: New features

None

