SDK 6.5.21 EA5

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 6.5.21 EA5.

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-6.5.21-EA5-Resolved-Issues-Improvements.xlsx in the RELDOCS directory in the release package.

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 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	J2C - GA quality
BCM8848X	Q2A - GA quality
BCM8869X	J2 - GA quality
BCM8879X	Ramon - GA quality
BCM8868X	J+ - GA quality
BCM8837X/BCM8867X	JR - GA quality
BCM8827X	QUX - GA quality
BCM8847X	QAX - GA quality

Section 3: Information per Device

This release is an increment version for DPP, DNX, DNXF, DFE family devices.

The subsequent sections describe the increment in available features compared to 6.5.20, 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: DNX-Family

This section includes the following family devices:

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

Please use the PCIe firmware version 2.5.1-DNX with this release.
This version can be found under Firmware/pcie/dnx/v2.5.1/.

Section 3.1.1: Important Notes

Before integrating the new release, review this section thoroughly.

JIRA	Module	Description	Affected Devices
-	KBP	KBPSDK aligned to this release is 1.5.13. Reminder: KBPSDK is required only when working with OP/OP2.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0

Section 3.1.1.1: Backward Compatible Important Notes

SW Compatibility Guidelines 6.5.20 to 6.5.21-EA5

Please go over the list carefully.

Note: This document is written with the assumption that upgrade is done from 6.5.20 to 6.5.21EA5. In case upgrade is done from older releases, users must first go over previous release notes.

JIRA	Module	Description	Affected Devices
SDK-227396	TUNNEL-IPV4	In case the packet structure is UnknownPDUoGREoIP protocol, Parser didn't recognize the header as GRE tunnel. This is fixed.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-227255	HASHING-CONFIGURED	The default nibble speculation (the nibble following the MPLS BOS label) setting will now have two default configuration options. One of them will be used only by IPvX nibbles (4/6) and the other will be used by the rest of the nibbles. Both default nibble speculation options can speculate Ethernet or UNKNOWN header. In previous version there was only one default nibble speculation option (BCM_SWITCH_DEFAULT_NIBBLE_INDEX). In case user wants to achieve same functionality as before, it needs to call API twice with the two default options: BCM_SWITCH_DEFAULT_NIBBLE_INDEX and BCM_SWITCH_DEFAULT_IPVX_NIBBLE_INDEX.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-226710	SRv6	SRv6 header, the ROUTING_TYPE filed on SRH is now set to 4. This is done after the RFC is updated with that value.	88480_B0, 88690_B1, 88800_A0
SDK-225561	INT-IFA	Initiator node I Flag ("In-band") on IFA header is changed to 1 (from 0) as DNX IFA 2.0 is performed in-band.	88480_B0, 88690_B1, 88800_A0
SDK-225341	PTP-PP	bcmPortControl1588P2PDelay is now supported according to Trunk members (local-port) only and does not support Trunk-group (trunk-gport) anymore. API will return error when Trunk-gport is used.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0

SDK-224684	INT-IFA	Load-balancing CRC's for packets which have IFA 2.0 header are not generated by Parser anymore but instead, it is done by PMF (due to resource decisions). CINT cint_ifa2.c updated to use iPMF to calculate LB-Keys. SDK-224677 includes the Parser changes. Note: It is required to disable for all flows the Next-protocol hash field for IPv4. Instead, it should be done in PMF Hashing for all flows (not just IFA 2.0).	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-224546	PROTECTION-FEC	It is not possible to allocate failover_id '0' for FEC anymore. It is reserved for disable.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-224483	SRv6	Application reference updates: 1. Replaced the appl_papram soc property appl_param_psp_reduce_mode with two independent soc properties: appl_param_srv6_psps_enable, appl_param_srv6_reduce_enable 2. Reference application is updated to support PSP and USP in parallel. USP is always enabled, PSP can be set by a appl_param_srv6_psp_enable soc property	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-224404	VXLAN	In VXLAN application, VPN is resolved by lookup, it's not a Tunnel-teminator property. Therefore, updating VRF in the VXLAN In-Tunnel with bcm_l3_ingress_create API will return now an error.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-222875	VSI, PP-Port	In the previous release, for bridging cases, regular (known unicast) packets were affected by the default TRAP destination of unknown packets. In this release, it is not supported to set the default destination of unknown packets as TRAP for bridging cases. APIs: bcm_port_flood_group_set, bcm_vlan_control_vlan_set will now return error accordingly.	88480_B0, 88690_B1, 88800_A0
SDK-222861	TUNNEL	Update default UDP destination port for MPLS to be according to RFC-7510: 6635 and not 0x6635.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-222587	OAMP-LM-DM	Accelerated OAM SLM: The measurement_period field isn't supported. In the past calling bcm_oam_loss_add() with a non-zero measurement period was allowed however this field was ignored. Note SLR measurements works in the following way: Measurements are recorded only after bcm_oam_loss_add() is called with the BCM_OAM_LOSS_UPDATE_NEXT_RECEIVED_SLR flag for the given	88480_A0, 88480_B0, 88690_B1, 88800_A0

		endpoint.	
SDK-220608	IPMC	implement bcmSwitchL3IP6McastL2 that can be used to define the default forwarding type in case of IPv6 MC-disabled routing - v6MC or v6Bridge. bcmSwitchL3McastL2 is now used to modify only the default IPv4 MC-disabled forwarding type - v4Mc or v4Bridge. On previous versions bcmSwitchL3McastL2 was used to modify the default fwd type for both IPv4 and IPv6.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-220133	SRv6	RCH Extended-encapsulation scenario was changed. As part of the change the RCH is now passed to egress-pipeline. Due to this, also the appl_ref soc property appl_enable_field_rch_remove was changed to appl_enable_field_rch_handle.	88480_A0, 88480_B0, 88690_A0, 88690_B1
SDK-219660	PORT	new fields added to bcm_port_mapping_info_t: in_tm_port, out_tm_port and pp_dsp. When bcm_port_mapping_info_t is used for bcm_port_add, these fields are mutual exclusive with tm_port field: either tm_port can be specified or the three new fields. bcm_port_mapping_info_t_init should be used to initialize this struct (as before). When bcm_port_mapping_info_t is returned by bcm_port_get(), the three new fields are always returned. tm_port is returned only if the values of the three are equal. In order to be backward-compatible, when calling bcm_port_get() and then later on using API bcm_port_add(), it is expected to set in_tm_port, out_tm_port and pp_dsp fields to -1.	88690_A0
SDK-218909	OAM-MPLS-PM	In previous releases APIs may have allowed more than one packet per endpoint per 1.667ms of the combination BFD/LM/DM, however in such cases OAMP would fail to inject traffic.	88480_B0, 88690_B1, 88800_A0
SDK-203005	DYN-PORT	dnx_algo_port_interface_rate_get was available in previous versions via the CINT command. Now the new API replaces it.	88480_A0, 88480_B0, 88800_A0
SDK-200574	SRv6	As the API bcm_tunnel_initiator_create can be either L2VPN (with VSI, no Vxlan LIF) and L3VPN (with VRF), there are new limitations about it. It is not allowed to replace an L3VPN object with to be an L2VPN and vice versa.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-194887	PMF	State table entry add/get/delete is now by core, and only supported for a specific core(no BCM_CORE_ALL). State table entries now use entry handle, incorporation the key and core.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0

Section 3.1.2: SDK build & load

Compile and set config files :

setenv SDK `pwd`

Example of SLK CPU compilation :

```
# Copy pre compiled mdb and kaps libraries into the relevant build folder.
# For SLK CPU big endian 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/slk_be/
cp  $SDK/libs/bin/dnx/SLK_64B_libkaps.a  $SDK/build/unix-user/slk_be/libkaps.a
cp  $SDK/libs/bin/dnx/SLK_64B_libmdb.a   $SDK/build/unix-user/slk_be/libmdb.a
# Additional mdb and kaps libraries flavors can be found under $SDK/libs/bin/.

# Compile SDK
cd $SDK/systems/linux/user/slk_be/
make -j 5 MAKE_LOCAL=$SDK/make/local/dnx/Make.custom.dnx_kbp_slk
```

Common config files:

```
ln -fs $SDK/rc/rc.soc
ln -fs $SDK/rc/dnx.soc
ln -fs $SDK/rc/config-jer2pemla.bcm
ln -fs $SDK/tools/sand/db
ln -fs $SDK/rc/dnx_sku
ln -fs $SDK/rc/dnx_dram
ln -sf $SDK/rc/cmicfw/linkscan_led_fw.bin
ln -sf $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 -sf $SDK/rc/bcm88690_board.bcm
ln -sf $SDK/rc/bcm88690_legacy_interop_board.bcm
```

BCM8880X/BCM8882X specific links:

```
ln -fs $SDK/rc/config-j2c.bcm config.bcm
ln -sf $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
```

BCM8879X specific links:

```
ln -fs $SDK/rc/dnxf.soc
ln -fs $SDK/rc/config-ramon.bcm config.bcm
ln -fs $SDK/rc/bcm88790_board.soc
ln -fs $SDK/rc/bcm88790_pizza_board.soc
```

Run :

```
./bcm.user
```

Section 3.2: DNXF-Family (BCM88790-Family)

Please use the PCIe firmware version 2.5.1-DNX with this release.
This version can be found under Firmware/pcie/dnx/v2.5.1/.

Section 3.2.1: Important Notes

None

Section 3.3: 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

Section 3.3.1: Backward Compatible Important Notes

Section 3.3.1.1: SW Compatibility Guidelines 6.5.20 to 6.5.21-EA5

Note: This document is written with the assumption that upgrade is done between 6.5.20 to 6.5.21EA5. In case upgrade is done from earlier releases to 6.5.20, it must first go over previous SDK release notes.

JIRA	Module	Description	Affected Devices
SDK-224348	QoS	In the previous release, if the incoming 802.1Q headers of packets were removed by ingress VLAN editing (IVE) and egress port was a tagged member of the VLAN, 802.1Q priority of the outgoing packets was lost and could not be mapped. In this release, this issue has been fixed. Notes: This fix updates L2 QOS default mapping in SDK. In previous release, TC & DP are always default 0 for L2 packet, and new structured L2 packet PCP and DEI at egress are 0 too. From this release, Default TC 1:1 mapping from PCP and default DP 1:1 mapping from DEI at ingress, and reverse mapping happens at egress.	88270_A0, 88470_A0, 88470_B0, 88670_B0, 88680_A0

Section 3.4: DFE-Family - BCM88770 (FE3600) Release

None