

SDK 6.5.20

Release Notes

Table of Contents

[Section 1: About This Document](#)

[Section 2: New Devices added to this release](#)

[Section 2.1: Supported DNX Switch Devices](#)

[Section 2.2: Preview DNX Switch Devices](#)

[Section 3: Information per Device](#)

[This release is an increment version for DPP, DNX, DNXF, DFE family devices. It is also the first GA version for BCM8828X \(Q2U\) and PRE version for BCM8885X \(J2c+\).](#)

[Section 3.1: DNX-Family](#)

[Section 3.1.1: Reference Documentation](#)

[Section 3.1.1.1: SW/Arch documentation](#)

[Section 3.1.1.2: In-Package Documents](#)

[Section 3.1.2: Supported SKUs](#)

[Section 3.1.3: Important Notes](#)

[Section 3.1.3.1: Backward Compatible Important Notes](#)

[Section 3.1.4: SDK build & load](#)

[Section 3.1.5: IPSec and MACSEC support](#)

[Section 3.1.6: FLEXE support](#)

[Section 3.1.7: Validated features](#)

[Section 3.1.7.1: Access, Basic data path, Connectivity and Traffic Management Features Validated features](#)

[Section 3.1.7.2: Packet-Processing Validated feature](#)

[Section 3.1.7.3: ACL Validated features](#)

[Section 3.1.7.4: High Availability Validated features](#)

[Section 3.1.8: New Features since 6.5.19](#)

[Section 3.1.8: Bug-fixes](#)



SDK-6.5.20 Release Notes

[Section 3.1.9: Errata](#)

[Section 3.2: DNXF-Family \(BCM88790-Family\)](#)

[Section 3.2.1: Supported SKUs](#)

[Section 3.2.2: Important Notes](#)

[Section 3.2.2.1: Backward Compatible Important Notes](#)

[Section 3.2.3: Validated Features](#)

[BCM88790 is GA level.](#)

[Section 3.2.4: Errata](#)

[Section 3.2.5: Major Bug fixes since 6.5.19 in DNXF-Family](#)

[Section 3.2.6: New features since 6.5.19](#)

[Section 3.3: DPP-Family - BCM88670/680/470/270 Family GA Release](#)

[Section 3.3.1: Backward Compatible Important Notes](#)

[Section 3.3.1.1: SW Compatibility Guidelines 6.5.19 to 6.5.20](#)

[Section 3.3.3: Errata](#)

[Section 3.3.4: New Features since 6.5.19](#)

[Section 3.4: DFE-Family - BCM88770 \(FE3600\) Release](#)

[Section 3.5: Bug fixes since 6.5.19 for DNX/DNXF/DPP/DFE Families](#)

No table of figures entries found.

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 6.5.20.

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-6.5.20-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

<i>Family</i>	<i>Devices</i>	<i>Description</i>
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 2.2: Preview DNX Switch Devices

<i>Family</i>	<i>Devices</i>	<i>Description</i>
BCM8885X		J2c+ - Preview quality

Section 3: Information per Device

This release is an increment version for DPP, DNX, DNXF, DFE family devices. It is also the first GA version for BCM8828X (Q2U) and PRE version for BCM8885X (J2c+).

The subsequent sections describe the increment in available features compared to 6.5.19, 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)**
- **BCM8885X-Family (Jericho2C+)**

Section 3.1.1: Reference Documentation

Multiple documents describing relevant HW and SW aspects are available, including:

Section 3.1.1.1: SW/Arch documentation

The following documents are available through Broadcom's Customer Support Portal at <https://csp.broadcom.com/group/customers/csp>:

Document	Description
88690-DG1XX	BCM88690 Traffic Management Architecture
88690-DG2XX	BCM88690 Packet Processing Architecture Specification
88480-DG1XX	BCM88480 Traffic Management Architecture
88480-DG2XX	BCM88480 Packet Processing Architecture Specification
88800-DG1XX	BCM88800 Traffic Management Architecture
88800-DG2XX	BCM88800 Packet Processing Architecture Specification
88500-DG1XX	BCM88850 Traffic Management Architecture
88690-PG1XX	Packet Processing Programmable Guide (also for BCM88800, BCM88480)
88690-PG2XX	Traffic Manager Programmable guide (also for BCM88800, BCM88480)

88690-88800-88480-ER1XX	Device Errata
DNX28-DNX16-AN1XX	Traffic Manager Software Compatibility Guide (also for BCM88800, BCM88480)
88670-88690-AN2XX	Packet Processing Software Backward Compatibility with the BCM88670 and BCM88680 (also for BCM8800, BCM88480)
DBG16S-AN1XX	SerDes Configuration and Debugging Guide for StrataDNX™ 16-nm Devices
88690-ER1XX	Device Errata for Jericho2
88800-ER1XX	Device Errata for Jericho2C
88480-ER1XX	Device Errata for Qumran2A
KM Article for all DNX SW Erratas	“DNX Software Errata SDK MAIN tracker”

Section 3.1.1.2: In-Package Documents

Document	Description
\$SDK/doc/sand/88690_UM_ShellCmd.html	BCM8869X BCM Shell commands user manual
\$SDK/doc/sand/88690_UM_SoCProperties.html	BCM8869X BCM Soc Properties user manual
\$SDK/doc/sand/88690_UM_Ctest.html	BCM8869X BCM Ctests user manual
\$SDK/doc/sand/88480_UM_ShellCmd.html	BCM8848X BCM Shell commands user manual
\$SDK/doc/sand/88480_UM_SoCProperties.html	BCM8848X BCM Soc Properties user manual
\$SDK/doc/sand/88480_UM_Ctest.html	BCM8848X BCM Ctests user manual
\$SDK/doc/sand/88800_UM_ShellCmd.html	BCM8880X BCM Shell commands user manual
\$SDK/doc/sand/88800_UM_SoCProperties.html	BCM8880X BCM Soc Properties user manual
\$SDK/doc/sand/88800_UM_Ctest.html	BCM8880X BCM Ctests user manual
\$SDK/doc/sand/88850_UM_ShellCmd.html	BCM8885X BCM Shell commands user manual



\$SDK/doc/sand/88850_UM_SoCProperties.html	BCM8885X BCM Soc Properties user manual
\$SDK/doc/sand/88850_UM_Ctest.html	BCM8885X BCM Ctests user manual
\$SDK/doc/sand/88790_UM_ShellCmd.html	BCM8879X BCM Shell commands user manual
\$SDK/doc/sand/88790_UM_SoCProperties.html	BCM8879X BCM Soc Properties user manual
\$SDK/doc/sand/88790_UM_Ctest.html	BCM8879X BCM Ctests user manual

Section 3.1.2: Supported SKUs

The following SKU are supported:

Jericho2	Jericho2C	Qumran2A	Qumran2U
88690	88800	88480	88284
88691	88802	88485	
88693	88803	88487	
	88804		
	88806		
	88820		
	88823		

Section 3.1.3: Important Notes

Before integrating the new release, review this section thoroughly.

JIRA	Module	Description	Affected Devices
-	KBPSDK	<p>SDK is aligned to KBPSDK version 1.5.13</p> <p>Note: KBPSDK is required for DPP devices or when DNX family devices are working with external KBP. From now for DNX devices there is no need to to use KBPSDK for KAPs. To compile without KBPSDK remove from FEATURE_LIST KBP</p>	88690, 88800, 88480
SDK-221804	Ucode	<p>The micro-code (ucode) text file is no longer part of the SDK release. Instead, the ucode information is already compiled with the SDK.</p> <p>In case another ucode should be loaded, for any reason (bug fixes, new features), the ucode should be generated and placed at the same folder:</p> <p>tools/sand/db/<device_name>/pemla/ucode/</p> <p>where device_name options are:</p> <ul style="list-style-type: none"> • jericho2_a0 • jericho2_b0 • jericho2c_a0 • jericho2p_a0 • qumran2a_a0 • qumran2a_b0 <p>Note, that as previously, any ucode text file can be located anywhere under tools/sand/db/<device_name>/, and the relative path to that folder can be set as soc property: programmability_ucode_relative_path.</p>	88690, 88800, 88480, 88850
SDK-223389	MDB Profiles	<p>MDB profiles: The XMLs that describe the MDB predefined profiles are no longer part of the SDK release package.</p>	88690, 88800,

SDK-6.5.20 Release Notes

		<p>The pre-defined profiles names are a read-only profiles, and pre-compiled to SDK. User can pick the pre-defined MDB profile by same soc-property as before.</p> <p>For bcm88690, bcm88800, bcm88480 - The custom MDB profile should still be located under tools/sand/db/jericho2_a0/mdb</p> <p>For bcm88850 - The custom MDB profile should still be located under tools/sand/db/jericho2p_a0/mdb/</p> <p>Custom MDB-profiles can be generated by MDB-compiler web.</p> <p>Supported options: "balanced", "balanced-exem", "balanced-p-and-p", "l2-xl", "l3-xl", "ext-kbp", "custom"</p>	88480, 88850
-	XMLs	<p>DBAL and DNX-Data XMLs are no longer part of the SDK. In case user would like to view the information, it is available in Arrakis web platform.</p>	88690, 88800, 88480, 88850
-	MBIST	<p>We require that after running a Memory Built In Self Test (MBIST), that the device it runs on either be powered off or system reset (hardware reset by de-asserting the signal SYS_RST_N from the board).</p> <p>Without this action we do not guarantee that the device will work properly, and therefore from this release the software enforces it.</p> <p>This is a new requirement for BCM8869x (Jericho 2), independent of the SDK release.</p> <p>For BCM8880x, BCM8882x (Jericho 2C), BCM8848x (Qumran 2A) we previously required a power off, and now also accept a system reset.</p> <p>Note that both powering off the device and a system reset of the device, also involve a PCIe reset of the device, and the PCIe link of the device going down; so the customer BDE needs to support this operation if done while the BDE and SDK are running.</p> <p>We provide a callback function skeleton dnxc_perform_system_reset() in src/appl/reference/dnxc/appl_ref_board.c that may be used to perform these operations automatically on the customer board.</p>	88690, 88800, 88480



SDK-6.5.20 Release Notes

		<p>An example of how this function is registered in the sample application can be seen in the <code>dnxc_perform_system_reset()</code> in <code>src/appl/reference/dnxc/appl_ref_init_deinit.c</code>.</p> <p>To have the call back function used automatically after running MBIST, and enable to continue running the SDK later, use this new soc property: <code>perform_system_reset_when_needed=1</code>.</p> <p>If a device power off, or system reset is not actually performed, the SDK will recognize this, fail, and not continue running, and not run when started again.</p> <p>The MBIST is meant to test memories when there is a suspicion of device malfunction and is not mandatory. As described here, with some effort it is possible to run MBIST before each SDK runs, but this is not the intention of the test.</p> <p>The changed MBIST and CPU2TAP code in the release, together with the new requirement, fix possible PCIe issues in 8869x (Jericho 2).</p>	
SDK-214828	DRAM	Reading the DRAM temperature (by using 'dram debug temp' or by using <code>bcm_switch_thermo_sensor_read</code>) is not supported with Micron DRAM and starting on 6.5.20 - will return an error.	88480_B0
SDK-213072	Interrupts	Interrupt corrective for soft reset is changed. 1, full soft reset for interrupts coming from FDRC blocks. 2, soft reset without fabric for interrupts coming from ILKN block. 3, soft reset without fabric and without ELK for interrupts coming from other blocks	88690, 88800, 88480



Section 3.1.3.1: Backward Compatible Important Notes

SW Compatibility Guidelines 6.5.19 to 6.5.20

Please go over the list carefully.

Note: This document is written with the assumption that upgrade is done from 6.5.19 to 6.5.20. In case upgrade is done from older releases, users must first go over previous release notes.

JIRA	Module	Description	Affected Devices
SDK-219645	QOS	bcmQosControlMplsIngressPopQoS Preserve now requires flag BCM_QOS_MAP_L3 to be set with the right type (IPv4, IPv6)	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-218257	PMF	SOC property 'appl_enable_field_wa' was changed to 'appl_enable_field_app'.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-217217	VSWITCH	bcm_vswitch_cross_connect_traverse returns now flag BCM_VSWITCH_CROSS_CONNECT_DIRECTIONAL. In previous, flag was not returned and then fails to delete cross-connection which is created with flag BCM_VSWITCH_CROSS_CONNECT_DIRECTIONAL. This release fixes the issue and changes the return flags compared to the previous release.	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-217140	FC	Improve accuracy of API bcm_cosq_pfc_deadlock_control_set with type bcmCosqPFCDeadlockDetectionTimer. Implications are that the actual detection time will be as close to the user set value as possible, which might be different than previous behavior(depending on the value that was set). Also, a check for the pulse generator period was improved, which means that it may fail in some scenarios that were previously passing when the values of pulse generator period and detection timer are very close to each other.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-216939	INT-ET	bcm_instru_gport_control_set with bcmInstruGportControlTraceProbability was not set correctly, instead of setting percentage to X%, the API set percentage to (100-X)%. This is now fixed.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-216836	COE	PCP/DEI of COE tag can be sourced from port now by calling bcm_switch_control_port_set(unit,coe_port,bcmSwitchTagPcpDeiSrc,3).	88480_A0, 88480_B0,



SDK-6.5.20 Release Notes

		PCP/DEI in COE tag is sourced from out port's attribute as default with value zero and not from Out-AC as before.	88800_A0
SDK-216454	RCY	New RCY port flow is introduced called "Uncollapse extended encapsulation". This port flow should be used for flows that do regular encapsulation in the first pass, but forwarding decision is decided in the second pass for extending encapsulation. Note it affects flows like EVPN RCY application, discussed in SDK-195890 (6.5.19): 1. The RCY Port for this flow should be configured with the new API bcmPortControlRecycleApp, and not with bcmPortControlOverlayRecycle. 2. The RCH Outlif should be created with bcmL2EgressRecycleAppExtendedEncap and not with bcmL2EgressRecycleAppDropAndContinue.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-216210	EVPN	In previous releases, the IML label termination in EVPN was done by a single inLIF unlike BCM88690 on which the termination was done by two inLIFs for IML with and without ESI each. In order to align the application to all devices including all scenarios (after further validation), the solution is aligned to the one to BCM88690. Meaning the application termination changes between JR2 and J2c need to be reverted. Meaning, it is expected to create two InLIFs for IML (one with EXPECT_BOS and one without) instead of one.	88480_A0, 88480_B0, 88800_A0
SDK-216201	L3-IPV6-MC	Support was added for split selection for IPv4 and IPv6 forwarding type in case the IPMC routing is disabled. Using the flag BCM_L3_INGRESS_L3_MCAST_L2 when creating a RIF the user can now indicate that v4MC forwarding type will be used. Default is v4Bridge if the flag is missing. Using the newly introduced flag BCM_L3_INGRESS_IP6_L3_MCAST_L2 - the user specifies v6MC forwarding type. Default is v6Bridge which will be selected if the flag is missing. In previous versions, BCM_L3_INGRESS_L3_MCAST_L2 related also to BCM_L3_INGRESS_IP6_L3_MCAST_L2 by mistake. In case user wish to allow both types (IPv4 and IPv6), it should call both flags.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-216109	SRv6	To align with SRv6 RFC updates and IANA protocol update, IP-next-protocol for ETHoIP (that used for SRv6), the new value used by Parser & Encapsulation is now 0x8f. Previously it was 0x3B.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-214175	TRAP	Force forward application will not work if the injected packet has ITMH header. ITMH application was refactored to not overwrite the traps with highest strength (0xF). Thus allowing force forwarded packets can reach their destination (regardless of the ITMH header). This change is true for all trap-actions of strength 0xF prior to PMF application (for ITMH injected packets).	88480_A0, 88480_B0
SDK-213934	INT-IFA	TTL field on Metadata should be outgoing TTL (incoming TTL -1) and not incoming TTL.	88480_B0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

SDK-212714	L2	<p>The following list of BCM APIs delete MACT entries according to one or more properties of the entries:</p> <pre>bcm_l2_addr_delete_by_port() bcm_l2_addr_delete_by_mac() bcm_l2_addr_delete_by_vlan() bcm_l2_addr_delete_by_trunk() bcm_l2_addr_delete_by_mac_port() bcm_l2_addr_delete_by_vlan_trunk() bcm_l2_addr_delete_by_vlan_port()</pre> <p>The above APIs did not support the flag BCM_L2_DELETE_STATIC properly. When the flag wasn't set, the APIs still deleted static entries. This is fixed. Now static entries are deleted only when BCM_L2_DELETE_STATIC is set.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-212572	LAG-PP	bcm_port_control_set bcmPortControlSystemPortInjectedMap does not support trunk-member port anymore. Instead, it is expected to be called only with local ports or trunk gports. In case of trunk gport, the mapping of trunk SPA with masked members and the relevant pp port per core is done. The API returns an error if it is called with trunk member.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-212462	COSQ-ING	VOQ bundle can be allocated in the limits of one queue region. An error is returned now in case of VOQ allocation outside the limits of a queue region.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-211877	L3-IF-RIF	rif_id_max SOC property must be in a multiplication of a RIF bank size. In the previous release, any value was possible but didn't configure correctly the HW. Now it is aligned. Note: In interop-mode, RIF-ID should be limited up to 32K.	88690_A0, 88690_B1, 88800_A0
SDK-211382	PTP	<p>APIs bcm_port_timesync_config_set/get, bcmPortControl1588P2PDelay are now supported according to Trunk-member (local-port) and not according to Trunk-group (trunk-gport). The change is due to give the ability for the user to configure different values per Trunk-member.</p> <p>APIs call are now different than the previous release, trunk-gport will return an error, while local-port should be used instead when the port is part of the LAG.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-211294	SBFD	<p>In the previous release, seamless bfd reflector didn't support local State change. In this release, this issue has been addressed.</p> <p>This may break backwards compatibility from previous version - in the past, State was copied from incoming packet, now State is taken from endpoint-create.</p>	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-211020	PMF	The default config provided was changed such that pmf_sexem3_stage moved from IPMF3 to IPMF2. This means that in case the user use the default config and would like to use SEXEM3 in IPMF3, it needs to change the soc-property value back to IPMF3. An application that is used in IPMF3 for example is ECMP RPF.	88480_A0, 88480_B0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

SDK-210904	OAM, PMF	<p>OAM/BFD: when injecting ITMH + PPH packets from the OAMP, ingress PMF will strip and rebuild the PPH. This allows supporting Hierarchical LM counting over LIFs in OAM (supported in SDK-200941) and BFD over VXLAN (supported in SDK-206144).</p> <p>The side-effect of this is that the calling sequence for is that the calling sequence for OAMP punt and protection packet configuration has changed:</p> <ol style="list-style-type: none"> 1. User must now allocate a user-defined trap with ID < 255 for each punt/protection packet. Traps are still allocated with the bcm_rx_trap_type_create API. A trap code may be created with or without ID. 2. When calling bcm_rx_trap_set() use the flag BCM_RX_TRAP_TRAP. 3. In order to change the trap code of a punt packet, destroy the trap and then recreate it with a new trap code. <p>Punt/Protection packet configuration has been modified in appl_ref_oam_init.c. As a result, punt/protection packets will arrive at the CPU with a different trap code than in previous releases.</p> <p>An example of how to change the trap code can be found in maid_trap_set() in cint_sand_oam.c</p>	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-210640	L3	<p>IPMC flows were slightly changed.</p> <p>For the case of double KAPS DB, IPv6 MC LEM entry with VRF = 0: in the previous release, it was allowed, from this release it will return error as SDK doesn't support public anymore (aligns to LPM).</p> <p>In this JIRA, also support for working in a state of a single KAPS DB was added. The L3 and IPMC APIs can now work correctly when the capacity of public KAPS is 0. See more information in the PG document "IPMC section".</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-210105	OAM, BFD	<p>Due to HW restrictions, RMEP DB size is reduced by half. This is because OAMP event can be lost if event fifo becomes full, events such as LOC/LOC-clear may be lost in case a large amount of events occur at once.</p> <p>Form this release, only RMEPs with IDs that are multiples of 4 will be allowed to be allocated, in case above RMEP-DB threshold. Below the threshold, only even IDs will be allowed to be allocated.</p>	88480_B0, 88690_B1, 88800_A0
SDK-210026	LAG-PP	<p>When a port is removed from a Trunk group, its PP port properties are lost and its properties are being reset to its header-type defaults.</p> <p>In previous versions, once such action happened, PP port properties were reset according to the PP default Application and not aligned to SDK port default configuration.</p> <p>This is now changed and port is now reset to its header-type defaults (the same as adding port in the system without running PP default application).</p> <p>In order to mimic the application properties, an example was added.</p> <p>Please see CINT cint_port_packet_processing_example.c function:</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

		<p>cint_port_packet_processing_removed_trunk_member_pp_properties_set.</p> <p>Bonus: An additional functionality was added to show what pp port properties should be reset before port is removed from trunk group, see function cint_port_packet_processing_pp_properties_unset.</p> <p>Note: Currently on this operation, API doesn't touch port learn property and its IngressMissDrop action. This may change in a future version. It is expected that the user will call bcm_port_learn_set, bcm_vlan_control_port_set bcmVlanTranslateIngressMissDrop to configure its expected values after port is created/removed from trunk.</p>	
SDK-209800	RCY	<p>bcm_l2_egress_get API returned local-port when dest_port attribute was given to BCM_L2_EGRESS_DEST_PORT.</p> <p>API also assumed that port exists in the local-device.</p> <p>From this release, API bcm_l2_egress_set/get uses either trunk gport or system port gport in dest_port. Other types such as Local port are not supported.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-209714	TRAP	<p>bcmRxTrapDfltRedirectToCpuPacket which is configured on init, is now configured with flag BCM_RX_TRAP_TRAP which will result in adding FHEI header to the packet.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-209345	COSQ-ING	<p>Changed the error type returned by bcm_cosq_gport_get API in case of non-existing VOQ. Instead of E_NONE to an actual error. This was done to be consistent with Jericho family.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-208692	EVPN	<p>Flow Label is now supported in EVPN. For the Flow Label encapsulation, BCM_MPLS_EGRESS_LABEL_ENTROPY_ENABLE should be set in creating the EVPN or IML encapsulation objects. While for the termination, BCM_MPLS_SWITCH_ENTROPY_ENABLE should be set in creating the EVPN or IML termination objects.</p> <p>Note: In order to use the feature, 4 mpls-termination profiles were allocated by init, which reduces the number of profiles by 4.</p> <p>In case the feature is not required and more mpls-termination-profile are required, there is a way to disable the feature (temporary in 6.5.20), please approach AE team for that.</p>	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-207527	NIF	<p>Since 6.5.20 release, according the DS description, 56.25G, 28.125G and 27.34375G are no longer supported on JR2/J2C/Q2A except 28.125 is still supported on JR2-A0.</p>	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-207228	COUNTERS-PP	<p>When using VSI statistics, using API bcm_vlan_control_vlan_set, it is expected that egress_stat_id field will be equal to VSI. So far the API ignored the field. Now, it</p>	88480_A0, 88690_A0,



SDK-6.5.20 Release Notes

		must be set with the same value with VSI once egress_stat_pp_profile is non 0.	88690_B1, 88800_A0
SDK-206602	FABRIC	Validation was added for all valid Fabric speed + FEC combinations so a clear error message will be returned if any invalid port resource combination is set for a fabric link.	88690_A0, 88690_B1, 88800_A0
SDK-204230	PMF	bcmFieldActionParsingStartType Action now should get input bcm_field_layer_type_t. supported values are: bcmFieldLayerTypeEth, bcmFieldLayerTypeIp4, bcmFieldLayerTypeIp6, bcmFieldLayerTypeMpls, bcmFieldLayerTypeArp, bcmFieldLayerTypeFcoe, bcmFieldLayerTypePppoe, bcmFieldLayerTypeSrv6Endpoint, bcmFieldLayerTypeSrv6Beyond, bcmFieldLayerTypeTm, bcmFieldLayerTypeForwardingMPLS, bcmFieldLayerTypeUnknown, bcmFieldLayerTypeSctp. In order to get same functionality as before the change please use bcmFieldActionParsingStartTypeRaw instead.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-201871	VXLAN	In the case of miss lookup of VSI->VNI or VRF->VNI, packet will be egress-trapped to drop-action. In previous versions, such packets would continue to the network with corrupted packet.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-200941	OAM	In order to support hierarchical loss measurement for injected OAM over MPLS-TP, below sequence should be followed: 1. Identify y1731 OAM over PWE in egress parser by calling bcm_switch_control_indexed_set Please Refer to dnx_oam_identify_y1731_oam_over_pwe_egress in cint_dnx_utils_oam.c 2. Always enable counter in egress LIF profile by calling bcm_oam_profile_action_set. Please refer to dnx_oam_egress_with_update_counter_in_egr_profile in cint_dnx_utils_oam.c 3. For injected DMM/Rs, LMM/Rs, and piggyback CCMs (dual ended LM) over MPLS, control whether these packets should increment LM counters by calling API bcm_oam_profile_action_set with reserved egress acc profile, based on opcode. Please refer to appl_dnx_oam_hlm_egress_with_update_counter_in_egr_acc_profile in appl_ref_oam_init.c Note, with this code change, The number of available egress acc profile is reduced to 14. Profile 0 is default profile, profile 15 is reserved for injected OAM over MPLS 4. For OAM packets not mentioned above, counter increment indication can be controlled through the egress LIF profile, with bcm_oam_profile_action_set. 5. When an injected OAM packet also hits a LIF on a lower hierarchy on which another OAM endpoint exists, the OAM packet will be treated as a data packet on	88480_A0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

		<p>the lower hierarchy. For example If there are OAM MEPs with LM on a PWE and LSP LIF and the injected PWE OAM packet also hits the LSP LIF then the PWE OAM packets increment the LM counters on the LSP MEP.</p> <p>Note that changes from SDK-210904, SDK-213820 are also required for this JIRA. Steps 1 and 2 may affect backwards compatibility to 6.5.19. Existing OAM over PWE/MPLS applications may have to be updated accordingly.</p>	
SDK-200174	LIF-MGMT	When the device runs on the Jericho system header (IOP) mode, <code>nof_global_l2_gport_lifs</code> is 0x100000, which is out of Jericho's range. In this release, <code>nof_global_l2_gport_lifs</code> is changed to 0x40000 on IOP mode.	88690_A0, 88690_B1, 88800_A0
SDK-198075	NIF, PHY	"state_eye" option is removed from "phy dsc" command. The functionality is moved to "phy dsc state" command which will return the state and also an eyescan diagram if the link is locked. The prints won't stop if the link is not locked	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-191857	OAMP-LM-D M	In order to update the LM statistics for SLM entry upon reception of an SLR packet, the <code>bcm_oam_loss_add()</code> needs to be called with <code>BCM_OAM_LOSS_UPDATE_NEXT_RECEIVED_SLR</code> flag set and "id" set for endpoints with offloaded memory type, and "loss_id" set for endpoints with self-contained memory type. In previous releases this wasn't required for offloaded memory types, however functionality wasn't correct.	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-191419	NIF	Changed the soc property name from "use_fabric_links_for_ilkn_nif" to "ilkn_use_fabric_links".	88690_A0, 88690_B1, 88800_A0
SDK-186760	PARSER	Bit 14 of IPv6 layer qualifier now includes information about whether the IPv6 packet is fragmentation details. When bit is set (0x1), then packet is fragmented and it's not the first fragment. When bit is clear (0x0), then either packet is not fragmented or packet is fragmented and it is the first fragment. <code>bcmFieldQualifyIPv6FragmentedNonFirst</code> can be used in PMF as LayerRecord qualifier in IPv6 Layer. In previous versions, bit 7 of IPv6 layer qualifier indicated that fragment is first. This is not supported anymore. In case it was used by Field-Processor application, application needs to change to align with the new implementation (qualify fragmentation by the new introduced qualifier).	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-167463	DBAL	Change in string management. In order to maintain more efficient memory footprint of SDK, the strings representing enum values was reduced. This change may affect SDK CMD diagnostics , since now, users doesn't need to set the full value name, but only a shorten value name for example setting value for field <code>PORT_TERMINATION_PTC_PROFILE</code> : was:	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0



		PORT_TERMINATION_PTC_PROFILE=PORT_TERMINATION_PTC_PROFILE_P TCH2 now: PORT_TERMINATION_PTC_PROFILE=PTCH2	
--	--	---	--

Section 3.1.4: SDK build & load

Compile and set config files :

```
setenv SDK `pwd`
```

Compile SLK CPU:

```
cd $SDK/systems/linux/user/slk_be/  
make MAKE_LOCAL=$SDK/make/local/dnx/Make.custom.dnx_kbp_slk
```

Compile Intel-GTS CPU:

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

Common config files:

```
In -fs $SDK/rc/rc.soc  
In -fs $SDK/rc/dnx.soc  
In -fs $SDK/rc/config-jer2pemla.bcm  
In -fs $SDK/tools/sand/db  
In -fs $SDK/rc/dnx_sku  
In -fs $SDK/rc/dnx_dram  
In -sf $SDK/rc/cmfcfw/linkscan_led_fw.bin  
In -sf $SDK/rc/cmfcfw/custom_led.bin
```

BCM8869X specific links:

```
In -fs $SDK/rc/config-jr2.bcm config.bcm  
In -fs $SDK/rc/bcm88690_revB_board.bcm  
In -sf $SDK/rc/bcm88690_board.bcm  
In -sf $SDK/rc/bcm88690_legacy_interop_board.bcm
```

BCM8880X/BCM8882X specific links:

```
In -fs $SDK/rc/config-j2c.bcm config.bcm  
In -sf $SDK/rc/bcm88800_board.bcm
```

SDK-6.5.20 Release Notes

BCM8848X/BCM8828X specific links:

In -fs \$SDK/rc/config-q2a.bcm config.bcm

In -fs \$SDK/rc/bcm88480_board.bcm

Run :

./bcm.user

Section 3.1.5: IPSec and MACSEC support

For IPSec / MACSEC SW package details refer to 'section 4.3.2: MACSEC support' in **SDK-6.5.20-RELNOTES.pdf**.

For IPSec and MACSec support, refer to the user manual at **RELDOCS/DNX_IPSEC_and_MACSec_User_Manual.pdf** inside the MACSec / IPSec SW package.

For the IPSec and MACSec add-on release notes, refer to 'section 5.8.1, **SDK 6.5.20 Release Notes**', of the IPSec and MACSec user manual, mentioned above.

Section 3.1.6: FLEXE support

FlexE software is delivered in the package **sdk-flexe-6.5.20.tar.gz**.

For FlexE release notes, refer to the following file **RELDOCS/DNX-SDK-6-5-20-FLEXE-RELNOTES.pdf** inside the above mentioned FlexE SW package.

For FlexE add-on support, refer to chapter **Hardware interface**, section **FlexE interface** inside the **Traffic Manager Programmable guide**

Section 3.1.7: Validated features

The features listed below completed validation according to feature-level maturity.

Section 3.1.7.1: Access, Basic data path, Connectivity and Traffic Management Features Validated features

Feature	Feature-Level				Comments
	JR2	J2C	Q2A/Q2U	J2c+	
MBIST	GA	GA	GA	NA	Please see important notes section
Interrupts	GA	GA	GA	NA	
SER	GA	GA	GA	NA	
FlexE	NA	NA	GA	NA	
HBM/DRAM	GA (B1 only)	GA	GA	NA	
Ingress Cosq	GA	GA	GA	PRE	
Egress Queuing	GA	GA	GA	PRE	
Egress Credit Scheduler: Scheduling hierarchy and shaping	GA	GA	GA	PRE	
Multicast	GA	GA	GA	PRE	
Mirror: Port mirroring	GA	GA	GA	PRE	
LAG	GA	GA	GA	PRE	
Statistics and Counting: CRPS	GA	GA	GA	PRE	
Statistics and Counting: Statistics Interface	GA	GA	GA	PRE	
Meter	GA	GA	GA	PRE	Ingress + Egress
Dynamic Port	GA	GA	GA	PRE	



SDK-6.5.20 Release Notes

NIF (including ETH, ILKN, Autoneg, MIB Counters)	GA	GA	GA	PRE	
NIF PRD (Priority Drop)	GA	GA	GA	NA	
SyncE	GA	GA	GA	NA	
LED	GA	GA	GA	NA	
Linkscan	GA	GA	GA	PRE	
Fabric	GA	GA	N/A	PRE	J2c+: PRE in Backward compatibility features only, others - NA
Flow Control	GA	GA	GA	PRE	
CPU PKT	GA	GA	GA	PRE	
TDM	NA	GA	GA	NA	
RCPU	GA	GA	GA	NA	
TR tests	GA	GA	GA	PRE	TR 9 (Broadcast write) is not applicable for JR2 A0 and Q2A.
ITemp	NA	GA	NA	NA	

Section 3.1.7.2: Packet-Processing Validated feature

Feature	Feature-Level				Comments
	JR2	J2C	Q2A/Q2U	J2c+	
RAW	GA	GA	GA	PRE	
L2	GA	GA	GA	PRE	
L3	GA	GA	GA	PRE	



SDK-6.5.20 Release Notes

VSWITCH (L2VPN, Cross-Connect)	GA	GA	GA	PRE	
LAG-PP	GA	GA	GA	PRE	J2c+ - NA LAG as destination
MDB	GA	GA	GA	NA	
PPMC	GA	GA	GA	PRE	
MPLS, L3VPN	GA	GA	GA	PRE	
VPLS & VPWS	GA	GA	GA	PRE	
PWE Tagged mode	Beta	Beta	Beta	PRE	
VLAN	GA	GA	GA	PRE	
L2VPN & Cross-Connect	GA	GA	GA	PRE	
Protection	GA	GA	GA	PRE	
IPv4, IPv6 Tunnels & VXLAN/VXLAN-GPE	GA	GA	GA	PRE	
Persistent hashing / Load-balancing	GA	GA	GA	PRE	
EVPN	GA	GA	GA	PRE	
QOS	GA	GA	GA	PRE	
BFD IPv4, IPV6, MPLS	GA (B1 only)	GA	GA	PRE	J2c+ - NA for BFD IPv6
OAM-Classifer, ETH-CFM only	GA	GA	GA	PRE	
OAMP (CCM, LM, DM)	GA (B1 only)	GA	GA	PRE	J2c+ - NA for SLM. CCM event processing is also



SDK-6.5.20 Release Notes

					limited.
OAM MPLS LM-DM	Beta (B1 only)	Beta	Beta	NA	
ROO, RCH & Drop-and-continue	GA	GA	GA	PRE	
Reflector	GA	GA	GA	PRE	L3 UC internal IOP is not functional.
TWAMP	GA	GA	GA	NA	
Stat-PP	GA	GA	GA	NA	
Instru-PP Visibility	GA	GA	GA	NA	
Instru-PP Sflow	GA	GA	GA	NA	
Instrumentation-IPT	GA	GA	GA	NA	
Instru-PP iOAM MPLS-FPM, MINT (B1 only)	GA	GA	GA	NA	
Diagnostics-PP	GA	GA	GA	PRE	
External lookup - FWD	GA	GA	GA	NA	
Interop with JR1	GA	GA	N/A	NA	
SRv6	GA	GA	GA	PRE	
COE	N/A	GA	GA	NA	
SAT	GA	GA	GA	NA	
MPLS RAW	N/A	Beta	Beta	NA	Note: IOP and CoE are not functional with MPLS RAW.
SLLB	Beta	Beta	Beta	NA	
GTP	Beta	Beta	Beta	PRE	GTP moved to Beta quality in 6.5.20. 6.5.19 had only limited



					support.
Elephant-Trap	Beta	Beta	Beta	NA	

Section 3.1.7.3: ACL Validated features

Feature	Feature-Level				Comments
	JR2	J2C	Q2A/Q2U	J2c+	
Traps Basic	GA	GA	GA	PRE	
Traps User-Defined	GA	GA	GA	PRE	
MTU Trap	GA	GA	GA	PRE	
Basic Trap Diag (ingress and Last)	GA	GA	GA	PRE	
Egress Traps - support new Traps	GA	GA	GA	PRE	
Protocol Traps	GA	GA	GA	PRE	
Programmable Traps	GA	GA	GA	PRE	
LIF Traps	GA	GA	GA	PRE	
Full Trap Diag	GA	GA	GA	PRE	
System header generation	GA	GA	GA	PRE	
Direct Extraction FGs	GA	GA	GA	PRE	
TCAM FGs	GA	GA	GA	PRE	
PMF Context Selection	GA	GA	GA	PRE	
Direct TCAM FGs	GA	GA	GA	PRE	
PMF Egress	GA	GA	GA	PRE	



SDK-6.5.20 Release Notes

Basic PMF Diag (Resources and Last)	GA	GA	GA	PRE	
ACL External Lookup (KBP)	GA	GA	GA	PRE	
3 ingress PMF stages	GA	GA	GA	PRE	
Range qualifiers (L4-Ops)	GA	GA	GA	PRE	
iPMF1-iPMF2 cascading	GA	GA	GA	PRE	
iPMF2-iPMF3 cascading	GA	GA	GA	PRE	
Ingress-Egress cascading	GA	GA	GA	PRE	
EXEM Lookup	GA	GA	GA	PRE	
Hashing	GA	GA	GA	PRE	
Compare	GA	GA	GA	PRE	
Port Grouping	GA	GA	GA	PRE	
State table	GA	GA	GA	PRE	
KBP support new opcodes (context)	GA	GA	GA	PRE	
Full PMF Diag (include new features)	GA	GA	GA	PRE	
L4ops Extended	NA	NA	NA	PRE	
TCAM - Entry add by location	GA	GA	GA	PRE	

Section 3.1.7.4: High Availability Validated features

Feature	Feature-Level				Comments
	JR2	J2C	Q2A/Q2U	J2c+	

WarmBoot	GA	GA	GA	PRE	
----------	----	----	----	-----	--

Section 3.1.8: New Features since 6.5.19

The following list below specifies new features

JIRA	Module	Description	Affected Devices
SDK-218370	PMF-PROG-SELECT	Adding support to qualify on the MSB bit of the AcInLifWideData in CS of iPMF1. bcmQualifyAcInLifWideData should be used in bcm_field_presel_set() to qualify upon that bit. Cint example: cint_field_presel_ac_inlif_wide_data.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-216473	INT-EL	Instrumentation-Elephant-Flows: Newly supported feature. New BCM APIs are implemented: bcm_field_flush_profile_create/get/destroy/attach bcm_field_flush_entry_add/get/delete The following BCM APIs are updated: bcm_switch_control_indexed_set/get with bcmSwitchExemScanPeriod bcm_switch_control_indexed_set/get with bcmSwitchExemFlushProfilePayloadOffset Please refer to cint_elephant_flow.c and cint_elephant_flow_field.c Note: Functionality is in Beta state. Documentation can be found in PG section "Instrumentation - Elephant - Flows"	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-215469	SRv6	L2 as ingress and egress nodes are supported now. In the egress node, 2 options are available - with and without SRH header. This is being configured with tunnel types bcmTunnelTypeEthIn6 (for packets without SRH) and bcmTunnelTypeEthSR6 in the other case. For ingress node only bcmTunnelTypeEthIn6 tunnel type is available.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-214895	SRv6	EVPN feature is now supported as part of SRv6 USP Egress node flow. Also supporting EVPN for IPv6 tunnel termination packets (without SRH) All USP functions are supported: End.DX2, End.DT2U and End.DT2M	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-214274	MPLS	RA label and other special labels can be trapped with below steps: 1. Disable the auto termination by bcm_switch_control_indexed_set() with bcmSwitchMplsSpecialLabelAutoTerminateDisable; 2. Create an MPLS tunnel for this label by bcm_mpls_tunnel_switch_create(); 3. Create per In-LIF trap for the tunnel LIF created in step 2 by bcm_rx_trap_lif_set();	88480_B0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

		Note: All the signals resolved by auto termination logic are reset, such as signal "force_is_oam" for RA label.	
SDK-213820	PMF	ITMH_PPH application, also supports rebuilding FHEI type of VLAN-Edit if injected. For example if injected packet is ITMH_TSH_PPH_FHEI(vland-edit) then Ingress PMF rebuild all the system headers and the output will be FTMH_TSH_PPH_FHEI(vlan). This is required to support OAM Down MEP injection after the changes in SDK-210904	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-213191	PMF	New feature add, trap profile. That allow to set 1b profile when configuring trap bcm_rx_trap_set(), later can be qualified upon in iPMF3. Tap flag was added: BCM_RX_TRAP_FLAGS2_UPDATE_ACL_PROFILE Preselqualifier was added for IPMF3 stage: bcmFieldQualifyRxTrapProfile Cint example of qualifier usage: cint_field_presel_rx_trap_profile.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-212985	NIF, PHY	bcm_port_phy_control_set() can now dynamically set the TX/RX polarity for ports on both CDU and CLU, using BCM_PORT_PHY_CONTROL_TX_POLARITY or BCM_PORT_PHY_CONTROL_RX_POLARITY controls.	88480_A0, 88690_B1, 88800_A0
SDK-212109	MDB	MDB: mdb_profile_kaps_cfg soc property has been expanded to support big kaps + small kaps allocation. mdb_profile_kaps_cfg=100 - KAPS1 small KAPS is enabled, all big KAPS resources are allocated to KAPS2 mdb_profile_kaps_cfg=200 - KAPS2 small KAPS is enabled, all big KAPS resources are allocated to KAPS1 The small KAPS allocation would be approximately a quarter of the total small KAPS allocation size and is not configurable to prevent affecting the big KAPS capacity.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-211410	L3	L3: In previous releases, devices did not support routed learning in the SDK. Now, this issue has been addressed by allowing routed learning, using "pipe learning". One enabled this option, IP host DB (bcm_l3_host_* APIs) cannot be used for forwarding or RPF (host entries can be inserted as routes to KAPS instead). External TCAM usage is not affected and can still be used for hosts when routed learning is enabled.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-211334	PMF-CTX	bcm_field_context_hash_create() now support to configure more then one LB key at once. 1) additional_hash_config, nof_additional_hash_config struct were added to configuration for additional keys support 2) BCM_FIELD_FLAG_UPDATE when calling bcm_field_context_hash_create() - can add additional LB key to already existing configuration 3) Note: Additional verify was added in API to avoid mis-configuration by user: hash_info if uses bcmFieldContextHashActionValueReplaceCrc then hash_config.crc_select should not be set. Following error message appears in case of mis-configuration: "Error 'Invalid parameter' indicated, Hash config: CRC Select must not be specified when not selecting an augment function" Cint example: cint_field_6_hash_keys.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0



SDK-6.5.20 Release Notes

SDK-210108	PMF	When using bcm_field_context_hash_create() HW of iPMF1 will output HASH value based on the provided configuration in the API. Cint to simulate such hash value was add to SDK: cint_field_crc_hash_sim.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-210030	SRv6	RCY extended termination flow - packet-walk upgraded. In order to support Extended-termination, it is now required to indicate that the Tunnel-Term-LIF of second-pass participates in Extended-Termination flow (BCM_TUNNEL_TERM_EXTENDED_TERMINATION) and set Recycle-object with type=bcmL2EgressRecycleAppExtendedTerm. The new process allows better packet-processing features such as QOS/TTL.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-209713	SRv6	SRv6 micro-sid (usid) LIF can be a P2P LIF now. This is done by bcm_tunnel_terminator_crate() API, with both flags: BCM_TUNNEL_TERM_MICRO_SEGMENT_ID and BCM_TUNNEL_TERM_CROSS_CONNECT. The full list of uSID supported functions is listed in the SRv6 UM "SRv6 Function Support List"	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-209506	RCY	Add support for a new port 'in header type' BCM_SWITCH_PORT_HEADER_TYPE_RCH_1 - for that port types, the SSPA is taken from the RCH (RCY header), which the pp port is updated according to a mapping table, which maps the SSPA to the pp port. The mapping table can be set with API: bcm_port_control_set() with type=bcmPortControlSystemPortInjectedMap. BCM_SWITCH_PORT_HEADER_TYPE_RCH_1 is expected to be used when the recycle is done on the Rx device, so the original SSPA is on the same device in the 2nd pass. BCM_SWITCH_PORT_HEADER_TYPE_RCH_0 should be used when the RCY is not on the RX device, so the PRT of the other device cannot map the original SSPA to pp_port.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-209030	LIF-MGMT	AC IN-LIF Wide data extension - Option to extend the wide data up to 58b, by additional lookup in ingress pipeline, when the key is the wide (generic) data from the AC IN-LIF. Can be used as ACL qualifier (bcmFieldQualifyAcInLifWideDataExtended). New APIs introduced: bcm_switch_wide_data_extension_add/delete/get/traverse New functionality is introduced in CINT: cint_inlif_wide_data.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-208830	PMF	Field Group type of bcmFieldGroupTypeDirectExtraction is not supported for stage bcmFieldStageEgress. Maximum key size is 32bits. Cint example: cint_field_dir_ext_epmf.c	88480_A0, 88480_B0, 88800_A0
SDK-207758	RESET	From 6.5.20, soft reset supports below 3 combinations. 1, der soft NoFabirc=0 NoElk=0 (reset includes fabric and ELK) 2, der soft NoFabirc=1 NoElk=0 (reset doesn't include fabric, but includes ELK) 3, der soft NoFabirc=1 NoElk=1 (reset doesn't include fabric nor ELK)	88480_A0, 88480_B0, 88690_A0, 88690_B1,



SDK-6.5.20 Release Notes

			88800_A0
SDK-206896	PMF-INGR	Parser now supports ETH1/2 classification according to EtherType. Classification was added as bit 14 of Ethernet Layer Qualifier for all parser stages. bcmFieldQualifyL2Format was add in PMF stage to qualify on such packets, value 0 qualifies on ETH-II while value 1 qualfiies on ETH-I.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-206144	BFD	Support for accelerated BFD over VXLAN, IPv4 and IPv6. If a VXLAN encapsulation FEC is defined, it can be used in the egress_if field when creating or modifying a BFD endpoint over UDP, including single-hop or multi-hop, and IPv4 or IPv6. Only IPv4 Underlay is supported with up to one VLAN tag for the underlay L2 header. Note: SDK-210904 is required, to support injecting ITMH + PPH rebuild by PMF (also for the case of BFD over VXLAN). Example usages: set use_vxlan_fec=1 or use_vxlan6_fec=1 in cint_sand_bfd.c or cint_sand_bfd_ipv6.c respectively.	88480_B0, 88690_B1, 88800_A0
SDK-205415	METER	Added support for managing meter profile with-id, using bcm_policer_create using flag BCM_POLICER_REPLACE_SHARED with pol_cfg.entropy_id != 0 . For further details refer to UM.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-203609	PMF-QUAL-ACT	Parser now supports up to 2 IPv6 extension headers, first header gets parsed but second only gets recognized. To identify such packets in PMF bcmFieldQualifyIp6SecondAdditionalHeaderExist was add as Layer Record qualifier which can be checked in IPv6 Layer.	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-199576	EVPN	Add the support of E-Tree in EVPN Note: The functionality is currently supported for 88690 only.	88690_A0, 88690_B1
SDK-199313	MIRROR-PP	Sequence number in GRE header of an ERSPAN tunnel is now supported. Tunnel API can be used for that BCM_TUNNEL_INIT_ERSPAN_WITH_SN and two new fields: stat_cmd and counter_command_id. See more information in CINT: src/examples/dnx/cint_dnx_mirror_example.c	88480_A0, 88480_B0, 88690_B1, 88800_A0
SDK-197627	COSQ-ING	New BCM API, bcm_cosq_gport_enable_set() / bcm_cosq_gport_enable_get(), was implemented to drop traffic at the ingress based on destination (system port).	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-195143	DRAM	Support DRAM temperature reading without affecting traffic. Relevant only for Q2A BX with Samsung DRAM.	88480_B0
SDK-191394	FC	Added a new type bcmPortControlPFCStatus to API bcm_port_control_get that will give the user the ability to retrieve the current received PFC status of a port. The API	88480_A0, 88480_B0,



SDK-6.5.20 Release Notes

		will return a bitmap with priorities that are currently under PFC.	88690_A0, 88690_B1, 88800_A0
SDK-187415	COSQ-ING	Add support for ECN marking based on global congestion metrics	88480_B0
SDK-182658	COSQ-SCH	New shell command ('dnx tm scheduler fsm ') was added to control and read Flow Status Message counters.	88690_A0, 88690_B1
SDK-176626	METER	Meter: Support for meter expansion per TC is added.	88480_A0, 88480_B0, 88800_A0
SDK-162459	PMF-TCAM-MGMT	Entry add by location support, in order to use feature: 1) Specify bcmFieldTcamBankAllocationModeSelectWithLocation for bank_allocation_mode on tcam_params when adding a new Field Group, and specify a list of banks to pre-allocate (user can add banks later by calling 'bcm_field_tcam_bank_add()' function). 2) When adding a new entry for the field group, entry priority now points to the absolute TCAM location of the new entry to add, while still perceiving TCAM terminology for location structure (bank_id/bank_offset), even offsets are for single-sized/double-sized keys while odd offsets can be used to point to msb-half-entries for half-sized key entries cint example: cint_field_tcam_entry_add_by_location.c	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-156098	KBP-FWD	KBP-FWD: In L3 module, added support for additional data to KBP FWD results by using route and Host APIs. User can add additional data value by using l3a_lookup_class field in bcm_l3_host_t and bcm_l3_route_t structs. The additional data is a customer specific information that can be used later on in the PMF stage. The additional data size varies between 2-4 bits depended on the entry type. (note that the additional data is not available for RPF entries).	88480_A0, 88480_B0, 88690_A0, 88690_B1, 88800_A0
SDK-109605	COSQ-SCH	E2E port priority propagation is supported. For details, see User Manual	88480_A0, 88480_B0, 88800_A0

Section 3.1.8: Bug-fixes

See section 3.5.

Section 3.1.9: Errata

Following KM article summarizes the location of all SW Errata KM articles: [“DNX Software Errata SDK MAIN tracker”](#).



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	Description	Affected Devices
-	MBIST	<p>We require that after running a Memory Built In Self Test (MBIST), that the device it ran on either be powered off or system reset (hardware reset by de-asserting the signal SYS_RST_N from the board).</p> <p>Without this action we do not guarantee that the device will work properly, and therefore from this release the software enforces it.</p> <p>This is a new requirement, independent of the SDK release.</p> <p>Note that both powering off the device and a system reset of the device, also involve a PCIe reset of the device, and the PCIe link of the device going down; so the customer BDE needs to support this operation if done while the BDE and SDK are running.</p> <p>We provide a callback function skeleton <code>dnxc_perform_system_reset()</code> in <code>src/appl/reference/dnxc/appl_ref_board.c</code> that may be used to perform these operations automatically on the customer board.</p> <p>An example of how this function is registered in the sample application can be seen in the <code>dnxc_perform_system_reset()</code> in <code>src/appl/reference/dnxc/appl_ref_init_deinit.c</code>.</p> <p>To have the call back function used automatically after running MBIST, and enable to continue running the SDK later, use this new soc property: <code>perform_system_reset_when_needed=1</code>.</p> <p>If a device power off, or system reset is not actually performed, the SDK will</p>	88790



SDK-6.5.20 Release Notes

		<p>recognize this, fail, and not continue running, and not run when started again.</p> <p>The MBIST is meant to test memories when there is a suspicion of device malfunction and is not mandatory. As described here, with some effort it is possible to run MBIST before each SDK runs, but this is not the intention of the test.</p> <p>The changed MBIST code in the release, together with the new requirement, fixes possible false MBIST failures and possible PCIe issues</p>	
--	--	--	--

Section 3.2.2.1: Backward Compatible Important Notes

SW Compatibility Guidelines 6.5.19 to 6.5.20

Please go over the list carefully.

Note: This document is written with the assumption that upgrade is done from 6.5.19 to 6.5.20. In case upgrade is done from older releases, users must first go over previous release notes.

JIRA	Module	Description	Affected Devices
SDK-207527	PHY	Since 6.5.20 release, according the DS description, 56.25G, 28.125G and 27.34375G are no longer supported.	88790
SDK-198075	PHY	"state_eye" option is removed from "phy dsc" command. The functionality is moved to "phy dsc state" command which will return the state and also an eyescan diagram if the link is locked. The prints won't stop if the link is not locked	88790

Section 3.2.3: Validated Features

BCM88790 is GA level.

Section 3.2.4: Errata

Following KM article summarizes the location of all SW Errata KM articles: "[DNX Software Errata SDK MAIN tracker](#)".

Section 3.2.5: Major Bug fixes since 6.5.19 in DNXF-Family

None

Section 3.2.6: New features since 6.5.19

JIRA	Module	Description	Affected Devices
SDK-203089	FABRIC	<p>Fabric: The ability to receive also the value of some Source Routed cell header fields will be added with the 6.5.20 release.</p> <p>To achieve that the user should provide the flag <code>BCM_FABRIC_CELL_RX_HEADER_PREPEND</code> to the <code>bcm_fabric_route_rx</code> API. Then the header fields will be prepended to the <code>data_out</code> buffer and can be accessed using the indexes of the <code>bcm_fabric_cell_header_field_type_t</code> enum.</p> <p>If the <code>BCM_FABRIC_CELL_RX_HEADER_PREPEND</code> flag is provided then the payload will start from index <code>bcmFabricCellHeaderFieldTypeNof</code> and its size will be equal to <code>data_out_size - bcmFabricCellHeaderFieldTypeNof</code>.</p> <p>NOTE! If the <code>BCM_FABRIC_CELL_RX_HEADER_PREPEND</code> flag is provided the <code>data_out</code> buffer and the <code>data_out_max_size</code> should be with minimum size of <code>(bcmFabricCellHeaderFieldTypeNof + expected payload size in uint32)</code>.</p>	88790

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



SDK-6.5.20 Release Notes

The subsequent sections describe the increment in available features compared to 6.5.18, major bug-fixes and known issues. Before integrating the new release, review the “Backward compatible important notes” section.

Section 3.3.1: Backward Compatible Important Notes

Section 3.3.1.1: SW Compatibility Guidelines 6.5.19 to 6.5.20

Note: This document is written with the assumption that upgrade is done between 6.5.19 to 6.5.20. In case upgrade is done from earlier releases to 6.5.19, it must first go over previous SDK release notes.

No backward compatibility items.

Section 3.3.3: Errata

Following KM article summarizes the location of all SW Errata KM articles: [“DNX Software Errata SDK MAIN tracker”](#).

Section 3.3.4: New Features since 6.5.19

The following list below specifies new features.

JIRA	Module	Description	Affected Devices
SDK-216477	NIF, PHY	New option was added for extensive dsc dump for eagle28 and falcon28 - option "state". This option adds core/lane memory, registers and eyescan dump information and should be used when filing a phy case to BRCM. .	88270_A0, 88470_B0, 88670_B0, 88680_A0
SDK-216467	NIF, PHY	To solve rare link-training failures on falcon SerDes with short cable - a new soc property "phy_an_c72_tx_init_skip_on_restart" was added to skip the TXFIR initialization in a restart event during the AN link training.	88470_B0, 88670_B0, 88680_A0
SDK-197627	COSQ-ING	New BCM API, bcm_cosq_gport_enable_set() / bcm_cosq_gport_enable_get(), was implemented to drop traffic at the ingress based on destination (system port).	88270_A0, 88470_A0, 88470_B0,



SDK-6.5.20 Release Notes

			88670_A0, 88670_B0, 88680_A0
--	--	--	------------------------------------

Section 3.4: 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 for BCM88950 driver, with all major features supported.

Section 3.4.1: New Features since 6.5.19

The following list below specifies new features.

JIRA	Module	Description	Affected Devices
SDK-216477	NIF, PHY	New option was added for extensive dsc dump for eagle28 and falcon28 - option "state". This option adds core/lane memory, registers and eyescan dump information and should be used when filing a phy case to BRCM. .	88950_A0

Section 3.5: Bug fixes since 6.5.19 for DNX/DNXF/DPP/DFE Families

For the list of bug-fixes please reference the file SDK-6.5.20-Resolved-Issues-Improvements.xlsx in the RELDOCS directory in the release package.