SDK 6.5.18 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 6.5.18.

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

The release information is provided compared to what changed since 6.5.17-SP1 release. The reader should refer to prior release notes for 6.5.x, as only new features or issues described in this version of the release notes.

Note: The JIRA number links only work for internal users.

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 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***
BCM88690	J2 family
BCM88790	Ramon family
BCM88680	J+ family
BCM88370	JR family
BCM88270	QUX family
BCM88470	QAX family
BCM88770	FE3600 family

Section 2.2: Preview DNX Switch Devices

Family Devices	***Description***
BCM88800	J2C family - Beta quality (A0 only)
BCM88480	Q2A family (A0, B0 only) Beta quality

Section 3: Information per Device

This release is GA version for the BCM88690 (Jericho2) Family product and BCM88480 (Qumran2a) line. This release is Beta version for BCM88800 (Jericho2c) .

All features introduced in SDK 6.5.17-SP1, 6.5.18-EA4 are also supported in this release. The subsequent sections describe the increment in available features,6.5.18-EA4 major bug-fixes and known issues compared to 6.5.17-SP1 and 6.5.18-EA4.

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

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

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

Section 3.1: DNX-Family

This section includes the following family devices:

- **BCM88690-Family (Jericho2)**
- **BCM88800/BCM88820-Family (Jericho2c)**
- **BCM88480-Family (Qumran2a)**

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
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
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	BCM88690 BCM Shell commands user manual
$SDK/doc/sand/88690_UM_SoCProperties.html	BCM88690 BCM Soc Properties user manual
$SDK/doc/sand/88790_UM_ShellCmd.html	BCM88790 BCM Shell commands user manual
$SDK/doc/sand/88790_UM_SoCProperties.html	BCM88790 BCM Soc Properties user manual

Section 3.1.2: Supported SKUs

The following SKU are supported:

Jericho2	Jericho2c	Qumran2a
88690	88802	88480
88691	88803	
88693		

88694		

Section 3.1.3: Important Notes

Before integrating the new release, review the “Backward Compatible Important Notes” section.

Section 3.1.3.1: Backward Compatible

SW Compatibility Guidelines 6.5.17-SP1 to 6.5.18 (for Q2A since 6.5.18-EA4)

Note: This document is written with the assumption that upgrade is done between 6.5.17-SP1 to 6.5.18 (i.e. user needs to go over **all** the rows in the table below). In case upgrade is done from older releases like 6.5.17 or 6.5.16-SP1, it must first go over previous 6.5.X release notes and then the table below. In case user upgrades from 6.5.18-EA4 to 6.5.18, then it should look for all rows that are mentioned as **both** in the last column.

JIRA	Module	Description	Affected Devices	From which SDK version backward compatible breakage is relevant 6.5.17-SP1 or both (i.e. 6.5.17-SP1 and 6.5.18-EA4)
-	KAPS/KBP	1.5.11 KBPSDK version is required for this release	88690_A0, 88690_B1, 88800_A0, 88480_A0	both (In 6.5.18-EA4 KBP SDK 1.5.11.EA was used)

SDK-174500	General	**IMPORTANT CHANGE** - to align device naming across SDK, some files, folders, code were renamed.
		e.g.:
		`tools/dnx/pemla/jericho_2` ->
		`tools/dnx/pemla/jericho2_a0`
		`tools/dnx/pemla/jericho_2_b0` ->
		`tools/dnx/pemla/jericho2_b0`
			88690_A0, 88690_B1, 88800_A0, 88480_A0	both

		tools/sand/db/jericho_2c -> tools/sand/db/jericho2c_a0 tools/sand/db/qumran_2a -> tools/sand/db/qumran2a_a0 tools/sand/db/qumran_2a_b0 -> tools/sand/db/qumran2a_b0 rc/config-jer2.bcm -> rc/config-jr2.bcm		
SDK-174432	Init	Core clock verification: SDK is updated with a verification code which tests the correct value of "core_clock_speed_khz" soc property vs the actual frequency of the device.	88690_A0, 88690_B1, 88800_A0, 88480_A0,	6.5.17-SP1
SDK-188038	Field	'Name' field size in all FP APIs BCM_FIELD_MAX_SHORT_NAME_LEN was increased to (72). For example: 'name' field (field group name) in api bcm_field_group_add()	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-178888	Field FEM	FEMs owned by a field group are now deleted when deleting the field group.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-173668	L2	bcm_l2_addr_get() with flags2=BCM_L2_FLAGS2_HIT_GET used to return BCM_L2_HIT in the flags field with no distinction between source and destination address hit. Two new flags are replacing the deprecated BCM_L2_HIT flag. BCM_L2_DES_HIT is set to the flags field when the destination address got a hit. BCM_L2_SRC_HIT is set when the source address was hit. Aging mechanism can be configured to work according to the source address hit, destination address hit or both. The hit that is configured to control the aging is reset in every cycle of the age machine. If the hit indication of the source or destination is not part of the aging mechanism it is not reset by the age machine and can only be reset	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1

		explicitly by a flush operation with clear hit command.		
SDK-188462	MPLS PHP QOS	Flags BCM_MPLS_SWITCH_OUTER_EXP and BCM_MPLS_SWITCH_OUTER_TTL of API bcm_mpls_tunnel_switch_create() , and egress mpls flags BCM_MPLS_EGRESS_LABEL_EXP_SET and BCM_MPLS_EGRESS_LABEL_TTL_SET of API bcm_l3_egress_create(), which were used for PHP QOS model and TTL model configuration, are obsolete and replaced by egress_qos_model. BCM_MPLS_EGRESS_LABEL_TTL_SET and BCM_MPLS_EGRESS_LABEL_EXP_SET are replaced by bcmQosEgressModelPipeMyNameSpace for TTL and bcmQosEgressModelPipeNextNameSpace for EXP. When unsetting the mapping, bcmQosEgressModelUniform is used.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-188490	OAM	When adding a loss measurement session to an endpoint using bcm_oam_loss_add(), type of LM on loss_add should match the one on the accelerate profile set in acc_profile_id in bcm_oam_endpoint_create(). Otherwise an error will be thrown. In previous releases an error was not thrown but OAMP processing of incoming packets may have failed.	88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-186885	OAM	OAMP SLM may only run on banks 4-7 in the OAMP	88690_B1, 88480_A0	6.5.17-SP1
SDK-185288, SDK-185165, SDK-193073, SDK-193003	MC	L2/L3/VPLS/Egress-object type has been removed from output parameter multicast group encoding of APIs bcm_vlan_control_vlan_get(), bcm_mpls_tunnel_switch_get(), bcm_ipmc_find() and bcm_mpls_vpn_id_get().	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1 (except SDK-193073, SDK-193003 which is both)

		failover_mc_group is now mc-type and not gport type in bcm_mpls_port_* APIs		
SDK-183888	Field Qualify/Action	bcmFieldQualify/ActionStatOamLM now have mapping function and bcm_field_stat_oam_lm_index_t enum should be used in order to indicate which interface should be qualified/action performed upon. The mapping to HW values differs between devices and its advised to use this enum. For example on 88690 before change value 0 was not mapped and meant an invalid interface, after the change bcmFieldStatOamLmIndex0 (0) is mapped to HW value 1, i.e. mapped to first interface.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-175383	Visibility, Trunk	Visibility APIs bcm_instru_gport_control_set with flags: bcmInstruGportControlVisEnable, bcmInstruGportControlVisForce have two changes: 1.When calling with Egress direction, a gport of trunk cannot be called. Instead call with gport trunk member. The change was due to align with HW capabilities that the feature is per Trunk member and not per Trunk. Before, in case trunk member was added/removed , visibility didn't change. 2. When calling Ingress direction, the gport must have a mapped pp port.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-174722	PWE tagged mode	BCM_MPLS_PORT2_INTERFACE_NAMESPACE was obsolete and replaced by BCM_MPLS_PORT2_PLATFORM_NAMESPACE, which is applicable to both ingress and egress MPLS ports. Setting the flag means native AC is defined in network namespace, otherwise defined in interface namespace.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-146230	OAM	OAMP TX scan machine in some configuration can't scan all entries in short banks.	88690_B1, 88480_A0, 88800_A0	6.5.17-SP1

		As a result the following limitation is introduced: 1. 88480 short entries are not supported 2. 88800, 88690 number of short entries per bank are limited by 6248 per bank In previous releases when attempting to go over the above thresholds OAMP transmission would have misbehaved. In current release SDK returns an error.		
SDK-137602	ROO	"Default" inner ETH LIFs for vlan-domain=0 are now removed. a default LIF is allocated for PWE raw mode and Vxlan tunnels instead (in case of no match). PWE tagged mode must allocate a LIF, otherwise the packet will be dropped.	88690_A0, 88690_B1, 88800_A0, 88480_A0	6.5.17-SP1
SDK-192901	QOS	BCM_QOS_MAP_L2_TWO_TAGS has been added in order to support configuring PCP&DEI mapping for both outer and inner tags together by API bcm_qos_map_add().	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-192859	QOS	inner_pkt_pri and inner_pkt_cfi have been added into structure bcm_qos_map_t in order to separate inner and outer PCP&DEI mapping for L2 egress remark.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-192704	QOS	ECN field of Egress QOS model has been changed to bcm_qos_egress_ecn_model_type_t in order to align with ingress.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-191097	OAM	Added support for OAMP LM/DM with priority through the APIs bcm_oam_loss_add() and bcm_oam_delay_add(). This feature was supported in previous releases however it was buggy. LM/DM per priority is done by adding a new OAMP-MEP-DB entry. The entry is entered through the pm_id field. The priority is set through the pkt_pri_bitmap field (only one may be set at a time).	88690_A0, 88690_B1, 88800_A0, 88480_A0	both

SDK-187677	BFD	bcm_bfd_endpoint_create() returns error when remote_min_rx, remote_min_tx fields are set (these fields were ignored in previous releases). In other words, in case these were filled to some value other than 0 in previous releases, they should be changed to 0	88690_B1, 88800_A0, 88480_A0	both
SDK-184524 SDK-192447 SDK-192441	INT IFA 1.0	IFA 1.0 calling sequence and packet walk updated: 1. On transit node, Meta-data may not include sequence number. As a result, bcm_instru_ifa_encap_create() should only be called for initiator node. 2. Initiator node doesn't need redefine routing sequence following recycle. Packet will use original routing sequence. 3. For the initiator node, call bcm_instru_gport_control_set() with control type bcmInstruGportControlIfaInitiatorRcyEnable arg set to 1 and port set to the recycle port. For full details, consult the user manual.	88690_B1, 88800_A0, 88480_A0	both
SDK-179169	MPLS PHP IOP	MPLS PHP IOP works with the following limitations: PHP from EEDB uses dedicated global Out-LIF.	88690_A0, 88690_B1, 88800_A0	both
SDK-151923	VLAN	VLAN-Port: A new flag BCM_VLAN_PORT_VLAN_TRANSLATION_TWO_VLAN_TAGS was added for creating ESEM (non-native and native) entry with two VIDs. Without this flag, an ESEM (non-native and native) entry with only one VID is created. The flag is only valid for Egress and must be set together with BCM_VLAN_PORT_VLAN_TRANSLATION flag upon need.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both

		In case in previous releases, 2 VLANs were possible in ESEM without the new flag, now one must add it.		
SDK-187824	L3	For the case of BCM_L3_VRRP_EXTENDED, when using BCM_L3_VRRP_IPV4 and BCM_L3_VRRP_IPV6 flags together API will return an error (unlike before). This is no longer permitted as this was leading to an invalid option of an IPv6 protocol uses with an IPv4 VRRP MAC address and vise versa. In addition, the number of entries in VRRPTCAM my_mac(bcm_l2_station_add API) reduced from 12 to 11. This was done due to the addition of Layer-type field in VRRP EXEM.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-193326	KBP ACL	API bcm_field_group_context_attach() may fail now due to 'payload_offset' and 'payload_id' fields mis-configuration. See more information on Major Bug-fixes section.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-193463	VLAN	Port-Match: In previous releases, different ports in the same vlan domain can be used as match port to delete an AC matching entry by bcm_port_match_delete() even though it might be added by a different port but in the same vlan domain by bcm_port_match_add(). From now on, the same port as in bcm_port_match_add should be used, otherwise an error will be returned.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-196006	Trap	MPLS unknown label packets are not dropped by default trap bcmRxTrapMplsUnknownLabel. Added on bcm-init that trap will be dropped by default instead of incorrect flooding.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-170449	field - external KBP	1. Number of FFCs available for ACLs for MPLS and L2 opcodes was reduced from 16 to 12. It will affect the number of qualifiers that can be used in a Field group. 2. When using	88690_A0, 88690_B1, 88800_A0, 88480_A0	both

		bcmFieldAppTypeIp6McastRpf, Global-InLIF (bcmFieldQualifyInVPort0) is no longer shared between FWD and ACL meaning, in case Global-InLIF is required for ACL, it will allocate additional FFC. It may cause error when attaching field group to context due to out of Key resources.		
SDK-170449	IPMC	IPv6 multicast flows are changed when forwarding is done not by External KBP (i.e. by Internal databases). Cascaded LPM lookups are used in order to include SIP compression and enlarge the Group field to 120 bits. Note the following changes: 1. Internal TCAM lookup is no longer available (BCM_IPMC_TCAM) 2. Public forwarding lookup is no longer available. 3. VRF in lookups is reduced to 14 bits Please refer to the PG document for elaborative description of the changes.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both
SDK-174921	ILKN	Interleaving indication of ILKN interface is done by ilkn_is_burst_interleaving SOC property (previously, this was done with ilkn_is_burst_interleaving_ilkn SOC property)	88480_A0, 88800_A0	6.5.17-SP1
SDK-170304	Fabric	In previous releases in SINGLE FAP mode (fabric_connect_mode=SINGLE_FAP) loopbacks on fabric were set by default on fabric side. This behaviour was removed in this release, there are no loopbacks by default.	88690_A0, 88690_B1, 88800_A0	6.5.17-SP1
SDK-196288	NIF and Fabric	In Jericho2, configuring 2 PLLs on NIF PM #1 and/or Fabric PM #10 is not supported due to HW limitation. An error will be issued by SDK.	88690_A0, 88690_B1,	Both
SDK-191594	NIF	Added error for unsupported NIF combinations, such as FEC type and rate combinations.	88690_A0, 88690_B1, 88800_A0, 88480_A0	Both

SDK-190678	DRAM	The name of the dram timing param ext_ram_t_refi_ab_in_ns was changed to ext_ram_t_abref_in_ns.	88480_A0	Both
SDK-190677	DRAM	All GDDR6 timing params must be defined in order to use the dram. No defaults will be used. The user can use the following soc properties in order to load the predefined timing params according to the vendor: dram_type_GDDR6_SAMSUNG_K4Z80325BC_HC14_8GBIT=1 - for Samsung dram. dram_type_GDDR6_MICRON_MT61M256M32_12N_8GBIT=1 - for Micron dram. For more information about GDDR6 timing params configurations, please consult Dram HW AEs.	88480_A0	Both
SDK-187760	Ingress Cosq	A new control bcmCosqControlIngressMaxLowPriority was added to bcm_cosq_control_set() in order to set the maximal LOW priority. As an example, when setting 5 as maximal Low priority, priorities 0-5 are Low priorities and priorities 6-7 are High priorities. Default VOQ mapping to HIGH/LOW priority is changed from HIGH to LOW. Default application is changing the maximum low priority to be 5.	88480_A0, 88800_A0	
SDK-147869	Fabric	The fabric shaper set with bcm_port_rate_egress_pps_set API will act with better accuracy. in previous release the shaper was set with higher value than the actual expected and now this will be fixed.	88690_A0, 88690_B1, 88800_A0	6.5.17-SP1
SDK-190294	CPU-PKT	TX bcm shell command has been validated for ITMH and command-options were changed and added. See more information in JIRA RN. Example:	88690_A0, 88690_B1, 88800_A0, 88480_A0	both

		Forward_type=value was changed to type i.e. Forward_type=2 is invalid and should use Forward_type=MCID.		
SDk-192807	L3 Host	Added support of EEI to bcm_l3_host_add even in JR2 mode. Note: in JR1 mode, EEI can be encoded with an MPLS label or global LIF; while in JR2 mode, EEI can be encoded with an MPLS label only. Feature is avaiable when `BCM_L3_ENCAP_SPACE_OPTIMIZED is set.` Note that encap_id follows the encoding of ENCAP FORWARD ID Interface. In case the user didn't use it correctly before, it may return error.	88690_A0, 88690_B1, 88800_A0, 88480_A0	both

Section 3.1.3.2: Packet-Processing Important Notes

Section 3.1.3.2.1 Initialization of PEMLA ucode

- Same ucode is used for all platforms, and it is reachable from bcm.user location.
- Location of PEMLA ucode is configured by programmability_ucode_relative_path, and is related to <db_path>/<device_name>/ now at: **$SDK/tools/sand/db/**
- For **JR2 mode**, standard SDK (with no special soc properties, default behavior) use following soc properties:
    - programmability_ucode_relative_path=pemla/ucode/standard_1/jer2pemla/u_code_db2pem.txt
- For **JR1 interop mode**, standard SDK requires following soc-properties:
    - system_headers_mode=0
    - programmability_ucode_relative_path=pemla/ucode/standard_1/**jr2-comp-jr1-mode/**u_code_db2pem.txt

Note: 88480 doesn't support JR1 interop mode.

Section 3.1.3.2.2 Packet Processing Important Notes since 6.5.17-SP1 (for Q2A since 6.5.18-EA4)

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?

SDK-187807	MDB	See EID#9105 in the device errata file. MDB EM pipeline lookups, under certain rare circumstances, could incorrectly hit the wrong entry. A sequence was added to the device init to prevent these circumstances from occurring. **This sequence depends on the compilation flag DNXC_ROLLBACK_JOURNAL_IS_ENABLED** **SDK assumes this flag is enabled (customer shouldn't remove it).** **Pay attention on the errata related on the MDB WA, look for SDK-187807 in this RN**	88690_A0, 88690_B1, 88800_A0 88480_A0	V
-	General	Please see several new features description under "Packet-Processing Validated features"	-	-
SDK-189706	MPLS	LSR service with packet format IPoETHoCWoPWEoMPLSoETH used to get incorrect forward context. A new layer type Ingress_MPLS_Unterm is added for the second MPLS layer. When qualifying the second MPLS layer, bcmFieldLayerTypeForwardingMPLS should be used.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V (Data-path was updated but not layer-type enum)
SDK-192790	KBP forwarding, (external lookup)	Added support for large MC databases, Through SOC property user can enable KBP to have large IPv4/IPv6 multicast database. ipv4_large_mc_enable / ipv6_large_mc_enable	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-191930	KBP forwarding, (external lookup)	loose RPF capacity improvements, for the loose RPF lookups it is possible to optimize the capacity by adding only the key of the entry. In order to add key only entry by bcm_l3_route_add(), user should use flag BCM_L3_FLAGS2_NO_PAYLOAD.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-193100	KBP forwarding	Thread safety is required when application has searches, stats and error	88690_A0, 88690_B1,	X

	, (external lookup)	handling. All 3 components use the same transport layer path to access device. Hence locking is required to synchronize the requests amongst these components.	88800_A0, 88480_A0	

Section 3.1.3.3: Basic data path, Connectivity and Traffic Management Important Notes since 6.5.17-SP1 (for Q2A since 6.5.18-EA4)

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?
-	PM4x25 and PM8x50	RX/Tx Polarity cannot be dynamically changed on Blackhawk/Falcon PHY. Therefore, the following controls are no longer supported for bcm_port_phy_control_set API: BCM_PORT_PHY_CONTROL_RX_POLARITY BCM_PORT_PHY_CONTROL_TX_POLARITY. Note that these controls are still supported for bcm_port_phy_control_get API.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0	V
SDK-190718	PM4x25	Link training might fail to succeed on short channels. To overcome it, configure the FIR POST value by using bcm_port_phy_control_set with control BCM_PORT_PHY_CONTROL_LINK_TRAINING_INIT_TX_FIR_POST. See SW programming guide and DBG16S-AN114 for more info.	88480_A0, 88480_B0, 88800_A0	V
SDK-196962	TDM	Temporary flag BCM_TDM_INGRESS_CONTEXT_USE_ALL_FABRIC_LINKS is added to bcm_tdm_egress_editing_set() API to indicate that TDM traffic will be passed	88480_A0, 88480_B0, 88800_A0	X

		through all fabric links. This flag will be supported only at this release. For the next release and on, this will be the default behaviour. New flag will be provided to restrict the fabric links for TDM use.		
SDK-147703	NIF and Fabric	To avoid cross-interference when port-macro is powered down/up, all fabric and NIF port-macros are now always powered-up. One exception are the specific SKUs which have limited numbers of fabric links - in these cases, the port-macros that are not supporting any links by this SKU - will not be powered-up.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0	X
SDK-109927	Scheduler	Scheduler Low flow rates feature was added.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0	X
SDK-193422	EGQ	Setting priority per queue pair is not allowed in the following cases: 1. On RCY interface. 2. On ILKN interface with egress interleaving enabled. Priority per queue pair is configured by calling bcm_cosq_control_set() with bcmCosqControlPrioritySelect control using BCM_COSQ_GPORT_PORT_TC_SET gport. In the following 2 cases priority should be configured per port (all queue pairs in a port will be set to the same priority). Priority per port is configured by calling bcm_cosq_gport_sched_set() API.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0	V

Section 3.1.3.4: ACL Important Notes since 6.5.17-SP1 (for Q2A since 6.5.18-EA4)

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?
SDK-179324	Parser	Added Parser support:: SCTPo[IPv4|IPv6]oEth	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-183247	Trap	Add support to trap bcmRxTrapMyMacAndUnknownL3	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-182487	Field Diag	“field last info” can now be used on cmodel and show partial information	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-191117	Field CS	Add support of 'RAW' qualifiers for Context selection. For example bcmFieldQualifyForwardingType has mapping function that will translate bcm_field_layer_type_t into HW values, while bcmFieldQualifyForwardingTypeRaw will take user input to directly set as the HW value.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-190980	Field TCAM	optimization: In case many entries exist, update time reduced. For example updated time reduced by ~50% for entries w/ medium priority and by ~%70 for entries w/ high priority (when 12k priorities are present).	88690_A0, 88690_B1, 88800_A0, 88480_A0 88480_B0	X
SDK-187797	Field	Add an API, bcm_field_name_to_id(), for finding the IDs of field objects by name. Such as Qualifier/Action/Context..	88690_A0, 88690_B1, 88800_A0, 88480_A0 88480_B0	X
SDK-171339	Field Instru	PFCDM feature - cint example how to support such feature using FP API’s were	88690_A0	X

		added to SDK.		
SDK-170424	Field Action	Added new action bcmFieldActionEcnNew for iPMF1/2/3.	88800_A0 88480_A0 88480_B0 88690_A0 88690_B1	X

Section 3.1.4: SDK load

Important: Name changes were done in files and folders for device alignment, see more information in Backward compatible.

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 DEBUG_OPTIMIZE=FALSE

Compile Intel-GTS CPU:
cd $SDK/systems/linux/user/x86-64-fc28/

make MAKE_LOCAL=$SDK/make/local/dnx/Make.custom.gts DEBUG_OPTIMIZE=FALSE

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

BCM88690 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

BCM88800/BCM88820 specific links:
ln -fs $SDK/rc/config-j2c.bcm config.bcm
ln -sf $SDK/rc/bcm88800_board.bcm

BCM88480 specific links:
ln -fs $SDK/rc/config-q2a.bcm config.bcm
ln -fs $SDK/rc/bcm88480_board.bcm

Run :

./bcm.user

Following warning messages are printed during bcm.sim load and can be ignored:

….
0: BCM Init: - Configure visibility
0: BCM Init: - Adding ports
PLL has to change for speed_set from 165 to 132 but DONT_TURN_OFF_PLL flag is enabled
0: BCM Init: - Setting port properties
0: BCM Init: - Configure SyncE
….

Section 3.1.5: Validated features

The features listed below completed basic-validation including at least 1 scenario of traffic passed. All other features, that are not mentioned here are not tested, yet and we do not recommend to start validating them.

Section 3.1.5.1: Access, Basic data path, Connectivity and Traffic Management Features Validated features

The following items validated

Feature	Feature-Level			Comments
	JR2	J2C	Q2A	
MBIST	GA	-	-	
Interrupts	GA	GA	GA	
SER	GA	GA	GA	
HBM/DRAM	GA (B1 only)	Beta	GA	For J2C: ● Temp monitoring process isn't implemented yet.
Ingress Cosq	GA	GA	GA	
Egress Queuing	GA	GA	GA	
Egress Credit Scheduler: Scheduling hierarchy and shaping	GA	GA	GA	
Multicast	GA	GA	GA	
Mirror: Port mirroring	GA	GA	GA	
LAG	GA	GA	GA	
Statistics and Counting: CRPS	GA	GA	GA	
Statistics and Counting: Statistics Interface	GA	GA	GA	
Meter	GA	GA	GA	Ingress + Egress
Dynamic Port	GA	GA	GA	
NIF (including ETH, ILKN, Autoneg, MIB Counters)	GA	GA	GA	
NIF PRD (Priority Drop)	GA	GA	Beta	● FlexE PRD is not supported by Q2A A0, and not fully tested on

				Q2A B0. • Soft stage on CDU not validated for Q2A.
SyncE	GA	GA	GA	
LED	GA	Beta	Beta	
Linkscan	GA	Pre	GA	On J2C only SW linkscan should be used.
Fabric	GA	GA	N/A	
Flow Control	GA	GA	GA	
FlexE and L1 switching	N/A	N/A	GA	
CPU PKT	GA	GA	GA	
TDM	N/A	Beta	Beta	Not fully validated for J2C and Q2A.
RCPU	GA	GA	GA	
TR tests	GA	GA	GA	1. TR 5 (MBIST) is only for JR2 B1. 2. TR 9 (Broadcast write) is not applicable for JR2 A0 and Q2A.

Section 3.1.5.2: Packet-Processing Validated features

The following table update Feature-level per feature and if something changed compared to 6.5.17-SP1, 6.5.18-EA4. Moving from Beta to GA means several items are still missing (the below missing list is not including all known missing items)

Feature	**Feature-Level**			**Comments**
	JR2	**J2C**	**Q2A**	

RAW	GA	GA	GA	
L2	GA	Beta	GA	Compared to 6.5.17-SP1: ● SDK-162158 SA Drop is supported (also in 6.5.18-EA4). ● SDK-173668 - Hit-bit Src & Dst (also in 6.5.18-EA4) ● SDK-184923 - Flush Traverse (get) in non-blocking mode
L3	GA	GA	GA	Compared to 6.5.17-SP1: ● SDK-187824 - VRRP EXEM now includes Layer-Type information (to distinct IPv4 and IPv6). See Backward compatible section for related changes due to the new feature.
VSWITCH (L2VPN, Cross-Connect)	GA	Beta	GA	
LAG-PP	GA	Beta	GA	
MDB	GA	GA	GA	
IPMC, PPMC	GA	Beta	GA	Compared to 6.5.17-SP1: ● SDK-170449 - IPv6 Muliticast new flows for bridged and routed compatible multicast packets.
MPLS, L3VPN	GA	GA	GA	Compared to 6.5.17-SP1: ● SDK-191541 - Port based ignore My-MAC termination added.
VPLS & VPWS	GA	Beta	GA	
PWE Tagged mode	Beta	PRE	PRE	
VLAN	GA	Beta	GA	
L2VPN & Cross-Connect	GA	Beta	GA	
Protection	GA	Beta	GA	
IPv4, IPv6 Tunnels & VXLAN/VXLAN-GPE	GA	Beta	GA	

Persistent hashing / Load-balancing	GA	GA	GA	Compared to 6.5.17-SP1: ● SDK-187093 - SCTP protocol - parser & LB ● SDK-185968 - Symmetrical LB fields enable/disable
EVPN	GA	Beta	GA	
QOS	GA	Beta	GA	Compared to 6.5.17-SP1: ● SDK-190164 - Added support for BCM_QOS_MAP_ENCAP_INTPRI_COLOR, QOS ERPP ACL re-write (also in 6.5.18-EA4) ● SDK-165661 - Added support QOS Pipe model for ARP+AC object (also in 6.5.18-EA4)
BFD IPv4, IPV6, MPLS (B1 only)	GA	Beta	GA	
OAM-Classifier, ETH-CFM only	GA (B1 only)	Beta	GA	
LM/DM accelerated	Beta (B1 only)	Beta	Beta	New
OAM Loopback	Beta (B1 only)	Beta	Beta	New
ROO, RCH & Drop-and-continue	GA	Beta	GA	
Reflector	GA	Beta	GA	
TWAMP	GA	Beta	GA	
Stat-PP	GA	GA	GA	
Instru-PP Visibility	GA	Beta	Beta	
Instru-PP Sflow	GA	Beta	Beta	Compared to 6.5.17-SP1: ● SDK-186338 - Sflow Ext-Gateway-Data accelerated
Instrumentation-IPT	GA	Beta	Beta	IFA 1.0 data-path accelerated is in Beta state. Note Errata for known issue.

Instru-PP iOAM MPLS-FPM, MINT (B1 only)	GA (B1 only)	Beta	Beta	New
Diagnostics-PP	GA	Beta	Beta	
External lookup - FWD	GA	GA	GA	
Interop with JR1	GA	PRE	N/A	
SRv6	GA	GA	GA	
COE	N/A	Beta	Beta	
SAT	GA	Beta	Beta	
MPLS RAW	Beta	Beta	Beta	New (note: Doesn't work in JR1 interop mode)
PPPoE	Beta	Beta	Beta	New
L2TP	Beta	Beta	Beta	New
CALEA/Lawful Interception	Beta	Beta	Beta	New (note: Doesn't work in JR1 interop mode)

Section 3.1.5.3: ACL Validated features

Feature	Feature-Level			Comments
	JR2	J2C	Q2A	
Traps Basic	GA	GA	GA	
Traps User-Defined	GA	GA	GA	
MTU Trap	GA	GA	GA	
Basic Trap Diag (ingress and Last)	GA	GA	GA	
Egress Traps - support new Traps	GA	GA	GA	
Protocol Traps	GA	GA	GA	

Programmable Traps	GA	GA	GA	
LIF Traps	GA	GA	GA	
Full Trap Diag	GA	GA	GA	
System header generation	GA	GA	GA	
Direct Extraction FGs	GA	GA	GA	
TCAM FGs	GA	GA	GA	
PMF Context Selection	GA	GA	GA	
Direct TCAM FGs	GA	GA	GA	
PMF Egress	GA	GA	GA	
Basic PMF Diag (Resources and Last)	GA	GA	GA	
ACL External Lookup (KBP)	GA	Beta	Beta	
3 ingress PMF stages	GA	GA	GA	
Range qualifiers (L4-Ops)	GA	GA	GA	
iPMF1-iPMF2 cascading	GA	GA	GA	
iPMF2-iPMF3 cascading	GA	GA	GA	
Ingress-Egress cascading	GA	GA	GA	
EXEM Lookup	GA	GA	GA	
Hashing	GA	GA	GA	
Compare	GA	GA	GA	
Port Grouping	GA	GA	GA	
State table	GA	GA	GA	
KBP support new opcodes (context)	GA	GA	GA	

Full PMF Diag (include new features)	GA	GA	GA	

Section 3.1.6: Major Bug Fixes since 6.5.17-SP1 (for Q2A since 6.5.18-EA4)

The following list below specifies some major bug-fixes.

Section 3.1.6.1: Basic data path, Connectivity and Traffic Management Bug Fixes

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?
SDK-189682	FlexE	BCM (DNX) support for PCS only lane swap	88480_A0	V
SDK-189383	FlexE	Add support for FlexE core bypass mode.	88480_A0	V
SDK-165215	NIF	Autoneg is now supported for Ethernet port, also over CLU.	88480_A0, 88800_A0	V
SDK-175519	NIF	EEE is now supported.	88800_A0, 88480_A0	V
SDK-147833	NIF ILKN	ILKN PAM4 is now working	88800_A0	V
SDK-192529	NIF ILKN	When using multiple channels on a single ILKN interface, packet loss can be observed in some probability. This is fixed.	88480_A0, 88800_A0	X

SDK-194636	NIF-ILKN	In cases where 2 ilkn over fabric ports on the same ilkn core are set, if sharing lanes on the same Port Macro, enabling/disabling one of the port can influence the second port, leading to packet loss. This is fixed.	88480_A0, 88800_A0	X
SDK-156424	NIF	During recovery from WB, if PLL1 is powered down (TVCO), changing ilkn port speed can fail.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-185068	Counters	The counters of ports with logical id above 383 are disabled by default. In order to enable the counters of these ports - user should use bcm_stat_pbmp SOC property. The issue is now fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-184255	DRAM	Micron DRAM is now working	88480_A0	V
SDK-192033	NIF ILKN	when changing an ILKN port speed, usually when reducing it, traffic loss can be observed and some of the packets are counted as "error".	88800_A0, 88480_A0	X
SDK-192903	NIF	Removing a port (bcm_port_remove) might affect another port residing on the same PM.	88480_A0	X
SDK-192255	NIF-ETH	Fixed potential interference cross-talk in blackhawk port macro. When taking a pm out of reset neighboring port macros might flap.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-192406	ILKN	ILKN falcon connectivity to OP2 may suffer from poor performance when link training is set. In such cases manual tuning is required.	88480_A0	X

SDK-194258	L1 Switching	Soft reset operation stop L1 switching traffic. The issue is now fixed.	88480_A0	X
SDK-193531	Diag	Showing counters for the first time after init, using the Shell command "diag count g", would show a dropped packet.	88690_A0, 88690_B1, 88800_A0, 88480_A0	Only on 6.5.18 EA4
SDK-192423	Diag	Calling TM Egress and Ingress congestion diagnostics commands under traffic may cause ECC error indication and incorrect data retrieved. To avoid this the ECC check for the relevant memories was disabled during the CPU access. SW is now manually checking the ECC and reading the data again till correct data will be returned.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_b0	V

Section 3.1.6.2: Packet Processing Major Bug Fixes

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?
SDK-188691	MDB	The OEM logical tables INGRESS_OAM_LIF_DB and EGRESS_OAM_LIF_DB in Q2A only supported less than half of their expected capacity. This issue has been fixed.	88480_A0	V
SDK-185613	COE	Encapsulate COE tag for packets trapped to COE port.	88800_A0, 88480_A0	V
SDK-189232	COE	Encapsulate COE tag for packets injected to COE port with ITMH only.	88800_A0, 88480_A0	V
SDK-191465	COE	Fixed the issue that packets mirrored to COE port have additional 4B before DMAC.	88800_A0, 88480_A0	V

SDK-189007	PTP	Fixed the issue that 1588 packets trapped to CPU port have additional 16B before system heades.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-189706	MPLS	LSR service with packet format IPoETHoCWoPWEoMPLSoETH used to get incorrect forward context. A new layer type Ingress_MPLS_Unterm is added for the second MPLS layer. When qualifying the second MPLS layer, bcmFieldLayerTypeForwardingMPLS is used now, instead of bcmFieldLayerTypeMpls (before 6.5.18-EA4) or bcmFieldLayerTypeVxlan (6.5.18-EA4)	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-190132	IOAM	Fixed the problem that In case RFC8321 encapsulation followed by one ETPS, which is for one MPLS label and is tandem, then d bit in the packet couldn't be marked as 1.	88690_B1, 88800_A0, 88480_A0	V
SDK-190092	VLAN-Port	VLAN: In the previous release, it was incorrect that the operation of replacing virtual native ingress AC LIF from no-wide to wide worked. In this release, the issue has been addressed by adding checking to deny this operation.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-188931	VLAN-Port	VLAN: In the previous release, INLIF swstate resource wasn't freed when destroying ingress virtual native objects. In this release, the issue has been addressed by freeing allocated swstate resources when destroying the object.	88690_A0, 88690_B1, 88800_A0	V
SDK-186819	SAT	When calling bcm_sat_gtf_packet_config(), the GTF packet header template profile id should be dynamic, instead of hard code. Otherwise, it returns error after calling more than 64 times with same packet_edit.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-183600	Twamp	Twamp: bcmSwitchReflectorTwampIp4 replace functionality was not functional. This is fixed.	88690_A0, 88690_B1, 88800_A0,	V

			88480_A0	
SDK-183515	Reflector	Reflector: bcm_switch_reflector_traverse was not functional. Now it is fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-188063	MDB	Under certain circumstances, specific MDB EM Tables may have returned "Table full" despite the number of entries being much lower than the expected capacity. Many of these circumstances have now been mitigated.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-188943	Diag	PP diagnostic "ekleap vis" ESEM key fields are not parsed to dbal fields correctly. Fixed now.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-191232	Tunnel	TCAM access id was not cleared in bcm_tunnel_terminator_config_delete, resulting in errors when trying to create the same P2P tunnel terminator after deleting it. Issue is fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
-	BFD	Fixed few bugs in BFD server, the functionality is in better quality than 6.5.17-SP1.	88690_B1, 88800_A0	V
SDK-190726	MPLS	When mpls port is created with RIF access stage, it could not be retrieved by bcm_mpls_port_get(). Issue is now fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-192743	CPU PKT	RX performance was degraded because of RX parser change. In this release, RX performance has been recovered.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-191924	VXLAN	In the previous release, bcm_vxlan_network_domain_config_traverse missed the flags check for BCM_VXLAN_NETWORK_DOMAIN_CONFIG_EGRESS_ONLY and	88690_A0, 88690_B1, 88800_A0, 88480_A0	X

		BCM_VXLAN_NETWORK_DOMAIN_CONFIG_INGRESS_ONLY. In this release, this issue has been fixed and now API is functional.		
SDK-190294	CPU TX JR1 IOP mode	TX command supports building ITMH header under JR1 system headers mode (Interop mode).	88690_A0, 88690_B1, 88800_A0	X
SDK-156042	MPLS	MLDP drop-and-continue service is not functional.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-194237	L3 JR1 IOP mode	L3 FEC JR1 Interop mode: In the previous release, stats on FEC couldn't work under JR1 mode. In this release, stats on FEC works except FEC EEI is configured as MPLS push command or Out-LIF pointer.	88690_A0, 88690_B1, 88800_A0	V
SDK-192267	OAMP Server	bcm_oam_endpoint_get() may have failed in case of OAM server. endpoint_create may have failed with the UPDATE flag as a result.	88690_B1, 88800_A0, 88480_A0	X
SDK-188241	EVPN JR1 IOP mode	Add support of SOC property bcm886xx_pph_learn_extension_disable in DNX devices with default value of TRUE. It can be used to allow the packets to go from ingress pipeline to egress pipeline with learn extension for user-data or specific applications (like EVPN).	88690_A0, 88690_B1, 88800_A0	X
SDK-193188	BFD	When injecting BFD over IP (single hop or multi hop) into an MPLS tunnel (through the egress_if field in bcm_bfd_endpoint_create()), the TTL on the MPLS header was always 0 on the outgoing BFD PDU. Now the TTL on the MPLS headers will be the same as that of the IP header (configured in the OAMP, through bcm_bfd_endpoint_create())	88690_B1, 88800_A0, 88480_A0	X

SDK-194314	Diag	In previous release, for ip routing service, "pp vis cos" command does not show the correct information. This release fixed the issue.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-195966	Diag	Optional memory corruption in diagnostic "pp vis ekleap" is fixed. Note that in case of encapsulation of more than 1280b, the diagnostics cannot parse the gen_header correctly	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-193566	MPLS	In the previous release, for LSR service using TANDAM type MPLS tunnel(2 labels in one EEDB entry), if the tunnel indicate EL/ELI is needed, the finally packet will be inserted with EL/ELI label. this is wrong, for P node, EL/ELI label should not be imposed. The issue is now fixed.	88690_B1, 88800_A0, 88480_A0	X
SDK-194491	Port	Add support in bcm_switch_control_indexed_port_get bcmSwitchPortHeaderType for getting trunk out header type.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-192596	LIF-MG MT	When value of in_lif_profile_egress_allocate_orientation is set to 3 this allows 3 values of orientation - 0,1 and 2. This is different than 6.5.16-SP1 that breaks backward compatibility. Set in_lif_profile_egress_allocate_orientation to 4 to allow 4 values of orientation - 0,1,2 and 3 that keeps backward compatibility (of value 3 before).	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-185514	IP Tunnel	IPV4 GRE keep alive packets have Protocol Type field from GRE header equal to 0. In case of matching tunnel termination, the ip tunnel was terminated. IPV4 GRE keep alive won't be terminated anymore	88690_A0, 88690_B1, 88800_A0	V
SDK-192209	LIF-MG MT	EEDB: A small fraction of EEDB entries stored in the MDB clusters, 1 in every	88690_A0, 88690_B1	V

		~8k~16k, can lead to incorrect EEDB stack. This issue has been fixed.		
SDK-190765	BFD	BFD: Getting or updating a BFD Echo endpoint failed occasionally. Issue is now fixed.	88690_B1, 88800_A0, 88840_A0	X
SDK-194064	CPU PKT	RX parser mis-classifies packets punted to CPU with FTMH.SSP 0 as injected by OAMP on a single-core device. This can lead to incorrect information in rx packet information such as RX packet length. In this release, this issue has been fixed.	88800_A0, 88840_A0	X
SDK-193339	KNET	KNET: In the previous release, KNET Filter got incorrect LAG member id after the specific member was deleted and re-added into the LAG. In this release, this issue has been fixed.	88690_A0, 88690_B1	X
SDK-192299	CPU-PKT JR1 IOP mode	IOP: In the previous release, Under JR1 mode, PTCH2 of injected packet was decoded as JR2 format even the port type is set as INJECTED_2_PP_JR1_MODE. In this release, this issue has been fixed.	88800_A0	X
SDK-187656	Tunnel	IP Tunnel: In case packets are IP-Tunnel termination and their next protocol is : BFD (single-hop/multi-hop) , UDP (i.e. UDPoUDPoIP), PTP, IGMP and GTP then they were terminated while it shouldn't be (i.e. it should have do L3 forwarding). My-MAC for them should have been disabled. This is fixed.	88690_A0, 88690_B0, 88800_A0, 88480_A0	X
SDK-195465	Diag	In pp vis ikleap diagnostics, when working with external TCAM, in case the result is not found the resulting number was left uninitialized. this caused in certain cases a crash in the SDK. Parameter was initialized with default value to prevenet such cases.	88690_A0, 88690_B0, 88800_A0, 88480_A0	X

Section 3.1.6.3: ACL Major Bug Fixes

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA 4 ?
SDK-190611	Field Init	On some cases qualifiers bcmFieldQualifyAcInLifWideData and/or bcmFieldQualifyNativeAcInLifWideData might return an error due to uninitiated memory. The issue is fixed now.	88690_A0, 88690_B1	V
SDK-187800	Field Groups	When allocating a field group with invalidate priority, it sometimes fails on sanity check, this is fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-190227	Parser	ETPP TDM now include LB_KEY_EXT size and not only FTMH	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-189775	KBP ACL	When an external TCAM field group has a qualifier with a size that is not a multiplication of 8, and that qualifier happens to be the first qualifier in a KBP ACL key, the key before that will be built incorrectly, this is fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-189444	Field Diag	Fixed Segmentation fault occurs for "FieLD TCAM ManaGeMenT INFo handler=IGNORE"	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-188946	Parser	Egress parser no longer output UDH base in case PPH was not built in ingress.	88690_A0, 88690_B1, 88800_A0, 88480_A0	V
SDK-188807	Field Diag	Diag "field last info" didn’t show correct context for ePMF and didn’t show info	88690_A0, 88690_B1,	V

		for core1 in some cases, this was fixed	88800_A0, 88480_A0	
SDK-186524	Trap	When mem_soft_error trap occurs, the action should be “Drop the Packet” and not as before. The configuration is now aligns to that.	88690_A0, 88690_B1, 88800_A0	V
SDK-193326	KBP ACL	In regards to API bcm_field_group_context_attach() 'payload_offset' and 'payload_id' fields. External TCAM field groups attached with payload_info.payload_offset smaller than 24 lead to lookup errors. Any time a result ID size+padding (retrieved from diag command "kbp opcode dump") is more than 128 bits, that is illegal configuration. Due to that new constraints were added to code: 1) If a field group has payload id 0, its payload offset must be at least 120. 2) If two field groups have consecutive payload IDs, their payload offsets cannot be more than 128 bits apart (e.g. a valid configuration can be payload_id 0 , payload_offset 144 and payload_id 1 payload_offset must be at least 16).	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-192245	Field Diag	The 'field key info' diag doesn't show all the contexts. This was fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-190264	KBP ACL	KBP init wasn’t working, this is fixed.	88800_A0	X
SDK-188962	Field Diag	field fem diag no longer shows actions for FEMs which were not configured	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-187703	Trap Diag	Fixed ETPP application traps diagnostic to show the actual action profile, instead of being locked to DROP and DEFAULT.	88690_A0, 88690_B1, 88800_A0,	X

			88480_A0	
SDK-194550	Field Diag	Small tcam banks were not covered by last info entry hit check. Printing wrong field group IDs for CONST fg type. Both issues were fixed.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-194548	Field State Table	If state table FG is configured on context that was hit, “field last info” diag failed. This was fixed	88690_A0, 88690_B1, 88800_A0, 88480_A0	X
SDK-193862	Trap	The IPv4 total length trap is verifying that the Total Length field in the IPv4 header is larger than 4*IHL field. The trap is supported for configuration but not enabled by data-path configuration. This is now fixed and trap can be used correctly.	88690_A0, 88690_B1, 88800_A0, 88480_A0	X

Section 3.1.7: Errata

Following section specify known SW errata that exist in 6.5.18. An updated version of SW errata for each SDK version exist in KM articles and get updated every week. We recommend to go over the KM articles every once in a while. Following KM article summarize the location of all SW Errata KM articles: “DNX Software Errata SDK MAIN tracker“.

Section 3.1.7.1: Basic data path, Connectivity and Traffic Management Errata

JIRA	Module	Description	Affected Devices
SDK-191093	SER	DCC parity error interrupt may occur unexpectedly after traffic.	88480_A0 88480_B0

SDK-195019	Ingress Cosq	Source VSQs are not destroyed on port remove. **SW workaround:** **User should destroy VSQs before port remove by calling bcm_cosq_gport_vsq_destroy() API.**	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0
SDK-193286	Soft Reset	The soft reset in the BCM88690 and BCM88800 families that is used in interrupt corrective actions may reset some of the EM configuration in MDB.	88690_A0, 88690_B1, 88800_A0
SDK-192701	Egres Cosq	bcm_cosq_control_set():bcmCosqControlBandwidthBurstMax Traffic is getting stuck at the EGQ as a result of burst configuration for EGQ shapers. This can be prevented if the burst value configured will be bigger that the packet size at the system.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0

Section 3.1.7.2: Packet-Processing Errata

JIRA	Module	Description	Affected Devices
SDK-188885	Mirror	When working in JR1 system headers mode, egress JR2 corrupts packets that are coming from Ingress JR1/JR+ mirror routed packet.	88690_A0, 88690_B1, 88800_A0
SDK-186199	ROO	IPv4/IPv6 ROO cases are currently not functional due to ITPP termination Errata (EID#9102). Certain flows of IPv4 ROO can still work with limited size of system headers.	88690_A0, 88690_B1, 88800_A0, 88480_A0
SDK-192420	PP Diagnostics	Diagnostics "PP vis EVE" is not functional.	88690_A0, 88690_B1, 88800_A0, 88480_A0
SDK-158275	VXLAN	Drop per (VSI -> VNI or VRF -> VNI) lookups are currently not supported because Action-profile is missing from table result. QoS of VLXAN is only	88690_A0, 88690_B1, 88800_A0,

		partially supported. The following scenarios are currently not supported: The QoS egress VLXAN tunnel pipe The QoS Native-Ethernet VLAN-tags pipe VXLAN default lookup of VRF->VNI is currently not supported. This means that the ability to configure the default action is missing. The current behavior is the same as the VSI->VNI default lookup.	88480_A0, 88480_B0
SDK-149525	VXLAN	For VXLAN with L2 or L3 forwarding only packets with known VNI should be forwarded. currently unknown VNI will be forwarded according to VSI/VRF 1024.	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0
SDK-193931	LI	Lawful interception JR1 Interop mode (IOP) is not functional.	88690_A0, 88690_B1, 88800_A0
SDK-195060	COE	If UP MEP is created on a COE port, the recycled OAM packets that trapped to CPU contains COE tag, which is different from previous devices behavior.	88800_A0, 88480_A0, 88480_B0
SDK-194774	PTP	PTP CF field offset is not correct when working on JR1 interop mode with UDH enabled.	88690_A0, 88690_B1, 88800_A0
SDK-197676	IVL	IVL is not functional.	88690_B1, 88800_A0, 88480_A0
SDK-189674	IFA 1.0	IFA 1.0 only works for IP over TCP, not IP over UDP. This is due to offset calculation when building the Probe Header, and the metadata.	88690_B1, 88800_A0, 88480_A0, 88480_B0
SDK-183707	GLEM	DBAL diagnostics for table GLOBAL_RIF_EM not accurate, logical entries and HW entries are yet to be synced.	88800_A0, 88480_A0, 88480_B0
SDK-197745	L3 IPv6 MC	In IPv6 multicast, when in-LIF enables IP multicast routing, the forwarding lookups are as follows (logically):	88690_A0, 88690_B1, 88800_A0,

		v6MC.LPM: <VRF(14), G(120), S(128), In_LIF(22)> v6MC.LEM: <VRF(14), G(120), In_LIF(22)> The priorities between the lookups should be as follows: (1) V,G,S,I (KAPS) “2nd KAPS LKP is full prefix on CMPRS” (2) V,G,S (KAPS) “2nd KAPS LKP is Prefix on CMPRS” (3) V,G,I (LEM) (4) V,G (KAPS) “2nd KAPS LKP is Prefix” Currently (4) priority is higher than (3) when G prefix length is >=77 bits.	88480_A0, 88480_B0
SDK-197464	MPLS	MPLS following nibble speculation default setting is described in the user manual and was in JR1 as no speculation except for nibble values 4 and 6 to speculate IPv4 and IPv6 respectively. Current version won't support these default option but as follows: Nibble value 0 will speculate control word, nibble value 1 will speculate GACH, nibble value 4 will speculate IPv4, nibble value 5 will speculate MPLS BIER, nibble value 6 will speculate IPv6 and the default option for the rest will be Ethernet. SDK 6.5.19 will support the default option as described in the user manual. Different configurations are available via switch control APIs (see PG document for more information)	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0

Section 3.1.7.3: ACL Errata

JIRA	Module	Description	Affected Devices
SDK-188923	ITMH_PPH	ITMH_PPH Application doesn't not work unless the injection is ITMH_ASE_TSH_PPH. For other header configuration the context selection and the parsing will not be done correctly. In other cases advised to use only ITMH application and set soc property: appl_enable_field_j1_itmh_pph=0	88690_A0, 88690_B1, 88800_A0, 88480_A0, 88480_B0

Section 3.1.7: Supported PCIe FW releases

Device	Supported Releases
BCM8869X, BCM8880X, BCM8882X, BCM8879X	Versions 2.4, 2.5-DNX Recommended to work with release 2.5-DNX
BCM8848X A0	unofficial version “8002.4011”
BCM8848X B0	Version 2.4, unofficial version “8002.4011”

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

None

Section 3.2.3: Validated Features

BCM88790 is GA level.

Section 3.2.4: Errata

LCPLL

LCPLL should work on bypass mode. Use the following SoC property to configure the LCPLL to bypass mode: serdes_fabric_clk_freq_out.BCM8879X=bypass.

The input reference clock might be either 156.25MHz or 312.5MHz.

Ports

Ramon A0 supports only a single VCO on each BH.

Section 3.2.5: Bug fixes since 6.5.17-S1 release

None

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 6.5.17-SP1, major bug-fixes and known issues. Before integrating the new release, review “Backward compatible important notes” section.

Section 3.5.1: Backward Compatible

Section 3.5.1.1: SW Compatibility Guidelines 6.5.17-SP1 to 6.5.18

Note: This document is written with the assumption that upgrade is done between 6.5.17-SP1 to 6.5.18 (i.e. user needs to go over **all** the rows in the table below). In case upgrade is done from older releases like 6.5.17 or 6.5.16-SP1, it must first go over previous 6.5.X release notes and then the table below. In case user upgrades from 6.5.18-EA4 to 6.5.18, then it should look for all rows that are mentioned as **both** in the last column.

JIRA	Module	Description	Affected Devices	From which SDK version backward compatible breakage is relevant 6.5.17-SP1 or both (i.e. 6.5.17-SP1 and 6.5.18-EA4)
-	KBP/KAPS lib	1.5.11 KBPSDK version is required for this release	88670-Family, 88680-Family, 88470-Family, 88270-Family	both (In 6.5.18-EA4 KBP SDK 1.5.11.EA was used)
SDK-174432	Init	Core clock verification: SDK is updated with a verification code which tests the correct value of "core_clock_speed_khz" soc property vs the actual frequency of the device.	88670-Family, 88680-Family, 88470-Family, 88270-Family	6.5.17-SP1
SDK-186077	Tunnel	Fixed the offset for copying prge program-variable as IPv6 version so that When bcmTunnelTypeIp6In6 is used for tunnel encapsulation, ipv6 header can have correct Ipv6 version number.	88670-Family, 88680-Family, 88470-Family, 88270-Family	6.5.17-SP1

SDK-173214	VLAN-Port	Fixed 1+1 protection AC updating issues, now the learning info for this type AC could be updated.	88670-Family, 88680-Family, 88470-Family, 88270-Family	6.5.17-SP1
SDK-171473	KBP	new system connected to OP2 is now supported. this system is supported mainly to use the OP2 for statistic interface. when working with the OP2 as statistic interface flexible mode is not supported.	88670-Family	both
SDK-194553	Reflector	Egress program editor profile cannot be restored when "one-pass" mac-swap is applied and then removed on a port. Now user needs to get the egress program editor before applying “one-pass” mac-swap and set it back after removing “one-pass” mac-swap on the port.	88670-Family, 88680-Family, 88470-Family, 88270-Family	both

Section 3.5.2: Major Bug fixes since 6.5.17-SP1

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

Basic Data Path, Connectivity and Traffic Management Features

JIRA	Module	Description	Affected Devices	Part of 6.5.18-EA4 ?
SDK-190262	Reset	Since 6.5.15 release the soft reset triggered by interrupt corrective action does not include fabric blocks. This behaviour is changed and now fabric related interrupts will also reset fabric blocks.	88670-Family, 88680-Family, 88470-Family	V

Packet Processing

JIRA-ID	Module	Description	Chips	Part of 6.5.18-EA4 ?
SDK-191873	Parser	In the previous release, if both advanced parser mode when Vxlan feature is enabled, SDK init returned error. In this release, this issue has been fixed.	88670-Family, 88680-Family, 88470-Family, 88270-Family	X
SDK-191671	KBP IF	An issue in the KBP response size calculations was discovered. The issue lead to truncating the result, leading to wrong results from lookups.	88670-Family, 88680-Family	X
SDK-193942	Lawful Interception	Lawful interception: when mirroring a packet into IPv6 tunnel, the length field in IPv6 header is less than the actual payload size by UDH-size bytes. The UDH-size is defined by SOC property field_class_id_size_<0|1|2|3>.	88470-Family, 88270-Family	X

High Availability

None

Section 3.5.3: Errata

The list below relates to major open bugs that are not resolved.

Basic Data Path, Connectivity and Traffic Management Features

None

Packet Processing

None

Section 3.5.4: Important Notes

None

Section 3.5.5: New features

Packet Processing

JIRA-ID	Module	Description	Chips	Part of 6.5.18-EA4 ?
SDK-183267	EVPN	Add support of Control Word in EVPN by BCM_MPLS_SWITCH2_CONTROL_WORD (term.) or BCM_MPLS_EGRESS_LABEL_CONTROL_WORD (enc.). Please be noted that this support might lessen features enabled at the same time due to Hardware resource (PRGE) limitations. For example, if EVPN, DSCP preserve and lots of other features are enabled, error might be seen in system start-up.	88670-Family, 88680-Family, 88470-Family, 88270-Family	V

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 for BCM88950 driver, with all major features supported.

Section 3.6.1: Important Notes

None

Section 3.6.2: Major Bug Fixes

JIRA-ID	Module	Description	Chips	Part of 6.5.18-EA4 ?
SDK-190262	Reset	Since 6.5.15 release the soft reset triggered by interrupt corrective action does not include fabric blocks. This behaviour is changed and now fabric related interrupts will also reset fabric blocks.	88770-Family	V