Software Development Kit

SDK 6.3.10

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Broadcom
Network Switching

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Section 1: About This Document

These are the Release Notes for the Broadcom Network Switching Software Development Kit Release 6.3.10.

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

Section 2: Product Documentation

The following documents are available through Broadcom's Customer Support Portal, http://support.broadcom.com. They are the primary source of information and should be referenced when using this release:

Table 1: Product Documentation

Document	Description
56XX-PG633-R	BCM and BCMX API Reference Guide. This manual describes the theory of operations of the API and all existing BCM and BCMX APIs for this release.
56XX-PG707-R	Stacking Software Guide This guide describes how to use the discovery and stacking applications provided in this release.
56XX-PG817-R	Platform Guide This guide describes the SDK source and Makefile structure, abstraction and porting layers, device specific interactions, and the platform/operating system specific features of the SDK. If this is your first time working with the SDK, start with this document.

Section 3: New in this Release

This section describes feature and device support that is introduced in this release.

SUMMARY OF NEW FEATURES

ARAD/ARAD+

- SER support is added for all exact match tables. Exact match tables (similarly to other memories) may get corrupted due to the release of alpha particles. Entries in exact match tables are protected by a parity check. A new SOC property is supported: `exact_match_tables_shadow_enable` (set to '0' by default). When set, a shadow for all exact match tables is maintained in the SW. This property must be set in order to support the exact match SER functionality.

TRIDENT2

- Dynamic ALPM Configuration. When ALPM is enabled, `num_ipv6_lpm_128b_entries` configuration variable indicates the pivot number of ipv6 128b routes, and then the max capacity of ipv4 routes and ipv6 routes are determined. The expected value is 0-4096 for both parallel and combine mode. This configuration variable now can be dynamically changed via calling `bcm_switch_control_set()` API with bcmSwitchL3Max128BV6Entries, and the expected value of bcmSwitchL3Max128BV6Entries is also 0-4096 for both parallel and combine mode.

KATANA2

- Level 2 WarmBoot recovery support has been added for LinkPhy and Subtag CoE subport groups and ports

HELIX4

- SDK is now enhanced to support 1G speed on Warpcore index 2 and 3 of BCM56342 device. A new device configuration variable is supported for BCM56342. `spn_BCM56340_4X10 :HX4_1G_130:` 7xF.QSGMII + Flex[4x10] + 2xFlex[21G/1G] + 1GE

WARMBOOT: VALIDATED WARMBOOT UPGRADES.

Following warmboot upgrades have been validated in this release.

Table 2: Validated Warmboot upgrades

Software upgrade	Supported	Supported Devices
6.3.9 to 6.3.10	Yes	KT2, TR3, HX4, TD2, TD+, KT, Raven, Saber, Enduro, Enduro_2
6.3.7 to 6.3.10	Yes	KT2, TR3, HX4, TD2, TD+, KT, Raven, Saber, Enduro, Enduro_2

Section 4: Things to note

This section lists items that require special attention.

BCMX API DEPRECATION

BCMX APIs have not been enhanced or supported for newer devices since SDK-5.10.2. Legacy BCMX APIs, supported in SDK-5.10.2 will be deprecated starting with SDK-6.3.5 release. Customers are encouraged to transition from BCMX APIs to their equivalent BCM APIs.

Please contact Broadcom application support for any help in the transition.

BCM8483X PHY FIRMWARE

Status of F/W version 1.67 released with SDK is preview. Check support.broadcom.com for latest available validated firmware for the BCM8483X family devices. Consult F/W release notes for known issues.

BCM8484X PHY FIRMWARE

Status of F/W version 1.07.11 released with SDK is preview. Check support.broadcom.com for latest available validated firmware for the BCM8484X family devices. Consult F/W release notes for known issues.

SPN_PHY_PORT_PRIMARY_AND_OFFSET

Setting of the config property `spn_PHY_PORT_PRIMARY_AND_OFFSET` is absolutely required for the following PHYs.
BCM54880E BCM54680E BCM54682E BCM54685E BCM54640E BCM542XX

BCM56850 HANDLING OF MODULE_64PORTS

Setting `module_64ports=1` config variable indicates that one module ID covers 64 ports. Please, note that while on the earlier devices this effectively meant choosing a single-modid mode for the device due to the fact that the total number of ports was less than 64, on devices that have more than 64 ports, such as BCM56850 (what about 56840?) it means choosing dual-modid mode instead. Please, always use `bcm_stk_modid_count()` to get the actual number of modids required by a given device. Also, note that the API `bcm_port_gport_get()` is the only correct way to translate the physical port number into a `MODPORT_GPORT` and it works correctly regardless of the number of modids assigned to the device

OCCASIONAL STACK ATTACH FAILURES

There may be occasional stack attach failures due to the stack master attaching a slave device before slave programming is complete. Use the stk.soc config variable stktopomasterdelay to increase the length of time the stack master will wait before attaching a slave.

UNBALANCED MUTEX WARNING

A potential issue with unbalanced mutexes has been uncovered in previous releases of SDK and special code has been added to automatically detect that condition. While we believe that we've identified all these issues in our regression testing, there is a slight probability that you can see the following message on the console:

WARNING: Mutex `"mutex_name"` has not been unlocked before being destroyed.

Current owner is `"thread_name"`.

Should you see such a warning, please, copy it verbatim and contact Broadcom Support.

BCM PORT CONTROLS

A set of BCM port controls `bcm_port_control_t` have changed their enumeration values between SDK-6.3.0 and SDK-6.3.1.

The implication is that RPC between systems running SDK-6.3.0 on one and SDK-6.3.1 on another will not work properly for BCM port controls.

IP ROUTE LOOKUP

If a packet destination IP lookup falls in between 2 route prefixes having a common prefix part and differing lengths, then the lower route prefix, which is the correct match, may not always be returned correctly.

Section 5: New Devices and Systems

For any given SDK release, support for certain devices may be provided in Preview or Supported status. Devices in preview status are provided to allow early integration of the customer's application with the SDK APIs that support that device. This software has not been tested on the physical target device and should not be expected to fully function.

Devices in "Supported" status 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.

Table 3: Supported Switch Devices

Family	*Devices*	*Description*
BCM56230	BCM56230 B1	12-Port GbE Multilayer Switch
BCM56230	BCM56231 B1	6-Port GbE Multilayer Switch
BCM56340	BCM56040 A0	1xF.QSGMII + 3xF.HG[42] + 1GE
BCM56340	BCM56042 A0	12x2.5GE/1GE + 12x2.5GE/1GE + 1GE
BCM56340	BCM56344 A0	10xF.QSGMII + 3xFlex[4x10] + 1GE
BCM56340	BCM56340 A0	12xF.QSGMII + Flex[4x10] + 2xHG[21] + 1GE, 12xF.QSGMII + 4xSGMII + 2xXFI + 2xHGd[21] + 1GE
BCM56340	BCM56342 A0	7xF.QSGMII + Flex[4x10] + 2xHG[21] + 1GE
BCM56340	BCM56547 A0	10xF.QSGMII + 3xF.HG[42] + 1GE, 12xF.QSGMII + 2xF.HG[42] + 1GE, 12xF.QSGMII + F.HG[42] + 2xHG[42] + 1GE
BCM56340	BCM56548 A0	7xF.QSGMII + 3xF.HG[42] + 1GE
BCM56340	BCM56041 A0	Ranger device, meant for embedded connectivity supports 1Ge (port 49), 2 X GE (iPROC), Flex 4x10G, 3 X 4 X 10G
BCM56340	BCM56544 B0	10xF.XAUI + 4xHG[21] + 1GE, 10xF.XAUI + 4xXFI, 10xF.XAUI + 2xHG[42], 4xXAUI + 12xXFI + 1GE Multilayer Ethernet Switch
BCM56640	BCM56045 B0	3xF.40GE + 3xF.HG[42] + 1GE
BCM56640	BCM56046 B0	3xF.40GE + 2xF.HG[42] + 1GE
BCM56450	BCM56450 A0	24-port GbE Multilayer Switch with 4-port 10 GbE uplinks, stacking, integrated CPU and Traffic Manager
BCM56450	BCM56450 B0	Katana2 Access 1 x XAUI + 8 x GE without L3 routing and MPLS features
BCM56450	BCM56455 B0	2 x 20GE (G.INT) + 2 x HG13
BCM56450	BCM56456 B0	1 x XAUI + 8 x GE
BCM56450	BCM56455 A0	2 x 20GE (G.INT) + 2 x HG13
BCM56450	BCM56456 A0	24x GE + 4x F.XAUI
BCM56450	BCM56455 B0	2 x 20GE (G.INT) + 2 x HG13
BCM56450	BCM56456 B0	24x GE + 4x F.XAUI
BCM56456	BCM56456 B0	9xFXAUI + 1 x XAUI + 1x2.5GbE
BCM56850	BCM56751P A2	1.28Tbps I/O, 960Gbps Core Ethernet Switch Fabric
BCM56850	BCM56751P A1	1.28Tbps I/O, 960Gbps Core Ethernet Switch Fabric
BCM56850	BCM56830 A1	960Gbps Ethernet Switch
BCM56850	BCM56830 A2	960Gbps Ethernet Switch
BCM56850	BCM56852 A2	100x10G, 960Gbps Multilayer Switch
BCM88650	BCM88650 B1	200 GBps DNX Traffic Manager and Packet Processor
BCM88030	BCM88030 A0	Scalable Switching 100Gbps Full-Duplex Programmable Packet Processor
BCM88660	BCM88660 A0	DNX 200G Flexible Packet Processor with Integrated Traffic Management
BCM56450	BCM56248L B0	11xGE + 8x2.5G
BCM56850	BCM56838	Trident2 SKU - Ready for Bringup - 72/320G Devices with 1.25/3.125/6.25G Serdes and 4 SFIs
BCM56850	BCM56834	Trident2 SKU - High density 10G and 40G switch for embedded applications

Table 3: Supported Switch Devices

Family	Devices	Description
BCM56846	BCM56831	Trident+ SKU - 24-port 10GE switch with 40GE support for embedded applications
BCM56846	BCM56849	Trident+ SKU - (56 x 1GbE/2.5GbE) + (8 x 10GbE)
BCM56846	BCM56847	Trident+ SKU - (64 x 10 GbE) + (4 x 1 GbE)
BCM56450	BCM55450 B0	KT2 Access-8 FX + 2 F-HG
BCM56456	BCM56458 B0	8xGE + 2xF.XAUI
BCM56846	BCM56835C	Trident+ SKU - (64 x 10 GbE) + (4 x 1 GbE)
BCM56450	BCM56248L B0	11xGE + 8x2.5G
BCM56150	BCM53347 A0	Wolfhound SKU - 24-port GbE Multilayer WebSmart Switch with 6xQSGMII + 4x1/10G
BCM56450	BCM55450 B0	KT2 Access-8 FX + 2 F-HG
BCM56640	BCM56545K	Triumph 3 SKU - - 48-port GE switch + 4x10GE + 4xHG[42] / 40GE
BCM56640	BCM56546K	Triumph 3 SKU - - 28-port GE switch + 4x10GE + 4xHG[42] / 40GE
BCM56450	BCM56450 B1	24-port GbE Multilayer Switch with 4-port 10 GbE uplinks, stacking, integrated CPU and Traffic Manager

Table 4: Preview Switch Devices

Family	Devices	Description
BCM56450	BCM56452 B0	24xGE + 4xF.XAUI
BCM56450	BCM56454 B0	8xGE + 2 x F.XAUI
BCM56455	BCM55455 B0	KT2 Access - 8 FX + 2 F-HG
BCM56456	BCM56457 B0	24xGE + 4xF.XAUI
BCM56456	BCM56458 B0	8xGE + 2xF.XAUI
BCM56640	BCM56044	Ranger+ SKU - 100G + 3xF.HG[42] + 1GE
BCM56640	BCM56543	Apollo2+ SKU . Bringup -100GE/3xF.HG[42] + F.HG[127] + 1GE 415MHz
BCM56240	BCM56245	Saber SKU - Bringup - 2x (10GbE/4x 1GbE/4x 2.5GbE) + 2x 10GbE/12GbE/13GbE, IEEE 1588 enable
BCM56240	BCM56246	Saber SKU - Bringup - 10x 1GbE/2.5GbE, IEEE 1588 enabled
BCM56340	BCM56345	Twister . Bringup - 12xF.QSGMII + Flex[4x10] + 1GE
BCM56340	BCM56346	Twister . Bringup - 7xF.QSGMII + Flex[4x10] + 1GE

Table 5: Supported CPUs

Device Family	Description
BCM9XLP2_XMC_A1	XMC with Broadcom XLP II 200 series multicore processor (MIPS64 Release-II ISA-compliant) with eight NXCPU. processing units, each operating at up to 2.0 GHz

Table 6: PHYs

Device	Driver Family	Description
BCM54618_A0	54616	Single-Chip 10/100/1000BASE-T Gigabit Ethernet Transceiver (IEEE 1588 features are not supported by SDK driver)
BCM82328_B0	82328	Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version D
BCM54220SE	54210	Dual Copper/Fiber Gigabit Ethernet Transceiver, EEE, SyncE supported (IEEE 1588 not yet supported by SDK driver)
BCM82322_B0	82328	12port Gallardo28 supporting 12x10G, 3x40G, 1x100G. Firmware version D
BCM54210SE_B0	54210	Single Copper/Fiber Gigabit Ethernet Transceiver -1588 not yet supported
BCM54295SE_B0	54295	Octal Copper/Quad Fiber Gigabit Ethernet Transceiver - 1588 not yet supported

Table 6: PHYs

Device	Driver Family	Description
BCM54296SE_B0	54296	Quad Copper/Fiber Gigabit Ethernet Transceiver (Bringup) - 1588 not yet supported

Table 7: Preview PHYS

Device	Driver Family	Description
BCM84858_A0	84858	Quad 10GBASE-T Transceiver. Firmware version 01.00.04 (Preview)
BCM82072	82072	CAUI4-TO-KR4 NRZ BACKPLANE PHY/OCTAL 25G BACKPLANE RETIMER. (Bringup)
BCM84858_B0	84858	Quad 10GBASE-T Transceiver. Firmware version 00.02.02 (Preview)

Section 6: Summary of BCM API changes

This section summarizes BCM and BCMX API changes in this release. Complete documentation is available in the Network Switching Software Programmer's Guide [**56XX-PG6310-R]. (See section 2 earlier in this document for availability).

FIELD PROCESSOR

FIELD QUALIFIERS

New Field Qualifiers have been added.

Table 8: Field Qualifiers

Qualifier	Purpose
bcmFieldQualifyDstMulticastGroups	Multicast Group IDs.
bcmFieldQualifyOamInLifIdValid	Indicates if the LIF that has been found is an OAM LIF. This is a specific behavior to our devices and hard to expose.
bcmFieldQualifyOamInLifId	Indicates the last OAM LIF that has been found. This value is valid only if `SOC_PPC_FP_QUAL_VTT_OAM_LIF_VALID` is set.
bcmFieldQualifyOamUpMep	It indicates if the OAM packet is UP-MEP (sent to a destination in the network, as opposed to a specific port). This term belongs to the OAM jargon.
bcmFieldQualifyOamSubtype	In OAM the packet type is specified in the OAM header and mapped to a subtype in the hardware. This value indicates the hardware type that it is mapped to.
bcmFieldQualifyOamHeaderOffset	This field indicates the offset of the OAM header relative to the start of packet (as opposed to start of header-offset[0]).
bcmFieldQualifyOamStampOffset	This qualifier indicates the offset to the position, in the OAM header, where the ToD or counter value should be stamped, relative to the start of packet (as opposed to start of header-offset[0]).
bcmFieldQualifyOamMepId	Oam mep endpoint
bcmFieldQualifyOamMeterDisable	This qualifier is an attribute that is passed to the PMF and can also be configured by the user per MEP.
bcmFieldQualifyOamTsSystemHeader	The entire OAM-TS is passed to the egress PMF (48 bit)

FIELD ACTIONS

New Field Actions have been added.

Table 9: Field Actions

Action	Description	param0	param1
bcmFieldActionOam	It comprises several fields that are changed at the same time: OAM-Up-Mep, OAM-Sub-Type, OAM-offset, OAM-Stamp-Offset	n/a	n/

FIELD HINT TYPE

Hints are used during group creation and group expansion.

Table 10: Field Hint type

Hint Type	Purpose
bcmFieldHintTypeCompression	Qualifier Compression Hints.
bcmFieldHintTypeExtraction	Qualifier Extraction Hints.

Table 10: Field Hint type

Hint Type	Purpose
bcmFieldHintTypeGroupAutoExpansion	Group Auto Expansion Hints. Hint type GroupAutoExpansion is configured to provide control for selecting the physical slice during auto expansion of group.
bcmFieldHintTypeCount	Internal use only.

GROUP MANAGEMENT

New Field Processor APIs have been added.

bcm_field_hint_t_init

Initialize Field Group Hint structure.

Syntax

```
#include <bcm/field.h>
void bcm_field_hint_t_init(bcm_field_hint_t *hint);
```

Parameters

hint   (OUT) Pointer to Field Group Hint structure to initialize.

Description

Initializes the Field Group Hint structure to default values. This function should be used to initialize any Field Group Hint structure prior to filling it out and passing it to an API function. This ensures that subsequent API releases may add new structure members to the bcm_field_hint_t structure, and bcm_field_hint_t_init will initialize the new members to correct default values.

Returns

None.

bcm_field_hints_create

Generate a hint id.

Syntax

```
#include <bcm/field.h>
int bcm_field_hints_create(int unit,
                           bcm_field_hintid_t *hint_id);
```

Parameters

*hint_id   (OUT) Pointer to hint id where the generated hint id will be stored.

Description

Generates a hint id to which the hints will be associated. Group config structure will have hint id as member.

Returns

bcm_field_hints_add

Associate a hint structure to the hint id.

Syntax

```
#include <bcm/field.h>
int bcm_field_hints_add(int unit,
                        bcm_field_hintid_t hint_id,
                        bcm_field_hint_t *hint);
```

Parameters

unit	(IN) BCM device number
hint_id	(IN) Hint id generated by `bcm_field_hints_create`.
*hint	(OUT) Pointer to the hint structure.

Description

Associate a hint to the hint id.

Returns

bcm_field_hints_get

Get the complete hint structure from the hint id.

Syntax

```
#include <bcm/field.h>
int bcm_field_hints_get(int unit,
                        bcm_field_hintid_t hint_id,
                        bcm_field_hint_t *hint);
```

Parameters

unit	(IN) BCM device number
hint_id	(IN) Hint id generated by bcm_field_hints_create.
*hint	(INOUT) Pointer to the hint structure.

Description

Get the complete hints structure associated to a hint id. Fill known values in hints structure and API will return the complete structure.

Example: bcm_field_hint_t hint; hint.hint_type = bcmFieldHintTypeGroupAutoExpansion; bcm_field_hints_get (unit, hintid, &hint);

Returns

bcm_field_hints_delete

Remove a hint structure from the hint id.

Syntax

```
#include <bcm/field.h>
int bcm_field_hints_delete(int unit,
                           bcm_field_hintid_t hint_id,
                           bcm_field_hint_t *hint);
```

Parameters

unit	(IN) BCM device number
hint_id	(IN) Hint id generated by bcm_field_hints_create.
*hint	(IN) Pointer to the hint structure.

Description

Remove a hint from the hint id.

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Returns

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bcm_field_hints_delete_all
bcm_field_hints_destroy

Remove all hints from the hint id.

Syntax

```
#include <bcm/field.h>
int bcm_field_hints_delete_all(int unit,
                          bcm_field_hintid_t hint_id);
int bcm_field_hints_destroy(int unit,
                          bcm_field_hintid_t hint_id);
```

Parameters

unit	(IN) BCM device number
hint_id	(IN) Hint id generated by `bcm_field_hints_create.`

Description

Remove all the hints associated to a hint id. hint id can be reused.

Returns

- `bcm_field_hint_s` Structure used to specify hints that will be used during group creation.
- `hint_type` variable indicate the hint type. It can be Compression/Extraction/GroupAutoExpansion.
- `qual,max_values,start_bit,end_bit` variables are used to specify the group compression and extraction logic
- flags variable is used to provide support for group auto expansion.
- `max_group_size` variable will be used during group auto-expansion to choose the best physical slice based on size to be attached to the group.

```
/* Specify hints to be used during group creation. */
typedef struct bcm_field_hint_s {
    bcm_field_hint_type_t hint_type;    /* Field hints of type
                                           bcm_field_hint_type_t. */
      bcm_field_qualify_t  qual;                   /* Field qualifier
  bcmFieldQualifyXXX. */
    uint32 max_values;                    /* To figure out the width of the
```

```
                                                compression output. */
    uint32 start_bit;                    /* Builds the range in conjunction
  with

                                        end_bit which will indicate that in
                                          the

                                                  full mask any
                                          bits outside of that range are
                                          guaranteed to be 0. */
    uint32 end_bit;                    /* End bit of a mask for the qualifier
                                          in hint structure. */
    uint32 flags;                        /* Flags. */
    uint32 max_group_size;               /* Max size of the group. */
} bcm_field_hint_t;
```

Table 11: Flags values to update the bcm_field_hints_t structure.

Hints flag	Purpose
BCM_FIELD_HINT_EXACT_MATCH_ONLY	Exact Match Only.
BCM_FIELD_GROUP_AUTO_EXPANSION_SMALL	Prefer expanding using smaller slices
BCM_FIELD_GROUP_AUTO_EXPANSION_LARGE	Prefer expanding using larger slices
BCM_FIELD_GROUP_MAX_SIZE_HARD_LIMIT	Set Hard limit for max_group_size.

DATA FIELD MANAGEMENT.

New structure element has been added to bcm_field_group_config_t.

- bcm_field_group_config_s   Structure used to create a field group with specified qualifier set, priority, mode, ports, group size (small or large) and group ID. Other fields in the structure are optional.

- hintid can be used to provide control over the selection of auto-expansion slice.

```
/*
 * Group configuration structure. Used to create a field group with
 * specific attributes.
 */
typedef struct bcm_field_group_config_s {
    ...
    bcm_field_hintid_t hintid;          /* Hints for Group Creation. */
} bcm_field_group_config_t;
```

ENTRY QUALIFICATION MANAGEMENT

bcm_field_qualify_XXX

Add a qualification to a field entry

Syntax

```
    #include <bcm/field.h>


int bcm_field_qualify_DstMulticastGroups(int unit, bcm_field_entry_t entry,
                    bcm_multicast_t group, bcm_multicast_t mask);
int bcm_field_qualify_VxlanHeaderBits8_31(int unit,bcm_field_entry entry,
                    uint32_t data,uint32_t mask);
int bcm_field_qualify_VxlanHeaderBits56_63(int unit,bcm_field_entry entry,
                    uint8_t data, uint8_t mask);
int bcm_field_qualify_OamInLifIdValid(int unit, bcm_field_entry_t entry,
                            uint8 data, uint8 mask);
int bcm_field_qualify_OamInLifId(int unit, bcm_field_entry_t entry,
                            uint32 data, uint32 mask);
int bcm_field_qualify_OamUpMep(int unit, bcm_field_entry_t entry,
                            uint8 data, uint8 mask);
int bcm_field_qualify_OamSubtype(int unit, bcm_field_entry_t entry,
                            uint8 data,  uint8 mask);
int bcm_field_qualify_OamHeaderOffset(int unit, bcm_field_entry_t entry,
                            uint32 data,  uint32 mask);
int bcm_field_qualify_OamStampOffset( int unit,  bcm_field_entry_t entry,
                            uint32 data,  uint32 mask);
int bcm_field_qualify_OamMepId(int unit,  bcm_field_entry_t entry,
                            uint32 data,  uint32 mask);
int bcm_field_qualify_OamMeterDisable( int unit,  bcm_field_entry_t entry,
                             uint8 data,  uint8 mask);
int bcm_field_qualify_OamTsSystemHeader( int unit,  bcm_field_entry_t entry,
                            uint64 data,  uint64 mask);
int bcm_field_qualify_EthernetOamHeaderBits0_31( int unit,  bcm_field_entry_t
entry,
                                            uint32 data,  uint32 mask);
int bcm_field_qualify_EthernetOamHeaderBits32_63( int unit,  bcm_field_entry_t
entry,
                                            uint32 data, uint32 mask);
int bcm_field_qualify_MplsOamHeaderBits0_31(int unit, bcm_field_entry_t entry,
                                        uint32 data,  uint32 mask);
int bcm_field_qualify_MplsOamHeaderBits32_63( int unit, bcm_field_entry_t
entry,
                                        uint32 data,  uint32 mask);
int bcm_field_qualify_MplsOamACH(int unit, bcm_field_entry_t entry,
                            uint32 data, uint32 mask);
int bcm_field_qualify_OamHeaderBits0_31(int unit,  bcm_field_entry_t entry,
                                    uint32 data, uint32 mask);
int bcm_field_qualify_OamHeaderBits32_63( int unit, bcm_field_entry_t entry,
                                    uint32 data, uint32 mask);
```

Parameters

`unit`	BCM device number
`entry`	Field entry ID
`data`	Data to match against
`mask`	Mask to choose which bits of data to match against
`range`	Which range checker to qualify on
`invert`	Invert range checker if 1; clear range check if negative

Description

Adds a qualification to a filter entry. Each qualification added makes the entry more specific and match fewer possible packets.

bcm_field_qualify_XXX_get

Get a qualification match criteria from a field entry

Syntax

```
#include <bcm/field.h>


int bcm_field_qualify_DstMulticastGroups_get(int unit, bcm_field_entry_t entry,
                    bcm_multicast_t *group, bcm_multicast_t *mask);
int bcm_field_qualify_VxlanHeaderBits8_31_get(int unit,bcm_field_entry entry,
                    uint32_t *data, uint32_t *mask);
int bcm_field_qualify_VxlanHeaderBits56_63_get(int unit,bcm_field_entry entry,
                    uint8_t *data, uint8_t *mask);
int bcm_field_qualify_OamInLifIdValid_get(int unit, bcm_field_entry_t entry,
                                    uint8 *data, uint8 *mask);
int bcm_field_qualify_OamInLifId_get(int unit, bcm_field_entry_t entry,
                                    uint32 *data, uint32 *mask);
int bcm_field_qualify_OamUpMep_get(int unit,  bcm_field_entry_t entry,
                                     uint8 *data,  uint8 *mask);
int bcm_field_qualify_OamSubtype_get( int unit,  bcm_field_entry_t entry,
                                     uint8 *data,  uint8 *mask);
int bcm_field_qualify_OamHeaderOffset_get(int unit, bcm_field_entry_t entry,
                            uint32 *data, uint32 *mask);
int bcm_field_qualify_OamStampOffset_get( int unit, bcm_field_entry_t entry,
                                        uint32 *data, uint32 *mask);
int bcm_field_qualify_OamMepId_get(int unit,  bcm_field_entry_t entry,
                                    uint32 *data,  uint32 *mask);
int bcm_field_qualify_OamMeterDisable_get(int unit, bcm_field_entry_t entry,
                                    uint8 *data, uint8 *mask);
int bcm_field_qualify_OamTsSystemHeader_get( int unit,  bcm_field_entry_t
entry,
                                        uint64 *data,  uint64 *mask);
int bcm_field_qualify_EthernetOamHeaderBits0_31_get(int unit,
bcm_field_entry_t entry,
                                        uint32 *data,  uint32 *mask);
int bcm_field_qualify_EthernetOamHeaderBits32_63_get(int unit,
bcm_field_entry_t entry,
                                        uint32 *data, uint32 *mask);
```

```
int bcm_field_qualify_MplsOamHeaderBits0_31_get( int unit,  bcm_field_entry_t
entry,
                                          uint32 *data,  uint32 *mask);
int bcm_field_qualify_MplsOamHeaderBits32_63_get(int unit, bcm_field_entry_t
entry,
                                          uint32 *data, uint32 *mask);
int bcm_field_qualify_MplsOamACH_get( int unit, bcm_field_entry_t entry,
                                      uint32 *data, uint32 *mask);
int bcm_field_qualify_OamHeaderBits0_31_get(int unit, bcm_field_entry_t entry,
                                          uint32 *data, uint32 *mask);
int bcm_field_qualify_OamHeaderBits32_63_get( int unit,  bcm_field_entry_t
entry,
                                          uint32 *data, uint32 *mask);
```

Parameters

unit	BCM device number
entry	Field entry ID
data	Data to match against
mask	Mask to choose which bits of data to match against

Description

Get a match criteria for a specific qualifier from a field entry.

INITIALIZATION

New Transmit/Receive BCM APIs have been added.

bcm_attach_early_txrx

Attach only tx and rx modules to a device as a BCM unit.

Syntax

```
#include <bcm/init.h>
int
bcm_attach_early_txrx(int unit, char *type, char *subtype, int remunit);
```

Parameters

`unit`	(IN) Unit number.
`type`	(IN) <UNDEF>
`subtype`	(IN) <UNDEF>
`remunit`	(IN) <UNDEF>

Description

This API is primarily for warmboot. Since regular attach operation through `bcm_attach()` API during warmboot take a while to complete, there is a chance that protocols running in application layer time out. This can lead to disruption at system level. This API enables applications to start Tx and Rx as soon as possible, with some limitations. The limitations with initializing tx include, but are not limited to the following: a. Device does not check the link state in case of TX, and thus it might not free up the dma structures allocated to packet tx, if link is down. The limitations with initializing Rx include, but are not limited to the following: a. Trunk group gport might not be resolved, for packets received on trunk member ports After soc level initialization, this API can be called to initialize Tx and Rx modules. A regular `bcm_attach` must be followed for complete initialization of the device. Apart from Tx and Rx APIs, other API's should not be used/called before `bcm_attach` completes.

Returns

bcm_detach_late_txrx

Detach all modules excluding tx and rx from BCM unit.

Syntax

```
#include <bcm/init.h>
```

```
int bcm_detach_late_txrx(int unit);
```

Parameters

unit   (IN) Unit number.

Description

In cases when stopping Tx and Rx needs to be delayed, this API can be used to detach all other modules apart from tx and rx. Tx and Rx will continue to work, (with limitations similar to the ones mentioned for `bcm_attach_early_txrx` (page 30)
) even after this API is invoked. After this API, customers are expected to shut down their Tx/Rx components, and invoke `bcm_detach()` API, to shutdown the system completely.

Returns

BCM_E_XXX

LAYER 2 ADDRESS MANAGEMENT

New enum has been added to L2 learning events.

Table 12: L2 Learning events flags

Name	Purpose
BCM_L2_ADDR_DIST_REFRESH_EVENT	Age refresh event

LAYER 3 MANAGEMENT

New structure element has been added to bcm_tunnel_terminator_t structure.

```
typedef struct bcm_tunnel_terminator_s {
    ...
    int                  tunnel_class;         /* Tunnel class id. */
} bcm_tunnel_terminator_t;
```

L2GRE MANAGEMENT

New Enumeration has been added to L2GRE port flags.

Table 13: L2GRE port flags

Name	*Purpose*
`BCM_L2GRE_PORT_WITH_ID`	Create L2GRE port with specified ID
`BCM_L2GRE_PORT_DROP`	Drop matching packets on L2GRE port
`BCM_L2GRE_PORT_NETWORK`	Network facing L2GRE interface
`BCM_L2GRE_PORT_COUNTED`	Maintain packet/Byte counts
`BCM_L2GRE_PORT_REPLACE`	Replace existing L2GRE entry
`BCM_L2GRE_PORT_INT_PRI_SET`	Use Specified pri for internal priority
`BCM_L2GRE_PORT_INT_PRI_MAP`	Use specified `exp_map` for internal priority
`BCM_L2GRE_PORT_EGRESS_TUNNEL`	Specified Egress tunnel is valid
`BCM_L2GRE_PORT_SERVICE_TAGGED`	Service tag mode
`BCM_L2GRE_PORT_SERVICE_VLAN_ADD`	Add SD-tag
`BCM_L2GRE_PORT_SERVICE_VLAN_REPLACE`	Replace VLAN not TPID
`BCM_L2GRE_PORT_SERVICE_VLAN_DELETE`	Delete VLAN Tag
`BCM_L2GRE_PORT_SERVICE_VLAN_TPID_REPLACE`	Replace VLAN and TPID
`BCM_L2GRE_PORT_SERVICE_VLAN_PRI_TPID_REPLACE`	Replace VLAN, VLAN-PRI and TPID
`BCM_L2GRE_PORT_SERVICE_VLAN_PRI_REPLACE`	Replace VLAN and VLAN-PRI
`BCM_L2GRE_PORT_SERVICE_PRI_REPLACE`	Replace VLAN-PRI only
`BCM_L2GRE_PORT_SERVICE_TPID_REPLACE`	Replace TPID only
`BCM_L2GRE_PORT_MULTICAST`	Create Multicast-only L2GRE Tunnel
`BCM_L2GRE_PORT_ENABLE_VLAN_CHECKS`	Enable vlan check, only for access VP derived from `VLAN_XLATE`

MIRRORING

New enumerations have been added Mirror destination flags.

Table 14: BCM Mirror Destination Flags

Name	Description
BCM_MIRROR_DEST_FIELD	Mirror destination owner is Field Processor.
BCM_MIRROR_DEST_PORT	Mirror destination owner is Port.

MULTICAST CONFIGURATION

New Macros have been added to indicate Multicast group types.

Table 15: Multicast Type

Multicast Types	Purpose
bcmMulticastTypeL2	Multicast type L2
bcmMulticastTypeL3	Multicast type L3
bcmMulticastTypeVpls	Multicast type VPLS
bcmMulticastTypeSubPort	Multicast type Sub Port
bcmMulticastTypeMim	Multicast type MIM
bcmMulticastTypeWlan	Multicast type Wlan
bcmMulticastTypeVlan	Multicast type Vlan
bcmMulticastTypeTrill	Multicast type TRILL
bcmMulticastTypeNiv	Multicast type NIV
bcmMulticastTypeEgressObject	Multicast type Egress Object
bcmMulticastTypeL2Gre	Multicast type L2 GRE
bcmMulticastTypeVxlan	Multicast type Vxlan
bcmMulticastTypePortsGroup	Multicast type Ports Group
bcmMulticastTypeExtender	Multicast type Extender
bcmMulticastTypeMac	Multicast type MAC
bcmMulticastTypeCount	Multicast type Count

Table 16: Multicast Related Macros

MULTICAST Macros	Macro Description
`BCM_MULTICAST_IS_SET`	Returns 1 if set, else 0
`BCM_MULTICAST_IS_L2`	Returns 1 if l2 multicast is set, else 0
`BCM_MULTICAST_IS_L3`	Returns 1 if l3 multicast is set, else 0
`BCM_MULTICAST_IS_VPLS`	Returns 1 if vpls multicast is set, else 0
`BCM_MULTICAST_IS_SUBPORT`	Returns 1 if subport multicast is set, else 0
`BCM_MULTICAST_IS_MIM`	Returns 1 if mim multicast is set, else 0
`BCM_MULTICAST_IS_WLAN`	Returns 1 if wlan multicast is set, else 0
`BCM_MULTICAST_IS_VLAN`	Returns 1 if vlan multicast is set, else 0
`BCM_MULTICAST_IS_TRILL`	Returns 1 if trill multicast is set, else 0
`BCM_MULTICAST_IS_NIV`	Returns 1 if niv multicast is set, else 0
`BCM_MULTICAST_IS_EGRESS_OBJECT`	Returns 1 if `egress_object` multicast is set, else 0
`BCM_MULTICAST_IS_L2GRE`	Returns 1 if l2gre multicast is set, else 0
`BCM_MULTICAST_IS_VXLAN`	Returns 1 if vxlan multicast is set, else 0
`BCM_MULTICAST_IS_PORTS_GROUP`	Returns 1 if `ports_group` multicast is set, else 0
`BCM_MULTICAST_IS_EXTENDER`	Returns 1 if extender multicast is set, else 0
`BCM_MULTICAST_L2_SET`	Sets l2 multicast group id and value
`BCM_MULTICAST_L3_SET`	Sets l3 multicast group id and value
`BCM_MULTICAST_VPLS_SET`	Sets vpls multicast group id and value
`BCM_MULTICAST_SUBPORT_SET`	Sets `sub_port` multicast group id and value
`BCM_MULTICAST_MIM_SET`	Sets mim multicast group id and value
`BCM_MULTICAST_WLAN_SET`	Sets wlan multicast group id and value
`BCM_MULTICAST_VLAN_SET`	Sets vlan multicast group id and value

Table 16: Multicast Related Macros

MULTICAST Macros	Macro Description
`BCM_MULTICAST_TRILL_SET`	Sets trill multicast group id and value
`BCM_MULTICAST_NIV_SET`	Sets niv multicast group id and value
`BCM_MULTICAST_EGRESS_OBJECT_SET`	Sets `egress_object` multicast group id and value
`BCM_MULTICAST_L2GRE_SET`	Sets l2gre multicast group id and value
`BCM_MULTICAST_VXLAN_SET`	Sets vxlan multicast group id and value
`BCM_MULTICAST_PORTS_GROUP_SET`	Sets `ports_group` multicast group id and value
`BCM_MULTICAST_EXTENDER_SET`	Sets extender multicast group id and value
`BCM_MULTICAST_L2_GET`	Gets l2 multicast index from multicast group
`BCM_MULTICAST_L3_GET`	Gets l3 multicast index from multicast group
`BCM_MULTICAST_VPLS_GET`	Gets vpls multicast index from multicast group
`BCM_MULTICAST_SUBPORT_GET`	Gets subport multicast index from multicast group
`BCM_MULTICAST_MIM_GET`	Gets mim multicast index from multicast group
`BCM_MULTICAST_WLAN_GET`	Gets wlan multicast index from multicast group
`BCM_MULTICAST_VLAN_GET`	Gets vlan multicast index from multicast group
`BCM_MULTICAST_TRILL_GET`	Gets trill multicast index from multicast group
`BCM_MULTICAST_NIV_GET`	Gets niv multicast index from multicast group
`BCM_MULTICAST_EGRESS_OBJECT_GET`	Gets `egress_object` multicast index from multicast group
`BCM_MULTICAST_L2GRE_GET`	Gets l2gre multicast index from multicast group
`BCM_MULTICAST_VXLAN_GET`	Gets vxlan multicast index from multicast group
`BCM_MULTICAST_PORTS_GROUP_GET`	Gets `ports_group` multicast index from multicast group
`BCM_MULTICAST_EXTENDER_GET`	Gets extender multicast index from multicast group
`BCM_MULTICAST_L2`	Return l2 multicast group from multicast index
`BCM_MULTICAST_L3`	Return l3 multicast group from multicast index
`BCM_MULTICAST_VPLS`	Return vpls multicast group from multicast index
`BCM_MULTICAST_SUBPORT`	Return subport multicast group from multicast index
`BCM_MULTICAST_MIM`	Return mim multicast group from multicast index
`BCM_MULTICAST_WLAN`	Return wlan multicast group from multicast index
`BCM_MULTICAST_VLAN`	Return vlan multicast group from multicast index
`BCM_MULTICAST_TRILL`	Return trill multicast group from multicast index
`BCM_MULTICAST_NIV`	Return niv multicast group from multicast index
`BCM_MULTICAST_EGRESS_OBJECT`	Return `egress_object` multicast group from multicast index
`BCM_MULTICAST_L2GRE`	Return l2gre multicast group from multicast index
`BCM_MULTICAST_VXLAN`	Return vxlan multicast group from multicast index
`BCM_MULTICAST_PORTS_GROUP`	Return `ports_group` multicast group from multicast index
`BCM_MULTICAST_EXTENDER`	Return extender multicast group from multicast index
`BCM_MULTICAST_TYPE`	Return Multicast Type for Multicast group

OPERATIONS, ADMINISTRATION, AND MAINTENANCE

New Enumeration has been added to OAM Endpoint.

New Enumerations have been added to OAM Event types.

Table 17: OAM Event Types

Event type	Description
bcmOAMEventBHHCCMRdi	RDI has been detected on received BHH CCM PDU
bcmOAMEventBHHCCMUnknownMegLevel	Unknown Meg Level has been detected on received BHH CCM PDU
bcmOAMEventBHHCCMUnknownMegId	Unknown Meg Id has been detected on received BHH CCM PDU
bcmOAMEventBHHCCMUnknownMepId	Unknown Mep Id has been detected on received BHH CCM PDU

PACKET TRANSMIT AND RECEIVE

New element has been added to the structure `bcm_pkt_t`.

PORT CONFIGURATION

New Enumeration has been added to Port Phy Controls.

Table 18: bcm_port_phy_control_t

BCM_PORT_PHY_CONTROL_DFE	Set SerDes microcontroller DFE mode
BCM_PORT_PHY_DFE_AUTO	SerDes microcontroller FIRMWARE controls DFE adjustment
BCM_PORT_PHY_DFE_FREEZE	SerDes microcontroller DFE freeze to current values

SWITCH CONTROL

New BCM Switch Controls have been added.

Table 19: Switch Type Values

cw bcmSwitchRemoteProtectionEnable	Set the Protection Status bit in HiGig Header at Ingress device.	cw TRUE/FALSE
bcmSwitchMirrorExclusive	Enable mirror exclusive mode. Default value is false. This switch control sets mutual exclusive behavior between port and FP mirroring. Once set mirror slot container are not shared between port and FP.	TRUE/FALSE
bcmSwitchEcnDelayMeasurementThreshold	Set ecn delay measurement threshold. Default value is false. This switch control sets a threshold for ecn delay measurement.	TRUE/FALSE
bcmSwitchMacroFlowHashUseMSB	If enable, use MSB for Macroflow based hashing. Default is LSB.	TRUE/FALSE

Section 7: Resolved Issues for 6.3.10

The following issues are resolved in version 6.3.10 of the SDK.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-50689		`56640_A0 56640_A1 56640_B0`	Index return for TCAM search cli was not correct while searching data in L2 tcam partition. Rectified this behavior for tcam search cli and corrected index returned for searched data in L2 tcam partition.
SDK-50945		`56440_B0`	Port downsizer workaround failed when SDK is compiled with `DBCM_PORT_DEFAULT_DISABLE` flag. This was because the phy loopback was not able to be set to perform downsizer check since ports are in disabled state. Fixed by enabling port before loopback and resetting back to original state after performing downsizer check.
SDK-53320	730039	`56850_A0 56850_A1 56850_A2`	In earlier releases, when alpm is enabled, `num_ipv6_lpm_128b_entries` could only be set with 0, 1024, 2048, 3072 in combined mode, and its value could not be dynamically configured in both parallel and combine mode. Now, `num_ipv6_lpm_128b_entries` can be set with any value through 0 to 4096 in combine mode, and it can be dynamically configured via bcmSwitchL3Max128BV6Entries in both parallel and combine mode.
SDK-54076		`56640_B0`	Configuration of egress properties such as MTU, MAC address on a per L3 interface basis (on same VLAN) cannot be supported in conjunction with the functionality of strict URPF check and ICMP redirect in current architecture. A new configuration property, `"l3_intf_vlan_split_egress"` is introduced that allows the application to choose which of the functionality is active.
SDK-55955	791050	`56850_A0`	Issue :- Add Mask Support for DstMplsGport, DstNivGport, SrcMulticastGroup, SrcMplsGport, SrcNivGport, DstMulticastGroup. Fix:- Added SET/GET API for DstMplsGport, DstNivGport, SrcMulticastGroup, SrcMplsGport, SrcNivGport, DstMulticastGroup

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-55977		`56820_A0`	When both Port based mirroring and FP base mirroring is used, then mirror slot container is shared between port and FP leading to FP based MTP destination take precedence over Port mirroring . As a result of this if packet comes from mirrored port matching FP entry it will go to FP pointed MTP destination instead of Port MTP. To correct this behavior MirrorExclusive Switch Control is introduced, which once set will make mirror slot container between port and FP mutually exclusive. Mirror slot container can be shared with in Port Mirroring and FP mirroring but not across. Since Mirror Slot Containers are not shared , packet will go to both MTP as pointed by Port and FP destinations. By default this switch control is not set and has to be set explicitly to achieve exclusiveness between port and FP. This switch control introduces it's own limitation like if both slot container are allocated to Port mirroring then FP based mirroring cannot use third MTP destination as slot containers are not available , same will be true in vice versa case. Customer should be aware of this limitation and should use mirror slot container carefully in this mode.
SDK-55979		`56820_A0`	When both Port based mirroring and FP base mirroring is used, then mirror slot container is shared between port and FP leading to FP based MTP destination take precedence over Port mirroring . As a result of this if packet comes from mirrored port matching FP entry it will go to FP pointed MTP destination instead of Port MTP. To correct this behavior MirrorExclusive Switch Control is introduced, which once set will make mirror slot container between port and FP mutually exclusive. Mirror slot container can be shared with in Port Mirroring and FP mirroring but not across. Since Mirror Slot Containers are not shared , packet will go to both MTP as pointed by Port and FP destinations. By default this switch control is not set and has to be set explicitly to achieve exclusiveness between port and FP. This switch control introduces it's own limitation like if both slot container are allocated to Port mirroring then FP based mirroring cannot use third MTP destination as slot containers are not available , same will be true in vice versa case. Customer should be aware of this limitation and should use mirror slot container carefully in this mode.

SDK-56039 SDK-64106	766039	`56846_A0 56845_B0`
		`56845_A2 56844_A0`
		`56842_A0 56840_A0`
		`56843_B0 56841_A3`
		`56846_A1 56841_B0`
			In previous release, customer found API `bcm_switch_control_port_set(unit, port, bcmSwitchPFCClass0Queue, 3)` could not work on TD+, but it worked on TD2. This inconsistent behavior made customer confused. A fix has been made now to make the API support legacy cosq mode.

SDK-56223	767450	All	Added KNET software link state control via new proc file interface. Examples: echo eth4=down > /proc/bcm/knet/link echo eth4=up > /proc/bcm/knet/link
SDK-56382		`56643_A0`	Fixed the tx data array size to avoid the stack corruption in `_phy_wcmod_speed-set` function

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-56754	771594	56334_B0 56850_A2	This problem and fix are applicable to the case where L3 ingress mode (bcmSwitchL3IngressMode switch control) is not being used. When there are multiple L3 interfaces on a given VLAN, all of them will be using the same VRF binding. Hence while deleting one of the L3 interfaces, SDK will not clear the VRF associated with the VLAN. Even in the case of the last L3 interface being deleted, SDK does not clear the VRF binding and expects the application software to necessarily set the VRF binding for the L3 interfaces that may be created subsequently.
SDK-57102	779185	56850_A0 56850_A1 56850_A2	In earlier releases, If adding l3 host entry to HW failed, SDK should decrease the related reference count but this function did not work when it has a multipath flag. This has been resolved.
SDK-57700	787637	All	In previous releases, customer found egress flex counters would run out quickly in some circumstances like (4K VLANs + 1 VFI). In this release an improvement has been deployed. The user can now use a new soc property to denote which egress objects can share or exclude flexible counter pool.
SDK-57770 SDK-60569		56450_A0 56450_B0	BHH packets are redirected to Host CPU instead of BTE if user specifies to use his own application running in host CPU to process BHH packets.
SDK-58060		All	Updated Linux kernel modules to work with Linux kernel 3.10 and newer.
SDK-58616	677402	56850_A0 56850_A1 56850_A2	When ports state changes after a flexed configuration, the bit maps for counter thread can't change accordingly. Currently counter bitmaps will be automatically updated after "flexible" ports are flexibly configured, not need to configure bitmaps or re-start counter thread by CLI commands.
SDK-58854	801789	56340_A0	Warpcore 2 and 3 of BCM56342 devices previously could not support 1G speed. SDK code is now enhanced to support 1G speed on Warpcore index 2 and 3 of BCM56342 device. New device config is supported for BCM56342: `spn_BCM56340_4X10` : HX4_1G_130: 7xF.QSGMII + Flex[4x10] + 2xFlex[21G/1G] + 1GE
SDK-58964	797918	56850_A0 56850_A1	In earlier releases, when alpm is enabled, `num_ipv6_lpm_128b_entries` could only be set with 0, 1024, 2048, 3072 in combined mode. Now, `num_ipv6_lpm_128b_entries` can be set with any value through 0 to 4096 in combine mode.
SDK-59313 SDK-58997	803175	56640_A0	Added support to clear XCON and Error CCM defects from software when all the RMEPs are deleted from that group due to a CCM Hardware engine limitation in Triumph3
SDK-59842		56634_A0 56634_B0	When L3 ingress mode is set, added support in `bcm_mpls_tunnel_switch_get()` API to return `info->ingress_if` for BCM5644x and BCM5645x devices.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-60237	813536	56850_A0 56850_A1 56850_A2	Issue :- Trident2 FP Hardware supports Vxlan Reserved Header Fields which was missing in SDK. Fix :- Added new Qualifier :- `bcm_field_qualify_VxlanHeaderBits8_31` `bcm_field_qualify_VxlanHeaderBits56_63` Added New Action list :- `bcmFieldActionVxlanHeaderBits8_31_Set` `bcmFieldActionVxlanHeaderBits56_63_Set`
SDK-60279		84740_A0 84780_A0	phy84740.c : Need to allow serdes link status check even in reverse mode (check added in `link_get` function)
SDK-60609	818931	56224_A0	Problem: On 56224 devices, there would be false L2 DEL + ADD callbacks for entry at location x , if the adjacent entry at location x+1 is modified. Root cause: L2X thread which gives the callback, was using size of 16 bytes instead of device specific number of bytes for comparing. Fix: The change has been made to use device specific size instead of fixed size.
SDK-60715	820099	56640_B0	In this release added a new config `phy_xaui_active_lane_map` to specify the 100G active lane.
SDK-60907	819128	All	In L2 learning, `bcm_l2_addr_msg_distribute_get()` and `bcm_l2_addr_msg_distribute_set()` didn't support aging refresh, i.e. it wasn't possible to register for aging refresh events. Currently there is a new flag `BCM_L2_ADDR_DIST_REFRESH_EVENT` available for the above set and get functions. Setting this distribution flag will register the user to be notified on refresh events when aging counter is refreshed.
SDK-60945	818527	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	A request was made to enable the SDK to report the reason why a packet was delivered CPU. In earlier releases there wasn't a mechanism to identify the receiving path of packet in current SDK. A new field `"rx_path"` was introduced in `bcm_pkt_t` to hold the receive path of packet. A new function `dcb23_rx_switch_drop_get()` was added for acquiring the "Switched Drop" bit in DCB after packet was received. Based on "Reason Code" and "Switched Drop" of DCB, the `rx_path` will be updated while rx parsing.
SDK-60955		All	Configuration variables which are parsed before `soc_attach()` is called, no longer require that the unit number is appended. For example, `polled_irq_mode=1` now works as expected, whereas before this change it had to be specified as `polled_irq_mode.<unit>=1.`
SDK-60987		56850_A0 56850_A1 56850_A2	In the previous release, the buffer peak value was not obtained correctly if BST is operated on PEAK mode. In this release, this issue has been addressed by correcting the internal API.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-61031	823863	All	Host endian-ness was not correctly handled in SDK side as-well-as in Ukernel side. Due to that where byte swapping was not required (on Little Endian eHost) but was happening causing all reverse data, string messages.
			Ukernel Side fix: Corrected endianess issue and added some print messages for debugging purpose. Now Bytes will be swapped only when host side(ehost) endian-ness and own(ukernel) endian-ness differs.
			SDK Side fix: 1)Removed version string display in init phase as endian-ness of host side is not known in init-phase i.e. after system-info reply only, ukernel recognize and sends correct version-info string 2)Removed hack of reverse version-string on LE host 3)Now sends 0 for LE host and 1 for BE host as system info reply

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10

SDK-61102	822950	All	ARAD supports 32 VLAN ranges per port at most. To add multiple outer VLAN ranges on the same port, `bcm_vlan_translate_action_range_add` should be called as follows: `bcm_vlan_action_set_t` action; `bcm_vlan_action_set_t_init(&action);` `action.ot_outer =` bcmVlanActionCompressed; `action.new_outer_vlan = 1;` `bcm_vlan_translate_action_range_add(0, 15, 1, 2, BCM_VLAN_INVALID, BCM_VLAN_INVALID, &action);`
			
			`action.ot_outer =` bcmVlanActionCompressed; `action.new_outer_vlan = 4;` `bcm_vlan_translate_action_range_add(0, 15, 4, 5, BCM_VLAN_INVALID, BCM_VLAN_INVALID, &action);`
			
			To add multiple inner VLAN ranges on the same port, `bcm_vlan_translate_action_range_add` should be called as follows: `bcm_vlan_action_set_t` action; `bcm_vlan_action_set_t_init(&action);` `action.it_inner =` bcmVlanActionCompressed; `action.new_inner_vlan = 1;` `bcm_vlan_translate_action_range_add(0, 15, BCM_VLAN_INVALID, BCM_VLAN_INVALID, 1, 2, &action);`
			
			`action.it_inner =` bcmVlanActionCompressed; `action.new_inner_vlan = 4;` `bcm_vlan_translate_action_range_add(0, 15, BCM_VLAN_INVALID, BCM_VLAN_INVALID, 4, 5, &action);`
			
			To add multiple outer and inner VLAN ranges on the same port at the same time, `bcm_vlan_translate_action_range_add` should be called as follows: `bcm_vlan_action_set_t` action; `bcm_vlan_action_set_t_init(&action);` `action.dt_outer =` bcmVlanActionCompressed; `action.dt_inner =` bcmVlanActionCompressed; `action.new_outer_vlan = 1;` `action.new_inner_vlan = 4;` `bcm_vlan_translate_action_range_add(0, 15, 1, 2, 4, 5, &action);`
			
			`action.dt_outer =` bcmVlanActionCompressed; `action.dt_inner =` bcmVlanActionCompressed; `action.new_outer_vlan = 6;` `action.new_inner_vlan = 8;` `bcm_vlan_translate_action_range_add(0, 15, 6, 7, 8, 9, &action);`

SDK-61167	787136	`56640_A0 56545_A0` `56640_A1 56640_B0` `56545_A1 56545_B0`	On external PHY attached to the port, the PHY loopback has to be enabled for both internal and external PHY in order for IBOD to work.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-61190	824318	`56640_A0 56640_A1 56640_B0`	SDK was not clearing `REMOTE_FAULT_STATUS` and `LOCAL_FAULT_STATUS` fields of `CMAC_CLEAR_RX_LSS_STATUS` register upon healthy link up for 100Gbps CE ports. Enabled the processing of `CMAC_CLEAR_RX_LSS_STATUS` for CE (100G) ports as well.
SDK-61227	823907	`56850_A0 56850_A1 56850_A2`	Description: Assert for wrong register width in SER handler makes SDK crash. Root cause: The root cause is using `soc_reg32_get` to read a 64b `register(PGW_BOD_XLP0_ECC_STATUS)` Solution: In this release the SDK has changed to use `soc_reg_get` to read the 64b `register(PGW_BOD_XLP0_ECC_STATUS).`
SDK-61290	824389	`56846_A0 56846_A1`	In earlier releases, RxSwLos state machine could not be recovered during warmboot and led to traffic drop issue, This has been resolved.
SDK-61346	825676	`56450_B0`	In BCM56452, Software was not able to configure WC1 port as 20G Ethernet. This was because the DXAUI operating mode of the warpcore port was configured to support maximum of 10G. Handled this issue by re configuring the port to support maximum 20G Ethernet type traffic.
SDK-61400	825506	`All 56450_A0 56450_B0`	Adding MPLS entry with explicit queue mode was returning an error as it was always expecting a QOS map id. Fixed code to support both adding of MPLS entry with explicit queue or by specifying the base queue and a valid QOS map id.
SDK-61505	826710	`56334_B0 56334_A0`	Add `bcm_switch_pkt_info_hash_get` API support for Enduro.
SDK-61526		`88750_A0 88750_B0`	BCM88750 standalone compilation might fail due to linkage errors. Fixed.
SDK-61571	825912	`88660_A0 88670_A0`	In L2 learning, there was a constraint that didn't allow setting up ingress distribution learning and distribute it to a LAG port. The constraint was removed.
SDK-61625	816742	`88650_A0 88650_B0 88660_A0`	In Field Processor, when working with external tcam (KBP), API `bcm_field_group_dump()` returns incorrect values. This API was changed to support external TCAM correctly. In order to use this API with external TCAM, a new SOC property is introduced and should be set: `custom_feature_unbound_uninstalled _external_tcam_entries_number=1.` When set, the properties of the installed entries which reside on the external TCAM are kept in the SW state. This information is retrieved during the dump call. Note that the setting of this SOC property increases the memory allocation for Field Processor SW state.
SDK-61769	827751	All	Ensure that KNET Tx buffers are flushed after optional Tx callbacks are done, otherwise we may transfer stale data, if system is not cache-coherent.
SDK-61833	817014	`56720_A0 56743_A0 56745_A0 56746_A0 56750_A2`	In earlier releases, creation of virtual port multicast groups with ID did not work correctly on fabric-only devices. Added support to handle various ipmc group types for fabric only devices and added warmboot support for the array that is used to store the ipmc group types.

Table 20:

Number	CSP #	Chips		Release Notes For 6.3.10
SDK-61925	826420	`56846_A1`		In previous releases, if parity generation was disabled for TD+ and a specific field was cleared in the table `MMU_CTR_UC_DROP_MEM,` for example `PKT_CNT,` this may cause parity bit mismatch, then the table entry would be stuck on a value and not increase. In this release, this issue has been fixed by writing 0 to the whole entry when a specific field is going to be cleared.
SDK-61949	830803	`56850_A0` `56850_A2`	`56850_A1`	Previously, due to sharing of the fundamental interrupter handler, bcmINTR would be woken up on each received knet interrupter even though there wasn't any one interrupter that needed to be processed by bcmINTR. This reduced the system performance. This has been resolved by identifying the interrupter's owner, the fundamental interrupter handler won't wake up bcmINTR thread if there isn't bcmINTR-related interrupter.
SDK-61998		`56640_A0` `56640_B0`	`56640_A1`	`bcm_port_phy_set` has a input parameter port, which can be a valid port number or a PHY MDIO address. Until 6.3.7, in `bcm_port_phy_set` API, the input parameter port is not checked for validity. In 6.3.8, port validity check is added and so, this API does not work when PHY MDIO address is passed via port parameter. This is again fixed in 6.3.10. Similar check is added to `bcm_port_phy_get` and `bcm_port_phy_modify`
SDK-62007	831748	`56850_A0` `56850_A2`	`56850_A1`	Replace global SPL lock with dedicated mutex or spinlock wherever possible to reduce contention for the SPL lock.
SDK-62025 SDK-59407	832310	`56850_A0` `56850_A2`	`56850_A1`	In earlier releases, when multiple trunk member ports were in failed state, deleting trunk member threw error. This has been fixed in this release by just skipping hardware configurations and returning ok, when multiple trunk member ports are in failed state. Fix a bug that when multiple trunk member ports are in failed state, deleting trunk member will throw error.
SDK-62041	831895	`56640_A0` `56640_B0`	`56640_A1`	For any MPLS tunnel, in cases when failover is used, we usually create the failover port first, and pass its `port_id` as a parameter when creating the primary port. In previous releases, when we delete the failover port and add it again, the newly created failover port over writes the settings of the primary port. This is fixed as part of this JIRA.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62070 SDK-60189		`56340_A0 56850_A0`	In earlier releases, customers were unable to use warmboot as a tool for ISSU because SDK takes a while to warmboot and CPU packet tx and rx could not be started in a timely manner from application. This would cause protocol timers to expire and misbehave.
			In order to not starve the protocol timers and to allow applications to send and receive packets early in the initialization sequence and even during warm booting, new support has been added through `bcm_attach_early_txrx()` and `bcm_detach_late_txrx()` APIs.
			API `bcm_detach_late_txrx()` can be used to delay de-initializing the BCM TX and RX components until all the other BCM components are de-initialized. Then customers TX and RX threads have to be shut down after which `bcm_detach()` must be called as usual to de-initialize BCM TX and RX components and other control structures for a safe shutdown.
			API `bcm_attach_early_txrx()` can be used to attach the BCM unit and initialize the BCM TX and RX components. Customers, from their application code, can then start transmitting and receiving packets to/from CPU. Regular `bcm_attach()` API must still be invoked to allow complete and safe re-initialization so BCM APIs can be used for configuring the system.
			However, the CPU packet TX and RX procedures are limited by its nature during the warmboot process. In the absence of the required control data, link status and other integrity checks may be exempted during `bcm_tx()` when warm booting. Similarly processing of some packet metadata elements and converting the same to standard BCM types may not happen during packet RX.
SDK-62092	824440	All	In the earlier SDK, the `IESMIF_INTR` in `IP1_INTR_ENABLE` was enabled after SER had handled other errors which should be kept as disabled. When the status of `IESMIF_INTR` was set by accident, it made interrupt handler go to infinite loop by checking the status of `IESMIF_INTR,` and thus consumed CPU a lot. The issue has been fixed in this release.
SDK-62097	831042	`56340_A0 56450_A0 56640_A0`	Code to set `CLASS_ID` field in MPLS view was not present. Have added the same for supported platforms (`bcm56340_a0 56450_a0 56450_b0 56450_b1 56640_a0 56960_a0)`
SDK-62221	833933	`56450_B0`	Problem: `bcm_l3_egress_create` was failing when we passed queues that is created using subport Fix: Now the validation is changed , so that validation is done with the actual port instead of `pp_port`
SDK-62248	821582	All	Fixed incorrect error handling in `sal_mutex_take` for Linux user mode (unix) SAL when `USE_POSIX_MUTEX_TIMEDLOCK` is enabled,
SDK-62256	795913	`56640_A0 56640_A1 56640_B0`	Fixed the behavior on Triumph3 to allow deletion of FDBs even if VP is not present
SDK-62258	822988	`56850_A2`	In earlier releases, In function, "int `soc_ser_log_load(int` unit, void *location)", we inadvertently created a Mutex which needed to be destroyed but was not. This was uncovered by a customer static analysis tool. . This has been resolved.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62384	827518	`56820_A0 56820_B0`	In earlier releases, 100M Fiber mode was not getting disabled for 1G port when enabling autonegotiation. In this release we now disable 100M Fiber mode before enabling autonegotiation.
SDK-62386	834601	`56640_A0 56640_A1 56640_B0`	1) The missing scheduler hierarchy occurs for nodes whose parent index is greater than 512. Due to an error in the code, when the node's parent index is greater than 512, we save the parent index in scache as 512 which, upon recovery, is treated as invalid index. This has been fixed by increasing the number of bits for parent index from 11 to 12. Since we can't modify the existing 11 bit parent id (no free space left in the first word), the 12th bit is saved in the next word. 2) Another issue seen was for multicast queues, the `hw_index` starts with an offset of 1024. However, during sync the maximum `hw_index` is considered as 1024 (0x400). This has been fixed by decrementing the `hw_index` by 1024 during sync for multicast queues. Upon recovery, increase the same by 1024. 3) The reason priority mapping was not being restored is that invalid `hw_cosq` is checked using 0xf instead of 0x8. This has been corrected by checking for invalid `hw_cosq` using 0x8 during recovery.
SDK-62402		`56850_A0 56850_A1 56850_A2`	Coverity issues (memory leak) found by a customer using static analysis tools have been resolved.
SDK-62427		`88650_A0 88650_B0 88650_B1 88660_A0`	Apply HW recommendations for WC current. It is recommended for all customers using 6.3.x releases to integrate this fix.
SDK-62451		`56640_B0`	In Triumph3, `bcm_cosq_classifier_mapping_clear` was deleting the whole profile when called for a single port. After this fix the function clear only the port offsets .The complete profile will be deleted if its the last port in the profile
SDK-62454	835758	`56846_A0`	Added missing protection of critical section in implementation of BCM APIs for traffic shaping on BCM5684x and BCM5685x device families.
SDK-62463 SDK-59096	835815	`56450_A0 56450_B0`	In this release we have added SDK APIs to enable configuring Protection Status in Higig Header. "bcmSwitchRemoteProtectionEnable" can be used to Set `"SET_PROT_STATUS"` bit in `EGR_HG_HDR_PROT_STATUS_TX_CONTROL` register. While "bcmSwitchRemoteProtectionTrust" can be used to Set `"USE_PROT_STATUS"` bit is set in the `ING_CONFIG_64` register.
SDK-62501	834596	`56850_A0 56850_A1 56850_A2`	In previous releases, customer found that when a 40G port was changed to 4x10G, it would cause cosq BW shaping functionality is broken. The issue was caused by two reasons. 1 `SOC_INFO(unit)->port_speed_max` was not changed to 10G after changing flex port. 2 On TD2, port queue weights should be used to calculate the burst size. Now this issue has been fixed.
SDK-62512	835671	`56830_A0 56830_A1 56830_A2`	In earlier releases, `MY_MODID` value was not set correctly in port entry of `cpu_hg_index` for BCM56831 when module-id was changed. This has been fixed in this release.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62524	834472	56640_A0 56640_A1 56640_B0	In earlier released]s, MacDrain Timeout error was experienced in a flex port configuration. The `mac_drain` operation is was being done for ports in disabled state causing in stale packets in the MMU. For disabled ports the `mac_drain` operation is now skipped as it is not required.
SDK-62533	835794	56450_B1 56450_A0 56450_B0	Issue: Field InPorts Qualifier for max supported ports on KT2 device was failing to recover during level-1 Warmboot. Root Cause: During recovery, the group is constructed for all the ports in the device by retrieving from an internal macro which is updated by a port structure. However, during init time, the flex ports were not part of this macro due to which, the group pbmp and hardware configured pbmp value mismatches and returns an internal error. Fix: During recovery, the group is constructed for all the supported ports in the device by retrieving the flex ports explicitly.
SDK-62550		88650_A0 88650_B0 88660_A0	For IPv4 MC, key construction is not performed correctly when using external TCAM (KBP). The in-RIF field is 12 bits, but for the KBP extra 4 bits are needed. A new instruction added to the key in order to use extra 4 zero bits.
SDK-62591	824848	56636_B0	Schan timeout occurred while accessing un-initialized ESM through dump soc command. Corrected this behavior by skipping ESM registers if module is un-initialized in absence of external tcam config to avoid schan timeout error messages.
SDK-62612	837279	56340_A0	Per customer request have added a new phy control option in existing `bcm_port_phy_control_set()` API which can freeze DFE values in serdes warpcore. New phy control option `BCM_PORT_PHY_CONTROL_DFE` is added in this fix.
SDK-62625	835156	56640_B0 56643_A0	When ACL 144 without L2 table was not configured, the keyoffset used for ACL was incorrect. Correct it to use ACL ONLY config when l2 table is not present
SDK-62639		88650_A0 88650_B0 88660_A0	Diagnostics for IPv4 MC when working with external TCAM (KBP) returned wrong values for VRF != 0. This is fixed.
SDK-62641	831284	All	Fixed issue where PTP signaling deny messages from master could cause brief deadlock.
SDK-62646		All	Fixed case where uninitialized memory could be used for a message to uKernel in a PTP fault case.
SDK-62652	835835	88660_A0 88670_A0	In Ingress PMF, it is possible to configure a NOP action for bcmFieldActionPolicerLevel0 by setting param0=0. The same ability is added for bcmFieldActionPolicerLevel1.
SDK-62752	836938	All	During `bcm_ipmc_add`, the hit bit for that multicast entry was set by default in SDK. SDK was not servicing `BCM_L3_HIT_CLEAR` flag sent by user. Added code to not set hit bit if user sends `BCM_L3_HIT_CLEAR` flag.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62765	836249	`56450_B1` `56450_A0` `56450_B0`	In BCM5645x devices, `DROP_PKT_R` and `DROP_BYTE_R` counters were getting incremented even there was no actual drop. This was because, the software counter was reading the dequeue table incorrectly during the non dma flex counter sync operation. Fixed this issue by introducing a feature check to stop syncing flex counters when `counter_toggled_read` feature is not present.
SDK-62774	837984	`88650_B1` `88660_A0`	In FCoE, API function `bcm_fcoe_zone_delete()` was not supported. The API function is now implemented and supported.
SDK-62799	827592	`88650_A0` `88660_A0`	The soc property `"customer_feature_always_map_result_dp_2_to_1"` is used to map meter resolved DP to ingress DP and egress DP. It doesn't support mapping meter resolved DP to ingress DP only or egress DP only. Soc property `"customer_feature_always_map_ingress_result_dp_2_to_1"` has been added to map meter resolved DP to ingress DP only. Soc property `"customer_feature_always_map_egress_result_dp_2_to_1"` has been added to map meter resolved DP to egress DP only.
SDK-62816	819494	`88650_B1` `88660_A0`	To configure default port rate for interface an use `"port_init_speed_<port>=<rate>"` soc property. To configure CPU port to 40G rate by default use: `port_init_speed_cpu.BCM88650=40000`
SDK-62818	772905	`88650_A0` `88650_B0` `88650_B1` `88650ACP_A0` `88660_A0`	Setting E2E port bandwidth when EGQ bandwidth is 0 won't apply - Fixed.
SDK-62845		`56850_A0`	In earlier releases, MTP port in `IM_MTP_INDEX` table could not be deleted after warm reboot for filter based mirroring. This has been fixed in this release.
SDK-62854		`56850_A2`	In earlier release, if there were configuration errors existed in non-RH mode, SDK could never predict or get the correct ECMP hash result in RH mode. This has been resolved.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62864		`88650_A0 88660_A0`	In Ingress PMF, each program may build up to 7 keys out of the potential 8 keys, where one key (first key in first PMF cycle) is unused due to a unique search method that is not supported by the driver. The support in now added, with the limitation of using a single TCAM bank for that key. In order to allow the use of that key, user must indicate using a single bank database once configuring a new field group, by setting the flag `BCM_FIELD_GROUP_CREATE_SINGLE` when creating field group.

For example:

```
uint32 fg_flags =
BCM_FIELD_GROUP_CREATE_WITH_MODE |
BCM_FIELD_GROUP_CREATE_WITH_ASET |
BCM_FIELD_GROUP_CREATE_SINGLE ;
bcm_field_entry_t ent; bcm_mac_t
```
damac1; /* mask the DA qualifier*/ `uint32` i;

`BCM_FIELD_QSET_INIT(qset);`

`BCM_FIELD_QSET_ADD(qset,`
bcmFieldQualifyStageIngress);
`BCM_FIELD_QSET_ADD(qset,`
bcmFieldQualifyDstMac);
`BCM_FIELD_ASET_INIT(aset);`
`BCM_FIELD_ASET_ADD(aset,`
bcmFieldActionClassDestSet);
`BCM_FIELD_ASET_ADD(aset,`
bcmFieldActionClassSourceSet);

```
bcm_field_group_config_t_init(&udh
_group); udh_group.group=10;
udh_group.priority=2;
udh_group.mode=bcmFieldGroupModeAu
to;
```

```
udh_group.flags= fg_flags;
udh_group.aset=aset;
udh_group.qset=qset;
```
res =
```
bcm_field_group_config_create(unit
,&udh_group);
```
if (res != `BCM_E_NONE`) { printf("Error Field,
```
bcm_field_group_config_create
```
") ; return res; }

SDK-62925	836745	`56634_A0 56634_B0` `56636_A0 56638_A0` `56639_A0`	On 56634 devices with L2 tables on external memory, using cli command "l2 clear vlan" which internally calls the API `bcm_l2_addr_delete_by_vlan()` to delete MPLS VPN entries only, was not working. The entries were not being deleted. Though using the same command to clear vlan + mac based entries was working.

The SDK uses software based deletion(clearing) of entries, which was not supported for the MPLS VPN entries.

This has been addressed by using hardware based clearing of MPLS VPN based entries instead of using software based clearing..

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-62946	839616	56846_A0	In previous releases, the possible value `_SOC_ACC_TYPE_PIPE_GROUP` of the 3rd parameter for the routine `soc_trident_populate_tcam_log()` was not considered and checked. This will cause SER actions for parity error in `FP_TCAM` table in TD+ X-pipe will not have log recording. In this release, the value `_SOC_ACC_TYPE_PIPE_GROUP` has been checked in the routine, and SER logging will work for `FP_TCAM` table in TD+ X-pipe.
SDK-62961		56440_A0 56450_B0 56740_A0	In the earlier release support for configuring the `EH_EXT_HDR_ENABLEf` in `EGR_PORT` was absent for KATANA2 and hence adding support for its configuration.
SDK-62979	803157	56640_A0 56640_A1 56640_B0	The following switch controls are not supported on BCM56640. updated the API Support Matrix with the same information. bcmSwitchTrunkHashSet1UnicastOffset bcmSwitchTrunkHashSet1NonUnicastOffset bcmSwitchFabricTrunkHashSet1UnicastOffset bcmSwitchFabricTrunkHashSet1NonUnicastOffset bcmSwitchLoadBalanceHashSet1UnicastOffset bcmSwitchLoadBalanceHashSet1NonUnicastOffset bcmSwitchECMPHashSet1Offset
SDK-62995 SDK-58494		All	Moved iProc and PCI initialization code from O/S-specific BDE modules into new shared BDE library in $SDK/systems/bde/shared. The new library is designed for easy incorporation into BDE-equivalent customer code. For more information, please see $SDK/doc/bde-library.txt.
SDK-63001		56850_A0	Added documentation for Enumerations for `"bcm_udf_layer_t` layer" used to choose UDF base offset
SDK-63012		56060	Fixed non intention break of diag command 'l3 ip6route show' that was caused by unsupported feature of certain chips.
SDK-63025	840239	56450_B1 56440_A0 56440_A1 56440_B0 56450_A0 56450_B0 56640_A0 56640_A1 56750_A0 56750_A1 56750_A2 56850_A0 56850_A1 56850_A2	Problem Statement: Warmboot does not recover a TRUNK member configured with `BCM_TRUNK_MEMBER_EGRESS_DISABLE.` Resolution: The rtag is set to 0 if `BCM_TRUNK_MEMBER_EGRESS_DISABLE` is set. Warmboot reinitialization was returning without reading the trunk members if rtag is zero. The trunk is now recovered if the it has atleast one member port in it and even if rtag is zero.

Table 20:

Number	CSP #	Chips		Release Notes For 6.3.10
SDK-63060		88650_A0	88660_A0	Exact match tables (similarly to other memories) may get corrupted due to the release of alpha particles. Entries in exact match tables are protected by a parity check.
				Soft error recovery (SER) was not supported for exact match tables. SER is now supported for entry corruption in all of the exact match tables. A new SOC property is supported: `exact_match_tables_shadow_enable` (set to '0' by default). When set, a shadow for all exact match tables is maintained in the SW. This property must be set in order to support the exact match SER functionality. Note that in some cases, when the corruption is in a MAC table entry, and may not be sourced to an entry which is kept in the SW shadow (i.e., a dynamic entry), the recovery time may be very long (dozens of seconds). In such case, we must align the shadow and HW static entries by comparing the shadow and HW databases and perform the following: 1. Add entries which reside in the shadow but missing from the HW database 2. Remove entries which reside in the HW database but are missing from the shadow
				Assumptions: - Only up to a single entry is corrupted at a given time - Corruption includes a single bit flip
SDK-63087 SDK-53093	838160	56240_B0 56242_B0	56242_A0	During warmboot Stat type was getting recovered incorrectly which caused entry deletion to fail . Corrected the same.
SDK-63102	841356	56440_B0		To address the issue of RDI being reset for CPU generated OAM TX packets, OAM group zero is now reserved in B0 device
SDK-63109	836449	56514_A0		When ClassTag is enabled, tag determination was not proper as HiGiG header was used. In case of ClassTag format, HiGiG header will not carry the tag info, so required info is obtained from DCB instead of HiGig Header.
SDK-63130	841579	56850_A2		In earlier releases, `bcm_l3_host_delete_all` read entries from hw and was slow for large l3 table size. This has been improved by reading from DMA.
SDK-63231	832200	56634_A0 56636_A0 56638_A0 56639_A0	56634_B0 56636_B0 56638_B0	The issue was that the customer could not use `BCM_L3_COPY_TO_CPU` flag in `bcm_l3_egress_create` API along with CPU interface index for L3 interface, as there was a check for a valid VLAN programmed in the L3 interface. The fix is to skip the VLAN check for the special case of CPU interface index (maximum index of `EGR_L3_INTF` table).
SDK-63233		56640_A0 56640_B0 56643_A1	56640_A1 56643_A0 56643_B0	Fixed logic for OAM endpoints warmboot recovery on TR3, for endpoints configured on Trunk ports
SDK-63250		56850_A0 56850_A2 56854_A2	56850_A1 56854_A0 56854_B0	In earlier releases, after creating and deleting udf ids over 65535 times, allocated udf ids wrapped back and increased from 0. Validation check did not take effect in this case.
				This has been fixed in this release by fixing the id allocation function.
SDK-63264	842499	56450_A0	56450_B0	In non pre-emptive kernels, thread trying to acquire spinlock would hog the CPU there by not allowing holding thread to release lock. Fix ensures that attempting thread yields (by using "select" call with non-zero timeout parameters each time) if it fails to acquire spinlock.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-63265		`56850_A0` `56850_A1` `56850_A2`	Two possible ICMPTypeCode combinations were missed in TD2 qualifier database, which caused group create to fail. Added the missing combinations.
SDK-63272		`88650_A0`	Added support for MAC prbs when the physical coding sublayer (PCS) is configured to `64_66` without FEC.
SDK-63301	842644	`56850_A0` `56850_A1` `56850_A2`	In earlier releases, `MMU_WRED_CONFIG_X_PIPE` index of port based WRED was not right when WRED configured for all COS queues (cosq==-1) with flag `BCM_COSQ_DISCARD_PORT.` This has been fixed in this release.
SDK-63325		All	Fixed the issue of `_bcm_ptp_update_peer_dataset` returning without updating the existing peer statistics information when the number of peers exceed the limit.
SDK-63344	843227	`56450_B1` `56450_A0` `56450_B0`	In BCM5645x devices, Configuring lanes with external PHY was failing when external phy driver supported a speed lower the maximum supported internal port speed.\n\nThis was caused because maximum speed supported by a port was always set to internal speed supported by the port.\n\nFixed issue by setting max speed of port as the lowest of internal and external phy driver speeds.
SDK-63348	843289	`84848_A0`	Added support for configuring fixed and variable latency for autogrEEEn for BCM84848 and BCM84334 drivers.
SDK-63350	837895	`56547_A0`	The ealier SDK code didn't handle SER error event of `DLB_LAG_FLOWSET_TIMESTAMP_PAGE.` This caused the SER error event of this memory being reported continuously.\n\nThe code of clearing the corrupted entry of `DLB_LAG_FLOWSET_TIMESTAMP_PAGE` has been added in the SER correction procedure to resolve this issue.
SDK-63361		56060	Fixed total entry number of `L3_DEFIP` table displayed by diag command 'L3'.
SDK-63435		`56850_A0` `56850_A1` `56850_A2`	In earlier releases, `BCM_VLAN_MPLS_DISABLE` flag could not take effect on TD2 devices by calling `bcm_vlan_control_vlan_set.` This has been fixed in this release.
SDK-63454	842103	All	Raw printf statements are replaced with wrappers for PTP
SDK-63484	843304	`56850_A0` `56850_A1` `56850_A2`	In earlier releases, `_bcm_xgs3_vlan_table_reload()` should restore the value of `prot_pkt_ctrl` ref counts after warmboot, but this function did not work. This has been resolved.
SDK-63522	823790	`56850_A0` `56850_A1` `56850_A2`	In earlier releases, ARL flag was cleared when doing multiple port operations simultaneously on Trident2. This has been resolved.
SDK-63523		`88660_A0`	bcmVlanPortDoubleLookupEnable is used for PON port to search "Tunnel ID x Outer VLAN x Inner VLAN" first and "Tunnel ID x Outer VLAN second". An error occurs when trying to set bcmVlanPortDoubleLookupEnable on channelized PON ports. The issue detailed above affected lookup configuration of PON channelized port. ARAD supports bcmVlanPortDoubleLookupEnable for each channelized PON port after the fix.
SDK-63530		`88650_A0` `88650_B0` `88650_B1` `88660_A0` `88670_A0`	Resolved a wrong consistency check issue related to setting VOQs in groups of 4 priorities (rather than the more common size of 8 priorities)

Table 20:

Number	CSP #	Chips		Release Notes For 6.3.10
SDK-63547		`56450_B0`		In BCM5645x devices, With the enhancement of Multiple split horizon groups, group id can be programmed for mim ports. However, this was missing for Access ports. Fixed this issue by enabling access ports to be programmed with network group id like peer and backbone ports.
SDK-63564		`88650_A0` `88660_A0`	`88650_B0`	Improvements for XLPORT Overrun/Underrun Workaround.
SDK-63596		`56450_B1` `56450_B0`	`56450_A0`	In BCM5645x devices, `bcm_port_subsidiary_ports_get` function was not returning correct flex ports. This was because KT2 support was not provided for that function. Fixed this issue by provided support for the function `bcm_port_subsidiary_ports_get` and returning TRUE for controlling ports and FALSE for auxiliary/flex ports.
SDK-63603	845921	`56640_A0` `56640_B0`	`56640_A1`	With previous releases, there might be a false link up notification when hardware linkscan is enabled on a port, even when link is down.This is now fixed by check the status of both cmic registers and phy registers before enabling hardware linkscan.
SDK-63608		`56640_A0` `56640_B0`	`56640_A1`	Problem: VFP stats for colors where not retrievable since the flex counter offset mode was getting wrongly programmed. Solution: Updated the correct flex counter mode to be passed while setting flex stat info and retrieve the correct mode after warmboot as well.
SDK-63618		`56845_A2`	`56850_A2`	Issue :- L3 Reference Count is not updated when Egress Objects are added through FP. Fix :- Updated FP code to update L3 Reference Count for actions "L3Switch" and "RedirectEgressNextHop"
SDK-63686	845847	`56450_B1` `56450_B0`	`56450_A0`	Problem Statement: `bcm_cosq_port_sched_set()` failing with `BCM_E_TIMEOUT` in high traffic situation Resolution: Added a work around so that the node get enough bandwidth so that queue flush doesn't gets timed out
SDK-63716	845844	`56450_B1` `56450_B0`	`56450_A0`	When build flag `BCM_PORT_DEFAULT_DISABLE` was used for 5645x family of devices, the ports resulting from flex-IO operation did not initialize in disabled state. With this fix for 5645x family of devices the flexed ports will be initialized in disabled state when build flag `BCM_PORT_DEFAULT_DISABLE` is used.
SDK-63727	846581	`56640_A0` `56640_B0`	`56640_A1`	Issue: Calling `bcm_cosq_gport_bandwidth_set()` with argument cosq value greater than 31 returns an error. Fix: The numq value is changed to 64 to support maximum cosq limit of 64 in `bcm_cosq_gport_bandwidth_set()`.
SDK-63729		All		DMA swapping settings for communication with embedded applications (uKernel) are now auto-detected rather than set based on compile-time SDK options.
SDK-63756		`56640_A0`	`56640_B0`	bcmSwitchModuleType switch control information was lost after warmboot which led to mis-programming of `NONUCAST_TRUNK_BLOCK_MASK` in trunking. Initialized switch control to XGS3 by default to correct non unicast trunk member programming across modules to address this issue.

Table 20:

Number	CSP #	Chips	Release Notes For 6.3.10
SDK-63774	845586	`56340_A0 56340M_A0 56547_A0 56548_A0 56640_A0 56640_A1 56640_B0`	Implemented MTU programming on TR3/HX4 through `bcm_multicast_control_set/ bcm_multicast_control_get` API.
SDK-63792		`56850_A1 56850_A2`	In earlier releases, `INITIAL_PROT_NHI_TABLE` entry could not be cleaned up after primary egress object replace. This issue has been fixed in this release.
SDK-63848	847213	`56450_B1 56450_A0 56450_B0`	A crash was seen in `bcm_cosq_mapping_set` during warmboot, because the SDK was releasing a lock which was never acquired. The code has been corrected to first get the lock and only then free it.
SDK-63961	844686	`56150_A0 56340_A0 56340M_A0`	Fixed inconsistent enabled status of Message-signaled interrupts among SDK drivers.
SDK-64009		`88650_A0 88650_B0 88650_B1 88660_A0`	Fixed static analysis items. (minor).
SDK-64137		`88650_A0 88660_A0`	In Field TCAM, the protection mechanism for parity errors is not enabled for Egress PMF. This is fixed.
SDK-64156		`56450_A0`	PG limits being set for PG7 for PG7 supported ports and avoiding setting of PG Min 1 for unused PGs for PG7 supported ports
SDK-64328	851983	`5600_A0 56450_B0`	For the memory profile `egr_mpls_combo_map`, table count is 3. The memory tables are as follows, 1. `EGR_MPLS_PRI_MAPPING` 2. `EGR_MPLS_EXP_MAPPING_1` 3. `EGR_MPLS_EXP_MAPPING_2` We are passing the `entry_array` with its size as 2 to hold the entries for the above tables in function `soc_profile_mem_get.` Segmentation fault occurs when we access the third index in `entry_array` since table count is 3. When we increase the size of array to 3 in `_bcm_common_sw_dump,` "dump sw common" works fine.

Section 8: Unresolved Issues for 6.3.10

The following issues are unresolved in version 6.3.10 of the SDK.

Table 21:

Number	CSP #	Chips	Release Notes
SDK-30856		`56840_A0 56845_B0`	When mirror-to port resides on a different unit, the mirrored packet may not egress correctly.
SDK-33686	389108	`56634_A0`	If a MiM virtual port has statistics enabled for it and if such MiM port is replaced using BCM API `bcm_mim_port_add( )` along with flag `BCM_MIM_PORT_REPLACE` then the statistics of that MiM port might be lost.
SDK-35755	411572	`56820_A0 56820_B0`	Compared to older releases, L2 Notification thread (bcmL2X) requires more CPU bandwidth to run in polling mode (`l2xmsg_mode=0`), due to the requirement for more thorough entry comparisons.
			The recommendation, however, is to run L2 notification thread using `L2MOD_FIFO` DMA mechanism, which is much more efficient and provides more functionality. To do that, please, set the configuration variable (property) `l2xmsg_mode` to 1.
SDK-37821		`56846_A0 56845_B0` `56845_A2 56844_A0` `56842_A0 56840_A0` `56440_A0 56843_B0` `56841_A3 56846_A1` `56841_B0`	`bcm_cosq_config_set()` had traditionally been used to set the system wide number of COSQs. This does not apply to devices with hierarchical schedulers. For these devices, the hierarchy constructed at device initialization time is dependent upon the number of COSQs defined in the system configuration at the time of initialization. Changing the queue count after the hierarchy has been constructed has no effect.
SDK-44416		`88640_A0`	1. API is reading the wrong register from the device. 2. API is missing the parameter of ResetLoad, so this value cannot be configured.
SDK-45075		All	When an interrupt occurs on different blocks of the same type (e.g. multiple FMAC blocks), the count will be accumulated in the same counter. For example RX-LOS interrupt may occur on different FMAC blocks, and counted as same recurring event, although it is in fact a different interrupt. This may affect corrective action in case it is different for a recurring event, in the case if recurring-threshold for this event is crossed.
SDK-45366	611273	`56440_A0`	When the API `bcm_cosq_port_bandwidth_set(...)` is called on a particular port and COSq to enable egress rate limiting, sometimes the CLI command "show c" will show the incorrect dropping statistics on a irrelevant port.
SDK-46556	621213	`88650_A0 88650_B0` `88650_B1`	`bcm_l2_cache_delete()` API does not delete `general_trap` entry configuration in HW
SDK-47366	642398	All	The implementation of SER (Soft Error Recovery mechanism) requires the SDK to perform periodical scanning of certain memories. The infrastructure for this scanning is provided by the optional `MEM_SCAN` feature (component) of the SDK.
			Since SER is a mandatory component, that can't be compiled out, `MEM_SCAN` becomes a mandatory component too as long as you are using a device, supported by SER.
SDK-47739	628786	`56540_A0 56540_B0`	For devices in the BCM56540 family, the CPU queues are allocated differently depending on the revision of the device (Ax vs. Bx). This force the developer to include revision specific code in the application.

Table 21:

Number	CSP #	Chips	Release Notes
SDK-48091	662661	`56850_A0 56850_A1 56850_A2`	For BCM56850 devices, when only a single GigE port is allocated to a TSC lane (the other 3 TSC lanes are not used), that port may be configured incorrectly resulting in port that appears functional but is not.
SDK-51978		`88650_A0`	In a device with channalized CPU ports, where some of the CPU ports are Higig and some not, the WB wont preserve the Higig indication correctly.
SDK-52383		`88650_A0 88650_B0`	Cud extension for Arad is not supported
SDK-54219	744517	`88650_B1`	In ARAD B1, VxLAN/L2GRE packet size of 236B-299B will be dropped by EPNI if the packet needs to be terminated. Workaround is introduced in FP CINT: `cint_field_ingress_large_termination.c`
SDK-54488		`88650_A0`	In Field Processor, when creating a cascaded field group, a failure might occur in key allocation in case the key ID is already determined. To be investigated.
SDK-54623		`88660_A0`	In Field Processor, when creating a field group, false error messages are printed when operation succeeds (return value indicates success). To be fixed.
SDK-64289		`56850_A0 56850_A1 56850_A2`	The BCM56850 supports UDF in the VFP but requests for UDF rules may result in a "feature unavailable" error condition.

Section 9: Test Statistics

HOW TO READ THE DATA

The below tables represent a spread of data gathered per-device, per-suite, per-release. The percentages represent the aggregate rate of failure for that suite when run against all variants of the family of devices.

OVERVIEW

Each suite listed below is indicative of a specific module. Golden refers to a suite of tests that takes representation across multiple modules and serves as a sanity regression. Each suite contains tests of various types, loosely categorized as follows:

Table 22:

Test Categories	Description
Configuration Tests	Tests that verify that each API functions appropriately and can configure the device as expected.
Functionality Tests	Tests that further validate each of the API through functional use often requiring traffic to be run through the system.
Semantic Tests	Tests that ensure that the proper error handling mechanisms are working and users cannot crash the device through the API.

NOTE

The below data is not meant to be a precise indication of quality but instead serves as a guideline for improvements release-over-release. Additionally, although some cells show 0% failures, this does not necessarily mean the feature is supported in the device - tests are run to validate the appropriate SDK support even for unsupported features on older devices to ensure graceful handling of all API.

Finally, some devices have fewer columns listed if they were introduced recently.

Note on the suite titled "DVAPI": As of 6.3.6, the test suite labeled "DVAPI" has been split up into many sub-modules. This was done as a means to provide much clearer visibility both internally and externally for the quality of each device going forward. Because this change is not retroactive for past release data, data for previous releases will still contain the "DVAPI" suite. Level of quality can still be discerned via the other modules as well as the aggregate level (and it should be noted that even more tests have been added in 6.3.6, so there was no reduction in coverage). Future releases will continue to use the higher-granularity format.

TOTAL TESTS

The below data represents the number of unique cases for each release.

Note that although a particular test case will execute for each and every chip, it's only counted once.

Table 23:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
golden	154	154	154
warmboot	324	290	254
auth	17	17	N/A
bfd	37	37	16
bhh	15	43	15
chip	9	9	N/A
cint	55	55	52
coe	510	510	N/A
cosq	312	300	289
custom	7	7	N/A
dvapi*	N/A	N/A	985
ea	108	108	108
eav	19	19	N/A
extender	12	12	N/A
fabric	7	7	N/A
failover	8	8	N/A
fcoe	37	37	N/A
field	769	732	704
higigproxy	129	129	N/A
infra	114	114	114
ipfix	17	17	N/A
ipmc	56	59	N/A
l2	247	238	222
l2gre	13	13	N/A
l3	266	255	211
l3.alpm.combined	63	67	N/A
l3.alpm.combined.64	51	67	N/A
l3.alpm.parallel	63	63	N/A
l3.alpm.parallel.64	51	51	N/A
link	26	26	N/A
mim	19	19	N/A
mirror	150	146	N/A
misc	16	16	N/A
mpls	128	127	80
multicast	17	17	N/A
niv	23	13	N/A
oam	187	187	N/A
pkt	44	44	N/A
port	262	262	N/A
proxy	23	23	N/A
ptp	115	115	1
qos	12	12	N/A

Table 23:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
rate	21	21	N/A
rtag7	32	32	6
rx	21	21	N/A
ser	52	52	N/A
stack	49	49	49
stat	202	202	65
stg	42	42	N/A
switch	199	199	N/A
time	16	16	N/A
tlvMsg	13	13	13
trill	40	40	36
trunk	173	173	139
tunnel	65	65	65
subport	30	30	12
vlan	201	201	186
vxlan	78	78	41
wlan	17	17	N/A
Test Suite Total	5743	5676	3817

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

TEST RESULTS

Below tables show percentages of failures for corresponding test suites per SDK release.

ALL DEVICES

Note: This section represents aggregate results for all devices in the release.

Table 24:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
golden	0.8 %	0.7 %	5.1 %
warmboot	1.3 %	1.6 %	8.2 %
bcm.auth	0.3 %	0.0 %	N/A
bcm.bfd	0.0 %	0.0 %	0.0 %
bcm.bhh	1.2 %	0.0 %	5.5 %
bcm.chip	0.7 %	0.7 %	N/A
bcm.cint	0.0 %	0.0 %	13.0 %
bcm.coe	0.1 %	0.1 %	N/A
bcm.cosq	0.6 %	1.0 %	3.2 %
bcm.custom	0.0 %	0.0 %	N/A
bcm.ea	0.0 %	0.0 %	0.2 %
bcm.eav	0.0 %	0.0 %	N/A
bcm.extender	0.0 %	0.0 %	N/A
bcm.fabric	0.0 %	0.0 %	N/A
bcm.failover	0.0 %	0.0 %	N/A
bcm.fcoe	0.0 %	0.1 %	N/A
bcm.field	0.8 %	0.9 %	2.2 %
bcm.higigproxy	0.4 %	0.5 %	N/A
bcm.infra	0.0 %	0.2 %	0.0 %
bcm.ipfix	0.6 %	0.8 %	N/A
bcm.ipmc	0.3 %	0.4 %	N/A
bcm.l2	1.2 %	1.2 %	1.8 %
bcm.l2gre	0.0 %	0.0 %	N/A
bcm.l3	1.1 %	0.8 %	3.1 %
bcm.l3.alpm.combined	0.0 %	0.0 %	10.4 %
bcm.l3.alpm.combined.64	0.0 %	0.0 %	N/A
bcm.l3.alpm.parallel	0.0 %	0.0 %	10.2 %
bcm.l3.alpm.parallel.64	0.0 %	0.0 %	N/A
bcm.link	0.0 %	0.0 %	N/A
bcm.mim	0.0 %	0.0 %	N/A
bcm.mirror	2.7 %	3.0 %	N/A
bcm.misc	0.6 %	0.8 %	N/A
bcm.mpls	0.8 %	0.4 %	1.3 %
bcm.multicast	0.3 %	0.3 %	N/A
bcm.niv	0.1 %	0.0 %	N/A
bcm.oam	0.4 %	0.0 %	N/A
bcm.pkt	0.0 %	0.0 %	N/A
bcm.port	1.4 %	1.2 %	N/A
bcm.proxy	0.2 %	0.0 %	N/A
bcm.ptp	0.0 %	0.0 %	0.0 %

Table 24:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
bcm.qos	0.0 %	0.0 %	N/A
bcm.rate	0.0 %	0.0 %	N/A
bcm.rtag7	0.0 %	0.0 %	0.2 %
bcm.rx	0.1 %	0.1 %	N/A
bcm.ser	0.2 %	0.2 %	N/A
bcm.stack	0.1 %	0.1 %	1.0 %
bcm.stat	0.7 %	0.6 %	4.5 %
bcm.stg	0.3 %	0.6 %	N/A
bcm.switch	0.4 %	0.6 %	N/A
bcm.time	0.0 %	0.0 %	N/A
bcm.tlvMsg	0.0 %	0.0 %	0.0 %
bcm.trill	0.1 %	0.5 %	10.5 %
bcm.trunk	0.6 %	1.1 %	1.4 %
bcm.tunnel	0.0 %	0.0 %	0.2 %
bcm.subport	0.6 %	1.3 %	36.5 %
bcm.vlan	0.6 %	0.9 %	1.4 %
bcm.vxlan	0.0 %	0.0 %	2.2 %
bcm.wlan	0.9 %	1.0 %	N/A
Test Suite Total	0.7 %	0.7 %	2.8 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

TRIDENT2

Table 25:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
golden	0.1 %	0.0 %	6.5 %
warmboot	0.9 %	1.0 %	11.3 %
bcm.auth	0.0 %	0.0 %	N/A
bcm.bfd	0.0 %	0.0 %	0.0 %
bcm.chip	0.0 %	0.0 %	N/A
bcm.cint	0.0 %	0.0 %	13.5 %
bcm.coe	0.0 %	0.0 %	N/A
bcm.cosq	0.3 %	0.3 %	3.1 %
bcm.custom	0.0 %	0.0 %	N/A
bcm.ea	0.0 %	0.0 %	0.0 %
bcm.eav	0.0 %	0.0 %	N/A
bcm.extender	0.0 %	0.0 %	N/A
bcm.fabric	0.0 %	0.0 %	N/A
bcm.failover	0.0 %	0.0 %	N/A
bcm.fcoe	0.7 %	2.7 %	N/A
bcm.field	0.7 %	0.7 %	1.1 %
bcm.higigproxy	0.8 %	0.8 %	N/A
bcm.infra	0.0 %	0.0 %	0.0 %
bcm.ipfix	0.0 %	0.0 %	N/A
bcm.ipmc	0.0 %	0.0 %	N/A

Table 25:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
bcm.l2	0.1 %	0.0 %	0.0 %
bcm.l2gre	0.0 %	0.0 %	N/A
bcm.l3	0.9 %	2.4 %	0.5 %
bcm.l3.alpm.combined	0.0 %	0.0 %	N/A
bcm.l3.alpm.combined.64	0.0 %	N/A	N/A
bcm.l3.alpm.parallel	0.0 %	0.0 %	N/A
bcm.l3.alpm.parallel.64	0.0 %	0.0 %	N/A
bcm.link	0.0 %	0.0 %	N/A
bcm.mim	0.0 %	0.0 %	N/A
bcm.mirror	0.0 %	0.0 %	N/A
bcm.misc	0.0 %	1.8 %	N/A
bcm.mpls	0.8 %	0.0 %	1.3 %
bcm.multicast	0.0 %	0.0 %	N/A
bcm.niv	0.0 %	0.0 %	N/A
bcm.oam	0.0 %	0.0 %	N/A
bcm.pkt	0.0 %	0.0 %	N/A
bcm.port	0.6 %	0.8 %	N/A
bcm.proxy	0.0 %	0.0 %	N/A
bcm.ptp	0.0 %	0.0 %	0.0 %
bcm.qos	0.0 %	0.0 %	N/A
bcm.rate	0.0 %	0.0 %	N/A
bcm.rtag7	0.0 %	0.0 %	0.0 %
bcm.rx	0.0 %	0.0 %	N/A
bcm.ser	1.2 %	1.9 %	N/A
bcm.stack	0.0 %	0.0 %	0.0 %
bcm.stat	0.5 %	0.0 %	3.1 %
bcm.stg	0.0 %	0.0 %	N/A
bcm.switch	0.4 %	1.0 %	N/A
bcm.time	0.0 %	0.0 %	N/A
bcm.tlvMsg	0.0 %	0.0 %	0.0 %
bcm.trill	0.0 %	0.0 %	25.0 %
bcm.trunk	0.6 %	0.6 %	1.4 %
bcm.tunnel	0.0 %	0.0 %	0.0 %
bcm.subport	0.0 %	0.0 %	50.0 %
bcm.vlan	0.0 %	0.0 %	1.1 %
bcm.vxlan	0.0 %	0.0 %	24.4 %
bcm.wlan	0.0 %	0.0 %	N/A
Test Suite Total	0.4 %	0.4 %	2.5 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

TRIUMPH3

Table 26:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
golden	0.5 %	0.4 %	8.9 %

Table 26:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
warmboot	1.5 %	1.4 %	8.4 %
bcm.auth	0.0 %	0.0 %	N/A
bcm.bfd	0.0 %	0.0 %	0.0 %
bcm.bhh	0.6 %	0.0 %	0.0 %
bcm.chip	0.0 %	0.0 %	N/A
bcm.cint	0.0 %	0.0 %	13.5 %
bcm.coe	0.0 %	0.0 %	N/A
bcm.cosq	0.5 %	0.3 %	3.3 %
bcm.custom	0.0 %	0.0 %	N/A
bcm.ea	0.0 %	0.0 %	0.0 %
bcm.eav	0.0 %	0.0 %	N/A
bcm.extender	0.0 %	0.0 %	N/A
bcm.fabric	0.0 %	0.0 %	N/A
bcm.failover	0.0 %	0.0 %	N/A
bcm.fcoe	0.0 %	0.0 %	N/A
bcm.field	1.1 %	1.5 %	4.6 %
bcm.higigproxy	0.8 %	0.7 %	N/A
bcm.infra	0.0 %	0.0 %	0.0 %
bcm.ipfix	0.0 %	0.0 %	N/A
bcm.ipmc	0.0 %	0.0 %	N/A
bcm.l2	1.4 %	0.8 %	2.3 %
bcm.l2gre	0.0 %	0.0 %	N/A
bcm.l3	1.2 %	0.7 %	4.8 %
bcm.link	0.0 %	0.0 %	N/A
bcm.mim	0.0 %	0.0 %	N/A
bcm.mirror	0.0 %	0.0 %	N/A
bcm.misc	2.5 %	6.3 %	N/A
bcm.mpls	0.7 %	0.0 %	0.3 %
bcm.multicast	0.0 %	0.0 %	N/A
bcm.niv	0.0 %	0.0 %	N/A
bcm.oam	0.0 %	0.0 %	N/A
bcm.pkt	0.0 %	0.0 %	N/A
bcm.port	2.5 %	3.8 %	N/A
bcm.proxy	0.5 %	0.0 %	N/A
bcm.ptp	0.0 %	0.0 %	0.0 %
bcm.qos	0.0 %	0.0 %	N/A
bcm.rate	0.0 %	0.0 %	N/A
bcm.rtag7	0.0 %	0.0 %	0.0 %
bcm.rx	0.0 %	1.1 %	N/A
bcm.ser	0.0 %	0.0 %	N/A
bcm.stack	0.5 %	2.5 %	4.8 %
bcm.stat	1.1 %	0.5 %	17.6 %
bcm.stg	0.0 %	0.0 %	N/A
bcm.switch	0.3 %	0.8 %	N/A
bcm.time	0.0 %	0.0 %	N/A
bcm.tlvMsg	0.0 %	0.0 %	0.0 %
bcm.trill	0.0 %	6.3 %	27.8 %
bcm.trunk	0.6 %	0.6 %	1.9 %
bcm.tunnel	0.0 %	0.0 %	0.8 %
bcm.subport	0.0 %	0.0 %	42.4 %
bcm.vlan	0.0 %	0.2 %	2.6 %

Table 26:

	sdk-6.3.10	sdk-6.3.9	sdk-6.2.9
bcm.vxlan	0.0 %	0.0 %	0.0 %
bcm.wlan	0.0 %	0.0 %	N/A
Test Suite Total	0.6 %	0.6 %	4.1 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

HURRICANE2

Table 27:

	sdk-6.3.10	sdk-6.3.9
golden	0.0 %	0.0 %
warmboot	0.3 %	1.7 %
bcm.auth	0.0 %	0.0 %
bcm.chip	0.0 %	0.0 %
bcm.cint	0.0 %	0.0 %
bcm.coe	0.0 %	0.0 %
bcm.cosq	0.3 %	0.3 %
bcm.custom	0.0 %	0.0 %
bcm.ea	0.0 %	0.0 %
bcm.eav	0.0 %	0.0 %
bcm.extender	0.0 %	0.0 %
bcm.fabric	0.0 %	0.0 %
bcm.failover	0.0 %	0.0 %
bcm.fcoe	0.0 %	0.0 %
bcm.field	0.4 %	0.4 %
bcm.higigproxy	0.0 %	0.0 %
bcm.infra	0.0 %	0.0 %
bcm.ipfix	0.0 %	0.0 %
bcm.ipmc	0.0 %	0.0 %
bcm.l2	0.2 %	0.2 %
bcm.l2gre	0.0 %	0.0 %
bcm.l3	0.4 %	0.4 %
bcm.link	0.0 %	0.0 %
bcm.mim	0.0 %	0.0 %
bcm.mirror	0.0 %	0.0 %
bcm.misc	0.0 %	0.0 %
bcm.mpls	0.0 %	0.0 %
bcm.multicast	0.0 %	0.0 %
bcm.niv	0.0 %	0.0 %
bcm.pkt	0.0 %	0.0 %
bcm.port	1.5 %	1.2 %
bcm.proxy	0.0 %	0.0 %
bcm.ptp	0.0 %	0.0 %
bcm.qos	0.0 %	0.0 %
bcm.rate	0.0 %	0.0 %
bcm.rtag7	0.0 %	0.0 %

Table 27:

	sdk-6.3.10	sdk-6.3.9
bcm.rx	0.0 %	0.0 %
bcm.ser	0.0 %	0.0 %
bcm.stack	0.0 %	0.0 %
bcm.stat	0.0 %	0.0 %
bcm.stg	0.0 %	0.0 %
bcm.switch	0.5 %	0.5 %
bcm.time	0.0 %	0.0 %
bcm.tlvMsg	0.0 %	0.0 %
bcm.trill	0.0 %	0.0 %
bcm.trunk	0.0 %	0.6 %
bcm.tunnel	0.0 %	0.0 %
bcm.subport	0.0 %	0.0 %
bcm.vlan	1.5 %	1.5 %
bcm.vxlan	0.0 %	0.0 %
bcm.wlan	0.0 %	0.0 %
Test Suite Total	0.3 %	0.3 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

HELIX4

Table 28:

	sdk-6.3.10	sdk-6.3.9
golden	0.8 %	0.6 %
warmboot	0.6 %	0.5 %
bcm.auth	0.0 %	0.0 %
bcm.chip	0.0 %	0.0 %
bcm.cint	0.0 %	0.0 %
bcm.coe	0.0 %	0.0 %
bcm.cosq	0.3 %	0.2 %
bcm.custom	0.0 %	0.0 %
bcm.ea	0.0 %	0.0 %
bcm.eav	0.0 %	0.0 %
bcm.extender	0.0 %	0.0 %
bcm.fabric	0.0 %	0.0 %
bcm.failover	0.0 %	0.0 %
bcm.fcoe	0.0 %	0.0 %
bcm.field	0.0 %	0.6 %
bcm.higigproxy	0.8 %	0.8 %
bcm.infra	0.0 %	1.5 %
bcm.ipfix	0.0 %	0.0 %
bcm.ipmc	0.0 %	0.0 %
bcm.l2	0.4 %	0.4 %
bcm.l2gre	0.0 %	0.0 %
bcm.l3	0.4 %	0.4 %
bcm.link	0.0 %	0.0 %

Table 28:

	sdk-6.3.10	sdk-6.3.9
bcm.mim	0.0 %	0.0 %
bcm.mirror	0.0 %	0.0 %
bcm.misc	0.0 %	0.0 %
bcm.mpls	0.3 %	0.0 %
bcm.multicast	0.0 %	0.0 %
bcm.niv	0.0 %	0.0 %
bcm.pkt	0.0 %	0.0 %
bcm.port	1.6 %	1.5 %
bcm.proxy	0.0 %	0.0 %
bcm.ptp	0.0 %	0.0 %
bcm.qos	0.0 %	0.0 %
bcm.rate	0.0 %	0.0 %
bcm.rtag7	0.0 %	0.0 %
bcm.rx	0.0 %	0.0 %
bcm.ser	0.0 %	0.0 %
bcm.stack	0.0 %	0.0 %
bcm.stat	0.4 %	0.5 %
bcm.stg	0.0 %	0.0 %
bcm.switch	0.0 %	0.0 %
bcm.time	0.0 %	0.0 %
bcm.tlvMsg	0.0 %	0.0 %
bcm.trill	0.0 %	0.0 %
bcm.trunk	0.6 %	0.6 %
bcm.tunnel	0.0 %	0.6 %
bcm.subport	0.0 %	0.0 %
bcm.vlan	0.0 %	0.5 %
bcm.vxlan	0.0 %	0.0 %
bcm.wlan	0.0 %	0.0 %
Test Suite Total	0.3 %	0.4 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

KATANA2

Table 29:

	sdk-6.3.10	sdk-6.3.9
golden	0.0 %	0.0 %
warmboot	4.5 %	1.4 %
bcm.auth	0.0 %	0.0 %
bcm.bfd	0.0 %	0.0 %
bcm.bhh	5.4 %	0.0 %
bcm.chip	0.0 %	0.0 %
bcm.cint	0.0 %	0.0 %
bcm.coe	0.8 %	1.6 %
bcm.cosq	0.3 %	0.5 %
bcm.custom	0.0 %	0.0 %

Table 29:

	sdk-6.3.10	sdk-6.3.9
bcm.ea	0.0 %	0.0 %
bcm.eav	0.0 %	0.0 %
bcm.extender	0.0 %	0.0 %
bcm.fabric	0.0 %	0.0 %
bcm.failover	0.0 %	0.0 %
bcm.fcoe	0.0 %	0.0 %
bcm.field	0.8 %	0.7 %
bcm.higigproxy	0.4 %	0.4 %
bcm.infra	0.0 %	0.0 %
bcm.ipfix	0.0 %	0.0 %
bcm.ipmc	0.0 %	0.0 %
bcm.l2	0.4 %	0.4 %
bcm.l2gre	0.0 %	0.0 %
bcm.l3	1.3 %	1.4 %
bcm.link	0.0 %	0.0 %
bcm.mim	0.0 %	0.0 %
bcm.mirror	0.0 %	0.0 %
bcm.misc	0.0 %	1.6 %
bcm.mpls	1.2 %	1.6 %
bcm.multicast	0.0 %	0.0 %
bcm.niv	0.0 %	0.0 %
bcm.oam	0.0 %	0.0 %
bcm.pkt	0.0 %	0.0 %
bcm.port	2.3 %	2.2 %
bcm.proxy	0.0 %	0.0 %
bcm.ptp	0.0 %	0.0 %
bcm.qos	0.0 %	0.0 %
bcm.rate	0.0 %	0.0 %
bcm.rtag7	0.0 %	0.0 %
bcm.rx	0.0 %	0.0 %
bcm.ser	1.9 %	1.4 %
bcm.stack	0.0 %	0.0 %
bcm.stat	0.5 %	0.5 %
bcm.stg	0.3 %	0.0 %
bcm.switch	0.0 %	0.0 %
bcm.time	0.0 %	0.0 %
bcm.tlvMsg	0.0 %	0.0 %
bcm.trill	0.0 %	0.0 %
bcm.trunk	0.2 %	0.4 %
bcm.tunnel	0.0 %	0.0 %
bcm.subport	0.0 %	1.7 %
bcm.vlan	0.0 %	0.2 %
bcm.vxlan	0.0 %	0.0 %
bcm.wlan	0.0 %	0.0 %
Test Suite Total	0.7 %	0.6 %

*Note on DVAPI: The DVAPI test suite has been split into many sub-module for higher visibility. Please see the "Note on the suite titled "DVAPI" in the Notes section above for more information.

STATIC CODE QUALITY ANALYSIS

Continued progress in whittling down static analysis defects per plan.

Table 30:

	Initial Reported Issues	*Reported Issues SDK 6.3.3*	*Reported Issues SDK 6.3.4*	*Reported Issues SDK 6.3.5*	*Reported Issues SDK 6.3.6*	*Reported Issues SDK 6.3.7*	*Reported Issues SDK 6.3.8*	*Reported Issues SDK 6.3.9*	*Reported Issues SDK 6.3.10*
DNX	664	688	628	125	125	129	106	19	6
XGS	271	292	327	155	135	131	116	37	20
SBX	600	421	323	281	140	0	0	1	0
SerDes	147	147	133	101	91	76	72	7	7
Common	2827	408	188	360	244	245	180	33	31
Total	4509	1956	1599	1022	735	571	474	97	64

Section 10: Device and Platform Support

The section describes all devices, platforms, and operating systems that are supported by this release.

SWITCH DEVICES

Table 31: Switch Devices

Family	Devices	Description
BCM5389	BCM5389 A0	8-Port GbE Switch with Integrated Serdes
	BCM5389 A1	8-Port GbE Switch with Integrated Serdes
BCM5396	BCM5396 A0	16-Port GbE Switch with Integrated Serdes
BCM53010	BCM53010 A0	5-Port Gigabit Ethernet Managed Switch integrated with single core ARM Cortex-A9 processor
	BCM53010 A2	
	BCM53011 A0	5-Port Gigabit Ethernet Managed Switch integrated with dual cores ARM Cortex-A9 processor
	BCM53011 A2	
	BCM53012 A0	5-Port Gigabit Ethernet Managed Switch with one RGMII I/F integrated with dual cores ARM Cortex-A9 processor
	BCM53012 A2	
BCM53018	BCM53017 A0	2-Port Gigabit Ethernet Managed Switch with one RGMII I/F integrated with dual cores ARM Cortex-A9 processor
	BCM53018 A0	5-Port Gigabit Ethernet Managed Switch with one RGMII I/F integrated with dual cores ARM Cortex-A9 processor
	BCM53019 A0	5-Port Gigabit Ethernet Managed Switch integrated with dual cores ARM Cortex-A9 processor
BCM53020	BCM58522 A0	5-Port Gigabit Ethernet Managed Switch integrated with 2 PHYs, ARM Cortex-A9 processor and macsec cores
	BCM58525 A0	5-Port Gigabit Ethernet Managed Switch integrated with 2 PHYs, SGMII I/F, ARM Cortex-A9 processor and macsec cores
	BCM58622 A0	8-Port Gigabit Ethernet Managed Switch integrated with 5 PHYs, ARM Cortex-A9 processor and macsec cores
	BCM58623 A0	8-Port Gigabit Ethernet Managed Switch integrated with 5 PHYs, ARM Cortex-A9 processor and macsec cores
	BCM58625 A0	8-Port Gigabit Ethernet Managed Switch integrated with 5 PHYs, SGMII I/F, ARM Cortex-A9 processor and macsec cores
BCM53101	BCM53101 A0	5-Port Fast Ethernet Managed Switch + 1 Fast Ethernet WAN port
	BCM53101 B0	
BCM53115	BCM53115 A0	5-Port GbE Managed Switch + 1 Gigabit WAN port with integrated serdes
	BCM53115 A1	
	BCM53115 B0	
	BCM53115 B1	
	BCM53115 C0	
BCM53118	BCM53118 A0	8-Port Gigabit Ethernet Switch
	BCM53118 B0	
	BCM53118 B1	
BCM53125	BCM53125 A0	5-Port Gigabit Ethernet Switch with 1 Gigabit WAN port and 8051 processor
	BCM53125 B0	
BCM53128	BCM53128 A0	8-Port Gigabit Ethernet Switch with embedded 8051 processor
	BCM53128 B0	
BCM53242	BCM53242 A0	Managed Switch with 24 FE Ports + 2 GbE Interface
	BCM53242 B0	

Table 31: Switch Devices

Family	Devices	Description
	BCM53242 B1	
	BCM53262 A0	Managed Switch with 24 FE Ports + 4 GbE Interface
	BCM53262 B0	
	BCM53262 B1	
BCM53280	BCM53282 A0	8-Port Fast Ethernet + 2-Port Gigabit Ethernet Multilayer Switch
	BCM53282 B0	
	BCM53282 B1	
	BCM53282 B2	
	BCM53283 A0	16-Port Fast Ethernet + 2-Port Gigabit Ethernet Multilayer Switch
	BCM53283 B0	
	BCM53283 B1	
	BCM53283 B2	
	BCM53284 A0	24-Port Fast Ethernet + 2-Port Gigabit Ethernet Multilayer Switch
	BCM53284 B0	
	BCM53284 B1	
	BCM53284 B2	
	BCM53286 A0	24-Port Fast Ethernet + 4-Port Gigabit Ethernet Multilayer Switch
	BCM53286 B0	
	BCM53286 B1	
	BCM53286 B2	
	BCM53288 A0	24-Port Fast Ethernet + 2-Port Gigabit Ethernet Multilayer Switch with one 2.5GbE Uplink Port
	BCM53288 B0	
	BCM53288 B1	
	BCM53288 B2	
BCM53300	BCM53300 A0	Managed 24-port L2 Switch
	BCM53300 A1	
	BCM53301 A0	Managed 16-port L2 Switch
	BCM53301 A1	
	BCM53302 A0	Managed 24-port L2 Switch
	BCM53302 A1	
BCM53310	BCM53312 A0	BCM53312 Integrated Multilayer Switch and CPU
	BCM53312 B0	
	BCM53313 A0	BCM53313 Integrated Multilayer Switch and CPU
	BCM53313 B0	
	BCM53314 A0	BCM53314 Integrated Multilayer Switch and CPU
	BCM53314 B0	
BCM53320	BCM53322 A0	BCM53322 Integrated Multilayer Switch and CPU
	BCM53323 A0	BCM53323 Integrated Multilayer Switch and CPU
	BCM53324 A0	BCM53324 Integrated Multilayer Switch and CPU
BCM53600	BCM53602 A0	8-Port Fast Ethernet + 3-Port Gigabit Ethernet Switch with one 1/2G-EPON ONU MAC/SerDes and embedded 600MHz MIPS32 74K processor

Table 31: Switch Devices

Family	Devices	Description
	BCM53603 A0	16-Port Fast Ethernet + 3-Port Gigabit Ethernet Switch with one 1/2G-EPON ONU MAC/SerDes and embedded 600MHz MIPS32 74K processor
	BCM53604 A0	24-Port Fast Ethernet + 3-Port Gigabit Ethernet Switch with one 1/2G-EPON ONU MAC/SerDes and embedded 600MHz MIPS32 74K processor
	BCM53606 A0	24-Port FE with S3MII interface + 3-Port Gigabit Ethernet Switch with one 1/2G-EPON ONU MAC/SerDes and embedded 600MHz MIPS32 74K processor
BCM89500	BCM89500 A0	4-Port Integrated Dedicated BRPHY + 3-Port Gigabit Ethernet Switch with embedded ARM processor
	BCM89500 B0	
BCM89500	BCM89501 A0	4-Port Integrated Dedicated BRPHY + 1-Port Integrated Dual-Mode BRPHY + 2-Port Gigabit Ethernet Switch with embedded ARM processor
	BCM89501 B0	
BCM89500	BCM89200 A0	1-Port Integrated Dedicated BRPHY + 1-Port Integrated Dual-Mode BRPHY + 2-Port Gigabit Ethernet Switch with embedded ARM processor
	BCM89200 B0	
BCM53710	BCM53714 A0	BCM56714 Integrated Multilayer Switch and CPU
	BCM53714 A1	
	BCM53714 A2	
	BCM53716 A0	BCM56716 Integrated Multilayer Switch and CPU
	BCM53716 A1	
	BCM53716 A2	
	BCM53718 A0	BCM56718 Integrated Multilayer Switch and CPU
	BCM53718 A1	
	BCM53718 A2	
BCM53720	BCM53724 A0	Managed 24-port L2 Switch with Integrated CPU
	BCM53724 B0	
	BCM53726 A0	Managed 24-port L2 Switch with Integrated CPU
	BCM53726 B0	
	BCM5675 A1	
	BCM5676 A0	4-Port, 96-Gbps Switch Fabric
	BCM5676 A1	
BCM56010	BCM56014 A0	24-Port Integrated Multilayer Switch and CPU
	BCM56014 A1	
	BCM56014 A2	
	BCM56018 A0	48-Port Integrated Multilayer Switch and CPU
	BCM56018 A1	
	BCM56018 A2	
	BCM56018 A1	48-Port Integrated Multilayer Switch and CPU
BCM56020	BCM56024 A0	24-Port Integrated Multilayer Switch and CPU
	BCM56024 B0	
	BCM56025 A0	24-Port Integrated L2 Switch and CPU
	BCM56025 B0	
	BCM56026 A0	24-Port Integrated L2 Switch and CPU
	BCM56026 B0	

Table 31: Switch Devices

Family	Devices	Description
BCM56100	BCM56100 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch
	BCM56100 A1	
	BCM56101 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch with One 10-Gigabit Ethernet/HiGig Port
	BCM56101 A1	
	BCM56102 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch with Two 10-Gigabit Ethernet/HiGig Ports
	BCM56102 A1	
	BCM56105 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch
	BCM56105 A1	
	BCM56106 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch with One 10-Gigabit Ethernet/HiGig Port
	BCM56106 A1	
	BCM56107 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch with Two 10-Gigabit Ethernet/HiGig Ports
	BCM56107 A1	
BCM56110	BCM56110 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch
	BCM56111 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch with One 10-Gigabit Ethernet/HiGig Port
	BCM56112 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Multilayer Switch with Two 10-Gigabit Ethernet/HiGig Ports
	BCM56115 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch
	BCM56116 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch with One 10-Gigabit Ethernet/HiGig Port
	BCM56117 A0	24-Port Fast Ethernet and 2-Port Gigabit Ethernet Layer 2 Switch with Two 10-Gigabit Ethernet/HiGig Ports
BCM56130	BCM56132 A0	24-Port Fast Ethernet Multilayer Switch with Two 10-GbE/HiGig2 and Two 1G/2.5Gb Uplink Ports
	BCM56132 B0	
	BCM56132 B1	
	BCM56134 A0	24-Port Fast Ethernet Multilayer Switch with four 1G/2.5Gb Uplink Ports
	BCM56134 B0	
	BCM56134 B1	
BCM56140	BCM56140 A0	24-Port Gigabit Ethernet/6-Port SGMII GbE Multilayer switch with combination of two/four 1G/2.5/HiGig2 Uplink Ports
	BCM56142 A0	24-Port Gigabit Ethernet Multilayer switch with combination of two/four 1G/2.5/HiGig2 Uplink Ports
	BCM56143 A0	24-Port Gigabit Ethernet Multilayer switch with combination of two/four 1G/2.5/HiGig2 Uplink Ports
	BCM56144 A0	16-Port Gigabit Ethernet Multilayer switch with four 1G/2.5HG Uplink Ports
	BCM56146 A0	24-Port Fast-Ethernet Multilayer switch with four 2.5HG Uplink Ports
	BCM56147 A0	24-Port Fast-Ethernet Multilayer switch with combination of one/two/four 1G/2.5G/10/12/13HG Uplink Ports
BCM56150	BCM56150 A0	24-port GbE Managed Switch with 4-port 10 GbE uplinks, integrated CPU and 16 copper PHYs
	BCM56151 A0	24-port GbE Managed Switch with 4-port 10 GbE uplinks, integrated CPU (without PHYs)
	BCM56152 A0	24-port GbE plus 2-port GbE and 2-port 1GbE/13GbE uplinks Managed Switch, integrated CPU and 16 copper PHYs
	BCM53342 A0	8-port GbE Multilayer WebSmart Switch with Integrated CPU and Copper PHYs

Table 31: Switch Devices

Family	Devices	Description
	BCM53343 A0	16-port GbE plus 4-port GbE uplinks Multilayer WebSmart Switch with Integrated CPU and 16 Copper PHYs
	BCM53344 A0	24-port GbE plus 2-port GbE and 2-port 1GbE/13GbE uplinks WebSmart Switch, integrated CPU and 16 copper PHYs
	BCM53346 A0	24-port GbE Multilayer WebSmart Switch with 4-port 10 GbE uplinks, integrated CPU and 16 copper PHYs
	BCM53393 A0	14-port GbE Multilayer Embedded Switch with integrated CPU (without PHY)
	BCM53394 A0	10-port GbE Multilayer Embedded Switch with 4-port 10 GbE uplinks, integrated CPU (without PHY)
BCM56210	BCM56212 A0	
	BCM56212 A1	
	BCM56212 A2	
	BCM56213 A0	
	BCM56213 A1	
	BCM56213 A2	
	BCM56214 A0	BCM56214 Integrated Multilayer Switch and CPU
	BCM56214 A1	
	BCM56214 A2	
	BCM56215 A0	
	BCM56215 A1	
	BCM56215 A2	
	BCM56216 A0	BCM56216 Integrated Multilayer Switch and CPU
	BCM56216 A1	
	BCM56216 A2	
	BCM56217 A0	
	BCM56217 A1	
	BCM56217 A2	
	BCM56218 A0	BCM56218 Integrated Multilayer Switch and CPU
	BCM56218 A1	
	BCM56218 A2	
	BCM56219 A0	BCM56219 Integrated Multilayer Switch and CPU
	BCM56219 A1	
	BCM56219 A2	
BCM56220	BCM56224 A0	24 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56224 B0	24 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56225 A0	24 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56225 B0	24 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56226 A0	16 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56226 B0	16 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56227 A0	16 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56227 B0	16 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56228 A0	8 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56228 B0	8 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+

Table 31: Switch Devices

Family	Devices	Description
	BCM56229 A0	8 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56229 B0	8 GbE + 4 x 1 Gb/2.5 Gb, L2+
BCM56230	BCM56230 B1	12-Port GbE Multilayer Switch
	BCM56231 B1	6-Port GbE Multilayer Switch
BCM56300	BCM56300 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56300 A1	
	BCM56300 B0	
	BCM56300 B1	
	BCM56301 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56301 A1	
	BCM56301 B0	
	BCM56301 B1	
	BCM56302 A0	24-Port Gigabit Ethernet Multilayer Switch with Two 10-Gigabit Ethernet/HiGig+ Ports
	BCM56302 A1	
	BCM56302 B0	
	BCM56302 B1	
	BCM56303 A0	24-Port Gigabit Ethernet Multilayer Switch with Three 10 Gigabit Ethernet/HiGig+ Ports
	BCM56303 A1	
	BCM56303 B0	
	BCM56303 B1	
	BCM56304 A0	24-Port Gigabit Ethernet Multilayer Switch with Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56304 A1	
	BCM56304 B0	
	BCM56304 B1	
	BCM56305 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56305 A1	
	BCM56305 B0	
	BCM56305 B1	
	BCM56306 A0	16 Port Gigabit Ethernet Switch
	BCM56306 A1	
	BCM56306 B0	
	BCM56306 B1	
	BCM56307 A0	24-Port GE L2 Switch with Two 10 GE/HiGig+ Ports
	BCM56307 A1	
	BCM56307 B0	
	BCM56307 B1	
	BCM56308 A0	24-Port GE L2 Switch with Three 10 GE/HiGig+ Ports
	BCM56308 A1	
	BCM56308 B0	
	BCM56308 B1	

Table 31: Switch Devices

Family	Devices	Description
	BCM56309 A0	24-Port GE L2 Switch with Four 10 GE/HiGig+ Ports
	BCM56309 A1	
	BCM56309 B0	
	BCM56309 B1	
BCM56310	BCM56310 A0	BCM56310 Series 24-Port GbE Multilayer Switch with Four 10-GbE/HiGig+ Uplink Ports
	BCM56311 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56312 A0	24-Port Gigabit Ethernet Multilayer Switch with Two 10-Gigabit Ethernet/HiGig+ Ports
	BCM56313 A0	24-Port Gigabit Ethernet Multilayer Switch with Three 10-Gigabit Ethernet/HiGig+ Ports
	BCM56314 A0	24-Port Gigabit Ethernet Multilayer Switch with Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56315 A0	BCM56310 Series 24-Port GbE Layer 2 Switch with Four 10-GbE/HiGig+ Uplink Ports
	BCM56316 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56317 A0	24-Port Gigabit Ethernet Layer 2 Switch with Two 10-Gigabit Ethernet/HiGig+ Ports
	BCM56318 A0	24-Port Gigabit Ethernet Layer 2 Switch with Three 10-Gigabit Ethernet/HiGig+ Ports
	BCM56319 A0	24-Port Gigabit Ethernet Layer 2 Switch with Four 10-Gigabit Ethernet/HiGig+ Ports
BCM56320	BCM56320 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56320 B0	
	BCM56320 B1	
	BCM56321 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56321 B0	
	BCM56321 B1	
BCM56330	BCM56331 A0	24-Port GbE Multilayer Switch with Four 2.5GbE Uplink Ports
	BCM56331 B0	
	BCM56331 B1	
	BCM56333 A0	16-Port GbE Multilayer Switch
	BCM56333 B0	
	BCM56333 B1	
	BCM56334 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56334 B0	
	BCM56334 B1	
	BCM56338 A0	8-Port GbE Multilayer Switch with two 10-GbE/HiGig2 Uplink Ports
	BCM56338 B0	
	BCM56338 B1	
BCM56440	BCM56440 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports
	BCM56440 B0	
	BCM56441 A0	8-Port GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports
	BCM56441 B0	
	BCM56442 A0	16-Port GbE Multilayer Switch
	BCM56442 B0	
	BCM56443 A0	8-Port 2.5GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports

Table 31: Switch Devices

Family	Devices	Description
	BCM56443 B0	
	BCM56445 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports pin compatible with BCM56334
	BCM56445 B0	
	BCM56446 A0	8-Port GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports pin compatible with BCM56338
	BCM56447 A0	16-Port GbE Multilayer Switch pin compatible with BCM56333
	BCM56447 B0	
	BCM56448 A0	24-Port GbE Multilayer Switch with Four 1GbE/ One 2.5G Uplink ports
	BCM56448 B0	
BCM56500	BCM56500 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56500 A1	
	BCM56500 B0	
	BCM56500 B1	
	BCM56500 B2	
	BCM56501 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56501 A1	
	BCM56501 B0	
	BCM56501 B1	
	BCM56501 B2	
	BCM56502 A0	24-Port GbE Multilayer Switch with Two 10-GbE/HiGig+ Ports
	BCM56502 A1	
	BCM56502 B0	
	BCM56502 B1	
	BCM56502 B2	
	BCM56503 A0	24-Port GbE Multilayer Switch with Three 10-GbE/HiGig+ Ports
	BCM56503 A1	
	BCM56503 B0	
	BCM56503 B1	
	BCM56503 B2	
	BCM56504 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig+ Ports
	BCM56504 A1	
	BCM56504 B0	
	BCM56504 B1	
	BCM56504 B2	
	BCM56505 A0	24-Port GbE Layer 2 Switch
	BCM56505 A1	
	BCM56505 B0	
	BCM56505 B1	
	BCM56505 B2	
	BCM56506 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56506 A1	

Table 31: Switch Devices

Family	Devices	Description
	BCM56506 B0	
	BCM56506 B1	
	BCM56506 B2	
	BCM56507 A0	24-Port GbE Layer 2 Switch with Two 10-GbE/HiGig+ Ports
	BCM56507 A1	
	BCM56507 B0	
	BCM56507 B1	
	BCM56507 B2	
	BCM56508 A0	24-Port GbE Layer 2 Switch with Three 10-GbE/HiGig+ Ports
	BCM56508 A1	
	BCM56508 B0	
	BCM56508 B1	
	BCM56508 B2	
	BCM56509 A0	24-Port GbE Layer 2 Switch with Four 10-GbE/HiGig+ Ports
	BCM56509 A1	
	BCM56509 B0	
	BCM56509 B1	
	BCM56509 B2	
BCM56510	BCM56510 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56511 A0	Four-Port 10-GbE/HiGig+ Multilayer Switch
	BCM56512 A0	24-Port GbE Multilayer Switch With Two 10-GbE/HiGig+ Ports
	BCM56513 A0	24-Port GbE Multilayer Switch With Three 10-GbE/HiGig+ Ports
	BCM56514 A0	24-Port GbE Multilayer Switch With Four 10-GbE/HiGig+ Ports
BCM56520	BCM56520 A0	24-Port GbE Multilayer Switch
	BCM56520 B0	
	BCM56522 A0	24-Port GbE Multilayer Switch with Two 10-GbE/HiGig2 Uplink Ports
	BCM56522 B0	
	BCM56524 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56524 B0	
	BCM56526 A0	28-Port GbE Multilayer Switch with Six 10-GbE/HiGig2 Uplink Ports
	BCM56526 B0	
BCM56530	BCM56534 B0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56538 B0	48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
BCM56540	BCM56540 A1	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch
	BCM56540 B0	
BCM56540	BCM56541 A1	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch
	BCM56541 B0	
BCM56540	BCM56542 A1	28xGE + 2xF.XAUI/2x10GE + 2xF.HG[42] + 2xF.HG[21] + 1GE, 28xGE + 8xGE/ 8x2.5GE + 2xHG[42] + 2xHG[21] + 1GE Multilayer Ethernet Switch
BCM56540	BCM56544 A1	10xF.XAUI + 4xHG[21] + 1GE, 10xF.XAUI + 4xXFI, 10xF.XAUI + 2xHG[42], 4xXAUI + 12xXFI + 1GE Multilayer Ethernet Switch

Table 31: Switch Devices

Family	Devices	Description
BCM56540	BCM56545 A1	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch
BCM56540	BCM56546 A1	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch
	BCM56546 B0	
BCM56580	BCM56580 A0	16 x 2.5 GbE + 4 x 10 GbE Ethernet Multilayer Switch
BCM56620	BCM56620 A0	
	BCM56620 A1	
	BCM56620 B0	
	BCM56620 B1	
	BCM56620 B2	
	BCM56624 A0	49 port 1-GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56624 A1	
	BCM56624 B0	
	BCM56624 B1	
	BCM56624 B2	
	BCM56626 A0	25 port 1-GbE Multilayer Ethernet Switch with 6 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56626 A1	
	BCM56626 B0	
	BCM56626 B1	
	BCM56626 B2	
	BCM56628 A0	8 port 10-GbE/HiGig2 Multilayer Ethernet Switch with External Table Expansion
	BCM56628 A1	
	BCM56628 B0	
	BCM56628 B1	
	BCM56628 B2	
	BCM56629 B0	25 port 1-GbE Multilayer Ethernet Switch with 8 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56629 B1	
	BCM56629 B2	
BCM56630	BCM56630 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56630 B0	
	BCM56634 A0	48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56634 B0	
	BCM56636 A0	24-Port GbE + 2-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56636 B0	
	BCM56638 A0	4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56638 B0	
	BCM56639 A0	24-Port GbE + 4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56639 B0	

Table 31: Switch Devices

Family	Devices	Description
BCM56640	BCM56640 A1	1x100GE + 1xHG[127], 1x100GE + 4xHG[32], 1x100GE + 8xHGd[16], 3xF.HG[42] + 1xHG[127], 3xF.HG[42] + 4xHG[32], 3xF.HG[42] + 8xHGd[16], 3xF.HG[42] + 3xF.HG[42] Multilayer Ethernet Switch
	BCM56640 B0	
BCM56640	BCM56643 A1	48xGE + 4xXFI + 4xHG[42] + 1GE Multilayer Ethernet Switch
	BCM56643 B0	
BCM56640	BCM56644 A1	48xGE + 2xHG[25] + 2xHG[25] + 1GE Multilayer Ethernet Switch
	BCM56644 B0	
BCM56640	BCM56648 A1	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch
	BCM56648 B0	
BCM56640	BCM56649 A1	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch
	BCM56649 B0	
BCM56680	BCM56680 A0	25 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports
	BCM56680 A1	
	BCM56680 B0	
	BCM56680 B1	
	BCM56684 A0	24 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports
	BCM56684 A1	
	BCM56684 B0	
	BCM56684 B1	
BCM56685	BCM56685 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56685 B0	
	BCM56689 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56689 B0	
BCM56700	BCM56700 A0	16-Port, 192-Gbps Lossless Switch Fabric
	BCM56701 A0	12-Port, 144-Gbps Lossless Switch Fabric
BCM56720	BCM56720 A0	16 Port, 16-Gbps HiGig2 Switch Fabric
	BCM56721 A0	12 Port, 16-Gbps HiGig2 Switch Fabric
BCM56725	BCM56725 A0	8 Port, 20-Gbps + 4 Port, 16-Gbps HiGig2 Switch Fabric
BCM56740	BCM56743 A0	480 Gbps Switch fabric
	BCM56743 A1	
	BCM56743 A2	
	BCM56743 A3	
	BCM56743 A4	
	BCM56743 B0	
	BCM56743 B1	
	BCM56745 A0	640 Gbps Switch fabric
	BCM56745 A1	
	BCM56745 A2	
	BCM56745 A3	
	BCM56745 A4	

Table 31: Switch Devices

Family	Devices	Description
	BCM56745 B0	
	BCM56745 B1	
BCM56740_PLUS	BCM56744 A0	480 Gbps Switch fabric
	BCM56744 A1	
	BCM56746 A0	640 Gbps Switch fabric
	BCM56746 A1	
BCM56800	BCM56800 A0	20-Port 10-Gigabit Ethernet Multilayer Switch
	BCM56801 A0	10-Port 10-Gigabit Ethernet and 8-Port HiGig2/10GbE Multilayer Switch
	BCM56802 A0	16-Port 10-GbE/HiGig2 Multilayer Switch
	BCM56803 A0	12 Port 10GE/HiGig2 Multilayer Switch
BCM56820	BCM56820 A0	24 x 10-GbE + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56820 B0	
	BCM56821 A0	12 x 10-GbE + 8 x HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56821 B0	
	BCM56822 A0	12 x 10-GbE + 4 x 20-Gbps HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56822 B0	
	BCM56823 A0	8 x 10-GbE + 4 x 20-Gbps HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56823 B0	
	BCM56825 B0	16 x 10-GbE + 8 x 20-Gbps HiGig2 + 1 x 1-GbE Multilayer Ethernet Switch
BCM56740	BCM56743 A0	480 Gbps Switch fabric
	BCM56743 A1	
	BCM56743 A2	
	BCM56743 A3	
	BCM56743 A4	
	BCM56743 B0	
	BCM56743 B1	
	BCM56745 A0	640 Gbps Switch fabric
	BCM56745 A1	
	BCM56745 A2	
	BCM56745 A3	
	BCM56745 A4	
	BCM56745 B0	
	BCM56745 B1	
BCM56740_PLUS	BCM56744 A0	480 Gbps Switch fabric
	BCM56744 A1	
	BCM56746 A0	640 Gbps Switch fabric
	BCM56746 A1	
BCM56840	BCM56841 A0	320 Gbps Ethernet Multilayer Switch
	BCM56841 A1	
	BCM56841 A2	
	BCM56841 A3	
	BCM56841 A4	

Table 31: Switch Devices

Family	Devices	Description
	BCM56841 B0	
	BCM56841 B1	
	BCM56843 A0	480 Gbps Ethernet Multilayer Switch
	BCM56843 A1	
	BCM56843 A2	
	BCM56843 A3	
	BCM56843 A4	
	BCM56843 B0	
	BCM56843 B1	
	BCM56845 A0	640 Gbps Ethernet Multilayer Switch
	BCM56845 A1	
	BCM56845 A2	
	BCM56845 A3	
	BCM56845 A4	
	BCM56845 B0	
	BCM56845 B1	
`BCM56840_PLUS`	BCM56842 A0	320 Gbps Ethernet Multilayer Switch
	BCM56842 A1	
	BCM56844 A0	480 Gbps Ethernet Multilayer Switch
	BCM56844 A1	
	BCM56846 A0	640 Gbps Ethernet Multilayer Switch
	BCM56846 A1	
BCM56850	BCM56850 A1	1.28Tbps I/O, 1Tbps Core Ethernet Switch
	BCM56854 A1	
BCM88732	BCM88732 B2	Eight-Port 10 GbE or 2-Port 40 GbE MAC Aggregation Switch with 80 Gbps Uplink Capacity
BCM88020	BCM88020 A0	XGS Core (XCore/SBX) Fully Programmable Carrier Packet Processor with 24 GbE Ports, 2 10GbE Ports and 2 SPI Interfaces
	BCM88020 A1	
	BCM88020 A2	
BCM88025	BCM88025 A0	XGS Core (XCore/SBX) Fully Programmable Carrier Packet Processor with 24 GbE Ports, 2 10GbE Ports and 2 SPI Interfaces
BCM88030	BCM88030 A0	XGS Core (XCore/SBX) Scalable Switching 100 Gbps Fully Programmable Carrier Packet Processor
BCM88130	BCM88130 A0	XGS Core (XCore/SBX) 630 Gbps Bandwidth Manager and Switching Engine
	BCM88130 A1	
BME-3200	BME-3200 A0	XGS Core (XCore/SBX) Fabric Bandwidth Manager with 32 SCI control ports and up to 40 SFI data ports
	BME-3200 B0	
QE-2000	QE-2000 A1	XGS Core (XCore/SBX) Fabric Queuing Engine with 49 SPI 4.2 subports
	QE-2000 A2	
	QE-2000 A3	
	QE-2000 A4	
BCM88230	BCM88230 A0	XGS Core (XCore/SBX) Fabric Queuing Engine with Integrated Traffic Management with 4 HiGig2 ports, 50Gbps

Table 31: Switch Devices

Family	Devices	Description
	BCM88230 B0	
	BCM88235 A0	XGS Core (XCore/SBX) Fabric Queuing Engine with Integrated Traffic Management with 4 HiGig2 ports, 80Gbps
	BCM88235 B0	
	BCM88231 A0	XGS Core (XCore/SBX) Traffic Manager with 4 HiGig2 ports, 50Gbps
	BCM88231 B0	
	BCM88236 A0	XGS Core (XCore/SBX) Traffic Manager with 4 HiGig2 ports, 80Gbps
	BCM88236 B0	
BCM56930	BCM56931 A0	XGS pass-through and standalone Traffic Manager, 4 HiGig2 ports, 50Gbps
	BCM56931 B0	
	BCM56936 A0	XGS pass-through and standalone Traffic Manager, 4 HiGig2 ports, 80Gbps
	BCM56936 B0	
BCM88640	BCM88640 A0	DNX 100G Flexible Packet Processor with Integrated Traffic Management
	BCM88640 B0	
BCM88650	BCM88650 A0	DNX 200G Flexible Packet Processor with Integrated Traffic Management
	BCM88650 B0	
	BCM88650 B1	
BCM88660	BCM88660 A0	DNX 200G Flexible Packet Processor with Integrated Traffic Management
BCM88750	BCM88750 A0	DNX 1600 GBps Switch Fabric
	BCM88750 B0	

Table 32: SER Supported Devices

Family	Devices
Trident/Trident+	5684X
Trident2	5685X, 56830
Triumph	5664X, 5654X
Katana	5644X
Katana2	5645X, 56248L, 5545X
Enduro2	5644X
Hurricane2	5615X, 5334X, 5339X
Helix4	5634X
Ranger+	5604X
Firebolt4	5654X, 5654X
Triumph2	5663X
Apollo	5652X
Titan/Titan+	5647X
Scorpion	5682X
Firebolt2	5651X
Conqueror	5672X
Valkyrie/Valkyrie2	5668X

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
BCM5675	BCM5675 A0	8-Port, 192-Gbps Switch Fabric
	BCM5675 A1	
	BCM5676 A0	4-Port, 96-Gbps Switch Fabric
	BCM5676 A1	
BCM56020	BCM56024 A0	24-Port Integrated Multilayer Switch and CPU
	BCM56024 B0	
	BCM56025 A0	24-Port Integrated L2 Switch and CPU
	BCM56025 B0	
	BCM56026 A0	24-Port Integrated L2 Switch and CPU
	BCM56026 B0	
BCM56130	BCM56132 A0	24-Port Fast Ethernet Multilayer Switch with Two 10-GbE/HiGig2 and Two 1G/2.5Gb Uplink Ports
	BCM56132 B0	
	BCM56132 B1	
	BCM56134 A0	24-Port Fast Ethernet Multilayer Switch with four 1G/2.5Gb Uplink Ports
	BCM56134 B0	
	BCM56134 B1	
BCM56142	BCM56142 A0	24-Port Fast Ethernet Multilayer Switch with four 1G/2.5Gb/Higig2/HG Lite Uplink Ports
BCM56150	BCM56150 A0	24-port GbE Managed Switch with 4-port 10 GbE uplinks, integrated CPU and 16 copper PHYs
	BCM56151 A0	24-port GbE Managed Switch with 4-port 10 GbE uplinks, integrated CPU (without PHYs)
	BCM56152 A0	24-port GbE plus 2-port GbE and 2-port 1GbE/13GbE uplinks Managed Switch, integrated CPU and 16 copper PHYs
	BCM53342 A0	8-port GbE Multilayer WebSmart Switch with Integrated CPU and Copper PHYs
	BCM53343 A0	16-port GbE plus 4-port GbE uplinks Multilayer WebSmart Switch with Integrated CPU and 16 Copper PHYs
	BCM53344 A0	24-port GbE plus 2-port GbE and 2-port 1GbE/13GbE uplinks WebSmart Switch, integrated CPU and 16 copper PHYs
	BCM53346 A0	24-port GbE Multilayer WebSmart Switch with 4-port 10 GbE uplinks, integrated CPU and 16 copper PHYs
	BCM53393 A0	14-port GbE Multilayer Embedded Switch with integrated CPU (without PHY)
	BCM53394 A0	10-port GbE Multilayer Embedded Switch with 4-port 10 GbE uplinks, integrated CPU (without PHY)
BCM56220	BCM56224 A0	24 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56224 B0	24 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56225 A0	24 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56225 B0	24 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56226 A0	16 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56226 B0	16 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56227 A0	16 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56227 B0	16 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56228 A0	8 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+
	BCM56228 B0	8 GbE + 4 x 1 Gb/2.5 Gb, L3/L2+

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
	BCM56229 A0	8 GbE + 4 x 1 Gb/2.5 Gb, L2+
	BCM56229 B0	8 GbE + 4 x 1 Gb/2.5 Gb, L2+
BCM56230	BCM56230 B1	12-Port GbE Multilayer Switch
	BCM56231 B1	6-Port GbE Multilayer Switch
BCM56320	BCM56320 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56320 B0	
	BCM56320 B1	
	BCM56321 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56321 B0	
	BCM56321 B1	
BCM56330	BCM56331 A0	24-Port GbE Multilayer Switch with Four 2.5GbE Uplink Ports
	BCM56331 B0	
	BCM56331 B1	
	BCM56333 A0	16-Port GbE Multilayer Switch
	BCM56333 B0	
	BCM56333 B1	
	BCM56334 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56334 B0	
	BCM56334 B1	
	BCM56338 A0	8-Port GbE Multilayer Switch with two 10-GbE/HiGig2 Uplink Ports
	BCM56338 B0	
	BCM56338 B1	
BCM56340	BCM56340 A0	12xF.QSGMII + Flex[4x10] + 2xHG[21] + 1GE, 12xF.QSGMII + 4xSGMII + 2xXFI + 2xHGd[21] + 1GE
	BCM56342 A0	7xF.QSGMII + Flex[4x10] + 2xHG[21] + 1GE
	BCM56344 A0	10xF.QSGMII + 3xFlex[4x10] + 1GE
	BCM56040 A0	1xF.QSGMII + 3xF.HG[42] + 1GE
	BCM56041 A0	Ranger device, meant for embedded connectivity supports 1Ge (port 49), 2 X GE (iPROC), Flex 4x10G, 3 X 4 X 10G
	BCM560547 A0	10xF.QSGMII + 3xF.HG[42] + 1GE, 12xF.QSGMII + 2xF.HG[42] + 1GE, 12xF.QSGMII + F.HG[42] + 2xHG[42] + 1GE
	BCM560548 A0	7xF.QSGMII + 3xF.HG[42] + 1GE
BCM56240	BCM56240 A0	2-Port 10GbE (OR 8 *2.5GbE) Multilayer Switch with Two 10-GbE/Hig2 Uplink ports
BCM56240	BCM56240 B0	2-Port 10GbE (OR 8 *2.5GbE) Multilayer Switch with Two 10-GbE/Hig2 Uplink ports
	BCM56241 A0	6-Port GbE Multilayer Switch with Two 2.5GbE Uplink ports
	BCM56242 A0	8-Port 2.5GbE Multilayer Switch with Two 2.5GbE Uplink ports
	BCM56243 A0	4-Port 2.5GbE Multilayer Switch
BCM56440	BCM55441 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports
	BCM56440 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports
	BCM56440 B0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports
	BCM56441 A0	8-Port GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports
	BCM56442 A0	16-Port GbE Multilayer Switch

Table 33: Switch Devices that support Warm boot

Family	*Devices*	*Description*
	BCM56443 A0	8-Port 2.5GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports
	BCM56445 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports pin compatible with BCM56334
	BCM56446 A0	8-Port GbE Multilayer Switch with Two 10-GbE/Hig2 Uplink ports pin compatible with BCM56338
	BCM56447 A0	16-Port GbE Multilayer Switch pin compatible with BCM56333
	BCM56448 A0	24-Port GbE Multilayer Switch with Four 1GbE/ One 2.5G Uplink ports
BCM56450	BCM56450 A0	
	BCM56455 A0	
	BCM56456 B0	
BCM56500	BCM56500 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56500 A1	
	BCM56500 B0	
	BCM56500 B1	
	BCM56500 B2	
	BCM56501 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56501 A1	
	BCM56501 B0	
	BCM56501 B1	
	BCM56501 B2	
	BCM56502 A0	24-Port GbE Multilayer Switch with Two 10-GbE/HiGig+ Ports
	BCM56502 A1	
	BCM56502 B0	
	BCM56502 B1	
	BCM56502 B2	
	BCM56503 A0	24-Port GbE Multilayer Switch with Three 10-GbE/HiGig+ Ports
	BCM56503 A1	
	BCM56503 B0	
	BCM56503 B1	
	BCM56503 B2	
	BCM56504 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig+ Ports
	BCM56504 A1	
	BCM56504 B0	
	BCM56504 B1	
	BCM56504 B2	
	BCM56505 A0	24-Port GbE Layer 2 Switch
	BCM56505 A1	
	BCM56505 B0	
	BCM56505 B1	
	BCM56505 B2	
	BCM56506 A0	Four 10-Gigabit Ethernet/HiGig+ Ports
	BCM56506 A1	

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
	BCM56506 B0	
	BCM56506 B1	
	BCM56506 B2	
	BCM56507 A0	24-Port GbE Layer 2 Switch with Two 10-GbE/HiGig+ Ports
	BCM56507 A1	
	BCM56507 B0	
	BCM56507 B1	
	BCM56507 B2	
	BCM56508 A0	24-Port GbE Layer 2 Switch with Three 10-GbE/HiGig+ Ports
	BCM56508 A1	
	BCM56508 B0	
	BCM56508 B1	
	BCM56508 B2	
	BCM56509 A0	24-Port GbE Layer 2 Switch with Four 10-GbE/HiGig+ Ports
	BCM56509 A1	
	BCM56509 B0	
	BCM56509 B1	
	BCM56509 B2	
BCM56510	BCM56510 A0	24-Port Gigabit Ethernet Multilayer Switch
	BCM56511 A0	Four-Port 10-GbE/HiGig+ Multilayer Switch
	BCM56512 A0	24-Port GbE Multilayer Switch With Two 10-GbE/HiGig+ Ports
	BCM56513 A0	24-Port GbE Multilayer Switch With Three 10-GbE/HiGig+ Ports
	BCM56514 A0	24-Port GbE Multilayer Switch With Four 10-GbE/HiGig+ Ports
BCM56520	BCM56520 A0	24-Port GbE Multilayer Switch
	BCM56520 B0	
	BCM56522 A0	24-Port GbE Multilayer Switch with Two 10-GbE/HiGig2 Uplink Ports
	BCM56522 B0	
	BCM56524 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56524 B0	
	BCM56526 A0	28-Port GbE Multilayer Switch with Six 10-GbE/HiGig2 Uplink Ports
	BCM56526 B0	
BCM56530	BCM56534 B0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56538 B0	48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
BCM56620	BCM56620 A0	
	BCM56620 A1	
	BCM56620 B0	
	BCM56620 B1	
	BCM56624 A0	49 port 1-GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56624 A1	
	BCM56624 B0	
	BCM56624 B1	

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
	BCM56624 B2	
	BCM56626 A0	25 port 1-GbE Multilayer Ethernet Switch with 6 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56626 A1	
	BCM56626 B0	
	BCM56626 B1	
	BCM56626 B2	
	BCM56628 A0	8 port 10-GbE/HiGig2 Multilayer Ethernet Switch with External Table Expansion
	BCM56628 A1	
	BCM56628 B0	
	BCM56628 B1	
	BCM56628 B2	
	BCM56629 B0	25 port 1-GbE Multilayer Ethernet Switch with 8 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56629 B1	
BCM56630	BCM56630 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56630 B0	
	BCM56634 A0	48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56634 B0	
	BCM56636 A0	24-Port GbE + 2-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56636 B0	
	BCM56638 A0	4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56638 B0	
	BCM56639 A0	24-Port GbE + 4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56639 B0	
BCM56540	BCM56540 A0	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
	BCM56540 A1	
BCM56540	BCM56541 A0	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
	BCM56541 A1	
BCM56540	BCM56542 A0	28xGE + 2xF.XAUI/2x10GE + 2xF.HG[42] + 2xF.HG[21] + 1GE, 28xGE + 8xGE/ 8x2.5GE + 2xHG[42] + 2xHG[21] + 1GE Multilayer Ethernet Switch (Preview)
	BCM56542 A1	
BCM56540	BCM56544 A0	10xF.XAUI + 4xHG[21] + 1GE, 10xF.XAUI + 4xXFI, 10xF.XAUI + 2xHG[42], 4xXAUI + 12xXFI + 1GE Multilayer Ethernet Switch (Preview)
	BCM56544 A1	
BCM56540	BCM56545 A0	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
	BCM56545 A1	
BCM56540	BCM56546 A0	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
BCM56640	BCM56640 A0	1x100GE + 1xHG[127], 1x100GE + 4xHG[32], 1x100GE + 8xHGd[16], 3xF.HG[42] + 1xHG[127], 3xF.HG[42] + 4xHG[32], 3xF.HG[42] + 8xHGd[16], 3xF.HG[42] + 3xF.HG[42] Multilayer Ethernet Switch (Preview)

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
	BCM56640 A1	
BCM56640	BCM56643 A0	48xGE + 4xXFI + 4xHG[42] + 1GE Multilayer Ethernet Switch (Preview)
	BCM56643 A1	
BCM56640	BCM56644 A0	48xGE + 2xHG[25] + 2xHG[25] + 1GE Multilayer Ethernet Switch (Preview)
	BCM56644 A1	
BCM56640	BCM56648 A0	48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
	BCM56648 A1	
BCM56640	BCM56649 A0	28xGE + 2xHG[42] + 2xHG[21] + 1GE, 28xGE + 4xXFI + 2xHG[42] + 1GE, 28xGE + 8xXFI + 1GE Multilayer Ethernet Switch (Preview)
BCM56680	BCM56680 A0	25 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports
	BCM56680 A1	
	BCM56680 B0	
	BCM56680 B1	
	BCM56684 A0	24 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports
	BCM56684 A1	
	BCM56684 B0	
	BCM56684 B1	
BCM56685	BCM56685 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56685 B0	
	BCM56689 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56689 B0	
BCM56700	BCM56700 A0	16-Port, 192-Gbps Lossless Switch Fabric
	BCM56701 A0	12-Port, 144-Gbps Lossless Switch Fabric
BCM56720	BCM56720 A0	16 Port, 16-Gbps HiGig2 Switch Fabric
	BCM56721 A0	12 Port, 16-Gbps HiGig2 Switch Fabric
BCM56725	BCM56725 A0	8 Port, 20-Gbps + 4 Port, 16-Gbps HiGig2 Switch Fabric
BCM56800	BCM56800 A0	20-Port 10-Gigabit Ethernet Multilayer Switch
	BCM56801 A0	10-Port 10-Gigabit Ethernet and 8-Port HiGig2/10GbE Multilayer Switch
	BCM56802 A0	16-Port 10-GbE/HiGig2 Multilayer Switch
	BCM56803 A0	12 Port 10GE/HiGig2 Multilayer Switch
BCM56820	BCM56820 A0	24 x 10-GbE + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56820 B0	
	BCM56821 A0	12 x 10-GbE + 8 x HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56821 B0	
	BCM56822 A0	12 x 10-GbE + 4 x 20-Gbps HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56822 B0	
	BCM56823 A0	8 x 10-GbE + 4 x 20-Gbps HiGig2 + 4 x 1-GbE Multilayer Ethernet Switch
	BCM56823 B0	
	BCM56825 B0	16 x 10-GbE + 8 x 20-Gbps HiGig2 + 1 x 1-GbE Multilayer Ethernet Switch
BCM56840	BCM56841 A0	320 Gbps Ethernet Multilayer Switch
	BCM56841 A1	
	BCM56841 A2	

Table 33: Switch Devices that support Warm boot

Family	Devices	Description
	BCM56841 A3	
	BCM56841 A4	
	BCM56841 B0	
	BCM56841 B1	
	BCM56843 A0	480 Gbps Ethernet Multilayer Switch
	BCM56843 A1	
	BCM56843 A2	
	BCM56843 A3	
	BCM56843 A4	
	BCM56843 B0	
	BCM56843 B1	
	BCM56845 A0	640 Gbps Ethernet Multilayer Switch
	BCM56845 A1	
	BCM56845 A2	
	BCM56845 A3	
	BCM56845 A4	
	BCM56845 B0	
	BCM56845 B1	
`BCM56840_PLUS`	BCM56842 A0	320 Gbps Ethernet Multilayer Switch
	BCM56842 A1	
	BCM56844 A0	480 Gbps Ethernet Multilayer Switch
	BCM56844 A1	
	BCM56846 A0	640 Gbps Ethernet Multilayer Switch
	BCM56846 A1	
	BCM56854 A0	1.28Tbps I/O, 1Tbps Core Ethernet Switch
	BCM56850 A1	1.28Tbps I/O, 1Tbps Core Ethernet Switch
	BCM56854 A1	1.28Tbps I/O, 1Tbps Core Ethernet Switch
BCM88640	BCM88640 A0	80GBps DNX Traffic manager + Packet processor
	BCM88640 B0	
BCM88650	BCM88650 A0	200GBps DNX Traffic manager + Packet processor
	BCM88650 B0	
	BCM88650 B1	
BCM88660	BCM88660 A0	200GBps DNX Traffic manager + Packet processor
BCM88750	BCM88750 A0	1600GBps DNX Switch fabric
	BCM88750 B0	

Note: There is no warm boot support for External table expansion in BCM56620, BCM56630 and BCM56640 device family.

PHYS

Table 34: PHYs

Device	Driver Family	Description
BCM5218	522x	10/100Base-TX/FX Octal-PHY(tm) Transceiver
BCM5220	522x	10/100BASE-TX/FX Mini-F(tm) Transceiver
BCM5221	522x	10/100BASE-TX/FX Mini-F(tm) Transceiver
BCM5226	522x	10/100 BASE- TX/FX Hex-PHY(tm) Transceiver
BCM5228	522x	10/100BASE-TX/FX Octal-F(tm) Transceiver
BCM5238	522x	10/100BASE-TX OCTAL-f(tm) Transceiver
BCM5248	522x	10/100BASE-TX Octal-F(tm) Transceiver
BCM52681E A1	54680	Octal 10/100 Ethernet Transceiver
BCM5401	5401	10/100/1000BASE-T Gigabit Copper Transceiver
BCM5402	5402	10/100/1000BASE-T Gigabit Copper Transceiver
BCM5404	5404	Quad-Port 10/100/1000BASE-T Gigabit Copper Transceiver
BCM5424	5424	Quad 10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM5434	5424	Quad 10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM5411	5411	10/100/1000BASE-T Gigabit Copper Transceiver
BCM5421	5421S	10/100/1000BASE-T Gigabit Copper Transceiver
BCM5421S	5421S	10/100/1000BASE-T Gigabit Copper Transceiver with SerDes
BCM5461	5464	10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM5464	5464	Quad-Port 10/100/1000BASE-T Gigabit Copper Transceiver
BCM5464R	5464	Quad-Port 10/100/1000BASE-T Gigabit Copper Transceiver
BCM5464S	5464	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
BCM5464SR	5464	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
BCM5466	5464	Quad-Port 10/100/1000BASE-T Gigabit Copper Transceiver
BCM5466R	5464	Quad-Port 10/100/1000BASE-T Gigabit Copper Transceiver
BCM5466S	5464	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
BCM5466SR	5464	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
BCM5482	5482	Dual-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM5488	5464	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54240_C0	54280	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54240_C1	54280	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54280_A0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54280_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54280_C1	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54282_A0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54282_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54282_C1	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54285_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54285_C1	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54290_A0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (1588 feature is Bring-up)
BCM54292_A0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (1588 feature is Bring-up)
BCM54294_A0	54280	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver (1588 feature is Bring-up)
BCM54340_B0	54380	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
BCM54340_C0	54380	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)

Table 34: PHYs

Device	Driver Family	Description
`BCM54340_C1`	54380	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54380_B0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54380_C0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54380_C1`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54382_B0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54382_C0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54382_C1`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54385_B0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54385_C0`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54385_C1`	54380	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (Needs additional software component)
`BCM54616_A0`	54616	Single-Chip 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54618_A0`	54616	Single-Chip 10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM54640	54640	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
`BCM54640E_A1`	54640	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
BCM54640E B0	54640	Quad-Port Gigabit Copper Transceiver with Copper/Fiber Media Interface
`BCM54680_A0`	54680	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54680E_A1`	54680	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54680E_B0`	54680	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54682E_A1`	54682	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver with 2 Copper/Fiber Media Interface
`BCM54682E_B0`	54682	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver with 2 Copper/Fiber Media Interface
`BCM54684_D0`	54684	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
BCM54684E B0	54682	10/100/1000 Octal (65nm) QSGMII-Copper/Fiber(2) with EEE
BCM54685	54682	Octal QSGMII to 10/100/1000BaseT or Fiber Ethernet Transceiver
`BCM54685E_A1`	54682	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver with Copper/Fiber Media Interface
`BCM54810_A0`	54880	BroadR-Reach Single-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54880_A0`	54880	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver with BroadR-Reach support
`BCM54880_B0`	54880	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver with BroadR-Reach support
`BCM54880E_A1`	54680	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54880E_B0`	54680	Octal-Port 10/100/1000BASE-T Gigabit Ethernet Transceiver
`BCM54881_B0`	54880	Octal 10/100Base/Tx Ethernet BroadReach Transceiver
BCM54942 A0	84728	Quad-Channel 10GbE XAUI-to-XFI PHY. Firmware version 0124
`BCM54980_B2`	54980	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
`BCM54980_C0`	54980	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
`BCM54980_C1`	54980	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
`BCM8040_A2`	8040	Eight-Channel Multirate 1-Gbps - 3.2-Gbps Retimer/Switch
`BCM8073_A0`	8072	Dual-Channel Serial 10-GbE BASE-KR to XAUI Transceiver. Firmware version d502.
`BCM8074_A0`	8072	Quad-Channel Serial 10-GbE BASE-KR to XAUI Transceiver. Firmware version 010C.

Table 34: PHYs

Device	Driver Family	Description
BCM8704	8703	Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI Interface
BCM8705	8705	Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with WIS Layer and XAUI Interface
BCM8725	8705	Dual Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with WIS Layer and XAUI Interface
BCM8726_A0	8706	Dual Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI Interface
BCM8726_B1	8706	Dual Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI(TM) Interface. Firmware version 0x0127
BCM8727_B0	8706	Dual Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI Interface. Firmware version 0406.
BCM8727_C0	8706	Dual Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI Interface. Firmware version 050D.
BCM84727_A0	84728	Dual SFI to XAUI with 1588 (Firmware version 0x124. Bring-up)
BCM8728_A0	8706	Dual-Channel 10-GbE SFI-to-XAUI(TM) Transceiver with EDC. Firmware version 0511. (Bring-up)
BCM8742	8706	Quad-Channel 10-GbE SFI-to-XAUI(TM) Transceiver. Firmware version 0511.
BCM8747_A0	8706	Quad-Channel 10-GbE SFI-to-XAUI(TM) Transceiver with EDC. Firmware version 0511.
BCM8750_A0	8750	Dual-Channel 10 GbE SFI-to-XFI PHY with EDC
BCM8752_A0	8750	Dual-Channel 10 GbE SFI-to-XFI PHY with EDC
BCM8754_A0	8750	Quad-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version 0411.
BCM8481_B0	8481	10GBASE-T Transceiver (Firmware version B0 02.10)
BCM8481_C0	8481	10GBASE-T Transceiver (Firmware version C0 02.13)
BCM84164	BCM84740	Quad 10GBASE-KR-to-XFI or 40GBASE-KR4-to-XLAUI Transceiver Firmware version 0x128
BCM84168	BCM84740	Octal 10GBASE-KR-to-XFI or Dual 40GBASE-KR4-to-XLAUI Transceiver Firmware version 0x128
BCM82328_A0	82328	Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version 9 "(Bring-up)
BCM84328_A0	84328	Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version R026
BCM84328_B0	84328	Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version R027
BCM84333_B1	8481	Quad 10GBASE-T Transceiver. Firmware version 1.67 (Bring-up) (Needs additional software component)
BCM84334_B1	8481	Quad 10GBASE-T Transceiver. Firmware version 1.67 (Bring-up) (Needs additional software component)
BCM84336_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 1.67 (Bring-up) (Needs additional software component)
BCM84793_A0	84793	100GbE/OTN 4x25/28G VSR28 to 10x10/11G CAUI Gearbox PHY. Firmware version 0xD009 (Bring-up - Mode-1 and Mode-3)
BCM84812_A0	8481	Dual 10GBASE-T Transceiver. Firmware version 2.13
BCM84821_A0	8481	10GBASE-T Transceiver. Firmware version 2.13 (Bring-up)
BCM84822_A0	8481	Dual 10GBASE-T Transceiver. Firmware version 3.02
BCM84823_A0	8481	Dual 10GBASE-T Transceiver. Firmware version 3.02
BCM84823_B0	8481	Dual 10GBASE-T Transceiver. Firmware version 4.02
BCM84823_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 4.02
BCM84833_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 1.67(Driver support for IEEE 1588 features are Bring-up)
BCM84834_B1	8481	Quad 10GBASE-T Transceiver. Firmware version 1.67(Driver support for IEEE 1588 features are Bring-up)
BCM84836_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 1.67(Driver support for IEEE 1588 features are Bring-up)
BCM84844_A0	8481	Quad 10GBASE-T Transceiver. Firmware version 1.07.11(Driver support is Bring-up)

Table 34: PHYs

Device	Driver Family	Description
BCM84846_A0	8481	Dual 10GBASE-T Transceiver. Firmware version 1.07.11(Driver support is Bring-up)
BCM84848_A0	8481	Quad 10GBASE-T Transceiver. Firmware version 1.07.11(Driver support is Bring-up)
BCM84858_A0	8481	Quad 10GBASE-T Transceiver. Firmware version 00.02.02 (Driver support is bringup preview Bring-up)
BCM84728 A0	84728	Dual-Channel 10 GbE SFI-to-XAUI LAN/WAN PHY with 1588. Firmware version 0124 (Driver support for IEEE 1588 features is Bring-up)
BCM84729_A0	84729	Dual-Channel SFI to XAUI with Macsec, 1588 (Firmware version 0x124. Driver support for IEEE 1588 features are Bring-up)
BCM84740 A0	84740	40 GbE PPI-to-XLAUI PHY with EDC. Firmware version D106.
BCM84741 B0	84756	40GbE XLPPI-to-XLAUI/Quad 10G with IEEE MACsec/1588 Firmware version 0x0128 [Bring-up]
BCM84747_A0	84728	Quad SFI to XAUI with 1588 (Firmware version 0x124. Bring-up)
BCM84748_A0	84728	Quad SFI to XAUI with WAN/1588 (Firmware version 0x124. Bring-up)
BCM84749_A0	84749	Quad SFI to XAUI with Macsec, 1588 (Firmware version 0x124. Driver support for IEEE 1588 features are Bring-up)
BCM84752 A0	84740	Dual-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version D105. (Bring-up)
BCM84753 A0	84740	Quad-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version D105.
BCM84754 A0	84740	Quad-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version D105.
BCM84756 A0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version D105. (Needs additional software component)
BCM84756 B0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version 0x0128(Needs additional software component)
BCM84756 C0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version 0x0128(Needs additional software component) [Bring-up]
BCM84758	84740	10GbE Quad SFI-XFI PHY with IEEE 1588 Firmware version 0x128
BCM84759 A0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version D105.
BCM84759 C0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version 0x0128. (Bring-up)
BCM84780_A0	84740	Octal-Channel 10 GbE SFI-to-XFI PHY with 1588. Firmware version 0x128 (Bring-up)
BCM84784_A0	84740	Dual 40GbE/Octal 10GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version 0x125 (Bring-up)
BCM84764_A0	84728	Quad SFI to RXAUI with 1588 (Firmware version 0x124. Bring-up)
BCM84064 A0	84740	Quad 10G-KR-to-XFI or 40G-KR4-to-XLAUI Transceiver. Firmware version 0108.
BCM84074_A0	84728	Quad KR to XAUI (Firmware version 0x124. Bring-up)

OPERATING SYSTEMS

The SDK provides the SAL and BDE abstraction implementations necessary for running the SDK on the following operating systems. See the Platform Guide (56XX-PG810-R) for instructions on porting the SDK to another platform.

Table 35: Operating Systems

Operating System
VxWorks 5.5
VxWorks 6.2
VxWorks 6.4
VxWorks 6.5
VxWorks 6.6
Linux 2.6.21 User Mode
Linux 2.6.21 Kernel Resident Mode
Linux 2.6.25 User Mode
Linux 2.6.25 Kernel Resident Mode
Linux 2.6.27 User Mode
Linux 2.6.27 Kernel Resident Mode
Linux 2.6.35 User Mode
Linux 2.6.35 Kernel Resident Mode
POSIX Compliant (SAL ONLY)

CPU SUBSYSTEMS

Table 36: CPU Subsystems

CPU Subsystem	Description
BCM98245	CPCI 32-bit PPC with Motorola 8245 Processor
BCM98548XMC	XMC 32-bit PPC with Freescale 8548 Processor
BCM953003C	XMC 32-bit MIPS74Kc with BCM53003 Processor
BCM5300X	32-bit MIPS74Kc with BCM5300X Processor
BCM5301X	Integrated ARM Cortex-A9 CPU on BCM5301X Switch Devices
BCM5302X	Integrated ARM Cortex-A9 CPU on BCM5302X Switch Devices
BCM5621X	Integrated MIPS CPU on BCM5621X Switch Devices
BCM5622X	Integrated MIPS CPU on BCM5622X Switch Devices
BCM5331X	Integrated MIPS CPU on BCM5331X Switch Devices
BCM5360X	Integrated MIPS74Kc CPU on BCM5360X Switch Devices
BCM9XLP316LXMC	XMC with Broadcom XLP 316 processor that includes up to sixteen NXCPUs(4 cores)
BCM958625XMC(CPU)	XMC with BCM58625 processor (1.2 GHz ARM Cortex.-A9 dual-core processor NXCPUs(4 cores) each operating at up to 2.0 GHz
BCM9XLP208XMC	XMC with Broadcom XLP 208 processor that includes up to eight NXCPUs(2 cores)

CPU AND OPERATING SYSTEM COMBINATIONS

The following CPU and Operating System combinations are supported by the SDK (in addition to the above):

Table 37: CPU and Operating System Combinations

CPU Subsystem	Operating System	Description
BCM98245	VxWorks 6.2	BSP Provided
BCM98245	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM5621X	VxWorks 6.4	BSP Provided
BCM5621X	Linux 2.6.21	Available through WindRiver Linux 2.0 `bcm_ntswics`
BCM5331X	VxWorks 6.4	BSP Provided
BCM5331X	Linux 2.6.21	Available through WindRiver Linux 2.0 `bcm_ntswics`
BCM98548XMC	VxWorks 6.5	BSP Provided
BCM98548XMC	Linux 2.6.27	Available through WindRiver Linux 3.0. Note: Additional patches for issues WIND00172598 and WIND00161649 are required. Contact your WindRiver support personnel for these patches and other WindRiver information.
BCM5300X	VxWorks 6.6	BSP Provided
BCM5300X	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM5300X	Linux 2.6.27	Available through WindRiver Linux 3.x
BCM5301X	Linux 2.6.35	Available through Broadcom Customer Support Portal
BCM5302X	Linux 2.6.35	Available through Broadcom Customer Support Portal
BCM5360X	VxWorks 6.6	BSP Provided
BCM5360X	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM5360X	Linux 2.6.27	Available through WindRiver Linux 3.x
Generic X86	Linux 2.6.25/2.6.27	

Section 11: Release Media

The Software Development Kit is released as a gzipped tar file on the Broadcom Customer Support Portal, http://support.broadcom.com. The Network Switching Software Platform Guide, also available on the Customer Support Portal, provides documentation on the various components, the source directory layout, how to build the release for various platforms, and how to customize and port the software to new platforms.

Section 12: Support

Questions, feedback, and/or suggestions should be sent to your Broadcom FAE.

Section 13: Firmware Compatibility Matrix

The following table shows compatibility between different versions of SDK and Firmware releases.

BCM56440 FIRMWARE COMPATIBILITY MATRIX

Table 38:

SDK	Firmware 3.0.0	Firmware 3.0.1	Firmware 3.1.0	Firmware 3.2.0	Firmware 3.2.1	Firmware 3.2.2	Firmware 4.0.0	Firmware 4.0.1	Firmware 4.0.2	Firmware 4.0.3
SDK-6.2.9	Yes	Yes	Yes	No	No	No	No	No	No	No
SDK-6.3.0	Yes	Yes	No	Yes	No	No	No	No	No	No
SDK-6.3.1	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.2	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.3	No	No	No	Yes*	Yes*	Yes*	No	No	No	No
SDK-6.3.4	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.5	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.6	No	No	No	Yes	Yes	Yes	Yes	No	No	No
SDK-6.3.7	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
SDK-6.3.8	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
SDK-6.3.9	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDK-6.3.10	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	In validation

* In order to support embedded applications, a patch is needed to merge the fix for SDK-53008 to SDK 6.3.3 release.

BCM56640 FIRMWARE COMPATIBILITY MATRIX

Table 39:

SDK	Firmware 3.0.0	Firmware 3.0.1	Firmware 3.1.0	Firmware 3.2.0	Firmware 3.2.1	Firmware 3.2.2	Firmware 4.0.0	Firmware 4.0.1	Firmware 4.0.2	Firmware 4.0.3
SDK-6.2.9	No	No	Yes	No	No	No	No	No	No	No
SDK-6.3.0	Yes	Yes	No	No	No	No	No	No	No	No
SDK-6.3.1	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.2	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.3	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.4	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.5	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.6	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.7	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
SDK-6.3.8	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
SDK-6.3.9	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDK-6.3.10	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	In validation

BCM88650 FIRMWARE COMPATIBILITY MATRIX

Table 40:

SDK	Firmware 3.0.0	Firmware 3.0.1	Firmware 3.1.0	Firmware 3.2.0	Firmware 3.2.1	Firmware 3.2.2	Firmware 4.0.0	Firmware 4.0.1	Firmware 4.0.2	Firmware 4.0.3
SDK-6.2.9	No	No	Yes	No	No	No	No	No	No	No
SDK-6.3.0	Yes	Yes	No	Yes	No	No	No	No	No	No
SDK-6.3.1	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.2	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.3	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.4	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.5	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.6	No	No	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.7	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
SDK-6.3.8	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
SDK-6.3.9	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	In validation
SDK-6.3.10	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	In validation

BCM56850 FIRMWARE COMPATIBILITY MATRIX

Table 41:

SDK	Firmware 3.1.0	Firmware 3.2.0	Firmware 3.2.1	Firmware 3.2.2	Firmware 4.0.0	Firmware 4.0.1	Firmware 4.0.2	Firmware 4.0.3
SDK-6.2.9	No	Yes	No	No	No	No	No	No
SDK-6.3.0	No	Yes	No	No	No	No	No	No
SDK-6.3.1	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.2	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.3	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.4	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.5	No	Yes	Yes	Yes	No	No	No	No
SDK-6.3.6	No	Yes	Yes	Yes	Yes	No	No	No
SDK-6.3.7	No	Yes	Yes	Yes	Yes	Yes	No	No
SDK-6.3.8	No	Yes	Yes	Yes	Yes	Yes	Yes	No
SDK-6.3.9	No	Yes	Yes	Yes	Yes	Yes	Yes	yes
SDK-6.3.10	No	Yes	Yes	Yes	Yes	Yes	Yes	In validation

BCM56450 FIRMWARE COMPATIBILITY MATRIX

Table 42:

SDK	Firmware 3.0.0	Firmware 3.0.1	Firmware 3.1.0	Firmware 3.2.0	Firmware 3.2.1	Firmware 3.2.2	Firmware 4.0.0	Firmware 4.0.1	Firmware 4.0.2	Firmware 4.0.3
SDK-6.3.6	No	No	No	No	No	No	Yes	No	No	No
SDK-6.3.7	No	No	No	No	No	No	Yes	Yes	No	No
SDK-6.3.8	No	No	No	No	No	No	Yes	Yes	Yes	No
SDK-6.3.9	No	No	No	No	No	No	Yes	Yes	Yes	Yes
SDK-6.3.10	No	No	No	No	No	No	Yes	Yes	Yes	In validation

BMACSEC SDK COMPATIBILITY MATRIX

Table 43:

Switch SDK Release	BMACSEC SDK Release
5.10.2	3.1
5.10.3	3.2
6.0.1	3.3
5.10.4	3.4
6.0.2	3.4
6.2.0	3.5
5.11.0	3.6
6.2.1	3.7
6.2.2	3.8
6.2.3	3.8
5.11.1	3.9
6.2.4	3.9
6.2.5	3.10
6.2.6	3.11
6.2.7	3.12
6.2.8	3.13
6.2.9	3.14
6.3.0	4.0
6.3.1	4.1
6.3.2	4.2
6.3.3	4.3
6.3.4	4.4
6.3.5	4.6
6.3.6	4.7
6.3.7	4.8
6.4.1	4.8
6.3.8	4.9
6.3.9	4.10
6.4.2	4.10
6.3.10	4.11

Section 14: SDK Externally Licensed Software Components

SDK contains a number of third-party externally licensed software components. This appendix contains information regarding these components, the license for each of these components, and where these components are used in SDK.

Table 44: EXTERNALLY LICENSED SOFTWARE COMPONENTS

Component	Origin	Location in source tree	License terms and conditions
EDITLINE	/afs/athena.mit.edu/contrib/sipb/src/editline	src/sal/appl/editline	See (EDITLINE License terms and conditions) (page 116)
ED Editor	USENET comp.sources.misc Volume 9, Issue 36	src/appl/diag/edline.c	See (ED Editor License terms and conditions) (page 118)
CINT	http://www.gnu.org/software/bison/	`src/appl/cint/cint_parser.[ch]`	See (CINT parser license terms and conditions) (page 119)
CES Driver	BATM Advanced Communications Ltd	`src/soc/ces/nemo_driver/*.[ch]`, src/soc/ces/clsbuilder/*.[ch]	See (Circuit Emulation Service (CES) Driver terms and conditions) (page 120)
BIGDIGITS	David Ireland, copyright (c) 2001-11 by D.I. Management Services Pty Limited <www.di-mgt.com.au>	`src/soc/dpp/SAND/Utils/sand_u64.c`	See (BIGDIGITS license terms and conditions) (page 121)
APIMODE	http://www.gnu.org/software/bison/	`src/appl/diag/api/api_grammar.tab.[ch]`	See (APIMODE parser license terms and conditions) (page 122)
VxWorks	Wind River Systems, Inc.	systems/vxworks	See (Wind River Systems license terms and conditions) (page 123)

EDITLINE LICENSE TERMS AND CONDITIONS

This package was obtained from the following location, and was modified
for purposes of inclusion into the SOC diagnostics shell.

Removed files:
        MANIFEST Make.os9 Makefile os9.h sysos9.c testit.c unix.h

Added files:
        sysvxworks.c Makefile

Changed functionality:
        Merged unix.h into editline.h
        M-P and M-N now behave like tcsh.
        list_history(count) routine displays history
        Commented out completion
        Changed rl_complete and rl_list_possib into caller-settable
                global functions
        Don't ring bell on TAB if word is already complete

Index of /afs/athena.mit.edu/contrib/sipb/src/editline


```
[     ] Name                    Last modified     Size  Description
  -------------------------------------------------------------------------


 [DIR]   Parent Directory       11-May-99 03:40      -
 [    ]  MANIFEST               07-Jul-97 11:20     1k
 [    ]  Make.os9               07-Jul-97 11:20     1k
 [    ]  Makefile               01-Sep-97 00:34     2k
 [    ]  complete.c             07-Jul-97 11:20     4k
 [    ]  editline.3             07-Jul-97 11:20     5k
 [    ]  editline.c             07-Jul-97 11:20    25k
 [    ]  editline.h             07-Jul-97 11:20     2k
 [    ]  os9.h                  07-Jul-97 11:20     1k
 [    ]  sysos9.c               07-Jul-97 11:20     1k
 [    ]  sysunix.c              07-Jul-97 11:20     3k
 [    ]  testit.c               07-Jul-97 11:20     1k
 [    ]  unix.h                 07-Jul-97 11:20     1k


   -------------------------------------------------------------------------
```


$Revision: 1.7 $

This is a line-editing library. It can be linked into almost any
program to provide command-line editing and recall.

It is call-compatible with the FSF readline library, but it is a
fraction of the size (and offers fewer features). It does not use
standard I/O. It is distributed under a "C News-like" copyright.

Configuration is done in the Makefile. Type "make testit" to get

a small slow shell for testing.

This contains some changes since the posting to comp.sources.misc:
- Bugfix for completion on absolute pathnames.
- Better handling of M-n versus showing raw 8bit chars.
- Better signal handling.
- Now supports termios/termio/sgttyb ioctl's.
- Add M-m command to toggle how 8bit data is displayed.
The following changes, made since the last public release, come from
J.G. Vons <vons@cesar.crbca1.sinet.slb.com>:
- History-searching no longer redraws the line wrong
- Added ESC-ESC as synonym for ESC-?
- SIGQUIT (normally ^) now sends a signal, not indicating EOF.
- Fixed some typo's and unclear wording in the manpage.
- Fixed completion when all entries shared a common prefix.
- Fixed some meta-char line-redrawing bugs.

Enjoy,

        Rich $alz
        <rsalz@osf.org>

ED EDITOR LICENSE TERMS AND CONDITIONS

```
 ed - standard editor
 ^^

   Authors: Brian Beattie, Kees Bot, and others

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2). This notice must remain intact.
3). No further restrictions may be added.


- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 TurboC mods and cleanup 8/17/88 RAMontante.
 Further information (posting headers, etc.) at end of file.

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Modification log:
25Aug92  (W.Metzenthen) Changed malloc() call to calloc() in makebitmap()
         to remove bugs under Linux. Changed a few '^' to the correct '~'.
         General tidying. Recognize Linux via the __linux__ symbol.
         Main change based upon suggestion by Wolfgang Thiel.
07Sep99  Changed large amounts of stuff to simplify  --Curt McDowell
```

CINT PARSER LICENSE TERMS AND CONDITIONS

The C code for the CINT parser was generated by using GNU Bison parser
generator from the file cint_grammar.y   CINT is an optional diagnostic
tool that can be included in your system by adding CINT to the
FEATURE_LIST in SDK compilation flags.

Removed files:
        None

Added files:
        None

Changed functionality:
        None

/* A Bison parser, made by GNU Bison 2.4.1. */

/* Skeleton implementation for Bison's Yacc-like parsers in C

      Copyright (C) 1984, 1989, 1990, 2000, 2001, 2002, 2003, 2004, 2005, 2006
   Free Software Foundation, Inc.

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   it under the terms of the GNU General Public License as published by
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   (at your option) any later version.

   This program is distributed in the hope that it will be useful,
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   MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
   GNU General Public License for more details.

   You should have received a copy of the GNU General Public License
   along with this program. If not, see <http://www.gnu.org/licenses/>. */

/* As a special exception, you may create a larger work that contains
   part or all of the Bison parser skeleton and distribute that work
   under terms of your choice, so long as that work isn't itself a
   parser generator using the skeleton or a modified version thereof
   as a parser skeleton. Alternatively, if you modify or redistribute
   the parser skeleton itself, you may (at your option) remove this
   special exception, which will cause the skeleton and the resulting
   Bison output files to be licensed under the GNU General Public
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   This special exception was added by the Free Software Foundation in
   version 2.2 of Bison. */

/* C LALR(1) parser skeleton written by Richard Stallman, by
   simplifying the original so-called "semantic" parser. */

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generator from the file api_grammar.y   APIMODE is an optional diagnostics
shell interface that can be included in your system by adding APIMDOE to the
FEATURE_LIST in SDK compilation flags.

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Section 15: Resolved Issues for 6.3.9

The following issues are resolved in version 6.3.9 of the SDK.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-45253		56643_B0	For flexible HG ports port mode register xport field should be set to 0 (Single mode). Setting it to zero removes the underflow issue. Fixed the same.
SDK-49910		56640_A0 56640_A1 56640_B0	The issue is that the function `_bcm_tr3_cosq_node_get` expects a GPORT node to be passed. However, for the cpu node we don't pass a gport and this returns `BCM_E_PORT.` The fix is to get the sched index via `_bcm_tr3_cosq_index_resolve` in the alternate path.
SDK-50311	693316	56850_A0 56850_A1 56850_A2	In earlier releases, the mask in flex hash entry could not be configured with existing API. This has been resolved.
SDK-51769	691762	56840_A0	In earlier release, when HIGIG port speed was 40G and external phy was in reverse mode, the SOP, SOM and sequence alignment were not programmed correctly. This has been resolved.
SDK-52710	729008	56224_B0	On UNIMAC devices, calling `bcm_stat_init()` API was overwriting the maximum frame setting on port when configuration for Jumbo packet handling using `bcm_stat_jumbo.` This configuration will set the size used by counter collection to decide when to count over-sized packets. When call `bcm_stat_init()` the maximum frame size was being set to this jumbo size setting ovewriting the existing max frame setting on a port. Removed this code for setting the max frame size during `bcm_stat_init.` THe counter collection for over-sized packet has been fixed to take into account the oversize stats.
SDK-53222 SDK-52915	733469	56450_A0	In Katana2 the capability to display the lls tree of the coe port was missing and It has been added
SDK-53223	733490	56450_A0	Shaper configuration was not reset when the nodes in scheduler tree were deleted or detached in the tree. Added code to reset the shaper configuration when the nodes in scheduler tree are deleted or detached.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-54341 SDK-57678		56640_A0 56344_A0	When changing the parent of any L2 node from WDRR to SP, `BCM_E_TIMEOUT` is thrown, since dynamic change of SP<->WRR is not supported. The current way to resolve this is: Customer calls APIs to stop enqueue and drain the mmu queues before changing the scheduler mode.
			With this method, the customer is expected to call the following APIs to stop the enqueue and drain the mmu before detaching/attaching to a parent with different scheduler mode. `bcm_port_control_set(unit, port, bcmPortControlMmuTrafficEnable, 0);`
			`bcm_port_control_set(unit, port, bcmPortControlMmuDrain, 1);`
			`<Detach/attach/sched_set>`
			`bcm_port_control_set(unit, port, bcmPortControlMmuTrafficEnable, 1);`
SDK-54606	651774	56850_A2	The supports for per-lane PHY controls have been added in TSCMOD.
SDK-55607	752009	56640_A0 56540_A0 56640_A1 56640_B0 56540_B0	When OAM LM endpoint is deleted on Triumph3, feild group is also deleted if there are no more OAM LM endpoints present in that group. On deleting the field group, field group index was not set to invalid. This issue has been fixed.
SDK-55706	730810	56540_A0 56540_B0	Issue :- "fp show" and "listmem `fp_tcam`" are reporting incorrect entry values for IFP in Apollo2
			Fix :- Updated "fp show" command to return correct entry count for IFP in Apollo2. "ListMem `fp_tcam`" cannot be fixed as the command reads from driver. Modifying the driver values is leading to other issues.
SDK-56001	761280	All	`soc_feature_timesync_support` flag enables 1588/PTP protocol's transparent clock support. This JIRA enables PTP transparent clock support for Triumph 3.
SDK-56099	766312	56334_B0 56334_A0	Repaired `EGR_VLAN` table corruption during hash table entry balancing in Enduro devices.
SDK-56280		All	BMW CPU platform was removed from SW and SQA nightly builds and tests 2 years ago. BMW is not built or validated on any recent SDK releases in either SDK-6.3.x or SDK-6.4.x train.
			The last SW release that supported BMW was SDK-6.2.0 on Aug 16, 2012. BMW binaries were removed starting with SDK-6.2.1 (Oct 22, 2012) onward.
			By the time of SDK-6.4.2 release, it will have been exactly 2 years since the platform was discontinued in official releases.
			The problem is that SDK Platform guide has not been updated in the longest time. Now that we are about to publish an updated version together with SDK-6.4.1 release, this JIRA will update the document to match what has been published on DocSAFE. Releases posted on DocSAFE did not include BMW binaries for 2 years now.

Table 45:

Number	CSP #	Chips		Release Notes For 6.3.9
SDK-56424	767587	`56850_A0`		Problem: Modified srtcm meter mode support was missing in Trident2 for Egress FieldProcessor Stage
				Solution: Added modified srtcm metering support in coldboot and warmboot for Egress Field Processor Stage in Trident2.This includes policer creation, attach and install the configs. It also includes recovery of the meter during warmboot.
SDK-56589	771496	`56450_B0` `56455_A0` `56456_A0` `56846_A0` `56845_B0` `56845_A2` `56844_A0` `56842_A0` `56840_A0` `56640_A0` `56440_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56843_B0` `56841_A3` `56445_A0` `56440_A1` `56445_A1` `56444_A1` `56450_A0` `56846_A1` `56841_B0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0` `56449_B0` `56445_B0` `56440_B0` `56447_B0` `56443_B0` `56441_B0` `56446_B0` `56448_B0` `56442_B0`		Customer found the counter RDVLN did not work without configuring XMAC_RX_VLAN_TAG register. They also found there was no way to set this register in previous SDK release. Now an improvement has been implemented to set the register by `bcm_port_tpid_set()` & `bcm_port_inner_tpid_set()` APIs.
SDK-56776	772447	`56440_A0` `56440_B0` `56450_A0` `56450_B0` `56850_A0`		Issue: When `DK_MEM` flag is enabled, we would access L2X views array during L2 initialization.
				We would use `KEY_TYPE` as index in L2X views array. `KEY_TYPE` field is 3 bits wide in KT/KT2 and 4 bits wide in TD2. Hence it is set to 7 in KT/KT2 and 15 in TD2.
				For KT,KT2 and TD2, `KEY_TYPE` is greater than maximum index of L2X views array and it may result in segmentation fault while accessing this array with index greater than maximum index.
				Fix: In `soc_mem_entry_dump_common`, for KT/KT2/TD2, if `key_type` is greater than maximum index of L2X views array, then `key_type` value is set to the respective L2X view array maximum index value.
SDK-57000	755118	`56850_A0` `56850_A1` `56850_A2`		Support has been added for VPLAG for VxLAN based VPs.
SDK-57146	779181	`56850_A0` `56850_A1` `56850_A2`		Description: `MAP_TABLE` is not correctly indexed in `bcm_esw_switch_rcpu_encap_priority_map_set()`
				Root cause: It's a typo.
				Solution: The software now corrects the typo.

Table 45:

Number	CSP #	Chips		Release Notes For 6.3.9
SDK-57197	776292	`56620_B0`		Description: A parity entry in `L3_DEFIP_DATA_ONLY` can't be cleared by SDK-6.3.6 Root cause: In the earlier software, the table `L3_DEFIP_DATA_ONLY` is not cached, so the SER engine returns not available, and hence the corrupted entry would not be cleared. Solution: Current software has the `SOC_MEM_FLAG_SER_CACHE_RESTORE` set to `L3_DEFIP_DATA_ONLY,` once an SER error was detected on an entry of `L3_DEFIP_DATA_ONLY,` the ser correction engine will clear/restore the whole `L3_DEFIP` entry.
SDK-57205	779120	`56846_A0`	`56845_B0`	In previous release, `bcm_stat_get/clear()` APIs could only handle software counters on CPU port although chip has hardware CPU counters. Now these APIs have been improved to support hardware CPU counters. This improvement only works on TD, TD2, TH chips now.
		`56845_A2`	`56844_A0`	
		`56842_A0`	`56840_A0`	
		`56843_B0`	`56841_A3`	
		`56846_A1`	`56841_B0`	
SDK-57527		`56640_A0`	`56850_A0`	In case of TD2, CMIC free running clock was pointing to external clock even if no external clock is attached to unit. Fix is provided to addess the issue so that internal reference clock is used if no external clock is present on reference pad.
SDK-57723	787163	`56846_A0`	`56845_B0`	In the previous release, the validity of `niv_src_vif` was not checked when calling `_bcm_trident_mirror_niv_tunnel_set.` In this release, the `niv_src_vif` is masked with `_BCM_TD_MIRROR_NIV_SRC_VIF_MASK` when calling `_bcm_trident_mirror_niv_tunnel_set`
		`56845_A2`	`56844_A0`	
		`56842_A0`	`56840_A0`	
		`56850_A0`	`56855_A0`	
		`56843_B0`	`56841_A3`	
		`56846_A1`	`56841_B0`	
		`56854_B0`	`56854_A0`	
		`56850_A1`	`56851P_A1`	
		`56851_A1`	`56850_A2`	
		`56851_A2`	`56851P_A2`	
		`56854_A2`	`56853_A2`	
		`56852_A2`	`56855_A2`	
		`56851_A0`	`56852_A0`	
		`56852_A1`	`56853_A0`	
		`56853_A1`		
SDK-57983	789226	`56850_A2`		DMA source mode was not set after warmboot. This is fixed
SDK-58048		`53125_A0`	`53018_A0`	Fixed segmentation fault encountered when SDK was operated with KNET on the Northstar and Starfighter devices of Robo family.
		`53125_B0`		
SDK-58083		`88650_A0`	`88660_A0`	VLAN edit: `bcm_vlan_translate_action_create()` defines a VLAN edit action per LIF in a standard VLAN edit mode. The API can be provided with a physical port and inner/outer VLAN values. The API didn't fail call with VLAN out of range values (>4095). A validation was added.
SDK-58163		`56850_A2`		In previous release, invoking `bcm_trunk_set` to a existing Trunk or HiGig Trunk would cause flow set table to be totally re-computed. This has been resolved in a manner that the flows assigned to staying members will now be kept without shuffling.
SDK-58247	787119	`53018_A0`		Fixed incorrect use of tx channel index of IPROC platform in KNET driver on BCM5301x platforms.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-58329	791806	`56850_A0 56850_A1 56850_A2`	In the previous release, there are some static analysis issues found by customer in the ALPM module. Now those issues have been fixed.
SDK-58485	796744	All `56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 56850_A0 56855_A0 56843_B0 56841_A3 56846_A1 56841_B0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1`	In the previous release, the internal priority could not be mapped correctly from the field DSCP in the IP packets with the API `bcm_qos_port_map_set` on TRIDETNT2. In this release, this issue has been addressed by programming the field `TRUST_DSCP_PTR` in the table `PORT_TAB`.
SDK-58501	794058	`56850_A0 56850_A1 56850_A2`	In the previous release, `bcm_fcoe_route_find` didn`t support the return of a `l3_intf` id. In this release, it supports the return of the `l3_intf` id.
SDK-58525	794780	`88650_A0 88650_B0 88650_B1 88660_A0 88670_A0`	The corrective action for interrupt `FCT_UNRCH_DEST_EVENT` doesn't work for unit#0 - Fixed.
SDK-58550	797110	`88750_B0`	FE13 Isolation is intended for a planned removal of an FE card without affecting traffic. Executing the current isolation sequence on an FE13 while under traffic will cause traffic loss. The reason behind it is that the FE13 isolation sequence will cause the FE3 RTP table to be updated before the FE1 RTP table. Therefore traffic will still go into the fabric plane, but the FE3 will not be able to forward it, and will be forced to drop the traffic. Workaround: Isolate an entire FE plane, by masking the relevant links in the FDT across all the FAPs in the system. Then execute the isolation sequence on the FE13 card. This option will stop all data cells from running through the fabric, allowing a safe extraction of a single FE card. Fabric plane redundancy is required in this case. In order to stop/start sending traffic over a FAP link use the following API: `bcm_fabric_link_control_set(unit, link, bcmFabricLinkTxTrafficDisable, disable);` The isolate sequence should disable to links (across all the FAPs) that connected to the relevant fabric plane.
SDK-58609	794549	`88650_A0 88650_B0 88650_B1 88660_A0`	OAM: support up MEP packets when using Petra-B TM mode (Petra-B FTMH).
SDK-58641	799444	`56640_A0 56640_B0`	Added support in SDK software to use NL 11K series 20M external TCAM with the new 56545K SKU.
SDK-58698	799433	`56150_A0 53344_A0`	An unexpected timeout of draining packets happened when unplugging the cable from TSC ports of BCM53344 platform. This has been resolved with correct port disable sequence.
SDK-58733		All	New build toolchain XLP SDK 3.0.2 effected on GTR and WRX based SVKs.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-58749 SDK-63028	800086	`56450_A0` `56450_B0`	1G speed is advertised with XE port or <=10000 only and not on HIGIG port
			After flex-io operation on hg port, max-speed still remains as hi gig speed (>=13g) and port is not treated as normal ethernet (ge/xe port).
			Speed Capability decision was based on max-speed. Due to this max- hi-gig speed, changing speed to 1G port was not possible. Now ORed max-speed with `IS_XE_PORT()` and issue is resolved
SDK-58920	802188	`56450_B0`	Earlier MSI EP mapping was implemented within the BDE (that supported MSI interrupts) .Customers who did not plan to use the Broadcom BDE then had to implement the MSI mapping in their BDE code. This issue has been fixed by adding the MSI EP mapping to SOC function `'soc_pci_ep_config'`.
SDK-59048	803885	`56450_B0`	Description: Unexpected Parity Error on `LLS_ERROR` register.
			The root cause of this issue is as following: When changing port loopback mode from LB=MAC or LB=PHY to LB=NONE, the operated port will link down after a while and in the time gap, traffic won't be stopped forwarding to the operated port until link down happens to it. Meanwhile, the mode changing squences will modify the MMU associated to the operated port, this causes the MMU issue.
			Solution: When changing port loop back mode from LB=MAC or LB=PHY to LB=NONE, adding code to force the port to link down to prevent traffic being fordwarded to the port which is being operated.
SDK-59058	790799	`56640_A0` `56640_A1` `56640_B0`	This is an improvement to clear initialize the external TCAM (NL11K) that can be used in conjunction with 56640 chips. The entire TCAM database is cleared using a fast initialization sequence in order to keep the time consumed to a minimum.
SDK-59237		`56334_A0` `56304_B1` `56150_A0`	APIs required for supporting 1-step and 2-step timestamping for Hurricane2 devices has been added in this release.
SDK-59250	770333	`56640_A0` `56640_B0`	In earlier releases PFC on 100G port was not working correctly. When configuring HSP port on TR3 there is a 1 bit shift seen in cos mapping. Priority 2 is mapped to cos0, etc. This is because UC COS0 is tied to L0.1 and so on. This was fixed to assign L0 nodes such that first L0 node is 4X-1. HSP port consumes only 2 index of `FC_MAP_TBL` since it looks like the mapping in Tr3 would be similar to TD2 for HSP case. Thus the `hw_index` is changed to 236+8 for ce port 1.
SDK-59252		`88650_B1` `88660_A0`	In FCoE module, when updating NPV port control, using API `bcm_port_control_set(unit, src_port,` bcmPortControlFcoeNetworkPort, VALUE) behavior is changed to be consistent with other devices flow. Now, to set port to source routing, VALUE should be set to '0'. For port to destination routing, VALUE should be set to '1'.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-59307	804642	All 56450_A0 56450_B0	In the previous release the tr 140 test did not have an erring pattern print when BIST fails. The erring pattern print has been added now to locate the exact memory location it fails and the pattern used only when BIST fails.
SDK-59383	806046	56850_A0	In previous releases, `soc_mem_generic_insert` is running infinitely doing ser correction and `soc_schan_op` for the table `L3_ENTRY_IPV4_UNICAST` if there is parity error in this table. For some reason if the correction does not succeed even though `soc_ser_sram_correction` returns `SOC_E_NONE,` then `soc_mem_generic_insert` does SER correction infinitely. A schan retry limit has been introduced. Once this limit has been reached, ser correction and table operation retry will be terminated and the infinite loop will be avoided.
SDK-59408 SDK-43524	803517	56840_A0	WC40 port stopped egressing pkts after link down/up event because of errata 2.6 mentioned in BCM56840-ES107. SW work around is provided to reset CL82 state machine when port goes down.
SDK-59464	791410	88660_A0	Cosq: Two flags are added as below: 1) `BCM_COSQ_FC_PORT_OVER_PFC` for Mapping PFC source to port target. 2) `BCM_COSQ_FC_INTF_COSQ_PFC` for Mapping PFC source to relevant priority in all ports on same interface. For a calling sequence example, refer to `cint_arad_pfc_reception_mapping.c.`
SDK-59476		88660_A0	The avs read diagnostics shell command was broken for Arad+ (worked properly for Arad). This command is used to retrieve recommended operating voltage as define upon manufacturing.
SDK-59495		56340_A0	Improvement was requested to add FLOW end reason code in App-IQ engine generated Flow Tracker end report. Provided the support for the same.
SDK-59548		56640_A0 56450_A0 56640_A1 56640_B0 56450_B0	In earlier releases there was no SDK support for inner VLAN tag modification. Now fixed to add the support for inner VLAN tag modification through the usage of `bcm_qos_map_XXX( )` API and `BCM_QOS_MAP_L2_INNER_TAG` flag to create profiles in `EGR_MPLS_EXP_MAPPING_2` table.
SDK-59590	798399	88650_B1	Cosq: `CFC_EN` bit in `CFC_ENABLERS` register is used to enable device-level flow control. This bit should be set after all other CFC settings are done. Otherwise, some errors may be occur. After the fix, the bit will be set after all other CFC settings are finished.
SDK-59690	804106	56340_A0	In this release added the phy control bcm shell comand support for qsgmii serdes of Helix4
SDK-59705	805285	All	In L2 MAC table, when calling the API function `bcm_l2_addr_delete_by_trunk(),` the trunk ID was not masked properly when traversing the MACT, resulting in unintended deletion of entries. The masking of the trunk ID is now fixed.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-59710		`88650_B1 88660_A0`	AC gport can be found via matching info. An error occurs when trying to get LIF gport via matching info for ingress only ACs. After the fix, VLAN gport can be found with `BCM_VLAN_PORT_CREATE_INGRESS_ONLY` flag.
SDK-59823	808861	`56850_A0 84328_A0` `56850_A1 84328_B0` `56850_A2`	It was reported that when there is an external PHY that doesn't support TX squelch, the squelching action would return `"SOC_E_UNAVAIL"`, which would lead to the failures of some loopback related operations. The fixing was to use PHY notify event to squelch the TX on internal PHY instead of calling PHY control set to squelch the TX on external PHY when the external PHY is present.
SDK-59833	804363	`56850_A0 56850_A1` `56850_A2`	In previous releases, the conflicting MAC addresses couldn't be retrieved correctly due to a typo in `_bcm_tr_dual_l2_conflict_get`. The issue had been fixed.
SDK-59839		`88650_A0 88660_A0`	L3: The API `bcm_l3_ingress_get()` retrieve some RIF related info that can also be set through the related API `bcm_l3_ingress_create()`. One of the retrieved fields is the VRF of the RIF. The VRF field wasn't updated by `bcm_l3_ingress_get()` although it was set by `bcm_l3_ingress_create()`. `bcm_l3_ingress_get()` was modified to retrieve the VRF field.
SDK-59864 SDK-61165 SDK-61022		`88660_A0`	In metering, the meter configuration is optimized for the best rate accuracy. However the configuration was not optimized to have the highest bucket update rate. This created some issues when the traffic is composed of bursts and the bucket size is small. This fix changes the calculation of the values to configure to have the best possible bucket update rate, without having any impact on rate accuracy.
SDK-59866		`56450_A0 56450_B0`	Problem: Access to `ING_PHYSICAL_PORT_TABLE` in traffic was causing corruption and behaviour was un-predictable. Fix: 1) Added KT2-B1 support 2) Fix for `ING_PHYSICAL_PORT_TABLE` corruption happening in hw Read and write to `ING_PHYSICAL_PORT_TABLE` access is protected by writing 1 to 0 `INQ_Q_BEGINr:ING_PHYSICAL_PORT_S BUS_WITH_PKT_DISABLEf`
SDK-59898	701984	`88650_A0`	Disabling a port, using `bcm_port_enable_set()` fails since EGQ fail to drain. Fixed
SDK-59917		`56640_A0 56640_A1` `56640_B0`	`bcm_cosq_gport_scheduler_set()` API does not seem to take effect while setting the scheduler to WRR. Turns out, even though the API does set the register for enabling WRR initially, it gets overwritten later on. This has been rectified by changing code such that the register change is done towards the end of the API implementation.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-59934	811343	`56850_A0`	Root cause: Once a ser error occured on a entry of memory of `L3_DEFIPm,` the correction handle will invoke routine `soc_generic_ser_process_error` to correct it. This routine is a common one for all chips. But each chip inputs a chip based specific event not a BCM event. The chip based specific event varies on each chip. But in the routine, it only deals a SER error, so we need raise a PARITY error detected event. The existing code really has the code to raise a event but with a wrong type since it used the `err_type` directly. As a result, the event reported in this case would be different. After invoking the SER correction routine, a `SOC_SWITCH_EVENT_DATA_ERROR_LOG` should be reported if there is a valid log ID avaiable. But the existing code did nothing. Solution: Correct the wrong reported type to `SOC_SWITCH_EVENT_DATA_ERROR_PARITY` and adding code to report `SOC_SWITCH_EVENT_DATA_ERROR_LOG` if a valid log ID is avaiable after invoking the SER correction routine can resolve the issue.
SDK-59955	808817	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	L2 MACT Flush: Added support for 2 fields flush in application-based-allocation mode using `bcm_l2_replace_match` api with valid `match_addr.dest &` `match_addr.encap_id` fields.
SDK-59966		`56640_B0` `56850_A2`	Fixed an indexing issue in LPM algorithm that allocates space for the routes in `L3_DEFIP` TCAM. The issue was specific to the case of the TCAM being in paired mode and LPM scaling is enabled (config property `lpm_scaling_enable=1`).
SDK-60017	806360	`88650_A0` `88640_A0` `88650_B0` `88650_B1`	OAM: Reduce running time of `bcm_oam_endpoint_create()` and `bcm_oam_endpoint_action_set()` by 50%-60%
SDK-60025	786758	`88650_A0` `88650ACP_A0` `88650_B0` `88650_B1` `88660_A0`	In Counter Processor, under Egress TM mode, the Counter Engine can differentiate between different Traffic Class, even if the port is set under one priority level. This was blocked in the Driver, and fixed now.
SDK-60029		`88650_A0`	Cell drops occurred on a system with single fabric pipe BCM88650 and dual fabric pipe BCM88750. Such a single fabric pipe BCM88650 should be configured as follow: 1. Set to single fabric pipe mode `is_dual_mode.BCM88650=0` 2. Adjust fabric cell format to dual pipe mode system `system_is_dual_mode_in_system.BCM88650=1`
SDK-60041	812854	`56150_A0`	Fix the packet loss issue during EEE mode on GE port with UNIMAC.
SDK-60048	803308	`56624_B0` `56624_A0` `56624_A1` `56514_A0` `56334_A0`	memscan support is added for TCAM error detection/correction on 56624, 56334 and 56514 chips.
SDK-60049		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	soc property length limitation cause segmentation fault at trill init. Change soc property max length to 128 characters and add test to prevent segmentation fault.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60070	811441	`56450_A0 56450_B0`	Problem: Earlier interface mode retrieval method was based on PortType in legacy Xenia driver code (i.e. `XE_TYPE ==>` XGMII, GE ==>GMII etc). For WC core driver, interface mode was based on port speed. This was creating confusion Solution: Chaged interface mode retrieval method in Xenia driver. Now it will be based on port speed (i.e. 10G ==> XGMII, 1000/2500G == GMII , 100M == MII) This will make behaviour same for both xenia/unicore and warp-core driver and no confusion should appear now.
SDK-60072	812645	`88650_B1`	An HW bug is present in EGQ block when terminating more than 64 Bytes (see errata document for more information). A work-around was proposed in `srcexamplesdppcint_field_ingress_large_termination.c,` where 14 Bytes were terminated at ingress if the Forwarding-Header was located more than 32 bytes away from start of packet. In certain conditions (e.g., in stacking systems with multiple VLAN tags), removing 14 Bytes was not sufficient. It has been fixed to 28 Bytes.
SDK-60073	794596	All `56850_A0 56850_A1 56850_A2`	Add two flags for extender usage: `BCM_EXTENDER_PORT_DROP` and `BCM_EXTENDER_PORT_ID_ASSIGN_DISABLE.` When `BCM_EXTENDER_PORT_DROP` is set, packets egress to the indicated extender port are dropped. When `BCM_EXTENDER_PORT_ID_ASSIGN_DISABLE` is set, matched packets are not forwarded to the extender port.
SDK-60085	810017	`56640_A0`	On `Triumph_3,` when parity error was induced by disabling `CMIC_SER0_PROTECT_ADDR_RANGE_VALID` and subsequently detected in SBUS DMA by Memscan, no action was being taken to recover from this error. This was because when memscan encounters DMA failure and falls back to individual memory read, data was being read from the cache and not from h/w and hence the parity error was not being caught. Corrected this to read from h/w which issues an Schan operation which then recovers from parity error.
SDK-60094	810331	`88660_A0`	Routing Over VXLAN in ARAD+: When `bcm_l2_egress_create` is called with different SMAC, the encapsulation of outer SMAC is always as the first allocated SMAC.
SDK-60099		`56850_A0 56850_A1 56850_A2`	Issue: `bcm_field_qualify_IpType` is setting right h/w encoding for bcmFieldIpTypeNonIp but `bcm_field_qualify_IpType_get` is failing due to wrong h/w encoding value derived in internal get function. Fix: modified internal get/set functions to match h/w encoding for bcmFieldIpTypeNonIp.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60109		56340_A0	`_bcm_tr3_flex_ctr_pool_unmap` was not releasing all reserved flex counters by `_bcm_tr3_flex_ctr_pool_map`. Now fixed `_bcm_tr3_flex_ctr_pool_unmap` to release all reserved flex counters for Appiq.
SDK-60131		56334_B0 56334_A0	Problem : When you create a child and parent policer in a slice, it takes up 2 complete meter pools and reserves them completely for all parent and child policers created in that slice. And those meter pools will not be shared by any policers from other slices. Because of this, we are prematurely exhausting policer resources. Requirement here is to use same METER POOL for policers created in different slices. Since Level0 policers of a slice(i.e. group) cannot be shared by other slices, we need to expand level-1 meter creation logic to use same meter pool for different slices.
			Solution: Adding new variable to `bcm_policer_config_t` structure to save the meter pool id. User can retrieve the meter `pool_id` and create a policer with give meter pool id so that the meters are created in the same pool. But the field entries related to meters in same pool need to be mutually exclusive. Added required doc changes for above implementation.
SDK-60166	808650	56850_A0 56340_A0 56850_A1 56850_A2	In previous releases it was reported that `bcm_vlan_translate_egress_action_add` etc. APIs would return `BCM_E_PORT` error when passed a VLAN port type gport as an input parameter. This issue has been fixed by adding the VLAN type gport as a condition during gport type check so that not to return `BCM_E_PORT` directly.
SDK-60168	813722	All 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	In earlier releases, vlan port vp could not be destroyed when associated gport was a trunk and this trunk did not have members. This has been resolved.
SDK-60169		56850_A0 56850_A1 56850_A2	In the previous release, when two SVPs created on the same physical port were configured with two mirroring sessions pointing to different MTPs, the MTP of the first mirroring session would be overwritten by the second MTP, which was incorrect. In this release, this issue has been addressed by adding a new bookkeeping to ensure two MTP slots can be allocated in the case.
SDK-60170	813670	All	When the external phy is in repeater mode, then HW linkscan for those ports should scan the internal serdes link status instead of external phy's. In order to acheive this, the repeater flag was set for BCM84756. Linkscan will only scan the internal serdes link status if the flag is true.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60179	810107	`56540_A0`	64bit index space was not initialized in case of rpf mode and 128b entries disabled mode. Due to this applications were not able to add routes in this particular configuration.The fix is to initialized the 64 bit index space to right values.
SDK-60194	813706	`56850_A0 56850_A1` `56850_A2`	In this release added support for `BCM_PORT_PHY_CONTROL_RX_SIGNAL_D ETECT` APIs (get and set) to TSCMOD
SDK-60199	812394	`56450_A0 56455_A0`	In prior releases both `OPRI_CFI_SELf` and `IPRI_CFI_SELf` fields in `EGR_VLAN_XLATE` table were set to "1" if the priority is set to "-1" while adding entry to `EGR_VLAN_XLATE` table though the action configured includes only for outer tag. This impacted LSP EXP bit remapping not to work. Now fixed to set `IPRI_CFI_SELf` action includes configuration for inner tag and `OPRI_CFI_SELf` if the action includes configuration for outer tag.
SDK-60233	815117	`56640_A0 56640_A1` `56640_B0`	In earlier releases, the parity information structures for `MMU_MTRO` memories were incorrect. Hence the recovery logic fails to correct the error, and hence the error was being reported continuously. This is now fixed by correcting the parity structures.
SDK-60241 SDK-43891	814752	`56640_B0`	Previously, when we have an hash bucket full, and If we try to add an double wide L2 entry, it fails even if we pass an replace flag. Now support has been added to dynamically replace narrow and wide entries with each other, by passing an replace flag. In such cases, and existing entry will be deleted (two entries may be deleted if the newer entry is a wide entry and existing entries are narrow).
SDK-60243	814299	All	Diag Shell command was not able to qualify DstMultipath as parameter. Added case to handle DstMultipath when entered from diag shell.
SDK-60261	815126	`88650_A0 88650_B0` `88650_B1 88660_A0`	fixed bug: `EGQ_DSP_PTR_MAP` wasn't correctly updated when removing LAG ports that had the `BCM_TRUNK_MEMBER_INGRESS_DISABLE` flag.
SDK-60262	815031	`88650_B1 88660_A0`	In TCAM memory, there is no mechanism for identifying and fixing SER errors in the TCAM. A new mechanism is added which handles an error upon SER occurrence, identifies the location of the error and according to TCAM bank owner, reproduces the TCAM entry from software database and rewrites it to TCAM memory.
SDK-60267	815566	`88650_A0 88660_A0`	In the Counter Processor module, during the background counter read from DMA (aka algorithmic read), the number of counters asked to be read could exceed the maximum size of the counter cache. This is fixed by adding a validation to the number of counters. This prevents the PCIE bus to crash.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9

SDK-60278	813007	`56850_A0  56855_A0`
		`56854_B0  56854_A0`
		`56850_A1  56851P_A1`
		`56851_A1  56850_A2`
		`56851_A2  56851P_A2`
		`56854_A2  56853_A2`
		`56852_A2  56855_A2`
		`56851_A0  56852_A0`
		`56852_A1  56853_A0`
		`56853_A1`
			In previous releases, there was an issue for DLB HG trunks that traffic ingress from port located in Y-pipe would be getting dropped. The issue was fixed by configuring `DLB_HGT_FLOWSET_Y` table during DLB setting.

SDK-60280	815365	`56450_A0  56450_B0`	In `bcm_port_tpid_set` API port resolution logic for vp ports created on coe subport was not implemented. Now implemented port resolution logic for vp ports created over coe subports The fix has been updated for `bcm_port_tpid_get` and `bcm_port_tpid_add` APIs as well.
SDK-60301	815641	`56340_A0`	In previous releases when an warpcore block had both with both ieee and higig encapuslations, changing the encapusulation of xe port to higig caused all the other ports to change to 11G, which resulted in linkdown for all the ports. In such cases we needed to limit the maximum speed of xe ports to 10G which can be done by adding the config variable `port_max_sped` for that particular port . This issue has been resolved.
SDK-60302		`56845_A2`	`PQ_XYZ` registers were giving SCHAN read access time out errors with "dump soc" command. These registers aren't open anymore on TD/TD+. So they are all masked now in SDK .

SDK-60307 SDK-60336	814621	`56456_B0  56450_A0`
		`56455_A0  56456_A0`
		`56450_B0`
			For BCM5645x devices, when config 10 `(bcm5645x_config=10)` was used, the existing TDM used was not fully flexible. So it caused issues while converting 10G port to 4x2.5GE port. The earlier TDM used for this config has been replaced with a fully flexible TDM to support conversion of 10G port to 4x2.5GE ports without any issue for BCM5645x devices using config 10.

SDK-60315	814659	`56640_A0  56640_A1` `56640_B0`	Problem: DstPort qualifier used for qualifying cpu packets was getting qualified for transit multicast packets as well. Solution: Extended DstGport qualfier for all devices, where there is control to set the the type of packets that we want to qualify using `d_field/d_type` fields in `FP_TCAM`.

SDK-60321	806640	`56456_B0  56450_A0`
		`56455_A0  56456_A0`
		`56450_B0`
			Added switch control bcmSwitchTimesyncEgressTimestampingMode to choose between 32bit or 48bit timestamping mode for 1588 packets. Also new flag `BCM_PORT_TIMESYNC_TIMESTAMP_CFUPDATE_ALL` is added to specify that all 1588 packets will be egress timestamped to to the flags field of `bcm_port_timesync_config_t` struct. Default mode is to timestamp only ingress timestamp packets.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60336 SDK-60307	813964	`56450_A0 56450_B0`	For BCM5645x devices, when config 10 (`bcm5645x_config=10`) was used, the existing TDM used was not fully flexible. So it caused issues while converting 10G port to 4x2.5GE port. The earlier TDM used for this config has been replaced with a fully flexible TDM to support conversion of 10G port to 4x2.5GE port without any issue for BCM5645x devices using config 10.
SDK-60337	816022	`56456_B0 56450_A0` `56456_A0 56450_B0`	1588 protocol's host cpu based applications can use either one-step time-stamping or two-step timestamping mode. In case of,one step timestamping mode, PTP packets correction field is updated with packets transmits timestamp and in two step timestamping mode, PTP packet's egress time-stamp can be retrived from MAC. This JIRA provides support for one-step and two-step timestamping for host CPU based PTP application through `bcm_tx()` API for Katana 2 chipset.
SDK-60353	807644	`56846_A0 56840_A0` `56850_A0`	In previous release, `bcm_port_dscp_map_mode_set/ get(),` `bcm_vlan_priority_map_set/ get(),bcm_port_dscp_map_mode_set /get()` could only work for physical port. Now these APIs have been enhanced to support MPLS PORT on TD, TD+ & TD2. Please note that the GPORT DSCP & DOT1P profiles should be initialized first before being used in these APIs.
SDK-60362		`88660_A0`	In function `bcm_stk_gport_sysport_get(unit, gport,&sysport)` Fixed: when given an input gport if type MODPORT, if the module id on the port != the unit's module ID, treat the modport port ID as tm port ID, else keep the old logic - that is the modport port ID is treated as a logical port. This fixed MODPORT handling for remote FAPs whose port is not defined in the local FAP.
SDK-60368	814626	`56850_A0 56850_A1` `56850_A2`	When `BCM_SWITCH_PKT_INFO_HASH_UDP_SOU RCE_PORT` flag is used, it is supposed to return the udp source port to be used in vxlan packet. So it should fit in 16 bits. Root cause: The underlying routine, `compute_td2_rtag7_vxlan()` computes the "raw" 20-bit value, which is never masked down to 16 bits for the UDP port option. Solution: `bcm_switch_pkt_info_hash_get()` is fixed to mask raw 20-bit entropy label value down to 16 bits and return the (64k) value properly.
SDK-60384		`88660_A0`	Decreasing E2E shaper of a non-active port causes packet drop of another active port within the same channelized interface - Fixed

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60393		`88650_A0 88660_A0`	In Ingress Field Processor, when creating a Direct Table database, the first Direct table entry may be written to the wrong action table. Per TCAM bank, two action tables can be allocated to the Direct table Field group. This issue happens in case the second table (20b MSBs) is allocated, and no TCAM bank is yet allocated. This is fixed.
SDK-60399		`56340_A0`	Resetting of logical engine was not detaching logical to physical engine mapping, which caused wrong free size calculation. Fixed it by marking logical to physical engine mapping as `NULL` after reset.
SDK-60408		`56450_A0 56450_B0`	Problem: Two consecutive IDLE slots are required in TDM to meet TCAM atomicity. One typo remained in TDM-A2 where instead of IDLE slot value as 63, value remained as 62. It could cause (theoritically) concern for TCAM atomicity in RTL design Also value of `AUX_ARB_CONTROL_2r:TCAM_ATOMIC_WRITE_ENABLEf` was 0 i.s.o. 1 Fix : Added one more check in tdm verification function for avoiding possibility of IDLE-SLOT=63 in middel of TDM. Also restricted Two consecutive IDLE slots to 63 i.s.o. 62 and 63 Made `AUX_ARB_CONTROL_2r:TCAM_ATOMIC_WRITE_ENABLEf` value as 1 in KT2:misc() routine
SDK-60434	816207	`56450_A0`	Deletion of port in range of 120-169 was failing for the multicast group. Fixed the code for the port in range of 120-169 to delete the `IPMC_VLAN` replication pointer specific to the port for the multicast group, hence the deletion of port from replication list successful.
SDK-60439	814627	`56456_B0 56450_A0 56456_A0`	Broadcom switch hardware can recover SyncE clocks GE/XE ports. ports. This JIRA adds support to recover SyncE clocks from GE/XE ports for Katana 2 (56450 A0 and 56450 B0) chips.
SDK-60446	815613	`56850_A0 56850_A1 56850_A2`	In earlier releases, displaying port bitmaps in the Diag Shell caused a segmentation fault. This has been resolved.
SDK-60464	815760	`88650_B1`	This memory is not accessible memory for CPU. The fix changes the print and provides correct information.
SDK-60468		`88650_A0 88650_B0 88660_A0`	Fixed Cosq E2E resources management to recover when allocating with ID a composite scheduling element from already allocated resource.
SDK-60470	817158	`56850_A0`	In earlier releases, only (<=4k) L3 interfaces per port could be deleted from a multicast group by calling `bcm_multicast_egress_delete.` This has been fixed in this release.
SDK-60477	813482	`56640_B0`	added the fix to allow tx transmit during linkdown
SDK-60482	817859	`56850_A2`	In earlier releases, SDK did not support changing vlan port match condition from vlan port vp to vplag vp when vlan port was added to vplag. This has been resolved.
SDK-60491	818025	All	Egress True Mirroring destinations were not displayed in diag shell mirror show. Corrected this behavior and added flags to display true egress mirror destinations.

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Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60494		All	Fixed BCM shell commands prefixed with unit ids indications such as '*:' and '2-5:' for a system in which the total number of devices <= device ID [i.e. when they are 'holes' in unit IDs, for example - 2 units, IDs '0' & '2'] (these fixes where missed in SDK-58919).
SDK-60503	815053	`56450_A0`	The frame length check was getting enabled always for non Higig ports on BCM5645x devices when doing a flexIO hot-swap operation. This has been fixed by disabling frame length check by default after a flexIO hot-swap operation. The frame length check can be enabled after flexIO hot-swap operation by setting config variable `mac_length_check_enable.`
SDK-60508	816530	`56340_A0 56340M_A0`	During multi hash move operation, the destination bucket can have different sized entries than the incoming entry. In earlier releases, the SDK did not care if the incoming entry could fit into destination bucket. Due to this, it could corrupt the existing entry in some cases.
			The fix is to add an infrastructure to check if incoming entry can be added into the destination bucket. if not, keep looking for next destination bucket until you get a free space or you have reached to max try counter.
SDK-60515	793455	All	Fixed OTN (bypass TDM) in 88650/60 connected by Mesh.
SDK-60527		`56846_A0 56850_A2`	Problem: After warmboot upgrade, udf field entry was not getting recovered properly. Solution: Added a missing condition while recovering qualifier set for field entries having UDF.
SDK-60536		`56455_A0`	In BCM5645x devices, Parity errors were observed during SDK initialization.
			This was because of parity errors in Channel interfaces were not handled and were also checked for interfaces that were not used.
			Fixed this issue by merging changes made SDK-35808 from master to 6.3.9 branch via SDK-61032 to modify CI error mask to handle parity errors and also to enable parity checks for only those interfaces supported in device.
			Also when 156.25Mhz reference clock for LCPLL is enabled in the configuration, system crashes
			This is because 156.25MHz refclk in LCPLL non-bypass mode is not supported in Katana2
			Fixed this issue by removing 156.25Mhz refclk initialization during soc reset.
SDK-60543	811382	`88660_A0`	Upon accessing link APIs when linkscan is active, the driver might deadlock from time to time on different links. This condition is fixed.
SDK-60549		`56150_A0 56151_A0`	BroadSync embedded application support added for BCM5615X
SDK-60560	818014	`88650_A0 88650_B0 88650_B1 88660_A0`	L2 Flush: Added support for `encap_id` masking in `bcm_l2_replace_match` api.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60576	818773	`56450_A0` `56450_B0`	Problem Statement: Local port resolve is failing when port number is greater than 127 when trying to set the scheduling mode Resolution: Changed the code to use proper function to resolve local port resolve when the GPORT is of type `BCM_COSQ_GPORT_SUBSCRIBER`
SDK-60583	816905	`56340_A0` `56547_A0`	Parity errors in `VLAN_XLATE` table detected on packet lookups are reported to `ser_fifo` as table `RAW_ENTRY_TABLE` with physical addresses. In previous releases, the index of parity error entry was not obtained correctly in software. In this release this bug has been fixed to enable memory decoding routine to work for `RAW_ENTRY_TABLE` in `Helix_4`.
SDK-60590		`88650_A0` `88650_B1` `88660_A0`	This JIRA fixes segmentation fault which occurred occasionally at deinit/init sequences. This happened because of improper implementation of interrupt deinit sequence. At this case interrupt asserted during SW interrupt resources deallocation. This fix makes sure that no interrupt will asserted during interrupt application deinit.
SDK-60593	819011	`84793_A0`	Added per lane eye scan support. Modified enzo (phy84793) driver to return RX sequence done for the specified lane.
SDK-60670		`56850_A0` `56850_A1` `56850_A2`	Support has been removed for API to retrieve member port for DLB of HG Trunk.
SDK-60692	819679	`56640_A0` `56540_A0`	Problem : This is due to the issue that when we detach a counter from field entry, field module will reduce the `field_specific` reference count but it was not updating the stat module specific reference count . Due to this stat destroy was throwing error saying reference count is still not zero. Solution : Field entry detach routine of counter was updated to call relevant function to reduce stat related reference count.
SDK-60710	794588	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1` `56851P_A1` `56851_A1` `56850_A2` `56851_A2` `56851P_A2` `56854_A2` `56853_A2` `56852_A2` `56855_A2` `56851_A0` `56852_A0` `56852_A1` `56853_A0` `56853_A1`	In the previous release, the API `BCM_PORT_EXTENDER_TYPE_NONE` was not implemented. In this release, this issue has been addressed by implementing the API.
SDK-60711	817525	All	Handle LinkScan in case of port removal and insertion. Not relevant for most customers
SDK-60719 SDK-52048	818562	`56640_A0`	Fixed following issues related to OAM warmboot recovery: - recovery tries to access an invalid field - memory pointer getting freed was not set to `NULL`. - CCM period was not being recovered properly - ma index re-allocation was being attempted while trying to recover endpoint on same vlan port but different level, which resulted in failure. - scache allocation was not correct during upgrade from older version.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60756	816538	`56340_A0`	Loopback ports were not being to valid ports bitmap for `helix_4` in previous releases, and hence any operations on loopback ports were failing. This is now fixed by adding the loopback ports to valid ports bitmap.
SDK-60769	816767	`56850_A0 56850_A1 56850_A2`	In the previous release, the TPID did not enable VLAN GPORT. In this release, this issue has been addressed by correcting the related APIs.
SDK-60784	818772	`56334_A0`	In the previous SDK, the oam cli command could not accept MiM gport for port parameter when creating endpoints. This has been changed to allow to create endpoints on MiM gport.
SDK-60797	820536	`56850_A0 56850_A1 56850_A2`	Fixed bug in interrupt handler for CMICm-based devices which would inadvertently enable hardware interrupts in polled-IRQ mode thus causing a system hang.
SDK-60843		`56450_A0 56340_A0`	Enabled internal termination on the gigabit serdes interface for HX4 & KT2 when system is operating in eHost mode.
SDK-60846	809695	`56440_A0 56440_B0`	For BCM 5644x devices there was an issue with parity errors coming from `SVM_POLICY_TABLE` and `SVM_MACROFLOW_INDEX_TABLE` entry. This has been fixed.
SDK-60853	819575	`56540_A0 56540_B0`	True Egress frames of size greater than 8K were not getting egressed. Reason for this was that MTU Size programmed in `PASSTHRU_NLF_MTU_CHECK` register was set to 8K leading to drop seen. This default MTU Size on loopback port has been increased to maximum value which is around 16K by default . This is done to be in sync with other MTU register which currently hold default value of 16K.
SDK-60860		`56844_A0`	Add support for SKU 56742
SDK-60890		`56845_B0 56845_A2 56840_A0 56850_A0 56850_A1 56850_A2`	In previous release, `bcm_qos_port_map_set()` did not set `TRUST_DSCP_V4/V6` on physical ports but set it on virtual port. The different behavior in the same API made customer confused, now this issue has been fixed.
SDK-60905	821319	`56450_A0 56450_B0`	In the previous release the validity check for the nodes in LLS tree was missing, this caused a segmentation error if any invalid node was getting accessed while flushing it. The check has been added in this release to avoid any segmentation error in attempt of accessing invalid nodes in the LLS tree.
SDK-60909		`88650_A0`	Minor coverity issues resolution involving the removal of unreachable code, and uninitialized variables.
SDK-60964	820443	`56640_A0 56340_A0`	In previous releases, when parity errors are detected in `VLAN_XLATE_1` or `VLAN_XLATE_2` tables in `Triumph_3` or `Helix_4`, the table name was not resolved in SER correction routine. This would cause `VLAN_XLATE_1` or `VLAN_XLATE_2` tables not to be corrected correctly. In this release, this bug has been fixed. Table name will be returned correctly and table entry will be corrected once parity error is detected.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-60971		56845_B0 56845_A2	In earlier release, the `base_ptr` field in ECMP group table was not configured correctly on TD+ during defragment. This has been resolved.
SDK-60988	821704	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	In earlier releases, deleting a secondary L3 Interface unbinded the VRF from the primary one. This has been resolved.
SDK-61032	815490	56440_A0 56440_A1 56450_A0 56440_B0 56450_B0	In Katana & Katana2 devices, DDR Phytune command was causing high CPU utilization and parity errors during SDK init. This was because of parity errors in Channel interfaces were not handled and were also checked for interfaces that were not used. Fixed this issue by modifying CI error mask to handle parity errors and also enabled partiy checks for only those interfaces supported in device
SDK-61063		56340_A0	There was memory leak inside `bcm_regex_match_set()` API in earlier release which was causing all system memory to be consumed when `bcm_regex_match_set()` was called repeatedly for AppIQ regex signature configuration,Fixed this API to avoid memory leak by freeing allocated memory when not in use.
SDK-61067		All	Basic stack creation support added for multiple-unit setups. Structure indexing for host-side per-stack information was modified to properly reference data in a mulitple-unit, multiple stack context. Dedicated, vectorized stack identifiers per-unit were added to bookkeeping logic that keeps track of stacks created thus far.
SDK-61073	813684	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	In the previous release, `BCM_L3_TRILL_ONLY`/ `BCM_L3_VXLAN_ONLY`/ `BCM_L3_L2GRE_ONLY` were not saved. In this release, these flags are saved now.
SDK-61093		88650_A0 88650_B0 88650_B1 88660_A0	Fix `stat_if_pkt_size` documentation in config files.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-61094	822899	`56640_B0`	Description: `EGR_VLAN_XLATE` table can't be recovered when the flow continue hit the entry
			Root cause: When the flow hits a corruted `EGR_VLAN_XLATE` entry continously, the `EGR_VLAN_XLATE` SER ERROR interrupt should be raised and then SER handler would be invoked to correct it. Unfortunately, there is another SER ERROR interrupt being raised meanwhile which notified SOP CELL error and packet drop happened. Every corrupted `EGR_VLAN_XLATE` entry hit will trigger this interrupt until the `EGR_VLAN_XLATE` ser error has been corrected. So the interrupt handler may go into a dead loop of handling the continously SOP CELL error and packet drop interrupt since there is no opportunity to correct the corrupted `EGR_VLAN_XLATE` entry.
			Solution: Current software has changed the code to ensure handling `EGR_VLAN_XLATE` entry correction before the SOP CELL error notification.
SDK-61096		`56340_A0`	In earlier releases, there was no memory limit on the allocation for regex expansion which causes memory corruption in othe applications as well. Boundary has now been set for not more than 100MB.
SDK-61171	823889	`56340_A0`	Issue :- `bcm_ipmc_add()` calling failure after SDK upgrade to 6.3.7 from 6.3.4. Fix :- Issue was due to Code changes that were added to verify if entry is not present and REPLACE flag is passed, the API should return `BCM_E_NOT_FOUND.` Reverted the code change.
SDK-61199	819962	All `56850_A0` `56850_A1` `56850_A2`	Added support for transmitting ETAG packets out of the extender port without modifying the ETAG.
SDK-61251	814934	`88660_A0`	If there are 2 task to call `bcm_l2_learn_limit_set(),` the limit number in ARM wasn't same with the number at SDK at sometimes. Now add a lock to fix the issue.
SDK-61267		`88650_B0` `88660_A0`	In FCoE VSAN assignment, when mode was updated to "VSAN from VSI" before enabling the NPV mode the VSAN assignment is not updated correctly. This is fixed.
SDK-61270		`88650_B0` `88650_B1` `88660_A0`	In FCoE, VSAN mode update did not updated the NPV programs in the FLP. Now, it is updated when NPV is enabled.
SDK-61281	811786	`56456_B0` `56640_A0` `56450_A0` `56640_A1` `56640_B0` `56455_A0` `56456_A0` `56450_B0`	Fix contains changes for `bcm_port_timesync_config_get()` API which has a minor variable intialization error causing breaking of API functionality. Also syntax for deleting timesync configuration using `bcm_port_timesync_config_set()` API is documented.
SDK-61282		All	Diagnostic shell now prints timestamp with PTP events.
SDK-61301	813742	`88650_A0` `88660_A0`	In LAG and ECMP, Load Balancing is not working according to native Ethernet for VxLAN packets. This is fixed.
SDK-61306	806798	`88650_B0` `88650_B1`	OAM: MIP resources are poorly managed and cause failure after deletion and re-creation of 10 MIPs.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-61310	825442	`56248L_B0 56450_A0 56455_A0 56456_A0 56450_B0`	For BCM5645x devices CoE subports are not included in "all" bitmap or "port" bitmap of `bcm_port_config_t.` API `bcm_port_config_get()` will not provide CoE subport information. The customer application needs to manage the VLAN membership of CoE subports including default VLAN.
SDK-61316		`88650_A0 88650_B0 88660_A0`	In FCoE application, key construction for LPM lookups in forwarding stage (FLP) when working with VSAN from VSI mode was built wrong. key construction fixed to be consistent with entries added to DB.
SDK-61317		`88650_A0 88650_B0 88660_A0`	OAM: When using `bcm_oam_action_set,` deletion and creation of new endpoint was failing after a few iterations.
SDK-61381	825267	All	RX LOS application is used to detect, monitor, and manage RX loss of signal (LoS) indications from the BCM88650 and BCM88750 SerDes interfaces. Function `rx_los_unit_detach` used to detach unit from application and mask all the relevant to interrupts. Added a function `(rx_los_sw_unit_detach)` which allows to perform SW detach without any access to device (skip interrupts masking)
SDK-61477	810833	`88650_B1 88660_A0`	As part of SER interrupt handling, the SDK can attempt to write to the corrupted memory. This is not allowed for dynamic memories, i.e. memories that are maintained by the device and not by CPU configuration. The interrupt handling logic did not account for this limitation. For most memories, trying to override a dynamic memory is protected by HW and would fail with error message. Some dynamic memories are not protected, writing to these memories could result in unpredictable device state. The fix does allow caching of 2 static memories which listed at dynamic list by mistake: `OAMP_RMEP_DB OLP_DSP_EVENT_ROUTE`
SDK-61484		`56514_A0`	During fp re-installation removed action items from software were not getting deleted in hardware. Reason for this behavior was during re-install action items marked as invalid were not skipped . Added a check to skip invalid action items from re-installation.
SDK-61545	827380	`56440_B0 56240_B0`	In the earlier release, the "vlan translate action add" was not working when "policer" was not specified. This was because the default value of Policer was being set to "None" which is not its default value. The issue has been fixed by setting the default value to 0 in the current release.
SDK-61558	824803	`88750_A0`	`FE1600_B0` had a bug in the init sequence when compiling with `SOC_MAX_NUM_PORTS=128`, fixed, adding each port only once.
SDK-61619		`88650_A0 88660_A0 88650_B0`	For external Tcam (KBP) connection, use this soc property `(ext_ilkn_reverse)` to indicate the numbering mode of the lanes in KBP. default value for the system is 1 (reversed).

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-61641	827595	`56850_A0 56850_A1 56850_A2`	In earlier releases, port control bcmPortControlSerdesReset was effective only once, after a power-on-reset. That's because the code did not reset TSC, only took it out of reset. This has been fixed in this release by resetting TSC first then taking it out of reset.
SDK-61652	826180	`56640_A0 56640_A1 56640_B0`	Problem Statement: The switch was hanging during exit clean with multiple `VLAN_XLATE` entries. Resolution: The hang was due to an uninitialized variable that was causing infinite loop. The variable is now initialized so that it picks appropriate value.
SDK-61659	828631	`56450_A0 56450_B0`	In the earlier release, a memory corruption issue was seen due to lesser memory allocation which did not accommodate the PP ports. The issue has been fixed by increasing the allocation size to include the PP ports in the current release.
SDK-61727	796172	All `56850_A0 56850_A1 56850_A2`	In the previous release, when updating the extender port id which had been added into a VPLAG, the field `SOURCE_VP` in the table `VLAN_XLATE` would be mistakenly modified from the VP of the VPLAG to the VP of the extender port id, which was incorrect. In this release, this issue has been addressed by updating the field `SOURCE_VP` in the table `VLAN_XLATE` with the VP of the VPLAG.
SDK-61818	830940	`56846_A0 56640_A0 56850_A0`	In the previous release, the API `bcm_multicast_egress_set` couldn't delete the given L3 INTF from a multicast group with a specific sequence. In this release, this issue has been addressed by correcting the internal function of comparing the software status and hardware resources.
SDK-61855	831077	`56834_A2`	In previous releases, the `L2_entry` table size was fixed to 160K. The modifcation was to allow user to set the `L2_entry` table size to the capacity under 160K.
SDK-61901		`88650_B1`	Added "init `rx_los`" to init commands usage.
SDK-61938		`56640_A0 56640_A1 56640_B0`	Internal phy driver was not able to attach to few XTPORT block ports of triumph3 devices. A change made for a separate issue was blocking PLL reset for few block of the ports. This has been resolved
SDK-62000	815947	All	Fixed usage of allocated-but-not-initialized memory by PTP module.
SDK-62018	826377	`88650_B1 88660_A0`	A bug caused extra bytes to be added to RSPAN packets in case a user header was used.
SDK-62063		`88650_A0 88650_B0 88650_B1 88660_A0`	Port protocol based vlan classification. Configuration of vlan per port and trill/mpls ethertype, using the api `bcm_vlan_port_protocol_action_add` was causing a new user defined `ether_type` protocol, instead of being identified as trill or mpls ethertypes.
SDK-62102	832410	`53284_A0`	Fixed the issue on ROBO chips thin which vlan information was not restored to default STG when removing the vlan from other STG.

Table 45:

Number	CSP #	Chips	Release Notes For 6.3.9
SDK-62106	832908	56450_A0 56450_B0	In earlier releases `INNER_TPID_ENABLE` field in `SYSTEM_CONFIG_TABLE` was not configured during initialization for Katana2. This issue has been resolved now by setting `INNER_TPID_ENABLE` to 1 during port initialization.
SDK-62126		88650_B1 88660_A0	In L3, when using internal LPM routing table, adding and updating routes may cause memory overruns: Fixed possible memory overrun in DMA buffers or in adjacent memory. The memory overrun was up to 240 bytes after the buffer for route adds.
SDK-62222	826150	All	In the previous release, the BCM SHELL command "mc show" showed some interfaces in the given group which they didn't belong to, which was incorrect. In this release, this issue has been addressed by correcting the internal function of comparing the software status and hardware resources.
SDK-62269	831245	All	When 'linkscan' is activated, sometimes 100G link does not come up.
SDK-62296		56440_A0 56850_A0	PTP subsystem now supports stack deletion, firmware reload, and restart.
SDK-62379	833677	All	Default threshold for traffic classes is changed with respect to number of priorities used, if only 1 priority is used, only traffic class 0 will be configured for all dp's, otherwise, dp's 0-3 will be configured for tc 0 and dp's 4-7 will be configured for tc 1
SDK-62427		88650_A0 88650_B0 88650_B1 88660_A0	Apply HW recommendations for WC current. It is recommended for all customers using 6.3.x releases to integrate this fix.
SDK-63822	847793	88650_A0 88650_B0 88660_A0	`bcm_cosq_gport_stat_get():`Fix counter processor statistics gathering for egress queues when a queue bundle size is different from 8. Input parameter - cosq is now used as a traffic class parameter only, not as a queue bundle offset.

Section 16: Resolved Issues for 6.3.8

The following issues are resolved in version 6.3.8 of the SDK.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-38881		All	`bcm_port_priority_color_set` is modified to set color as none when color param to API is bcmColorPreserve.
SDK-42527		`88650_A0`	SDK-42527: Support TR 90 and TR91 for the ARAD.
SDK-44471	599747	`56544_A0`	the lanes has to be single lane in boot up. The config property `portgroup_0=1` will configure the ports single lane.
SDK-47231	643758	`56440_A0` `56445_A0` `56440_A1` `56445_A1` `56444_A1` `56449_B0` `56445_B0` `56440_B0` `56447_B0` `56443_B0` `56441_B0` `56446_B0` `56448_B0`	In the previous release packet was not getting received while switching from IEEE mode to HIGIG mode. This was because the `STRICT_PREAMBLE` and `PROCESS_VARIABLE_PREAMBLE` in `XMAC_RX_CTRL` was not configured correctly for HG port. This issue has now been addressed by setting `STRICT_PREAMBLE=0` and `PROCESS_VARIABLE_PREAMBLE=0` in `XMAC_RX_CTRL` when port type is HG.
SDK-49249		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	DPOE application: Added an application example to show how to classify L2/L3/L4 header field and mapping frames to PON LIFs. More information is provided in `cint_pon_dml_fec_app.c`.
SDK-50557	696654	`56334_B0` `56334_A0`	The multicast index was not adjusted rightly based on the correct offset. The offset was previously taking into account only L2 Multicast table size. It needed to take into account Broadcast table size as well. This has been added now to the multicast index adjustment.
SDK-52679	726763	`56450_A0`	Problem Statement: Previously we could not support movement for L0 node from one port to other port Solution: SDK provided a new API, `bcm_cosq_gport_reattach` which will allow user to move L0 node from one port to other
SDK-54279	738771	`56850_A0` `56850_A1` `56850_A2`	Some PHYs always set the bit `XLMAC_RX_LSS_STATUS.LOCAL_FAULT_STATUS` no matter the actual speed the port is running at. This leads to always displaying local faults with the CLI command "port xe", which would confuse the customers when the port is running at speeds less than 10G. Now the local faults will be displayed only if the bit `XLMAC_RX_LSS_CTRL.LOCAL_FAULT_DISABLE` is clear.
SDK-54460		`56850_A0`	In earlier releases, Embedded NH's MAC and Port information was absent in l3 table traverse. This has been resolved.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-54758	750349	`56450_A0`	Problem statement: `bcm_cos_mapping_set` is not working for flex ports Fix description: Added code so that flex ports are also used during `config_set` and `mapping_set` profiles, as a result `bcm_cos_mapping_set` is working appropriately
SDK-54849		`88650_A0`	IMPORTANT: Injection of TM packet with user define header is not supported on systems which have OAM yet (SDK-57826).
			Background: user headers are optional internal system headers located after the FTMH and PPH headers (extensions included). The User header can be used for different purposes: - Cascaded ingress egress ACLs, to transmit data from Ingress FP to egress FP - Various work-arounds The user header size is configured via `field_class_id_size_X` SOC property.
			Issue: when injecting TM packets with additional headers after ITMH (e.g. PPH or OAM-TS) and if the user headers are used, the user must include the user headers in the packet after the additional headers and before the payload (e.g. before the Ethernet header). Set this mode via the SOC property `custom_feature_injection_with_user_header_enable.` In this mode, the user header is not added: injected TM packets must be injected with a User-Header with the same size as the configured user-header size `(field_class_id_size_X).` If the destination port of the TM packets are Ethernet port, the user also must set the `custom_feature_user_header_always_remove` SOC property.
SDK-54947	752756	`56440_A0`	SDK support for 1588 Transparent Clock is added as part of this JIRA.
SDK-54991	750024	All	Added support for filter callbacks in the Linux KNET kernel driver.
SDK-55038	754635	All	Add support for customer-supplied call-backs in the Linux KNET kernel module. The call-backs allow another kernel module to modify packet data and meta data before an Rx packet is handed off from the KNET driver to the Linux network stack, or when a Tx packet is handed off from the Linux network stack to the KNET driver.
SDK-55180		All	In non-interface map mode, `bcm_l3_intf_create()` and `bcm_vlan_control_vlan_set()` can overwrite vrf values set by each other. This is how these apis are designed to set up the parameters that they are overstepping each other. Added documentation to explain the behavior of APIs in case of VRF setting.

Table 46:

Number	*CSP #*	*Chips*	*Release Notes For 6.3.8*
SDK-55326	715274	`88650_A0 88650_B0` `88650_B1 88660_A0`	PON application: ARAD/ARAD+ Ingress parser used to take two global TPIDs to get the tag formats of packets for each port. With this improvement, ARAD/ARAD+ ingress parser can take an additional global TPID as inner TPID, besides the original two global TPIDs, to get the tag formats for each port. Currently only packets with single outer TPID, which is equal to additional TPID, can be parsed as single s-tag or single c-tag. Please see more information in `cint_pon_additional_tpids.c`
SDK-55454	758146	`88650_A0`	In Counter Processor, one of the Ingress-PP counting mode is VSI. A support for counting packets by ingress VSI is added. The relevant soc property is `counter_engine_source_<counter ID>=INGRESS_VSI.` When set, the default Counter-ID value for Ethernet packets is VSI. This value may be overridden by Ingress PMF (Field Processor APIs with bcmFiedlActionStat0/1 actions) or by Rx-traps.

SDK-55560		`56640_A0 56641_A0`
		`56642_A0 56643_A0`
		`56644_A0 56645_A0`
		`56648_A0 56340_A0`
		`56344_A0 56342_A0`
		`56342M_A0 56340M_A0`
			add an workaround for TR3 and HX4 on both cases `AT_L2_Limit_019` and `AT_L2_Limit_042`

SDK-55620	758957	`56640_A0 56540_A0`	Two issues fixed as a part of this JIRA: Issue 1: Linkscan SW mode becomes NONE after executing the ibod WAR. Fix: IBOD sync recovery function `_bcm_tr3_ibod_sync_recovery_port()` is invoked from different threads and as the function is not properly protected, there is difference in the linkscan states. Provided the synchronization using `IBOD_LOCK.` Issue 2: When `bcm_port_enable_set` is getting called even before the LS thread is updated its bitmap ,so when `bcm_port_enable_set` calls `_bcm_tr3_ibod_sync_recovery_port` it takes the snap shot of port mode ,which comes to `"BCM_LINKSCAN_MODE_NONE"` so later on at the end of the function when it update the port mode it removes it from LS ,that where we see some times port is not part of linkscan. Fix: During the ibod WAR execution, the links of the port are set to link UP forcefully by invoking the API `_bcm_esw_link_force()` API with flags `_BCM_LINK_STATUS_NO_CALLBACK.` The flags are introduced newly and if the flag is set, the link state change notification is ignored to the registered linkscan users in function `_bcm_esw_linkscan_update_port.`

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-55840	761378	`56850_A0 56855_A0` `56854_B0 56854_A0` `56850_A1 56851P_A1` `56851_A1 56850_A2` `56851_A2 56851P_A2` `56854_A2 56853_A2` `56852_A2 56855_A2` `56851_A0 56852_A0` `56852_A1 56853_A0` `56853_A1`	In earlier releases entries[] can be potentially used without initialization in `_bcm_td_cosq_wred_set.` This has been resolved.
SDK-55886	760333	All	In previous releases, out-of-bounds access to an array of multicast group was allowed, which would result in crashing. This has been resolved by placing a proper check to ipmc id.
SDK-55929	759404	`56620_B0`	In earlier SDK releases, the SDK did not properly decode the dest modid and dest port in the Triumph and Triumph2 class of devices. The issue is fixed by appropriately accounting for the addressable port and module id range on the device.
SDK-55942	764885	`56850_A0`	Implemented following IFP missing actions on TD2. bcmFieldActionPortPrioIntCosQNew bcmFieldActionRpPortPrioIntCosQNew bcmFieldActionYpPortPrioIntCosQNew bcmFieldActionGpPortPrioIntCosQNew
SDK-56038	766065	`56850_A0 56850_A1` `56850_A2 56455_A0`	During warmboot, the reference count for `DSCP_TABLE` has been updated to reflect the coldboot state.
SDK-56087	765116	`56440_A0 56440_B0`	In the normal cold boot uKernel msg thread (host to uKernel message communication thread) will change its state from RESET-->INIT-->READY. In READY State, the msg thread will start processing the sending/receiving messages to Host. During the warmboot process, as part of initialization, SDK will create `_soc_cmic_uc_msg_thread` and sends RESET control to uKernel message thread. Once the uKernel message thread receives RESET signal, it has to discard the all previous messages (ACKs/NAKS) and reinitialize the `recv_msgQ,` sendQ, `rcv_threadQ` and msg slots. After successful re-initialization, it msg thread restart host communication and change the state from RESET--->INIT-->READY.
SDK-56160	766445	`56850_A0`	In previous releases, L2 polling thread can process a MAC address insert/delete/move within a bucket, but it cannot process the scenario that a MAC address move from a bucket in a bank to another bucket in another bank. In this release, processing the scenario that a MAC address move from a bucket in a bank to another bucket in another bank has been added in L2 polling thread.
SDK-56193		`88650_A0 88650_B0` `88650_B1 88660_A0`	COSQ: CNM profile can be allocated by calling `bcm_cosq_qcn_config_set.` Fixed an error of CNM profile initialization. Corrected the number of entries be added to template init ID.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-56203		`88650_A0 88650_B0` `88650_B1 88660_A0`	XLPORT Overrun/Underrun Workaround ---: The Arad driver implements a sequence to recognize and recover the port from XLPORT Overrun/Underrun issue (see BCM88650 errata sheet). To activate the sequence during device init use the following soc property: `custom_feature_nif_recovery_enable=1` (default is disabled on 6.3.x, and enabled on 6.4.x).
			The sequence might perform several iterations when trying to recover the port. To limit number of iteration use the following SoC property: `custom_feature_nif_recovery_iter` (default is 3). Note that from lab experience the port is recover within single iteration.
			Limitations: 1. The SW WA works for XLP0 only. 2. The SW WA is called during init and isnt available for dynamic port.
SDK-56222	767209	`56846_A0`	During warm boot upgrade from SDK 6.2.9 to SDK 6.3.3, data qualifiers (UDFs) are not recovered in field module as there is a mismatch between field qualifier count (bcmFieldQualifyCount) in 6.2.9 and 6.3.3. The more field qualifiers are added in SDK 6.3.3.
			The issue is fixed in SDK 6.3.8 by storing bcmFieldQualifyCount in scache and by mapping the recovered field qualifier Id to the appropriate data qualifier.
SDK-56291	768458	All	The definitions of `COUNTER_ATOMIC_BEGIN/ END` in COUNTER thread adopted `sal_splhi/ sal_spl` as mutex lock to protect some small critical sections, which can cause a considerable performance loss due to its overhead and coverage scope. Replacing the old one with a new lock mechanism, the `sal_spinlock` primitives can be more efficient especially for protecting small critical sections somewhere like in COUNTER thread. `sal_spinlock` can be used in Linux user space, Linux kernel and vxworks, even in interrupt context. To be noted, it can't be used recursively.
SDK-56507		`56640_A0 56640_A1` `56640_B0`	Previously `bcm_cosq_port_bandwidth_set()` failed on 56640 HSP ports. HSP ports handling for `bandwidth_set` API has now been added.
SDK-56522		`56640_A0 56850_A0`	Issue here is SDK support is missing to recover EFP Secondary selectors during Warm Boot. So EFP qualifiers which need secondary selectors will fail to be recovered in Warm Boot. Now support has been added for recovering all EFP secondary selectors come from following different registers 1. `EFP_CLASSID_SELECTORr` - (HX4, KT2, TR3, TD2) 2. `EFP_KEY4_DVP_SELECTORr` - (HX4, KT2, TR3, TD2) 3. `EFP_KEY4_MDL_SELECTORr` - (HX4, KT2, TR3, TD2, GreyHound, Enduro) So this fix is applicable to HX4, KT2, TR3, TD2, GreyHound, Enduro
SDK-56554	770975	`56850_A0 56850_A1` `56850_A2`	Support has been added for the ability to transmit even if port is down.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-56594 SDK-57957	769099	56440_A0 56445_A0 56440_A1 56445_A1 56444_A1 56450_A0 56340_A0 56449_B0 56445_B0 56440_B0 56447_B0 56443_B0 56441_B0 56446_B0 56448_B0 56344_A0 56342_A0 56442_B0 56342M_A0 56340M_A0 56455_A0 56456_A0 56450_B0	In earlier releases scheduler configuration with weight value 0 was incorrectly configured in WRR mode. This has been fixed in this release to configure scheduler configuration with weight value 0 to be in STRICT PRIORITY mode.
SDK-56714	758491	56450_A0 56440_B0	Issue : --------------- In katana and katana2 the `rqe_port_config` register was programmed with `cos_mode=1` when extended queueing was enabled but `cos_mode` =1 is not valid for this register and this causes traffic to go through cos 0 always Fix ----- If extended queuing is enabled then we program `cos_mode` with value 0 in `RQE_PORT_CONFIG` .
SDK-56720	769698	56224_B0 56224_A0	Output of "trunk show" command displays the port names correctly by resolving the gports for all XGS devices.
SDK-56786	773228	All	Support has been added for displaying counter register's alias name which register's name larger than 13 characters
SDK-56787	775384	All	In earlier releases, there is no way to use the API `bcm_rate_bandwidth_set` to set the rate to 0kbps speed. If the pass the speed as zero, the assumption was to disable metering. Now, to disable metering, `kbits_sec` parameter has to be passed as `BCM_RATE_DISABLE` and to set the rate to zero, `kbits_sec` parameter has to be passed as `BCM_RATE_BLOCK`
SDK-56789		56340_A0 56547_A0	For 802.1AS packet, RX and TX timestamps are now enabled for BCM56340 family of devices
SDK-56848	776418	82328_A0	Added PHY BCM82322 support. This PHY supports 10G,20G and 40G modes
SDK-56878	776733	88650_B1	The `bcm_cosq_control_set/ get(unit, 0,0,` bcmCosqControlAdmissionTestProfileA, bitmap) APIs did not work correctly if the bitmap bits for PFC or LLFC VSQ types were set. This was fixed.
SDK-56916	775184	56340_A0	Problem: Regex match was not being reported if the pattern occurs beyond 2048 bytes for any given session. The reason was that the `AXP_SM_SIGNATURE_MATCH_CONTROL.M AX_BYTE_INSPECTED` is always being set to the default value of 2048. Solution: Set the above field/register to the payload depth provided through `bcm_regex_config_set` API. This will be set in sync with the `FT_CONFIG.MAX_BYTES` field.
SDK-56917	777278	56340_A0	SMEmatchnotreportedfortwitterandwebexsignatures due to hex representation of ASCII. Provided support in SDK API `bcm_regex_match_set()` to parse hex representation of ASCII Alphabets.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57034	775986	`56450_A0 56242_A0`	Issue : Packet based WRED profiles was not restored properly in katana/katana2 after warmboot in earlier releases .As part of fix during warmboot we scan packet based WRED table and update the software profile.
SDK-57038		`88650_B1`	Documentation only: `stat_if_pkt_size` description in config-sand.bcm example was misleading. The correct description can be found in user manual or in property.h. Description in config-sand.bcm fixed as well.
SDK-57100	778739	`56850_A0 56850_A1 56850_A2`	In Trident2, `IP_FRAG_INFO(2bit)` is defined in 5 field selectors (`F1_6`, `F1_15`, `F2_1`, `F3_3` and `IFP_PAIRING_FIXED`). But In SDK , `IP_FRAG_INFO` in these 5 different selectors are initialized with 2 different qualifiers as below which is wrong. Modify the SDK to make it consistent i.e use bcmFieldQualifyIpFrag qualifier at all places. `F1_6` - initialized for bcmFieldQualifyIpInfo `F1_15` - initialized for bcmFieldQualifyIpFrag `F2_1` - initialized for bcmFieldQualifyIpFrag `F3_3` - initialized for bcmFieldQualifyIpInfo `IFP_PAIRING_FIXED` - initialized for bcmFieldQualifyIpFrag Now `IP_CHECKSUM_OK` is 1 bit field and part of FIXED part of IngressFieldProcessor key. Currently SDK does not have support for this 1 bit field and bcmFieldQualifyIpInfo qualifier is used to initialize `IP_CHECKSUM_OK` bit.
SDK-57164	763730	`56440_A0 56450_B0`	In the earlier release the tag information derivation was incorrect for `PPD_TYPE=2,` for `PPD_TYPE=2` the tag information is present in packet itself and get derived through it, HG header contain tag information in case of `PPD_TYPE=0` and 1 only where the outer tag get stripped out and added in the hg header, while the inner tag is still derived from the packet itself. This issue has been addressed and fixed in this release.
SDK-57171	780263	`56850_A0 56850_A1 56850_A2`	Originally, `VLAN_XLATE` entry was not cleared possibly when deleting a VP. It is fixed by setting modid or `trunk_id` to an invalid value (-1) in `_bcm_td2_vxlan_match_add` when creating a vxlan logical port on a physical port or a trunk.
SDK-57187	776877	`56440_A0`	For Katana2, `bcm_cosq_gport_bandwidth_set` was not setting the l2 shaper properly. As part of the fix l2 shaper will be configured properly.
SDK-57204		`88650_A0 88650_B0 88660_A0`	a fix to allow future ISSU capability for alloc manager

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57207	777630	`56640_A0 56640_A1 56640_B0`	Issue:Packets of size 64 to 75 bytes getting dropped for XE ports. Root Cause: The runt threshold value for XE ports was getting set as 76 instead of the correct value 64. Hence packets of size 64-75 bytes were getting dropped. Fix: For Triumph3 and Katana2, put explicit checks to ensure that runt threshold value is set to correct value, i.e. `RUNT_THRESHOLD_XE` = 64, `RUNT_THRESHOLD_GE` = 64 and `RUNT_THRESHOLD_HG` = 76. Also optimized the function `mac_x_init` for multiple READ and WRITE for `XMAC_RX_CTRL` and `XMAC_TX_CTRL`. Added a single write common for all devices instead of multiple instances as was present previously.
SDK-57220	780270	`56850_A0 56850_A1 56850_A2`	When programming `MPLS_ACTION_IF_BOS=0x5(0x5 = L3_ECMP)` for a given MPLS label, the next hop entry type was set to be 1 for sending out the regular L3 packet in the previous release. In this release, the next hop entry type is set to be 0.
SDK-57224	780313	`56850_A0 56850_A1 56850_A2`	In earlier releases, `BCM_L2_REPLACE_DES_HIT_CLEAR` flag was not supported in XGS devices. This has been supported. This flag only can reset the HITDA field in `L2_ENTRY` table.
SDK-57250		`88660_A0`	PON ONU tunnel-ID allocation: So far PON application reserved last 512 tunnel-id entries of PON port 7 by ARAD. An error occurs when trying to set tunnel ID profile mapping. Fixed mapping to allow up to 2016 tunnels-IDs (0-2015) for all PON ports. TX behavior has been changed since this improvement. PTCHs(packet termination control header) of packets sent from CPU should always have SSP(source system port).

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57258	779428	`56450_A0 56450_B0`	Release notes from all sub-task JIRAs =================================== =================================== ============== A) SDK-57533 KT2 (Unicore and Warpcore) Several issues with configuration 12 (issue 1) =================================== =================================== ============== Problem 1) Null get was returning value 0 which is valid phy master value (i.e. slave). Fix 1) Added dummy `get_master()` in xgxs16g1l driver. Code is changed to return `MS_NONE` and that makes phy -master as NONE Problem 2: Proper medium was being detected in WARM-BOOT scenario only Fix 2: Corrected Copper/Fiber Medium detection concern in WC driver(which was applicable in Warmboot case only) Removed surrounding warm-boot condition in init part and now correct medium is returned Problem 3) Speed 1G was not advertised when port comes up as HG port and later converted to XE port due to max-speed set to >10000 Fix 3) Corrected WC 1g speed issue by checking additional `XE_PORT` type along with current speed before advertising speed Problem 4: TR 19 issue was happening with medium fiber i.e. test case was forcefully setting speed to 1G Fix 4) Added WC driver name check before forcing speed to 1G and by-passed concern =================================== =================================== ============== B) SDK-57534 KT2 (Unicore and Warpcore) Several issues with configuration 12 (issue 2) =================================== =================================== ============== Problem 1) Problem was happening due to wrong use of portgroup config variable in init phase and auto portgroup creation in flex-io operation i.e. assumed RXAUI related port group setting while converting hg port to 2 lane XE ports. Fix 1) Removed auto portgroup creation decision in flex-io operation and now user needs to set portgroup prior to flex-io operation and SDK initialization accordingly. If User doesn't use `auto_portgroup` config variable and doesn't set portgroup config variable prior to flex-io operation, SDK will throw "Behavior not guaranteed" message =================================== =================================== ============== C) SDK-57535 KT2 (Unicore and Warpcore) Several issues with configuration 12 (issue 3) =================================== =================================== ==============

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57273		`88650_A0`	When `ilkn_tdm_dedicated_queuing` is enabled and all the ILKN ports are non-TDM, traffic to this interface can't pass. Fixed.
SDK-57289	779367	`88650_B1 88660_A0`	When using external TCAM, control-plane writes to the external TCAM could sometimes fail when performed during line speed traffic. This issue is fixed by setting "CpuRecordPrio" field in register "TransmitCfgs" to '1' in the external TCAM application initialization.
SDK-57324		`56640_A0`	`bcm_policer_group_create` API creates a group of policers which are mapped based on the input offset derived from the packet. This mapping is fixed and is not flexible. New API `bcm_policer_group_create_with_map` provides the flexibility to offset derived from the packet and policer flexibly. This mapping can be given as input through the structure struct `bcm_policer_map_t { int count;` /* Number of entries in the map */ `uint8 *offset_map;` /* Array of policer offsets corresponding to the offset derived from the packet */ `}` Syntax of the new API : `int bcm_policer_group_create_with_map(int unit, bcm_policer_group_mode_t mode, bcm_policer_t *policer_id, int *num_policers, bcm_policer_map_t *offset_map);`
SDK-57344	780748	All `56548_A0` `56546_A0 56545_A0` `56544_A0 56542_A0` `56541_A0 56540_A0` `56545_A1 56540_B0` `56541_B0 56546_B0` `56544_B0 56547_A0` `56545_B0 56542_B0`	Fixed KNET DMA locking issue which could cause duplicate packets to be sent from the `bcm_tx()` API.
SDK-57354		`56840_A0`	After clear operation through `bcm_esw_l2_clear(),` the data in structure `_bcm_l2_match_ctrl` was sometimes released while the background thread L2MOD still needed to refer to the invalid data. This sometimes led to a crash of L2MOD. Currently the data in `_bcm_l2_match_ctrl` won't be released in `bcm_esw_l2_clear()` in order to avoid this race condition.
SDK-57437		`56850_A0`	api `bcm_vxlan_port_delete` is working.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57525	782992	`56850_A0 56850_A1` `56850_A2`	Customer requested a mechanism to find out the entropy label used for a given vxlan flow.
			In order to provide the requested mechanism, `bcm_switch_pkt_info_hash_get` has been modified to return the entropy label used if the packet is for the vxlan.
			For packets encapsulated into VxLAN tunnels, Entropy label is generated using RTAG7 hash. By using `bcm_switch_pkt_info_hash_get()`, entropy label used for VxLan can be retrieved.
			Note that entropy label is piggy backed in `dst_intf`.
			Example) `hash_info.flags = BCM_SWITCH_PKT_INFO_HASH_UDP_SOURCE_PORT` print `bcm_switch_pkt_info_hash_get(unit, &hash_info, &dst_gport, &dst_intf);`
SDK-57533		`56450_A0 5645_A0` `56450_B0 56456_A0` `56455_A0`	Problem 1) Null get was returning value 0 which is valid phy master value (i.e. slave). Fix 1) Added dummy `get_master()` in xgxs16g1l driver. Code is changed to return `MS_NONE` and that makes phy -master as NONE
			Problem 2: Proper medium was being detected in WARM-BOOT scenario only Fix 2: Corrected Copper/Fiber Medium detection concern in WC driver(which was applicable in Warmboot case only) Removed surrounding warm-boot condition in init part and now correct medium is returned
			Problem 3) Speed 1G was not advertised when port comes up as HG port and later converted to XE port due to max-speed set to >10000 Fix 3) Corrected WC 1g speed issue by checking additional `XE_PORT` type along with current speed before advertising speed
			Problem 4: TR 19 issue was happening with medium fiber i.e. test case was forcefully setting speed to 1G Fix 4) Added WC driver name check before forcing speed to 1G and by-passed concern
SDK-57534		`56450_A0 5645_A0` `56450_B0 56456_A0` `56455_A0`	Problem 1) Problem was happening due to wrong use of portgroup config variable in init phase and auto portgroup creation in flex-io operation i.e. assumed RXAUI related port group setting while converting hg port to 2 lane XE ports.
			Fix 1) Removed auto portgroup creation decision in flex-io operation and now user needs to set portgroup prior to flex-io operation and SDK initialization accordingly. If User doesn't use `auto_portgroup` config variable and doesn't set portgroup config variable prior to flex-io operation, SDK will throw "Behavior not guaranteed" message

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Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8

SDK-57539	781348	`56640_A0 56641_A0`
		`56642_A0 56643_A0`
		`56644_A0 56645_A0`
		`56648_A0 56640_A1`
		`56643_A1 56644_A1`
		`56640_B0 56644_B0`
		`56643_B0 56648_B0`
		`56649_B0 56649_A0`
			Logical table Register settings of `ACL_L2IP4_ONLY` partition of external TCAM are not accommodating source mac and destination mac addresses in final key. In this JIRA, LTR settings of `ACL_L2IP4_ONLY` are modified to have source mac and destination mac at right offsets in final key.

SDK-57556		`56850_A0 56850_A1` `56850_A2`	corrected the test script by add the flag `BCM_IPMC_RPF_FAIL_TOCPU` to set value of `IPMC_EXPECTED_L3_IIF_MISMATCH_TO CPU` to 1
SDK-57558		`56850_A0 56850_A1` `56850_A2`	In previous releases, `bcm_vxlan_stat_detach` still took high execution time because of some unnecessary memory operation and extra overhead. In this release, we cut some unnecessary memory operations and redundant codes to save time, therefore execution time are reduced.
SDK-57582	782398	`56624_A0 56224_A0`	When using autosync for warmboot, in case of remote link down event, the scache state was not being synced to the current state. So the link state might not be recovered properly during warmboot. This is fixed by marking the scache state as dirty when a remote linkdown event occurs, so that the state is synced later. Also, `link_mask2` is not being recovered properly after warmboot. Now, this will be stored in scache and will be recovered during warmboot.
SDK-57625	786811	`56340_A0`	`bcm_cosq_gport_attach` is returning failure for some ports (`RESOURCE_UNAVAIL`) due to unavailability of L0 nodes.scheduler list is not reset completely on mmu soc reinitialize. Fixed the scheduler list reset.
SDK-57648		`88650_A0`	A new ISSU error detection mechanism is inserted to test if the variable layout in external storage has been changed between two versions without a proper ISSU handling. The code is under a new compilation flag `BCM_ISSU_SANITY,` in order to be used mainly internally for regression and debug and to be transparent to the user. If the compilation flag is used, both the old and the new versions must be compiled with that flag. NOTE that ISSU is not available if versions were compiled with different compilation flags.
SDK-57650		`88650_A0 88660_A0`	Failover ID values '-1' & '-2' are reserved for FEC Protection as 'No Protection' and 'Facility Protection' respectively. Those reserved values failed with an internal error. Now those values, when used with the `BCM_FAILOVER_WITH_ID` flag, produce an error that states that the value is out of range.
SDK-57663	783147	All `56846_A0` `56844_A0 56846_A1`	In earlier releases, field groups auto expansion was not recovered in Level 2 Warm Boot. In this release we now allocate an unused bit in scache layout of field module to store the groups auto expansion capability.
SDK-57725	788276	`88030_A0 88030_B0`	src/appl/diag/ledproc.c: Change the previous common code into C3 dedicated code, in order to not affect other modules.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57739		`56850_A0 56850_A1` `56850_A2`	add a new case `AT_L3MC_Rep_009` to verify the flag of `BCM_IPMC_RPF_FAIL_DROP`
SDK-57749		`56340_A0 56640_A0`	BCM56640, BCM56340 support Software Aging. The L2 entries are aged out if HITSA and HITDA are both 0. New capability is added to age out entries based on ONLY HITSA and not consider the HITDA. This is done by setting the config property `'l2x_age_only_on_hitsa'` to 1.
SDK-57769	784039	`56334_B0 56334_A0`	In previous SDK releases, there are no SER correction support for several MMU blocks on Enduro, and thus once a parity error occurs in these blocks, it cannot be corrected and the error will be detected continuously. Fixed overview: The feature of SER correction for these MMU blocks on Enduro have been implemented. In addition, SER injection function has been added as well.
SDK-57774	781863	`56850_A2`	In the previous release, when the deleted l3 interface which had been added into the multicast group was re-created with the same id, the l3 interface was not attached to the multicast group, which was incorrect. In this release, this issue has been addressed by ensuring that the next hop index will be allocated and de-allocated by multicast module when the l3 interface's encapsulation id is added into and deleted from the multicast group.
SDK-57775	788841	`56150_A0`	Fixed possible race condition in SOC initialization routines.
SDK-57777		`56440_B0 56450_B0`	new config variable `mmu_num_subscriber_queues` and a macro `"BCM_GPORT_UCAST_SUBSCRIBER_QUEUE_GROUP_SYSQID_SET"` are defined to form the desired hierarchy tree of subscriber queues on front panel ports.
SDK-57791	774941	`88650_A0`	In Policer module, in some cases `bcm_policer_create` fails incorrectly when the mode is bcmPolicerModeCoupledCascade, due to an internal software usage of an uninitialized structure. This is now fixed.
SDK-57823	789287	`56450_A0 56450_B0`	Fixed the issue of access to non-existent fields in ECC error registers resulting in assertion during ECC interrupt handling by making sure that only the valid fields in the ECC error register are accessed.

SDK-57846	788171	`56840_A0 56640_A0`
		`56850_A0 56640_A1`
		`56640_B0 56850_A1`
		`56850_A2`
			In earlier release DMA buffer used to download WC firmware was not freed upon detach or exit clean. This has been resolved.

SDK-57859	789891	`56450_A0 56450_B0`	Problem : Old TDM-B was not having flex capability and was not matching to customer requirement i.e. 16x2.5G + 1G(WC0) + 10G(WC1) Fix : New TDM-B is provided to meet 16x2.5G +1G(WC0) + 10G(WC1).

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57889	789898	56340_A0	Aging thread runs independently , wait on semaphore for age time and wakes up & runs the bulk operation. L2 bulk operation stops and starts the aging thread. Here aging thread does not account for elapsed time it has already spent on semaphore.Lets say, aging thread already spent 25 sec and port delete operation is called at that time, aging thread stopped and restarted. Here MAC will be deleted at (25 + 30) sec = 45 sec. This is adjusted by keeping a log of elapsed time on semaphore during aging thread exit and readjusting it, during next time aging thread started.
SDK-57905 SDK-55025	790243	56548_A0 56547_A0	Firescout had a few static modes that could be used to limit 128-v6 and v4 routes from the same shared space. This way of configuration was not flexible as the modes were limited. This improvement removes all the static modes and provides a mechanism which can help users to configure v6/v6 routes flexibly. User can setup limit at route level granularity with the new approach. When the limit is set for 128-V6 routes, then rest of the memory is given to v4/64-v6 routes. user can also configure whether to share 128-v6 routes space with v4 routes.
SDK-57911	789281	88650_A0	The previous is that pass the `NULL` pointer of uc/mc/bc for `_bcm_petra_vlan_flooding_per_lif_get()` caused the segment fault. The fix is that pass the uc/mc/bc for `_bcm_petra_vlan_flooding_per_lif_get()` and get the value by the uc/mc/bc.
SDK-57925		88650_B1 88660_A0	When disabling a port using `bcm_port_enbale_set` API, the API disables traffic to egress queue and wait for queue to empty before stopping the interface (NIF). In case queue doesn't empty the API is supposed to revert its operation by enabling traffic back to the egress queue. The revert operation didn't work properly. Fixed.
SDK-57934		88650_B0	Allocation of VOQ connectors from non-continues range was limited (not all HW resources could be allocated by the SW). This issue is fixed.
SDK-57952		56640_A0	In TR3 device we were not able to delete last set of vlan service queues in the given port. We are now able to delete all the vlan service queues.
SDK-57958	782029	88650_A0 88650_B0 88650_B1 88660_A0	MPLS bug fixed: when creating and deleting a tunnel label and PWE `WITH_ID,` if they are re-created and the lif ids swapped, the tunnel termination fails and the tunnel label is used for forwarding. Issue is due to uninitialized values (Destination and Destination valid) when setting MPLS tunnel termination in LIF table.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57961	777725	`56640_B0 56850_A2`	V4 routes take half entry in shared defip tables. There can be some defip indexes containing V4 routes that does not have other half filled due to prefix restrictions. When SDK tries to recover number of indexes used for V4 prefixes in defip tables, it divides total number of routes by half but does not account about half entries. Due to this, SDK gives wrong number for total available 64/128 V6 route entries. This lead to overwriting of already existing routes in the defip tables.
			The fix is to count the number of half entries in defip tables and then use them during derivation of total free entries left in defip table for 64V6 and 128V6. This way SDK can return `BCM_E_FULL` error at table full and will not overwrite the existing entries
SDK-57962	747614	`88650_A0 88650_B0 88650_B1 88660_A0`	In L2 MAC table, when using API `bcm_l2_addr_delete_by_vlan_port(` `)` to flush all the entries on a specific PWE, all the entries that are on the same MPLS-FEC as the specified PWE were flushed. This is fixed and now only entries that are on the specific PWE (PWE-label+MPLS-FEC) are flushed.
SDK-57969	790396	`56850_A0 56850_A1 56850_A2`	In earlier releases, `bcm_ipmc_traverse` did not get IPMC v6 entries after level 2 warmboot. "ipmc ip6table show" shows nothing, but the HW table `L3_ENTRY_IPV6_MULTICAST` showed all installed entries.
			There were two root causes as follows: 1. The first `L3_IPMC` entry (index == 0) was reserved for default behavior for all chips except Katana and Katana2. In cold boot, we can find it was initialized in routine `bcm_esw_ipmc_init.` But routine `_bcm_tr_ipmc_reinit` considered it as normal `L3_IPMC` entry. 2. Flag of `BCM_L3_IP6` was not set when recovering `L3_ENTRY_IPV6_MULTICAST` to l3 entry in warmboot. This caused the 'ipmc ip6table show' not work since low level driver considered it as IPV4 entries.
			The solutions are as follows: Routine `_bcm_tr_ipmc_reinit` has been changed to reserve first `L3_IPMC` entry for the default behavior for both Kanata and Katana2.
			Flag `BCM_L3_IP6` has been set in recovering `L3_ENTRY_IPV6_MULTICAST` to l3 entry in warmboot in this release.
SDK-57975	790586	`56450_B0`	VLAN parameter check was being verified for both VPLS and MIM VPNs, though the VPN is of VPLS type. Fixed to validate VLAN only for the matching VPN type VPLS or MIM accordingly.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-57977	769739	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	In Ingress Field Processor, cascaded Field groups are using the bcmFieldActionCascadedKeyValueSet action to transmit an action value as part of the key value. This action is always performed in the HW. If unset, a zero value is expected to be transmitted. The entry TCAM action encoding was incorrect if: 1. The Field group ASET was including bcmFieldActionCascadedKeyValueSet 2. No action value was explicitly set for bcmFieldActionCascadedKeyValueSet (even a zero value) This is fixed.
SDK-57984		`56640_A0` `56640_A1` `56640_B0`	In earlier releases, after the successful warm boot recovery of VFP configuration with flex stat on TR3, if one of the field qualifiers is deleted, reinstalling of field entry failed with invalid parameter. The issue is now fixed by passing the right parameter `(offset_mode)` in the internal function while updating flex stat for the field entry.
SDK-57994		`88650_A0`	In L3 IP applications, the max VRF value is limited to 4095 in HW, but a segmentation fault was occurring when using a VRF larger than 255. This was due to a warmboot engine variable saving a VRF bitmap with an inappropriate size. Fixed. ISSU is handled transparently.
SDK-57998		`56640_A0` `56340_A0`	For BCM56640 and BCM56340, if config property `l2x_age_only_on_hitsa` is set, aging occurs only on HITSA, ignoring HITDA. In accordance with this the behavior of `BCM_L2_HIT` flag (`bcm_l2_addr_t` structure) is also changed, when this config variable is set. If the config variable is not set, `BCM_L2_HIT` flag is set for the entries passed to callbacks which have either HITSA or HITDA set. Also, in cases when an entry is being added, if this flag is set in the input `bcm_l2_addr_t` structure, both HITSA and HITDA will be set for the added entry. If the config variable is set, `BCM_L2_HIT` flag is set for those entries which have HITSA set. In case adding an entry, if this flag is set in the input `bcm_l2_addr_t` structure, only HITSA is set. To set HITDA, `BCM_L2_DES_HIT` flag has to set explicitly. Similar changes are reflected in l2 show diag shell command.
SDK-57999		`88650_A0`	In L2CP traps set via `bcm_l2_cache_set`, the handling of L2CP trap index of type Multicast and ports was incorrect. This is fixed.
SDK-58016		`56850_A2`	In the previous release, when configuring same Virtual Port (NIV Port) under multiple Mirroring sessions to get multiple copies, the function `"_bcm_xgs3_mtp_slot_port_indexes_get"` was called with the input port" parameter set to be physical gport. In this release, this function is called with the input port" parameter set to be physical unit port in this situation.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58023	736724	`88650_A0 88650_B0 88650_B1 88660_A0`	Added support for Split-Horizon filter in AC P2P VSI service. Up until now AC P2P service set always as Spoke, now user can configure and decide to set it either as Spoke or Hub using `BCM_VLAN_PORT_NETWORK` flag.
SDK-58043	790661	`56450_A0 56450_B0`	`mpls_port` add for VPLS configuration was using uninitialized pp port for given modid and portid. Fixed to convert given modid and portid to appropriate pp port before actual use. Another issue was that during subport trunk add for mpls VPLS port `source_trunk_map` table for the required entry is not configured appropriately due to incorrect modid and portid use internally. Fixed to convert pp port to appropriate modid and portid to update the required entry in `source_trunk_map` table.
SDK-58046		`56850_A2`	Customer found that a flex counter was automatically attached after calling `bcm_vxlan_port_add()` API. The root cause was the information of the L3 view was not cleared after changing the entry type. Now the issue has been fixed.
SDK-58047		`56850_A0`	Problem Statement: DMVOQ functionality is not working Incorporated all the required change in SDK to make DMVOQ to work, for ex: Programming `E2ECC_TX_PORTS_NUM`, Programming of `INTFI_CFG`, Programming of `CONGESTION_STATE_BYTES`, implementation to support higig trunk ,Warmboot changes, `Hw_index` allocation is not proper, handled all the error cases ,Corrected the programming of `FC_MAP_TBL`, `FC_ST_TBL`, `MMU_INTFI_OFFSET_MAP_TBL`
SDK-58055	788661	`56450_A0 56450_B0`	Issue: Access to iproc unimac(ethernet) registers is failing. Rootcause: Access failed in iproc linux since `request_mem_region` in linux kernel returns `NULL`. `request_mem_region` would return `NULL` when the memory range for specific driver is occupied already. This is because the ethernet driver in iProc was already using the memory specified for unimac registers. Fix: After commenting out the `request_mem_region` in linux kernel, we can now read/write those registers.
SDK-58081	791991	`56850_A0 56850_A1 56850_A2`	Customer found rate limit on broadcast traffic was affected by changing DLF rate limit on the same port on TD2. It was the expected behavior in the system but some special improvement could be implemented for TD2. Now an improvement has been added to reduce this impact.

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Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58087	792172	56450_A0 56450_B0	Subscriber delete was failing as the corresponding entry in REPL_LIST list was not removed when there are no EGR_L3_INTF/ EGR_L3_NEXT_HOP interfaces valid for replication of subscriber traffic and instead a new entry with NULL interfaces was added. The user is now able to delete the subscriber replication entries after correcting the behavior to remove the entry from the replication list when there are no replication interfaces.
SDK-58102		88650_A0 88660_A0	OAM: The following bug was fixed: Protection packets might not be sent until an event is registered.
SDK-58118	791236	56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56850_A0 56855_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	In previous release, there was no support to configure RTAG7_MPLS_L2_PAYLOAD_L3_HASH_FIELD_BMAP.MPLS_L2_PAYLOAD_L3_BITMAP_A/B, RTAG7_HASH_CONTROL.MPLS_PAYLOAD_HASH_SELECT_A/B on Triumph3, RTAG7_HASH_CONTROL_2.MPLS_PAYLOAD_HASH_SELECT_A/B on Trident2. This has been resolved by providing and implementing bcmSwitchHashL3L2MPLSField0/1, bcmSwitchHashL2MPLSPayloadSelect0/1.
SDK-58119	792999	56850_A2	Issue :- Qualifying SrcVxlanGport in Lookup Stage returns Internal Error Fix :- During Stage Lookup Qualifiers init routine, assigning secondary Qualifier for SrcVxlanGport was missed out. Hence the issue. Added Secondary qualifiers for SrcVxlanGport
SDK-58132		88650_A0 88660_A0	In some cases in bcm88650_A0, bcm88650_B0 and bcm88660_A0 (when the SOC property RATE_COLOR_BLIND is set to 0) the driver would crash when calling bcm_policer_destroy_all. This is due to a software bug where uninitialized memory is used. This issue is now fixed.
SDK-58135		88650_A0 88650_B0 88660_A0	PWE bug fixed: When deleting mpls port, push profiles of the PWE is deleted as well as all the push profiles of the MPLS tunnels that the PWE is pointing on.
SDK-58136	760903	88650_B1	The original issue was that ARAD PCIe controller dropped the completion when accessing the null space CMIC descriptor address that caused the CMIC logic to wait for completion forever. The current fix is that we enable the ENABLE PURGE IF USERIF TIMESOUT in which case CMIC HW will inject a fake completion after timer expires and injects a ECRC error so that DMA engines will come out gracefully.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58138	791882	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	PWE P2P: Model was always Uniform, no matter what user configuration is. This was fixed - both Uniform and Pipe models can be configured.
SDK-58140	792399	`88650_B1` `88660_A0`	Prevented false alarm memory ECC errors from happening when using the direct base queue to modport mapping mode, and not configuring queue mappings for queues that receive traffic or credits for a scheduler.
SDK-58144	792827	`56224_B0`	Multicast init fails during warmboot in `bcm_esw_mcast_init()` on some flavors of RAVEN chipset which do not have native L3 support. Provided a runtime check in `bcm_esw_mcast_init()` to check whether L3 features are supported on chipset.
SDK-58173		`56440_B0`	Problem - IPMC replication of L3 Multicast traffic over L3 interfaces is not working. Two issues are observed 1. While adding the IPMC configuration `L3_IPMC MMU_MC_REDIRECTION_PTR` is being modified which is not intended action in `"bcm_esw_ipmc_add"` Removed the code to reconfigure the `MMU_MC_REDIRECTION_PTR` `"tr_ipmc_write"` 2. when subscriber replication on `EGR_L3_INTF`, `EXT_MC_QUEUE_LIST0/` `EXT_MC_QUEUE_LIST1` field `L3_REPL_PTR0/1` is not programmed properly taking into account that `EGR_L3_INTF` index shall offset into (8k+ index) while configuring `L3_REPL_PTR`. It should have been programmed to be 8K+ `EGR_L3_INTF(index)`. IPMC replication of L3 Multicast traffic over L3 interfaces is working after programming the index correctly in `EXT_MC_QUEUE_LIST0/` `EXT_MC_QUEUE_LIST1` - field `L3_REPL_PTRx` for L3 interfaces.
SDK-58188	791948	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	In L2 MAC table, when using API `bcm_l2_replace_match()` with flag `BCM_L2_REPLACE_PROTECTION_RING,` the user supplied port mask was not used. This is fixed and now port mask is taken into consideration correctly.
SDK-58194		`88650_A0`	Fix bug in print encapsulation name in case of SOP only encapsulation. No effect on customer application.
SDK-58198		`88650_A0`	Fixed - `bcm_port_loopback_set()` with `BCM_PORT_LOOPBACK_PHY_REMOTE` for Arad fabric links. Fixed.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58208		88650_A0	In external TCAM ACL, the actions are different between BCM88650 and BCM88660 due to the common IP database in BCM88660: - The first action (bcmFieldActionExternalValue0Set) can be used for forwarding (or ACL) in both devices, with size of 48 bits - The second action (bcmFieldActionExternalValue1Set) can be used for RPF (or ACL) in BCM88650, with size of 16 bits. In BCM88660, it can be used as ACL with size 32 bits. - The second action (bcmFieldActionExternalValue2Set) can be used for RPF (or ACL) in BCM88660, with size of 16 bits. In BCM88650, it can be used as ACL with size 32 bits. - The third action (bcmFieldActionExternalValue3Set) can be used as ACL with size 24 bits. The distinction between BCM88650 and BCM88660 devices was performed only according to the compilation flag (`BCM_88660_A0`) and not according to the unit type.
SDK-58243	790578	88650_A0 88640_A0 88670_A0	FP: Fixed cases in which upper bits of the result were not initialized to Zeros while getting a Field.
SDK-58270	790312	56150_A0	The entry status of dual hash search mechanism on Hurricane2 and Greyhound devices were incorrectly reported in the case of hash conflict.This has been fixed in this release.
SDK-58275		88650_A0 88660_A0	OAM: Following bug was fixed: When soc property `"custom_feature_egress_snooping_ advanced"` is on and calling `bcm_oam_endpoint_action_set()` with the destination set as a trap, function may fail to properly update the classifier for up MEPs.
SDK-58315		88650_A0 88660_A0	Ring Protection: Added support for an optional sequence to perform Fast Flush. The sequence is comprised of encoding the Ring Port (FEC) as a gport of type FORWARD Port and calling `bcm_l2_replace` with `BCM_L2_REPLACE_MATCH_DEST` instead of `BCM_L2_REPLACE_PROTECTION_RING.`
SDK-58324		All	Fixed bug in KNET SKB allocation when using BCM API Rx buffers (`use_rx_skb=0`) on virtual KNET network interfaces which do not strip the VLAN tag.
SDK-58345		56850_A0 56855_A0 56850_A2	In the previous release, customer found the flex counters were not cleared after detaching. It was because on TD2, SDK only cleared X-pipe counters after detaching, but not Y-pipe counters. Now this issue has been fixed on TD2.
SDK-58360		88750_A0 88650_A0	`bcm_fabric_link_status_get` retrieve the fabric link status. This specific link status should be cleared on read. However, the entire quad status was cleared . Fixed.
SDK-58364	794704	56850_A0 56850_A1 56850_A2	In previous release, when customers changed one port encapsulation on TD2, the Rx Max Size was reset but Egress MTU is not. This was an omission and has been resolved.
SDK-58375	795815	88750_A0 88750_B0	Fixed a bug in "diag queues" command, the command previously printed a wrong occupied link number.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58382		56243_B0 56243_A0 56242_B0	When one port is moved to PHY loopback on 56243_A0, it turns all 4 ports in loopback. Provided a protective check in 56243_A0 internal phy driver to use broadcast mode of PHY config only when lane 0 is disabled, else use single lane config mode.
SDK-58392		88660_A0	bcm_port_enable_set bug fix: In case that 2 CAUI ports and ELK are configured, The CGE1 traffic was dropped when the ELK port was disabled.
SDK-58393	794812	56541_A0 56540_A0 56540_B0 56541_B0	Wrong meter table size configuration in BCM5654X devices resulting in failure of bcm_policer_destroy, is fixed.
SDK-58395		All	1588/PTP servo configuration takes bridge_time parameter in struct bcm_ptp_servo_config_s which normally configured in seconds. Comments are modified to reflect the same.
SDK-58398	793706	88750_A0	SER interrupts were not signaled to CPU and not counted, due to being masked by a set of override bits called monitor bits. This was fixed to allow proper logging and handling of SER interrupt events by the SDK.
SDK-58407	769153	56640_A0	On TR3 device ,for HSP ports the sdk was not programming HES_PORT_CONFIG register , hence the scheduling was not proper .As part of the fix we are programming it properly .
SDK-58409		56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	Previously, the software control structure for IBOD was not stored in scache, and hence during warmboot, the state was lost, which caused the workaround (IBOD WAR) to run again on all the effected ports. Now, the related fields in the control structure are stored in scache and are recovered during warmboot.
SDK-58423	793902	All 56850_A0 56850_A1 56850_A2	In the previous release, the function rx_higig2_vpn_resolve didn`t parse VNI field in HIGIG2 header when it was VxLan. In this release, support has been added to parse VNI field in HIGIG2 header when it is VxLan.
SDK-58425	796179	56440_B0 56450_B0	For BCM5645x devices, support has been added for L3 packets, ingressing from trunk member ports, to be able to be trapped to CPU.
SDK-58428	796509	56450_B0	Fixed the issue of CCM RX not working after deletion and re-creation of RMEP due to wrongful deletion of OAM lookup key as part of RMEP delete.
SDK-58445		56640_A0 56640_A1 56640_B0	Problem: When the cascaded TCAMs are present, and the lookups are configured to include L2, L3, and L2+ACL, the system will forward a few thousand packets and then hang when the ESM bandwidth is oversubscribed. This will manifest itself as an ETU response FIFO underrun. Solution: Number of lanes to the TCAM interface is different when there are multiple TCAMs present. Fixed the issue by setting the number of lanes based on the number of TCAMs present in the system.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58460		`88660_A0`	Routing Over VXLAN feature in `BCM_88660`. At ingress node, UDP length calculation was incorrect when sending a packet from TOR to Overlay network. API require to configure per native router interface, the expected amount of native Ethernet VLAN tags to be built at the native Ethernet header. BCM calling sequence: when creating the native router interface: `(bcm_l3_intf_create),` fill the member: `native_routing_vlan_tags` from `bcm_l3_intf_t` with the expected amount of native Ethernet vlan tags to be built at the native Ethernet header. see `cint_vxlan_roo.c` for more information. See `cint_vxlan_roo.`
SDK-58462		`88650_A0` `88650_B0` `88660_A0`	Uninitialized variables were found in both PMF compare operation function and in LIF & RIF profile management function. This is fixed.
SDK-58463		`88650_A0` `88650_B0` `88660_A0`	In TCAM management, a sorted linked-list is used to handle the entry priority ranges: given a priority, the sorted list indicates the acceptable line range to insert a new TCAM entry. When looking to insert / get a node of this linked-list, the lookup function scans the list until it founds a node with lower priority and a node with higher priority. This lookup was not always correct. This is fixed.
SDK-58466		`88650_B0` `88650_B1` `88660_A0`	Required changes in SDK in order to have full support of external TCAM configuration restoration after warmboot. Note that this support requires the use KBP-SDK 1.2.5 and higher.
SDK-58472	793850	`88650_B1`	Remove ECC 1bit and 2 bit monitoring from ILKN memories of lanes that are not in use.
SDK-58493		`88650_A0`	- Memory error protection: Enabling the ECC & Parity error mechanism sequence moved to the end of `soc_init` sequence. The reason is that this mechanism should be activated only when all memories are initiated, to avoid false alarms. - Shadowing (caching) mechanism: Memory shadows were not updated according to HW memory values after initialization sequence. Consequently, the cache was invalid until the appropriate entry was set explicitly following a driver call that translates to the corresponding table entry. Trying to use cache prior to writing the entry, e.g. as part of parity error-correction interrupt handler, would fail. The fix ensures that all the cache memories are updated with HW by default, as part of driver initialization.
SDK-58528	688507	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	OAM: Bug in OAM classification exposed only when adding the build option `DEBUG_OPTIMIZE=TRUE.` This bug causes incorrect oam module initialization when running in optimized mode.
SDK-58553	796964	`56744_A0`	In previous release, HG port with 25G speed config couldn't be added to config file. HG port with 25G speed config was enabled by modifying SDK to accept such configuration.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58565	797854	`56850_A2`	In the previous release, in `bcm_tr2_vlan_gport_add`, the `ing_port_bitmap` was overwritten by IPMC groups member port bitmap when we updated the `ing_port_bitmap` in `VLAN_TAB`. In this release, the `ing_port_bitmap` is read out first and then ORed with IPMC groups member port bitmap.
SDK-58596		`56850_A2`	Redirect to NIV virtual port from Ingress Stage Field Processor support was missing in earlier releases. The support is now added.
SDK-58618	795243	`88650_A0`	Disabling a non channelized port using `bcm_port_enable_set()` momentarily effected other ports rates. Fixed.
SDK-58630	792060	`56850_A0 56850_A1 56850_A2`	In previous releases, command "l3 ip6route show" would result in a cause when ALPM was enabled. This has been resolved by adding proper check to return feature unavailable instead of crashing when ALPM is enabled.
SDK-58642	799204	`56850_A2`	Issue :- Trident2 :Action bcmFieldActionIngressGportSet in VFP configures `FIELDS_ACTIONf` which is not required. Fix :- Added relevant checks to not configure `FIELDS_ACTIONf` for bcmFieldActionIngressGportSet in Trident2.
SDK-58649	792420	`88660_A0`	On Arad+, when calling `bcm_trunk_set` where all members have `BCM_TRUNK_MEMBER_INGRESS_DISABLE` set, an assert occurs. This assertion was fixed.
SDK-58653		`56649_A0 56643_B0 56648_B0 56640_B0 56854_B0 56644_B0 56854_A0 56649_B0 56644_A1 56643_A1 56640_A1 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1 56640_A0 56643_A0 56644_A0 56641_A0 56642_A0 56850_A0 56855_A0 56645_A0 56648_A0 56850_A1 56855_A2 56852_A2 56853_A2 56854_A2 56851P_A2 56851_A2 56850_A2 56851_A1 56851P_A1`	In previous release, there was no support to configure `RTAG7_MPLS_L2_PAYLOAD_L3_HASH_FIELD_BMAP.MPLS_L2_PAYLOAD_L3_BITMAP_A/B`, `RTAG7_HASH_CONTROL_2_64.MPLS_PAYLOAD_HASH_SELECT_A/B` on KATANA2. This has been resolved by providing and implementing bcmSwitchHashL3L2MPLSField0/1, bcmSwitchHashL2MPLSPayloadSelect0/1.
SDK-58667		`56640_B0`	a new enum value is added to enable the `rx_lox` external pin for 100G application
SDK-58690		`88650_A0 88650_B0 88660_A0`	The ISSU feature cannot assume that a define is maintained between versions. There was an ISSU dependency on the `BCM_MODULE__COUNT` value, that may change when new `BCM_MODULE_XXX` is added. This is fixed.
SDK-58695	799873	`56450_A0`	For BCM5645x devices, support has been added for L3 packets, ingressing from trunk member ports, to be able to be trapped to CPU.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58699	795957	56640_B0	Although flexible scaling feature was supported in TR3, due to a bug in TR3 feature list, flexible scaling feature for LPM was not enabled. Applications were not able to add 128b routes due to this. Enabled flexible scaling feature in TR3.
SDK-58725	799988	56450_A0 56450_B0	In the previous releases when more than one MPLS port share the same egress queue and if one of the MPLS port sharing the queue was removed then ING_QUEUE_MAP was deleted as no reference counter was maintained on ING_QUEUE_MAP. From this release added support for maintenance of reference counter on ING_QUEUE_MAP entries. ING_QUEUE_MAP entry is deleted only when all MPLS ports sharing the egress queue entry are deleted.
SDK-58726		88660_A0	in drv.c need to remove the line in _soc_validate_device_num_of_dram that causes the function to fail for the case of SKU 88560. in SKU 88560 theres a support for 8 drams not 0 drams which was what the _soc_validate_device_num_of_dram function tried to validate before the changes.
SDK-58733		All	New build toolchain XLP SDK 3.0.2 effected on GTR and WRX based SVKs.
SDK-58750	792732	88650_A0 88650_B0 88650_B1 88660_A0	Trill Adjacency check: 1. encap_id (Link-layer-outlif) now support full range 2. Fix information of bcm_trill_port_get for Adj. database.
SDK-58752	783027	All	OAM: Support handling of CCM packets in the OAMP for packet types with 2 Ethernet headers (i.e. Mac in Mac). This requires correctly setting PPH.FWD_HEADER_OFFSET to the start of the OAM header.
SDK-58769		56450_A0 56450_B0	Problem statement: DMVOQ is not working when fabric is in between and trunk ports are used in fabric Fix description: Incorporated the changes so that DMVOQ works properly, when fabric is connected inbetween the modules and trunk ports are used to connect the egress module
SDK-58784		88650_A0 88650_B0 88650_B1	Extend Warmboot engine capabilities to support easily the removal of variables in future ISSU scenarios. This is not affecting ISSU in older versions.
SDK-58787		88750_B0	BCM88750 support running memory bist test on device initialization (enabled by soc property "bist_enable"). A block reset was added after memory bist test in order to make sure that memory is re-initialized.
SDK-58821	672112	88750_A0 88750_B0	"phy measure sfi" diagnostic command is used to measure fabric link rate. Using this command caused to the fabric link counters to stop. Fixed.
SDK-58848 SDK-58983	801222	All	Fixed major lock release issues in SDK code.
SDK-58856	795594	All	The CLI command "dump pcic" has been made independent of the BDE functions and instead it would now use the cm_device_t function vectors

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58863	797630	88650_A0 88660_A0 88670_A0	arp extension feature: Backward compatibility for arp extension feature. BCM_88660_A0 can now work in BCM_88650 mode using custom soc property custom_feature_next_hop_mac_ext_arad_compatible. Using BCM_88650 mode implies learning extension header always appended when PP packet is sent to the fabric.
SDK-58870	800874	56850_A0 56850_A1 56850_A2	Provided the debug (FP+Verbose) prints to display the UDF chunks allocated during data qualifier create bcm_field_data_qualifier_create() and bcm_field_data_qualifier_get() API. It helps to understand the chunks used in the UDF offset during creation.
SDK-58886	802162	All 56334_B0 56334_A0 56850_A0 56850_A1 56850_A2	In earlier releases, internal resource (next_hop/vx_and_swap objects etc.) could not be deleted if customer invoked bcmx_trunk_destroy first and then bcmx_mpls_port_delete. This has been fixed in this release.
SDK-58890	781333	56440_A0 56440_A1	For Katana (and Saber) the counter SOC_COUNTER_NON_DMA_COSQ_DROP_PKT is implemented with a flex counter which counts packets that are discarded by the MMU. By default, this counts packets that are discarded by the MMU for a variety of reasons. One of them is oversized packets. When the MMU flushes a packet because it is oversized, in increments this flex counter. This is not the desired behavior. The fix is to set the bit OP_CNT_CFG in THDO_DROP_CTR_CONFIG which would ensure that counters will only count packets that have been dropped due to output thresholding checks, i.e. those within op_drop_mask.
SDK-58895		88650_B1 88660_A0	This table is static table. Therefore shadowing this memory should be allowed. This table removed from dynamic table list.
SDK-58900		88650_B1 88660_A0 88670_A0	In Ingress Field Processor, in Direct Extraction field groups diagnostics, the source key selection for the action was read from wrong location. This is fixed.
SDK-58913		56850_A0 56850_A1 56850_A2	In the previous release, the SVP multiple MTPs mirroring and DVP multiple MTPs mirroring were not supported. In this release, this issue has been addressed by adding code changes to support these two mirroring modes.
SDK-58919 SDK-58191 SDK-58894	799048	All	BCM diag shell commands did not work for a system in which the total number of devices <= device ID (i.e. when they are 'holes' in unit IDs, for example - 2 units, IDs '0' & '2').
SDK-58958	802230	All	Added check for XW ports used in helix4 while enabling Frame length check.
SDK-58969	797443	56850_A0 56850_A1 56850_A2	In previous releases, the macro definition MAC_LSB_SHIFT was different for big endian and little endian system. Actually it should be same in both endian systems. This has been fixed in this release.
SDK-58981	798049	56850_A0 56850_A1 56850_A2	In earlier releases SDK destination port was modified unexpectedly when aged through bcm_l2_replace. This has been resolved.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-58984	802028	`56248L_A0 56248L_B0 56450_A0 56450_B0`	The TTL value of VC label was not retained when replacing l3 egress object using API `bcm_l3_egress_create()` with "flags = `BCM_L3_WITH_ID|BCM_L3_REPLACE`". The issue has been fixed for BCM5645x and BCM56248L devices.
SDK-59047	802819	`56450_B0`	In BCM 5645X chips after flex port operation the packets will not egress if the port uses external memory. Resolved by adding the missing port reinit for mmu after flex port operation.
SDK-59066	793397	`56850_A0`	In previous releases, the customer could experience a segment error when using stacking application sample code to configure symmetric HG stack links on TD2. This was caused by the SDK using an incorrect maximum number of fabric trunk groups. The issue has been fixed.
SDK-59074	800863	`56846_A0`	SER injection is accomplished by disabling parity, injecting error into hardware table, and then enabling parity again. In earlier SDK releases, `soc_trident_pipe_select()` which is used to set pipe-line on Trident was invoked after disabling parity. So the parity control register on Y-pipe was not configured and parity was not disabled on Y-pipe. In this release, `soc_trident_pipe_select()` has been placed before setting parity control register to disable parity.
SDK-59087	804148	`56440_A0 56450_A0 56450_B0`	In the previous release the `STRICT_PREAMBLE` and `PROCESS_VARIABLE_PREAMBLE` was not configured for speed less than 2.5G. This issue has now been addressed by setting `STRICT_PREAMBLE=0` and `PROCESS_VARIABLE_PREAMBLE=1` in `XMAC_RX_CTRL` for speed less than and equal to 2.5G
SDK-59101	790579	All	Fixed Linux kernel link errors appeared when Makefile did not include DNX chips.
SDK-59154		`56850_A0 56850_A1 56850_A2`	In previous releases, in `bcm_l3_route_add` API if parameter flags and L3 interface object consistency were not checked for ECMP and could lead to wrong reference count update. In current release, parameter flags and L3 interface object consistency are checked for ECMP.
SDK-59178	803680	`88750_B0 88650_B1`	This issue fixed at 6.3.7 and 6.4.2 versions. The fix is solving a problem which produced at SDK-58398 (masking all interrupts by default).
SDK-59194	804732	All	In the previous release, the left egress mirror could not work if one of the two egress mirrors was deleted when flexible mirroring destinations was enabled. In this release, this issue has been addressed by programming the register `MIRROR_SELECT` correctly when the egress mirror is deleted.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-59198	800106	56846_A0 56840_A0	In previous release, "PORT" parameter was not retrieved correctly for registers per warpcore in the routines `_soc_trident_parity_reg_set` and `_soc_trident_parity_reg_get` on Trident+ devices. This would cause system crash when parity error occurred in these registers. The operation that calculates and gets the correct PORT parameter for registers per warpcore has been added for these two routines.
SDK-59202	763574	56854_A2	In the 6.3.7 release, SDK initialization would occasionally fail on BCM56854 devices. This has been resolved.
SDK-59235		56640_A0 56640_A1 56640_B0	In previous releases, when trying to create an egress vlan entry on BCM5664X, for virtual ports, the API was giving an assertion, because it was trying to configure an invalid field in egress vlan xlate memory. This is fixed by correcting the field name.
SDK-59238		56450_A0	KT2 1588 Transparent timestamping support is added.
SDK-59263		56850_A0 56850_A1 56850_A2	Any read operations from CPU could result in the HW aging or `L2_BULK` triggered HW aging mechanism sometimes incorrectly deleting entries from the `L2_ENTRY` table. The SW triggered HW aging through `L2_BULK` operations was introduced to fix this issue. In order to protect `L2_BULK` operation from all read operations from CPU, not only will the SW aging thread grab the mutex locks for all the memory read operations needed before the `L2_BULK` operations to trigger the HW aging, but also has the highest priority in all SAL threads to void preemption by other SDK threads.
SDK-59266	806043	56846_A1	In previous releases the sizes of `l2_hitda_only` and `l2_hitsa_only` tables were 16K. The fix was to reduce `l2_hitda_only` and `l2_hitsa_only` tables to 8K, as each of them can contain the hit bits for 8 `L2_entry` and total `L2_entry` is 64K.
SDK-59286	804564	56629_B0 56624_A0	`BCM_COLOR_INNER_CFI` color setting for `"bcm_port_tpid_add"` API is not valid for TRX devices. TRX only allows `OUTER_CFI` to CNG mapping. But the API was not returning error. This has been fixed and will now reject `BCM_COLOR_INNER_CFI` color setting for `"bcm_port_tpid_add"` and return `BCM_E_UNAVAIL`.
SDK-59290	804355	56640_A0 56640_A1 56640_B0	IPv6 Packets were not hitting the external FP rule that matches SMAC and VRF for `_FP_EXT_ACL_L2_IPV6` mode. The issue is fixed by changing the offsets of qualifiers during external field qualifier initialization and by programming the correct offsets in LTR (Logical Table Registers) .
SDK-59327		56340_A0	`bcm_regex_match_check()` was not taking account of chaining overhead while calculating regex DFA size, This issue has been fixed.
SDK-59333		88650_A0	`bcm_port_control_get` with controls bcmPortControlRxEnable and bcmPortControlTxEnable are not applicable for Fabric links. Fixed.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-59337		`88750_A0`	`serdes_qrtt_active` soc property has 2 bugs: - it is unable to use it without .<unit number> - it has a bug if the quad number isn't divisible by 4 `serdes_qrtt_active` soc property is fully supported, and can be used without .<unit> and with any valid quad number
SDK-59352		`56540_A0 56540_B0`	On FB4 and TR3, the field name `SUPPRESS_VXLT` in `FP_POLICY_TABLE` was changed to `HI_PRI_SUPPRESS_VXLT`. And hence the SDK crashed due to accessing the invalid field during entry install. Fixed the issue by validating the field before accessing.
SDK-59358	805970	`88650_A0 88660_A0`	Fix to Arad ingress reset sequence
SDK-59371		`56640_A0 56340_A0` `56850_A2`	Problem: No qualifier to match on class value assigned based on SourceGport in Egress Stage of FieldProcessor. Solution: A new qualifier (IngressInterfaceClassVPort) is implemented for matching Source GPort based class value in keys defined for bcmstageEgress. This can be used to match a value assigned to a packet using `bcm_port_class_set` based on ingress Gport / source Gport in Egress Stage of Field Processor.
SDK-59417		`56850_A0 56850_A1` `56850_A2`	In earlier release, when trying to clear the dest hit bit in L2 entry, L2 destination was unexpectedly replaced by `bcm_l2_replace()` API. This has been resolved.
SDK-59419		`88660_A0`	IHB 1B & 2B ECC mask enabled for all memories at Arad+.
SDK-59455	806478	`56450_A0 56450_B0`	When L3 ingress mode is set, added support in `bcm_mpls_tunnel_switch_get()` API to return `info->ingress_if` for BCM5644x and BCM5645x devices.
SDK-59527	806930	`56450_A0 56450_B0`	Enabled `bcm_port_l3_mtu_set/_get` APIs for BCM5645x and BCM5644x devices.
SDK-59529	807602	`56450_A0 56450_B0`	Support has been added for CoE subport gport in `bcm_port_tgid_set/get` API for BCM5645x devices.
SDK-59532		`88660_A0`	OAM: In Arad+, when defining a MEP on a LIF on which another passive MEP or MIP resides, the second MEP may change the first MEP's non accelerated profile, thus changing the behavior of the first MEP.
SDK-59540		`88660_A0`	OAM: When using OAM classification in Arad mode on Arad+, an incorrect number of non-accelerated MEP-profiles may be allocated which may cause inconsistent behavior.
SDK-59553		`88650_A0 88660_A0`	OAM: `bcm_oam_loss_get()` returned incorrect values because `loss_farend` and `loss_nearend` were miscalculated.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-59568		All	In earlier releases, there was no way to use the API `bcm_rate_bandwidth_set` to set the rate to 0kbps speed. If the speed was set to zero, the assumption was to disable metering. Now, to disable metering, `kbits_sec` parameter has to be passed as `BCM_RATE_DISABLE` and to set the rate to zero, `kbits_sec` parameter has to be passed as `BCM_RATE_BLOCK`
SDK-59570		All	In earlier releases, there is no way to use the API `bcm_rate_bandwidth_set` to set the rate to 0kbps speed. If the pass the speed as zero, the assumption was to disable metering. Now, to disable metering, `kbits_sec` parameter has to be passed as `BCM_RATE_DISABLE` and to set the rate to zero, `kbits_sec` parameter has to be passed as `BCM_RATE_BLOCK`.
SDK-59617		`56450_B0`	Added support to use port class id upto 127 in `bcm_vlan_translate_egress_action_add()` API for BCM5645x devices.
SDK-59669	808665	`56450_A0 56450_B0`	In the previous releases the TTL of L3 route label cannot be read back via `bcm_l3_egress_get`. This has been fixed to read TTL value of L3 route label for requested entry from `EGR_MPLS_VC_AND_SWAP_LABEL_TABLE` table and return to the user via `bcm_l3_egress_get.`
SDK-59700		`56850_A0 56850_A1 56850_A2`	Description: SER failed to correct entry of `ING_FLEX_CTR_COUNTER_TABLE_[0 to 7]` once a SER error occurred on it. Root cause: The reported entry index is the offset of the reported entry to the first entry of `ING_FLEX_CTR_COUNTER_TABLE_0,` but it should be the offset of the reported entry to the first entry of `ING_FLEX_CTR_COUNTER_TABLE_X` which the entry belongs to. Solution: The software now calculates the index again once we discover the reported entry is one of `ING_FLEX_CTR_COUNTER_TABLE_[0 -7]`, the algorithm is using lower 12 bits of the index as the new index.
SDK-59761	808170	`56450_A0 56455_A0 56450_B0`	Port command was not working properly in SDK for the Port advertisement field. The port advert mode was not getting set when done via CLI command. Root cause of this issue was that the action mask that enables the port advert field was altered to default this is port ability instead of port mode. Handled this issue by modifying the action mask that enables port advert field to set it by default to port mode.
SDK-59785		`88650_B0 88660_A0`	Required changes in SDK in order to support KBP-SDK 1.3.0 for external TCAM are introduced.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-59853		88660_A0	In ARAD+, when using external TCAM for forwarding, RPF and forwarding searches were always performed serially on a single database, using SIP and DIP respectively in search keys. A new SOC property is added to enable the user to perform forwarding and RPF searches on duplicated databases in parallel (as in ARAD): - `custom_feature_ext_rpf_fwd_parallel` - when set, forwarding and RPF searches are performed in parallel.
			When the SOC property is set, in case of IPv4/6 + RPF forwarding query, external ACL databases IDs are changed to 2 and 3. The actions sizes for ACL databases are also changed accordingly: The action size for ACL database 0 is 64 bits. The action size for ACL database 1 is 16 bits. The action size for ACL database 2 is 32 bits. The action size for ACL database 3 is 24 bits. All of the changes above apply only to ARAD+ devices.
SDK-59854	809432	56340_A0 56547_A0	`wcmod_power_control()` was powering off global PLL block when one lane was disabled, which caused all 4 lanes to be powered down. Fixed to power down global PLL block when all 4 lanes are disabled.
SDK-59862	779893	88650_B1 88660_A0	Stacking systems are transmitting between the different systems the whole packet, including the internal headers (FTMH + extensions, PPH + extensions, User-Headers if present). In case the user-headers are present in the system, the second stacking system was adding again user-headers to the packet. This is fixed.
SDK-59974	809811	56440_A0 56440_A1 56450_A0 56440_B0 56455_A0 56450_B0	In the previous release the priority given in `bcm_vlan_dtag_add` was not taken as the outer tag priority. `ING_VLAN_TAG_ACTION_PROFILE` table needed to program by setting `SIT_OPRI_ACTION` field to set the priority field.
SDK-60029		88650_A0	Cell drops occurred on a system with single fabric pipe BCM88650 and dual fabric pipe BCM88750. Such a single fabric pipe BCM88650 should be configured as follow: 1. Set to single fabric pipe mode `is_dual_mode.BCM88650=0` 2. Adjust fabric cell format to dual pipe mode system `system_is_dual_mode_in_system.BCM88650=1`
SDK-60099		56850_A0 56850_A1 56850_A2	Issue: `bcm_field_qualify_IpType` is setting right h/w encoding for bcmFieldIpTypeNonIp but `bcm_field_qualify_IpType_get` is failing due to wrong h/w encoding value derived in internal get function. Fix: modified internal get/set functions to match h/w encoding for bcmFieldIpTypeNonIp.
SDK-60102		56450_A0 56440_A1 56450_B0 56440_A0 56455_A0 56440_B0	In the previous release the priority given in `bcm_vlan_dtag_add` was not taken as the outer tag priority. `ING_VLAN_TAG_ACTION_PROFILE` table needed to program by setting `SIT_OPRI_ACTION` field to set the priority field.

Table 46:

Number	CSP #	Chips	Release Notes For 6.3.8
SDK-60110		`88650_A0 88650_B0 88650_B1`	For ISSU, in warmboot-engine module, an option is given internally to skip a variable when retrieving the external storage in a newer version. This feature had issues discovered in its first usage in 6.3.8: the Driver is still trying to access these variables in some part of the code, which may lead to errors in the variable offset computation. This is fixed.

Section 17: Resolved Issues for 6.3.7

The following issues are resolved in version 6.3.7 of the SDK.

Table 47:

Number	CSP #	Chips			Release Notes For 6.3.7
SDK-46757	636270	56643_A0			Triumph_3 has a Unified Forwarding Table and hash selection for L2/L3/Vlan/Mpls tables has to be programmed differently. HASH_CONTROL register does not have a L3_HASH_SELECT field. The command "l3 l3table hash" is trying to access this non-existent field resulting in an assertion failure. Support for "l3 l3table hash" and "l3 l3table ip6hash" commands have been implemented.
SDK-51352	708790	56846_A0 56846_A1	56840_A0		In previous versions, the routine _soc_trident_mem_parity_control() returned directly after configuring parity control for X-pipe and left Y-pipe parity control register un-configured for dual pipe IPIPE/EPIPE memories. In this version, _soc_trident_mem_parity_control() has been modified configure both X-pipe and Y-pipe parity control.
SDK-51828	716994	56440_A0 56850_A0			Added new API bcm_stat_flex_pool_info_multi_get to retrieve the usage of flex counters in a pool
SDK-52072	716983	88660_A0			ERSPAN: Fixing a bug in bcm_tunnel_initiator_clear(). When a ERSPAN tunnel is created through bcm_tunnel_initiator_create(), two EEDB entries were allocated but in bcm_tunnel_initiator_clear() only one was freed.
SDK-52389	721614	56850_A0			API has been added for populating egress etag qos mapping.
SDK-52564		56850_A1			Fixed traffic drops observed with ingress-traffic after creation of L2GRE access port with match criteria as MATCH_PORT_VLAN.
SDK-52621		All			Fixed Timestamp function for Vxworks GTO.
SDK-53487	736250	56850_A0 56830_A1 56830_A0	56850_A1 56850_A2 56830_A2		In the previous release, the restriction that the queues in strict priority mode must be in consecutive order on Trident2 family was not documented. In this release, this issue has been addressed by documenting the restriction.
SDK-53998	737239	56800_A0 56334_A0			In previous SDK, the statistics snmpIfOutDiscards returned wrong value on some old devices. This snmp counter was mapped to MMU_CTR_MC_DROP_MEMm, but this memory was not existed in some old devices, so the counter should be mapped to some other memories. This issue has now been resolved.
SDK-54168	738971	56850_A0 56850_A2	56850_A1		In previous release, parity error occurred at second half memory of ING_L3_NEXT_HOP could not be corrected. This has been resolved by correcting the memory depth of ING_L3_NEXT_HOP in SER.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-54202	741184	`56240_B0`	`MMU_INTR_MASK` bits for CI0, CI1 and CI2 remain reset (set to 1) based on available memory banks. If number of external banks available is 0 then all for all CI0,1,2 the mask will be set. If it is 1 then the mask will be set for CI1 and CI2. if it is 2 then mask will be set only for CI2 and if it is 3 then mask will not be set for any of CI0-CI2.
SDK-54203		`56440_A0` `56440_B0`	Parity checks will now be turned off for non-existent external DDR memory banks.
SDK-54551 SDK-50401	747647	`56850_A0`	Support has been added for TD2 for `bcm_port_subsidiary_ports_get` API.
SDK-54617	777127	`56640_A0` `56634_A0` `56640_A1` `56640_B0` `56634_B0`	In previous release, the schan response type for devices with ISM, e.g. Triumph3 and Helix4 is not properly checked. The following response types `SCHAN_GEN_RESP_L2_MOD_FIFO_FULL`, `SCHAN_GEN_RESP_MAC_LIMIT_THRESHOLD` and `SCHAN_GEN_RESP_MAC_LIMIT_DELETE` have been added in schan response type checking in the routine `soc_mem_generic_insert()`.
SDK-54792		`56640_B0`	On TR3, if `EGR_ING_PORTm` register is not configured, L3 traffic received on EHG port seen as source mac and destination mac zero on cpu port. Added configuration for `EGR_ING_PORT`.
SDK-54849		`88650_A0`	IMPORTANT: Injection of TM packet with user define header is not supported on systems which have OAM yet (SDK-57826). Background: user headers are optional internal system headers located after the FTMH and PPH headers (extensions included). The User header can be used for different purposes: - Cascaded ingress egress ACLs, to transmit data from Ingress FP to egress FP - Various work-arounds The user header size is configured via `field_class_id_size_X` SOC property. Issue: when injecting TM packets with additional headers after ITMH (e.g. PPH or OAM-TS) and if the user headers are used, the user must include the user headers in the packet after the additional headers and before the payload (e.g. before the Ethernet header). Set this mode via the SOC property `custom_feature_injection_with_user_header_enable.` In this mode, the user header is not added: injected TM packets must be injected with a User-Header with the same size as the configured user-header size (`field_class_id_size_X`). If the destination port of the TM packets are Ethernet port, the user also must set the `custom_feature_user_header_always_remove` SOC property.
SDK-54945		`56340_A0` `56344_A0`	Big Endian mode has been added to the SDK when using Helix4 with iProc and latest LDK release To build SDK in Big Endian mode, type "make `ENDIAN_MODE=BE`".
SDK-55162		`88660_A0` `88670_A0`	IP Routing-Over-Overlay (ROO) refers to a set of protocols/applications where the L2 forwarding to the Host/Next-Hop router is not accomplished by simple 802.1q bridging, but by L2-Overlay protocols (VXLAN, etc). BCM8866X supports ROO Host Unicast over VXLAN. See `cint_vxlan_roo.c` for cint example and Programmer's Reference Guide for more details.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-55298		`88650_A0 88660_A0`	When using lag over a stacking system with `number_of_trunks=[512/256/128/64]` packets might be dropped. When a FAP resolves a LAG destination, it passes the packet to the next stacking FAP with the LAG id and part (8bit) of the lb-key. Since only a part of the lb-key passes, the next FAP may conclude a different destination for the packet. As a result, the packet can be sent back to a FAP that already passed this packet, resulting in dropping the packet.
			This fix makes the FAP pass the packet to the next stacking FAP with the Destination System Port (DSP) (instead of the lag id), so that next FAP(s) will forward the packet according to the DSP and will not need to recalculate the destination. No change in default behavior, the feature is disabled by default. In order to enable this fix on 6.3.7, the following SOC property configuration is needed: `custom_feature_stamp_uc_destinatio n.BCM88650=1`
SDK-55415 SDK-59514		`88650_A0 88650_B0 88650_B1`	"g *" command will display MAC regs only once for channelized ports.
SDK-55456		`56850_A0 56850_A1 56830_A1 56850_A2 56830_A0 56830_A2`	In the previous release, flexible counter thread could occasionally report a huge counter statistic when the two hardware counters belonging to two ports which locate at different pipelines rolled over at the same time. In this release, this issue has been addressed by handling rollover for individual pipelines.
SDK-55471		All	=== FOR THE CUSTOMER USING SDK-6.3.X Customer needs to follow below instructions to create new build target.
			1. copy `$SDK/systems/user/gto-2_6 $SDK/systems/user/custom-3_10` 2. modify 2 lines in `$SDK/systems/user/ custom-3_10/Makefile` override `kernel_version=3_10` platform=myboard-$ `(kernel_version)` 3. copy `$SDK/make/ Makefile.linux-gto-2_6 $SDK/make/ Makefile.linux-custom-3_10` and modify `CROSS_COMPILE, TOOLCHAIN_BIN_DIR, KERNDIR` appropriately. 4. copy `$SDK/make/ Makefile.linux-kmodule-2_6 $SDK/ make/Makefile.linux-kmodule-3_10` Customer doesn't need to modify this file. 5. cd `$SDK/ systems/linux/user/custom-3_10 &&` make
			=== FOR THE CUSTOMER USING SDK-6.4.X Customer needs to follow below instructions to create new build target.
			1. copy `$SDK/systems/user/gto-2_6 $SDK/systems/user/custom-3_10` 2. modify 2 lines in `$SDK/systems/user/ custom-3_10/Makefile` override `kernel_version=3_10` platform=myboard-$ `(kernel_version)` 3. copy `$SDK/make/ Makefile.linux-gto-2_6 $SDK/make/ Makefile.linux-custom-3_10` and modify `CROSS_COMPILE, TOOLCHAIN_BIN_DIR, KERNDIR` appropriately. 4. cd `$SDK/systems/ linux/user/custom-3_10 &&` make

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-55542	755020	88650_A0 88650_B0 88650_B1	Ring Port: G.8032 Ring-Port can be associated with multiple VLAN-Ports using `bcm_port_class_set()`. De-associating a VLAN-Port from a Ring-Port where the physical port is on remote device have sometimes left the de-associated VLAN-Port in a state where it can't be reused and failed when referred by VLAN-Port APIs. The issue was fixed, so that remote VLAN-Ports that are de-associated can always be reused.
SDK-55661	761066	56548_A0 56547_A0	Support for F.HG[42] [SDK-46947] has been ported to the `6_3_branch`.
SDK-55683		53394_A0	Added SPI slave mode support of BCM56150 family. Only pure register access path is available in this mode without interrupt and DMA and the access speed is pretty slow in comparison to PCIe.
SDK-55722	761214	56450_A0 56450_B0	External DDR has 1024 columns but SDK was assuming it as fixed 2048. Due to this , calculated max bist address was crossing boundary and SDK was thowring assertion(crash) message. Issue is fixed by below below two steps 1) Added safety check for max BIST Addr. With this, even if user passes wrong parameter for running DDR TR 140 test case, assertion (i.e. crash) will be avoided.

2) Used config properties (`ext_ram_columns` and `ext_ram_banks`) to set `NUM_COLUMNS` and BANKS of external DDR memory. i.s.o. fixed 2048 and 8. Default will be 1024 and 8. Settings will be displayed on screern. With this, if required , user can changes values based on connected DDR capability. |
| SDK-55736 | | 88650_B1 | In FCoE application, a new improvement allows the support for VSAN assignment from VFT or VSI (according to a device configuration) and supports a default VFT value per incoming port. The calling sequence is: 1. Set the default VSAN assignment between VFT (by default) or VSI via `bcm_port_control_set(unit,  port = -1,` type=bcmPortControlFcoeFabricSel, value = bcmPortFcoeVsanSelectVft / bcmPortFcoeVsanSelectOuterVlan)

2. If the mode is VFT, set the default VFT per port via `bcm_port_control_set(unit,  port, type =` bcmPortControlFcoeFabricId, value);

Note: FCoE application cannot co-exist with the usage of the Field Processor bcmFieldQualifyInterfaceClassProcessingPort qualifier at external stage (bcmFieldQualifyStageExternal) due to the usage of the same HW resource (the port key profile in forwarding stage). |
| SDK-55915 | 764134 | 56850_A2 | In earlier releases,inALPM mode, even if we disabled URPF, the bits `URPF_LOOKUP_CAMx` in register `L3_DEFIP_KEY_SEL` was still 1

Switching back and forth between urpf and non-urpf could result in `URPF_CAM_LOOKUPx` bits always set to 1. This has been addressed by making sure register settings are set correctly every time urpf switch control changes, and not just the first time. |
| SDK-55935 | 763171 | 56850_A0 | In earlier releases, the disabled pbmp of flexible ports was not recoverd during the warmboot. This has been resolved. |

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-55972	764939	56850_A0	56850_A1	Code for Warmboot support of `MPLS_EXP_MAP` has been added.
		56850_A2		
SDK-55997		56640_A0	56544_A0	Enhancement:- There are 16 FP physical tcam slices with 512 entries per slice. There are 8 physical FP meter pools with 1024 entries per meter pool. Currently only 8 physical tcam slices are allowed to access the 8 FP meter pools. Requirement was to ensure the 16 physical tcam slices are allowed to access the 8 FP meter pools
		56542_A0	56541_A0	
		56540_A0	56524_A0	
		56641_A0	56642_A0	
		56643_A0	56644_A0	
		56645_A0	56648_A0	Support :- The 8 FP Physical meter pools are split into 16 logical meter pools so that the 16 FP tcam slices can attach to the 16 Logical FP meter pools.
		56640_A1	56643_A1	
		56644_A1	56640_B0	
		56644_B0	56643_B0	
		56648_B0	56649_B0	
		56649_A0	56524_B0	
		56540_B0	56541_B0	
		56544_B0	56542_B0	
SDK-55998		56240_B0		Support has been added for the new Saber SKUs BCM56245 and BCM56246 with support for 256k buffer entries/192MB buffering.
SDK-56009	765570	88650_A0	88650_B0	In Rx Trap module, an error is fixed when calling `bcm_rx_trap_type_create(unit, 0, type, &trap_id)` with 'type' as one of the following : - bcmRxTrapIpv4SipEqualDip - bcmRxTrapIpv4DipZero - bcmRxTrapIpv4SipIsMc
		88650_B1	88660_A0	
SDK-56017	765489	56840_A0		Enhanced warmboot shutdown to detach and close KNET device when present. This allows the application to remove the KNET kernel module without exiting.
SDK-56024		56850_A0		There's a bit in the `VLAN_XLATE` table called `VLAN_ACTION_VALID`, It must be enabled to process `XLATE__DISABLE_VLAN_CHECKS` for VXLAN virtual ports, but disable it for VXLAN access ports to drop packets at ingress. They have conflict. To solve the problem, a new flag has been added that allows the customer to control the bit, The new flag is `BCM_VXLAN_PORT_ENABLE_VLAN_CHECKS`.
SDK-56040 SDK-56095	766058	56850_A0	56855_A0	In earlier releases `bcm_esw_port_dscp_map_get()` was taken care only for `BCM_PRIO_DROP_FIRST`, not taken care for other CNG values. This has been resolved.
		56854_B0	56854_A0	
		56850_A1	56851P_A1	
		56851_A1	56850_A2	
		56851_A2	56851P_A2	
		56854_A2	56853_A2	
		56852_A2	56855_A2	
		56851_A0	56852_A0	
		56852_A1	56853_A0	
		56853_A1		
SDK-56045	766017	56640_A0	56641_A0	Committed Information Rate (CIR) and Committed Burst Size (CBS) configured in ICAP policer were not recovered correctly during warm boot on TR3 device. The ICAP policer recovery logic is updated to fix this issue.
		56642_A0	56643_A0	
		56644_A0	56645_A0	
		56648_A0	56640_A1	
		56643_A1	56644_A1	
		56640_B0	56644_B0	
		56643_B0	56648_B0	
		56649_B0	56649_A0	

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56047	761668	`56850_A2`	The customer requested configuration of `RTAG7_HASH_CONTROL_4.VXLAN_PAYLOAD_HASH_SELECT_A/B` to meet their hash requirement. For Trident2 and subsequent XGS devices, 2 switch controls bcmSwitchHashVxlanPayloadSelect0 and bcmSwitchHashVxlanPayloadSelect1 have been provided to support the requirement.
SDK-56074	750523	`56440_A0` `56440_A1` `56440_B0`	Issue: After setting `spn_BCM5644X_CONFIG` to 1 to split HG2 and HG3 into GE24 - GE31, the number of priority groups for these ports were not updated. Fix: After setting `spn_BCM5644X_CONFIG` to 1 to split HG2 and HG3 into GE24 - GE31, the number of priority groups for these ports are changed from 7 to 0, before configuring the priority group realted registers/tables in BCM5644x devices.
SDK-56122	763713	All	Added `PORT_INIT` check to all `bcm_port_XXX` functions to avoid their invocation before port subsytem is initialized.
SDK-56128		`56840_A0` `56850_A2`	In earlier releases, `mac_xl_egress_queue_drain()` blindly adds the PORT back to `EPC_LINK_BMAP` regardless previous `EPC_LINK_BMAP` state. This has been resolved.
SDK-56140	766375	`56640_A1`	Problem: When external TCAM table size is configured for IPv4 routes, IPv6 routes were not getting properly programmed/getting hit in the internal TCAM. Solution: Added support for this specific case of having all IPv4 routes on external TCAM and all IPv6 routes on internal TCAM.
SDK-56142	765705	`56850_A0` `56850_A2`	In the previous release, customer reported that the rate is not accurate after changing rate from VERY HIGH PPS to low PPS. This issue had been solved by adding condicision while in `_bcm_trx_rate_meter_portmode_set()`, while adding dlf value, not need to refer to previous setting in register/memory.
SDK-56154		`56640_A0` `56544_A0` `56542_A0` `56541_A0` `56540_A0` `56524_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0` `56524_B0` `56540_B0` `56541_B0` `56544_B0` `56542_B0`	Enhancement:- There are 16 FP physical tcam slices with 512 entries per slice. There are 8 physical FP meter pools with 1024 entries per meter pool. Currently only 8 physical tcam slices are allowed to access the 8 FP meter pools. Requirement was to ensure the 16 physical tcam slices are allowed to access the 8 FP meter pools. Support :- The 8 FP Physical meter pools are split into 16 logical meter pools so that the 16 FP tcam slices can attach to the 16 Logical FP meter pools.
SDK-56158	756172	`56440_A0`	Problem description: When L2 MAC Table is full, customer was unable to create the BFD session due to MAC table full issue. Fix description: This issue is fixed by calling `_bcm_l2_hash_dynamic_replace` function, if `soc_mem_insert` function returns `BCM_E_FULL.` and also code changes are done in `_bcm_l2_hash_dynamic_replace` function to support `BFD_KEY` for Katana device.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56194		`88650_A0`	In Warmboot module, asserts were recently inserted to avoid modifying an uninitialized SW database. These asserts are replaced by regular error mechanism. Thus, most set/get SW DB functions are modified to return also an error value.
SDK-56215	754083	All `56846_A0` `56845_B0` `56845_A2` `56844_A0` `56842_A0` `56840_A0` `56640_A0` `56850_A0` `56843_B0` `56841_A3` `56846_A1` `56841_B0` `56640_A1` `56640_B0` `56850_A1` `56850_A2`	In the previous release, `bcm_cosq_port_mapping_set` and `bcm_cosq_mapping_set` returned `BCM_E_RESOURCE` incorrectly when there was one unused profile of the `COS_MAP` table on Trident/Trident2/Triumph3. In this release, this issue has been addressed by setting the `MC_COS1f` and `UC_COS1f` of the `COS_MAP` table at the same time.
SDK-56225	767847	`88650_A0`	E2E scheduler port shaper is limited from below. Added fix such that in case requested rate is lower than allowed, the minimal rate will be set.
SDK-56244	765693	`56840_A0` `56850_A2`	The guideline for `bcm_cosq_gport_mapping_set` is improved in this release by specifying that it can be used on chips which support ETS(Enhanced Transmission Selection) feature regardless of that the ETS mode is enabled.
SDK-56246		`56150_A0` `53343_A0` `53344_A0` `53346_A0` `53342_A0` `56151_A0` `53394_A0`	Fixed port link status which was incorrectly reported when hardware linkscan was enabled on Hurricane2.
SDK-56253 PHY-1417	768344	`84328_B0`	Issue Reported: G40 Port Disable not working as expected Fix: Register sequence is modified to fix this issue.
SDK-56257 SDK-56285		`88650_A0`	When creating an egress object using `bcm_l3_egress_create,` the driver uses the user supplied parameters to decide which one of three possible FEC formats to write to hardware - A, B or C. Format A is used for Routing and includes both EEI (ARP - `encap_id`) and OutLIF (OutRIF - intf) Format B is used for OutLIF only applications , can be set according to `encap_id` valid and intf invalid or opposite (`encap_id` invalid and intf valid). Used for example in case of MPLS LSR. Format C is used with EEI only and used only for Trill application. Due to a software issue in some cases the driver would use format A instead of format B. In 6.3.X branch egress objects (FECs) are directly manipulated to the correct FEC format by forwarding table APIs such as ILM or Host table. However, when using egress objects (FECs) as part of an ECMP group, and using the ECMP group in the forwarding table API, the forwarding format of all egress objects in the ECMP group are not fixed but stay as it was set in egress object create (`bcm_l3_egress_create`) This sometimes results in issues when working with ECMP. For example when using MPLS with ECMP while doing LSR, the packet will be forwarded, but the label will not be updated unless user configure FEC format correctly in `bcm_l3_egress_create.` This fix corrects `bcm_l3_egress_create` so that the correct FEC format is written to hardware based on the passed parameters. See `cint_ecmp_hashing.c` for correct usage.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56272	767442	`56340_A0`	In earlier releases, Helix 4 GS GE48 was using incorrect lane information in the PHY driver. The port affected using quad smgii was using lane 2 and not lane 0, This has been fixed.
SDK-56317		`56846_A0 56846_A1`	In previous releases, created multipaths more than max capacity could corrupt existing ECMP groups and return wrong value -1 if ECMP group size of TD+ configured to 256 as TD device. In this release, it returns `BCM_E_FULL(-6)` if creating ECMP multipaths more than max capacity.
SDK-56350		`88650_A0 88650_B0 88650_B1 88660_A0`	The "multiple packet dequeue" feature which is meant for usage in low latency credit request profiles can now be configured using the `bcm_cosq_delay_tolerance_level_set /get` APIs. The feature is activated for a credit request profile if the following new flag is used in the flags field of the structure: `BCM_COSQ_DELAY_TOLERANCE_IS_LOW_LATENCY` . In release 6.4.1 all the credit request profiles named `BCM_COSQ_DELAY_TOLERANCE_*_LOW_DELAY` will have this feature set. In 6.3.* releases the default profiles are not changed, though this can be done manually. Example of changing one predefined profile manually: `bcm_cosq_delay_tolerance_level_get (unit, BCM_COSQ_DELAY_TOLERANCE_200G_LOW_ DELAY, &delay_tolerance); delay_tolerance.flags |= BCM_COSQ_DELAY_TOLERANCE_IS_LOW_LA TENCY; bcm_cosq_delay_tolerance_level_set (unit, BCM_COSQ_DELAY_TOLERANCE_200G_LOW_ DELAY`
SDK-56355	767767	`88660_A0`	In L2 module, when working in centralized mode, the LIF-valid bit entry was not received correctly on learn events (i.e., when the CPU was inserting learnt entries via BCM SDK). The LIF-valid bit is now set correctly on the learn events and matches the payload of the device learned entry.
SDK-56379		All	Support has been added for resolving the modern GPORT types (TRILL, VXLAN, NIV, L2GRE, etc.) in the Diag Shell.
SDK-56409		All	PTP clocks can now be re-created in order to change the "immutable" clock parameters. The only restriction is that the number of clock ports on re-creation may not exceed the value used on the initial creation.
SDK-56446	759287	`88650_A0 88660_A0`	Fix `low_vid` verify value in `bcm_vswitch_port_delete` function `(arad_pp_frwrd_trill.c)`.
SDK-56447	763576	`88650_A0 88660_A0`	When creating an ECMP group using `bcm_l3_egress_ecmp_create,` if the 'ecmp' parameter is `NULL,` a segmentation fault was occurring. This is now fixed - the software checks that the 'ecmp' parameter is not `NULL`.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-56452	760578	`56450_B0`	`56450_A0`	When 1 + 1 protection switching is enabled/disabled (with label swapping on IPMC group), the `MPLS::LABEL_ACTION_SWAP` field of `EGR_L3_NEXT_HOP` table need to be set/cleared respectively to achieve the functionality. This support has now been added.
SDK-56455 SDK-56327	769233	`56224_B0`	`56224_A0`	Issue :- IpType Qualifier was not recovered properly after warmboot.
				Fix :- Recovery of IpType Qualifier was not handled properly in BCM56624. Added Code to recover IpType qualifier after warmboot.
SDK-56464	765386	`56640_A0` `56640_B0`	`56640_A1`	Problem: When there is no signature configured, if there is traffic being sent to signature matching engine(SME) for deep packet inspection, the SME goes into a hung state. Even after configuring some signatures later on, it doesn't indicate any match though it receives matching traffic.
				Solution: Do not let any traffic to be forwarded to SME until at least one signature is configured successfully. Also, stop the traffic from being forwarded to SME while detaching the last active engine. This is achieved by modifying flow tracker configuration register field.
SDK-56482	768774	`56450_B0`	`56450_A0`	Added support for associating a MPLS label to a given protection switching group for BCM5645x devices. API `bcm_mpls_tunnel_switch_add()` can be used to achieve this by passing the protection switching group id in `"failover_id"` member of structure `"bcm_mpls_tunnel_switch_t"`.
SDK-56492	769633	`56850_A0` `56850_A2`	`56850_A1`	The related `EGR_PORT_TO_NHI_MAPPING` was not cleaned when the last port was removed from the trunk where a VXLAN logical port is created. Now it is fixed by adding the specific implementation for VXLAN.
SDK-56495	768732	`88650_A0` `88650_B1`	`88650_B0` `88660_A0`	In Field Processor, at Egress, the support of two new qualifiers is introduced: bcmFieldQualifyISid (MAC-in-MAC I-SID) and bcmFieldQualifyMplsForwardingLabelAction. Both qualifiers are mapped internally to the EEI value.
SDK-56514		`56850_A0`	`56854_B0`	In previous releases, SER correction for MMU CTR block was not implemented. In this release, MMU CTR block SER correction logic has been implemented. Once parity error is detected in tables in MMU CTR block, the corrupted table entry will be cleared.
SDK-56533	769718	`56850_A2`		Fixed multicast module to return error when deleting member from a MC group that was already destroyed.
SDK-56572	771276	`88660_A0`		When using external TCAM for forwarding, serial IP and RPF, then high rate lookups return sometimes wrong results. This is fixed: serial lookups in external TCAM are always returning reliable results at any supported rate.
SDK-56580	772058	`88650_B1`	`88660_A0`	QOS: Fixed the ability to set Inner-PCP to TC/DP table in `bcm_qos_map_add.`
SDK-56581		`88650_A0`		In Field Processor diagnostics, the actions offsets are incorrect when cascaded action is used. This is fixed.
SDK-56591	768899	`56850_A0` `56850_A2`	`56850_A1`	New API `bcm_l3_egress_stat_counter_sync_get()` added to retrieve l3 egress stats after updating the software copy of the counter value with the hardware counter value.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-56597	772109	56850_A2		`soc_alpm_insert:` Route Insertion Failed due to DEFIP AUX Operation timeout. On expiry of poll for ALPM hardware operations, `soc_timeout_check` requires that the status register needs to be read one more time to confirm operation has completed. This support has been added.
SDK-56607		88650_B0		Fix initial shaper to interface mapping. This fix has no functional impact.
SDK-56608	765207	56450_A0	56450_B0	When the physical port associated with MPLS port is replaced by using `bcm_mpls_port_add()` API with flag `BCM_MPLS_PORT_REPLACE,` the properties associated with old physical port is not cleared. Appropriate check has been added to clear the properties associated with the old physical port for BCM5645X devices.
SDK-56610	772885	56450_A0	56450_B0	`gport_attach` function can be called passing cosq value as 0,1,2.. so on. When coaq value was passed instead of -1, code was not handling it properly, So same `hw_index` was allocated again and again, Now checks are provided so that unique `hw_cosq` value is assigned for different values of cos
SDK-56611	772970	88650_A0 88660_A0	88650_B0	After `Hard_Reset` was called , CPU port was stuck. Resolved in the hard reset code by resetting CMIC TXi credits.
SDK-56615	772971	56450_A0	56450_B0	WRR scheduling under sub ports could not work due to missing weight configuration in L0 nodes. This configuration issue has been corrected to get the expected scheduling behavior.
SDK-56619	771355	56846_A1		Issue: In earlier releases, no fault message was sent in single fiber connection for issue in `phy_wc40_software_rx_los().` Root Cause: The `rx_los_state` was never set to RESET. So `LOCAL_FAULT_ENABLE` was never set as the RESET case was never hit. Fix: Allow the `rx_los_state` to set to RESET and subsequently move into the RESET case to set `rx_los_state` to `START_TIMER.`
SDK-56628		88660_A0		BFD: for BFD endpoints of type bcmBFDTunnelTypeMpls (BFD PDUs are encapsulated by UDP, IP, MPLS, Eth), IP TOS, TTL may be configurable through the fields `ip_tos, ip_ttl.` Note that the protocol dictates that the IP TTL be set to 1.
SDK-56629		88650_A0 88660_A0	88650_B1	When compiling with `INCLUDE_KBP` compilation flag, a large memory allocation for Field Processor software state was performed, related to external TCAM. This large memory allocation is now performed only if ELK usage is indicated via SOC properties.
SDK-56635		88650_A0 88660_A0	88650_B0	In some scenarios, trunk ports `lb_key_min` and `lb_key_max` values do not cover all `lb_key` range [0:255] which results in packet drop. This issue is fixed.
SDK-56636		88650_A0		At SOC layer, a new mechanism to improve the performance of entry insertion for Large-Exact-Match, Small-Exact-Match and TCAM databases has been implemented. By default, this mechanism is enabled. To disable this mechanism, unset the compilation flag `ARAD_FAST_REGISTERS_AND_FIELDS_ACCESS.`

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56641		56850_A2	In earlier releases, VxLAN multicast was treated as non-Layer3 multicast. It caused VxLAN multicast group to still have members after being re-created. This has been resolved.
SDK-56644		56440_B0	EGR_L3_NEXT_HOP table has overlapping views, for ex: L3, MPLS, SD_TAG etc., and for a given entry in EGR_L3_NEXT_HOP table the fields corresponding to a particular view, decided by ENTRY_TYPE field, should only be modified. But some fields of L3 view (overlapping with MAC_DA_PROFILE_INDEX field of MPLS view) were always getting modified resulting in wrong EGR_MAC_DA_PROFILE entry getting overwritten when a given L3 egress object is updated using the flags BCM_L3_REPLACE | BCM_L3_WITH_ID. Protection (i.e, check for appropriate ENTRY_TYPE value before modifying fields in L3 view) has been added to overcome the issue.
SDK-56646		88650_A0 88660_A0 88670_A0	Fixed a problem in bcm_mpls_port_add. The issue caused the driver to crash with a segmentation fault when the API is called with the REPLACE flag.
SDK-56647		88650_A0 88650_B0 88660_A0	In FCoE, when adding a route via bcm_fcoe_route_add API with flags BCM_FCOE_LOCAL_ADDRESS | BCM_FCOE_HOST_ROUTE, the entry was not be added correctly to the forwarding database. This is fixed.
SDK-56657 SDK-54730		88660_A0	Currently, unless specified by SOC property, ethernet policers drop all packets that arrive red to the device. Color blind ethernet policers allow to do rate policing even for packets that arrive red to the device. This fix introduces the ability to change ethernet policers to be color blind or color aware dynamically. To set color blind ethernet policing, both the ethernet policer and aggregate policer associated with a port and traffic class must be set to be color blind. To set an ethernet policer to be color blind, the BCM_RATE_COLOR_BLIND flag can be used when calling bcm_rate_bandwidth_set. To set an aggregate policer to be color blind, the BCM_POLICER_COLOR_BLIND flag can be used when calling bcm_policer_set with an aggregate policer.
SDK-56688		56340_A0	In the previous release the packet/byte fields were not working correctly in regex reports. The packet and Byte counter registry values are now retrieved and updated in the match reports.
SDK-56691		88650_A0 88650_B0	In Rx parsing, the src_gport and dst_gport meaning were unclear. It is fixed to: - src_gport: incoming port where the packet was introduced into Arad - dst_gport: outgoing port where the packet exits from Arad
SDK-56693		56340_A0	When only engine 0 is enable, the CSF table will not be updated no toggling on CSF valid signal. When other engine are enabled, the CSF table will be loaded when the valid signal of other engines toggle. Hence enabling starts from engine 1 and engine 0 will be enabled at last.
SDK-56700	774184	88650_A0 88650_B0 88650_B1 88660_A0 88670_A0	When calling bcm_mpls_port_add with pwe id > 32K, error printouts are provided but the API returns BCM_E_NONE. This is fixed and error is returned.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56701	773800	All	In earlier releases diag shell would intermittently crash in "l3 egress show" command. This has been resolved.
SDK-56709	773764	56334_B0 56334_A0	Issue: ==== Remote trunk identifier bit has to be ignored while setting the srcTrunk mask.
			The MSB of the modId represents Remote trunk bit and hence it was calculated based on the width of the qualifier. However, the width of the qualifier varies for different devices. Due to this, for devices like Enduro, the bit was positioned wrongly and was ignoring trunk bit instead of the remote trunk bit.
			Fix: === Instead of using the width of qualifier, the bit position of the trunkBit minus 1 (`trunk_bit_pos - 1`) is used to calculate the remote trunk bit position and ignoring the bit by masking the bit to 0.
SDK-56725		56850_A0 56855_A0 56850_A2	In previous release, the functions `bcm_vxlan_stat_attach` and `bcm_vxlan_stat_counter_get` took high execution time, about 13000 usec per call, which couldn't meet customer expectations. In this release, the functions have been optimized, and they takes about 100 usec per call. The performance has been improved.
SDK-56741	763657	56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56340_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0 56344_A0 56342_A0 56342M_A0 56340M_A0	In earlier releases, the validation on the PORT for ETS was incorrect on the return value which might lead to wrong COSQ mapping. Fixed the validation.
SDK-56753		56640_A0 56643_A0 56640_A1 56643_A1 56640_B0 56643_B0	Problem: Due to a hardware bug, the hardware team had recommended to disable bus parity protection for a bunch of memories which includes IESMIF. However, the SDK still has the bus parity enabled on IESMIF and this is causing spurious parity errors in the cases where ESM accesses are involved.
			Solution: Disable the bus parity protection for IESMIF by default, to workaround the hardware issue.
SDK-56756	773877	56540_A0 56540_B0	Previously, "l3 ip6route show" command was broken on Firebolt-4. This is due to that `soc_feature_l3_shared_defip_table` is not supported on Firebolt-4 and thus `bcm_switch_object_count_get` called in this command returns an error. It is fixed by adding the additional check on `soc_feature_l3_shared_defip_table` to avoid calling `bcm_switch_object_count_get` for Firebolt-4.
SDK-56761		56540_A0 56340_A0 56540_B0	In Apollo2 and Helix4 devices, during an OAM CCM timeout event, remote endpoint index passed from SDK to OAM event callback function was not correct, this issue has been addressed.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-56763	772471	56850_A0 56850_A2	56850_A1	In the previous release, the API `bcm_cosq_gport_bandwidth_set` would set the shaper on a wrong scheduler node. In this release, this issue has been addressed by setting the software resources which have been assigned to the HSP ports.
SDK-56765		88660_A0		Add driver support to new Arad SKU - 88363
SDK-56770	774767	88650_B0		Trill learning: In TRILL multicast, ingress learning, MACT learning is disabled at Egress Router-Bridge for TRILL multicast packets otherwise unrelated MACs (Link Layer SA) are learned.
SDK-56779	774862	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1		In earlier release, TD2 had 48 HIGIG trunks and SDK was not able to record/maintain the bitmap of higig trunk override id which was larger than 31. This issue has been fixed in this release.
SDK-56781	774909	56850_A0 56850_A2	56850_A1	The root cause of this issue is that when l2 addresses are learnt on Y pipeline, the hit bits of the corresponding L2X table entries are not set. But `bcm_l2_matched_traverse` function will read all L2X table entries and check the hit bits, so the traverse function can't find the l2 address learnt on Y pipeline. Code has been added to update the hit bits of L2X entries when the L2 addresses are learnt on Y pipe line.
SDK-56801	774468	56440_A0 56445_A0 56440_A1 56450_A0 56440_B0 56450_B0		In earlier releases, Enabling of `tcam_protect_write` resulted in incorrectcomputation of the number of entries per slice on Katana. This issue has been fixed by correcting size of the FP TCAM value used for computing the size of each slice.
SDK-56805		88660_A0		ARP downstream checking didn't use separately, now the fixes resolve this issue.
SDK-56821		56820_B0		In Scorpion, IP Packets with 0x9100 (other than default TPID 0x8100) outer tag are treated as untagged and non IP packets when these packets ingress on YPIPE and egress on XPIPE. This behavior is detected by the EFP when it is configured to match anything beyond the L2 header. The software work around is added in SDK to fix this issue by changing the access type of the per-port register `EGR_SRC_PORT.`
SDK-56840	772939	88650_A0 88650_B0 88650_B1 88660_A0		In MAC-in-MAC, when using API `bcm_l2_addr_add(),` multicast group destination was not supported in BMACT Forwarding table. Multicast group destination is now supported and can be added to BMACT forwarding table.
SDK-56850	776440	56450_A0 56450_B0		Issue : Support for ECAP CopytoCpu is missing on KT2. Fix : Added Support for ECAP CopytoCPU in KT2 in SDK
SDK-56854		88650_A0 88650_B0 88660_A0		In FCoE zoning, when adding an entry, all entry actions were applicable (allow, deny, redirect), but the same action (allow) was always executed. A validation is introduced so that only the action allow is applicable.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56869		56450_A0 56450_B0 56640_B0 56440_B0	PTP master sends Announce messages to PTP slaves. PTP slaves compares announce messages received from several PTP master to decide which PTP master to choose to synchronize time. Following three new fields are added to PTP master information structure. ClockAccuracy: The clockAccuracy indicates the expected accuracy of a clock when it becomes grandmaster or in event it becomes grandmaster. Various granularities are possible. This specifies time is accurate to within 25 ns/100 ns/250 ns/1 ?s/2.5 ?s/10 ?s etc. OffsetScaledLogVariance: The offsetScaledLogVariance indicates inherent precision of a clock. This is the precision of the timestamps included in message issued by clock when it is not synchronzied to another clock using the protocol. The reference clock when not synchronized to another clock may be an atomic clock, a GPS receiver, a stable local oscillator, a suite of clocks synchronized via NTP, etc. These sources may contribute to the variance estimate. The value of offsetScaledLogVariance can also be a staic constant determined by manufacturer. StepsRemoved: The distance measured by the number of boundary clocks between the local clock and the foreign master is used when two Announce messages reflect the same foreign master. The distance is indicated in the stepsRemoved field of Announce messages.
SDK-56876	776002	56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	The scheduler configuration with weights value 0 will be considered as `STRICT_PRIORITY`. Fixed the same behavior in SDK.
SDK-56882	771065	56850_A1 56850_A2	Some float point symbols, such as `__divdf3`, `__adddf3` and so on which can't be resolved in Linux kernel space, led to a failure while module `linux_bcm_diag_full.ko` or linux-bcm-core.ko was being inserted to the kernel. Currently these useless float point symbols have been removed to fix the module inserting issue.
SDK-56884		88650_A0 88650_B0	MIM: DEFAULT BEHAVIOR CHANGE . Encoding of returned handler `station_id` for MIM is now changed in l2 station APIs. `bcm_l2_station_get()` API failed in some cases when LSB for MyMac was considered to be global instead of per ingress port. This happened when the MIM global LSB bit in the created `station_id` was wrongfully set due to an overlap in the `station_id` encoding. This is fixed by changing the encoding of the `station_id` so that there is no overlap with the MIM LSB global indication bit. The MIM global LSB indication bit in `station_id` changed from bit 7 to bit 16.
SDK-56887		88660_A0	Default value of Chicken bit `EGQ_CFG_BUG_FIX_CHICKEN_BITS_REG_1 CFG_BUG_FIX_87_DISABLE` was changed to disable (instead of enable) as it doesn't provide any new functionality.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56888 SDK-56945	742236	`88650_A0 88650_B0 88650_B1 88660_A0`	Support reflector functionality in accordance with RFC-2544 (benchmarking methodology). This JIRA contains IP+MAC swap functionality (swap the SIP with the DIP, SA with DA) as well as a light MAC-only-swap functionality (swap the SA with the DA). For the former, the soc property `RFC2544_reflector_mac_and_ip_swap_port` should be set to the reflector port. All packets arriving at the ETPP with the Out-TM-port set to the reflector port will have their MAC addresses and IP addresses swapped, and the packet will be prepended with a PTCH with the SSP set to the original Out-PP-Port. The reflector port should be defined as a recycle port and the IP routing should be done at the second pass. The light MAC-only swap functionality can be used analogously with the soc property `RFC2544_reflector_mac_swap_port` For a more detailed account (For example setting an egress-PMF rule modifying the Out-TM-port), refer to `cint_benchmarking_methodology.c`
SDK-56903		`56850_A0`	Adding a flag `BCM_NIV_VNTAG_L_BIT_FORCE_1` to choose if frames can be headed back towards the Interface Virtualizer that it originated from.
SDK-56913	759274	All	In earlier releases on overflow the DMA timeout/overflow stat was cleared only when the entries were available. On entry empty this was not getting cleared. Fixed in the changes when the entry is empty.
SDK-56925		`88650_A0 88650_B0 88650_B1 88660_A0`	PON: In previous release, DHCP IPv6 anti-spoofing wasn't working when soc property `l3_source_bind_mode` is IPV6, now fixed this issue.
SDK-56929		`56850_A0 56850_A1 56850_A2`	In earlier releases, next hop information was not initialized before using it. This has been resolved.
SDK-56931		`56850_A0 56850_A1 56850_A2`	In previous releases, the API `bcm_l3_egress_get` returned `BCM_E_INTERNAL` in vxlan case. A new case `_bcmVpTypeVxlan` has been added to fix this issue. Now if the case is vxlan, the egr->port will be set to vxlan and the API will return `BCM_E_NONE`.
SDK-56954		`56850_A0`	In earlier releases, source trunk table was not being cleared up if a customer used an incorrect sequence. This has been resolved.
SDK-56956	774358	`88650_A0 88650_B0 88660_A0`	In Field Processor, in Direct Extraction field groups, it is possible to set a bias value as part of the extraction field configuration. The procedure failed when the bias value is negative. This is fixed.
SDK-56961		`88660_A0`	BFD: When calling `bcm_bfd_endpoint_create()` with the flag `BCM_BFD_ENDPOINT_REPLACE` set and type==bcmBFDTunnelTypeMplsTpCc, static registers were mismanaged, causing such calls to fail.
SDK-56962	776131	`88650_A0 88650_B0 88660_A0`	The OAM DM DOWN program at the egress editor has been fixed so that only appropriate packets will select this program. Previously this program was catching other packets as well which cased outgoing packet corruption.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-56964		56850_A1 56850_A2 56850_A0	In earlier releases the related `EGR_PORT_TO_NHI_MAPPING` was not cleaned when the last port was removed from the trunk where a VXLAN logical port was created. This is fixed by adding the specific implementation for VXLAN.
SDK-56975	774350	56850_A0 56850_A1 56850_A2	Customers requested more granularity in `bcm_vxlan_vpn_create.` To enable this modifications were made to `BCM_VXLAN_VPN_WITH_VPNID` to meet this goal. Before this change, when customer created a vpn, `BCM_VXLAN_VPN_WITH_VPNID` us required, and both VFI and VNID were created.After this change, the behavior is as follows: When create a VXLAN VPN: If use `BCM_VXLAN_VPN_WITH_VPNID,` both VFI and VNID will be created. If not. use flag `BCM_VXLAN_VPN_WITH_VPNID,` only VFI will be created. When updating an existing VXLAN VPN(`BCM_VXLAN_VPN_REPLACE` should be used. If use both `BCM_VXLAN_VPN_REPLACE` and `BCM_VXLAN_VPN_WITH_VPNID,` both VFI and VNID will be created. If only use `BCM_VXLAN_VPN_REPLACE,` the VNID will be removed.
SDK-56980	777710	56240_B0	In previous releases, If the given port was configured with WRR scheduling and then warmboot was done the SW did not recover the correct scheduling algorithm back after the warmboot .The hardware continued to have correct value . This has been resolved.
SDK-56988		56850_A0 56850_A1 56850_A2	Customer wanted to use VLAN and VFI flex counter simultaneously. But in the previous release, SDK assigned VLAN and VFI counter in the same pool, and this would cause the VFI counter to not be updated when the packet hit two memories. Now the customer can use the SOC property `ing_share_flex_counter_pool=split( vlan,vfi)` to prevent VLAN and VFI from sharing the same pool.
SDK-56991	778526	56850_A2	In earlier releases, when using `bcm_vxlan_port_add()` API with `BCM_VXLAN_PORT_REPLACE` flag, it will clear the flex counter configuration if this vxlan port has attached with flex counter. This has been resolved.
SDK-56994		56850_A0 56850_A1 56850_A2	It was found that network facing flex counters were not working for both bcmStatGroupModeSvpType and bcmStatGroupModeSvpType group modes. After investigation we located the RCA was the counter offsets were not set correctly in previous implementation. The isssue was fixed by adjusting the counter offset for both bcmStatGroupModeSvpType and bcmStatGroupModeDvpType group modes.
SDK-56995	777713	56845_A2 56850_A0 56850_A1	In the previous release, when using RPCs and calling `bcm_vxlan_stat_counter_get(),` the values in the `counter_indexes[]` parameter are not being properly propagated from the client to the server. This has been resolved.
SDK-56999	773690	56850_A0 56850_A1 56850_A2	Added support for port extender failover.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-57002	778714	`56850_A2`	In earlier releases, SDK code was not able to resolve the ports for which id was larger than 64 in BITMAPf of `IFP_REDIRECTION_PROFILEm` table on TD2 after warmboot. This has been resolved.
SDK-57004		`56640_A0 56340_A0`	In previous release, the schan response type for devices with ISM, e.g. Triumph3 and Helix4 is not properly checked. The following response types `SCHAN_GEN_RESP_L2_MOD_FIFO_FULL`, `SCHAN_GEN_RESP_MAC_LIMIT_THRESHOLD` and `SCHAN_GEN_RESP_MAC_LIMIT_DELETE` have been added in schan response type checking in the routine `soc_mem_generic_insert()`.
SDK-57009		`56850_A0 56850_A1` `56850_A2`	In previous releases, `bcm_vxlan_stat_detach` took high execution time because redundant memory operation was executed. In this release, we remove memory read operation and use `soc_mem_write` instead of `soc_mem_write_range` conditionally to save time, then the execution time can be reduced a lot.
SDK-57027		`56850_A0 56850_A1` `56850_A2`	In earlier releases, Trunk useful information was cleared by VXLAN API.This has been resolved.
SDK-57032		`56850_A0 56850_A1` `56850_A2`	In earlier releases, `bcm_vxlan_port_get()` could not get the `BCM_VXLAN_PORT_DROP` and `BCM_VXLAN_PORT_MULTICAST` flags correctly. This has been resolved.
SDK-57077		`88650_A0 88650_B0` `88650_B1 88660_A0`	IMPORTANT CHANGE FOR PWE P2P: OAM PWE P2P was not identified as OAM in the classifier because of wrong lif id (0 value instead of the real LIF-ID value). This is fixed by setting valid LIF-ID for PWE P2P. The change may cause same-interface to be invoked for PWE P2P case when In-LIF PWE P2P ID is equals Out-LIF ID.
SDK-57078		`88650_A0 88650_B0` `88650_B1 88660_A0`	OAM: Supporting down MEPs in the format CFMoEthoMplsoEth in OAM classifier. In order to enable initialization of the OAM TCAM to identify CFMoEthoMplsoEth, set soc property `custom_feature_oam_downmep_pwe_cla ssification` to 1. This feature supports CFM identification per-md level only. This feature does not support identification per opcode. All CFM packets will be associated with opcode=1 (CCM). Inner Ethernet frames with 0 or 1 VLAN tags preceding the CFM EtherType are supported. For a more detailed explanation (including examples), consult `cint_oam_cfm_o_eth_o_pwe_o_eth.c`
SDK-57080	766661	`88650_B1`	TRILL and FCoE could not be supported simultaneously on the same device, due to an overlap in FLP (i.e. forwarding HW block) programs allocation. TRILL and FCoE can now be supported and coexist on the same device.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-57082		`88650_A0` `88660_A0`	Important Note: the default Drop Precedence (DP) mapping of a yellow packet with DP=2 has been changed.
			Usually the final DP (Drop Precedence) given by the meter (or the In-DP) is unchanged, and can be from 0-3. In the past the final DP was always changed from 2 to 1 when passed to ingress, meaning that the only available DP results were 0, 1 and 3 (at ingress). To support this old behavior the SOC property `policer_color_resolution_mode` is introduced. When `policer_color_resolution_mode=1,` if the final DP is 2, this DP is mapped to 1 instead (at ingress).
SDK-57083	776583	`88650_B0` `88650_B1` `88660_A0`	IMPORTANT: for improved performance after `bcm_field_group_install` call, it is recommended to set `USING_TCAM_PRIO_LIST_INVERSE_SCAN` compilation flag.
			In Field processor entry insertion procedure, the user can: - after initialization, define all the entries and then insert them in one call (`bcm_field_group_install`) - on-the-fly, insert the entries dynamically one by one (`bcm_field_entry_install`)
			The advantage of the first case is the absence of TCAM shuffling, since the entries are sorted according to their priority before their insertion.
			In this case, the limiting factor in the entry performance was the entry insertion in the priority sorted list, an internal data structure detailing for each priority the acceptable TCAM location range. The scanning of this list was always performed from the first node to the last one, even if in the sorted case the inserted entry was the last one. This scanning has been changed to scan from the end, if the compilation flag `USING_TCAM_PRIO_LIST_INVERSE_SCAN` is set. We highly recommend to users to set this compilation flag for performance improvement.
SDK-57085		`88650_A0` `88660_A0`	If `bcm_mpls_tunnel_initiator_create` is called with `WITH_ID` flag and an existing egress tunnel id, this is illegal configuration. We added a check to verify this won't happen.
SDK-57102	779185	`56850_A0` `56850_A1` `56850_A2`	In earlier releases, If adding l3 host entry to HW failed, SDK should decrease the related reference count but this function did not work when it has a multipath flag. This has been resolved.
SDK-57104	779184	`56526_A0` `56524_A0` `56521_A0` `56526_B0` `56524_B0`	For `BCM_5652x` devices, whenever a tpid other than the default tpid was created, reference count of default tpid was decremented once but was not incremented during deletion.
			During repeated creation and deletion , this reference count became negative resulting in error.
			This has been fixed by incrementing default tpid reference count upon deletion of tpid thus providing support for repeated creation and deletion of tpid on a port

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-57105		56850_A2	The customer requested configuration of RTAG7_HASH_CONTROL_4.VXLAN_PAYLOAD _HASH_SELECT_A/B to meet their hash requirement. For Trident2 and subsequent XGS devices, 2 switch controls bcmSwitchHashVxlanPayloadSelect0 and bcmSwitchHashVxlanPayloadSelect1 have been provided to support the requirement.
SDK-57107		56850_A2	The customer requested configuration of RTAG7_HASH_CONTROL_4.VXLAN_PAYLOAD _HASH_SELECT_A/B to meet their hash requirement. For Trindent2 and subsequent XGS device, 2 switch controls bcmSwitchHashVxlanPayloadSelect0 and bcmSwitchHashVxlanPayloadSelect1 have been provided to support the requirement.
SDK-57123		56850_A0 56850_A1 56850_A2	Issue:- bcmSwitchL3Max128BV6Entries switch control setting caused assertion failed message due to array index overflow in array defip_tcam_log_index and defip_tcam_urpf_log_index of SOC_CONTROL. Fix:- Modified the soc_trident2_mem_config function to make sure l3_defip_index_remap won't exceed the physical size, and the arrays can be initialized after that.
SDK-57130	779160	88670_A0	unnecessary print removed from _bcm88750_interrupt() function.
SDK-57132	757170	88650_B1 88660_A0 88670_A0	OAM: Packets trapped by the OAM classifier with an incorrect level by an up-MEP will include two sets of system headers. The inner set will include the DSP, SSP on the FTMH, as well as a PPH and FHEI, the outer set will include a FHEI with the CPU-Trap-Code field set to 0xa2 (bcmRxTrapOamLevel). Similarly for packets that arrive at an up-MEP from the passive side. In this case the CPU-Trap-Code on the outer FHEI will be 0xac (bcmRxTrapOamPassive) and the inner set of system headers will be as above. This behavior may be enabled by setting the soc property "custom_feature_oam_additional_FTM H_on_error_packets" to 1.
SDK-57133	748626	88650_A0 88660_A0	When ilkn_tdm_dedicated_queuing feature is enabled, non-TDM ports can't reach wire speed. (blocked in ~60G). Fixed.
SDK-57141	779921	56840_A0 56850_A2	Problem: Ipbm mask setting was missing during field entry movement, which gets called when a higher priority field entry is installed. Solution: Ipbm mask was set properly during field entry movement for Trident Series of devices.
SDK-57184 SDK-57276		88660_A0	Bug found and fixed in BCM command diag prge_last causing "default null" program to be incorrectly printed.
SDK-57188	780510	56450_A0 56450_B0	bcm_mpls_port_add allocates two VPs in VPWS case, one for access and one for network port. But when bcm_mpls_port_add was invoked for second time to add network port to VPWS a new VP was being allocated instead of reusing the already allocated VP. Added fix to not allocate new VP if already allocated.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-57199		88650_B1	IMPORTANT: DEFAULT BEHAVIOR CHANGE FCoE packets were dropped when FCoE switch was not enabled (bcm886xx_fcoe_switch_mode = 0). From now on, FCoE packets are treated as Ethernet packets when FCoE is disabled.
SDK-57201	779706	88650_A0 88650_B0 88650_B1 88660_A0	STG: STG APIs create/destroy STGs and set/get spanning tree status of ports in STGs. Certain STG APIs (bcm_stg_create_id/ bcm_stg_destroy/bcm_stg_stp_set/ bcm_stg_stp_get/bcm_stg_detach) didn't release the mutex when existing with a non-zero value. The issue detailed above can cause deadlock when using certain STG APIs. Mutex can be correctly released after the fix.
SDK-57230	758870	88660_A0	VLAN: L2 FECs can be used either for protection or to group LIFs like in the case of the PON application, in which the flag BCM_VLAN_PORT_FORWARD_GROUP is applied at bcm_vlan_port_create(). Removal of a L2 FEC using bcm_vlan_port_destroy() for a protection FEC, is performed at once for both the working and the protecting FECs upon removal of the Working path. This logic was applied also in cases where the FEC wasn't used for protection as in the case of FORWARD_GROUP, but only the specified FEC was removed as only one FEC is used for this type of applications. This logic caused FORWARD_GROUP FECs with odd id number not to be deleted as if they represent a protecting path. This was fixed, so that the protection working/protecting state condition upon FEC removal is applied only for protection FECs.
SDK-57235		56340_A0	On every DMA interval the counter value are read from FT_EXPORT_FIFO table and the value is populated in the report. On every read the value gets reset leading to the cumulative values not getting retained in the END report when the flow expires. With this release read of the registries clear of counter values is avoided to retain the cumulative value for the END report.
SDK-57239	778949	88650_B0	OAM: The following bugs have been fixed: When updating endpoints with bcm_oam_endpoint_create() with the BCM_OAM_ENDPOINT_REPLACE flag set, the SW DBs were incorrectly updated causing subsequent calls to bcm_oam_endpoint_destry() to fail. Similarly for BFD endpoints of type bcmBFDTunnelTypeUdp, multi-hop.
SDK-57245	781014	56450_A0 56450_B0	FLEX_CTR_BASE_COUNTER_IDX and FLEX_CTR_POOL_NUMBER were not being restored during mpls entry replace operation. Added fix to restore the FLEX counter fields and update during replace operation.
SDK-57263	774859	88650_A0 88650_B0 88650_B1 88660_A0	In some cases when using the diagnostic 'diag pp pkttm', the meter pointer assigned to the packet would be displayed as invalid, even when the meter pointer assigned to the packet was valid. This is now fixed.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-57270		`88650_A0` `88660_A0`	`88650_B0`	Field Processor: Redirecting at egress according to a GPort of type System-Port was not supported. This is fixed.
				Reflector: The function `setup_port_for_reflector_program()` in `cint_benchmarking_methodology.c` has been changed so that the Egress FP rule modifies only the out-TM-port (by calling only the bcmFieldActionRedirect without bcmFIeldActionStat actions). For a more detailed account, see `cint_benchmarking_methodology.c`
SDK-57272		`88650_A0` `88660_A0`	`88650_B0`	Diag pp dblif used to return 0 for the `has_cw` (in case lif is pwe) with no relation to the real value of. Now, it is returned depending on the real value.
SDK-57277	780887	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1` `56851P_A1` `56851_A1` `56850_A2` `56851_A2` `56851P_A2` `56854_A2` `56853_A2` `56852_A2` `56855_A2` `56851_A0` `56852_A0` `56852_A1` `56853_A0` `56853_A1`		Issue:- In parallel mode, if VRF=0, then hardware looks only in global bucket space for bucket match, so route with VRF=0 is not allowed to be inserted to ALPM table. But the examination code was not working for the first VRF=0 route insertion.
				Fix:- Adding VRF=0 is disallowed explicitly in parallel mode. Update the document for this restriction.
SDK-57283		`88650_A0` `88660_A0`	`88650_B0`	There was a value mismatch between set and get by calling `bcm_switch_control_port_set/get` APIs, where type=bcmSwitchHashIP4Field0. This mismatch is fixed.
SDK-57290	781195	`88650_A0` `88660_A0`		Fix `bcm_petra_trill_port_delete` functionality. Add calling of `_bcm_dpp_mc_to_trill_remove` function, that removes sw db `mc_id` to nickname.
SDK-57333	739837	`56850_A0` `56850_A1` `56850_A2`		Issue:- In previous implementation for BST index resolution, if cosq value -1 was used as input, cosq 0~7 were used to retrieve the index. but by default the max cosq number is 3. So the insertion was triggered.
				Fix:- replace cosq 0~7 by 0 ~ `COS_MAX(unit)` - 1.
SDK-57341	780620	`56649_A0`		When using `"bcm_l2_learn_port_set"` API to enable Class Based Learning for a trunk port, the function was returning error even though hardware programming was successful. This was because the API was trying to access another table which is not relevant for trunk ports and was using mod id value "-1" for this. The issue was resolved by adding an early return after programming the relevant Trunk table.
SDK-57343	782070	`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0`		Communication between aging thread and other `l2_addr_delete` APIs thread is synchronized by binary semaphore. Ocasionally when the aging thread was stopped and restarted, there was a mismatch between semaphore give and take between aging thread and other API threads. This has been fixed.
SDK-57349	781836	`88650_B1` `88660_A0`		L3 VRRP: In some cases, if there was an error in the l3 vrrp APIs, the L3 mutex was not released. The error has been fixed, and the mutex will always be released.

Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-57434		`56850_A0 56850_A1 56850_A2`	In previous releases, memory write operation to Ingress Pipeline tables during a `ING_RESET_CONTROL` Operation causes inadvertent writes to `L3_TUNNEL`, `UDF_CAM` and `ING_FC_HEADER_TYPE` Tables. In this release, a new flag `SOC_F_MEM_CLEAR_HW_ACC` indicating whether `ING_HW_RESET_CONTROL` is used to clear a table was added. `ING_HW_RESET_CONTROL` action will only happen during system initialization. In any other cases, table clear is done via table SLAM operations.
SDK-57436		`88650_B1 88660_A0`	6.4.1 - Deprecated the error print by reducing the BSL severity. 6.3 - Deprecated the prints by using rcloadsilent because BSL is not in use yet.
SDK-57459	782198	`88650_B0 88650_B1 88660_A0`	Fixing memory leak issue in TRILL. Destroy TRILL port didn't free allocated memory (Add `BCM_FREE` to `_bcm_dpp_mc_to_trill_remove` function).
SDK-57462	757100	`88650_A0 88650_B0 88650_B1 88660_A0`	Fixed l2 show diagnostic output for VPLS interface.
SDK-57469	780971	`88650_A0 88650_B0 88650_B1 88660_A0`	Add support for split-horizon for MPLS-Tunnel-initiator. This is useful when PWE label is built using EEI (label+push profile) and outlif that points to the EEDB is MPLS-Tunnel-initiator. In this case the PWE inherits it's orientation (HUB/SPOKE) from the next tunnel. To set the orientation of MPLS tunnel use `bcm_port_class_set` with class=bcmPortClassForwardEgress and port=mpls tunnel gport.
SDK-57470		`88650_A0 88650_B0 88650_B1 88660_A0`	Reflector (RFC-2544): Etherner Reflector program (Swaping MAC adresses) has been updated to support double tagged packets. IP program will only support single tagged packets.
SDK-57476		`56850_A0 56850_A1 56850_A2`	In earlier releases `bcm_stat_group_create` could get stuck in loop for egress SVP counters under scaled set-up. The issue was due to macro `FLEX_COUNTER_DEFAULT_EGR_DVP_ATTRIBUTE_1_TABLE_POOL_NUMBER` not being defined correctly for TD2, which led to endless loop when the egress flex counter pool were exhausted. It was defined to 5 for all the chips include TD2 but actually it should be less than 4 for TD2 as TD2 only has 4 egress flex counter pools. The fix was to define separate macro for TD2.
SDK-57487		`56850_A0 56850_A1 56850_A2`	Previously, 1-bit error reporting enabling logic and SER correction logic for all MMU tables that are CPU accessible on TD2 was not fully implemented. They have been implemented in this release.
SDK-57498	783084	`56450_A0 56450_B0`	In `bcm_qos_map_create` API an untagged PHB variable was being used uninitialized and that resulted in an unexpected `ING_UNTAGGED_PHB` entry being created. This was fixed toprevent untagged PHB variable from creating an unexpected `ING_UNTAGGED_PHB` entry.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-57500	783310	56850_A0 56854_B0 56850_A1 56851_A1 56851_A2 56854_A2 56852_A2 56851_A0 56852_A1 56853_A1	56855_A0 56854_A0 56851P_A1 56850_A2 56851P_A2 56853_A2 56855_A2 56852_A0 56853_A0	In the previous release, the CPU port was not removed when the API `bcm_multicast_egress_delete_all` was called on Trident2. In this release, this issue has been addressed by removing the CPU port when the API `bcm_multicast_egress_delete_all` is called.
SDK-57503		56340_A0		Problem: `bcm_regex_policy_policer_attach` results in a crash because of internal compatibility check being done between level0 and level1 meters. Solution: Hierarchical meters are not supported on regex policies. Hence the compatibility check is disabled until we support hierarchical meters.
SDK-57505	783296	88650_A0		Fixed packet loss related to Reset CMIC interface in soft reset sequence.
SDK-57511		88650_A0		In TCAM management, shuffling entries may be needed in case no space is found with the correct priority order. When looking for the closest TCAM location from the acceptable priority range, a computation error happened - only when multiple banks with free locations had already entries of this TCAM Database. This is fixed.
SDK-57515	780895	88650_A0 88660_A0		In L2 learning, traversing over the MACT to get all the inserted entries while learning, may result in an infinite loop in some rare cases. This is due to mis-handling of a rare state in an internal buffer. This is fixed.
SDK-57543	781991	56846_A0 56845_A2 56842_A0 56850_A0 56843_B0 56846_A1 56854_B0 56850_A1 56851_A1 56851_A2 56854_A2 56852_A2 56851_A0 56852_A1 56853_A1	56845_B0 56844_A0 56840_A0 56855_A0 56841_A3 56841_B0 56854_A0 56851P_A1 56850_A2 56851P_A2 56853_A2 56855_A2 56852_A0 56853_A0	In the previous release, when `L2_MOD_FIFO` mode was used and station movements happened, only one "ADD" notification would be issued on TD+, which was not incorrect. In this release, this issue has been improved by notifying one ""DEL" notification and one "ADD" notification in this kind of situation.
SDK-57548	783511	56850_A0 56850_A2	56850_A1	It was reported that all packets appear to be store and forward on the port when the `INIT_VALUE` was set to 0x3 during chip initialization for 1G mode. The issue was fixed by modifying the egress credit to 12 for all the speeds lower than 10Gbps.
SDK-57550	777385	56450_A0 56450_B0		`THDO_QCONFIG_CELL` could not be configured for packet processing ports greater than 128. This issue has been fixed to support complete range of packet processing ports(sub ports).

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-57571		56540_A0	56540_B0	On TR3 device, if the number of COSQs is changed from default value (4) to 8, after the warm boot recovery, the number of COSQs still shows as 4, since this information is not stored in the persistent storage (scache). The issue is fixed by storing this information in scache and retrieving it during warm boot level 2 recovery.
SDK-57584		88650_A0 88660_A0	88650_B0	BFD: When calling `bfd_endpoint_create()` with type== bcmBFDTunnelTypeMpls an additional TCAM entry is needed. Due to limited resources only 128 TCAM entries may be used for OAM/BFD. This JIRA verifies that this amount has not been exceeded and that TCAM indexes used are in the range 0-127.
SDK-57600	780870	88650_A0	88660_A0	Add push profile free when deleting PWE. Fixes resource push profile exhaustion when adding several MPLS tunnels and PWEs.
SDK-57630		88660_A0		OAM: fixed the `loss_farend/nearend` fields to return correct values (expressed in 100th of percent) in `bcm_oam_loss_get()`
SDK-57652	781357	88650_A0	88660_A0	Ring Port: There was an error in `bcm_vlan_port_find()` where the returned `failover_port_id` was incorrect for a G.8032 Ring Port. The error has been fixed, and the `failover_port_id` is now returned correctly.
SDK-57669	770442	88650_A0 88650_B1	88650_B0 88660_A0	Added validity check that returns an error when user configure cos profile that is > 16 for PWE P2P.
SDK-57689		88650_A0	88660_A0	1. Reference only - added port tables to the reference list of SER-memories, which enables SER handling for these tables 2. Added dynamic memory indication for some memories. Refer to JIRA item SDK-56498 for details.
SDK-57691		88650_A0 88650_B1	88650_B0	bcm shell command "diag ssdump" was disabled. It's now enabled.
SDK-57707	787634	56640_A0		For some MACs in L2 cache, BPDU flag was not being set. This was causing ports to drop BPDUs when in STP blocked state. This issue was due to overwriting of flags for these MACs. Corrected the flags to CPU | BPDU.
SDK-57743		56850_A0 56850_A2	56850_A1	In previous release, five variables were calculated based on `stat_counter_id,` and three of them were used as subscript to access arrays without checking their legal ranges. Therefore, memory access violation happened. This problem has been resolved through adding proper check to those parameters to ensure the validity of their values.
SDK-57744	787141	88750_A0	88650_A0	`bcm_fabric_link_status_get` retrieves several link status indications. some of these link indications are sticky and should be cleared. This indications changed to be cleared on read. Meaning that this API retrieves the status since the last call.
SDK-57751		56340_A0	56640_A0	BCM56640, BCM56340 support Software Aging. The L2 entries are aged out if HITSA and HITDA are both 0. New capability is added to age out entries based on ONLY HITSA and not consider the HITDA. This is done by setting the config property `'l2x_age_only_on_hitsa'` to 1.

Table 47:

Number	CSP #	Chips		Release Notes For 6.3.7
SDK-57802	788015	88650_A0 88660_A0	88650_B0	Fixed failure when deleting MPLS label in ILM table when using `bcm_mpls_tunnel_switch_delete` and SOC property `'mpls_termination_label_index_enable=1'`
SDK-57812		88650_B0 88660_A0		When using external TCAM for ACL and/or forwarding databases, its configuration was not restored after warmboot. A preliminary support is added to restore external TCAM configuration during warmboot.
SDK-57813		88650_A0 88650_B1 88670_A0	88650_B0 88660_A0	In previous version, `BCM_VLAN_PORT_WITH_ID` wasn't working in forward group.now support this function.
SDK-57828 SDK-56669		88650_A0 88660_A0		BFD: addition of the filed `loc_clear_threshold` for `bcm_bfd_endpoint_create()`. This determines the amount of BFD frames received by the OAMP before a loss of continuity is cleared and a bcmBFDEventEndpointTimein event is triggered. This may be set at 0,1,2,3. Default behavior remains unaffected.
SDK-57844		56850_A0		In earlier release, adding one more `IPV6_64B` entry to table already with full `IPV6_64B` entries and some free `IPV6_128B` entries would result in inconsistency in software tables. Then trying to insert another route with same prefix would cause the process to fall into an infinite loop. This issue has been resolved.
SDK-57853		88660_A0		Trill warmboot. Sw state trill alloc link list size was not correctly calculated at warmboot trill restore, causing incorrect size after warmboot
SDK-57863		88650_A0 88660_A0		BFD: Adding accelerated endpoint with `bcm_bfd_endpoint_create()` while in `local_discr` field any of the bits 13-15 is set, caused error.
SDK-57866		88650_A0		In Rx trap module, in the allocation of a programmable trap, the error validation was incorrect. Fixed.
SDK-57938		88650_A0 88660_A0		IMPORTANT CHANGE: Sequence change in `bcm_bfd_endpoint_create` due to bug. BFD: In `bcm_bfd_endpoint_create()` the field `local_flags` was added and is used to control the Flags on outgoing BFD frames (this is consistent with fields such as `local_state, local_diag`, etc.). In other words `remote_flags` has been replaced by `local_flags`. The field `remote_flags` is no longer supported. See `cint_bfd.c` for more information
SDK-57941		88750_A0 88650_A0 88750_B0 88650_B0 88650_B1 88660_A0		When external phy isn't connected eyescan diagnostics won't display printout.
SDK-57942		88750_A0 88750_B0		When using BCM88750 repeater, due to miss-configuration some corrupted cells might be dropped at the repeater ingress while it should be dropped at the destination device. Fixed.
SDK-58006		88650_A0 88650_B0 88650_B1 88660_A0		Cint: `cint_ip_tunnel.c.` ip tunnel was created in cint with incorrect ttl and dscp. Caused by SDK-55162. Consequently, checking ttl or dscp values in ip tunnels were failing when using `cint_ip_tunnel.c.`
SDK-58034	790255	56150_A0		The issue of draining cell timeout when config egress metering on XE port in Hurricane2 has been resolved.
SDK-58237		56850_A2		Added 10G XFI FEC support.

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Table 47:

Number	CSP #	Chips	Release Notes For 6.3.7
SDK-58651		`56850_A0 56850_A1`	Issue :- Hashing is not happening when FP RedirectEgressNextHop action is used to forward packets to ECMP group. Solution:- When the IFP wants to route an IP packet to an ECMP group, it must use the `L3_SWITCH` action. This will ensure that the correct ECMP hash selectors are applied to the packet. (bcmFieldActionL3Switch) Only when the IFP wants to "route" a non-IP packet to an ECMP group, it must use the "Redirect to ECMP Group" action.
SDK-58843	801196	All	Finished the document "Spinlock Application Note".
SDK-58855	778638	`56850_A1`	The test in this JIRA involved incomplete AN mode for a given port and that port was flex-ported to another port mode. Sometime HW requires a clean up to clear the incomplete AN mode `(CRTSC_616).` This JIRA fix adds the fix to clean up the incomplete AN mode prior to flex port transition.
SDK-59954		`88650_A0 88660_A0 88650_B0`	De-allocation of scheduling elements fixes: 1. Non-composite HR SE couldn't be deleted. 2. FQ SE might deallocate from the wrong range, when range `odd_even=1.`

Section 18: Resolved Issues for 6.3.6

The following issues are resolved in version 6.3.6 of the SDK.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6

SDK-32461		`56846_A0 56845_B0`
		`56845_A2 56844_A0`
		`56842_A0 56840_A0`
		`56746_A0 56745_A0`
		`56744_A0 56743_A0`
			Problem: WRED thresholds were not taking effect because of hardware issue.
			
			Solution: Implemented workaround in software to get WRED memories into stable state.
			
			This workaround does below thinks to put WRED memories in stable state.
			
			1. Selects 4 Ethernet ports (one extended queue port from X,Y pipeline and one regular port from X, Y pipeline. 2. Configures all 4 ports in MAC loopback. 3. Disables CRC re-calculation on all 4 egress ports. 4. Enables CRC checks and configures `ING_PRI_CNG_MAP` table to mark incoming traffic with red color. 5. Add's l2 mac address in l2 table to switch the packets to all 4 ports. 6. Prepares 8 multi cell unicast SOBMH packets, configured DMA descriptor's and starts DMA engine.
			
			These SOBMH packets will be loopbacked with bad CRC since we disabled CRC re-calculation on egress ports and switches to all 4 egress ports. Since these packets have CRC errors MMU will drop the packets after receiving EOP and stabilizes the WRED memories.

SDK-36232	460304	All `56850_A0`	In previous release, A L2 multicast with flag `BCM_MULTICAST_WITH_ID` and `Group_ID` was created by `bcm_multicast_create`, but the HW index in `Group_ID` was already occupied by other multicast group, than the existing entry could be overwrote and return `BCM_E_NONE`. In this release, it will return `BCM_E_EXISTS` and won't overwrite the existing entry.
SDK-42289	565794	`88650_A0`	Static forwarding (i.e. `bcm_port_force_forward_set` API) can be used both in TM and PP modes. Some fixes are done to enable it also in TM mode.
SDK-44591		`56840_A0 56640_A0` `56640_A1 56640_B0`	Current implementation is not in-line with the issue. Function: `wcmod_esm_serdes_control_get(int` unit, `int` lane, `soc_phy_control_t` type, `uint32 *value)` case `SOC_PHY_CONTROL_DUMP:` rv = `wcmod_uc_status_dump` (unit, port, `NULL);` break; 'value' variable is not being used in this call.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-44989		`88660_A0`	Supporting OAMP protection packets in 88660. To enable this feature, call `bcm_rx_trap_type_create()` with the flag `WITH_ID`, `trap_type` bcmRxTrapOampProtection and a trap id in the range 0x400 0x4ff, followed by `bcm_rx_trap_set()` with the trap id created in the above API, and a `bcm_rx_trap_config_t` with the field `dest_port` set to the destination of the protection packets. All other fields should remain blank (an example of this is found in `cint_oam.c`). Whenever an OAM event occurs, a protection packet of size 71 bytes will be sent to the destination selected above. The format of the Protection packet at the CPU will be FTMHoPPHoFHEI. The FHEI.CPU-TRAP-CODE field will be set to the LSB of the trap id selected in `bcm_rx_trap_type_create()`. The size of the protection packet will always be 71 bytes where the OAM events will be on the bottommost part of the packet.
SDK-45535		`88650_B0`	OAM endpoint: It is now possible to create an OAM endpoint over LAG. This is done by adding the endpoint on the LAG port and separately configuring the mac address of the endpoint on each one of the LAG ports using `bcm_l2_station_add`. An example can be found in `cint_oam_over_endpoint.c` In addition CINT includes a cleanup function, and an option to set VLAN-Ports lifs over lag without defining an OAM endpoint.
SDK-46833		`56440_B0`	The fix for this issue checks the PLL's current divider setting in register 0x8050, and then use this as the forced value instead of always forcing the PLL to the same frequency for PRBS test. Additionally, the asymmetric mode for the 40nm B0 core has been disabled for the PRBS function to work.
SDK-47207	639523	`88650_A0` `88650_B0` `88650_B1`	[ARAD]Warmboot-"Vlan destroy" returns "Entry not found" after warmboot - FIXED
SDK-47824	636400	`56846_A0` `56845_B0` `56845_A2` `56844_A0` `56842_A0`	In previous releases, the updating on `NONUCAST_TRUNK_BLOCK_MASK` table took a fair amount of time to complete on Trident+ which has more `NONUCAST_TRUNK_BLOCK_MASK` table entries with the plain read API `soc_read_mem()`. In this release the performance has been improved by changing the update method such that it now uses a single DMA operation `soc_read_mem_range()` which gives a good amount of speedup to applicable trunk APIs.
SDK-48101	689094	`56845_B0` `56845_A2` `84740_A0` `84784_A0`	Support for 40G repeater mode PRBS for the system side was missing for BCM84740. Support for the same is added and tested in this release.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-48140		88650_A0	TRILL BEHAVIOR CHANGE. According to trill fgl rfc, at ingress trill fgl, native outer and inner tpids must have value 0x893b. So far in Trill application, native Ethernet tpids set outer tpid = 0x8100 and native inner tpid = 0x893b. New implementation is now aligned to trill fgl rfc. At ingress trill fgl, both native inner and outer tpids have value 0x893b. Settings are done using VLAN-editing and work for both normal vlan translation and Advanced modes.
SDK-48577		56640_A0 56643_A0 56340_A0 56640_A1 56643_A1 56640_B0 56643_B0 56540_B0 56045_B0 56040_A0 56547_A0	Added cpu based UFT mem sweep to detect and fix parity errors. Fixed issues found with graceful lookup error handling.
SDK-49047		88650_B0 88650_B1 88660_A0	1588 packets were stamped while received/send from/to ports in which 1588 was disabled. This is fixed. ISSU perspective: The fix supports ISSU if all the ports supporting 1588 are disabled before ISSU, and enabled after ISSU.
SDK-50216	693383	56850_A0	In previous release, per VLAN VP replication was automatically enabled when a Gport adds to the VLAN. In this release, support has been added to control VP replication by `bcm_vlan_control_vlan_set`.
SDK-50368		88750_A0 88650_A0 88640_A0	Unused SOC properties (e.g. `policer_fairness_enable`) defined in config-sand.bcm were removed from this file
SDK-51038	683239	88640_A0	Petra-B 88640 Ingress mirroring : Ingress mirror can't mirror the original packet for the Petra hardware limitation, the workaround for it is to configure the mirror port as RAW in config.bcm as `tm_port_header_type_2.BCM88640 = RAW`. See `cint_petra_mirror_tests.c` for more information.
SDK-51353		56643_B0	The new support for the below port configuration has been implemented. Device =56643 Frequency (MHz)= 450 Option = 4 GbE Port Group (XC[12:0]) = 36 x GbE+1 x GbE High Speed Port Gr 1 (WC[2:0])= 4 x XFI High Speed Port Gr 2 (WC[6:3])= 2 x HG[42] + x F.H [42]" AXP Port Guaranteed Bandwidth = 5G
SDK-51380		56440_A0 56440_A1 56440_B0	Enabled proper debug prints when API `bcm_policer_group_create()` fails.
SDK-51570		56850_A0 56850_A1	In previous release, NIV VP class-id setting was not supported by `bcm_port_class_set/get` API. In this release, support was added for setting NIV VP class-id by `bcm_port_class_set/get` API.
SDK-51648	713425	56340M_A0 56640_A0 56340_A0 56640_A1 56640_B0	Added in the support for different freq. `QG_PLL` and `WC_PLL` for chipsets which have the H/W capability.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6

SDK-51725		`56624_B0`	SER support has been added for the following memories as part of this fix:
			`MMU_WRED_CFG_CELL`
			`MMU_WRED_THD_0_CELL`
			`MMU_WRED_THD_1_CELL`
			`MMU_WRED_CFG_PACKET`
			`MMU_WRED_THD_0_PACKET`
			`MMU_WRED_THD_1_PACKET`
			`MMU_WRED_PORT_CFG_CELL`
			`MMU_WRED_PORT_THD_0_CELL`
			`MMU_WRED_PORT_THD_1_CELL`
			`MMU_WRED_PORT_CFG_PACKET`
			`MMU_WRED_PORT_THD_0_PACKET`
			`MMU_WRED_PORT_THD_1_PACKET`

SDK-52325 SDK-51797	721812	All	There is requirement from customer to perform a loopback test on a port, while making sure it looked like totally "down" from the outside, i.e. the link is down, no traffic leakage, etc. The modification of this JIRA is to add the support of MAC loopback on disabled port.
SDK-52412	678409	`56340_A0 84756_A0`	Issue: ------ When a 1G fiber SFP is installed into a BCM-84756 10G port with no fiber attached, the hardware linkscan declares the port link state as up. Rootcause: ---------- Hardware link scan can only probe a single bit in a single external phy or internal SerDes based link register on a per port basis. For PHYs such as 84756 which needs to probe more than 1 bit on more than 1 register to conclude per port based link up/down status, these PHYs must support a "squelch" function. When the squelching function is enabled/configured, the PHY will bring system side link status up when the line side link status is up and vice versa. Then the hardware link scan can probe the internal SerDes to conclude link status. The squelching function is not supported in 84756 driver `(phy84756_fcmap.c)` yet. Fix: ---- Implemented Squelch function in `py84756_fcmap.c` which is the root cause for the issue mentioned in this JIRA. Tested the squelch function implementation with 1G, 10G ports for the system side and the line side link as follows. i) Enabled system side squelch, could observe system side link goes down when Tx is disabled on the line side. ii) Enabled line side squelch, could observe line side link goes down when Tx is disabled on the system side. Squelch function is not invoked from the init function of PHY84756 fcmap driver. So user/customer needs to call squelch function explicitly using `SOC_PHY_CONTROL_TX_LANE_SQUELCH` whenever they wish to enable squelch on either line side Or system side.
SDK-52442	696223	`56850_A2`	In previous releases, an issue was reported in the parallel vertical scan operation, When attempting a 1-D slice vertical scan, the results would not come out if `horizontal_min=0` and `horizontal_max=0.In` this release the TSC diagnostics interface has been modified to return the proper H right max and left max values.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-52454		`88650_A0` `88660_A0`	Basic bridging Egress multicast: We assume over VLAN APIs that egress multicast exist. Now no error is returned when egress multicast does not exist
SDK-52751	726121	`56545_A0` `56545_A1` `56545_B0`	In the previous release `bcm_l2_cache_set()` did not allow setting priority > 7 on Firebolt4. In this release the API to add an entry `L2_USER_ENTRY` table now supports 4bits of PRIORITY on those devices where the priority field is 4 bits.
SDK-52789	728470	`56450_A0`	In the previous release an assert was raised when running TR53 on KT2. TR 53(DDR Memory Fill/Verify)is not valid for KT2. This issue has now been addressed by changing the TR rule for TR53 to exclude KATANA2. Instead of TR53 customer shall use TR140 for KT2.
SDK-52921	730103	`88650_A0` `88650_B0` `88650_B1`	Add entries using `bcm_trill_multicast_entry_add` with `c_vlan=0` is now supported in the following Trill mode: Trill VL (`trill_mode=1`) Multicast prune mode does not include VSI (`trill_mc_prune_mode=0`)
SDK-52942	727724	`56334_B0` `56334_A0`	Bcm56334 10G ports has 2 different macs and both of them show counters increasing when receiving packets. In this release, a fix was introduced to address the issue where incorrect values were being retrieved. Fixed the issue to get 10G statistics only from 10G mac while speed set to 10G. And while speed set to 1G, only get statistics from 1G mac counter.
SDK-53253	731741	`56334_B0`	In the previous release, SDK read back whole mpls label action table to reuse existing entries when invoking the function `_bcm_tr_mpls_get_vc_and_swap_table_index.` In this release, SDK adds an option not to reuse entries to address performance concern.
SDK-53452 SDK-52881 SDK-48849	722247	`56548_A0` `56546_A0` `56545_A0` `56544_A0` `56542_A0` `56541_A0` `56540_A0` `56545_A1` `56540_B0` `56541_B0` `56546_B0` `56544_B0` `56547_A0` `56545_B0` `56542_B0`	For Apollo2 device, the `L3_DEFIP` memory was partitioned into fixed size giving 2K indexes for v4/64V6 and 2K for 128V6. The change is to partition the `L3_DEFIP` table with the user defined values. User can give any number to change the max number of 128V6 entries and V4/64V6 entries. This user defined partition scheme is already supported for TR3/TD2. user needs to set these soc properties . `ipv6_lpm_128b_enable=1 ======>` This sets the new scheme active. `num_ipv6_lpm_128b_entries = `XXXX `=====>` Number of 128V6 routes Without this configuration, the SDK will set the table with default route tables. 128v6=2048 and v4/64V6=2048
SDK-53561		`56846_A0` `56850_A0`	TD+ `L2_ENTRY` table is shared between the two pipelines. Only X-pipe has SBUS access to the shared `L2_ENTRY` table. TD2 has independent `L2_ENTRY_x` and `L2_ENTRY_y` tables, but only access type 4 is supported in memory write operation for these two tables. The combination of `L2_ENTRY` table and access type 2 for Y-pipe has been added into skipped memory list.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-53584		56850_A0	L2X table is read via DMA manner by default. If DMA fails, the table entries will be read via PIO manner again. If there is a parity error in L2X table, both DMA read and PIO read will trigger parity error reporting. The SER logging feature has been implemented to detect and filter the duplicate parity errors for the customer application.
SDK-53656	738788	88650_A0	In Ingress Field Processor, validation of ISQ range in `bcm_field_action_add()` is incorrect, and as a result does not allow usage of the full range. This is fixed.
SDK-53674	739094	56450_B0 56450_A0	`bcm_cosq_gport_attach` API was not able to allocate non-contiguous queues to support more WRR queues/nodes. A new flag `BCM_COSQ_GPORT_SCHEDULER_WFQ` has been introduced to support this option.
SDK-53757	733995	88650_A0 88650_B0 88650_B1	Clear ipv6 tunnel using `bcm_tunnel_initiator_clear()` is now supported.
SDK-53802	740202	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	Updated TSC transcription algorithm to resolve incorrect TDM programming for partial TSC configuration
SDK-53875	737326	56850_A0 56850_A1 56850_A2	There was no BCM API to control the L2 learning per VXLAN logical port before. Now `bcm_port_learn_get/set` can be re-used to get/set the L2 learning per VXLAN logical port.
SDK-53934		56850_A0 56850_A1 56850_A2	In previous releases, if we configured L3Depth larger than 0, it was not possible that single-wide or double-wide entries could be moved to other banks to free its original space for wider entries like double-wide or quad-wide entry. In this release, single-wide or double-wide entries can be moved to other banks to free its original space for wider entry, and the total utilization of L3 benefits from this.
SDK-53956		88650_A0 88650_B0 88660_A0	Egress compensation can be configured for egress ports using the API `bcm_cosq_control_set` (bcmCosqControlPacketLengthAdjust). When the compensation is configured for port with header type `XGS_DiffServ, XGS_HQoSan` error will occur. Fixed.
SDK-54037	739743	All	On certain devices which do not support the blocking of `KNOWN_MCAST` type of traffic a fix has been added to no longer return error. This issue was originally reported on Raven
SDK-54063	743248	56643_A0	`XMAC_OSTS_TIMESTAMP_ADJUST` accounts for delays during the mac stage. This register was always being programmed to zero. Now, This register will be configured with proper value for non GE ports, and for GE ports this will be configured to zero. The value of this register doesnot matter for GMII/MII speeds

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-54215		`88650_A0 88660_A0`	Added documentation for a traffic example and additional documentation per function in `cint_qos.c`
SDK-54322		`88650_A0`	1. In Ingress parser, the support of a single IPv6 extension header parsing is added, where only Hop-by-Hop extension is supported. 2. In Ingress Parser, the custom macro allocation is now dynamic. There are four configurable macros (aka custom macros), that are programmed to identify a header. These custom macros are dynamically allocated according to the enabled features (enabled by soc properties). The following soc properties determine the custom macros in the parser: - `bcm886xx_ipv6_ext_hdr_enable` - new soc property that enables IPv6 header extension parsing, requires two custom macros. - `bcm886xx_fcoe_switch_mode` - enables FCoE, requires two custom macros. - `custom_feature_udp_parse_disable` - UDP custom macro is configured by default, however, if needed it can be disabled by this soc property. Note that if disabling UDP parsing, then VxLAN and 1588oUDP are affected. - `trill_mode` - enables Trill, requires one custom macro. - `bcm886xx_vxlan_enable` - enables VxLAN, requires one custom macro. In the specific case of UDPoIPv4oEth, enabling or disabling VxLAN changes the value of parser object end-leaf, which is used in Trap in case there is an error in the Header size or in case of invalid packet format code. 3. In Ingress Field Group, a new qualifier bcmFieldQualifyExtensionHeaderType is introduced, which refers to the Next Header field in first IPv6 extension header after IPv6 header.
SDK-54352	743979	`56850_A0 56850_A1 56850_A2`	In previous SDK, the `COS_MAP_SEL` table on TD2 sometimes was constructed incorrectly by `bcm_cosq_gport_mapping_set` API. The root cause of this problem was that the SDK would use `ing_port` to generate a index of the `COS_MAP_SEL` table, but this index was overwritten incorrectly and caused the problem. This issue has been resolved.
SDK-54398	746146	`56854_B0 56850_A2`	In previous releases, when one interrupt was raised rather than CHIP Function's, only it would beprocessed and the CHIP Function's was lost. In this release they will be processed one by one through comparing all the irqState with irqMask.
SDK-54484	745674	`56850_A0 56850_A1 56850_A2`	`BCM_L2_REPLACE_MATCH_UC` and `BCM_L2_REPLACE_MATCH_MC` are provided for specifying which type of MAC entries will be performed the delete operation. Using the `BCM_L2_REPLACE_DELETE` flag and `BCM_L2_REPLACE_MATCH_MC` or `BCM_L2_REPLACE_MATCH_UC` or both to delete all Unicast entries, Multicast entries or both respectively. Using the `BCM_L2_REPLACE_DELETE` without either `BCM_L2_REPLACE_MATCH_MC` nor `BCM_L2_REPLACE_MATCH_UC` is the same as both are set.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-54500		88660_A0	In FCoE module, the NPV switch support is added. To configure it: 1. Set the relevant ports to be `N_Port` by using the `bcm_port_control_set` API with type bcmPortControlFcoeNetworkPort. 2. Add new routes for source routing by setting in `bcm_fcoe_route_add` API the flags to `(BCM_FCOE_SOURCE_ROUTE | BCM_FCOE_HOST_ROUTE)`. Refer to `cint_fcoe_route.c` (`fcoe_fcf_npv_example` function) for configuration example. When setting the NPV functionality, 2 new FLP programs are required.
SDK-54504		88650_A0 88650_B0 88650_B1	QOS: Qos map id can be destroyed by calling `bcm_qos_map_destroy`. Improvement in entry deletion for `bcm_qos_map_destroy` by adding new SW DB to record each entry is occupy or not.
SDK-54543	746283	88650_B1	The TCAM protection error interrupt may raise at init time (even without triggering the TCAM scan) during TCAM bank initialization. To prevent this, the interrupt is cleared during initialization.
SDK-54544	748071	56840_A0 56440_A0 56850_A0 56450_A0	We received a customer request to make an l2 entry not routable by resetting the flag `BCM_L2_L3LOOKUP`. In the previous release, some chips in the Trident family did not remove the entry from `my_station_tcam` table when the flag `BCM_L2_L3LOOKUP` was cleared. This has now been resolved.
SDK-54567	748978	88650_A0 88650_B0 88650_B1	The bcm shell diagnostic command "diag pp dblif" support: - for vxlan: key: vni, data: vsi - for l2gre: key: vsid, data: vsi.
SDK-54573	745949	88650_A0 88650_B0 88660_A0	`bcm_port_tpid_class_get()` should call the `SOC_PPD_LLP_PARSE_INFO_clear` before using the `SOC_PPD_LLP_PARSE_INFO` structure.
SDK-54585	742690	All	During VPLS Virtual routing using Ingress Field Processor, `REDIRECT_TO_DVP` Action [bcmFieldActionRedirect] in Field module takes Virtual Port information from `ING_DVP_2_TABLE` for devices like Trident, Trident2, Triumph3. Currently we were configuring `ING_DVP_TABLE` only with next hop entries and support to configure `ING_DVP_2_TABLE` was missing. Hence added code to configure next hop entries in `ING_DVP_2_TABLE` during VP port add , through this JIRA. Also added code to delete next hop entries in `ING_DVP_2_TABLE` during VP port delete.
SDK-54604		56450_A0 56440_B0 56450_B0	In previous releases bcmCosqControlBandwidthBurstMax and bcmCosqControlBandwidthBurstMin could not update refresh rate based on burst and shaping rate.The implementation has been modified to calculate refresh rate and update shaper configuration.
SDK-54610	750318	All	The counter thread could end up in a continuous loop when sbusdma was busy/not initialized, In this release we have added timeout to break from this loop.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-54635 SDK-37263		56846_A1	In the previous release, SDK only configured the mac driver of current mode when invoking the `mac_control_set()` function. In this release, we will do `mac_control_set()` in both XMAC and UniMAC MAC driver except for some special cases. This has been fixed.
SDK-54641	746928	88650_A0 88650_B0 88650_B1	STG: A "STG" diag cli command is added to operate or display STG info of device. The usages of "STG" command are listed as below. BCM.0> stg Usage (STG): Usages: stg create [<id>] - Create a STG; optionally specify ID stg destroy <id> - Destroy a STG stg show [<id>] - List STG(s) stg add <id> `<vlan_id>` [...] - Add VLAN(s) to a STG stg remove <id> `<vlan_id>` [...] - Remove VLAN(s) from a STG stg stp - Get span tree state, all ports/STGs stg stp <id> - Get span tree state of ports in STG stg stp <id> <pbmp> <state> - Set span tree state of ports in STG (disable/block/listen/learn/forward) stg default [<id>] - Show or set the default STG
SDK-54642	750484	88230_C0	1) Changed #if/#else/#endif comment at #endif to match #if, which was changed from `BCM_FE2000_SUPPORT` to `BCM_SBX_SUPPORT.` 2) Changed several internal functions beginning with `string_to` to static functions to make the more unique to the specific source file.
SDK-54661	750105	88230_C0 88230_B0 88230_A0	Fixed Make procedure for 88230 devices
SDK-54669 SDK-52871	787225	56850_A0	Previously, trunk based `MY_STATION_TCAM` was not programmed for VXLAN and TRILL. Now it is programmed as l3 egress object is created.
SDK-54672	749143	All	Issue :- While doing warm boot(level 2) two times with intra slice double wide group, virtual map information in fp was not recovered properly after the first warm boot and this downgrades the recovery level from level 2 to level 1 during second warm boot. Fix :- While doing level 2 warm boot, after the warm boot succeeds, recreate the virtual map information based on the group information that was recovered.
SDK-54722		88650_A0 88660_A0	In Field Processor, when creating or destroying TCAM entries, a time consuming debug code section was running. This code section has been removed, resulting in significant decrease of TCAM entries creation and destroying running time.
SDK-54748	749898	56450_B0 56440_A0 56450_A0 56440_B0	`bcm_port_rate_egress_set` API allowed user to configure only the recommended minimum burst value irrespective of the passed burst argument. The API implementation has been modified to compute the shaping parameters based on shaping rate and burst value and configure the hardware tables accordingly.
SDK-54755		88650_A0 88660_A0 88650_B0 88650_B1	PON: SDK now supports also L3 subnet source-bind. For more information see `src/examples/ dpp/pon/ cint_pon_general_anti_spoofing.c`

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-54761	752348	All	Fixed potential endless loop during PCIe Deemphasis settings, by limiting the range to search for PCIe Capabilities registers to valid range.
SDK-54763	751831	56450_A0	Support has been added for following features for Katana2: 1. Advanced URPF lookup where 2 lookups, both DIP and SIP, are performed using single `L3_DEFIP` entry at line rate. 2. Capability to add IPv6 LPM entries with subnet mask greater than 64 bits. By default 1K entries are reserved for Ipv6 LPM entries with subnet mask > 64 bits. The default behaviour can be overridden by setting config variable `num_ipv6_lpm_128b_entries=0`
SDK-54779	748470	56850_A0 56850_A1 56850_A2	In the previous release, the feature of cosq warmboot in TRIDENT2 was not supported. In this release, this issue has been addressed by syncing the left members of `_bcm_td2_mmu_info[unit]`.
SDK-54819 SDK-53920	752509	56450_A0 56440_B0	During port shutdown traffic buffered in the queues for the port was not flushed. Implemented queue flush during port shutdown . Implemented the thresholds reset and replay for the flush activity to be completed during congestion scenarios.
SDK-54840	753240	88660_A0	Broad Sync API: implemented ToD get function (`bcm_time_capture_get`).
SDK-54848		88650_A0 88660_A0	CINT: New example for IPv4 routing over 802.1q where the VSI/RIF is explicitly supplied by the user and not determined by the incoming VLAN value. This allows VSI routing interface that straddles several LANs. The example uses In-LIF (per In-Port x VLAN) and Out-LIF (per VSI x Out-Port) to achieve that. Reference: `cint_ip_route_explicit_rif.c`. In the CINT example a routing scheme with two different Routing Interfaces(RIF) that are based on <Port, VLAN> added.
SDK-54870		88660_A0	In Field Processor range APIs, internal commands were added to skip Warm-boot on these APIs during Warm-boot validation.
SDK-54877		88650_A0 88660_A0	Diag improvement: IPv4 multicast routing table can be displayed from diagnostic shell Diag pp `IPv4_MC`.
SDK-54906	749980	54240_C0 54280_A0 54282_A0 54285_C0 54290_A0 54292_A0 54295_A0	WarmBoot support for BCM54240/5428x/5429x has been added.
SDK-54921		88650_B1	In Egress Field Processor, when configuring bcmFieldActionStat action, a validation is performed on the data field value. The validation is incorrect, and in case the value is out of range, it will not be identified. This is fixed.
SDK-54927	752923	56450_B0 56450_A0	In previous releases `bcm_cosq_gport_delete` API could return `BCM_E_TIMEOUT` during congestion scenarios. This issue has been fixed in API implementation by adjusting bandwidth and flush the packets completely.
SDK-54937	752666	88650_A0 88660_A0	gport shell command shows incorrect voq id (-1) for ingress shaping queues. Fixed.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-54980	753002	`88650_A0 88660_A0`	6.3.4 introduced a new feature called IGMP and Compatible-MC after existing tunnel (VXLAN, L2GRE, VPLS) in ARAD+. See `cint_igmp_example.c` for application explanation and valid packet flows.
			In HW it required to enable Second-stage-parsing in order to make the feature work. Second-stage-parsing should be enabled only for MPLS TT programs. By mistake we enabled Second-stage-parsing to MPLS, IPV6 and Trill while the correct configuration should enable it to MPLS only. The issue cause Packet-format-code to be Ethernet instead of IPV6 (or Trill).
SDK-55007	752699	`88650_A0 88650_B0` `88650_B1`	Port: `ilkn_interface_status_oob_ignore` can be used to force ILKN interface status indication. If ILKN interface status indication is forced up after the ILKN OOB interface is enabled, a low number of error message will be sent from ILKN interface. After the fix, ILKN lane and interface status indication will be forced up before the ILKN OOB interface is enabled.
SDK-55023	734742	`88650_A0`	A new corrective action added at this interrupt handler which checking if the interrupt is cleared every 10ms. The mechanism stops only if the interrupt clear or period of 500ms passed. moreover we are suggesting to use `force_unmask` option for this interrupt in order to force unmasking the interrupt at the end of interrupt handler. The following is driver reference for this action: `uint32*` flags; `int` inter = / *interrupt number*/;
			rc = `soc_interrupt_flags_get(unit,` inter, &flags); `BCMDNX_IF_ERR_EXIT(rc);`
			if (value == 0) { `SHR_BITCLR(&flags,` `SOC_INTERRUPT_DB_FLAGS_FORCE_UNM` `ASK);` } else { `SHR_BITSET(&flags,` `SOC_INTERRUPT_DB_FLAGS_FORCE_UNM` `ASK);` }
			rc = `soc_interrupt_flags_set(unit,` inter, flags); `BCMDNX_IF_ERR_EXIT(rc);`
SDK-55036		`56850_A2`	`ENQ_ASF_HS_OVERSUB_EN` is enabled during init for all the ports in TD2 [SDK-54205] hence the `ASF_ENABLE_HS_PORT_EP_CREDIT_CHK` also should be set to 0 on init.
SDK-55046 SDK-55294	753973	`88660_A0`	OAM: When replacing entries in the in the O-EM 1/2 tables, instead of deleting the entries and then inserting, it is possible to replace the entries in one fell swoop. Previous configuration might have caused packet loss in the time between the deletion and creation of new entry. Likewise `oem1/` `2_entry_delete()` did not wait for the task to complete before returning. This bug was fixed as well.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55071		`56850_A0`	Implemented new data formats (macros) to match on the incoming packets with or without VNTAG/ CNTAG/ETAG/ICNM packets. For example: setting `BCM_FIELD_DATA_FORMAT_F_VNTAG` flag, an entry is created in `UDF_TCAM` to validate on the incoming packets tagged with VNTAG. Likewise, setting `BCM_FIELD_DATA_FORMAT_F_NO_VNTAG` flag, an entry is created in `UDF_TCAM` to validate on the incoming packets without VNTAG.
SDK-55081		`56640_A0 56540_A0` `56640_A1 56640_B0` `56540_B0`	Before the code change `bcm_tr2_cosq_gport_get` function is returning only `BCM_COSQ_GPORT_UCAST_QUEUE_GROUP`, now code is added so that it returns flags as per the type `BCM_COSQ_GPORT_VLAN_UCAST_QUEUE_GROUP`(for vlan gport) `BCM_COSQ_GPORT_DESTMOD_UCAST_QUEUE_GROUP`(for dmvoq gport) `BCM_COSQ_GPORT_MCAST_QUEUE_GROUP` (for multicast gport port)
SDK-55083	753905	`56340_A0 56340M_A0`	ISM total calculation was simplified. Previously total was incremented initially and from then, every time when the number of entries were bumped up. Now the increment will be done only when we allocate the memory from a bank to a table.
SDK-55084	753827	`88650_A0 88660_A0`	Trap PWE TTL=0/1 is now supported: 1) bcmRxTrapMplsTtl0, bcmRxTrapMplsTtl1 traps are now supported. 2) To set trapping PWE packets with TTL<=1 use `bcm_mpls_port_t.vccv_type=bcmMplsPortControlChannelTtl.` Example can be found in `cint_vswitch_vpls.c`
SDK-55107		`88650_A0`	Trill warmboot: Upon warmboot, trill sw states were not restored.
SDK-55132	752736	All `56850_A0` `56850_A1 56850_A2`	Software state and Ref-counts were not maintained across warmboot. Therefore After warmboot, `soc_profile_mem_get` api would not be able to retrieve the `l3_iif_profile` entry as the software states/ref-count are reset and not recovered. Added support to recover the `l3_iif_profile` state during level-2 warmboot. The bitmap for valid `L3_IIF` entries are stored in scache. After warmboot, The `l3_iif` entries are read from scache and ref-counts are set for `L3_iif_profiles` indexes.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55167	755011	`56455_A0 56640_A0` `56850_A0 56640_A1` `56640_B0 56850_A1` `56850_A2`	Problem: PacketRes enumerations getting remapped internally causing data ,mask mismatch during qualifier installation. Solution: Updated code to qualify packet Resolution in below 2 ways: 1) print `bcm_field_qualify_PacketRes(0,0, BCM_FIELD_PKT_RES_L3UCKNOWN, BCM_FIELD_PKT_RES_L3UCKNOWN); 2) print bcm_field_qualify_PacketRes(0,0, BCM_FIELD_PKT_RES_L3UCKNOWN, BCM_FIELD_EXACT_MATCH_MASK);` This is also documented as valid set of mask values
SDK-55175	749262	`88660_A0`	Extracting a BCM88660 that is configured to VSC128 cell format mode, caused performance degradation in the system. Fixed.
SDK-55184		`56850_A0`	Earlier SDK releases did not allow configuring MTU value for vxlan access ports. This release now supports setting/resetting MTU for vxlan access ports through `bcm_vxlan_port_add()` API.
SDK-55205	751154	`56850_A0`	`ENABLE_1588MPLSf` flag is used to enable/disable encapsualation and decapsualtion for PTP packets over MPLS. Memory validation check is added to avoid crash while accessing memory for chips that donot have this flag. TD2 does not have this feature.
SDK-55225		`88650_A0 88650_B0` `88650_B1 88660_A0`	BFD creation of accelerated endpoints with remote destination is fixed and now working without configuring any OAMP instances. Irrelevant validation checks were removed as well. Restrictions on `endpoint_id` and `local_discr` fields: 1. In case endpoint is accelerated to the OAMP, endpoint id should be equal to lowest 16 bits of `local_discr.` 2. In case endpoint is accelerated to the OAMP or endpoint type is bcmBFDTunnelTypeUdp, BFD `local_discr` msbs (bit number 16 and above) should be constant for all endpoints. 3. Non-accelerated endpoint cannot be created `WITH_ID.` Also fixed error in creating oam/bfd endpoint with id 4096.
SDK-55229		`88650_B0 88660_A0`	When using external TCAM, usage of the diagnostics command "kbp print" may have caused a segmentation fault. This happened due to inappropriate use of unallocated memory and is now fixed.
SDK-55243		All	Improved execution time of `bcm_l3_intf_create()` in XGS devices. In addition, removed deadlock with VLAN APIs such as `bcm_vlan_control_vlan_set().`
SDK-55257	730074	`88650_A0 88650_B0` `88650_B1`	BFD: fields that are only used by endpoints accelerated to the OAMP are configured only for relevant endpoints. Likewise in `endpoint_destroy().`
SDK-55263	739431	`56540_A0 56440_A0` `56450_A0`	Fix for PTP operation using little-endian host.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6

SDK-55274	756256	`56850_A0  56855_A0`
		`56854_B0  56854_A0`
		`56850_A1  56851P_A1`
		`56851_A1  56850_A2`
		`56851_A2  56851P_A2`
		`56854_A2  56853_A2`
		`56852_A2  56855_A2`
		`56851_A0  56852_A0`
		`56852_A1  56853_A0`
		`56853_A1`
			Problem: Src/Dst IP6 qualifier was sent to 32 bit EFP qualifier routine [`_field_efp_qualify32`] for TD2 devices which was internally causing the mask to be reset to 0. [since offset width calculation is assuming width to be 32 but actual width is 128]. Since its a 32 bit routine, the last 32 bit part of mask was getting reset here.
			
			Solution: Added appropriate checks to make sure that only 32 bit IP address falls into the check and hence mask will not get reset.

SDK-55280	750005	`56440_A0`	Support has been added for proper reload of `MAC_BLOCK` table during warmboot for BCM5644x devices.
SDK-55283	756559	All	Removed StrataXGS restriction from `bcm_tx_array` documentation that all packets should have same values for Source module, Source port, PFM and Internal Priority as it does not exist now.
SDK-55286	755758	`56850_A0  56850_A1` `56850_A2`	When L2X table parity error was detected and processed in Y-pipe context, the `acc_type` list for Y-pipe would be iterated to decode memory id via routine `soc_addr_to_mem_extended()`. The `acc_type` of L2X table is 4, not in the list for Y-pipe, and this would cause memory decode fail. So the `acc_type` 4 has been added into the list for Y-pipe to fix this issue.
SDK-55288		`88660_A0`	Trill Multi-homing connectivity. Define up to 3 virtual rbridges in system was not correctly supported and leads to memory leak.
SDK-55293	739558	`88650_B1`	In L2 forwarding, when MAC learning mode was centralized, the aging time accuracy has been improved: the aging time is maximal whether the entry has been inserted by this device or not. A SOC property `(custom_feature_centralized_owned)` allows the user to work in previous mode.
SDK-55299		`88660_A0`	OAM diagnostics: Lookups are displayed in parsed format (key and result, if found). The relevant command is diag oam lu and the output is for example: IHB OEMA last lookup: Key=0X2002, result=0X60000080 OEMA key: ingress: 0, OAM LIF: 0x1001 OEMA payload: MP profile: 0x3, MEP bitmap: 0x0, MIP bitmap: 0x80, counter index: 0x0 IHB OEMB last lookup: Key=0X1001e , result=0X0 OEMA key: ingress: 0, MDL: 7, OAM LIF: 0x1001, your disc: 0 Not found.
SDK-55317 SDK-55378		`56340_A0`	On `Helix_4`, Bank 0 in every stage is disabled in ISM. This is taken care of while allocating banks for ISM tables, but while configuring the `hash_offset` for each bank, the disabled bank was not taken into account. Now the number of disabled banks are calculated and is added to the bank number in each stage.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55323	755643	`56850_A0`	For `Trident_2,` when station tcam entries were being recovered during warmboot, they were not being checked for validity. Even blank entries were being counted as valid entries and so, after recovery, the table showed up as full. So, when a new entry was added after warmboot, it returned no resources. This validity check is now added for Trident2
SDK-55329		`88650_A0 88650_B0 88650_B1 88660_A0`	APIs receiving a `bcm_gport_t` input argument as a destination, will now work properly when the gport type is MODPORT, and the given module port is not defined in the local device.
SDK-55335	708385	`88650_B0`	fixed the prbs issue going out the analog part for 8b/10b encoding speed.
SDK-55339		`88650_A0`	Slow start mechanism for FMQs (using bcmCosqGportTypeGlobalFmqGuaranteed control) is not functional. Fixed.
SDK-55352	756202	All	In the previous release there was a coding issue with the usage of sizeof operator.The object used to calculate the sizeof operation in a function was passed as a value instead of passing it by reference. Hence sizeof operator was returning a wrong value. This issue has now been addressed in this release.
SDK-55353	757018	`88640_A0`	Bug in counter processor calculation of counter ids from counter set ids was fixed.
SDK-55360	757697	All	In the previous release, on TD2, the double bit ECC error notifications from the EP following init cycles were seen on rare occasion. In this release, this issue has been addressed by initializing all of packet buffers to the value of zero.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55375	755943	56850_A0	Problem : Below qualifier was not getting recovered and actions were getting recovered as colour specific. Action Parameters were not getting recovered for CopyToCpu and EcnNew
			Qualifier: DstClassL3 Actions: CopyToCpu,,EcnNew,DropCancel,PrioIntNew,Egres sMask,Drop,EgressPortsAdd,SwitchToCpuCancel
			Solution: Actions mentioned in the list are expected to work this way since action internally sets colour specific actions. Hence after recovery we read from hardware or cache and display individual actions because we cannot confirm if actual action led to these or they were individually configured. Quoting the part in warmboot section in api document where information regarding the above mentioned actions and its behavior is mentioned. "There are some color-dependent actions that may get aliased during Warm boot recovery. For example, the SDK cannot distinguish whether the application added bcmFieldActionDrop or specifically added bcmFieldActionGpDrop, bcmFieldActionYpDrop and bcmFieldActionRpDrop. This is true for all recovery levels."
			For CopyToCpu, we are passing param0=1 and param1=0, param0=1 -> means that we are matching the `rule_id` param1=x -> x is the `rule_id` value that we are planning to match. This code will internally check if param0=1 . If so sets a field `MATCHING_RULE` as param1 in `FP_POLICY_TABLE`. Now while recovering we check if `MATCHING_RULE` !=0 and then recover param1 as `rule_id` and param0 as 1. Due to this logic, if param0=1 and param1=0, we set `MATCHING_RULE` as 0. When we recover we dont know if this is due to `rule_id=0` or no `rule_id` configured, because default value for `MATCHING_RULE` = 0. [we dont have any hardware fields to save param0 to check if `rule_id` is to be matched or not] This rules out possibility of configuring param1 as 0 with param0=1 if warmboot recovery required. U can configure param1 as 1-127 with param0=1.
			Code for recovery of parameter of EcnNew Action and for recovery of DstClassL3 qualifier, has been done through this JIRA. EcnNew has a new Field for Triumph3 and Trident2 to keep the value `[G_NEW_ECNf]` which was missed to be recovered. DestClassL3 was not getting recovered due to double wide mode slice number being passed wrongly. These two problems are handled.
SDK-55387	752326	88650_A0	Configuring a discrete WFQ weight for a CL (using bcmCosqControlDiscreteWeightLevel0..3 controls) with the same weight already assigned by another element failed. Fixed.
SDK-55388	756617	88750_A0 88650_A0 88750_B0	The port enable indication might be wrong after warm boot sequence. As a result RX LOS application will not get reliable state of the port an might try to reset the port. Fixed.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55392		`88650_A0`	In internal SOC functions related egress port header type setting, beautify the code by introducing #defines instead of hard numbers.
SDK-55396	757120	`56850_A0 56850_A1 56850_A2`	For TD2 `L3_ENTRY` table, the case that parity error located in dedicated L3 banks was missed when UFT shared banks are used. Entry index checking for TD2 `L3_ENTRY` table when retrieving SRAM info via routine `_soc_trident2_mem_sram_info_get()` has been added for entry indexes in dedicated L3 banks.
SDK-55434		`88660_A0`	In Field processor, at ingress, the Compare operation performs a comparison between the two halves of key-D in second cycle. The comparison first performs a XOR between the two halves and then AND with a predefined mask. The XOR operation is not enabled and therefore the compare result is incorrect. This was fixed.
SDK-55443		`88650_A0 88650_B0 88650_B1 88660_A0`	PWE: `bcm_mpls_tunnel_initiator_create` api can be used to update PWE next tunnel used in encapsulation of multicast PWE packets (unicast packets won't be effected). This functionality is available only when PWE is not protected and MPLS tunnel is used by a FEC entry. Example can be found in `cint_vswitch_vpls.c switch_pwe_tunnel` function.
SDK-55460		`56850_A2`	The access type of `ING_NEXT_HOP` table is defined as 1 per regfile `bcm56850_a0.` This access type was missed in TD2 Y-pipe list in SER correction routine. The access type 1 has been added into TD2 Y-pipe list in SER correction routine to resolve this problem.
SDK-55470	758460	`88650_A0`	An updating logic happens when creating VLAN port with `BCM_VLAN_PORT_REPLACE` and `BCM_VLAN_PORT_WITH_ID.` If a new key to be added is different from the existed old key, the updating logic removes the old key and adds the new key. An error occurred when the updating logic removed the old key of egress AC for CEP ports. The updating logic compared the new key with an uninitialized old key to check whether the new key is different with the old key. The issue detailed above affected Out AC replacing of CEP ports. The correct egress AC key can be removed after the fix.
SDK-55495		`88650_A0`	BFD: bugs that hindered calling `bcm_bfd_endpoint_create()` with the flag `BCM_BFD_ENDPOINT_UPDATE` set for type= bcmBFDTunnelTypeMplsTpCc and bcmBFDTunnelTypeMpls were fixed.
SDK-55500	758887	`88650_A0 88650ACP_A0 88650_B0 88650_B1 88660_A0`	In the cint `cint_policer_metering_example.c,` the function `header_compensation_example` used the wrong function to set header compensation. This is now fixed.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55501		`88650_A0 88660_A0`	In Field Processor, when creating a new Field Group, it is verified that the key can be allocated with the existing occupation of the program's instructions. However, the verification does not consider the used key bitmap which may indicate that all LSB/MSB keys are used. In which case, the algorithm should disregard the relevant (LSB/MSB) instructions. This is fixed.
SDK-55502	759144	`56450_B0 56450_A0`	`soc_mem_config_set()` (is set to `sal_config_set()` in our local SDK environment with SAL implementation) may or may not be available with customer code. so assert is not considered good idea. If `soc_mem_config_set` not available and `auto_portgroup` and `auto_polarity_flip` is set true, SDK will suggest settings on screen so that end user can re-update config.bcm accordingly. Also made auto generated config variables unit specific (i.e. portgroup_<num>.unit=<lanes)) happens with `auto_polarity_flip` and `auto_portgroup` config variables. This is relevant in multi unit setup.
SDK-55515	752139	`56640_A0 56440_A0` `56850_A0 56440_A1` `56640_A1 56640_B0` `56440_B0 56850_A1` `56850_A2`	`bcm_port_learn_set` is used to control the learning behavior on a port. The learning behavior can be set/modified using this API. This API was not supporting vlan virtual ports previously. Now, support is added to modify learning behavior for vlan virtual ports.
SDK-55518	757054	`56634_A0 56634_B0`	`START_BY_START` error interrupt was not being handled resulting in high CPU utilization. Added handler for this error, to clear the interrupt status register when set.
SDK-55524	759557	`88660_A0`	`bcm_port_loopback_get` bug fix for ILKN port in 2 Caui+ ILKN mode (BCM 88660)
SDK-55528		`88650_A0 88660_A0`	OAM: `bcm_oam_endpoint_action_set` supports new actions: bcmOAMActionUcFwdAsData, bcmOAMActionMcFwdAsData to configure forwarding the packet instead of trapping/snooping. The destination when calling this api with the actions above should be `BCM_GPORT_INVALID.` This scenario is useful in case of MIP where we should forward the data as is without any special OAM action.
SDK-55531		`56340_A0`	The variables to calculate the tokens are integers (4 bytes) but on multiplying two integer variables results in a much bigger number which cannot be accommodated in 4 bytes of allocated memory. This was impacting the vstorm control feature. Declared a temp variable of long integer (8 bytes) to store the resultant value to fix the issue.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55537		88660_A0	When doing metering on packets, it is possible to compensate for Ethernet inter-packet gap (IPG) and/or Ethernet preamble by setting the switch control bcmSwitchMeterAdjustInterframeGap to 20. This will add 20 bytes to the packet size for meter compensation calculation.
			Currently due to a software bug, this switch control is not set, and no compensation is performed.
			This is now fixed.
SDK-55540		88650_A0 88650_B0 88650_B1 88660_A0	An access to an HW table (EGQ-VSI-Profile memory) was performed with a `uint32` variable, although the table width is 33 bits. It resulted in a memory corruption. This is fixed.
SDK-55559	760422	56643_A1	The new support for the below port configuration has been implemented.
			Device =56643 Frequency (MHz)= 450 Option = 4 GbE Port Group (XC[12:0]) = 36 x GbE+1 x GbE High Speed Port Gr 1 (WC[2:0])= 4 x XFI High Speed Port Gr 2 (WC[6:3])= 2 x HG[42] + x F.H [42]" AXP Port Guaranteed Bandwidth = 5G
SDK-55567		All 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	Problem: `bcm_field_qualify_data_get` was not working for little endian hosts because of ordering of bytes during copy. Solution: If the host is little endian, updated code to swap the bytes in the expected ordering required for further processing.
SDK-55583		56640_A0 56640_A1 56640_B0	Currently, Policers in cascade mode are mapped based on dot1P priorities of the incoming packet. Two new policer group modes are added : bcmPolicerGroupModeIntPriCascade and bcmPolicerGroupModeIntPriCascadeWithCoupling which map the incoming packets to policers based on internal priority. Policers work in cascade mode where bandwidth flows from higher priority to lower priority.
SDK-55600	719068	56449_B0 56445_B0 56440_B0 56447_B0 56443_B0 56441_B0 56446_B0 56448_B0 56442_B0	Fixed crash observed during Level 2 warmboot on BCM56440.
SDK-55604	760276	56224_B0 56224_A0	Issue :- After warmboot, Recovered Entries were being shown as Disabled. Fix :- The Entries were actually recovered properly both in H/W and S/W But code changes to mark the entries are enabled was missing. Added the code change to mark the recovered entries as enabled.
SDK-55615	758680	88650_A0 88650ACP_A0 88650_B0 88650_B1 88660_A0	Counter processor example cint, `cint_voq_count.c,` was updated. The bcmCosqGporYellowAcceptedPkts counter type replaced by bcmCosqGportNotGreenAcceptedPkts. This change reflects change in the counter processor counters in `FULL_COLOR` counting mode from version 6.3.2

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55621		`88650_B1`	When replacing existing MTU value using `bcm_l3_intf_create` api, the MTU value might in some cases change to 0 instead of the requested value. This happens in case MTU value is unique for certain L3 Intf
SDK-55630		`88660_A0`	OAM: when calling `bcm_oam_loss_add()` with the flag `BCM_OAM_LOSS_SINGLE_ADDED` set, loss management will be based on LMM PDUs, otherwise on CCM PDUs.
SDK-55631	758623	`88650_B1`	It is now possible to assign ports with a vlan translation port property, and create IP tunnel terminators that use `{SIP,DIP,Next_protocol,Port_prop erty}` as key for tunnel termination. To activate this mode, use soc property: `bcm886xx_ip4_tunnel_termination_ mode=` 4 or 5 For an example, see `cint_ip_tunnel_term.c,` call `ipv4_tunnel_term_next_protocol_e xample` with `use_port_property=1.`
SDK-55632		`88650_B1`	In FLP program selection initialization, some program IDs may have been overridden due to static program ID allocation that followed dynamic program ID allocation. For example, there were conflicts between FCoE and MAC-in-MAC FLP programs. All dynamic allocation of program IDs is now after static allocation, so that no program ID override can be caused. Note that if ISSU is performed, the fix will not apply.
SDK-55639		`56850_A2`	In earlier releases, nexthop and ecmp reference count were not decreased when replacing vxlan port. This has been resolved.
SDK-55654	754909	`56850_A0 56850_A1 56850_A2`	Fixed DMA abort sequence in KNET Linux kernel module.
SDK-55663	760051	`88650_A0`	When remove member port of trunk group using `bcm_trunk_member_delete(),` the `egq_dsp_ptr_map_tbl` was not restored. This problem was fixed. When deleting lag member the driver may change the existing lag member id's, the driver will update relevant device modules: SRC system ports, `egq_dsp_ptr_map...` The new lag member id's can be retrieve using lag get operation.
SDK-55681		`56850_A2`	In the previous release, assertion happened when `bcm_cosq_port_mapping_set` was called in ETS mode.In this release, this issue has been addressed by configuring a correct field of `COS_MAPm` and modifying the queue mode of HG ports to the value of zero.
SDK-55691		`88650_B1`	In L3, when calling the API function `bcm_l3_host_add(),` a lock may have been taken but not released in some cases. The lock is always released now before exiting the function.
SDK-55710		`88650_A0 88650_B0 88660_A0`	OAM: Deleting a MEP with RX configurations only (gport field in `endpoint_create` api is `BCM_GPORT_INVALID)` was failing.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55712 SDK-55535		`88650_A0 88660_A0`	Add the option to Use Dram saved config Parameters, and in case there are no Parameters to Perform Shmoo on init. Set this option as Default. # 2 = Use Dram saved config Parameters, if no Parameters Perform Shmoo on init. Default option. # 1 = Perform Shmoo on init. # 0 = Use Dram saved config Parameters, if no Parameters do nothing. `ddr3_auto_tune.BCM88650=2` Also, as default Load DRAM tuning properties from local File (`/home/negev/ bcm88650_dram_tune.soc)`. RcLoad will not fail if file not found.
SDK-55713		`88650_B0 88650_B1 88660_A0`	Broad Sync API: implemented all missing `bcm_time_*` APIs.
SDK-55719		`88650_A0 88650_B0 88660_A0`	OAM: api `bcm_oam_endpoint_get` returns incorrect flags in field flags2.
SDK-55720		`88650_A0 88660_A0`	In Ingress Field Processor, when using TM programs per port profile (soc property `post_headers_size` is set), the program selection shuffle algorithm resets lines of Ethernet programs due to incorrect range calculation. This is fixed.
SDK-55727		`88650_A0 88650_B0 88660_A0`	OAM: Mac-In-Mac OAM packet identification causes non-oam packets to be trapped to OAM engine.
SDK-55730		`56850_A0 56850_A1 56850_A2`	In the previous release, `bcm_td_cosq_gport_detach` intermittently returned `BCM_E_RESOURCE` incorrectly when the schedule nodes were not used up. In this release, this issue has been addressed by releasing the schedulers which are used by legacy setup once ETS mode is enabled.
SDK-55766		`56640_A0`	Currently, Policers in cascade mode are mapped based on dot1P priorities of the incoming packet. Two new policer group modes are added : bcmPolicerGroupModeIntPriCascade and bcmPolicerGroupModeIntPriCascadeWithCoupling which map the incoming packets to policers based on internal priority. Policers work in cascade mode where bandwidth flows from higher priority to lower priority.
SDK-55770	762574	`56850_A0`	In previous releases, if multi-thread user accessed L3 memory with different view (i.e., `L3_ENTRY_IPV4_UNICAST, L3_ENTRY_IPV4_MULTICAST),` the physical memory could be corrupted because different view of same physical memory was using different LOCK, and the entry movement between banks could happen with invalid LOCK protection. In this release, different views of same physical memory are pointed to same LOCK, so the protection is effective.
SDK-55793	757103	`88650_A0 88650_B0 88660_A0`	VPLS: Enabled modification of working Incoming-PWE configuration under traffic by first creating new instance (the traffic will be moved to the new instance), then deleting the old entries using `bcm_mpls_port_delete().` Example can be found in `cint_vswitch_vpls.c` when `make_before_break` field is set to 1.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55803 SDK-55946		88660_A0	When using `bcm_port_control_set` with the control bcmPortControlEgressModifyDscp, an inlif profile is expected in the port argument.
			An issue was found when one of the ports 0-16 is disabled. In this case when using an inlif profile with the same number as a disabled port, the API will produce an error, even though the argument is valid.
			This is now fixed.
SDK-55818	761770	56334_B0 56334_A0	In the previous release, SDK delete old next hop entry before new entry was installed when invoking the `bcm_mpls_port_add` API with `BCM_MPLS_PORT_REPLACE` flag asserted. In this release, this has been changed to delete old entry after new entry is installed.
SDK-55822		88650_A0	LUT ROP transcations was failing when using LE CPU. Fix LUT ROP access endianess Also improve KBP code by: Add `NULL` checks at XPT layer. Add `ARAD_KBP_ROP_DEBUG_PRINTS` define around prints to Improve access time.
SDK-55825		88650_A0 88650_B0	IMPORTANT: In Rx parsing the `src_gport` and `dst_gport` interpretation and values were switched.
			Before, due to a bug, the `dst_gport` had the same interpretation as `src_gport`. From now on, the `src_gport` is the Source-Port where the packet enters the device and `dst_gport` is where the packet exits the device.
SDK-55830	763499	88650_B0 88650_B1 88660_A0	Trill Ingress learning: For TRILL egress MC RBridge, it learns according to the native SA and VSI. The original instruction which is used to learn native SA is incorrect for ingress learning. It caused ARAD to learn a random SA. The correct SA can be learned after fixing the instruction of lookup native SA.
SDK-55831	762481	56340_A0 56344_A0 56342_A0 56342M_A0 56340M_A0	Helix4/Triumph3 supports SW based aging and when age interval was modified, the new value did not take effect immediately. Code changes have been added to notify the SW Aging thread when age interval is updated, to take immediate effect.
SDK-55850		56846_A0	Support has been added for HG[11] and force cl72 on TD+.
SDK-55857		88650_A0 88650_B0 88650_B1	IMPORTANT: the interpretation (and value) of `pkt->pkt_len` has been changed.
			In Packet parsing, 2 fields in `bcm_pkt_t` are referring to the packet length: 1. The `tot_len` (total length) field is unchanged, and corresponds to the packet length as received 2. The `pkt_len` field is changed to correspond to the packet length without the internal headers (i.e. system header size as FTMH, PPH, etc.). The previous value of `pkt_len` was equal to `tot_len`.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55859	758730	`56640_A0`	Two issues are resolved as a part of this JIRA. Here is the description: Issue 1. When a port gets the link up notification and also a remote fault is detected on the port, the port remains down and the `linkup_bitmap` and `fault_bitmap` for the port are set. After this state if the port is removed from the SW linkscan mode (the `fault_bitmap` is cleared) and if a link up notification occurred after adding the port back to SW linkscan. The function returns without setting the link status (as `linkup_bitmap` is already set to up) and it causes the SW link status for the port in down status. Solution- While clearing the `fault_bit` map, also clear the `link_bitmap.` So that when the linkscan for the port is enabled, it updates the state in the next iteration as per the new link status. Issue 2: When `bcm_port_enable_set` is getting called even before the LS thread is updated its bitmap ,so when `bcm_port_enable_set` calls `_bcm_tr3_ibod_sync_recovery_port` it takes the snap shot of port mode ,which comes to `"BCM_LINKSCAN_MODE_NONE"` so later on at the end of the function when it update the port mode it removes it from LS ,that where we see some times port is not part of linkscan . Solution- For this particular scenario, while restore the linkscan mode after the ibod WAR, retrieve the current linkscan mode and comparing it with the mode it got set before ibod WAR `(BCM_LINKSCAN_MODE_NONE),` if it is not same, the linkscan mode is not restored.
SDK-55882		`88650_A0`	In Warmboot module, some fixes are inserted to prevent some uncatched `wb_engine` setget timing issue (in ipmc module on 6.3 branch). Besides, the error mechanism in `wb_engine` is changed to raise assertions when uninitialized SW database is accessed.
SDK-55889	762107	`88650_B1 88660_A0`	In Field Processor, when creating Direct Extraction field group, only one (1) qualifier is allowed to be used as filter qualifier per entry. When calling `bcm_field_qualify_data()` for an entry, and then calling `bcm_field_qualify_xxx()` the operation succeeds when an error should be produced. This is fixed.
SDK-55902		`56640_A0 56641_A0` `56642_A0 56643_A0` `56644_A0 56645_A0` `56648_A0 56340_A0` `56640_A1 56643_A1` `56640_B0 56644_B0` `56643_B0 56648_B0` `56649_B0 56649_A0` `56344_A0 56342_A0` `56342M_A0 56340M_A0`	Problem: When REGEX feature is enabled, compilation of SDK for linux kernel mode fails. This is because of inclusion of ctype.h file, which is not available directly. Solution: Removed the inclusion of ctype.h. Also re-define the logic in the function isprint() as a new function local to the file, since isprint() is dependent on ctype.h. Affected platforms: All platforms where REGEX is supported.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6

SDK-55903		`56640_A0 56641_A0`
		`56642_A0 56643_A0`
		`56644_A0 56645_A0`
		`56648_A0 56340_A0`
		`56640_A1 56643_A1`
		`56640_B0 56644_B0`
		`56643_B0 56648_B0`
		`56649_B0 56649_A0`
		`56344_A0 56342_A0`
		`56342M_A0 56340M_A0`
			Problem: When REGEX feature is enabled, the compilation of SDK in Linux Kernel mode fails because of variable declarations mixed up with code. Solution: Moved the variable declarations to the beginning of the function and removed some dead code to get the compilation working. Affected Platforms: All platforms where REGEX is supported.

SDK-55913	763695	`88650_B1 88660_A0`	OAM may be initialized without setting any of the `counter_engine_source_{0,1,2,3}` soc properties to `EGRESS/INGRESS_OAM.` Notice that in this case LM functionality is not supported.
SDK-55921	764681	`56850_A0`	In earlier releases, nexthop and ecmp reference count were not decreased when replacing vxlan port. This has been resolved.
SDK-55945		`88650_A0 88650_B0` `88660_A0`	Allocation manager malfunction was fixed in OAM and L3 applications. The bug was in allocating new profile resources (oam endpoint new actions, ttl scope) instead of existing profile.
SDK-55956	764773	`88660_A0`	In trap module, the `bcm_l2_cache_set` API is used to configure Reserve-Multicast and Programmable traps. This API returns an index, which can be used to delete the trap with `bcm_l2_cache_delete.` Due to a SW bug, `bcm_l2_cache_delete` was allocating another trap instead of deleting the allocated one. This is fixed. Besides, `bcm_l2_cache_get` was returning incorrectly the EtherType (and its mask) parameters. This is fixed.
SDK-55964	742713	`88650_B0 88650_B1` `88660_A0`	VLAN-Port Protection: Replace functionality of 1:1 protected VLAN Port to update `failover_id` is now available
SDK-55966	764874	`88650_B0 88650_B1`	OAM: When calling `bcm_oam_action_set()` in 88650 when more than one MEP/MIP exist, the function may fail.
SDK-55967	755351	`88650_B0 88650_B1` `88660_A0`	OAM/BFD: When calling `bcm_bfd_init()` after `bcm_oam_init(),` not all BFD functionalities were properly initialized. Analogously when calling `bcm_oam_init()` after `bcm_bfd_init().`
SDK-55968	756702	`88660_A0`	OAM: configuring correct counter pointer for accelerated loss management, as well as correctly stamping counters on CCM based LM.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-55970		56440_A0	The parity protection on TCAM tables is implemented via SER engine and a SRAM table that is utilized to store parity bits of TCAM entries. Only enabling SER engine for the new-added `L3_DEFIP` table but not clearing its corresponding SRAM portion will leave the parity bits of `L3_DEFIP` table in an uninitialized state with random values. if the table is dumped, SER engine will check entry parity bits of table entries, this will trigger many parity errors reported. Besides adding `L3_DEFIP` table into SER engine protection list, memory clear operation for `L3_DEFIP` has also been added to initialize the parity bits of `L3_DEFIP` table into correct values.
SDK-55974		88650_A0 88650_B0 88650_B1	When using external TCAM, the access ROP mechanism was substantially improved. The following new compilation flags are available: `ARAD_KBP_ROP_OPTIMIZATION` - enable ROP performance optimization. `ARAD_KBP_DISABLE_IHB_LOOKUP_REPLY_FOR_ROP_TRANSMIT` - enable ROP optimization without reading the IHB reply registers. `ARAD_KBP_ROP_TIME_MEASUREMENTS`, `ARAD_PP_KBP_TIME_MEASUREMENTS` - enable time measurements.
SDK-56013	765696	56850_A2	Fixed `tunnel_initiator_delete` followed by `tunnel_initiator_create.` In previous releases, this case could results in an abort of the SDK.
SDK-56022		56850_A0 56850_A1 56850_A2	In the previous release, `bcm_vxlan_port_delete` returned `BCM_E_NOT_FOUND` for default VPN associated NW port. The problem was caused by the flex-counter detachment on VFI table. Originally the detachment was implemented in the deletion of VxLAN logical port and thus the operation on VFI table was executed repeatedly when deleting many logical ports in the same VFI. In this release this issue has been fixed by moving the operation to the VPN destroy.
SDK-56033	765288	56850_A0	Problem: Multiple Mirror Ingress actions were not removed during `bcm_field_action_remove_all` because during the action remove routine, we removed first MirrorIngress action and then returned without further processing the remaining actions Solution: Updated code to loop through all the actions [in case of similar group of actions] to remove each one of them in action remove routine.
SDK-56053		88650_B1 88660_A0	IP Tunnel CINT: In a GRE termination example in `cint_ip_tunnel_term.c,` a tunnel configuration was changed to use the correct GRE enum type.
SDK-56058	766252	56850_A2	Fixed specific sequence of (SIP, multi-DIP)-add followed by delete and then add of `vxlan_tunnel_initiators.`

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-56068	765431	`56640_A0` `56640_A1` `56640_B0`	In the previous release there was an issue reported where TR3 semlock was out of order when creating 2 OAM sessions with same vlan/port, different level. This issue of memory locks not being released in failure case in OAM code for `OAM_OPCODE_CONTROL_PROFILEm` and `ING_SERVICE_PRI_MAPm` has been fixed.
SDK-56069		`56340_A0`	while merging the ranges of TCP and UDP, on range not equal pointer index should increment. In this case no increment is done which leads to infinite loop on the same pointer. Fixed the indexing increment on no range match.
SDK-56071		`88650_B0` `88650_B1` `88660_A0`	OAM: For UP-MEPs, all OAM frames trapped to the FPGA/CPU will be prepended with one set of internal headers, specifically an FTMH, PPH and a FHEI, with the OAM-ID on the FHEI. Formerly some frames included two sets of internal headers.
SDK-56100	751146	`56450_B0` `56450_A0`	Support has been added for APIs `bcm_port_timesync_config_set()` and `bcm_port_timesync_config_get()` for BCM5645x devices.
SDK-56108	762032	`88660_A0`	OAM: Enable creating accelerated MPLS OAM endpoint after Ethernet endpoint
SDK-56123	753886	`56243_B0` `56240_B0` `56243_A0` `56242_A0` `56242_B0`	Enabled OAM endpoint addition and deletion multiple times without any error
SDK-56189		`88650_B0` `88660_A0`	Required changes in SDK in order to support KBP-SDK 1.2.3 and higher. The changes include configuration of a newly used instruction and its transport layer implementation.
SDK-56190	767623	`56850_A0` `56850_A1` `56850_A2`	In previous release, `bcm_l3_route_add` API may returned `Not_Found` if with an IPv6 `VRF_GLOBAL` route entry in ALPM mode even if ALPM memory table had enough space. In this release, it can be added successfully.
SDK-56195		`56850_A0` `56850_A1` `56850_A2`	In the previous release, PORT table LOCK would not be released if gport validation failed when operating PORT table. In this release, PORT table LOCK will be successfully released if gport validation fails when operating PORT table.
SDK-56199		`88660_A0`	OAM: when calling `bcm_oam_loss_get()` the near/far fields returned were mixed up.
SDK-56249		`88650_B0`	Egress shaper for ILKN interfaces don't work properly, causing unexpected behavior(wrong rates). The shaping for ILKN interface is set using: `bcm_cosq_gport_handle_get(0,bcmCosqGportTypeLocalPort,gport_info);` Fixed!
SDK-56254	765972	`88650_A0` `88650_B0` `88650_B1`	OAM: when creating a MIP and calling `bcm_oam_action_set()` for that MIP, the profile was handled incorrectly and might have caused packet drop. This issue was fixed and resources are properly managed and freed.
SDK-56295		`88650_A0` `88650_B0` `88660_A0`	BFD accelerated endpoint that is handled in remote gport - SW DB is not restored correctly after WB.
SDK-56352		`88660_A0`	Fixed ECN (Explicit Congestion Notification) to work correctly in 88660

Table 48:

Number	CSP #	Chips		Release Notes For 6.3.6
SDK-56353 SDK-56332	768573	`88650_A0` `88660_A0`	`88650_B0`	In Policer rate computation function, the exponent and mantissa configuration was fixed in case the required value is too small.
				When allocating a meter with a very low rate (for instance when using `bcm_policer_config_t.max_pkbits_ sec` = 128), the driver produces an error, even though this is a valid rate. This is now fixed.
SDK-56387	769040	`56450_B0`	`56450_A0`	Support has been added for IFP qualifier bcmFieldQualifyRouterAlertLabelValid for BCM5645x devices.
SDK-56425	767797	`88650_A0`	`88660_A0`	SER interrupts were not signaled to CPU and not counted, due to being masked by a set of override bits called monitor bits. This was fixed to allow proper logging and handling of SER interrupt events by the SDK.
SDK-56441		`88650_A0`	`88660_A0`	During Warmboot in vswitch module, the VSI MSTP was always restored, even if it was cleared before the warmboot. This restoration is skipped upon Warmboot.
SDK-56451		`88650_B0`	`88660_A0`	Required changes in SDK in order to support KBP-SDK 1.2.3 for external TCAM are introduced.
SDK-56476		`88650_A0`	`88660_A0`	In Field Processor's diagnostics, in case field groups were created however no entry was inserted, an error is produced when calculating the number of entries from an empty bitmap. This is fixed.
SDK-56498 SDK-56689		`88650_A0`		- Dynamic tables should not be written. Some ECC/parity interrupts chose to write to the corrupted memory as a corrective action. These action is not valid when the memory is dynamic and should be skipped.
SDK-59954		`88650_A0` `88650_B0`	`88660_A0`	De-allocation of scheduling elements fixes: 1. Non-composite HR SE couldn't be deleted. 2. FQ SE might deallocate from the wrong range, when range `odd_even=1.`

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-60222 SDK-60187		`88650_A0 88650_B0 88660_A0`	added memory array caching: Some memories have multiple instances within a single block in the device. Internally, the SDK organizes such tables into arrays, so that each instance of a table can be accessed using an instance-id. The caching mechanism did not support caching of memory-arrays. Customer impact: Normally, memories can be cached to DRAM as part of soft-error (SER) protection mechanism, or in order to improve driver runtime performance. For memory arrays, caching was not available. For parity-protected configuration memories, caching is used to recover from a soft-error. As a result of this addition, memory arrays can now also be protected by this mechanism. list of relevant memories: `EPNI_EEDB_BANK EPNI_DATA_FORMAT EPNI_LFEM_FIELD_SELECT_MAP IDR_MCDA_PRFSEL IDR_MCDB_PRFSEL IHB_FEM_BIT_SELECT IHB_FEM_MAP_INDEX_TABLE IHB_FEC_ENTRY IHB_TCAM_ACTION IHP_PARSER_PROGRAM IHP_VLAN_PORT_MEMBERSHIP_TABLE IHP_LIF_TABLE` note for 6.3 branch: the list of cached tables is not filled by the fix in this JIRA, and will be filled soon.
SDK-60225		`88650_A0`	Reference only: Parity memories are added to the reference shadow list in order to be cached by default.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-60394		`88650_A0`	Credit scheduler memories are added to the reference-application cache list. Memories can be cached to DRAM as part of soft-error (SER) protection mechanism, or in order to improve driver runtime performance. Upon initialization, caching mechanism usually uses Table DMA to synchronize the HW with the shadowed memory cache. Since the standard table DMA mechanism is not applicable to scheduler tables, initialization for these tables uses non-DMA access. An alternative mechanism is currently being analyzed, and might be available in the future, to improve performance when caching these memories. For parity-protected configuration memories, caching is used to recover from a soft-error. Due to this fix, the following credit scheduler memories added to the cache list and can be protected by this mechanism: a. list of relevant memories: `SCH_CIR_SHAPERS_STATIC_TABEL__CSST` `SCH_CL_SCHEDULERS_CONFIGURATION__SCC` `SCH_CL_SCHEDULERS_TYPE__SCT` `SCH_DEVICE_RATE_MEMORY__DRM` `SCH_DUAL_SHAPER_MEMORY__DSM` `SCH_FLOW_DESCRIPTOR_MEMORY_STATIC__FDMS` `SCH_FLOW_GROUP_MEMORY__FGM` `SCH_FLOW_SUB_FLOW__FSF` `SCH_FLOW_TO_FIP_MAPPING__FFM` `SCH_FLOW_TO_QUEUE_MAPPING__FQM` `SCH_HR_SCHEDULER_CONFIGURATION__SHC` `SCH_PIR_SHAPERS_STATIC_TABEL__PSST` `SCH_PORT_SCHEDULER_WEIGHTS__PSW` `SCH_SCHEDULER_CREDIT_GENERATION_CALENDAR__CAL` `SCH_SCHEDULER_ENABLE_MEMORY__SEM`
SDK-60486	817588	`88650_B1 88660_A0`	Reference code: BCM sdk enables some interrupts at the reference code for monitoring and corrective action performance. This fix adds some interrupt to this list in order to enable the monitoring and corrective action: `ARAD_INT_EGQ_DBFECC_1BERRINT,//monitoring` `ARAD_INT_EGQ_DBFECC_2BERRINT,//monitoring` `ARAD_INT_EGQ_PARITYERRINT,//` This interrupt indicates on parity error fault at EGQ parity protected memories. Enabling this interrupt makes parity error corrective action for these memories possible.

Table 48:

Number	CSP #	Chips	Release Notes For 6.3.6
SDK-60958		`88650_B1 88660_A0`	Corrective action for IPS QDESC parity error: A parity error in the IPS QDESC dynamic memory, corresponding to an unused VoQ, while credit watchdog range includes this unused VoQ, would cause a parity interrupt that is never fixed. Eventually the interrupt handler would detect interrupt storm and mask IPS parity interrupts. This fix recovers for a SER on unused VoQ by writing (zero-value) to the corrupted entry. Please note that for entries corrsponding to active VoQ, SER condition is resolved once the ASIC updates the appropriate entry (no change from current behavior for active VoQs)
SDK-61180		`88650_A0`	`88650_a0` MMU ECC false alarm: MMU ECC mechanism causes false alarm at `88650_a0` chip. This is why it is disabled in our reference code. The problem do not exist for other chips.
SDK-61823		`88650_A0`	Upon SER event, the driver collects information identifying the affected table entry. This information was not sampled correctly for IQM Parity-protected tables, and for OLP ECC-protected tables. As a result, prior to this fix parity errors in any IQM table, as well as ECC errors in any OLP table, were not handled by the appropriate corrective-action. However, the SER event detection and reporting functioned properly.

Section 19: Resolved Issues for 6.3.5

The following issues are resolved in version 6.3.5 of the SDK.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-41357	469082	`56842_A0`	There is an issue with the h/w logic related to the parity generation and checking for the `PORT_CBL_TABLE` memory. In this release occasional spurious reports of a parity error in `PORT_CBL_TABLE` has been fixed.
SDK-41598		`88750_A0` `88650_A0` `88640_A0`	Replace of all the "TODO err message" debug message by meaningful messages
SDK-42031		`88650_A0`	Error indication was added to prevent AC P2P to PWE or to Mac-In-Mac inner vlan editing (VID-2 in LIF table) which is not supported by HW.
SDK-42987	580192	`56850_A0`	Legacy method to add route entries to LPM table may trigger re-shuffling logic which could lead to massive HW entry movement. In the worst case, the memory read operation times of LPM tables could be very high and eventually cause bad route convergence time. A request was received to reduce the totaled time costs for bulk route add operation. This was achieved by enabling soc memory cache for route add/delete operation to reduce memory read time costs. Can be turned on/off by switch control bcmSwitchL3RouteCache. Read HIT* bits could be wrong during caching time.
SDK-44506	593957	`56842_A0`	Added a new soc property `(L3_DISABLE_ADD_TO_ARL)` to restrict applications to create L2 interface entry and L3 interface entry separately. SDK uses this property to recover the association between L2 entries and L3 entries during warmboot. Currently, during warmboot, SDK associates L3 entries with L2 entries assuming that they were created with `BCM_L3_ADD_TO_ARL` flag during `l3_intf_create`. Later, when L3 interface is deleted, SDK deletes the L2 entry also.
SDK-45246		`56840_A0`	Implemented "bcmFieldActionL3ChangeMacDa" and "bcmFieldActionL3ChangeVlan" actions for TD2 device,TR3 and KATANAx devices. The actions expect the egress-object (l3 next hop index) which should be already created by L3 module and the ID should not be associated with any other modules. The actions are to replace the destination MAC and VLAN on the matched incoming packet with the MAC and VLAN associated with the given next hop index.

SDK 6.3.10 Release Notes

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-46635	625709	`56640_A0 56640_A1 56640_B0`	Added a new SOC property `"ext_tcam_request_response_latency"` and a new "tcam latency" bcm shell command for TR3 with external TCAM. Customers can execute the bcm command to calculate the latency and then specify the SOC property using the latency value in config file.
SDK-46641	633505	`88650_A0 88650_B0`	When running 802.3 llc packets, the ethertype field is used as length. There was a bug that if the length was set to 0, the packet would have been parsed as a trill packet.
SDK-47155	620527	`56440_A0`	In previous release, is, the `egress_tunnel_if` was only returned if the flag `BCM_MPLS_PORT_NETWORK` was set - which was incorrect because it should be set as well if `BCM_MPLS_PORT_EGRESS_TUNNEL` is used. In this release the following has been updated: retrieving `mpls_port->egress_tunnel_if` no longer depends on `network_port_flag`. We now check the `egr_l3_next_hop` entry type, if it is MPLS type, then we now set the `BCM_MPLS_PORT_EGRESS_TUNNEL` flag and retrieve the `egress_tunnel_if`.
SDK-47170	641741	`56440_A0`	During warmboot the SDK does not distinguish if the replication is on nexthop or L3 interface. This causes a warmboot failure when the replication is on nexthop. Fixed the warmboot logic to identify if the replication is on nexthop or L3 interface as per the configuration in HW replication table.
SDK-47983	661534	`56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2`	New cosq type bcmCosqControlEgressPortPoolYellowLimitBytes / bcmCosqControlEgressPortPoolRedLimitBytes have been added for configuring yellow/red limits. Added one service pool type bcmCosqServicePoolPortColorAware and `bcm_cosq_service_pool_set/get` APIs for per port per service pool color aware enable.
SDK-48404	654018	`56845_B0`	For BCM56845m `phy_wc40_ability_remote_get` was unable to get the correct ability when the link partner did not enable CL73. Corrected the ability to obtain remote ability when the link partner doesn't enable CL73 on TD+/WC40.
SDK-49202		`56640_A0 56640_A1 56640_B0`	SOC properties `ext_tcam_tx_driver_current, ext_tcam_tx_postcursor_tap, ext_tcam_tx_main_tap` have been added to describe `driver_current,` postcursor tap and main tap for NL11K serdes TX direction parameters, and SOC property `ext_tcam_rx_gain` has been added to describe RX gain for Serdes RX direction parameter.
SDK-49205		`56640_A0 56640_A1 56640_B0`	Support for ESM interrupt was added in CMIC level interrupt handler. Once the ESM fatal errors are detected, the new-implemented "esm recovery" thread will be woken to restore ESM.

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Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-49543	663298	`88650_A0` `88650_B0` `88660_A0`	Fixed ARAD ports Leds in Negev chassis (updated the Led microprocessor program to match recent changes in $SDK software)
SDK-49694		`56640_B0` `56850_A1` `56850_A2`	Please use `lpm_scaling_enable=1` in config to have the ability to add 64bv6 entries in paired tcam. When this config is enabled, V4,64B V6 entries can be added in the unreserved paired tcam. If `lpm_ipv6_128b_reserved=0,` then no tcam space is reserved for 128B V6 entries and complete paired TCAM can be used for 128BV6, V4, and 64B V6 entries. Please note that each entry of 64B V6 entry in the paired TCAM uses 2 indexes of `L3_DEFIP` view where as in unpaired TCAM ,it uses only 1 entry
SDK-50064	687256	`56643_B0`	MCSPRI was programmed with offset of 1024. The bit length of register MCSPRI is sufficient for absolute index and no offset is required. Fixed in by writing the actual index in the registry with no offset.
SDK-50431		`88660_A0`	ERSPAN on XGS MAC extender system is now supported
SDK-50530		`88650_A0` `88660_A0`	When setting FabricMC using Egress+Ingress MC, the OUTLIF in `IRR_MCDB` must be - '0'
SDK-50591		`88650_A0` `88650_B0` `88660_A0`	TRILL: For TRILL UC and MC egress RBridges, trill packets are classified to inLIFs whose IDs are always 0 by PORT VLAN Domain X Outer VLAN. A problem occurs when doing same interface filter. The inLIF ID and outLIF ID of trill packets of UC and MC egress RBridges are all 0. Packets are all dropped even in case it shouldn't be. A new program is added to classified trill packets into valid inLIF IDs. It's enabled by adding a soc property `"custom_feature_trill_designated_vlan_inlif_<port>=<lif_id>"`. Once feature is enabled, soc properties should be enabled for all TRILL ports.
SDK-50756		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Added new diagnostics to display voq/vsq programmable counters: diag counter voq/vsq Queue=x (Interval=y) diag counter voq Basequeue=x (Interval=y)
SDK-50759		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Added new diag "diag cosq voq id=<id> detail=1" to print given VOQ's attributes.
SDK-50899	634474	`56845_B0`	Updated Documentation for WRED Flags
SDK-51039		`56340_A0`	In an earlier release the `source_trunk_map` was not correctly programmed for the "print `bcm_port_control_set(0,port,bcmPortControlRegex, TRUE);`" call . The index calculated to program the `source_trunk_map` should be based on the `source_trunk_map_modbase` base index value however this was not happening correctly. Corrected code to use the trunk index instead of the local port number.
SDK-51048	700857	`56850_A0` `56850_A1` `56850_A2`	`PFM_RULE_APPLY` field in `IGMP_MLD_PKT_CONTROL` register cannot be controlled in previous release. Added support for controlling this bit by pkt protocol control approach.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-51170		`88660_A0`	OAM: Support RDI generation method. Generation method is configured through the `bcm_oam_endpoint_create` api with the following flags2: `BCM_OAM_ENDPOINT2_RDI_FROM_RX_DISABLE` /* RDI bit on outgoing packets may be taken from RDI indication on received packets. */ `BCM_OAM_ENDPOINT2_RDI_FROM_LOC_DISABLE` /* RDI bit on outgoing packets may be taken from LOC indication of peer endpoint. */
SDK-51292	708102	`56640_A0`	The HG capable dynamic ports Indexing offset was not accounted for on the SC/QM queues which led to wrong indexing for the dynamic ports.This has been fixed in the offset.
SDK-51360	692893	`56840_A0`	When any module in SDK uses new stat APIs, the running STAT version changes from LEGACY to NEW. Currently VLAN Field Processor implementation works only with old stat APIs for older devices where advanced flex counters are not available. Hence, required support is added in VLAN Field Processor implementation to use new stat APIs for older devices that switched to NEW stat version.
SDK-51368	707551	`56830_A1` `56830_A0` `56830_A2`	BCM56830 is considered as a switch instead of a fabric and attached with proper drivers. SDK implementation has been corrected based on this determination
SDK-51494		`88650_B0`	Fix `cint_mpls_lsr.c` function `mpls_add_php_entry`. next protocol flag was overwritten by `BCM_MPLS_SWITCH_TTL_DECREMENT` flag.
SDK-51617	710438	`56450_A0`	Issue was happening due to incorrect buffer length calculation. Function `_soc_mem_array_sbusdma_write()` is modified to use `chunk_entries` to write buffer with correct length.
SDK-51625		`88650_A0` `88650_B0` `88650_B1`	For debug reasons, an HW register is used to store the SW version used at init, and during ISSU.
SDK-51658		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Support the following APIs to replace properties without replacing Out-LIF discard indication: 1. `bcm_l3_egress_create` 2. `bcm_mirror_destination_tunnel_create`. 3 `bcm_mpls_tunnel_initiator_create`. 4. `bcm_tunnel_initiator_create`.
SDK-51707	715469	All	Optimized the ipmc performance if change 32K ipmc group from one ipmc index to another.
SDK-51810		`88650_B1` `88660_A0`	Fixed three errors related to `bcm_vlan_port_find:` 1. When calling the API on an unprotected port, the `failover_port_id` field will be 1 instead of 0. 2. Any information related to 1+1 protection `(ingress_failover_id, failover_port_id)` was not filled when calling the API. `ingress_failvoer_id` and `failover_port_id` will now be filled when calling the API. 3. Added missing validations to function parameters.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-51881	702602	`56640_B0 56850_A2`	Vlan Service queuing bugs addressed. 1. `gport_attach/detach` to take care of internally attaching the given number of Queues during add. 2. Queue alignment of Vlan queuing changed to 1(no alignment required).
SDK-51906	699612	`56450_A0`	Due to flex operation issue on Cfg#12 with TDM-A2, used TDM-A3. Also corrected total slots required for TDM-A3 and removed one warning wrong comment.
SDK-51997		`88660_A0`	In BCM88660, in Field Processor, a new feature for field comparison is added.
			In HW, the comparison is performed on Key D in the second cycle of the PMF. It compares the two halves of the key (80 LSB bits and 80 MSB bits) and writes the result to the 5 MSB bits of the key (bits 159:155). Each bit of the result indicates a match of 20 bits, such that the 4 LSB bits correspond to 20 bits of the key, and the 5th MSB bit indicates match of the full key (80 bits).
			HW limitation: In order to act upon match the field group in the MSB must be Direct Extraction, and the 32 bit key is taken from the MSB bits (159:128). Direct extraction can filter up to 4 bits, thus only the 4 LSB bits of the compare result are used (it covers the full key).
			In SW, the sequence to enable the new compare feature is as follows: 1. Add a field group (max 80 bits each) with `bcm_field_group_config_create()` and set `BCM_FIELD_GROUP_CREATE_IS_EQUAL` flag in group. This field group will use 80 LSB bits of the key. 2. Add another field group (mode = Direct Extraction) using `bcm_field_group_config_create()` and set `BCM_FIELD_GROUP_CREATE_IS_EQUAL` flag in group. This Field Group must also add the qualifier bcmFieldQualifyIsEqualValue to its QSET. This field group will use 80 MSB bits of the key. * bcmFieldQualifyIsEqualValue qualifier is not properly part of the key (no HW instructions are allocated for it). It indicates that this key is written with the compare result. * The max size of this Field Group is 80 bits (although it is a Direct Extraction Field group, limited to 32 bits in general). The comparison is performed on the entire 80 bits and the Direct Extraction key is taken from the 32 MSB bits. * Note: the 5 MSB bits are overridden by compare result.
			The compare can be used in parallel to bcmFieldQualifyCascadedKeyValue qualifier.
			A new cint is added for example: `cint_field_dir_ext_compare_result.c`

Table 49:

Number	CSP #	Chips		Release Notes For 6.3.5
SDK-52087	719039	`56850_A0`		A customer reported an issue with EPMC `Egress_set` performance. `egress_set` on 1000 IPMC index taking 20 seconds on 3 instances, That was happening because `bcm_XXX_ipmc_egress_intf_set` used the total interface number(max to 48K in some chips) to calculate the hash value for each port and cause the performance problem. In this release IPMC `Egresss_set` performance has been improved to take approximately half the time originally reported by reducing the total interface number to calculate and using accelerated method for `MY_STATION_TCAM` memory field access.
SDK-52216	711504	`56846_A0` `56845_A2` `56842_A0` `56820_A0` `56800_A0` `56745_A0` `56743_A0` `56725_A0` `56700_A0` `56685_B0`	`56845_B0` `56844_A0` `56840_A0` `56820_B0` `56746_A0` `56744_A0` `56740_A0` `56720_A0` `56689_B0` `56685_A0`	A request was made to add the ability to override "protocol" field in SKB before pushing packet into network stack. the following fields were added in the packet filter structure to support this request. : `int dest_proto;` /* If non-zero this value overrides the default protocol type when matching packet is passed to network stack. */ `int mirror_proto;` /* If non-zero this value overrides the default protocol type when matching packet is passed to network stack. */ add corresponding fields in packet filter structure to configure the desired protocol type.
SDK-52242		`56640_A0` `56642_A0` `56644_A0` `56648_A0` `56643_A1` `56640_B0` `56643_B0` `56649_B0`	`56641_A0` `56643_A0` `56645_A0` `56640_A1` `56644_A1` `56644_B0` `56648_B0` `56649_A0`	HW works with a single granularity value for both CIR and EIR, once the granularity value is fixed(CIR), the maximum value for EIR becomes limited. Hence the issue. On high rates (EIR > CIR) the granularity value is fixed to EIR.
SDK-52246	720771	`56450_A0`		The subtag packet can be multicasted/broadcasted to multiple CoE subports at a time from CPU by using switch logic (`pkt->tx_pbmp` along with flag `pkt->flags=BCM_TX_ETHER`). For this the user needs to create L2MC entry or a VLAN with the destination CoE subports as members. The packet would go through the IP-EP pipeline where the packet may be dropped by IP or EP depending on configuration. The suggestion is to send SOBMH packets from CPU, one by one to the CoE subports instead of using `pkt->tx_pbmp`.
SDK-52339	722376	`56850_A0` `56850_A2`	`56850_A1`	Two data error event flags were added. If a parity error is uncorrectable, the flag `SOC_SWITCH_EVENT_DATA_ERROR_UNCORRECTABLE` will be set when SDK reporting `SOC_SWITCH_EVENT_PARITY_ERROR` event to application. If a parity error is correctable, but the error correction fails, the flag `SOC_SWITCH_EVENT_DATA_ERROR_FAILEDTOCORRECT` will be set when SDK reporting `SOC_SWITCH_EVENT_PARITY_ERROR` event to application.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-52355		`56850_A0` `56850_A1` `56850_A2`	Support has been added for retry in mem insert and delete for hash tables. Inline hash memory recovery was implemented for insert and delete operations.When an insert/delete operation encounters a parity error, the inline recovery routine will be invoked. The inline recovery routine will calculate different hash buckets in different hash memory banks based on the entry that will be inserted/deleted, then restore the each bucket in these banks. For new-added hash key types in Trident2 hash tables, support for these key types in hash entry comparing routine has also been added.
SDK-52381	717920	`56850_A0`	In earlier releases, L3 Conflict Get, `bcm_td2_l3_conflict_get()` was broken. This has been resolved.
SDK-52443	705504	`88650_A0`	Case Summary: Traffic drops at ingress on a newly added LAG member, if it is the first member on the ARAD device after cross connection created. To avoid the problem, API support was added. Using the following function flags `bcm_trunk_member_add`,`bcm_trunk_member_delete` and `bcm_trunk_set` the user can update only egress or ingress tables. The user can update only egress tables, configure relevant port parameter and then update ingress port, with this sequence there will be no traffic drop.
SDK-52448	723913	`56450_A0`	HQOS support is added for UNI ports on Katana2
SDK-52458		`88650_B0` `88660_A0`	In L3 forwarding, when using external TCAM for forwarding tables, they were actually defined as ACL tables, resulting in a large software state and reduced efficiency in configuration. The forwarding tables in the external TCAM are now defined as LPM tables, reducing memory consumption and enhancing configuration periods. The API calling sequence remains identical.
SDK-52459		`88660_A0`	DEFAULT BEHAVIOR CHANGE (ARAD+ only). When using external TCAM for forwarding, RPF and forwarding searches were performed on duplicated databases. RPF and forwarding searches are now performed on a single database, using SIP and DIP respectively in search keys and resulting in increased (doubled) routing table capacity. Note that in case of IPv4/6 + RPF forwarding query, external ACL databases IDs are changed to 1 and 3. The actions sizes for ACL databases have also changed accordingly: The action size for ACL database 0 is 64 bits. The action size for ACL database 1 is 32 bits. The action size for ACL database 2 is 16 bits. The action size for ACL database 3 is 24 bits. All of the changes above apply only to ARAD+ devices. ARAD devices behavior remains unchanged.
SDK-52521	724174	`56850_A0`	In the previous release, in function `_soc_td2_alloc_sched()`, HQOS hierarchy was being assumed. If users did not use the same hierarchy as defined in `_td2_port_lls_config()`, issues would be seen. In this release, a LLS port doesn't clear other ports' hardware resource when `bcm_cosq_gport_add()` is called on Trident2 chips.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-52591	725728	`56450_A0`	Added support to enhance the number of child nodes per scheduler node in BCM56450. The restriction of maximum of 64 child nodes has been removed in cosq APIs.
SDK-52635	726506	`88650_A0`	After delete member from a trunk there may be a problem to use modport for the other trunk ports . This problem was solved.
SDK-52636		`88030_A0`	Added support for `4x10G_20x1G_1xHG` TDM with specific assignment of Warp Core to CLPORT & XTPORT
SDK-52734		`88650_A0` `88650_B0` `88660_A0`	Indication if the Warmboot is supported by the device added to avoid Warmboot errors in regression for a version where Warmboot mode is not compiled.
SDK-52805	728606	`88750_A0`	FE1600: added a extra sleep after soft init and before un-isoalte
SDK-52837	729120	`56840_A0` `56640_A0` `56440_A0` `56450_A0` `56850_A2`	Added new field `rx_decap_tunnel` to `bcm_pkt_t` structure. This field determines the type of outer tunnel decapsulation, if any, on the received packet.
SDK-52842		`56640_B0`	Added external field entry move support on TR3 to manage the field entry priorities appropriately.
SDK-52871 SDK-54669	729527	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1` `56851P_A1` `56851_A1` `56850_A2` `56851_A2` `56851P_A2` `56854_A2` `56853_A2` `56852_A2` `56855_A2` `56851_A0` `56852_A0` `56852_A1` `56853_A0` `56853_A1`	An issue was reported with `MY_STATION_TCAM` not being correctly programmed for the trunk-based TRILL ports . To address this, trunk relevant fields in `MY_STATION_TCAM` are now correctly programmed for the termination of TRILL packets.
SDK-52892	622534	`56846_A0`	In the previous release, `bcm_port_fault_get()` failed on 1G SFP. This has been resolved.
SDK-52895	729741	All	RPC has been enabled for the HASH bank APIs.
SDK-52896	716978	`56840_A0`	Support calculating non-unicast trunk hash destination for TD/TD+/TR3/TD2.
SDK-52965	730480	`56634_A0`	In the previous release there was no support for bcmCosqStatOutBytes and bcmCosqStatOutPackets stats in `bcm_cosq_stat_set` and `bcm_cosq_stat_get` for Triumph.This issue has now been addressed by adding the support for Triumph.
SDK-52970	730058	All	L2 `matched_traverse` used a loop to test availability of MOD FIFO, and if MOD FIFO became hung, the loop became endless and eventually caused MOD FIFO thread to become dead. Added a timeout to break out of the loop if MOD FIFO hangs.
SDK-53021	720668	`56850_A0`	Updated the documentation related to `BCM_PORT_CONGESTION_CONFIG_DESTMOD_FLOW_CONTROL`
SDK-53028		`56340_A0`	Added code to find valid port block in the given list of port blocks. Previously used macro was checking only the first block in the list. The fix iterates through the entire set of valid port blocks to find the corresponding port block.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53044		`56850_A0 56850_A1 56850_A2`	When processing ser fifo, if the block is IPIPE block, we will only set mask upon the pipe, and take the lock of accessing `sbs_control.` And unlock it before returning in this function.
SDK-53046		`88650_A0`	In Rx thread, when parsing the packet header, the parsing was supported only for little endian. Now big endianness is also supported.
SDK-53059	730593	`88650_A0`	VPLS: Add support in PWE2PWE. Example in `cint_vswitch_cross_connect_p2p_multi_device.c:` function "run" should be called with two PWE ports and type1=type2=2.
SDK-53067	730463	All	"rtag" field removed from `bcm_l2_addr .`
SDK-53070	688151	`56850_A2`	Two command options are added for the eye margin functional calls. The syntax example is phy diag xe0 veye lane=0xc `time_upper_bound=16` The "lane" option specifies which lane in a given port is enabled for the eye measurement. If the lane is not specified, the default is 0 which means all the lanes are enabled for the eye measurement in a given port. 0xC means lane 2 and lane 3 of the port is enabled. Each binary bit of the value represents a lane. The `"time_upper_bound"` is to specify the total max time limit for a given eye measurement node. Its unit is second. The default is 256 seconds. Note that this option only accepts the value equal to or larger than 4 seconds.
SDK-53104	720590	`56840_A0 56640_A0 56843_B0`	Added support for the API's `bcm_cosq_stat_sync_get,` `bcm_cosq_stat_sync_get32` on Trident, Triumph Family, Valkyrie. Similar to `bcm_cosq_stat_get(),` value returned is software accumulated counter synced with the hardware counter.
SDK-53115	731716	`56850_A0 56850_A1 56850_A2`	For TCAM memories protected by SER engine, corrupt bitmaps have been added to track SER errors detected on them. SER correction logic will filter duplicated SER errors via this corrupt bitmap.
SDK-53127	730044	`56334_B0 56334_A0`	In an earlier release switching double tagged frames between layer 2 logical ports on Enduro was inconsistent with TR3/TR2 behavior. This has been correction by synchronizing the behavior of double tagged frames switching on Enduro with TR2's behavior.
SDK-53157	732567	All	Updated API documentation that FP action DoNotCheckVlan cannot be set along with action IncomingMplsPortSet as DoNotCheckVlan is set by default whenever IncomingMplsPortSet action is set

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53198	733029	`56640_A0 56440_A0` `56641_A0 56450_A0`	The problem in existing code was - `bcm_l3_egress_get()` was not able get the `mpls_qos_map_id` i.e logical qos id (if object was created by `bcm_qos_map_create)`. In this release to solve this issue, a new routine `_egr_qos_hw_idx2id()` has been created. This converts the hardware index to logical qos id. This function is used in the `bcm_l3_egress_get` to retrieve the `mpls_qos_map_id`. This function can handle both the `qos_id` created by `bcm_qos_map_create()` and `bcm_mpls_exp_map_create()`.
SDK-53218	727679	`88650_A0 88650_B0` `88650_B1`	Port TPIDs: When deleting TPID to default behavior with API `bcm_port_tpid_delete` or `bcm_port_tpid_delete_all`, TPID profile wasn't changed correctly.
SDK-53248		`88650_A0`	We exhibit the various ipmc flows via two main functions in `cint_ipmc_flows.c`: `ipmc_flows_rif_ipmc_enabled()` and `ipmc_flows_rif_ipmc_disabled()`.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53264 SDK-63568	733415	`88650_A0`	Allow egress snooping for MIPs with out-LIF on system headers. By default, Arad does not provide any out-LIF information when snooping OAM packets at the egress. To allow this behavior set the soc property `custom_feature_egress_snooping_advanced` to 1. When MIP packets are snooped at the egress, the snooped copy will be prepended with an FTMH and a DSP extension. `FTMH.DSP_EXT_PRESENT` will be set to 1 and the DSP extension will include the out-LIF. The snoop command for egress snooping (up-MIP) will always be 2 and for ingress (down-MIP) always 1. Thus, when changing the snooping behavior by calling `bcm_rx_snoop_set()` with 2 or 1 in the `snoop_cmnd` field, the snooping will be updated for all MIPs in the system. Likewise when OAM frames will be snoop by a MIP at the egress, the snooped copy will always have `FTMH.MCID_OR_OUTLIF==2.` By default only multicast LTM packets are snooped to the CPU. The default behavior may be changed with `bcm_oam_action_set().` Calling this function allows setting a new snoop destination or snooping other types of frames. The calling sequence is as following: 1. Configure a `bcm_rx_snoop_config_t` with the desired behavior (i.e. probability, size, `dest_port,` etc.) 2. Call `bcm_rx_snoop_set()` with the `bcm_rx_snoop_config_t` configured above and the `snoop_cmnd` field set to 1 (ingress). 3. Set a new trap with `bcm_rx_trap_create()` and `bcm_rx_trap_set().` For the latter call, the `snoop_cmnd` field in the `bcm_rx_trap_config_t` struct should be set to 1 (ingress snoop command). 4. Call `bcm_oam_action_set()` with the desired configurations. The destination field in the `bcm_oam_endpoint_action` struct should be set to the trap code from step 3 using the macro `BCM_GPORT_TRAP_SET().` The function `bcm_oam_action_set()` will update the egress snooping configurations to match those configured above for the ingress snooping. An example of this can be seen in the function `mip_egress_snooping_advanced()` in `examples/dpp/cint_oam.c.` Notes: 1. In this configuration only MIP snoop is allowed (snooping MEP packets is not supported). 2.Since there are 2 snoop commands used by all MIPs in the system (one each for the ingress and egress), changing the snoop behavior for one MIP will affect all other MIPs in the system. 2. When the packet gets snoop, the forwarded copy uses forwarding strength 3. If soc property `block_trap_strength_pmf_0/1` is set to lower strength then the packet will not get forwarded. 3. To get the described behavior JIRAs SDK-54865, SDK-54726 should be used as well.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53292		`88650_A0 88650_B0`	new soc property - `scheduler_fabric_links_adaptation_enable` when enabled , the scheduler will take current links' states into consideration when generating credits. (mostly useful in multi stage systems)
SDK-53311	733395	`56850_A2`	Operations in `soc_l2x_freeze/thaw()` for TD2 have been optimized by using `ING_MISC_CFG2 CML_NEW_OVERRIDE/CML_MOVE_OVERRIDE` to disable/enable the learning instead of modifying individual port/svp table entries.
SDK-53319	733446	All `56850_A0 56850_A1 56850_A2`	Fixed `bcm_vxlan_vpn_create`, `bcm_l2gre_vpn_create` API to replace UUC/MC/BC IPMC index using `BCM_VXLAN_VPN_REPLACE`, `BCM_L2GRE_VPN_REPLACE`.
SDK-53376		`56850_A0 56850_A1 56850_A2`	An issue was reported where l3 ip6route show was displaying NEGATIVE free entry values. In this release, the way to calculate the free number and the total number of IPv6 entries has been adjusted to address this issue and also to cover the number of IPv6/64 entries. It depends on `bcm_switch_object_count_get` to get the following objects: bcmSwitchObjectL3RouteV6Routes64bMax bcmSwitchObjectL3RouteV6Routes128bMax `defip_64_free defip_128_free`
SDK-53385	721111	`88650_A0`	In RX snoop, the number of HW snoop commands is 16, where 0 is reserved for packets which are not snooped. Due to a SW bug, the number of available snoop commands was 15 and not 16. This is fixed. This fix was reverted in 6.3.5 because it breaks ISSU and can be taken from TOT as a patch.
SDK-53405	721824	`88650_A0`	Scheduling elements prints were added to the gport command. Additionally, "gport count" or "gport c" will print a summary of all gport types count. NOTE: `bcm_cosq_gport_traverse` was extended to include SEs of all types!!!
SDK-53414	734150	`56850_A0`	In the previous release we did not support HG13 on TD2. In this release support has been added for speed 13000M. Additionally in `soc_td2_port_asf_speed_set(),if` speed = 0xe, speed 13000M duplex full will be selected.
SDK-53444	725754	`56840_A0`	While rebooting the system an additional flap was seen on port during the BCM INIT. This has been resolved In phy init code, by disabling it first in case the attached phy is not an external phy and is not in warmboot procedure.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5

SDK-53449	733944	`56850_A0 56855_A0`
		`56854_B0 56854_A0`
		`56850_A1 56851P_A1`
		`56851_A1 56850_A2`
		`56851_A2 56851P_A2`
		`56854_A2 56853_A2`
		`56852_A2 56855_A2`
		`56851_A0 56852_A0`
		`56852_A1 56853_A0`
		`56853_A1`
			In the previous release. bcmportControlDoNotCheckVlan was being overwritten by unrelated port API calls. This has been fixed.

SDK-53451	735769	`56640_A0 56640_A1` `56640_B0`	On link up, the pause and MTU max values were not retrieved from config, resulting in all the config values becoming obsolete and default values being programmed. Fix is retrieval of the data from the config and override the default values so that the port values reflect the configured parameters.

SDK-53453	675993	`56846_A0 56845_B0`
		`56840_A0 56640_A0`
		`56440_A0 56850_A0`
		`56855_A0 56843_B0`
		`56340_A0 56640_B0`
		`56440_B0 56850_A1`
		`56850_A2 56344_A0`
		`56342_A0`
			Added support for MIM payload tpid select and MIM hash by using payload or tunnel header.

SDK-53482		`88650_A0`	Valgrind is a tool that reports cases where code uses uninitialized data. Currently when Valgrind is run and warmboot is done, some warnings are emitted for usage of uninitialized data. The source of these warnings are uninitialized data that are written to a file. In one case, there was a problem with 64 bit systems that would read bad data -- this was fixed. In the other cases, unused and uninitialized data was always written to the warmboot file. This data written to the warmboot file is now initialized without any implication on code logic.
SDK-53488	736297	`88650_A0`	ARAD does not support Type-4 VCCV (GAL over PWE). We propose a solution to trap GALoPWEoLSPoETH packets to CPU by using bcmRxTrapMplsUnexpectedNoBos trap. Field processor is used to change the MPLS InLif to PWE Inlif, so the trapped packet contains PWE InLif in the PPH. NOTE: In ARAD soc property `custom_feature_mpls_termination_check_bos_disable` should be set. In ARAD+ no soc property is required. For usage example see `cint_gal_o_pwe_o_mpls.c`
SDK-53506	716783	`56850_A0 56850_A1` `56850_A2`	In the previous release, when the first strict priority member was a unicast queue, the function `_bcm_td2_sched_check_constraints()` returned *ucmap=1 which was not correct. In this release, this issue has been addressed by setting *ucmap=0.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53507	736772	`56850_A0` `56850_A1` `56850_A2`	This JIRA is a duplicate of SDK-53600. In which the API bcmPortControlMmuDrain is improved to check the empty state of each nodes and queues after the cells are drained.
SDK-53508	736774	`56850_A0` `56850_A1` `56850_A2`	In the previous version, in TD2, when the weights of queues were changed dynamically leaving the schedule mode unchanged, the traffic would be disrupted. In this release, the API `bcm_cosq_port_sched_set()` and `bcm_cosq_gport_sched_set()` have been improved to allow weights to be changed dynamically when the schedule mode is not changed.
SDK-53515	734789	`5615_A0`	HR2: QSGMII running as SGMII mode was showing the wrong duplex attribute. In this release we have fixed the duplex get function for qsgmii serdes in sgmii mode
SDK-53517		`56850_A0` `56850_A1` `56850_A2`	Added ability to support three ALPM profiles to provision different Pivot reservations.
SDK-53529 SDK-52455		`88650_B1`	OAM: For trapped DM packets (both up and down, NTP or 1588), the packet will be prepended with the 4 MSBs of the time (the 4 LSBs appear in the OAM-TS). In other words, the packet format will be FTMH+OAM-TS+PPH+4 time MSBs+packet. To use the old format where there is only the 34 bits in the TS unset soc property `"custom_feature_oam_dm_tod_msb_add_enable=0"` (1 by default).
SDK-53556	735811	`56640_A0` `56641_A0` `56850_A0` `56640_B0` `56644_B0` `56850_A1` `56850_A2`	Index for `COS_MAP_SEL` table was being incorrectly set for CPU as ingress port (0). The higig packets ended up in a wrong queue due to wrong index for CMIC ports the index is retrieved from the soc layer and programmed. Corrected the index appropriately in TD2 and TR3 devices.
SDK-53563	736727	`56334_B0` `56334_A0`	Fixed error return value of `bcm_mpls_label_stat_get/get32` on Enduro
SDK-53600	737427	`56850_A2`	The API bcmPortControlMmuDrain has been improved to check the empty state of each node and queue after the cells are drained.
SDK-53602		`88650_A0` `88650_B1` `88660_A0`	TDM bypass traffic whose destination is the same FAP usually does not go through the fabric. Forcing of TDM bypass traffic to the fabric can be enabled/disabled using: `bcm_fabric_control_set(unit,` bcmFabricForceTdmBypassTrafficToFabric, 1/0); The current state can be retrieved using: `bcm_fabric_control_get(unit,` bcmFabricForceTdmBypassTrafficToFabric, &enabled);
SDK-53611	737404	`56634_B0`	CPU can send ethernet packet and higig packet. For local switch disable feature, the register `ILOCAL_SW_DISABLE_DEFAULT_PBM_64` should be configured for CPU port when CPU is sending higig packet,but that is missed in SDK. This issue has been fixed.
SDK-53612	728198	`88650_B1`	When working in 2P or 1P mode, ISQ root shaper doesn't work correctly (traffic is not shaped regardless shaper configuration).

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53613	735136	88650_A0 88650ACP_A0 88650_B0 88650_B1	When setting WRED using `bcm_cosq_gport_discard_set,` and using min/max threshold values close to the limit of 256MB-1, an error was returned. This was fixed, and the range of the min/max WRED thresholds was extended up to 2GB. The actual value that can be specified is up to 2GB-1 sue to the range of the `int` structure field that specifies it.
SDK-53625	737814	88650_A0 88650_B0 88660_A0	OAM: In Arad, all MEG levels 0-7 may be used. In Arad+, level 0 is unavailable by default, however this may be used if the classifier is used in Arad mode - if the soc property `"oam_classifier_advanced_mode"` is set to 0.
SDK-53630		88650_A0 88650_B0 88650_B1 88660_A0	Tunnel APIs replace: 1.Support `bcm_tunnel_initiator_create` to replace dip, vlan, dscp, ttl, sip and type of IPv4 tunnel with `tunnel_id` of tunnel or `l3a_intf_id` or `l3a_tunnel_idx` of intf. In case of IPv6 tunnel, dip6 sip6, ttl and type can be replaced. In case of ERSPAN tunnel on ARAD+, `span_id` and `l3_intf_id` can be replaced. 2.Support `bcm_tunnel_terminator_create` to replace `tunnel_if`, `if_class` and flags (`BCM_TUNNEL_TERM_USE_OUTER_DSCP` or `BCM_TUNNEL_TERM_USE_OUTER_TTL`) with `tunnel_id`.
SDK-53636	737820	All	Added Level 2 warmboot recovery support for the following switch controls: bcmSwitchUseGport bcmSwitchL2PortBlocking bcmSwitchCallbackAbortOnError
SDK-53639	737816	All	bcmFieldQualifyL3Ingress qualifier offsets are updated for Ingress Field Processor to match with regfile (56850). Problem : Previously the qualifier set was showing "Feature Unavailable" error during group create. This was due to missing initialization of L3Ingress qualifier. Solution: With this fix the group create will cause "No resources for operation" error for the qualifier set mentioned above. This is because after adding bcmFieldQualifyL3Ingress to the Groups QSET the KEY width is exceeding what TD2 IFP H/W can support. Customer has to remove either bcmFieldQualifyInterfaceClassL3 or bcmFieldQualifyIntPriority qualifier from the Groups QSET set to add bcmFieldQualifyL3Ingress to existing Group. OR Customer has to create a new Field Group with bcmFieldQualifyL3Ingress qualifier in it.
SDK-53640		56334_B0 56334_A0	In earlier releases a crash was introduced when initializing BCM56634 via changes added in `soc_do_init.` In this release we have added device checking for the new block of code introduced to change the PCIe SerDes deemphasis on certain devices (fix for SDK-50513).
SDK-53654		88650_A0 88650_B0 88650_B1 88660_A0	Fixed "diag rates sch" shell command crash which is caused by reading non-existent register.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53657	737782	`56846_A0`	When upgrading from sdk-6.2.5 to sdk-6.3.5 scache space for the differential state was not allocated for few modules. Fixed scache reallocation for RX, NIV, VXLAN modules during warm upgrades.
SDK-53661	737925	`56850_A0 56850_A1 56850_A2`	TD2 TDM Oversubscription Issue, tx failure with mixed 10G/40G configuration was failing. This has been addressed by updates to the oversub group sorting algorithm.
SDK-53672	739010	All	The validation logic which is valid for SQ/MC was preventing the creation of dynamic queues when the indexes were more than 8 (0 -15). Fixed the code to support dynamic queue indexing as well. The SQ/MC index validation is done for non dynamic ports only.
SDK-53673	738994	`56850_A2`	Corrected the value of macro definition (`BCM_IPMC_RANGE_IP6` and `BCM_IPMC_RANGE_PIM_BIDIR`).
SDK-53675		`88650_A0 88650_B0 88660_A0`	BFD packets may now be trapped using pre-defined traps. When calling `bcm_bfd_endpoint_create()`, the `remote_gport` field may be set to a valid gport for trapping BFD frames to that gport, `GPORT_INVALID` for the default behavior or `remote_gport` may be set to a pre-configured trap code. For the latter, call `bcm_rx_trap_type_create()` to get a trap code, `bcm_rx_trap_set()` to set the trap code with a valid `dest_port` configured in `bcm_rx_trap_config_t`, `BCM_RX_TRAP_UPDATE_DEST` and `BCM_RX_TRAP_TRAP` flags set. Then set `remote_gport` to the said trap code before calling `bcm_bfd_endpoint_create()`.
SDK-53684		`88660_A0`	DEFAULT BEHAVIOR CHANGE. In Field Processor, when using external TCAM, valid entry priorities values are now limited to the range of 0 to 4194303 (2^22). Additionally, when creating an ACL group in the external TCAM, the user may specify the max entries priorities they intend to use in this group by setting the `max_entry_priorities` parameter in `bcm_field_group_config_t.` Indicating the max entry priorities will result in improved control performance of the external TCAM driver. Note that if the `max_entry_priorities` parameter is set, the valid entry priorities values for the configured group are limited to the range of 0 to `max_entry_priorities.` Also note that `max_entry_priorities` parameter is only supported for external TCAM.
SDK-53731	739297	`88750_A0 88750_B0`	"diag queues" command shell wasn't functional over dual pipe.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53732	732324	`88650_A0`	In Field Processor, the user can qualify packets according to the trap-code (bcmFieldQualifyRxTrapCode). The `bcm_field_qualify_RxTrapCode` expects only a `bcm_rx_trap_t` parameter, indicating which trap. Thus, it does not support User-Defined traps (since no ID can be specified). Besides, for bcmRxTrapL2Cache Trap-code, two possible set of traps can be qualified: 1. By default, the programmable traps are qualified. Due to their HW value (not divisible by 4), only the 2 first programmable traps are qualified. 2. If the SOC property `custom_feature_trap_l2_cache_field_reserve_mc_hit` is set, then the 8 Reserve-Multicast traps are qualified instead
SDK-53741	738835	`88650_A0` `88650_B0` `88660_A0`	In BCM886XX, the L2 traverse HW allows the definition of flexible rules to traverse and modify the MAC Table entries, including a flexible mask (both on entry key and payload). The `bcm_l2_match_masked_traverse` is implemented, and examples of L2 traverse can be found in `$SDK/src/examples/dpp/cint_l2_traverse.c.`
SDK-53767		`88650_A0`	cleaned HW access that were causing error prints during warm reboot (due to statistic threads that would perform HW access)
SDK-53770		`88650_A0` `88660_A0`	Advanced VLAN Edit: Added an example functions for QoS mapping configuration in `cint_advanced_vlan_translation_mode.c: qos_default_settings(), add_qos_mapping()` and `set_qos_mapping().`
SDK-53794		`88650_A0` `88650_B0` `88650_B1`	Replace functionality in L3: Added support to replace intf, `mac_addr`, vlan, port, `qos_map_id` and `encap_id` by `bcm_l3_egress_create` with `BCM_L3_REPLACE` flags. Added support to replace `intf_array` by `bcm_l3_egress_ecmp_create` with `BCM_L3_REPLACE` flags.
SDK-53800	739936	All `56450_A0`	When `bcm_mpls_port_add()` was called with new label and `BCM_MPLS_PORT_REPLACE` flag, a new mpls entry was being added without deleting the old mpls enrtry with old label. This has been fixed.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53810	739299	All	Background: ========= Whenever SDK performs MDIO write/read operation, the linkscan event has been stopped before the operation and restarted after the operation. The reason behind this, prior to CMICm, software has to stop the linkscan before any MDIO write/read operation as the MDIO controller in hardware doesn't handle parallel access between link and MDIO write/read. Problem: ====== When a port is set to disabled while configured at 100M speed, the link down interrupt from the CMICm is missed. The time between the linkscan event restarts and the interrupt generation from CMICm is not synchronized. It could be due to some race condition. Solution: ====== SDK should be able to perform MDIO write/read operation without stalling active linkscan operation now as it is handled in CMICm hardware (well controlled by HW MDIO controller). Hence, removed the `bcm_linkscan_pause()` and `bcm_linkscan_continue()` functions from all the miim read/write calls.
SDK-53822		56850_A1 56850_A2 56850_A0	provided new objects to get the information about a) Max 128B V6, 64B V6, V4 entries for a given configuration b)used 128B V6, 64B V6, V4 entries c) Free 128B V6, 64B V6, V4 entries
SDK-53824		56450_A0	In previous releases a crash could occur with subport configuration. This has been addressed by correcting the wrong assumption of COE subport configuration for calculating `op_nodes` for physical ports. Now it is purely based on number of `op_nodes` consumed by each physical port in sequence (CPU,LPBK,1..40)
SDK-53826		88660_A0	PON: `bcm_vlan_port_create` set incorrect configuration when having 3 tags manipulation under `bcm886xx_vlan_translate_mode=1.`
SDK-53830		88650_A0 88650_B0	When calling `bcm_port_match_add` with an egress match, with a valid input but a remote port, the return value should be `BCM_E_NONE` without any configuration. Instead return value is `BCM_E_NOT_FOUND.`
SDK-53837		88650_B0 88650_B1	Fix documentation of `cint_vswitch_cross_connect_p2p.c` to load all the cints in correct order.
SDK-53839		88650_B0 88650_B1	VPLS: Added cint `cint_vswitch_vpls.c` support in index mpls mode that enables termination of up to 3 labels. Index mode is set using soc property `mpls_termination_label_index_enable.`

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53867	740320	`56850_A0 56850_A1 56850_A2`	One of the following solutions can be used to address the persistent link flap problem with CR4 + AutonegOn on ports: (a) Do NOT enable `RX_SERDES_LOS` and Fast linkscan property in the configuration. This means to disable the SOC property `rx_serdes_los,` or, EXCLUDE the port(s) from the SOC property `rx_fast_los_link_{port}.` (b) If the user wants to be able to remove/add ports into fast linkscan dynamically,user can now disable the fast linkscan port control "bcmPortControlRxFastLOS" : `bcm_port_control_set/get(unit, port, bcmPortControlRxFastLOS, ...)`.
SDK-53876	740022	`56850_A0`	bcmFieldQualifyMhOpcode and bcmFieldQualifySourceVirtualPortValid qualifiers offsets are updated for Ingress Field Processor to match with regfile (56850). Problem : SDK was unable to use bcmFieldQualifyMhOpcode and bcmFieldQualifySourceVirtualPortValid qualifiers in the Key format - FPF3 in Ingress Field Processor. Solution : bcmFieldQualifyMhOpcode and bcmFieldQualifySourceVirtualPortValid qualifiers offsets are updated for Ingress Field Processor to match with regfile (56850). This is done in Initialization routine of Ingress Field Processor for the Key Format - FPF3 .
SDK-53885	740483	`56450_A0`	Fixed the issue where entry in `EGR_MPLS_VC_SWAP_LABEL_TABLE` is replaced when a dfferent MPLS port uses the same VC label but having different properties. With this fix a new entry will be created in the above mentioned table instead of replacing the existing entry.
SDK-53890		`88650_A0`	Fix of building errors occurred when the Makefile includes KBP flags : + `FEATURE_LIST` := .... KBP + `KBP_DEVICE` := `KBP_ALG` and missing WB flags: - CFGFLAGS += - `DBCM_WARM_BOOT_SUPPORT` - CFGFLAGS += - `DBCM_WARM_BOOT_SUPPORT_SW_DUMP` - CFGFLAGS += - `DBCM_EASY_RELOAD_WB_COMPAT_SUPPORT`
SDK-53891		`88650_A0`	Relevant only for TDM bypass mode: Warm boot would reset some of the TDM fabric direct routing configuration, and cause later configuration of it to be incorrect.

SDK-53894		`56640_A0 56641_A0`
		 `56642_A0 56643_A0`
		 `56644_A0 56645_A0`
		 `56648_A0 56640_A1`
		 `56643_A1 56644_A1`
		 `56640_B0 56644_B0`
		 `56643_B0 56648_B0`
		 `56649_B0 56649_A0`
			Support added for software assisted virtual port L2 flush. In addition, there was an issue where the software copy of the L2 entries learnt on external ESM was out of sync with the hardware,. This is now handled by correctly extracting and updating external L2 entries into internal software copy.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53907	740307	`88650_A0`	Fixed alloc manager failure in case PWE is created over LAG. The scenario that caused failure: 1. Tunnel application setup using `l3_egress_object` on a LAG port. 2. Create a PWE on the tunnel interface
SDK-53912	739785	`56850_A0 56340_A0`	Added ability to support ETAG(Port Extender VLAN Tag) tunneled mirror.
SDK-53919	740350	All	STG Id - 0 is reserved and used for internal purposes only and VLANs should not be added to this group. Updated the users guide with the above information.
SDK-53926	740455	`88650_A0`	In Metering HW, rate configuration is performed via a mantissa and exponent representation. An internal SW function is used to convert from a rate to the mantissa and exponent representation, and takes as input the maximal allowed exponent and mantissa. Due to a bug, in some cases this function could return an out-of-bounds value (bigger than the maximal mantissa), which causes an assertion failure when the value is written to the HW. This is now fixed.
SDK-53935		`56850_A0`	In earlier releases, `bcm_l2_matched_traverse` API call did not have a way to retrieve Static only entries. Code has been added to deal with the action for the STATIC only entry. When the action is for the STATIC only entry, we now set `STATIC_BIT` in both data and mask fields.
SDK-53946		`88650_B1 88660_A0`	Important note: in Fiber channel APIs, due to an API change, the user must replace `bcm_fcoe_zone_entry_t->vsan.vsan` by `bcm_fcoe_zone_entry_t->vsan_id`, e.g. in `bcm_fcoe_zone_add` API.
SDK-53952	741900	`56450_A0`	Resource leakage issue in `EGR_MPLS_VC_AND_SWAP_LABEL_TABLE` caused by `bcm_mpls_port_add()` API is fixed.
SDK-53955	740686	`56640_A0 56641_A0` `56642_A0 56643_A0` `56644_A0 56645_A0` `56648_A0 56640_A1` `56643_A1 56644_A1` `56640_B0 56644_B0` `56643_B0 56648_B0` `56649_B0 56649_A0`	In some configurations, ISM memory buckets greater than what is desired was being allocated. This has been addressed by correctly allocating just what is needed, by checking for boundary conditions.
SDK-53960		`88650_A0`	when running on little Endian CPU (gto is big Endian) some field BCM APIs may fail, for example following : create pre-selector egress PMF entry with qualifier bcmFieldForwardingTypeIp4Ucast . The fix was in the internal function `"shr_bitop_range_copy"`
SDK-53961		`88650_B0`	5.75G support is added for ILKN mode

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-53962		`88650_A0`	In TCAM database management, for 320-bit entry-width Databases, the two allocated banks are always consecutive (even and odd IDs). When a TCAM shuffle (move operation) is performed, the algorithm was applied for both banks although it should be applied on one bank (even) and same actions are performed for two banks since they are identical in their order. This is fixed.
SDK-53963	741711	`56850_A2`	Fixed VXLAN/L2GRE tunnel initiator's udp port update functionality.
SDK-53968	740158	`56850_A0`	Fixed to validate VXLAN and L2GRE VPN during `port_delete` and `port_get` API.
SDK-53972		`88650_A0`	Petra-B-ARAD system: initialize values correctly for system-headers under Petra-B ARAD system

SDK-53992		`56640_A0  56850_A0`
		`56640_A1  56640_B0`
		`56850_A1  56850_A2`
			When a new V6 prefix group is being created and if the start index falls in paired TCAM the following is being done.
			
			1. Check if the previous prefix group has free entries in unpaired TCAM. If yes, set the start of the new prefix group to be that index. 2. if the previous group doesnt have any free entries in unpaired tcam, try to move entries up. if entries can be moved up, then set start as start - 1 of the next prefix group.

SDK-53993	742520	`56450_A0`	The `bcm_port_match_add()` API was writing the data into wrong entry in `vlan_xlate` table because the search key did not include the field `source_type=1(sglp).` As a result it was not matching the existing entry. Modified `bcm_mpls_port_match_add()` API to include the `SOURCE_TYPE` field as part of key for adding entry in `VLAN_XLATE` table.
SDK-53994	741664	`88650_B0  88650_B1`	L3: TTL scope entries were not freed when the RIF is deleted.
SDK-53996	741161	`56640_A0`	Fixed the problem of wrong tunnel index generation in SDK. The tunnel index was wrongly multiplied by 4 before being written into hardware. it made the tunnel index space to use only quarter entries in hardware. Rest of the tunnel indexes values were out of the limit to be written into hardware and resulted in error. Due to this reason, the capwap tunnels were able to scale only to quarter of full hardware space.
SDK-54001		All	Show KNET protocol override option in CLI help. Added proper support for protocol override in `bcm_knet_filter_get` API.
SDK-54004		`56640_B0`	Added the support code for the new SKU BCM56044.
SDK-54009	739826	`88650_A0  88650_B0` `88650_B1  88660_A0`	In L2, during access of static entries (get or delete operations), the parsing of the MAC entry age field was incorrect, causing an internal function failure. The parsing error is fixed, including the removal of an unneeded HW access.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54014		88660_A0	In BCM88660, the user can select packets which tries to transplant a static MAC Table entry during learning. Specifically, when a statically inserted MACT entry is matched in the learning lookup, but the Source-Port is mismatched, the entry is not modified. If the user wants to match in Ingress Field Processor such packets, The fix includes: 1. Setting Out-LIF valid bit when inserting a static L2 entry with no OutLIF and no valid EEI. 2. Modifying the is-dynamic-entry indication to fix the transplant indication that arrives to the FP. 3. Running `cint_field_drop_static_sa_transplant.c` (new CINT example) to drop such packets
SDK-54015		88650_A0 88650_B0 88650_B1 88660_A0	In the policer module, when calling the `bcm_policer_create` and `bcm_policer_set` functions, the `BCM_POLICER_REPLACE` can be used to replace the configuration of a meter, or the template that the meter points to. A cint example has been added that shows how to use the `BCM_POLICER_REPLACE` flag to change the configuration of a meter. For details see the function `metering_replace_example` in `cint_policer_metering_example.c`.
SDK-54021		88650_A0 88650_B0	Bug was fixed in event handling of events with high RMEP indices for Arad A0/B0.
SDK-54031	743203	88650_A0 88650_B0 88660_A0	Configuration of the Credit Discount of ISQs is now possible using: `bcm_cosq_control_set(unit, isq_gport, cosq, bcmCosqControlPacketLengthAdjust, header_size);`
SDK-54034	743244	56850_A0 56850_A1 56850_A2	Added bcmFieldQualifySrcNivGport,bcmFieldQualifyDstNivGport,bcmFieldQualifyDstGport Qualifiers. In this JIRA, these new qualifiers are initialized only for TD2. Updated bcmFieldQualifySrcGport Qualifier in TD2 to support Niv source GPORT.
SDK-54035		56850_A2	This JIRA is to fix the port status (ps) command about the speed reporting problem for 11G forced speed modes for the TSC driver.
SDK-54038		88650_A0	In Field diagnostics (mode 3) entries validation is performed for all banks. This causes a segmentation fault because it should only be for banks that their owner is PMF, since the entry management for other owners is not performed by PMF. Fixed.
SDK-54042		88650_B1	In BCM L3 file, the macro `DPP_VRF_VALID(_vrf)` definition included a limitation that was not correct for Arad devices. This caused an error when trying to create a L3 interface with VRF>255. The macro definition is changed to support the Arad's limitation.
SDK-54053	743221	56640_A0 56640_B0	On parity error in MMU counters the hardware was not clearing the entries. As a fix, when the parity error happens we now clear parity status and then clear the entry.
SDK-54055		88650_A0	Trill: `bcm_trill_multicast_entry_get` is now supported.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54058 SDK-53881 SDK-53879 SDK-53878 SDK-53880		`88650_A0`	The Drop-Precedence (DP) is a value that represents QoS internally. The DP is a 2 bit value that represents the colors green (0), yellow (1-2), and red (3).
			Today, when a packet was received in the device, and its DP was resolved to 2 (or yellow), the device would change it to 1 (also yellow) when sending the packet. This is a result of an attempt to always represent yellow as 1. However in some cases -- for instance when a packet is sent to the device and receives a DP of 2, and this DP should remain 2 -- this will cause problems for the user.
			This is now fixed by keeping the DP at the same value instead of changing it to 1.
SDK-54064	743921	`88650_A0` `88650_B0` `88650_B1`	Resolved schan time out when setting pfc refresh timer. The error is caused by reading non-existent register.
SDK-54067		All	Converted MAID value to network byte order before writing to HW table in order to avoid CCM convergence issues arising due to host processor endianness.
SDK-54072	744057	`56850_A0`	Updated bcmFieldQualifyDstNivGport,bcmFieldQualifyDstGport Qualifiers to support Niv GPORT at EFP in TD2
SDK-54075		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	VLAN-compression: Delete correctly global VLAN range, in case of no ports refer to it.
SDK-54083	735871	`88650_A0` `88650_B0` `88650_B1`	`bcm_l2_addr_add()` returns error when trunk tgid is used and more than 256. This issue was due to wrong define max value. We fixed the define value.
SDK-54087	743745	`56850_A0`	In the previous release `bcm_mirror_port_dest_add` failed with -18 on NIV ports,This issue has been fixed.
SDK-54088		`56850_A0`	In earlier releases `bcm_l3_init()` should clear `rh_ecmp_flowset` but this function did not work. This has been resolved.
SDK-54092		`88650_A0` `88660_A0`	During Driver initialization, all the meter were initialized to use Meter-profile 0. This was unnecessary and removed, since the HW table was already initialized to zero.
SDK-54093	743673	`88650_A0`	Ingress packet size limit is set to (16KB-128bytes) if the DRAM buffer size is 512 bytes or higher, and set to 8KB if the DRAM buffer size is 256 bytes.
SDK-54100		`88650_A0`	Different threads (Counter Processor, Rx LOS) were failing due to forbidden access to the device during Warm-boot procedure. In counter processor case exceptional access is allowed. For RX LOS initialization postponed till after the Warm Boot finished
SDK-54114		`88650_A0`	In Field Processor, the Diagnostics command "BCM> diag field res"displays information on databases and banks. The number of entries per bank and database displayed by the diagnostic was incorrect when the entry (bank 0, line 0) was occupied by this Database. Fixed.

Table 49:

Number	CSP #	Chips		Release Notes For 6.3.5
SDK-54115	743990	`88650_B1`		Template management: Resolved issue in a template allocation mechanism that caused on some cases a crash in bcm.user when resource fails to be allocated. This could happen when asking for more profiles than device capable for example: asking more LLVP profile in `bcm_port_tpid_class_set`.
SDK-54131	744562	`88650_A0` `88650_B0` `88650_B1` `88660_A0`		CINT: Adjust `vswitch_p2p_init`, `qos_map_gport` to suit the correct number of parameters when called from `cint_qos_l2.c`, `qos_map_l2_run_with_untagged` respectively.
SDK-54148		`88650_A0` `88640_A0`		In BCM L3 file, some errors were returned with a generic "TODO err message" text. All error messages in l3.c file are now meaningful.
SDK-54154		`88650_A0`		In Field Processor, internal and external TCAM tables shared a limitation for the number of uninstalled entries. This limitation is now separated for internal and external TCAMs, in order to allow better control of limitations and memory allocations.
SDK-54162	744768	All		Fixed VXLAN/L2GRE issue with `bcm_vxlan_tunnel_initiator_destroy` API associated with same-SIP, Multi-DIP scenario.
SDK-54171		`88650_A0` `88660_A0`		Move trill deprecated tests from 88640 devices to a deprecated folder.
SDK-54174	744799	`88650_A0` `88640_A0` `88650_B0` `88650_B1` `88660_A0`		VLAN: Remove an incorrect "entry not found" error when calling `bcm_vlan_port_create()`.
SDK-54183	745284	`88650_A0` `88660_A0`		VLAN: Calling `bcm_vlan_port_create` with the `BCM_VLAN_PORT_CREATE_WITH_ID` flag, prompts an API check whether the requested ID is available. There was a bug where this check for valid ID would always check if a FEC ID is free, even though the VLAN port might be a multicast ID or a LIF ID. This bug was fixed, and now every VLAN port created `WITH_ID` would check the appropriate resource is free.
SDK-54185		All		knetctrl filter show did not display the `dest_proto` field. Show overrided protocol type when showing knet filter infomation in bcm shell. This has been addressed.
SDK-54186	743815	`56850_A0` `56850_A1` `56850_A2`		Added SDK Support of ETHERTYPE key in FPF1 Mode 6 in Trident2 Chipset.
SDK-54192	738575	`88660_A0`		DSCP/EXP marking when bridging allows the user to change the DSCP value of the IP header or the EXP value of the MPLS header of a packet, even when the packet is only bridged. To perform DSCP/EXP marking during bridging, the device is configured to set DSCP and EXP according to the assigned TC, DP, QoS profile and InLIF profile of a packet (map). Due to a SW bug, when configuring a map with TC 4 .. 7, nothing would be configured. As a result packets that have TC 4..7 assigned to them and that DSCP/EXP should be performed on them will get invalid DSCP and EXP values. This fix resolves this issue.

Table 49:

Number	CSP #	Chips		Release Notes For 6.3.5
SDK-54194	745534	`56850_A0`		An SDK crash issue was reported when trying to call `bcm_l2_addr_replace()` with > 8K MAC address configured on various of vxlan tunnels. This was resolved by correcting the memory allocation. The system now allocates memory for l2 freezing according to the actual size of `SOURCE_VPm` instead of 8192.
SDK-54195		`88660_A0`		MPLS tunnel works in two modes: Uniform and Pipe. For Pipe mode, struct `bcm_mpls_egress_label_t` has two flags: `BCM_MPLS_EGRESS_LABEL_EXP_SET`, `BCM_MPLS_EGRESS_LABEL_EXP_COPY`, to distinguish between different MPLS pipe modes. In ARAD Pipe mode supports only `BCM_MPLS_EGRESS_LABEL_EXP_SET` flag. ARAD PLUS supports global configuration of these settings, which is set using switch control `bcm_switch_contro_set(unit,bcmSwitchMplsPipeTunnelLabelExpSet, 1);` Default of the behavior is `EXP_COPY`. The flags should be set in consistency with the global configuration. If `BCM_MPLS_EGRESS_LABEL_EXP_SET` flag is set but bcmSwitchMplsPipeTunnelLabelExpSet switch control is not called, an error will be generated. The same with copy - If `BCM_MPLS_EGRESS_LABEL_EXP_COPY` flag is set but bcmSwitchMplsPipeTunnelLabelExpSet switch control is called, an error will be generated. See an example of use in: `cint_mpls_lsr.c mpls_pipe_mode_exp_set` function
SDK-54205	738767	`56850_A0`	`56850_A1` `56850_A2`	It was reported that small packets will be dropped if `ENQ_ASF_HS_OVERSUB_EN` hasn't been set for the 40G ports which are in oversubscription cut through mode. The issue has been resolved as below: Add 40G/30G ports with oversub to `ENQ_ASF_HS_OVERSUB_EN` during init. As no matter the ports are enabled CT or not, these ports can always be in `ENQ_ASF_HS_OVERSUB_EN`.
SDK-54209 SDK-61547	744936	`56340_A0`	`56342_A0`	Issue :- Segmentation Fault was observed when more than 254 Flex Counters were created in VFP region in Helix4. Fix :- Maximum number of Flex counters per pool were wrongly assigned during init. Updated the code with correct values.
SDK-54211	682994	`88650_A0` `88660_A0`	`88650_B0`	A bug in `bcm_oam_action_set()` causing certain OAM frames to be erroneously pre-pended with an additional set of system headers in certain situations was fixed.
SDK-54212	690179	`88650_B0`		The following bug was fixed: OAM endpoints deletion is not releasing internal allocations in case of insertion of a MEP, calling `bcm_oam_endpoint_action_set` and then deleting the endpoint. After performing this sequence several times a failure will be returned.
SDK-54220	745537	`88750_B0`		When the CL72 mode is enabled, snake test with external loopback failed on fe1600, fixed.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54230	741970	`88650_B0 88660_A0`	1588 Termination: Added support to following 1588 termination classification (in addition to already supported 1588oE, 1588oUDPoIPoE): 1. 1588oUDPoIPoIPoE 2. 1588oUDPoIPoMPLSoE 3. 1588oEoMPLSoE Packets will be identified as 1588 packets regardless the forwarding header: Switching (Ethernet forwarding) Routing (IPV4/MPLS forwarding) or Tunnel (IP/MPLS) termination.
SDK-54233		`88650_A0` `88650ACP_A0` `88650_B0 88650_B1`	Change diag pp `DB_LIF_lkup_info` diagnostic to print lif information instead of the rif information it was displaying previously.
SDK-54235		`88650_A0 88660_A0`	Egress VLAN Edit: EVE Operations are processed per packet after an ESEM lookup that yields an Out-LIF with a value up to 64K. ESEM entries for Out-LIFs with value above 32K, produced an incorrect Out-LIF value that in turn processed an incorrect EVE action. The fix enables correct EVE behavior for OUt-LIFs above 32K as well.
SDK-54236		`88650_B0 88660_A0`	In external Tcam, in the application file kbp.c, compilation warnings may appear due to a wrong return value variable type. The variable type is fixed.
SDK-54246	733382	`88650_A0`	When calling `bcm_oam_init(0)`, `counter_engine_source_0` was used for `INGRESS_OAM` and `counter_engine_source_1` was used for `EGRESS_OAM`, regardless of the soc property configurations. After the fix, any one of the 4 `counter_engine_source_Ns` may be used for egress/ingress oam, however if OAM is used, at least on counter engine must be set to `EGRESS_OAM` and at least one must be set to `INGRESS_OAM`.
SDK-54253	746153	All	Implemented `bcm_field_qualify_data_get` API for all devices supporting User Defined Function in Field module. This helps to display qualifier data fed into User Defined Function during Field entry creation.
SDK-54262		`56850_A0 56850_A1` `56850_A2`	Using the API `bcm_cosq_stat_sync_get()` to retrieve statistics resulted in incorrect values for counters that are wider than 32bits. The reason being only the initial 32bits were being retrieved. Now the width of the counter is fetched before retrieving the counter value.
SDK-54264		`88650_B0 88660_A0`	Required changes in SDK in order to support KBP-SDK 1.1.1 for external TCAM.
SDK-54266		`88650_A0 88660_A0`	Fixed a bug in the bcm shell diagnostic function "diag pp cc". The vlan port information displayed in the diagnostic was missing some fields. These fields will now be displayed correctly.
SDK-54269	746371	`88660_A0`	OAM: Incorrect CCM interval was previously used.
SDK-54309		`88650_A0`	KBP compilation fix for not GTO processors
SDK-54323		`88650_A0`	Due to inefficient internal implementation, the allocation manager was taking a lot of time during the warmboot recovery. The implementation was changed to reduce the number of function called during restoration and to accelerate the warm reboot.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54328	743038	All	When configuring an OAM endpoint, `L3_LOCK` was not being released when an endpoint was in multiple maintenance domain levels. This was corrected.
SDK-54329	735713	`88750_A0 88650_A0`	Due to miss-configuration some corrupted cells not dropped as expected. Fixed.
SDK-54343		`88650_A0`	11.25G ILKN speed support is added
SDK-54344		`88650_A0`	Device bring up fail when more than 191 ports are defined. fixed.
SDK-54346	746652	`56850_A0 56850_A1`	`bcm_l3_cleanup` was causing ASSERT error with L3 Egress Mode enabled, `nh_index` -1 could be used for `bcm_xgs3_nh_del` as array index and eventually could cause array bounds write and break the defensive area of allocated memory. Added `nh_index` parameter check to avoid invalid access.
SDK-54347	738808	All	bcmPortControlFabricSourceKnockout was not documented in BCM SDK manual. Added documentation for bcmPortControlFabricSourceKnockout.
SDK-54357		`56850_A2`	The TX squelch function will be persistent through phy enable (on) function, so `mac_loopback` with port disabled could be operable with the helps of the above functions.
SDK-54363		`88660_A0`	PON: Trap packets that are send to PON port 12Bytes were added by egress-editor. 12Bytes padding is now removed.
SDK-54369	747308	`56850_A2`	Fixed VXLAN/L2GRE Tunnel Terminator State modification during `multicast_port_create`
SDK-54378		`88650_A0`	To debug more easily warmboot issues, a SW state dump is available via BCM>diag ssdump The SW state dump output to screen can now be disabled.
SDK-54385	747110	`88650_B1`	In the HW implementation of the Exact Match (EM) tables, a defrag machine can be enabled for all the EM tables. This machine was enabled only for Large-EM, and it is now enabled by default for all the EM tables.
SDK-54395		`88650_A0 88660_A0`	Support binding 32 LIF cos profiles to InLIF in case of local switching enabled.
SDK-54400	746935	`56850_A0`	Fixed `EGR_PORT_TO_NHI_MAPPING` during multicast egress object destroy
SDK-54414	739326	`56640_B0`	following phy diag command is created to be able to poke into core0,1,3 and MLD register for100G plus port. And the format is phy diag pbm reg core0(core1, core2, mld) aer `reg_addr` (for read) phy diag pbm reg core0(core1, core2, mld) aer `reg_addr write_value` (for write)
SDK-54420	746955	All `56850_A0`	Only physical gport type supported in function `bcm_l2_addr_delete_by_vlan_gport _multi` for specific usage, added support for trunk gport type accordingly.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54423		`88650_A0`	Vlan Translation: a new feature is added to support configurable VLAN translation for IP packets according to 5-tuples (DIP, SIP, IP-next protocol, TCP/UDP src port, TCP/UDP dst port).
			In SW, the sequence to enable the feature is as follows: 1. Set SOC property: `vlan_translation_match_ipv4`. 2. Set VT port profile via `bcm_vlan_control_port_set` API using bcmVlanPortPreferIP4 attribute. 3. Create VSI and add ports to VSI (create InLif). 4. Create Field Group using `bcm_field_group_create()` set QSET with bcmFieldQualifyStageIngressVlanTranslation and all 5-tuples qualifiers. 5. Configure ASET with bcmFieldActionIngressGportSet action, and call `bcm_field_group_action_set()`. 6. Add entries to created field group.
			This feature cannot coexist with EVB support
			A new CINT is added for example: `cint_field_flexible_qinq_example.c`
SDK-54426		`88650_A0 88660_A0`	BFD doesn't work properly on management system (one CPU that controls more than one device).
SDK-54435		`88660_A0`	Important note: SOC property `ipmc_vpn_lookup` was misused in code. Default value of soc property was set to 1 but the actual SW implementation is default value 0. Default value of `ipmc_vpn_lookup` changed from 1 to 0 to match SW implementation.
SDK-54441		`88650_B0 88660_A0`	OAM ARAD+ RDI can not be set by user. It is updated automatically according to: 1. Scanner LOC discovery on RMEP with same index as the MEP. 2. Received packet information. The mode can be set in `bcm_oam_endpoint_create` using the following flags: `BCM_OAM_ENDPOINT2_RDI_FROM_RX_DISABLE`, `BCM_OAM_ENDPOINT2_RDI_FROM_LOC_DISABLE`

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54442 SDK-54129 SDK-54128		`88650_A0 88660_A0`	The meter feature has two possible modes of operation - 32K or 64K. In 32K mode, each packet has up to 2 meters with an ID spanning from 0 to 32K-1. In 64K mode, each packet has just 1 meter, with an ID spanning from 0 to 64K-1.
			The default Meter-ID is 0: - In 64K mode, Meter-ID 0 is set as an invalid pointer. Thus, the meter processor does not perform metering on a packet if its Meter-ID has not been modified. - In 32K mode, Meter-ID 0 was not set as invalid. Since meter 0 is defined to allow the maximal rate, there was no issue with traffic loss. However, it was affecting the color (drop precedence) given to the packet at egress. E.g., if a packet was yellow or red, its color could change to green, ignoring the incoming color, even if a valid Meter-ID was not set to this packet.
			Meter-ID 0 is now invalid also in 32K mode. Thus, a packet with default Meter-ID will not have its color changed by metering. Additionally, for backward compatibility sake, a SOC property is available to configure the device to set meter pointer 0 as valid: set the SOC property `custom_feature_meter_pointer_0_enable` to 1.
SDK-54501 SDK-51080		`88650_A0 88660_A0`	The template management is an internal module managing the profiles according to their attributes. A diagnostic has been added to display: 1. The profile-ID range per template IDs 2. How many objects are pointing to each profile 3. The raw content of each profile
SDK-54505		`88650_B1`	OAM packets of all opcodes trapped to the CPU at the egress (up-MEPs) will include the OAM-ID on the FHEI. In 6.3, to attain this behavior the soc property `custom_feature_oam_upmep_oam_id_on_fhei` should be set to 1.
SDK-54509		`88650_A0`	In general, SW state must be handled per unit, since multiple device SDK can run on the same CPU. Multiple global SW states have been found not to be defined per unit. Fixed.
SDK-54511		`56850_A0`	Changed the error type to Parameter error `(BCM_E_PARAM)` from `BCM_E_UNAVAIL` for the invalid relative offset input parameter in `bcm_field_data_qualifier_ethertype_add()` API.
SDK-54515		`88660_A0`	DEFAULT BEHAVIOR CHANGE (ARAD+ only). Out AC: Out ACs can be created in pairs by calling `bcm_vlan_port_create` with a `BCM_VLAN_PORT_WITH_ID` flag and pairs of `vlan_port_id`. A problem occurs when creating a pair of Out ACs (15 MSBs) with the odd entry created first.When the even entry is created second, the odd entry gets corrupted. The issue detailed above affects the Out AC creation. Pairs of Out AC can be created correctly after the fix in any order. The fix include changing by default all empty EEDB entries to be with bit 34 set to 0.
SDK-54519		`56850_A0 56850_A1 56850_A2`	In the previous release, hash bits were not being calculated in `soc_td2_l2x_hash()` function. This has been fixed.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54529		`88650_A0 88650_B0 88660_A0`	OAM RDI clear event does not generate a callback
SDK-54533 SDK-57729		`56340_A0 56340M_A0`	Added separate Ingress Qualifier Init routine for Helix4 device with required offset changes as per Regfile
SDK-54545	741393	All `56850_A0 56850_A1 56850_A2`	There was a bug in the SDK when configuring the port using the following function in trident2 platform `bcm_port_control_set(unit,port,b cmPortControlExtenderType,BCM_PO RT_EXTENDER_TYPE_SWITCH)` The SDK was setting the `PORT.VT_KEY_TYPE_2` field correctly, but was not setting the `PORT.VT_PORT_TYPE_SELECT` field. However `PORT.VT_PORT_TYPE_SELECT_2` field should be set. Fixed the port configuration in function `'bcm_port_control_set'`
SDK-54557	742238	`88650_B1`	A priority list is a data structure that keeps a list sorted according to some priority. This data structure is used for TCAM management of the TCAM entries according to priority. Due to a SW bug, invalid memory is read and returned in a local function when trying to get the previous element of the first element, which can cause an invalid memory access. This fix resolves this issue, by returning the head in the aforementioned case.
SDK-54571	749766	`56643_A0 56644_A0 56643_A1 56644_A1`	Issue observed was `P_START_SPRI` was not programmed correctly and this was evident in CLI output of LLS command where the FC "first child" calculation does not match the index of first SP child. Fix provided - in port sched dynamic mode, the `P_START_SPRI` is correctly configured to the index of first SP child.
SDK-54589	749529	`56850_A0 56850_A1 56850_A2`	Offset state was not being properly cleaned up when programming flex hash. In this release we have corrected the `UDF_CONDITIONAL_CHECK_TABLE_RAMm` configuration flow when destroy a flexible hash entry.
SDK-54605	735909	`56640_B0`	In single lane or dual lane mode, if the autoneg is enabled, firmware mode 0 should be used. However all the 4 lanes of that core firmware was to set to 0 instead of relevant lanes only. This has been fixed.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-54615	748837	56224_B0 56224_A0	Background: ========= `bcm_vlan_translate_add()`, delete, `egress_add` and `egress_delete` functions were not implemented to handle wildcard port parameter. Problem: ====== `bcm_vlan_translate_add()`, delete, `egress_add` and `egress_delete` functions were throwing error when wildcard port parameter was passed. Solution: ====== Added port specific check in `bcm_vlan_translate_add()`, delete, `egress_add` and `egress_delete` functions which allows user to perform vlan operations by passing wildcard port parameter.
SDK-54620		88660_A0	In L2 bridging, the number of MACT entries can be limited globally, per FID or LIF. During packet SA learning, events are sent to the OLP when the MACT entry number limit is exceeded. In BCM88660, a new functionality allows to disable sending these limit-reached messages, reducing the number of created events, by setting the `switch_control` bcmSwitchL2LearnLimitToCpu to 0. In this case, in the HW, an interrupt is enabled to indicate that the limit was reached.
SDK-54621		88650_B1 88660_A0	For a packet performing a Traffic Management (TM) processing, the regular egress processing removes the system headers (i.e. FTMH and its extensions if exist, PPH and its extensions if exist, User-Header). An improvement allows to remove only the FTMH header and its extensions if exist. If the `custom_feature_otmh_keep_pph_<port>` SOC property is set, then on this port all the headers starting from the PPH header are preserved.
SDK-54638	727800	56640_A0 56643_A0 56640_A1 56643_A1 56640_B0 56643_B0	An issue was reported where external FP failed to qualify IPv6/TCP-IP packets with given L4SrcPort and L4DstPort. Corrected the offset of the qualifiers L4SrcPort, L4DstPort for external FP (`_FP_EXT_ACL_L2_IPV6` ACL) during qualifiers init.
SDK-54640		88650_A0 88650_B0 88650_B1	For a TRILL Multicast entry, the get/delete APIs did not check both port and MC group match. It could cause deletion of an incorrect entry. This is fixed
SDK-54646		56340_A0	`SOC_EGRESS_METERING_LOCK` is not unlocked on exceptions which led to crash on event processing. Fixed in the exceptions to unlock the semaphore.
SDK-54680		88650_A0 88660_A0	MPLS: `bcm_mpls_port` add() supports `BCM_MPLS_PORT_REPLACE` flag to replace egress label only if the tunnel port id is protected. A problem occurs when calling `bcm_mpls_port_add()` with valid egress label but with `BCM_MPLS_PORT_REPLACE`. It doesn't return fail. `bcm_mpls_port_add()` returns `BCM_E_UNAVAIL` if the parameters include a valid egress label but with `BCM_MPLS_PORT_REPLACE`.
SDK-54682		88660_A0	OAM: RDI indication on outgoing packets from the OAMP might be inconsistent.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5

SDK-54688		`56846_A0 56845_B0`
		`56845_A2 56844_A0`
		`56850_A0 56855_A0`
		`56843_B0 56854_B0`
		`56854_A0 56850_A1`
			Issue :- A) Mirror resources(Entries configured in `im_mtp_index/ em_mtp_index` using MirrorIngress/MirrorEgress fp actions) are not cleaned while deleting FP entry in case FP installation FAIL case. B) Only 3 FP mirror actions are allowed even though there are 4 mirror indexes available in `im_mtp_index/ex_mtp_index`. Fix :- ------ A) Added Support to clean up the Mirror Resources as well along with FP entry delete in case FP installation failure. B) It is a hardware limitation where only 3 FP mirror actions are allowed.

SDK-54689		`88660_A0`	Fix for 88660 egress multicast traffic getting stuck in high egress multicast bandwidth.
SDK-54692	747803	`88650_A0 88650_B0` `88660_A0`	OAM: Deleting a MEP with Long MEG ID fails with assertion.
SDK-54711		`88650_B0 88660_A0`	User-Header is a fabric header located between system-headers (FTMH, PPH) and start of packet (e.g., Ethernet). The user-header size is set via `field_class_id_size` SOC property. User-Headers-0/1 can have a total sizes of 0, 8b, 16b, 24b or 32b. The value of 24 bits was not enabled. This is fixed.
SDK-54715	722160	`88660_A0`	In metering, color blind meters are used to do metering without referring to the color of the incoming packet. Currently when a meter is configured to be color blind, it will always drop incoming red packets by error, instead of ignoring the color. This fix corrects this behavior.
SDK-54725		All `56850_A0`	Support added in `'bcm_l2_addr_delete_by_vlan_gport_multi'` API to flush L2 entries based on virtual ports, deletes based on virtual port trunks are also supported.
SDK-54726		`88650_A0 88660_A0`	The CCM and Loopback programs in the egress PRGE loaded LFEMs that were not used.

SDK-54775	750966	`88650_A0`
		`88650ACP_A0`
		`88650_B0 88650_B1`
		`88660_A0`
			L2CP (Layer2 Control Protocol) traps were not updated correctly when calling multiple times `bcm_l2_cache_set`.

SDK-54776	751147	`88660_A0`	The OAM and BFD applications are using TCAM HW to identify some OAM packets on transit tunnels, what causes them to be trapped. A SW bug was allowing using a prefix for this key, and multiple Databases were created (for specific forwarding-types). The fixes are: 1. when OAM is enabled, all the packets performs a look-up into this Database at the forwarding stage (i.e. for any forwarding type). 2. since the HW key length for this TCAM Database, there is no place for prefix and this Database is using exclusively now the TCAM banks 12 and 13. 3. the different Databases were unified to a single Database, since forwarding-type is part of the key.
SDK-54810	752795	`56450_A0`	Support added for BCM56450 (Katana2) to match 3 MPLS labels in UDF.

Table 49:

Number	CSP #	Chips		Release Notes For 6.3.5
SDK-54845	753234	`88650_A0`		fixed C++ compilation error: added missing "#include `<soc/dpp/SAND/Utils/ sand_footer.h>`" at the end of `arad_debug.h`.
SDK-54846	752653	`88650_A0`	`88660_A0`	Enabled setting the he Packet-TC to Queue-TC mapping for ISQs using `bcm_cosq_port_mapping_set()`.
SDK-54865		`88650_A0`	`88660_A0`	issues in snoop APIs: `bcm_rx_snoop_get()` now returns the same size and probability as the values entered by `bcm_rx_snoop_set()`.
SDK-54880		`88650_A0`	`88660_A0`	Diag improvement: The allocation manager section now displays general information regarding all pools. In addition, support was added to the detailed information options of the IVE/EVE pools. The "hw" option was renamed to "direct".
SDK-54903	751870	`88660_A0`		OAM: in arad plus, packet below the lowest MEP level was not trapped with trap code `error_level` as it should be but was forwarded.
SDK-54923	752947	`88650_B0`	`88650_B1`	For stacking systems, the KeepAlive application allows the CPU to retrieve the stacking link topology by sending unicast packets from CPU to CPU. The implementation is performing a specific process in the second stacking device when the FTMH.Stacking-Route-History.MSB is set. However, this process should be done only for Unicast packets. This is fixed
SDK-54931		`56854_B0`		If there was an error in the internal functions of the ecmp create routines. the software state was not cleared. Made changes to clean the s/w state in case there is some error in internal routines or h/w writes of ecmp creation.
SDK-54939		`88650_A0`		In L2 Control Protocol traps, the attributes of the programmable traps and of the Reserved-Multicast traps are saved in the `_rx_virtual_traps` variable between the RX-trap API definition and the L2-cache setting. This variable was not restored correctly after warmboot because the struct was not saved to external storage. Fixed. ISSU: if upgrading from an earlier version, this data is not restored.
SDK-54971		`88650_A0`		In Field Processor, the cascaded value width is set via bcmFieldControlCascadedKeyWidth. The bcmFieldQualifyCascadedKeyValue qualifier has a length equal to this value. However, the bcmFieldActionCascadedKeyValueSet action had always a constant length of 20 bits. This length is reduced to {4 + cascaded width}, where 4 bits are needed for HW encoding. This improvement can be disabled by setting `custom_feature_increased_cascaded_action` to 1.
SDK-54984		`88650_A0`		Fix an error when setting egress port bandwidth (`bcm_cosq_gport_bandwidth_set`, using `GPORT_LOCAL`) to low rate relative to other ports.
SDK-54992	753214	`56840_A0`		Updated Tx packet padding logic in Linux KNET module to properly handle RCPU encapsulation. The previous code could cause Tx data corruption if the padding required reallocation of socket buffer.

Table 49:

Number	CSP #	Chips	Release Notes For 6.3.5
SDK-55003		`88650_A0`	In Rx thread, more internal fields (from FTMH, PPH and their extension headers) are parsed into `bcm_pkt_t`. A complete description of the parsed fields will be added to the TM User Manual. The parsing is done for ports of type CPU and STACKING.
SDK-55026		`88650_A0`	XGS MAC extender port support 1G extension capabilities when ARAD/ARAD+ is connected to XGS devices to extend 1G capabilities in chassis. Several Ethernet Inport properties weren't configured right for XGS MAC extender port for example: custom macros for Trill header parsing were not set. Fixed.
SDK-55095		`88660_A0`	Trill Warmboot: Upon warmboot, Trill init called to HW access as it shouldn't be.
SDK-55101		`88650_B0` `88660_A0`	Required changes in SDK in order to support KBP-SDK 1.2.1 and higher. The changes include configuration of newly used instructions and their transport layer implementation.
SDK-55102		`88650_A0` `88650_B0` `88660_A0`	During initialization, the SOC property configuring the OTMH Destination extension has an uninitialized value, instead of being disabled by default. Fixed.
SDK-55109		`88660_A0`	ROP transcations failed when using LE CPU. Fix ROP access endianess.
SDK-55143		`88650_B0` `88660_A0`	Required changes in SDK in order to support KBP-SDK 1.2.1 for external TCAM are introduced.
SDK-55161		`88650_A0` `88650_B0` `88660_A0`	IMPORTANT - API SIGNATURE CHANGE: For better coherency, the Multicast-ID parameter was changed in the `bcm_l2_addr_t` structure: the `l2mc_index` variable was changed to `l2mc_group`. If used, the user must adapt its calling sequence accordingly.
SDK-55350		`88660_A0`	Adjusted `cint_system_vswitch_vpls.c` to fit PWE/LSP pipe mode.

Section 20: Resolved Issues for 6.3.4

The following issues are resolved in version 6.3.4 of the SDK.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-4934		56024_B0 56024_A0	Fixed counter thread crash when running gsanity on 56024.
SDK-39298		56640_A0 56640_A1	Added a new feature to control metering in egress mode
SDK-39435	625583	56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 56850_A0 56855_A0 56843_B0 56841_A3 56846_A1 56841_B0 56854_B0 56854_A0 56850_A1	Add supports for the dual-lane forced speed mode running with CL72. It requires FW version A041_003 or above.
SDK-41137	549821	All	On multicast removal all the ports are iterated to clear the ports associated with the multicast address. This iteration is not required as iteration on the port members of the multicast address will save more cylces of iteration. Fixed the Iteration based on the member ports of the multicast group.
SDK-41495	557384	56640_B0	Support has been added for Triumph 3 in `bcm_switch_pkt_info_hash_get()` API and incomplete functionality in compute load balancing and compute trunk hash has been corrected.
SDK-42414		56640_A0	Fixed max threshold being set to zero for wred on triumph3 devices.
SDK-42899	558213	56640_A0 56850_A0	When the traffic is running, issuing a stats clear can cause the MMU unicast drop counters to get into a state, where the counts are not updated. The entry has 3 fields packet count, `byte_count` and parity field and all the fields need to be cleared if parity is not enabled. Fixed the issue. .
SDK-43520		56640_A0 56440_A0 56450_A0	When SDK is initialized along with Firmware, queue configuration is required to indicate the Rx queues mapped to external CPU (Ehost) and microcontrollers (UC0, UC1). If the queue configuration is not present then SDK init fails. An error message is now displayed indicating if SDK init fails due to to missing queue configuration.
SDK-44138	717410	56634_A0	snmpDot1dBasePortMtuExceededDiscards only counts packets dropped on Rx and does NOT include the count of packets dropped by the pipeline because they exceeded the configured max frame size. This counter will be equal to or less than the number of packets dropped due to MTU violations
SDK-44342	601905	56640_A0 56640_A1 56640_B0	Triumph3 chip supports attaching up to 3 counters for an entry in IFP. Field STAT APIs have been enhanced to support the same in SDK.
SDK-45115		88650_B0	BCM shell: Typing "diag pp MODE_info_Set ?" in BCM shell would cause segmentation fault.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-46005	615704	`56640_A0 56540_A0`	It has been observed that the BFD state toggled between UP and No error, Down + mis-connecitivity. The issue is fixed by sending the CV packets/sec in down and mis-connectivity state to avoid the Toggling issue.
SDK-46431		`56334_B0`	In earlier releases IP multicast configuration did not work on Enduro `(BCM56334_B0)`. Made code changes to configure `L3_IIFf` in `VLAN_TABm` during init to allow this to work correctly.

SDK-46612	628861	`56640_A0 56641_A0`
		`56642_A0 56643_A0`
		`56644_A0 56645_A0`
		`56648_A0 56640_A1`
		`56643_A1 56644_A1`
		`56640_B0 56644_B0`
		`56643_B0 56648_B0`
		`56649_B0 56649_A0`
			Triumph 3 MAC Table Deletion Callbacks were are inconsistent in Polling mode . this has been fixed by the following: 1. The `'l2_entry_data_t->enable'` was wrongly being set for FIFO mode where L2 data store is not needed, it is unset for FIFO, but set for POLL mode, this is done in `'soc_tr3_l2x_start'` 2. On a MAC re-learn case, with callback's suppressed, the deleted entry was being wrongly sent to the callback handler `(soc_l2_entry_callback)` from within `'_soc_l2x_sync_bucket'`, this is now changed to `NULL,` so that no-DEL callbacks are called in such cases

SDK-46638	634464	`56640_A0 56340_A0`	Changed `bcm_regex_match_check()` to *actually* return number of bytes (although it was described that way, it previously returned number of states). Also added new API `bcm_regex_engine_info_get()` to get the SME and engine sizes.

SDK-46734	636372	`56448_B0` All
		`56440_A0 56445_A0`
		`56440_A1 56445_A1`
		`56444_A1 56450_A0`
		`56449_B0 56445_B0`
		`56440_B0 56447_B0`
		`56443_B0 56441_B0`
		`56446_B0`
			Introduced new flag `'BCM_PORT_MATCH_PORT_VLAN16'` in `bcm_port_match_t` to match mod-port/trunk+16 bit outer VLAN TAG for VLAN translation

SDK-48018	652215	`56840_A0`	In earlier releases, `bcm_cosq_gport_bandwidth_get()` did not work. This has been resolved.
SDK-48130	663340	`56640_A0 56640_A1`	Added code to initialize rtag7 flow based hash related parameters to enable macroflow offset APIs.
SDK-48272	665127	`56334_B0 56334_A0`	In earlier releases `bcm_esw_mirror_port_get()` did not return correct flags. This has been resolved by removing the " if" condition which was preventing the proper update of the flag for the egress mirroring
SDK-48433	627988	`56224_B0 56224_A0`	Removed the check in SDK which prevents the customer from configuring both `BCM_L2_LEARN_LIMIT_ACTION_DROP` and `BCM_L2_LEARN_LIMIT_ACTION_CPU` at the same time when making calls to `bcm_l2_learn_limit_set()` The corresponding actions are supported in the hardware for RAPTOR/RAVEN/HAWKEYE devices.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-48449		`56850_A2`	The support for one-lane port running CL72 is added for the JIRA. Customers need to put 1) `port_init_cl72=0x1` in their configuration file, or 2) call API to enable the CL72 mode, then set the port speed. This JIRA requires FW version `A041_002` or above.
SDK-49328	680979	`56850_A0`	An enhancement request was received to add the ability to configure a Higig port as a member of a LAG. For Trident and subsequent XGS device, the related trunk APIs have been updated to remove the restriction that a Higig port cannot be a member of a LAG.
SDK-49335		`56640_A0 56640_A1`	In an earlier release the TR3 shadow tables were not getting initialized correctly in some cases. In this release we are now initializing the arlShadow tables to correct values, applicable for TR3 when no external TCAM is in use. In `'soc_tr3_l2_attach'`, L2_ENTRY_1m, `EXT_L2_ENTRY_1m` and `EXT_L2_ENTRY_2m` are initialized to their `'soc_mem_index_count's,` Previously they were being set 0 earlier.
SDK-49342	681800	`56142_A0 53001_A0` `56850_A0 56450_A0`	Control characters removed from SDK files
SDK-49347		NA	Updated the grog file for `bcm_port_encap_config_t` documentation.
SDK-49464	681536	`88650_A0 88650_B0` `88650_B1`	When the packet is trapped and parsed in the CPU, the Source-System-Port parsing was not considering the LAG case. This is fixed, by setting the `src_trunk` parameter for the LAG Id, and the `src_port` and `src_mod` parameters corresponding to the selected LAG member port.
SDK-49473	683076	`54680E_A1 54680E_B0` `54682E_A1 54682E_B0` `54685E_A1`	In earlier releases there were Display errors in the EEE command for BCM54685E. This has been fixed.
SDK-49649		All	In an earlier release, in file src/soc/common/mem.c, `MEM_LOCK/MEM_UNLOCK` in functions `_soc_mem_read() / _soc_mem_write()` and `soc_mem_alpm_read() / soc_mem_alpm_wrte()` was done when doing S-Chan processing, but in functions `soc_mem_generic_insert()/soc_mem_generic_delete() / soc_mem_generic_lookup()` and `soc_mem_alpm_lookup() / soc_mem_alpm_insert() / soc_mem_alpm_delete(),` we were missing this, This protection has been added.
SDK-49746		`88650_A0 88650_B0` `88650_B1`	Enable Bounce back filter for 2-pass trill: In the second pass going back to trill packets are filtered by bounce-back-filter.
SDK-49829	684594	`56440_B0`	Fixed the code to configure the `RQE_PORT_CONFIGr` in the bcmPortControlCustomerQueuing switchcontrol set for Katana/Katana2
SDK-50029	682932	`56334_B0 56142_A0` `56132_A0`	In earlier releases, FP qualifiers had a mismatch when there two FP groups on the multi slice. In this release we have modified the code such that we now install the selcodes in the slice if the slice is not empty and this is the first entry for the group in that slice.

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Table 50:

Number	CSP #	Chips		Release Notes For 6.3.4
SDK-50066		`88660_A0`		In BCM88660, introduce new support for IPMC and IGMP after exiting tunnel (VXLAN, L2GRE, VPLS). See `cint_igmp_example.c` for application explanation and valid packet flows.
SDK-50108		`56640_A0`	`56340_A0`	Fixed crashes in regex module when - using `bcm_regex_match_check()` - issuing "regex show dfa" with counters not enabled.
SDK-50121		`88650_A0`		KBP Serdes init sequence changed to use KBP SDK API. Internal implementation change, no affect on customer application
SDK-50142	690184	`56850_A0` `56850_A2`	`56850_A1`	A request was received such that the hardware queue number could be retrieved when the system was transmiting packets from the cpu port to a front panel port in bypass mode. The new API is implemented to support the ability to retrieve hardware queue number in PBSMH header according to the port and cosq.
SDK-50148		`56850_A0` `56850_A2`	`56850_A1`	Add BST software Snapshot improvement. This included adding the following capabilities. A) Enabled bst for all ingress and egress resources. B) Provided a sw trigger for taking snapshot . C) Allow the user to read the statistics without clearing the counters D) Added a separate api for clearing each specific resource counter. See API Section of this document. E) Added the ability to disable the snapshot mode via the api if needed. F) Enabled the ability to Disable BST G) 'BST "max used mode" and "current counting" mode are supported
SDK-50162	692128	All		Multiple RX interrupt packet handlers were being called when a packet was handled. This has been resolved.
SDK-50212		`56850_A2`		The code supports for 40G/42G HG FEC are added.
SDK-50288	692335	All		In ealier releases, BFD could not be supported in the LAN network because of IP addresses limitation. This has been fixed.
SDK-50377	686726	`56150_A0`		Add KNET support for switch devices attached via iProc AXI bus.
SDK-50481	692651	All		Modified to check fiber channel inner and outer fields with `BCM_FIELD_DATA_FORMAT_FIBRE_CHAN_ANY` instead of 0
SDK-50498	696599	All		Add KNET support for BCM56150 family of devices.

SDK-50541	694835	`56640_A0` `56641_A0`
		`56642_A0` `56643_A0`
		`56644_A0` `56645_A0`
		`56648_A0` `56640_A1`
		`56643_A1` `56644_A1`
		`56640_B0` `56644_B0`
		`56643_B0` `56648_B0`
		`56649_B0` `56649_A0`
				There was an issue in the `"_bcm_ft_report_process_export_entry"` code where the flags returned by the FT call back process function was overlapping . This has been fixed.

SDK-50595		`88650_A0` `88650_B0`		ERSPAN ARAD: Outbound Multicast ERSPAN mirroring is not supported in default application. To support multicast ERSPAN outbound mirroring a new soc property introduce `"custom_feature_erspan_mc_support=1"`. In case it is set , first 16 entries in ISID-table are used for ERSPAN feature. When custom feature is enabled, User can allocate for MIM, VXLAN, L2GRE only VPNs that pass the constraint (vsi & 0xFFF) > 16. Additionally, VPN must be allocated for those application WITH-ID only. See more details in `cint_mirror_erspan.c`

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Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-50611	684857	`88650_A0`	In Field Processor in Egress stage, an HW limitation requires that none or both lookup keys are valid in Egress PMF. If a single lookup key is valid, the second lookup key returned result will be invalid once used in the future. To handle this limitation, the Driver uses the last TCAM DB Profile (ID 47). It allows the user to define only 47 TCAM Databases instead of 48. To disable this implementation (e.g. if Egress Field Processor is not used), set the SOC property `custom_feature_egress_pmf_lookups_always_valid_disable=1.`
SDK-50637	689475	All	Added new soc property `eb2_2bytes_big_endian` to support EB2 endianism
SDK-50651	697868	All	Improved counter thread performance by using memacc to accelerate the memory field access in flex counter thread.
SDK-50753		`88650_A0 88650_B0` `88650_B1 88660_A0`	Add new diag "diag `ing_congestion`" to display ingress global resource.
SDK-50757		`88650_A0 88650_B0` `88650_B1 88660_A0`	Added diagnostics "diag rates sch" to display E2E scheduler rate.
SDK-50758		`88650_A0 88650_B0` `88650_B1 88660_A0`	Added diagnostics "Gtimer" to control gtimer in sub-block for rate calculation. Added interval option for "diag counter".
SDK-50823	699173	`88650_A0 88650_B0` `88650_B1`	At egress, the user can define a packet to be trapped and sent to the CPU. By default, the trap profile (action profile) was sending the packet to the Egress Queue Pair with ID = CPU Port number instead of sending to the CPU. This is fixed
SDK-50828	686923	`88650_B1`	STG: `bcm_stg_vlan_add()` and `bcm_stg_stp_set()` do not return `BCM_E_NOT_FOUND` when passed in a spanning tree group that does not exist. Update verification on those functions.
SDK-50836		`88650_A0 88650_B0` `88650_B1 88660_A0`	Add new diag(tdm edit show [port=15]) to display tdm edit information.
SDK-50859	697873	`56850_A0`	It was discovered that 15 profiles could be created for the mapping from internal priority to MPLS Exp at the egress but 16 profiles could not be created successfully when repeating the profiles creation although the system allowed the user to attempt this . It is fixed in this release and max 15 profiles can be created.
SDK-50881	695207	`56640_A0 56540_A0`	IN earlier releases there was an issue with the function to create bfd endpoint with designate remote discriminator. Fixed the issue in both SDK and uKernel version 3.2.2..
SDK-50982	703790	`56850_A0`	Add BCM shell CLI support and `HG_TRUNK` mode for packet hash select API.
SDK-51019	687800	`56850_A1`	Implemented in the new policer mode bcmPolicerGroupModeShortIntPri for creation of 8 internal policers.
SDK-51065	705285	All `56643_A0` `56643_A1 56643_B0`	Updated to make `triumph_3` devices boot in 64 port single modid mode by default and if config variable `spn_MODULE_64PORTS` = 0 then boot in dual modid mode

SDK-51127	702045	`56640_A0 56643_A0`
		`56640_A1 56643_A1`
		`56640_B0 56643_B0`
			An issue was reported where external FP failed to qualify IPv6/TCP-IP packets with given L4SrcPort and L4DstPort. Corrected the offset of the qualifiers L4SrcPort, L4DstPort for external FP during qualifiers init.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-51154	701733	56640_A0 56440_A0 56643_A0 56644_A0 56648_A0 56850_A0 56445_A0 56440_A1 56445_A1 56444_A1 56340_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0 56449_B0 56445_B0 56440_B0 56447_B0 56850_A1 56443_B0 56441_B0 56446_B0 56448_B0 56850_A2 56342_A0 56442_B0	Added bcmFieldActionETagNew [Add/Change ETAG] & bcmFieldActionETagDelete [Delete ETAG] in IFP to support Port Extenders Etag add/delete/change options.
SDK-51230	708240	All	Support has been added for new API to retrieve member port for DLB HG Trunk
SDK-51254		56850_A1	Fix provided for the functionality of clearing the `'lc_pbm_remote_fault'` port-bitmap when a port is removed from SW/HW linkscan.
SDK-51340	709181	88650_B1	Upon FEC creation (`bcm_l3_egress_create`) Correct the verification of LAG ID to allow also group IDs that are higher than 32.
SDK-51348		88650_A0	To end a tdm session using you have two options: 1.Set destination port to an invalid destination - `BCM_GPORT_BLACK_HOLE`. 2.Call `bcm_port_control_set` () with type bcmPortControlRxEnable. Be advised, for tdm ports, when disabling a port rx, the valid range cell size min filter must be of 192B or above, and this configuration affects all of the other tdm sessions.
SDK-51357	708045	56440_A0	In earlier releases `BCM_BFD_ENDPOINT_UPDATE` did NOT update the tunnel initiator label . This has been addressed in uKernel 3.2.2.
SDK-51405		56640_A0 56640_A1 56640_B0	L2 entries learnt on the trunk ports were not being deleted on ring flush. The trunk ports are now matched with the Trunk port module ID (0x80) and the entry is deleted on ring flush in addition to the line ports.
SDK-51451		56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 56850_A0 56843_B0 56841_A3 56846_A1 56841_B0 56850_A1 56850_A2	Support for `BCM_L2_STATION_COPY_TO_CPU` configuration in l2 station entry for TD/TD2/TT2 has been added.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4

SDK-51506		`56640_A0 56548_A0`
		`56546_A0 56545_A0`
		`56544_A0 56542_A0`
		`56541_A0 56540_A0`
		`56641_A0 56642_A0`
		`56643_A0 56644_A0`
		`56645_A0 56648_A0`
		`56640_A1 56643_A1`
		`56644_A1 56640_B0`
		`56644_B0 56643_B0`
		`56648_B0 56649_B0`
		`56649_A0 56545_A1`
		`56540_B0 56541_B0`
		`56546_B0 56544_B0`
		`56547_A0 56545_B0`
		`56542_B0`
			Fixed issue in handling flushing MAC entries by Virtual Port's correctly. On Triumph3, the `key_type` was not being set correctly for Flush-by-VP calls. The `key_type` for MPLS, MiM, L2GRE, VXLAN VFI types needs to be set to VFI type

SDK-51521		`88650_B1`	Diagnostics: "diag pp `Parsing_Info`" sometimes output incorrect `inner_vid` value due to wrong initialization.
SDK-51534 SDK-52302		`88650_A0`	Improved performance `bcm_port_enable_set(FALSE)` - relevant to init as well
SDK-51553	710528	`56850_A0 56850_A1` `56850_A2`	Corrected the `VLAN_PROFILEm` configuration flow in qos module.

SDK-51568	705719	`56850_A0 56850_A1`
		`56830_A1 56850_A2`
		`56830_A0 56830_A2`
			In earlier releases `BCM56850_SVK` would automatically reboot within 1 minute if `"table_dma_enable=0"` is set in config.bcm or in SVK flash. This has been fixed by modifying memory scan with dma-disabled.

SDK-51597	704238	`56224_B0 56224_A0`	Made code changes to allow '-1' as valid port parameter in `bcm_vlan_translate_add()` for 56224 devices.'-1' is valid for 56224 as given in the Programmer's reference guide which indicates configuration on all the ports. The function `bcm_esw_vlan_translate_add()` should now able to configure for '-1' as well for 56224 devices.
SDK-51599	712774	All	In earlier releases SDK cli "mc show" did not display all OIFs for a multicast groupfixed to support any number of OIFs. This has been fixed to support any number of OIFs.
SDK-51636	693966	`56850_A0 56850_A1` `56850_A2`	The TCL MBIST code has been converted to C code, now the code covers all memories, cams, and all multi-port and single port register files.
SDK-51645	713523	`56850_A0`	Renamed conflicting #define `MAX_NAME_LEN` to `SOC_MAX_NAME_LEN`
SDK-51652	703012	`88650_A0 88650_B0` `88660_A0`	L3 Egress object optimization: When connecting between MPLS/IP tunnel to link-layer `(bcm_l3_egress_create)`, API always set Link-layer information even in case no Link-layer information has been modified. Use combination of flags `BCM_L3_KEEP_DSTMAC`, `BCM_L3_KEEP_VLAN` and `BCM_L3_REPLACE` and valid `encap_id` to modify only connection between MPLS/IP tunnel to link-layer. No link-layer modifications are done.
SDK-51665	713519	All	Add vlan control vlan selective set/get API to control `UMC_IDXf/BC_IDXf/UUC_IDXf` in Vlan Table

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-51677	695953	`88650_B0  88650_B1`	When egress packets are dropped at the EGQ, i.e. EGQ-delete-queue is receiving traffic, it'll take priority over the NIF ports, and might cause packet drop. After the fix delete queue will get priority over NIF only if it is almost full.
SDK-51811	713635	`56640_A0  56850_A0` `56640_A1  56640_B0` `56850_A1  56850_A2`	Support for symmetric hash for Resilient Hashing has been added for TD2/TR3.
SDK-51814		`88650_A0  88660_A0`	When configuring VRRP for ARAD+, up to 4k VSIs can be assigned to each VRID. There was an error that made it impossible to delete a VRID if exactly 4k (4096) VSIs entries were assigned to it. The error is now fixed.
SDK-51823	716406	`88030_A0`	ppe config error carse variable length of packet header not work. modify ppe associate structure define to fix this issue.
SDK-51824	716986	All	Added a new command 'ser inject' which may be used to inject single-bit parity errors into memories while having a minimal effect on system state.
SDK-51857	715638	All `56440_A0` `56440_A1  56440_B0`	An error with `_bcm_esw_stat_flex_destroy_ingress` `_table_counters` was reported. Fixed bug in `stat_group_create` which was intializing '256' counters.
SDK-51900		`56640_B0`	In earlier releases, priority to queue mapping was limited to 15 entries.The table supports 16 entries per profile. There was an error in validating the number of entries parameter which was corrected
SDK-51902	705911	`56440_A0  56440_B0`	Corrected issue with BFD event thread not exiting by increasing the timeout to 5 seconds.
SDK-51920		`88660_A0`	OAM/BFD events: Support the DMA reroute writes intended to the Interrupt Message Register to a local host memory. To support this functionality the following soc properties should be configured: 1) `oamp_fifo_dma_enable` - enables fifo dma mode. Default is 0. 2) `oamp_fifo_dma_buffer_size` - length of the messages buffer we store in the CPU. 3) `oamp_fifo_dma_timout` - the time for generating an interrupt when the fifo is not full. Value 0 indicates interrupt is sent only when fifo is full. Default is 0 4) `oamp_fifo_dma_threshold` - the number of events written until interrupt is generated.
SDK-51925	702621	`88650_A0  88650_B0` `88650_B1`	Trill allows now multiple flooding-groups with the same nickname. This can be used to create flooding with the same nickname for different VSIs. Procedures which used both nickname and ID as the key (like `trill_port_get`) will work only with id. See an example of configuration in `cint_trill:` `trill_with_two_vlan_flooding.`

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-51933		`88660_A0`	In stacking systems, BCM88660 is able to pass 16 bits of Load-Balancing key and to reproduce the hashing decision in the second system. Thus, any limitation or performance decrease in hashing trunk is removed when using this option.
			In the data path, the first LB-Key byte is copied in the FTMH.LB-Key-Extension, whereas the second byte is copied in the second User-Header. At egress editor block of the first system, the second User-Header is copied to the start of packet to be extracted by the Ingress PMF in the second system.
			This option can be enabled by setting the following SOC properties: 1. `system_ftmh_load_balancing_ext_mode=FULL_HASH` 2. `first_header_size_<all` stacking ports>=1 3. `field_class_id_size_1=8`
SDK-51934		`88650_A0`	In Field Processor, the Direct table is one of possible Databases (bcmFieldGroupModeDirect). Its key is very short (10 bits maximum) and corresponds to the index line of the TCAM Action table. The support of the Warmboot was faulty in the Driver: the entry content was not retrieved correctly. This is fixed.
SDK-51939	717396	All `56850_A0` `56850_A1` `56850_A2`	Modify `bcm_port_queued_count_get()` to support in Trident2
SDK-51961	712277	`88650_B0`	MIM: DEFAULT BEHAVIOR CHANGE . `bcm_l2_station_get()` API failed in some cases when VSI for MyMac was considered to be B-MyMac. This happened when the MIM indication bit in the created `station_id` was wrongfully set due to an overlap in the `station_id` encoding. This is fixed by changing the encoding of the `station_id` so that there is no overlap with the MIM indication bit. The MIM indication bit in `station_id` changed from bit 7 to bit 29.
SDK-51967	718092	`56850_A0`	A request was made to Show MC prefix MCAST PERMITS in 'show c'. This is now supported.
SDK-51984	711243	`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0`	In earlier releases, an issue was reported in `soc_tr_parity_process_mmu_qcn().` Corrected the bit number values for detecting the memory type.
SDK-51993		`88660_A0`	Trill: Introduce Multi-homing connectivity to the trill network allow a host to have access to trill campus using more than one RBridges. The host treats a group of edge RBridges as an Uplink link bundle that works in an active-active load sharing model. Arad+ support up to 3 virtual RBridges in system.
			See `cint_trill_multi_homing.c` for more description and packet-flows

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-51994	707370	`88650_B1`	IP tunnel termination lookup key is defined by SOC property: `bcm886xx_ip4_tunnel_termination_mode`. Added 2 new lookup key for IPV4 tunnel termination: `bcm886xx_ip4_tunnel_termination_mode` = 4 - Key is : {DIP, SIP, IPV4.Next-protocol} `bcm886xx_ip4_tunnel_termination_mode` = 5 - Keys are : {DIP, SIP, IPV4.Next-protocol}, {DIP} Lookup IPV4 next protocol is useful to configure multiple separate VPNs, with same DIP and SIP, but with different tunnel-types. See an example of use in: `cint_ip_tunnel_term.c`
SDK-52013		`56440_A0 56243_B0` `56240_B0 56242_B0`	1.Corrected configuration of shared pool sizes for Saber. 2.Only ports 25 tot 28 of MXQPorts use PG7. SDK was setting it for ports 25 to 34. This is corrected now. 3.Corrected configuration of `RQE_WQE`, CFAPI, CFAPE and QENTRY free address pools based on how devide is OTPd. This will prevent ECC errors when using Saber(BCM56240).
SDK-52033		`56150_A0`	Fixed DXGS mode of HG ports may not be consistently programmed.
SDK-52038	718933	`56850_A2`	In port speed set command, the driver will not enable the port if the port is not enabled.
SDK-52050	718941	`56850_A0`	Update trie code with `trie_split` fix.
SDK-52081		`56850_A2`	The JIRA fixes the temperature reading bug in the TSC driver. Also it provides the chip version information in DSC dump.
SDK-52098		`56850_A0`	Renamed `BCM_FCOE_VSAN_NORMALIZED_CHECK` to `BCM_FCOE_VSAN_NORMALIZED_ZONE_CHECK`
SDK-52110	720063	`88030_A0`	Support the encoding and decoding of ITMH, NPH and OAM headers in cint.
SDK-52139	679766	`56850_A0 56850_A1` `56850_A2`	In earlier releases Port Extender Controlling Bridge not working consistently in a stacked configuration. This has been resolved. On the egress chip, we must program the `SOURCE_VP` table entry with `TPID_SOURCE=2`, i.e. use TPIDs based on SGLP. The default is 0 - use SVP-based TPIDs from this table. mod `source_vp` 1 1 `TPID_SOURCE=2` Once we do this, the stacking setup for port extender works.
SDK-52142	719652	All	Documentation update for Field API `bcm_field_entry_prio_set`.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52148	718595	56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 56850_A0 56855_A0 56843_B0 56841_A3 56846_A1 56841_B0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2 56851_A0 56852_A0 56852_A1 56853_A0 56853_A1	Problem: `bcm_field_action_add()` API in SDK uses only one part of a `FP_POLICY_TABLE` entry to program the Field actions applied to an entry. bcmFieldActionCosQCpuNew and bcmFieldActionServicePoolIdNew are conflicting actions for SINGLE WIDE entry. For DOUBLE WIDE entry both actions can be applied to an Entry by programming them independently in the two parts of `FP_POLICY_TABLE` belonging to a double wide entry. But software does not support this behavior and `bcm_field_action_add()` API must be enhanced to support the same. Solution: Enhanced `bcm_field_action_add()` API to program bcmFieldActionCosQCpuNew and bcmFieldActionServicePoolIdNew Field Actions in different parts of an Entry belonging to a Multi Wide Group as hardware support this feature. For an entry belonging To Single Wide mode group, API will return `BCM_E_CONFIG` error as these two actions are conflicting and must be programmed in the same hardware field in `FP_POLICY_TABLE`.
SDK-52166	715996	88650_A0 88650_B0 88650_B1	In External TCAM, when used with forwarding tables, each entry content (data and mask) is saved internally in a hash table to get the KBP Driver Entry-ID. This hash table had an incorrect key-size (only according to data), thus 2 entries with same data but different masks were considered as being identical. This is fixed.
SDK-52168		88750_A0	Minor change to FE1600 isolation sequence, no effect on functionality or customer application.
SDK-52169		88650_A0 88650_B0 88650_B1 88660_A0	PON: bcmVlanPortIgnoreInnerPktTag can be used only for PON-Ports. NNI/CPU/Recycle ports do not support that vlan control value.
SDK-52189		88650_A0 88650_B0 88650_B1	The ISSU version handling is fixed. Otherwise, 6.3.4 would not be ISSU-able from 6.3.3.
SDK-52234	720648	All 56850_A0 56850_A1 56850_A2	In earlier releases `L3_IIF_PROFILE` table profile sharing was not working correctly. In this release we have.added logic to find a matched entry in `l3_iif_profile` table during update of a entry.
SDK-52241		56850_A0 56850_A2	This fix modifies driver code to support HG20G non-scramble mode with DFE off. The scramble mode requires the DFE to be on.
SDK-52247	721059	56643_A0 56644_A0 56643_A1 56644_A1	Added fix to update the field group selector (IFP) during warm boot if vpn qualifier is part of the qset.
SDK-52253	716433	56850_A0 56850_A1 56850_A2	[ALPM] Some of the ipv4 streams were not hitting an LPM route. If there is a more specific match (in case of a bucket miss) for a destination IP, in some cases the more specific match could miss and hit the global default. This change fixes that issue.
SDK-52264	721288	56850_A0	Counter XAUI activity feature support for TD2 has been removed. `_soc_xgs3_update_link_activity` will not be called for TD2.
SDK-52358	722565	56850_A0	Support to get rtag7 hash value in port based HiGig proxy mode has been added.
SDK-52361	722981	56850_A2	Added L3 lock in ser correction call to avoid deadlock in mem op and dpc ser correction thread. Moved definition of L3 lock from BCM to SOC layer.

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Table 50:

Number	CSP #	Chips		Release Notes For 6.3.4
SDK-52362	723016	`88650_A0`		PON: Creation of VLAN-Port with port parameter as VOQ-PON resulted in the API failure in the case where the PON PortnProfile that associate to the VLAN-Port is not profile 0. The sequence to support it 1.create VOQ per destination system-port (PON-port 0-7) `2.bcm_vlan_port_create` with port being flow-VOQ gport. API will retrieve the correct PortnProfile and update the learn-information of PON-LIF to be VOQ
SDK-52368	721631	`88650_A0`		`cint_vlan_control_config.c` CINT example missing documentation specifying that `dflt_frwrd` variable must be set to 1 in ARAD/ARAD+. VSI flooding group must be set the same for all unknown-uc/unknown-mc/broadcast fields. In order to set various default forwarding modes, e.g unknown unicast, unknown multicast and broadcast, use: bcmPortControlFloodUnknownUcastGroup, bcmPortControlFloodUnknownMcastGroup, bcmPortControlFloodBroadcastGroup
SDK-52370		`56440_A0` `56440_A1` `56440_B0`		A sequence of subscriber queue add/deletes could fail after an iteration. This has been fixed. `L3_IPMC MMU_REDIRECTION` pointer is now retained during clearing configuration so that for the next iteration of the Multicast group and subscriber configuration can use the next free the `remap_id` free and the MMU tables are configured as intended.
SDK-52397	722792	`88030_A0`		Fixed bcm88030 A1 port status LED issue
SDK-52405	723353	`88650_A0` `88650_B0` `88650_B1`		RX-LOS application - added support interlaken ports
SDK-52407	723478	`56850_A0`		Added support for Concatenate mode in calculating ECMP, LAG and HGT rtag7 hash index.
SDK-52416		`88660_A0`		ARAD+ fails to init OAM after WB when adding lm or dm object.
SDK-52419		All		Added a check to prevent statistics increment if replace and ID flags are set
SDK-52434 SDK-47421	723350	`56640_A0` `56640_A1` `56640_B0`		Fixed packet alignment issue on higig port. When a higig port is connected to external phy and if user configures 42K speed on it, then `xlgmii_align` bit should be set with 1. This fix sets the `xlgmii_align` bit when higig port is configured in 42000 speed.
SDK-52453		`88650_A0` `88650_B0` `88660_A0`		In Field Processor, external TCAM configuration was not restored during warmboot. Preliminary support is added to restore external TCAM configuration during warmboot. Warmboot is not supported for External TCAM yet.
SDK-52469	701853	All		`BCM_FIELD_DATA_QUALIFIER_OFFSET_NE GATIVE` is not valid on xgs ,hence returning `BCM_E_UNAVAIL` when qualifier is set
SDK-52474		`56850_A1` `56850_A2` `56850_A0`		Added doc changes for bcmFieldActionETagNew [Add/Change ETAG] & bcmFieldActionETagDelete [Delete ETAG] in IFP to support Port Extenders Etag add/delete/change options.
SDK-52490	724657	`56640_A0` `56440_A0` `56440_B0`		In earlier releases it was not possible to send a one-step 1588 packet via PCIE. In this release support has been added to specify the timestamp offset during CPU packet tx.
SDK-52496	723483	`84756_A0` `84756_C0`		An issue was reported where hot swap on 8x10G card failed. A fix was required in the `phy84756_fcmap.c` driver : Added pluggable PHY support

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52501		`56640_B0`	NL11K external tcam uses 80-bit wide registers. The CLI command "tcam dbreg" was uisng only 72bits causing the upper byte on the register value to be truncated. Fixed the code to use 80bits.
SDK-52512		`88650_A0` `88660_A0`	MPLS VPN creation `bcm_mpls_vpn_id_create` is now valid for both VPN ranges 0-4K and 4K-32K.
SDK-52513		`88650_A0`	VLAN-Port: SW-DB forwarding information of VLAN-Port might not update correctly because of uninitialized parameters caused `bcm_vswitch_port_add` to fail on random cases.
SDK-52518	705177	`88650_B1`	STG Warmboot: Warmboot stored STP state per port up to STG-ID 12 and so didn't recover for all other groups. Updated Warmboot STG allocation size to correct size.
SDK-52519		`88750_B0`	Snake test with external loopback failed when running it over BCM88750_B0. Fixed.
SDK-52526	719683	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	VLAN: A VLAN-Port object can be created per port by calling the API `bcm_vlan_port_create()` with a `MATCH_PORT` criteria and can be identified by a `vlan_port_id` value. The object may be destroyed using `bcm_vlan_port_destroy()` by suppling the `vlan_port_id.` Destroying the object frees the `vlan_port_id` that can be used for some other VLAN-Port object creation when the `WITH_ID` flag is used and the `vlan_port_id` is supplied.

A problem occurs when performing a create and destroy sequence for 3 times with the same `vlan_port_id.` The third creation fails as some resources weren't freed correctly during the destroy of objects with `MATCH_PORT` criteria.

The resource freeing during destroy, was fixed for the `MATCH_PORT` criteria objects as well.

The issue detailed above affects the unicast RPF mode per RIF feature (the SOC property `bcm886xx_l3_ingress_urpf_enable=1)`. When this feature is used by specifying a uRPF mode other than `BCM_SWITCH_URPF_DISABLE` in `bcm_l3_ingress_t.urpf_mode` for `bcm_l3_ingress_create,` deleting LIFs which are members of RIFs that use uRPF with the `MATCH_PORT` criteria will result in undefined behavior. |
SDK-52529		`88660_A0`	Support oam accelerated loopback. See an example of use in : `cint_oam_arad_plus.c`
SDK-52575	725460	`53343_A0` `56150_A0`	Correct supported number of multicast replication interface of BCM56150.
SDK-52583	710089	`56450_A0`	CLI command "oam endpoint show" fixed to exhibit correct endpoint information for BCM56450
SDK-52584	725729	`56450_A0`	In the previous release SP and WRR did not work correctly on extended queues. The reason was that the MMU thresholds were not configured for extended queues. Added queue configuration assuming internal-lossless settings
SDK-52588	725824	`56450_A0`	Fixed to handle -1 as numq for scheduler gport.

Table 50:

Number	CSP #	Chips		Release Notes For 6.3.4
SDK-52592		`88650_A0` `88650_B0` `88650_B1` `88660_A0`		MPLS VPNs can be created using `bcm_petra_mpls_vpn_id_create()`. In DNX Arch only VPLS mode requires valid VPN ID. VPWS does not require to go by VPN (Cross-connect only). The VPWS VPN creation isn't supported but the API succeed to allocate a VPN that in fact is created with VPLS encoding. For the 6.3 branch, the ability to enter VPWS VPN is valid only for ID 0 For 6.4, the VPWS flag is no longer supported, as it is not required in MPLS VPWS sequence. See `cint_vswitch_cross_connect_p2p.c` for more information on VPWS connection.
SDK-52600		`88650_A0` `88650_B0` `88650_B1` `88660_A0`		A LIF can be created with no Ingress AC-Key matching by calling `bcm_vlan_port_create()` with a criteria field set to `BCM_VLAN_PORT_MATCH_NONE`. Later, the LIF values may be edited by calling the same BCM API with the additional `BCM_VLAN_PORT_REPLACE` flag. The modification of LIFs (using `BCM_VLAN_PORT_REPLACE`) that were originally created with criteria `BCM_VLAN_PORT_MATCH_NONE,` was failed.
SDK-52601		`88650_A0`		In Warmboot, Some modules were performing a wrong version verification during Warmboot reload. This is fixed, otherwise 6.3.4 would not be ISSU-able from 6.3.3.
SDK-52618	724270	`88030_A0`		SDk-52618 RCE Errors (ECC etc) - was test packet
SDK-52622		`56850_A1`		An issue was reported with the performance of the L2 match replace function. 1. Resolved RPC issue for the new API array arguments by fixing the papi. 2. Updated internal API implementation using bitmaps instead of multiple iterations to improve the performance.
SDK-52628		`88660_A0`		CGE1 traffic fall in NBI in case of 2Caui +Elk was fixed
SDK-52629		`88660_A0`		Fixed: PRBS APIs support 2 CAUI + ELK
SDK-52630	726283	`56450_A0`		Changed the delete sequence for L0 and L1 Nodes First delete the subtree node first and then delete the parent node
SDK-52633		`88650_A0` `88650_B0` `88650_B1`		In 6.3.3, a version compiled without the WARMBOOT compilation flags was failing at initialization due to minor code missing in switch init. This is fixed.
SDK-52637		`88650_A0` `88660_A0`		In Policer, a single 2-rate color blind meter with the default configuration (32 range mode, SERIAL) would not do rate limitation. This behavior is now corrected.
SDK-52639	710412	`88650_A0` `88650_B0` `88660_A0`		In Egress L2, an HW field (CustomLearn) was set by mistake - it is a debug-only not-validated field intended to allow more packets to be learnt.
SDK-52643	723104	`88650_B1`		In 1588 application, an ITMH packet can be injected with an OAM-TS header above to indicate the header offset for the timestamp. Due to HW implementation, the usage of User-Header requires the following action from the user: - if a SOC property `field_class_id_size_X` is set, then an injected packet of type Ethernet over OAM-TS over ITHM over PTCH-2 requires: 1. to insert the User-Header to be inserted between Ethernet and OAM-TS 2. the Opaque-Attribute.LSB in PTCH-2 (bit 12) must be set 3. the ITMH destination is of type System-Port
SDK-52667	724073	`88750_A0` `88650_A0` `88650_B0` `88650_B1`		Fixed a misconfiguration when setting FE1600 to work in repeater mode, that could cause occasional drops.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52668	725913	`56850_A0` `56850_A1` `56850_A2`	Fixed issue where hash-move when moving an invalid entry may break wider conflict entry.
SDK-52673	726396	`56850_A0` `56850_A1` `56850_A2`	an issue was reported where Buffers were getting stuck on control queue of egress port when port was shut in the presence of fragmentation. This has been resolved as described below: When port is disabled or link down, remove related bitmap from below three registers. Thus traffic will not be enqueued to these ports any more. `THDU_OUTPUT_PORT_RX_ENABLE0_64` `MMU_THDM_DB_PORTSP_RX_ENABLE0_64` `MMU_THDM_MCQE_PORTSP_RX_ENABLE0_64`
SDK-52678		`88750_A0` `88650_A0` `88650_B0` `88650_B1`	In a multi-stage system, live removal of an FE1600 or ARAD device could result in occasional drops. Fixed.
SDK-52683		`88650_A0`	Nif fc indication mask - i.e the mask which defines to the nif which flow control indications it should ignore and which not - is now in accordance with fc receive path setting.
SDK-52691	726146	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	VLAN-Port Advanced VLAN translation: Packet discard can be set either per physical port or per LIF. In standard VLAN edit mode, the API `bcm_port_discard_set()` is used to set the discard state both for physical ports and for Out-LIFs. In Advanced VLAN edit mode, the API `bcm_port_tpid_class_set()` is used to set the physical discard state, while Out-LIF discard is also blocked in `bcm_port_discard_set()`. The API `bcm_port_discard_set()` is now available for setting Out-LIF discard state in AVT mode as well. The same way, `bcm_port_discard_get()` now retrieves an Out-LIF discard state in AVT mode.
SDK-52699	725215	`88650_B1`	Fabric source routed cell receive did not support multiple SR cells in parallel. Fixed.
SDK-52715		`56850_A2`	Reduced the proxy access wait time to no longer than 2.5 sec if it was longer before. This fix is to prevent some systems from crashing if a long wait time occurs.
SDK-52731		`88650_A0` `88650_B0` `88650_B1`	Fixed corrective action in case of parity error interrupt in WDF table
SDK-52733		`56850_A0` `56855_A0` `56854_B0` `56854_A0`	In earlier releases ROUTE updates were decreasing bcmSwitchObjectEcmpCurrent count in error. This has been addressed.
SDK-52741	720579	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Fast flush enables clearing MACT entries for LIFs that are associated with a ring protection group FEC using `bcm_l2_replace()` using the `BCM_L2_REPLACE_PROTECTION_RING` flag. A LIF association to a group is done by calling `bcm_port_class_set()` with the class set to bcmPortClassL2Lookup. A LIF association of a remote LIF to ring protection group performs LIF HW configuration instead of only SW DB configuration, resulting potential problems when remote LIFs are used. The API `bcm_port_class_set()` has changed so that it configures the LIF HW only for local LIFs. Ring Protection CINTs and tests where updated to support a multidevice setup. See `cint_l2_fast_flush.c`

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52742		`88650_A0 88660_A0`	Support TDM (OTN/CBR) traffic for mixed systems. Specially for mixed systems with ARAD and PetraB, when using VCS256 fabric cells, the packets are split to smaller cells by fabric devices (FE1600) during their transport, and are reassembled at the receiving FAP. The reassemble is done based on an attribute called "source-FAP-ID". This source FAP-ID is calculated as the FAP-ID of the source FAP plus a configurable offset. This source-FAP-ID value must be unique in the TM domain, and different from all FAP-IDs in the TM domain. The offset is specified by a new soc property called `tdm_source_fap_id_offset` . If it is not specified by the soc property, its default value is 256.
SDK-52762	728229	`56450_A0`	CoE/LinkPHY subports are not added to default VLAN 1. Customer application needs to manage the VLAN 1 membership for CoE/LinkPHY subports. The subport should be added to the VLAN 1 after creating the scheduler tree for the subport.
SDK-52763	719360	`88650_A0 88650_B0` `88650_B1 88660_A0`	Fixed mirroring and snooping settings that did not work in certain cases.
SDK-52766		`88650_A0 88650_B0` `88650_B1 88660_A0`	When a CAUI port is disabled and then enabled (no traffic is running), the MIB counters show incorrect values. The issue was fixed.
SDK-52771		`88650_A0 88650_B0` `88650_B1`	RSPAN: does not work when port control bcmPortControlErspanEnable is set to 1
SDK-52772		`88650_A0 88650_B0` `88660_A0`	OAM snooped packets are corrupted - snooped packet arrives to the CPU with trap headers.
SDK-52774	728360	`56850_A0`	In earlier releases, deleting and adding back source to mtp dest in TX direction returned -14. This has been addressed by clearing the egress mirroring MTP index of port unless the MTP slot is released.
SDK-52782	728467	`56850_A0`	In this release, we can use `DISABLE_TUNNEL_IP4_GRE_IP6` `DISABLE_TUNNEL_IP4_GRE_IP4` to set `DISABLE_HASH_INNER_IPV4_OVER_GRE_IPV6_A/B` ,`DISABLE_HASH_INNER_IPV4_OVER_GRE_IPV4_A/B` individually, or still use the old flag `BCM_HASH_FIELD0_DISABLE_TUNNEL_IP4_GRE` to set both fields in `RTAG7_HASH_CONTROLr` as legacy. IPv6 flags are same to IPv4.
SDK-52788	728597	All	Solved `FIELD_ENTRY_MISMATCH` problem in `bcm_field_qualify_IpType_get` by implementing new device specific functions to get iptype encoding using `hw_data` and `hw_mask`.
SDK-52795	728851	`56447_B0`	MMU threshold settings for extended queues has been updated for Katana (BCM5644x)
SDK-52796	728261	`56450_A0`	In previous releases ICAP packet resolution L3MCKnown did not work. In this release we have fixed IFP packet resolution for BCM56450
SDK-52800		`88650_A0`	When calling `bcm_petra_cosq_fc_path_get` with bcmCosqFlowControlGeneration and vsq llfc or pfc as the trigger, fc indications where not set correctly. fixed.

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Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52806	728092	`56648_A0`	On change of priority for the VLAN, A small delay was introduced as new priority mapping happens after deletion of old index. On live traffic, this transitional delay caused some packets to be on priority 0 queue as the mapping is under transition. Fixed in the transitional delay for smooth traffic flow on priority transition.
SDK-52821		`56850_A0`	Updated documentation for the following new API;s added. `bcm_cosq_stat_sync_get`, `bcm_cosq_stat_sync_get32`
SDK-52823		`56850_A0`	New API's added for `cosq_stat` retrieval have been added. `bcm_cosq_stat_sync_get` `bcm_cosq_stat_sync_get32.` Similar to `bcm_cosq_stat_get(),` value returned is software accumulated counter synced with the hardware counter.
SDK-52830		`88030_A0`	Fixed taps unified mode ucode lookup issue with certain config on bcm88030
SDK-52831		`88030_A0`	Fixed taps capacity resource leak update rate and host memory leak issue found in last patch on bcm88030
SDK-52833 SDK-52190		`56850_A2`	This JIRA fixes the problem that TSCMOD doesn't have a clean restart for CL72, such that it may cause incorrect training results. The probablity of the training problem is about 1% of link restart.
SDK-52836	728502	All	Fixed Assert While installing VFP entries with flex counters attached
SDK-52844	728330	`56450_A0`	Code fixed to update the reference count properly (next hop entry used by mpls port)
SDK-52848		`88650_A0 88660_A0`	The BCM shell command "l2 show" displays the L2 MACT entries for the unit. There was an error when in case the forwarding information included an OutLIF value, this value wasn't displayed. The problem was fixed, and the OutLIF is displayed properly now.
SDK-52857	695985	All	Updated grog for Inports to reflect the correct behavior
SDK-52859	707972	`54680_A0 54682E_A1`	Enhancing documentation/description for the config property `phy_port_primary_and_offset_<port>`
SDK-52860	728139	`88650_B1`	In some scenarios, dependent on the allocated ports and typically involving CAUI ports, an underrun may occur resulting in not reaching full port capacity. Fixed.
SDK-52873	729725	`56450_A0`	Fixed the following issues for BCM56450 1. programming of `FP_DOUBLE_WIDE_SELECT.slice_x_f1.` 2. proper initialization of `IFP_SINGLE_WIDE_F1_5.`
SDK-52918	729962	`56840_A0`	Added support for handling remote fault link status.
SDK-52923		`88660_A0`	OAM: New support in updating loss and delay objects was added. New object is created using `bcm_oam_loss/` `delay_add().` The update is performed using the same api with the flag `BCM_OAM_LOSS/` `DELAY_UPDATE` flag set.

Table 50:

Number	CSP #	Chips		Release Notes For 6.3.4
SDK-52924		`88650_A0` `88650_B0` `88650_B1` `88660_A0`		MPLS: A VSI can be associated as an MPLS VPN by calling `bcm_mpls_vpn_id_create()`. The VPN ID should be supplied as well as a `BCM_MPLS_VPN_WITH_ID` flag. Changing VPN fields is possible after creation, using the additional `BCM_MPLS_VPN_REPLACE` flag. The same VSI may also be used for vswitch, MIM, etc. The handling of the `BCM_MPLS_VPN_WITH_ID` & `BCM_MPLS_VPN_REPLACE` flags wasn't correct. Performing a create, with the replace flag `BCM_MPLS_VPN_REPLACE,` failed for an allocated VPN ID instead of succeeding. The same way, for an unallocated VPN ID, the API succeeded instead of failing. The behavior of the `BCM_MPLS_VPN_WITH_ID` & `BCM_MPLS_VPN_REPLACE` flags in `bcm_mpls_vpn_id_create()` was fixed.
SDK-52925		`88660_A0`		arad+ : minimum number of links warning message will be displayed only when current number of links < minimum number of links configured
SDK-52930	728932	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1` `56851P_A1` `56851_A1` `56850_A2` `56851_A2` `56851P_A2` `56854_A2` `56853_A2` `56852_A2` `56855_A2` `56851_A0` `56852_A0` `56852_A1` `56853_A0` `56853_A1`		In the previous release it was found that if you set bcmPortControlMmuDrain control to an admin-down port (disabled port), then after the port is re-enabling, the traffic to that port will be blocked. This issue was fixed by restoring the value of `XLMAC_CTRL` after draining cell.
SDK-52943	730095	`56840_A0`		New option "nocache" added to dump command, to display h/w table contents skipping cache.
SDK-52949 SDK-52269		`88650_A0`		For packets with meters (policing), the color (aka Drop-precedence) resulting from the metering was never stamped on the FTMH.EGRESS-DP, even if the device was configured to do this. This affects many QoS applications - one example is that the PCP cannot be changed according to the meter result. This is now fixed - when the meter result is configured to go to Egress (e.g. with `BCM_FIELD_USE_POLICER_RESULT_EGRESS),` it is stamped on the FTMH and can be used at egress.
SDK-52951		`88650_A0`		Enabling of slow rate 2 corrected: Previously, calling: `bcm_cosq_control_set` with control: bcmCosqControlFlowSlowRate and arg=1 would have set slowRate2. If the same API was called with the same control and arg=2 an error would occur. Both were corrected so now calling with arg=0 disables `slow_rate,` calling with arg=1 enables `slow_rate1` and calling with arg=2 enables `slow_rate2`
SDK-52952		`88650_A0` `88650_B0` `88660_A0`		OAM-BFD co-existence: `bcm_bfd_init` resets some of the oam registers (in `bcm_oam_init)`. Thus no oam endpoints can be added before calling `bfd_init`.
SDK-52953		`88650_A0`		Fixed ilkn oob default calendar setting to XON. Note: XON indications means port should be on - no fc.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-52954	723963	`88650_A0`	For better latency performance, especially when working with high volume traffic, ilkn ports can be configured to have dedicated TDM queues at the egress. This feature is enabled by setting the soc property: `ilkn_tdm_dedicated_queuing=1.`
SDK-52971		`88660_A0`	ARAD plus device supports either BFDoPWE or BFDCCoMPLSTP encapsulations. This should be defined by the user with a soc property. `bfd_encapsulation_mode` soc property is setting bfd pwe (mode 0) or bfd cc mplstp mode (mode 1). 0 by default. See example of use in `cint_bfd.c.`
SDK-52990	730016	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Advanced VLAN translation: Upon Configuration of an advanced VLAN edit action entry using `bcm_vlan_translate_action_id_set()`, the TPID values that will be used are mandatory fields. At the Ingress side, those TPIDs are matched with an existing TPID profile value that is passed to the Egress. The API is failed if no such TPID profile matching is found. The TPID profile consists of up to two global TPIDs. The TPID profile matching consists of two stages: 1. Exact match - The supplied TPIDs are similar to those of the TPID profile and are similarly positioned (Outer/Inner). 2. Opposite match - The supplied TPIDs are similar to those of the TPID profile but are inversely positioned (Outer/Inner).
			The problem occurs when supplying two similar TPIDs: Only a TPID profile that consists of two instances of this TPID will be matched. If no such TPID profile exists, the command will be failed.
			A third matching lookup was added to address the cases where two similar TPIDs are supplied. This lookup requires that this TPID will be included only once in a TPID profile, in any position, in order to match the TPID profile.
SDK-53007		`88650_A0` `88650_B0` `88660_A0`	`bcm_oam_opcode_map_set/get` is now functional
SDK-53011		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	`bcm_port_learn_set` now supports enable/disable SA when destination is Flow-ID
SDK-53019		`88660_A0`	OAM: Add support for `bcm_oam_loss_get`, `bcm_oam_delay_get`, `bcm_oam_loopback_get` apis.
SDK-53045	730837	`56540_B0`	Added new redirect soc APIs for autoneg and loopback configurations to get accessed for phy specific GPORTs. Implemented this into existing APIs `bcm_port_autoneg_set/get()` `bcm_port_loopback_set/get()` APIs.
SDK-53056		`88650_A0` `88650_B0` `88650_B1`	PON: Recycle and mirror ports must be allocated from port 128 and above. Other ports (0-127) are used for PON side.
SDK-53082	730548	All	Prevent potential data corruption after KNET kernel driver call to `skb_padto.`
SDK-53099		`88650_A0` `88650_B0` `88660_A0`	Trill RPF-Check: In SDK 6.3.3 RPF check was moved to LEM + PMF. See `cint_trill.c` for more information. In SDK 6.3.4, 6.4.0 removed unused code `bcm_trill_multicast_source_add/` `bcm_trill_multicast_source_delete/` `bcm_trill_multicast_source_get` for ARAD.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53108		`88650_A0`	Different ports can now be set with pfc/llfc (could not be set differently before). Also - disabling one port fc will not stop fc in a device level - Fixed
SDK-53109		`88650_A0`	VLAN:Change the macros `VLAN_CHK_PRIO` and `VLAN_CHK_ACTION` to `BCM_DPP_VLAN_CHK_PRIO` and `BCM_DPP_VLAN_CHK_ACTION` These definition in `include/bcm_int/dpp/vlan.h` appears also in `include/bcm_int/esw/vlan.h` and causes compilation errors.
SDK-53110		`88650_A0`	VLAN: Change the structure `bcm_vlan_info_s` to `bcm_dpp_vlan_info_s`. This structure appears also in `include/bcm_int/esw/vlan.h` and causes compilation errors.
SDK-53111		`88650_A0`	MPLS: Change the struct `_bcm_tr_mpls_bookkeeping_s` to `_bcm_dpp_mpls_bookkeeping_s` The struct `_bcm_tr_mpls_bookkeeping_s` appears also in `include/bcm_int/esw/mpls.h` and causes build errors.
SDK-53129	731105	`56850_A0` `56850_A1` `56850_A2`	Fixed link interrupt miss issue in 1G mode
SDK-53132		`88650_A0`	Trunk: Change the structure `trunk_private_s` `(trunk_private_t)` to `bcm_dpp_trunk_private_s` `(bcm_dpp_trunk_private_t)` This structure is defined also in `include/bcm_int/esw/trunk.h` and causes building error.
SDK-53149		`88650_A0` `88650_B0` `88660_A0`	Fixed wrong check pon port when setting and getting bcmVlanPortIgnoreInnerPktTag for pon port.
SDK-53183	728584	All	API `bcm_cosq_gport_connection_get` returned error for ISQ ports. The API is now valid also for ISQ ports.
SDK-53192		`88650_A0` `88650_B0` `88650_B1`	L3 APIs replace: 1.Support to replace vrf, mac addr, ttl, mtu and dscp qos map id by `bcm_l3_intf_create` with `BCM_L3_REPLACE` flag. 2.Support to replace l3 intf, next hop mac, port tgid and encap id by `bcm_l3_host_add` with `BCM_L3_REPLACE` flag. 3.Support to replace l3 intf and port tgid by `bcm_l3_route_add` with `BCM_L3_REPLACE` flag.
SDK-53194		`88650_A0` `88650_B0`	Support the replace for `bcm_mim_vpn_create` and `bcm_trill_vpn_create`.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53195 SDK-53298		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	1.Support to replace mc-group and L3 route interface by `bcm_ipmc_add` with `BCM_IPMC_REPLACE` flags. 2.Support to replace unknown unicast mc-group, unknown multicast mc-group and broadcast mc-group by `bcm_l2gre_vpn_create` with `BCM_L2GRE_VPN_REPLACE`,`BCM_L2GRE_VPN_UNKNOWN_UCAST_REPLACE`, `BCM_L2GRE_VPN_UNKNOWN_MCAST_REPLACE`, `BCM_L2GRE_VPN_BCAST_REPLACE` flags 3.Support to replace match port and flag with/without `BCM_L2GRE_PORT_NETWORK` by `bcm_l2gre_port_add` with `BCM_L2GRE_PORT_REPLACE` flag. 4.Support to replace unknown unicast mc-group, unknown multicast mc-group and broadcast mc-group by `bcm_vxlan_vpn_create` with `BCM_VXLAN_VPN_REPLACE`,`BCM_VXLAN_VPN_UNKNOWN_UCAST_REPLACE`, `BCM_VXLAN_VPN_UNKNOWN_MCAST_REPLACE`, `BCM_VXLAN_VPN_BCAST_REPLACE` flags. 5.support to replace match port and flag with/without `BCM_VXLAN_PORT_NETWORK` by `bcm_vxlan_port_add` with `BCM_VXLAN_PORT_REPLACE` flag.
SDK-53196		`88650_A0` `88650_B0` `88650_B1`	MPLS APIs Replace: 1.Support `bcm_mpls_port_add` to replace `match_label`, vpn, and flags (`BCM_MPLS_PORT_CONTROL_WORD`, `BCM_MPLS_PORT_ENTROPY_ENABLE`) with `BCM_MPLS_PORT_REPLACE` and `mpls_port_id`. In case of `mpls_port_id` is protected, `egress_label.label` and port of FEC can also be replaced. 2.Support `bcm_mpls_tunnel_initiator_create` to replace label, vsi and action with `BCM_MPLS_EGRESS_LABEL_REPLACE` and `tunnel_id`. 3.Support `bcm_mpls_tunnel_switch_create` to replace `egress_label`, `qos_map_id`, `tunnel_if` and flags (`BCM_MPLS_SWITCH_FRR`, `BCM_MPLS_SWITCH_LOOKUP_SECOND_LABEL`, `BCM_MPLS_SWITCH_ENTROPY_ENABLE`, `BCM_MPLS_SWITCH_TRAP_TTL_0`, `BCM_MPLS_SWITCH_TRAP_TTL_1`, `BCM_MPLS_SWITCH_SKIP_ETHERNET`, `BCM_MPLS_SWITCH_NEXT_HEADER_L2`, `BCM_MPLS_SWITCH_NEXT_HEADER_IPV4`, `BCM_MPLS_SWITCH_NEXT_HEADER_IPV6`) with `BCM_MPLS_SWITCH_REPLACE` and `in_label`, in case of action is `BCM_MPLS_SWITCH_ACTION_POP`. 4.Support `bcm_mpls_vpn_id_create` to replace `broadcast_group`, `unknown_multicast_group` and `unknown_unicast_group` with flags `BCM_MPLS_VPN_VPLS`|`BCM_MPLS_VPN_WITH_ID`. The replaced `broadcast_group` should be equal to `unknown_multicast_group` and also equal to `unknown_unicast_group`.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53201	710888	88650_A0 88650_B0	ARP extender provides the ability for IPV4 UC packets MAC extension offset from IPV4 host table to next-hop mac address. In ARAD-A/B ARP extender is implemented using the egress-editor micro-code. Program caused on some Trill packets to drop. Modified ARP extender program to handle only IPV4 UC packets as it should be.
SDK-53202	727655	88650_B0	`bcm_bfd_endpoint_create WITH_ID` ignores the given id and returns a new allocated one.
SDK-53225		88650_A0 88660_A0	VLAN: `SDK/src/examples/dpp/ cint_vlan_translation_new_mode.c` was renamed to appropriate name: `SDK/src/ examples/dpp/ cint_advanced_vlan_translation_mod e.c`
SDK-53227	733542	56450_A0	Corrected code for Multicast traffic. PID will be updated by cosq scheduler function at run time (for subport queue configuration etc)
SDK-53242		88650_A0 88660_A0	VLAN: The api `bcm_petra_vlan_control_port_set` is responsible of setting miscellaneous port-specific vlan options. It receives as a parameter `bcm_vlan_control_port_t` type. Two enumerations of this variable are not supported in AVT mode: bcmVlanPortPriTaggedDrop and bcmVlanPortTranslateKeyFirst. Hitherto this change, these cases returned `BCM_E_NOT_FOUND.` The fix returns `BCM_E_UNAVAIL` in case the type equals one of the two.
SDK-53255	728560	56640_B0	In the previous release,when external phy called the speed notify of 100M on the internal serdes, the default was 100FX(fiber mode). However 100FX was not supported on warpcore C0, so packets would not go through. Since WarpCore C0 does not support 100FX and the default mode is fiber, so for 100M speed it will not work. The fix will be using sgmii 100M mode for warpCore c0.
SDK-53283	733471	56450_A0	Clear HQOS configuration while switching from extended queuing to diffserv queuing.
SDK-53286	733518	88650_A0 88660_A0	PON: Add a new criteria `"BCM_VLAN_PORT_MATCH_PORT_TUNNEL_P CP"` to classify PON InLIF based on PON-Port, Tunnel-ID and outer PCP.
SDK-53289	734160	56450_A0	Fixed `SOURCE_TRUNK_MAP_MODBASE` and `SOURCE_TRUNK_MAP` configuration for BCM56450. Previously there was a configuraton error for subport.
SDK-53290		88660_A0	When a link status changed , fabric min number of links feature might not work, and traffic won't stop. Fixed.
SDK-53301 SDK-53047		88650_A0 88660_A0	Trill functionality always enabled Trill designated VLAN check: A single VLAN allowed for Trill encapsulated packet on a specific port. Device supports up to 8 different designated VLANs. In case more than 8 different designated VLANs are needed, user needs to disable this check. New soc property added to disable this check - `trill_designated_vlan_check_disabl e=1.` User can mimic check using ACLs.

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53304		`88660_A0`	Introduce a new VLAN-Port property : `FORWARD_GROUP` In the regular VLAN-Port settings MACT forward to VLAN-Port. In order to forward to VLAN-Port MACT needs two fields information: Out-LIF (outgoing logical interface) and Out-Port (physical destination). Forward-Group allows instead of using the MACT to result for forwarding information, have indirection group (forward-group) to provide the information on destination and the other bits to use the FP settings in a flexible way.
			The indirection object (Forward-group) that consist both the physical-destination and the outgoing logical-interface (out-LIF) is implemented in DNX using FEC.
			To allow such a scheme a flag indicate it `BCM_VLAN_PORT_FORWARD_GROUP` /* Use forwarding group */ Note: When supporting Forward-Group device must disable HW learning and use only CPU learning.
SDK-53327		`88650_A0  88650_B0  88650_B1`	PON: In application level, upstream and downstream should use different MC-ID upon VPN PON service creation.
SDK-53338		`56850_A1  56850_A2  56850_A0`	Fixed range check for VXLAN `VN_ID` and L2GRE VPNID during vpn create API
SDK-53341		`88650_A0`	Calculation of channelized interface shaper is now corrected when calling: `bcm_cosq_gport_bandwidth_set(unit, parent_port,cosq,0,kbits_per_sec,0 );` Where `parent_port` is: `BCM_COSQ_GPORT_E2E_PORT_SET(e2e_po rt,port);` `bcm_fabric_port_get(unit,e2e_port, 0,parent_port);`
SDK-53345	734829	`88650_A0  88650_B0  88650_B1  88660_A0`	Warmboot: Performing WB or synchronizing the warmboot DB using `bcm_switch_control_set()` may have caused DB segmentation fault due to a short buffer that handles protection FECs. The buffer size was fixed. In 6.3.3, if protection FECs with values of 8K and above were used or if a warmboot was performed, a device reboot in 6.3.4 is required in order to eliminate any possible memory override issues.
SDK-53356		All	Ensure that KNET DMA abort works correctly on idle DMA channels on CMICe-based devices such as BCM5684x.
SDK-53358		`88660_A0`	OAM LM packets are always counted in ARAD due to HW bug. In ARAD+ LM packets are counted only upon user request (can be configured using `bcm_oam_endpoint_action_set` api).
SDK-53359		`88650_A0  88660_A0`	Field Processor initialization was failing during ISSU (in service software upgrade) from SDK 6.3.3 to 6.3.4. This is fixed.
SDK-53360		All	Fixed potential Tx DMA lockup in KNET kernel module.
SDK-53362		`88650_A0`	In Field Processor, when using direct extraction tables, a segmentation fault may have occurred in some cases when setting qualifiers.This is fixed.
SDK-53363	732741	`88650_A0`	On some operating systems in previous releases, init might fail with segmentation fault in egress editor init. This has been fixed

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53374		`88650_A0 88650_B0 88650_B1 88660_A0`	The default range of the credit watchdog was fixed to include all queues. The default range before the fix was one queue - queue zero. A side affect of the driver coming with the previous default and not changing it later is that if the system comes up under traffic, queues may get stuck and require ingress soft-reset.
SDK-53431		`88650_A0 88660_A0`	TM only mode: When bcm.user loads in TM mode, it shouldn't matter what PP soc properties are active, since PP is disabled. There was a problem where setting the Advanced Vlan Translation mode soc property caused a conflict that made bmc.user crash at startup. The problem was fixed, and now the device can start normally with both modes on.
SDK-53470	736427	`56450_A0`	Fixed issue with mpls port delete for CoE subport on BCM56450
SDK-53472		`88650_A0 88650_B0 88650_B1`	In the example application (called by arad.soc), the RX module was not activated after warmboot. This is fixed by calling DPP application in WB mode. Reference code for customer application. No driver change.
SDK-53473	736455	`56450_A0`	In an earlier release `bcm_cosq_gport_attach` return `BCM_E_RESOURCE` after several rounds of subport add and delete actions. In this release hardware resources of strict priority children are now bing released when the number of children becomes zero which makes node unresolved function consistent with node resolve.
SDK-53478		`88650_A0 88650_B0 88650_B1 88660_A0`	MPLS: `bcm_mpls_vpn_id_get()` retrieves VPN information from a VSI that was associated as an MPLS VPN (`bcm_mpls_vpn_id_create`). The same VSI may also be used for vswitch, MIM, etc. The supplied VSI to `bcm_mpls_vpn_id_get()` was validated for VSI existance, but it also successfully retrieved VSI info for VSIs that were allocated by other applications, but were not used by the MPLS. The validation for `bcm_mpls_vpn_id_get()` was fixed so that VSIs that are not used by the MPLS, return an `E_NOT_FOUND` error.
SDK-53531	727653	`88650_A0`	BFD packets may now be trapped to custom gports. When calling `bcm_bfd_endpoint_create(),` set the `remote_gport` field to a valid gport for trapping BFD frames to that gport. Macros such as `BCM_GPORT_LOCAL_SET()` should be used for converting ports to gports and setting `remote_gport.` If the default behavior is preferred, `remote_gport` should be set to `BCM_GPORT_INVALID` (this is configured in `bcm_bfd_endpoint_info_t_init()`).
SDK-53542		`88650_A0`	ECMP - Trunk: a new CINT has been inserted, emulating the 88650 HW and how an hash member is selected in ECMP and Trunk (i.e., LAG). The CINT is called: `cint_trunk_ecmp_lb_key_and_member_retrieve.c` This CINT does not apply on BCM88660.
SDK-53619		`88650_A0 88650_B0 88660_A0`	Within advanced VLAN mode, `cos_profile` should be explicitly attached to LIF using `bcm_qos_port_map_set()` .

Table 50:

Number	CSP #	Chips	Release Notes For 6.3.4
SDK-53633		`88650_A0 88660_A0`	Warm Boot: Creating an In-LIF object may also create a FEC object as part of a 1:1 protection scheme or a forwarding group of a VLAN Port, or as part of PWE protection. This is done by calling calling `bcm_vlan_port_create()` or `bcm_mpls_port_add()` respectively. If such an operation that creates a protection FEC, was created after a warmboot has been performed, it would fail. The fix, enables the creation of a the above protetcion FECs after performing warm boot, as expected.
SDK-53653		`88650_A0`	Fix counter proccessor thread safety issue. No effect on customer application

Section 21: Resolved Issues for 6.3.3

The following issues are resolved in version 6.3.3 of the SDK.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-31403	354011	`56643_A0`	ISSUE: The BCM API's doesn't support programming of `KNOWN_MCAST_BLOCK_MASK` table/register for port flooding.
			File name: include/bcm/port.h
			MACRO already available: /* Flood blocking modes. */ #define `BCM_PORT_FLOOD_BLOCK_BCAST 0x1` #define `BCM_PORT_FLOOD_BLOCK_UNKNOWN_UCAST 0x2` #define `BCM_PORT_FLOOD_BLOCK_UNKNOWN_MCAST 0x4` #define `BCM_PORT_FLOOD_BLOCK_ALL 0x8` #define `BCM_PORT_FLOOD_BLOCK_UNKNOWN_IP_MCAST 0x10` #define `BCM_PORT_FLOOD_BLOCK_UNKNOWN_NON IP_MCAST 0x20`
			New MACRO: #define `BCM_PORT_FLOOD_BLOCK_KNOWN_MCAST 0x40`
			USABILITY: This MACRO will be used by the client to program the `KNOWN_MCAST_BLOCK_MASK` table/register.
			Functions where it used: `bcm_esw_port_flood_block_set/` `bcm_esw_port_flood_block_get` `_bcm_port_flood_block_op`
			Based on the flag set by the client the `KNOWN_MCAST_BLOCK_MASK` table/register will be programmed.
			CHIPS Having this register: TRX, TRDX, KATANA
SDK-32124	367945	`56526_A0` `56524_A0` `56521_A0`	snmpIfInErrors now counts oversize packets for both 1G and 10G ports.
SDK-35270	443089	All	Handling of missing error types on L2 address add failures.
SDK-37274		`56640_A0` `56440_A0` `56850_A0`	Port and VLAN flex counter can be detached according to the given statistics counter ID.
SDK-38701	640562	`56445_A1`	When schedule mode is set to `BCM_COSQ_WEIGHTED_ROUND_ROBIN` the `PACKET_MODE_WRR_ACCOUNTING_ENABL Ef` bit is enabled in `LLS_PORT_CONFIG`.
SDK-41493	557290	`56640_A0` `56440_A0` `56334_A0`	Fixed `bcm_oam_endpoint_create` & `bcm_oam_endpoint_get` APIs to store and return `opcode_flags` field.
SDK-42056	566321	`56840_A0`	Removed temporary code used for AV support.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-44303		`56640_A0`	The semaphore lock for `L2_USER_ENTRY` before the write operation is now appropriately called.
SDK-44726	607522	`56846_A0` `56845_B0` `56843_B0` `56841_B0`	EUC port support bcmCosqStatDroppedPackets uc traffic.
SDK-44957	592869	`56640_A0` `56640_A1` `56640_B0`	Can count `PERQ_PKT`/`PERQ_BYTE` correctly.
SDK-44977		`56846_A0` `56840_A0` `56746_A0` `56744_A0` `56850_A0` `56755_A0` `56640_B0`	Fixed warmboot recovery for 5664x LPM on external TCAM
SDK-45248	616287	`88030_A0`	The status of individual interlaken lanes are shown as part of the "port" diag command. User doesnt have to decode lane status from register data.
SDK-45272		`88750_A0`	Implement a SW workaround for the following Errata, affecting multistage systems only: when a local link state (on the FE1600 device) is changed from up to down, and then a remote FAP is connectivity-wise gone, the all-reachable vector will include only the links which are locally gone, causing all multicast traffic to be dropped. The workaround is implemented as a corrective action in the interrupt handling code (application level, {SDK}/src/appl).
SDK-45358	616935	`5389_A0`	Fixed the issue that some enums of register/field/memory were not properly wrapped with the INDEX() macro for Robo SDK.
SDK-45857	620172	`88650_A0` `88650_B0` `88650_B1`	Added support for unicast trill with transit ECMP, and a cint `example:trill_uni_with_transit_e cmp`
SDK-46170	620208	`88650_A0`	Fixed "version" command does not give a list of DUNE chips supported
SDK-46248		`88660_A0`	In BCM88660, the Stateful Load balancing feature (aka Consistent Hashing) is implemented
SDK-46640		`5396_A0`	Add back bcm5396 support in sdk release.
SDK-47045	640610	`88650_A0`	VLAN translation: Fixed `bcm_vlan_translate_egress_action _get()` returning incorrect information for TPID action. Return TPID action none instead of modify on several egress actions.
SDK-47432		`88650_A0` `88650_B0` `88650_B1` `88660_A0`	VSWITCH: `bcm_vswitch_destroy_all` should delete all vswitch configurations. This includes VSI instances that were marked as vswitch VSI when created using `bcm_vswitch_create` & `bcm_vswitch_create_with_id,` as well as VSI disassociation of the gports that were previously added to those VSIs using `bcm_vswitch_port_add.` The API function performed the gport association from the relevant VSIs, but didn't delete the VSIs. The fix added VSI removal after the gport disassociation for all the relevant VSIs.
SDK-47484 SDK-41472		`56640_B0` `56644_B0`	Fixed warmboot recovery for 5664x LPM on external TCAM
SDK-47596	648378	All	Modified the code to fix the silent failure in ERSPAN case.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-48100	631751	`56142_A0 56143_A0` `56144_A0 56146_A0`	set the sw pause override so that pause settings from software take effect when autoconfig is enabled

SDK-48107	663194	`56840_A0 56620_B0`
		`56850_A0 56340_A0`
		`56850_A1 56850_A2`
			Fix `bcm_xgs3_l3_egress_create` may decrease `BCM_XGS3_L3_ENT_REF_CNT` incorrectly

SDK-48113	649349	`56540_B0`	Added check to reject provisioning of Endpoints which are not within range (0-7)

SDK-48241	665503	All `56440_A0`
		`56334_B0 56334_A0`
		`56440_A1 56440_B0`
			Code fixed and there are no duplicate entries created in `EGR_MPLS_VC_AND_SWAP_LABLE` table.

SDK-48333		`88660_A0`	VXLAN: BCM88660 introduces VXLAN encapsulation enhancement: In BCM88650, VXLAN encapsulation is supported by ucode (egress editor program). In BCM88660, VXLAN encapsulation is supported by the regular pipeline using EEDB IP Tunnel VXLAN encapsulation mode. The change is only internal and include removing the egress editor program that build VXLAN tunnel and changing the encapsulation mode field in EEDB IP tunnel format. The change only change internal implementation and does not change the BCM API and BCM calling sequence of the VXLAN application.
SDK-48514	669177	`88650_A0 88650_B0`	`sal_free()` asserted corrupt pointer on 2nd warmboot attempt when running with bcmSwitchControlAutoSync
SDK-48546		`88650_A0 88650_B0` `88650_B1 88660_A0`	fixed undesirable "on the fly" Warm boot external storage updates. Warm boot eternal storage is updated only upon explicit request, by calling to `bcm_switch_control_set(unit, bcmSwitchControlSync, 1)`.
SDK-48767		`88650_A0 88650_B0` `88650_B1 88660_A0`	VLAN translation advanced mode: The API `bcm_port_tpid_class_set()` defines a tag format value per a combination of TPIDs and priority flag. Untagged packets `(tpid1=tpid2=BCM_PORT_TPID_CLASS_TPID_INVALID)` can only use tag format '0'. This validation was added to the `bcm_port_tpid_class_set()` API.
SDK-48780		`88650_A0`	Added a new compilation flag: `BCM_RX_DISABLE` When compiled with this flag, BCM RX module (CPU packets receive) is not available. Compiling with this flag allows to save DMA memory resources, otherwise allocated as part of the driver initialization sequence. Customers that do not want to initialize the RX module should add to their makefile the following: CFGFLAGS += -`DBCM_RX_DISABLE`

Table 51:

Number	CSP #	Chips		Release Notes For 6.3.3
SDK-48816		`88030_A0`		"ddrphytune" CLI command was failing when run from the BCM prompt. To work around this issue, it was required to run the "ddrphytune" command twice or running the TR 53 command first and then the "ddrphytune" command to operate properly. This issue has been fixed.
				The Correct syntax for "ddrphytune" can be obtained by typing "help ddrphytune" on the BCM prompt. Only even set of CI to be tuned has to given as parameter, and these should be of the format "ciX" where X is the even CI number
SDK-48912	672983	`56143_A0`	`56146_A0`	Fixed port bitmap error on BCM5614x device when a port is set to Higig2
SDK-49024	676736	`88750_A0`		`bcm_port_enable_get` API return always disabled after WB. Issue is fixed.
SDK-49109 SDK-50682	675316	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1` `56851P_A1` `56851_A1` `56850_A2` `56851_A2` `56851P_A2` `56854_A2` `56853_A2` `56852_A2` `56855_A2` `56750_A0` `56750_A1` `56750_A2` `56851_A0` `56852_A0` `56852_A1` `56853_A0` `56853_A1`		Add the support of modify core clock frequency during init through SOC property.
SDK-49232	680330	`56850_A0`		Added new API for reading the following registers `THDI_PORT_LIMIT_STATES` `THDI_POOL_DROP_STATE` `THDI_GLOBAL_HDRM_COUNT_PIPEX` `THDI_GLOBAL_HDRM_COUNT_PIPEY` `THDI_FLOW_CONTROL_XOFF_STATE`
SDK-49238	669211	`88650_A0` `88650_B0` `88650_B1` `88660_A0`		Egress filter acceptable frame type: The HW supports Egress filtering per each TPID class type as it does at the Ingress. The Egress filtering can be done both at the ERPP and the ETPP, while filtering at the ERPP also requires trap configuration. The Ingress filter configuration is currently available via the `bcm_port_tpid_class_set()` API by manipulating the `BCM_PORT_TPID_CLASS_DISCARD` flag per supplied port, TPIDs and Priority tag. Added egress filter configuration with the existing sequence.
				Important note: Default behavior changed. `bcm_port_tpid_class_set()` now configures the Egress filtering on top of the existing Ingress filtering. Meaning Egress filtering will apply as well when `BCM_PORT_TPID_CLASS_DISCARD` is set.
				An example of use see: `cint_egress_acceptable_frame_type.c`

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-49240	675673	`88650_A0 88650_B0 88650_B1`	VLAN translation: `bcm_vlan_port_egress_default_action_set` doesn't allocate new out ac and doesn't assign correct AC per port when it is called on the second time. Second time will assign it to Out-AC 0. Issue is fixed. User can call twice to API with no AC allocation issues.
SDK-49358		`88030_A0`	Fixed a segfault in counter thread during fast reconfig for 88030.
SDK-49370	682076	`56450_A0`	Added support to create l3 egress object for 'LinkPHY/3rd Vlan SubportPktTag' subport gport
SDK-49373	681189	`88650_B1`	In IP TCAM, Field Processor, or any TCAM-based Database, the entry insertion performance has been significantly improved for a large number of entries. This required modifying all the TCAM data structures for better performance. No feature has been added / changed. ISSUE: Due to this major change, TCAM entries cannot be retrieved from 6.3.2 after ISSU. The user must delete first all its TCAM entries, de-init init the system, and then re-insert them after the system initialization.
SDK-49407	681991	`56850_A0`	Issue1 and issue2 specified are now fixed.
SDK-49447		`88650_A0`	MPLS FRR: FRR (Fast Reroute) is supported in BCM SDK. See `cint_mpls_lsr.c` for utility functions.
SDK-49449		`56450_A0`	Used offset based mechanism per chip-id and cfg range will be available for each chip
SDK-49593		`88650_A0`	PON: When the `custom_pon_enable` is set, the PON ISEM classification scheme is different: Double tag is in `ISEM_B,` Single-tag/Untag is in `ISEM_A` TLS is part of TCAM database.
SDK-49610	685129	`56850_A0 56850_A1 56850_A2`	Changes to allow CPU ports to be added as part of multicast groups, on Trident2.
SDK-49645		`88030_A0`	Fixed a memory leak during fast reset of 88030.
SDK-49658	681216	All	Support application managed vp group vlan membership
SDK-49675	685913	`88030_A0`	To share taps tables for multiple c3 units, Two things need to be configured: 1. Add `host_memory_table_share.<unit>=1` in config.bcm. It points out which uint would share the same LPM tables. 2. Add `host_share_table=1` in `g3p1_tmu_cfg.lrp.It` means which taps table is shared. The default value is 0, it means this table isn't shared.

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Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-49717	686082	`56850_A0 56850_A1 56850_A2`	Added support for two new field qualifiers(bcmFieldQualifySrcVxlanGport and bcmFieldQualifyDstVxlanGport) to qualify VXLAN source and destination gport. So following four new API are opened up `bcm_esw_field_qualify_SrcVxlanGport` `bcm_esw_field_qualify_DstVxlanGport` `bcm_esw_field_qualify_SrcVxlanGport_get` `bcm_esw_field_qualify_DstVxlanGport_get`
SDK-49757		`56450_A0`	Previously pause did not work for some 1G or 2.5G ports. Resolved by Making PG7 for lane0 ports and 30,33,36,39 ports and PG0 for remaining ports
SDK-49761	684785	All `56850_A0` `56850_A1 56850_A2`	Added code support to allow each service pool to be configured separately in device level and port level
SDK-49776		`88660_A0`	VRRP ARAD+: flexible VRRP capabilities. Feature 1# VRRP is not supported using CAM table that match MAC address against 8 possible MAC addresses. One use of it is for VRRP application which is supported in the same sequence as ARAD. In ARAD+ : 1. VRID range can be 0-255 (with limitation of only 8 VRIDs are supported) 2. IPV6 distinct is supported also when `l3_vrrp_max_vid` = 4096. Important note: Default behavior of VRRP in ARAD+ has changed. `l3_vrrp_max_vid` 4K/2K/1K/512 are now implemented the same way using the CAM table. Meaning, `max_vid` 2K/1K/512 can also support 4K range of VIDs. Feature 2# VRRP flexiable HW implementation provide the ability of having up to 8 non-VRRP L2 termination address. To enable the feature call: `l3_multiple_mymac_termination_enable` = 1 `l3_multiple_mymac_termination_mode` = 0/1 /* 0 - don't distinct between L3 protocols , 1 - distinct between IPV4 and other L3 packets */ Note: To use the feature soc properties: `l3_vrrp_ipv6_distinct` and `l3_vrrp_max_vid` must be set to 0.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-49793	687002	`88650_A0` `88650_B0` `88650_B1`	Trunk support in PP APIs: When calling PP APIs with port being trunk gport: * set APIs should set the same information on all PP ports that are members of the trunk group on the specific unit. * get APIs should retrieve the information from one of the PP ports member (no matter which).
			On many APIs, implementation used macro `DPP_PBMP_TO_SINGLE_PORT_GET` to retrieve one member of the trunk group instead of `DPP_PBMP_SINGLE_PORT_GET.` This caused failure on get APIs when port parameter is trunk group with at least two members.
			Here are the list of APIs that are fixed and now can support also trunk group with at least two members: `bcm_qos_port_map_get,` `bcm_stg_stp_get,` `bcm_vlan_gport_*,` `bcm_vlan_stp_get,` `bcm_vlan_port_default_action_*,` `bcm_vlan_port_protocol_action_*,` `bcm_vlan_translate_action_*,` `bcm_port_control_set/get,` `bcm_auth_mode_*,` `bcm_port_tpid_class_*`
SDK-49807		`88660_A0`	A new flag has been introduced (bcmOamActionSlmEnable) in order to support synthetic loss measurement on Arad+
SDK-49828	688539	`88030_A0`	fix race condition for tmu fifo manager on bcm88030
SDK-49867	688614	`88650_A0`	When using External TCAM for forwarding or ACLs (External Lookup), the user can from now on cache configured external lookup entries and commit them in a batch. 1. Set ELK caching mode by calling `bcm_switch_control_set` with control type bcmSwitchFieldCache (arg 1 - enabled, arg 0 - disabled. default:0). 2. Define all the entries via FP APIs (ACLs) or forwarding APIs (e.g. IP APIs). These entries are saved in the SW. 3. Commit all these configured cached entries via `bcm_switch_control_set` with control type bcmSwitchFieldCommit.
SDK-49890	682698	`88030_A0`	support TCAM prbs command for bcm88030
SDK-49891	676355	All	"diag cosq `print_flow_and_up`" FC counter value will always be zero even there is FC on the port. The issue is fixed.
SDK-49913	688017	All	Fixed KNET IOCTL interface for proper alignment on a 64-bit Linux kernel with a 32-bit user mode application.
SDK-49920	666273	`88650_A0` `88640_A0`	Port TPID: `bcm_port_inner_tpid_get` should return the inner tpid of port. On some cases of port tpid settings (when soc property is `bcm886xx_vlan_translate_mode=0`) inner tpid did not return the correct value. The issue is now fixed.
SDK-49922	672561	`88640_A0`	`petra_mgmt_all_ctrl_cells_enable _get()` API looks at `mesh_topology.mesh_topology_reg. trig` instead of `rtp.rtp_enable_reg.rtp_up_en.`

Table 51:

Number	CSP #	Chips		Release Notes For 6.3.3
SDK-49959		88030_A0		improve the OCM memory allocation debug dump for 88030
SDK-49979	687189	56640_A1	56643_A1 56643_B0	With this fix, external ACL can successfully filter MLPS terminated packets with assigned SVP, on TR3
SDK-50009	688266	56640_A0	56640_A1 56640_B0	Added a new L2 flag to configure REMOTE bit in L2 table.
SDK-50017		56850_A1 56850_A0	56850_A2	Updated documentation for two new field qualifiers and four new API's bcmFieldQualifySrcVxlanGport bcmFieldQualifyDstVxlanGport `bcm_esw_field_qualify_SrcVxlanGport` `bcm_esw_field_qualify_DstVxlanGport` `bcm_esw_field_qualify_SrcVxlanGport_get` `bcm_esw_field_qualify_DstVxlanGport_get`
SDK-50019		56850_A1 56850_A0	56850_A2	Added support for two new field qualifiers(bcmFieldQualifySrcVxlanGport and bcmFieldQualifyDstVxlanGport) to qualify VXLAN source and destination gport. So following four new API are opened up `bcm_esw_field_qualify_SrcVxlanGport` `bcm_esw_field_qualify_DstVxlanGport` `bcm_esw_field_qualify_SrcVxlanGport_get` `bcm_esw_field_qualify_DstVxlanGport_get`
SDK-50039		88650_A0		PON: For In-AC-LIF matching, PON priority tag packets are matched same as untagged packets.
SDK-50068	690957	56640_A0	56643_A0	Added the following missing switch controls in `bcm_esw_switch_control_port_get` for TR3 bcmSwitchHashFCOEField0, bcmSwitchHashFCOEField1, bcmSwitchHashL2TrillField0, bcmSwitchHashL2TrillField1, bcmSwitchHashL3TrillField0, bcmSwitchHashL3TrillField1, bcmSwitchHashTrillTunnelField0, bcmSwitchHashTrillTunnelField1
SDK-50073		56340_A0		Enabled MSI Function Page in EP mode, for CMICd devices.
SDK-50097	692006	56450_A0		Enabled missing true egress mirroring support for KT2
SDK-50127	692117	88650_A0		STG: Several STG APIs do not recognize STG-ID 64 as a valid value, caused several APIs to fail.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50132	692195	`56450_A0`	1. The config varibles `'pbmp_subport'` is now used to indicated which ports will be allowed for CoE configuration at run time. 2. The config variable `'num_subports'` is used for reserving the CoE subports at init time. Maximum of 128 subports can be reserved. 3. To switch between a CoE<->non-CoE at run time, use the API `bcm_port_control_set(unit, port,` bcmPortControlSubportTagEnable, <enable>). Note: Customer application will need to delete the ETS tree and cleanup the added subports, if any, before converting from CoE-to->non-CoE at run time. 4. For performing flex-IO operation on a block, the customer application need to first disable CoE on all ports in the block. For example: `pbmp_subport=0x2222 num_subports=12` This will reserve 48 subports, 12 each for physical port numbers 1,5,9,13. This also indicates that only ports (1,5,9,13) can be converted from non-CoE<->CoE port at run time.
SDK-50158	686085	`56850_A0 56850_A1`	EFP entries will create with right `key_match_type` for the given set of qualifiers qualified in an entry.
SDK-50161 SDK-51336 SDK-52318	692857	All	Added missing multicast types in `cmd_multicast_parse_type` array. Also updated the code to handle the missing types in future.
SDK-50163	680158	`88030_A0`	Caladan3 can work with Interlaken interfaces running at 12.5G. To set this configuration the SWS and ILKN core clock needs to be increased. With this setup, The ILKN will have at the max 11 lanes and meet the 100G duplex speed.
SDK-50223	687869	`88650_A0 88650_B0 88650_B1`	Port-Protocol VLAN assignment: When having more than one profile and calling multiple same-port but different ethertypes `bcm_vlan_port_protocol_action_` APIs disable settings on other ports. Fixed the management of profiles in API to resolve the case.
SDK-50224	676993	All	Compiler warning when building SDK with -O3 fails are corrected
SDK-50245		`88650_A0`	System PP resources: Added several more examples of encoding of different BCM objects, among which are : VLAN-Port gport (`vlan_port_id`), MPLS-Port gport (`mpls_port_id`) and L3 interface objects (RIF, LIF, FEC). This usage is exemplified via utility functions in : `cint_system_vswitch_encoding.c`
SDK-50273	685449	`56850_A0`	Fix wrong calculation in `min_burst`/ `max_burst` of CPU port.
SDK-50276		`56850_A0 56850_A1 56850_A2`	Added implementation support for ETAG PCP/DE mapping .
SDK-50302	693871	`56850_A0 56850_A1 56850_A2`	Resolved deficit round robin scheduling configuration error
SDK-50315	693904	`56850_A0 56850_A1 56850_A2`	Write ECMP ptr or next hop to `L3_ENTRY_IPV4_MULTICASTm` for ensuring nh not being lost when hit ingress DNAT entry aging out.

Table 51:

Number	CSP #	Chips		Release Notes For 6.3.3
SDK-50325		`56450_A0`		Accounted for SGMII ports, post 1xXAUI-->4xSGMII flexio operation, for 'priority mapping' and 'outer tpid' related initialization
SDK-50336	692831	`88030_A0`		Fixed
SDK-50342		All		Added PCIe Gen2 compliance support.
SDK-50349 SDK-52111		`56640_A0` `56340_A0` `56640_B0`	`56850_A0` `56640_A1`	Introduced support for redirecting packet to NHI, ECMP, and DVP in Triumph3 and Trident2 chips.
SDK-50360		`88660_A0`		In BCM88660, the LAG-Load-Balancing-Key improvements are implemented.
SDK-50393	694977	`56850_A0`		Supported NIV virtual port for `bcm_vlan_translate_egress_action _add()/delete()` APIs
SDK-50398	692944	`56850_A0`		`bcm_switch_control_port_set/ get()` can take GPORT PROXY ports for RTAG7 hash controls
SDK-50414	695716	`56450_A0`		A new register is added in the pair of dynamic registers which are used during schedule mode change. `LLS_SP_WERR_DYN_CHANGE_0A`, `LLS_SP_WERR_DYN_CHANGE_0B`, `LLS_SP_WERR_DYN_CHANGE_0C` configuring of the `LLS_SP_WERR_DYN_CHANGE_0C` register was missing out of above set . Modified the code to configure this register.
SDK-50418	694439	`88650_A0`		Implemented bcmPortControlPFCRefreshTime control. Set to 0 to disable Priority Flow Control refresh, or positive value to enable at the given rate. If enabling at the default rate is desired the control should be set to -1
SDK-50446	684943	`56640_A0` `56640_B0`	`56640_A1`	Improved some API's performance in cosq module.
SDK-50457	695970	All		Input a key&length, return the payload and the lpm key&length.
SDK-50470		All		Fixed several issues with the Linux KNET kernel module on SMP systems.
SDK-50476		`88660_A0`		Support added in ARAD+ for new event types and multiple events interrupt.
SDK-50483 SDK-51208		`56850_A0` `56850_A2`	`56850_A1`	Added the supported for FCOE data any in UDF module
SDK-50510	696350	`56640_A0` `56640_A1` `56640_B0`	`56643_A0` `56643_A1` `56643_B0`	The issue about MAC DA lookup in `EXT_L2_ENTRY_1` on TR3 is fixed.
SDK-50522		`88750_A0`		FE2 multistage could not work in a mixed cell format system (VSC256VSC128).
SDK-50531		`88650_A0` `88650_B1`	`88650_B0` `88660_A0`	VLAN Port Assymetric-LIF: `bcm_vlan_port_create` operation for a symmetrical should fail when LIF was already allocated. Before when calling API with `EGRESS_ONLY` flag, API didn't return error when LIF was previously created.
SDK-50532		`88650_A0` `88660_A0`	`88650_B0`	Fix a potential misconfiguration of mirroring destination that is a multicast group.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50537		88650_A0 88650_B0 88660_A0	PRGE Egress editor new diagnostic: diag `prge_last:` shows last program selected in the programmable editor diag `prge_info:` shows all programs loaded in the programmable editor
SDK-50572		56649_A0 56640_A0 56643_A0 56643_B0 56648_B0 56644_A0 56641_A0 56640_B0 56642_A0 56644_B0 56649_B0 56645_A0 56648_A0 56644_A1 56643_A1 56640_A1	Added a new L2 flag to configure REMOTE bit in L2 table.
SDK-50575	697636	56850_A0	`soc_cm_deinit` is made external
SDK-50598		88650_A0 88650_B0 88660_A0	Adding ability for the user to set snooping in `action_set` api.
SDK-50603		88650_A0 88650_B0 88660_A0	Allow `oam_endpoint_create()` with the flag `WITH_ID` set and ID > 0x1000.
SDK-50604		88650_A0	FLP & VTT diagnostics: New FLP and VTT diagnostics added to show the last programs invoked in VT , TT and FLP stages. See example by sending packet and calling: BCM.0> diag pp flp last=1
SDK-50606	697917	88650_A0 88650_B0 88650_B1 88660_A0	In Advanced VLAN editing, the TPID configuration is mapped to a `tag_format` using the API function `bcm_port_tpid_class_set()`. The API configures HW entries in several Ingress/Egress LLVP tables that has port LLVP profiles that are referred to by the port HW tables. A Port profile holds `tag_format` and other TPID identification info per a combination of a TPID pair and a priority bit. The handling of the Port profiles included a bug in copying one profile to another as part of updating a port profile or creating a new one. The bug influenced several C-TAG identification fields in the Egress LLVP table as well as S-TAG identification at the Ingress LLVP. This led to wrong packet classifications when handling C-TAGs at the Egress and S-TAGs at the Ingress. Example: 1. Create port classification for an outer C-TAG using `bcm_port_tpid_class_set()`. 2. Create port classification for an inner C-TAG using `bcm_port_tpid_class_set()`. 3. The outer C-TAG classification may have wrong C-TAG identification stored in the HW. The fix enables to read the C-TAG identification from an LLVP HW entry `(bcm_port_tpid_class_get)`, thus fixing the copy of the entry to a port profile. It also fixes the flags field value that is returned by `bcm_port_tpid_class_get()`.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50607		`88650_A0 88650_B0 88650_B1`	Support MAC move event in PON application has been added. In the case of mac move, the system will report the mac move event including `old_ac/new_ac,` vsi and mac address. The User can register a callback function by `bcm_l2_addr_register()` to handle this event. User can also use `bcm_switch_event_control_set()` to enable/disable this event. See more information in `cint_pon_mact_move.c.`
SDK-50608		`88660_A0`	EEDB formats are now aligned to bcm88660 device. Background: EEDB formats were changed between BCM88650 and BCM88660: Trill EEDB format is now with prefix 0001 instead of 0000 (Format not in use today) AC EEDB format is now with prefix 0000 and sub-prefix 000 instead of prefix 0000 and sub-prefix 00X AC Data EEDB format is now with prefix 0000 and sub-prefix 001 (BCM88660 New format) Issue: EEDB formats were already aligned in SW management but HW change did not apply correctly (for the AC, AC data and trill formats) . In that case AC data and trill couldn't be used correctly. Default behavior change: Modifies default behavior for BCM88660 EEDB AC, AC data and trill formats.
SDK-50623		`88650_A0`	`ARAD_A0` does not support CNM usage and will return error uppon enabling attempt
SDK-50644		`88660_A0`	In Arad+ (BCM88660), the polynom-based hashing functions for ECMP, LAG and Stateful Load Balancing (SLB) are configured only via the following literals: - `BCM_HASH_CONFIG_CRC16_0x8003` - `BCM_HASH_CONFIG_CRC16_0x8011` - `BCM_HASH_CONFIG_CRC16_0x8423` - `BCM_HASH_CONFIG_CRC16_0x8101` - `BCM_HASH_CONFIG_CRC16_0x84a1` - `BCM_HASH_CONFIG_CRC16_0x9019`
SDK-50647		`56850_A0 56850_A1 56850_A2`	If the start index was not 0 then then internal counter to count the number of entries was never incremented. This would not call ay user callback as it would think that entry is still not in the range that user asked for. Fixed this scenario by incrementing the counter irrespective of start index and doing some sanity checking on start and end indexes.
SDK-50654	698063	`56850_A0`	Fix port flush sequence to allow all cells drained properly without seeing timeout on BCM5685x
SDK-50684	697633	All `56640_A0 56850_A0 56150_A0 56640_A1 56640_B0 56850_A1 56850_A2`	Fix `soc_counter_stop` hung in sbusdma operation

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50695		88650_A0	The following Interrupts handling (corrective action) was modified
			1. Interrupt name: SecIfma(b)foA(B) (FRR). Interrupt description: Overflow of one of the FDR FIFOs (Size bigger than 250, reported in 'FDROverflows And Fifos Statuses FDRASecondary' register) Corrective action: soft reset. 2. Interrupt name: IlknTxPort0(1)StatusErrInt (NBI). Interrupt description: indicates that one of Interlaken Tx errors occured. The specific error is reported in Tx Ilkn Status register. Corrective action: Soft Reset.
SDK-50698		88650_A0 88650_B0 88650_B1 88660_A0	VLAN-Port Asymmetric LIF: Asymmetric LIF (one side LIF) can be created using `bcm_vlan_port_create` and flags (`BCM_VLAN_PORT_CREATE_INGRESS_ONLY`, `BCM_VLAN_PORT_CREATE_EGRESS_ONLY`).
			When calling `bcm_vlan_port_destroy` with an Asymmetric LIF , API destroyed both sides while it should destroy only the appropriate Ingress/Egress side.
			Added logic in `bcm_vlan_port_destroy` to destroy only one side of LIF and not both sides when calling with Asymmetric LIF.
SDK-50737		56640_B0	Correctly writing the wlan tunnel entry without over-writing older entries.
SDK-50743	695226	88650_A0 88650_B0 88650_B1	In Field Processor, the diagnostic "diag field RES" shows and checks the resources used by the Field groups. A verification was erroneous concerning the needed TCAM action size per Field group. This is fixed.
SDK-50761		88660_A0	Add support in api to map oam opcode to internal 0-15 opcode.
SDK-50762		88660_A0	OAMP can trap to different destination with different trap codes. User can edit the code and destination through trap apis, using a special OAMP trap types.
SDK-50786 PHY-1115 SDK-50934		84328_A0 84328_B0	Fastboot support for external PHY BCM84328
SDK-50792	691032	88650_A0	IP Tunnel: `bcm_tunnel_initiator_clear` returned internal error when destroying valid IP tunnel. Issue is now fixed.
SDK-50794	699750	All 56840_A0 56640_A0 56850_A0 56340_A0 56640_A1 56640_B0 56850_A1 56850_A2	Fix non-blocking wait for `l2x_lock` in some cases.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50821		88650_A0 88650_B0 88650_B1 88660_A0	VLAN Port remote LIF creation: Creating a remote LIF is required, when adding a LIF that has to be synced between various units, for all the units for which the LIF isn't local. This allocation scheme is required only `bcm88xxx_system_resource_management=0` (Global). when In this case only the driver SW should be updated with the LIF allocation as the entity HW isn't local. So far API in case of remote LIF creation configured by mistake the HW and set invalid HW settings that could cause also a failure upon API call. The fix eliminates HW configuration in case of a remote LIF.
SDK-50855	693960	88650_B1	PetraA compatibility support for OLP port programmable editor fix.
SDK-50865	701337	56850_A0	When a prefix group has no entries, it should be deleted. Otherwise it will cause an infinite loop when a new entry with same prefix length is added.
SDK-50868	690830	88650_B1	Fixed `bcm_multicast_ingress_get()` to properly handle trunk/LAG destinations.
SDK-50873		56548_A0	Necessary code changes completed, reviewed and checked in. Gsanity completed on both GTO and iProc running Linux and VxWorks for branches Head and `6_3`.
SDK-50878	701804	88030_A0	Resolved timing conflict between fast reconfig and statistics collection with CMU.
SDK-50879	699134	56850_A0 56850_A1 56850_A2	Added warmboot support in RX module to recover per Queue PPS, Burst and level pps, burst and `max_length` parameters
SDK-50885		88650_A0	PON: Support `bcm_port_control_set(unit, port, bcmPortControlL2Move, value)` on trunk gport.
SDK-50887	699827	88650_A0 88650_B0 88650_B1 88660_A0	`bcm_trunk_get` used to return invalid `member_id` for members located in other device. this issue was solved.
SDK-50911	702676	56450_A0	enabled execution of `bcm_port_dscp_map_mode_set(unit, virtual_port_gport, mode)` for BCM56450 devices to configure `SOURCE_VP.trust_dscp_v4/v6`.
SDK-50917	668924	56640_A0 56640_A1	Fixed QCN cos issue.
SDK-50923		56146_A0 56150_A0	Correct the register name of Head Of Line blocking drop as `HOL_DROPr`, which is used for the counter snmpIfOutDiscards of Hurricane2/Wolfhound.
SDK-50931	700875	56850_A2	On bcmsim or simulation enviornment, draining cells (WAR) is not needed as there is no real LLS HW for which WAR needs to be done,so WAR is skipped for simulation environmens. Code changes made accordingly.
SDK-50936	703200	56850_A0 56850_A1 56850_A2	l3 ip6route show could not show more than 4096 routes. Updated `bcm_xg3_l3_info` to allow the show command to expect higher no. of routes for ALPM.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50939		`88650_A0 88650_B0 88650_B1 88660_A0`	Fixed the following issues when MAC limit per tunnel is enabled for PON application: 1) Fix the issue that duplicated MACs are reported when traversing MACT. 2) Add a mutex to keep ukernel from multiple access.
SDK-50949	701065	`88650_B1`	When using the user-header (in cascaded Ingress-Egress ACL, in VMAC, or other), all the packets are appended the User-Header in the fabric. This user-header is removed at egress editor. In a specific case, when sending a non-Ethernet packet to an Ethernet port, the User-header was not removed.
SDK-50951		`88650_A0 88650_B0 88650_B1 88660_A0`	PORT MATCH: A port can be matched to a LIF using `bcm_port_match_add` or during LIF creation. The match can be configured for Ingress or Egress. On the Ingress side, the HW matching table is static and an entry per port always exists.
			Using `bcm_port_match_add` to match a port (`BCM_PORT_MATCH_PORT` in the match field) on the Ingress side, failed due to a validation that ensured that the added matching doesn't already exist in the HW. A validation that is only relevant in case of a VLAN-Port matching that uses a dynamic HW table (match that is different than NONE).
			The fix removed the matching validation on the Ingress side for `BCM_PORT_MATCH_PORT`
SDK-50968	703823	`88650_A0 88650_B0 88650_B1`	In External TCAM (ELK), the RPF lookup can be disabled in IPv4 by setting the SOC property `ext_ip4_uc_rpf_fwd_table_size` to 0 and setting the IPv4 Unicast table size with `ext_ip4_fwd_table_size` instead. With this method, the IPv4 unicast table can be expanded to all the KBP device (without entry duplication) if all the other tables have a null size.
SDK-50970		`88650_A0 88650_B0 88650_B1 88660_A0`	VLAN: A user can discard/enable traffic to an Out-LIF using `bcm_port_discard_set.` The HW for the Out-LIF is set as a result.
			Important note: The following change the default behavior of Out-LIF creation using `bcm_vlan_port_create`
			Creating an Out-LIF, with a LIF ID that was previously used and destroyed while the discard indication for the Out-LIF was set, doesn't reset the discard indication in the HW. Thus, by default, in such a scenario, the traffic for the Out-LIF is discarded until set otherwise using `bcm_port_discard_set.`
			The fix performs a reset of the discard HW indication upon each LIF creation using `bcm_vlan_port_create.`
SDK-50976	700368	`88650_B1`	VXLAN: When going from native to VXLAN, encapsulation header might overwrite incorrectly inner native DMAC. The issue is seen when applying VLAN translation actions with adding more than 1 VLAN tag.
SDK-50977		`88650_A0 88650_B0 88650_B1 88660_A0`	Improved the code that handles Asymmetric LIFs in order to minimize the Asymmetric LIF dedicated code. No driver behavior implications.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-50978		88650_A0 88650_B0 88650_B1 88660_A0	An asymmetric LIF is a LIF that is defined either only at the Ingress or only at the Egress side. The proper support for SW LIF allocations was introduced in 6.3.2 for VLAN port LIFs. The `cint_port_match.c` example that shows multiple Ingress/Egress HW mappings to a single LIF ID was modified to support usage and as example of Asymmetric LIFs.
SDK-50995	703503	88650_A0 88650_B0 88660_A0	l3 interface delete was not deleting MTU profile causing crash after many insertions and deletions
SDK-51000		88650_A0	In E2E scheduler TCG, WFQ was always set is invalid. This issue is fixed.
SDK-51004		88650_A0 88660_A0	`cint_mpls_elsp.c` is fixed by adding a dependency to it: now it also depends on `cint_qos.c`.
SDK-51011		88660_A0	Support accelerated LM/DM/1DM.
SDK-51013		88650_A0 88650_B0 88650_B1 88660_A0	When using External TCAM and ACLs (Field Processor APIs), the SW state memory consumption of each external TCAM entry was of ~1K, with a maximum of one million entries. Some external TCAM entries settings such as qualifier values, action values and priority are no longer saved in FP SW state once the entry is installed into the HW. Furthermore, the number of TCAM entries that can be created and not installed is limited via the flag `_BCM_DPP_FIELD_NOF_PRE_INSTALL_T CAM_ENTRIES.` The default value of this limit is 28K entries (number of possible entries in internal TCAM), but can be freely changed by the user.
SDK-51014		88650_A0 88650_B0 88660_A0	When using External TCAM for ACLs (i.e. Field Processor APIs), a sorting of the external TCAM entries in a linked list was done previously to be defined in the KBP driver. This sorting of external TCAM entries at BCM level according to priority is removed since the KBP driver handles the sorting internally. Removing the sorting of the external TCAM entries reduces the entry insertion complexity at BCM level (strictly) to O(1) instead of O(n).
SDK-51031	702737	56850_A0 56850_A1 56850_A2	Changed the parity type of memories PGW OBM and PGW BOD from `_SOC_PARITY_TYPE_GENERIC` to `_SOC_PARITY_TYPE_ECC` as the JIRA description.
SDK-51043	701072	88130_B0 88130_A1	Warmboot sync fix implemented for SBX devices - misaligned write/offset/size was incorrect in fabric configuration.
SDK-51073		88650_B0	1. Added some examples for flooding. The `add_root_rbridge` allows to define a flooding MC group when the port is created and `assign_flooding_to_MC_trill_port` adds flooding to an existing MC trill port. The flooding MC group must be a MC group associated with a trill port (by calling `bcm_trill_multicast_entry_add`). 2.Some redundant routines were removed from cint, (`create_flooding_group`, `add_port_to_flooding_group`).

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51074	705248	`56850_A0`	The assertion was caused during configuration of ECMP group with mode = `BCM_L3_ECMP_DYNAMIC_MODE_RESILIENT.` This ECMP group had duplicate members. Resilient hashing feature currently does not support duplicate members in an ECMP group. The fix is to return `BCM_E_PARAM` error in case the ECMP group have duplicate members.
SDK-51076		`88660_A0`	Remote fault transmission: In case of link down detection on CAUI port remote fault will be send towards the peer device, till detection of link up. Note: this required Linkscan to be on.
SDK-51077	705804	`88650_A0  88650_B0` `88650_B1`	In External TCAM (KBP), the IPv6 master-key includes the SIP to allow: - RPF lookup - Source-Specific IPv6 MC forwarding lookup This field is part of the master-key by default, and can be removed when disabling the compilation flag `ARAD_KBP_IPV6_INSERT_SIP_IN_MASTER_KEY_FOR_VRF.`
SDK-51079	701427	`88650_A0`	When using External TCAM (KBP), both IP Unicast and Multicast had to be in the same location (internal or external tables). Otherwise, an error was returned since the Multicast RPF may fail. This error is removed to allow the user to decouple the location of the IP Unicast and Multicast tables, when not using the RPF lookup for the Multicast packets.
SDK-51084	701071	`56850_A0  56850_A1` `56850_A2`	Added support for following Field APIs in SDK: `bcm_field_qualify_FcoeVersionIsZero` `bcm_field_qualify_FcoeVersionIsZero_get` `bcm_field_qualify_FcoeSOF` `bcm_field_qualify_FcoeSOF_get`
SDK-51100	700597	`88650_A0  88650_B1`	PVLAN: A new port control type called 'bcmPortControlPrivateVlanModeSet' to set PVLAN mode per System-port. Argument = 2/1/0 (0 : community, 1 : isolate, 2 : promiscuous). The port control type value is the same as bcmPortControlPrivateVlanIsolate but introduce also a way to set new mode promiscuous. Important note: Default behavior changed: Calling PVLAN port control with value non 0 has now two meanings: 1 - isolate, 2 - promiscuous. Others are invalid range. Until now non 0 was only isolate.
SDK-51102	703702	`88650_A0  88650_B0` `88650_B1  88660_A0`	Port Flooding: `bcm_port_control_set/ get` bcmPortControlFlood* types returned internal errors on per port information retrieval.
SDK-51111	703092	`56846_A0`	Added Port Control Support for CPU port on Trident+
SDK-51116		`56850_A2`	Changes to set/unset `SOURCE_TRUNK_MAP.SVP_VALID` on `BCM_MIM_PORT_MATCH_PORT` match criteria for Mim port add/delete, for regular and trunk ports.
SDK-51123	706556	`88750_A0`	Failure when trying to access sfi ports in Port shell diagnotics was fixed.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51125		`88650_A0 88660_A0`	Field Processor: When trying to configure a number of ACL entries that exceeds the max number of ELK entries a segmentation fault is received, due to a wrong allocation size of KBP location table. Allocation size is fixed.
SDK-51137		`56640_A0`	support for port CE HIGIG and HIGIG2 encapsulation.
SDK-51151 SDK-51277	706694	`88660_A0`	`oam_classifier_advanced_mode` soc property in ARAD+ enables switching between ARAD+ classifier mode and ARAD mode (default is 1)
SDK-51158	702539	`56640_A0 84756_A0`	in the previous release, `bcm_port_encap_set` api was failing while setting encap to `BCM_PORT_ENCAP_HIGIG2`. Phy speed issue has been fixed via the following changes: Made changes in 3 places: 1. Made changes in `bcm_esw_port_speed_max` function to read common supported max speed between phy and mac. 2. Earlier, `"_bcm_port_encap_xport_set"` function used to configure MAC max speed on external phy when port mode is changed which is incorrect. Because MAC's max speed may not be supported by external phy. To fix this issue - added `"bcm_esw_port_speed_max"` function in `"_bcm_port_encap_xport_set"` function which would read max supported speed of mac and phy and configures it on external phy when port mode is changed. 3. `"soc_phyctrl_ability_local_get"` used to return all abilities irrespective external phy abilities. Made changes in the function to return valid abilities of external and internal phy's.
SDK-51172	707302	`88650_B1`	Fix the judgment error of checking double tag vlan range inside `bcm_petra_vlan_translate_action_range_add.`
SDK-51173		`88660_A0`	Add support in new RDI flags and remote flags, configuring different OAMP remote behavior profiles.
SDK-51177		`88660_A0`	Stateful Load Balancing (SLB) is now supported in LAG. To enable SLB, the SOC property `resilient_hash_enable` must be set to 1. To set a LAG group to be stateful, the selection criteria must be set when the `bcm_trunk_psc_set` or `bcm_trunk_set` APIs are used, with `bcm_trunk_info_t.psc = BCM_TRUNK_PSC_DYNAMIC_RESILIENT.`
SDK-51178		`88660_A0`	Stateful Load Balancing (SLB) is now supported in ECMP. To enable SLB, the SOC property `resilient_hash_enable` must be set to 1. To use SLB with ECMP, the ECMP group should be created with the `bcm_l3_egress_ecmp_create` API, and `bcm_l3_egress_ecmp_t.dynamic_mode` must be set to `BCM_L3_ECMP_DYNAMIC_MODE_RESILIENT.`

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Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51193	707727	56850_A0 56850_A1 56850_A2	For flexible mirror destinations, shifted the `mtp_index` back to original if `flex_slot_shift` was done prior and also reset `hardware_mtp_index` to invalid in cases where `mtp_index` goes out of expected range.
SDK-51196		88650_A0	In IP Multicast, the In-RIF is part of the key. Only 8 bits were copied instead of 12 bits of In-RIF in the TCAM key during the entry insertion. This has been fixed.
SDK-51199	707793	56450_A0	Added fix to account for the SGMII ports, post flexio operation (1xXAUI-->4xSGMII), for configurations done using `bcm_vlan_control_set()` API. For example 'VLAN translate enable'
SDK-51207	707745	56440_A0 56450_A0	Issue of `SVM_OFFSET_TABLE` entry 0 not getting initialized during re-init is fixed.
SDK-51280		88650_A0 88650_B0 88650_B1	VLAN translation : User can call `bcm_vlan_port_create` with match criteria `BCM_VLAN_PORT_MATCH_NONE` and later add match criteria using `bcm_port_match_add.` When calling `bcm_vlan_port_create` with match criteria `BCM_VLAN_PORT_MATCH_NONE` and then action create/delete without adding valid match criteria using `bcm_port_match_add.` BCM APIs of `bcm_vlan_translate_action_create /delete` will return failure. Issue resolved by eliminating the need of retrieving information of match criteria for a given valid LIF ID.
SDK-51288		88650_A0 88650_B0 88650_B1 88660_A0	Egress CoS: If there is a port configured to work in one-priority mode (single Egress Queue per OTM-port), only one Multicast Service Pool can be used. In other words, if two Service Pools are required to allow MC traffic prioritization in resource allocation, all ports must be configured to work in at least two-priorities mode. If only one Multicast Service Pool is allocated, EGQ buffer resources will be shared between High and Low priority MC. Change description: modified default Arad initialization `(bcm_init)` so that if 1 priority port exists, all In-TCs will be mapped to SP0 (1st Service Pool). No changes to customer application are required.
SDK-51290		88650_A0 88650_B0 88650_B1 88660_A0	When setting TCTCG shapers to minimum rate, the rate used to be set to 0. It was fixed such that minimum TC/TCG shaper rate changed to be non-zero
SDK-51297		88650_A0 88650_B0 88660_A0	In Field Processor module, an error in the TCAM entry install API inserting an entry into HW may result in a lack of error message and an unexpected behavior due to a wrong error handling. This is fixed.
SDK-51298	702867	88650_A0 88650_B0 88650_B1	In Field Processor module, in the internal function `ARAD_PP_FP_QUAL_VAL_verify(),` there was a missed overflow consideration for 32 bit systems when checking max value for `qual_length.` In case of `qual_length=32,` it may have caused unexpected behavior. A special handling for 32 bit long max value is added.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51329		`56850_A2`	On Trident2 the CPU cos which ranges from 0~47, is shown as value=16~63 in EFP logic, basically the H/W adds 16 to the cos value in the key.So in S/W, 16 has to be added to actual data value and adjust the mask accordingly passed by application code.
SDK-51335	708236	`56850_A0`	Fixed `DISABLE_L2_ENTRY_LP` setting to properly disable it for both dedicate L2 banks on BCM5685x.
SDK-51341		`88660_A0`	In TM mode, when scheduling compensation feature is enabled (SOC property `scheduler_compensation_enable=1)`, the user header removal performed by the egress editor is not done correctly and is causing unwanted removal of payload. In this mode, the user header size is included in the internal system header size computation, and the egress editor does not need to remove additional bytes.
SDK-51359	706692	`88650_B0` `88650_B1` `88660_A0`	1588 time stamping is enabled only in Arad B0 and above. In order to use 1588 timestamping, `endpoint_info.timestamp_format` must be set to bcmOAMTimestampFormatIEEE1588v1 when calling `bcm_oam_endpoint_create()`. By default endpoints use the NTP timestamp format. Note that for accelerated DMMs in Arad+ only 1588 time stamping is enabled.
SDK-51361	709904	`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0`	Issue is fixed by ignoring `rx_nmac_csm_cres_crc_err` (0x8292, 0x8293) and `crx_idle_crc24_err` (0x8185) CRC24 error registers (Erratum).
SDK-51363	708436	`56540_A0`	Pointer needed to be set as `NULL` after freeing the same.
SDK-51364		`88650_A0` `88660_A0`	L2GRE: Default behavior change in L2GRE module: Mapping between Local-VSI (VPN) and Global-VSI (VPNID) was changed and is now similar to VXLAN. Instead of doing such mapping in `bcm_l2gre_port_add`, functional was moved to the proper place in VPN settings `(bcm_l2gre_vpn_create)`. Please see CINT example L2GRE changes in : `$SDK/src/examples/cint_l2gre.c`

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51369	707630	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	VLAN-Port, MPLS-Port: Protection FEC ID value range in Arad is up to 32K. The local/remote status for each protection FEC ID is stored and used by the warm boot.
			Creating a protected LIF, using `bcm_vlan_port_create` fails when using a FEC ID value above 8K in the `vlan_port_id` field and attaching to a protection group by using a valid `failover_id` field value. The same applies for MPLS protection LIF creation. Valid FEC ID values for non protection applications remain unaffected and can use the whole FEC ID value range.
			The fix increases the protection local/remote status buffer to the correct size that enables usage of the full FEC ID value range for protection as well.
SDK-51420		`56150_A0`	Support LED intensity control.
SDK-51422		`56150_A0`	Support LED intensity control.
SDK-51487	711130	`56850_A0`	Fixed a bug in TR144 that could cause a crash when run on memories that do not support SER correction.
SDK-51496	711386	`56450_A0`	1.Enable/Disable MMU CoE support when port CoE status is changed dynamically.
			2.For dynamically updating the `EPC_LINK_BMAP` associated with the port undergoing 'CoE to/from non-CoE' state change, use the following API sequence: `bcm_port_enable_set(unit, port, FALSE);bcm_port_control_set(unit, port, bcmPortControlSubportTagEnable, 1 /*1=coE , 0 = non-CoE */); bcm_port_enable_set(unit, port, TRUE);`
SDK-51501		`56150_A0`	Support EEE burst and batch mode for Hurricane2 devices.
SDK-51524	663415	`88030_A0`	fix counter read under vxworks for bcm88030
SDK-51537	682672	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	Fixed the MBIST logic of 88650 and 88660. Before the fix, MBIST could fail occasionally. The fix increases the time of the MBIST test by 0.15 seconds.
SDK-51538		`88650_A0` `88650_B0` `88660_A0`	In Field processor, internal software state initialization includes the creation of a TCAM entries free list. The last element of this list was not initialized correctly. This is fixed.
			Also, when trying to install a configured entry to a full TCAM, an internal uninstalled entries counter was wrongly decremented, even though the install action failed. This may cause unexpected behavior in case a wrap around occurs. This is fixed.
SDK-51576 SDK-51574		`56850_A0`	During fp mirror destination delete, for flexible mirror destinations, shifted the `mtp_index` back to original if `flex_slot_shift` was done prior.
SDK-51582	712323	`56850_A0`	Implemented Replace support to the Mirror destination create APIs and MTP port Add APIs for ingress and egress mirroring.
SDK-51588	712548	`56850_A1`	Provide function call to detect TSC micro is alive or hung.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51589		88650_A0 88650_B0	VLAN-Port initial-VID: SOC property `vlan_translation_initial_vlan_enable_<port>` introduced in SDK 6.3.2. User can decide per port to seperate SEM databases between Untagged packets and tagged packets. In case SOC property is enable (default behavior) , user maintain two databases: `PORT_INITIAIL_VLAN` (untagged packets) and `PORT_VLAN` (tagged packets). In case SOC property is disable, user maintain one database for both untagged and tagged according to Initial-VID procedure. In case port support bcmVlanPortDoubleLookupEnable, double-tag packets should lookup both `MATCH_PORT_VLAN_STACKED` database (double-tag database) and one-tag database when packet has two-tags. Lookup of one-tag database was incorrect in case `vlan_translation_initial_vlan_enable` was set to 0 caused double-tag packets with no match on `PORT_VLAN_STACKED` database to drop the packet instead of lookup of one-tag database. Issue was in VTT ucode and fixed.
SDK-51591	712663	56450_A0	KT2:Flex-IO code uses `1(PORT_FLUSH)` operation and KT2/cosq performs queue flush `(FLUSH_TYPE=0)`. After flex-io operation, `FLUSH_TYPE` remained as 1 but cosq function didn't reset it to 0 before initiating queue-flush operation. This fied is newly introduced for KT2 device and was not present in KT so it was missed in code. Due to that HW was assuming `PORT_FLUSH` operation i.s.o. queue flush causing time-out issue
SDK-51598	712590	56850_A0	missing Gport types are added in L2 dump function
SDK-51608		88650_A0 88650_B0 88650_B1	A new port control type 'bcmPortControlPrivateVlanModeSet' is added to set all PVLAN mode, including community, isolate and promiscuous.
SDK-51609		88650_A0 88650_B0 88650_B1	Add 'bcmPortControlPrivateVlanModeSet' to set all PVLAN mode, including community, isolate and promiscuous.
SDK-51611		56850_A0 56850_A1 56850_A2	A new port control type 'bcmPortControlPrivateVlanModeSet' is added to set all PVLAN modes, including community, isolate and promscuous.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51612		88650_A0	New SoC properties for ILKN retransmit: `ilkn_retransmit_rx_reset_when_error_enable` `ilkn_retransmit_rx_reset_when_alligned_error_enable` `ilkn_retransmit_rx_reset_when_retry_error_enable` `ilkn_retransmit_rx_reset_when_wrap_after_disc_error_enable` `ilkn_retransmit_rx_reset_when_wrap_before_disc_error_enable` `ilkn_retransmit_rx_reset_when_timout_error_enable` `ilkn_retransmit_tx_wait_for_seq_num_change_enable` `ilkn_retransmit_tx_ignore_requests_when_fifo_almost_empty` for more information see TM user manual
SDK-51620	712303	56450_A0	Code modified to set the portcontrol (bcmPortControlCustomerQueuing) for KATANA2, and also to configure the `EGR_QUEUE_TO_PP_PORT_MAP` for entended queue also,during `cosq_gport_attach` of extended q to L1 gport.
SDK-51623	712568	All 88650_A0 88640_A0 88650_B0 88650_B1 88660_A0	Slow-start enable/disable API for bcmCosqGportTypeGlobalFabricCloseFmqBestEffort configured the wrong FMQ.
SDK-51644	713422	56850_A2	Remove the dormant codes confusing the reporter.
SDK-51684		88750_A0	Fixed a bug where fabric isolate might caused cells drop.
SDK-51695	715154	56850_A0	Fixed issues in alpm delete error recovery, and in alpm insert error recovery.
SDK-51717	715701	56450_A0	`FP_PORT_FIELD_SEL` configuration enabled on CoE subports and flex-IO ports
SDK-51744		88660_A0	In LAG and ECMP, the hash function is configured via bcmSwitchTrunkHashConfig or bcmSwitchECMPHashConfig. In BCM88660, the Hash functions are different. The get function was faulty and has been fixed.
SDK-51755	713642	88650_A0 88650_B0 88650_B1 88660_A0	System resources FEC remove: The API `bcm_vlan_port_destroy()` enables deletion of VLAN-Ports as well as protection FEC IDs. The API failed when a FEC ID was the supplied `gport_id.`
SDK-51756	715429	88030_A0	The RCE byte count for mpls packets was always 4 times the correct value. It is fixed.
SDK-51757	711558	56820_A0 56820_B0	Fixed an issue in `bcm_mirror_egress_get()` API which resulted in a number of mirror related diag shell commands and port encap command failsing on bcm56820 switch devices.
SDK-51791	715551	All	fix COP policer and timer inaccuracy when running lrp at 1.1G on bcm88030
SDK-51798	712798	88650_A0 88650_B0	Bug: Init fails if TDM and next-hop mac are both enabled in the config. Fix: Redundant check of conflicting programs (TDM and Next-hop mac extension) in PRGE removed.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-51801		88030_A0	Configure "host_update_mode = manual" to disable background ejection for simple64 counter. For this counter type, host_update_mode = automatic is not allowed.
SDK-51809	713140	88650_A0 88650_B0	In the statistic-interface, the billing mode allows the user to define at ingress 2 Counter-Pointers (via Field Processor APIs) of 21 bits and transmit them on the Statistic-Records. From 88650_B0, the Billing-Queue-Number mode allows the second Counter-Pointer to be the VOQ-ID. However, setting the first Counter-Pointer via FP APIs was missing. It is now fixed.
SDK-51819	716579	88650_B1	In Field Processor, at the ingress Stage, 2 cycles are available at HW for the Field group insertion. Direct Extraction field groups must be in the second cycle. Cascaded Field groups must be in different cycles. However, the other ingress Field groups can be in both cycles. A bug was found and fixed, where a cycle with highest probability of insertion success was chosen by default, but the other cycle was not considered.
SDK-51826	716849	56850_A0	Mirror control structures for shared MTP and Ingress MTP are verified for NULL pointer before accessing the reference count to avoid segmentation fault.
SDK-51868		88650_A0 88650_B0 88660_A0	Bug: Adding new CPU destination using action_set causes allocation of new trap code Fix: Don't allocate new trap code in case of CPU destination.
SDK-51870	715547	56450_A0	Fixed "bcm_multicast_egress_delete() returns -4 while CoE port is present in config"
SDK-51871		88650_A0 88650_B0 88660_A0	OAM upmep trap codes from PRGE (LM,DM) all changed to 0xe0
SDK-51899		88750_A0	soc_dfe_deinit failed if warm boot was not initialized .
SDK-51918	717593	88030_A0	Customer can use p2e set and ep2e set to update PPE variable.
SDK-52002	718462	88650_A0 88650_B0 88650_B1 88660_A0	Fixed TDM warm boot failures.
SDK-52129		88750_B0 88650_B1 88660_A0	When using the example Linux BDE supplied with the SDK, and building with –D__DUNE_LINUX_BCM_CPU_PCIE__ The driver executable would not work. This is now fixed.
SDK-53523		88650_B1	Important: in Egress Field Processor, bcmFieldActionVportNew was faulty and the user must use bcmFieldActionRedirectVportPort instead. In Egress Field Processor, the action bcmFieldActionRedirectVportPort is added (and is replacing bcmFieldActionVportNew for Egress only), in order to allow to change the CUD (Out-LIF) of the packet. Due to hardware limitation, an Out-LIF configuration cannot be set without setting also the Destination port at egress FP. bcmFieldActionRedirectVportPort must be called with two parameters: Virtual Port and Destination Port. bcmFieldActionDrop cannot co-exist with bcmFieldActionRedirectVportPort for the same entry, since both actions configure the new destination.

Table 51:

Number	CSP #	Chips	Release Notes For 6.3.3
SDK-53962		88650_A0	In TCAM database management, for 320-bit entry-width Databases, the two allocated banks are always consecutive (even and odd IDs). When a TCAM shuffle (move operation) is performed, the algorithm was applied for both banks although it should be applied on one bank (even) and same actions are performed for two banks since they are identical in their order. This is fixed.

Section 22: Resolved Issues for 6.3.2

The following issues are resolved in version 6.3.2 of the SDK.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-33418	406892	All	Document change - Hardware link scan - port+1 requirement does NOT apply to XGS3 and later devices
SDK-34257		`56846_A0` `56840_A0`	Add API to read and Clear CNM counters
SDK-38821		`56640_A0` `56548_A0` `56546_A0` `56545_A0` `56544_A0` `56542_A0` `56541_A0` `56540_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0`	DVP and CLASSID Qualifiers support added for `EFP_KEY4_DVP_SELECTOR` as secondary selector for `EFP_KEY4`.
SDK-39012		All	Sample application code in $SDK/src/appl now uses `soc_cm_debug` exclusively for debug messages in order to allow customer applications to control all debug output through the configuration manager (CM) interface.
SDK-40877		`88650_A0` `88650_B0` `88650_B1`	Initial-VID: VLAN ISEM classification introduce 2 types of VLAN: Compressed-VID and Initial-VID. Compressed-VID is introduced according to VLAN range compression procedure. Initial-VID is introduced according to Initial-VID procedure. By default: ISEM classify untagged and priority tag packets to Initial-VID, otherwise according to Compressed-VID. In order to eliminate the use of Compressed-VID per port, use a new soc property: `vlan_translation_initial_vlan_enable.<port>=0` Also in case user will not use Compressed-VID globally then the number of VTT programs will be reduced. This can be done by `vlan_translation_initial_vlan_enable=0` (i.e. global and not per port). See an example of use in : `cint_vlan_port_initial_vid.c`
SDK-40883		`88650_A0`	EEDB soc properties: soc property `egress_encap_bank_phase_<bank id>=` access phase provides the ability to decide on init time the phase of each egress bank database. Note: Synchronize EEDB banks (AC, PWE) do not support static phasing.
SDK-40887		`88650_A0`	`MPLS_PORT:` Introduce global settings of Control Word value in case PWE encapsulation include CW. Global settings are done by Switch control bcmSwitchMplsPWControlWord
SDK-41687	560595	`56440_A0`	Implemented new switch controls: bcmSwitchSynchronousPortClockSourceBkupDivCtrl bcmSwitchSynchronousPortClockSourceDivCtrl

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-41927		`56640_A0`	`56640_A0:` Added support for updating L2 mac limits for L2 SER correction
SDK-42160		`56450_A0`	The SER feature is supported on Katana2 platform.
SDK-42544		`88650_A0  88650_B0` `88650_B1  88660_A0`	Support a new feature - Asymmetric LIFs for VLAN ports. `bcm_vlan_port_create` used with `BCM_VLAN_PORT_CREATE_INGRESS_ONLY/` `BCM_VLAN_PORT_CREATE_EGRESS_ONLY` will produce single sided LIFs with a dedicated VLAN-Port gport encoding.
SDK-42657	574320	`88650_A0`	MPLS: 1+1 protection support added for PWEs. See an example : `cint_vswitch_cross_connect_p2p.c`
SDK-42912	578283	`56840_A0  56850_A0`	Add a new enum for port control of PFCXOffTime.
SDK-43334	584814	`56640_A0  56542_A0` `56540_A0  56640_A1` `56640_B0`	No need to config `CMIC_MISC_CONTROL` register when port link from down to up.
SDK-43693		`88650_A0  88640_A0`	CL independent per flow proportional mode support: option to config CL from independent per flow type weight's as higher weight higher priority by set the flag `BCM_COSQ_GPORT_SCHEDULER_CLASS_WFQ` `_MODE_INDEPENDENT_PROPORTIONAL` in the `gport_add.` Note: The definition of the CL independent per flow mode is global for All the CLs and when proportional mode defined inverse mode cannot be used and the opposite
SDK-43892	593937	All	Correct the port link status display when it is in link-up / link-fail / link-remote-fault.
SDK-44060	595562	`56840_A0  56640_A0` `56640_A1  56640_B0`	Both IPv4 and IPv6 packets can be terminated when tunnel type is bcmTunnelTypeIpAnyIn4 or bcmTunnelTypeIpAnyIn6.
SDK-44188	591442	`56846_A0  56845_B0` `56845_A2  56844_A0` `56842_A0  56840_A0` `56843_B0  56841_A3` `56846_A1  56841_B0`	Correct the index of `SOURCE_TRUNK_MAPm` when configure MIM in TD/TD+.
SDK-44313	602140	All	Explicitly configure GE ports on `XGXS_1-lane` serdes, without an external phy to be `INDEPENDENT_LANE.`
SDK-44477		`56640_A0  56640_A1` `56640_B0`	Added SER support for OAM - RMEP and `MA_STATE` tables.
SDK-44966	612411	`56440_A0`	Module Id was not getting programmed correctly in LMEP and L3 tables (DGLP, SGLP fields). This has been corrected.
SDK-45024		`88650_A0  88650_B0` `88650_B1`	Added SOC property to support MPLS-TP My-mac termination: `mpls_tp_mymac_reserved_address.` Note: MPLS-TP my-mac termination address & Trill do not co-exist on the same device.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-45477		`88650_A0 88650_B0`	Trill Adjecency lookup has been moved from LLR to FLP, in order to free LLR lookup for other application. Following this change, the logic which drops the packets in case RPF check has failed as also changed, and moved to FP. Summary of the API sequence changes: - `bcm_trill_multicast_source_add` which added RPF related entries to the LEM is not supported anymore. It should be replaced by a dedicated FP code. - bcmRxTrapAdjacentCheckFail is not supported anymore, and should not be configured to drop. - `sa_authentication` soc property is not required for Trill adjacency check anymore. Example of the required changes exists on `src/examples/dpp/cint_trill.c`, with specific attention to `'rpf_drop_set'` and `'trill_multicast_source_add'`
SDK-45665		`88660_A0`	L3 RPF: In the past the unicast RPF mode (loose or strict) could only be configured globally for all RIFs together. This was done using a switch control to set the global unicast RPF mode. With this enhancement, it is possible to configure the unicast RPF mode for each RIF, by specifying the unicast RPF mode to `bcm_l3_ingress_create`. To operate in this mode the SOC property `bcm886xx_l3_ingress_urpf_enable` must be set to 1.
SDK-45717	619170	`88650_A0`	Add a compilation macro `SCHAN_OPTIMIZATION_1` to support the performance improvement of `schan_op..`
SDK-45750		`88650_A0 88650_B0 88650_B1`	Support API to associate BFMC0-2 GFMC with flow control indication: `bcm_cosq_gport_flow_control_set( unit, fmq_port, 0, flow_control_mask);` `fmq_port` is a gport handle to BFMC0-2 and GFMC. `flow_control_mask` is a 4 bits bitmap, where `flow_control_mask[i]` means that the FMQ class is sensitive to FC i.
SDK-45926		`88660_A0`	Added support for fair adaptive tail drop in 88660. Added support for two credit sizes in 88660. Added support for selecting the Traffic Class source in the statistics report, in 88660.
SDK-46033		`88650_A0 88650_B0 88650_B1`	Modify the algorithm for deleting Egress MC groups (`bcm_multicast_egress_delete`), so that the delete will always succeed. Egress multicast groups are configured in a way that optimizes the HW resources allocation, and allows hit-less updates. Before the modification, the delete sequence could result in exhausting all MC table entries `int` he HW, and fail due to out-of-resources error. This behavior is now changed. Upon egress replication deletions that would fail due to a full multicast table, the replications are instead just marked as disabled. These causes the deletions to never fail, but at the cost of less efficient egress multicast groups when such deletions are performed and the multicast table is full. Note that unless deleting only one egress replication, it is recommended (and more efficient) to use `bcm_multicast_egress_set` and not `bcm_multicast_egress_delete`.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-46090	617790	56440_A0	Fixed `LAG_FAILOVER_CONFIG` programming for MXQPORTs
SDK-46210	623614	All	fix the interrupts assertion. interrupts function could go in to endless loop because of variable that was not initialized properly.
SDK-46328		88650_B0	When traversing the Large Exact Match table (e.g. in MACT with `bcm_l2_traverse`), some entries were missed in specific scenarios when these entries were in the first lines. This bug is fixed.
SDK-46414	629572	88750_A0 88750_B0	Wrong initialization on interrupt DB caused wrong handling of DcHUnExpCellP and DcHUnExpCellS interrupts. This has been fixed.
SDK-46416	619344	56850_A0 56850_A1	Added code to allow `BCM_COSQ_DISCARD_DEVICE` with gport as -1
SDK-46645		88650_A0 88650_B0 88650_B1	TRILL unicast route add: A route consists of a LEM and a SEM entry. If SEM entry add succeeded, but LEM entry add failed, SEM entry was not removed.
SDK-46656	628944	88030_A0	Already fixed.
SDK-46785	634877	56850_A1	The final per lane AMP control is fixed and released in 6.2.7 or 6.3.2.
SDK-46864	634919	56845_B0 56843_B0 56841_B0	Fixed an issue that ports with remote fault will have its forward state represented by `EPC_LINK_BMAP` incorrectly enabled when processing an unrelated port's linkdown event.
SDK-46897		88030_A0	MPLS Header compression feature is implemented. It can be enabled or disabled through port control API. `bcm_port_control_set` Control: bcmPortControlMpls Value Action (0) Disable MPLS (1) Enable MPLS (2) Enable Header compresson (3) Disable Header compression
SDK-46900		88030_A0	Caladan 3 g3p1 S-OAM CCM microcode and soc layer.
SDK-47014	640047	56850_A0	`SPID,QLIMIT_ENABLE` and `Q_COLOUR_ENABLE_CELLf` are independent of groupid, so moving out of the if loop, so that `SPID,QLIMIT_ENABLE` and `Q_COLOUR_ENABLE_CELLf` fields gets programmed properly.
SDK-47067	636477	88030_A0	In case customer need to use unified mode, they need to configure "instance" and `"divide_ratio"` in `g3p1_tmu_cfg.lrp`. Set "instance" to 2, it means to use unified mode for this table. The range of `"divide_ratio"` is [0,10]. It means how many entries allocated in taps0. If set to 0, it means no entry in taps0. If set to 10, it means all of entries exist in taps0 and no entry in taps1.
SDK-47080		56640_B0	Issues in ESM Serdes PRBS test
SDK-47152	642576	88030_A0	Fields crossing 32bit boundaries are now supported and will generate ucode register references for the two 32bit registers that the field will fall in to.
SDK-47198	641750	88650_A0	VLAN: In case user set specific VLAN-Port to be dropped by API `bcm_port_discard_set`, discard settings being overwrite by mistake in egress VLAN translate APIs or when replacing existing VLAN-Port information in `bcm_vlan_port_create`.
SDK-47205	637114	56440_A0	Resolved the `bcm_port_timesync_config_get()` issue on KATANA

Table 52:

Number	CSP #	Chips		Release Notes For 6.3.2
SDK-47232	643531	`56640_A0`	`56641_A0`	Fixed an issue that `bcm_vlan_translate_action_add()` API overwrites existing vlan translation entry created by other applications such as MPLS.
		`56648_A0`		
SDK-47241	644482	`56850_A0`	`56855_A0`	fix egress port cos metering accuracy issue(packet-mode)
		`56854_B0`	`56854_A0`	
		`56850_A1`	`56851P_A1`	
		`56851_A1`	`56850_A2`	
		`56851_A2`	`56851P_A2`	
		`56854_A2`	`56853_A2`	
		`56852_A2`	`56855_A2`	
SDK-47250	643637	`56440_A0`	`56450_A0`	Excluded CES and CI blocks in soc dump and some test operations in Enduro2.
		`56440_B0`		
SDK-47320	642011	`88650_A0`	`88650_B0`	TPID management: Fix ingress VLAN translation with only single inner TPID value.
		`88650_B1`		
SDK-47326		`88750_A0`	`88750_B0`	"tr 50"/"tr 51"/"tr 52"/"tr 71" - Memory Fill/Verify test caused failures when running with a read only or write only memories. A warning was added when trying to run "tr 50" with read only or write only memories.
SDK-47342	641978	`88650_A0`	`88650_B0`	Advanced VLAN edit mode was introduced under the new SOC property `bcm886xx_vlan_translate_mode,` with new dedicated BCM APIs. The new mode is aimed to enable user enhanced utilization and flexibility of the HW VLAN edit capabilities. In the Advanced mode, a user can configure any port configured TPID for every VLAN edit action. For CINT usage examples please refer to `cint_vlan_translation_new_mode.c`
		`88650_B1`		
SDK-47406	632213	`56640_A0`	`56850_A0`	Timestamp can be added correctly to IEEE 1588 packet after modification.
SDK-47441	629284	`88650_A0`		MPLS + DoubleLookupEnable: Added new improvement to be able to have on L2 LIF DoubleLookup port (bcmVlanPortDoubleLookupEnable) also MPLS termination in case packet is tagged/untagged. To have it enabled use soc property: `bcm886xx_mpls_termination_database_mode=1/3` (1 - used in case MPLS termination is unindex up to 2 MPLS termination, 3 - used in case MPLS termination is indexed up to 3 MPLS termination).
SDK-47460		`88660_A0`		IP Tunnels: In BCM88660 we introduce the ability to counter/meter IP tunnel packets. In-LIF is now being updated for IP tunnel termination packets. See an example in : `src/examples/dpp/cint_field_dir_ext_counter_inlif.c`
SDK-47476		`88650_A0`	`88650_B0`	XGS MAC extender: We introduce a new method for mappings between ARAD and XGS ports. New mapping must be defined by user in new APIs: `bcm_stk_modport_remote_map_set/get` when ARAD device is connected to XGS for MAC extender. New method provides more flexible port settings between ARAD and XGS and support also trunk ports. See example of settings in : `cint_xgs_mac_extender_mappings.c.` For Negev application example see: `appl_dpp_stk_diag_init` function in src/appl/diag/dcmn/init.c file

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-47500	649907	`56850_A0`	`bcm_l2_station_add()` API now supports gport type of `src_port` and `src_port_mask` parameters
SDK-47565		`88650_A0`	In Field Processor, the Field groups may be of type TCAM, Direct Extraction or Direct Table. In Direct Table case, the key is accessing as index the TCAM Action to retrieve the actions to perform. By definition, keys of different entries cannot overlap since they access the same table index. Due to a bug, non-overlapping keys were returning error at insertion. This is fixed.
SDK-47666		`88650_A0 88650_B0 88660_A0`	Interrupt were enabled in SOC layer before Interrupt application Initialization. Interrupt application clear asserted interrupts. Interrupt handler constantly handled Interrupts that were asserted after SOC init and before Interrupt application since they were never cleared. The same state can occur on Deinit/Detach sequence. This state was fixed by enable interrupts only after Interrupt application initialization.
SDK-47680		`88650_A0 88650_B0 88650_B1`	"diag egq" command is now under cosq, meaning diagnostics for egq will now be displayed using "diag cosq egq"
SDK-47699	661949	`88650_A0`	When ILKN OOB interface is in constant error stage (e.g. disconnected) the interface will be flow controlled. Thus disabling NIF port (using `bcm_port_enable_set` API) results in an error, because queues can't get empty. It was fix such that an error in an ILKN OOB will not raise flow control indication.
SDK-47721	652422	`56851_A2 56851_A1 56852_A2 56853_A2 56851P_A1 56851P_A2 56854_A2 56855_A2 56850_A2` All `56850_A0 56855_A0 56854_B0 56854_A0 56850_A1`	Code modified for programming `DSCP_TABLE` and `PORT_TABLE` for proper functioning of DSCP mapping for TD2 device.
SDK-47723 SDK-50275	652431	`56850_A0 56854_A0 56850_A1 56850_A2`	`ETAG_PCP` or `ETAG_DE` marking is done based on incoming OTAG/IVID/default (port) values .... This configuration is done in `PORT_TAB` table based on field - `ETAG_PCP_DE_SOURCE`. When `ETAG_PCP_DE_SOURCE` is set to value "2" `ETAG_PCP/ETAG_DE` are picked up from `PORT_TAB` for the port.
SDK-47738	650174	All `56850_A0`	Reverted the code changes, so that parser behaves properly
SDK-47764		`88650_A0 88650ACP_A0 88650_B0 88650_B1 88660_A0`	ILKN traffic is always segmented into bursts and transmitted as non-interleaved bursts. Removed the SoC property `"ilkn_is_burst_interleaving"` for arad.
SDK-47787	653154	`88650_A0`	Background: When OAMP packets are injected, they are forwarded with forward strength 7. Bug: This strength is hard coded and cannot be configured. Should be taken from `default_trap_strength` soc property.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-47811	654131	88650_A0 88650_B0 88650_B1	In Counter processor module, when counting per VOQ, the `bcm_cosq_gport_statistic_multi_get` API is supported to get VOQ statistics after one call. An optimization is done to update the SW counters only before reading the first counter for a best performance. The gport param is unused and the `lgl_gport` is the desired voq's gport.
SDK-47815	644109	88650_A0	VLAN: We are introducing a cint example that illustrates different usages of `bcm_vlan_gport_add()`. For more information, please see `srcexamplesdppcint_vlan_gport_add.c`
SDK-47816	653943	88030_A0	There was an issue in queue setup for 3x40G TDM which caused some ports to not function as expected. This has been resolved.
SDK-47862	654758	56342_A0 56344_A0	Support is already available in TOT
SDK-47894		88650_A0 88650_B0 88650_B1	ERSPAN: a new ERSPAN calling sequence implemented for ARAD A0,B0 & B1 (see `src/examples/dpp/cint_mirror_erspan.c` for details). Changes were done to support Inbound mirroring + Routing. The new sequence also includes setting the outgoing mirror destination port as ERSPAN via a new bcm port control bcmPortControlErspanEnable. Notes: 1. Old sequence is not supported in ARAD A0,B0 & B1. 2. Each outgoing mirror destination port can be used for ERSPAN or SPAN (but not both). 3. Known issue: ERSPAN with XGS MAC extender is not working for ARAD+.
SDK-47928	657449	84757_C0 84744_A0	FCMAP port config get API fixed to return correct `mapper_len` (Also fixed error handling code to do unlock of `bfcmap_lock`)
SDK-47962	661178	56851_A0 56852_A1 56852_A0 56853_A1 56853_A0 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2	fix wrong meter flag used in `_bcm_td2_cosq_bucket_set.`

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-47990		`88650_A0  88650_B0` `88650_B1`	BCM88650 fabric multicast queue eligibility can be regulated by leaky buckets, random-backoff and slow-start mechanisms: for details, refer to section Fabric Multicast Queue Eligibility in the 88650-AG2XX document. Added support for these mechanisms to the driver.
			To enable/disable GCI leaky bucket mechanism call: `bcm_fabric_control_set(unit,` bcmFabricGciLeakyBucketEnable, enable) Default: enabled. To configure leaky bucket congestion threshold call: `bcm_fabric_link_thresholds_set(unit, -1,array_count, array_types, array_values)` The API received a list of thresholds `(array_types)` and values to configure `(array_values)`. Relevant threshold types are: bcmFabricLinkGciLeakyBucket1Congestion bcmFabricLinkGciLeakyBucket2Congestion bcmFabricLinkGciLeakyBucket3Congestion bcmFabricLinkGciLeakyBucket4Congestion Threshold range: [0, 0xff] Default: 0x4 To configure leaky bucket full threshold (the highest value of the leaky bucket) call: `bcm_fabric_link_thresholds_set(unit, -1,array_count, array_types, array_values)` The API received a list of thresholds `(array_types)` and values to configure `(array_values)`. Relevant threshold types are: bcmFabricLinkGciLeakyBucket1Full bcmFabricLinkGciLeakyBucket2Full bcmFabricLinkGciLeakyBucket3Full bcmFabricLinkGciLeakyBucket4Full Threshold range: [0, 0xff] Default: 0x80
			To enable/disable GCI random backoff mechanism call: `bcm_fabric_control_set(unit,` bcmFabricGciBackoffEnable, enable) Default: disabled.
SDK-47998	660572	`88030_A0`	Tolltip is visible until mouse pointer has left field region.
SDK-48003		`88650_A0`	VLAN: `_bcm_dpp_vlan_info_vlan_exist_set/` `get` is the API to the `vlan_info` SW DB. The API function was not used correctly in all relevant places and the SW DB might have used inconsistent data. The VLAN SW DB was integrated into `alloc_mngr` so that it should not be handled separately.
SDK-48004	660608	`88030_A0`	Implemented as part of "conditional breakpoint subsystem". Now user can define condition for breakpoint or create "interruption point". Interruption point contains the same expression as conditional breakpoint, but interruption point has no association with instructions and streams. Program execution will be interrupted if conditional breakpoint/interruption point expression is calculated to true value. To stop if "something" has been changed, write expression like that: `<addr_expr> == *`, where `<addr_expr>` can be register expression, variable expression, header expression, ocm table expression, etc.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48005	660612	`88030_A0`	Instead of customization, now user can create separate view for each register "page" (GPR, TPR, etc.), and locate those views at any position on screen. ShowView dialog (main menu) requests a "type" of register view to be created/activated.
SDK-48058		`88650_B0 88650_B1`	PON VMAC: We introduce a new capability in PON application called VMAC (Virtual MAC). In the upstream traffic, OLT Receives the source MAC (from now on called Original MAC or oMAC) and replaces it with an LLID derived MAC address (from now on called Translated MAC or vMAC). In the downstream traffic, OLT receives the Translated MAC and replaces it with the Original MAC. See more information in : `src/examples/dpp/pon/cint_pon_vmac.c`
SDK-48085	649507	`88650_A0 88650_B0 88650_B1`	The following diagnostic shell commands changed to print to both console and log file (if available). The previous implementation output was printed just over the console. - "diag cosq `non_empty_queues`" - "diag cosq `print_flow_and_up`" - "diag cosq voq"
SDK-48093	662986	All	The port control bcmPortControlEEEStatisticsClear now returns the correct return value.
SDK-48098	653246	`56850_A0`	Updated the `BCM_PORT_PHY_CONTROL_TX_LANE_SQUELCH` handler in tscmod to turn off the Analog Tx. With out this change, when the port is in loopback mode, it's link partner(LP) would not go down automatically as the LP continues to receive some garbage signal from local ports's analog Tx. This fix would quiesce the link and the link partner would go down automatically.
SDK-48108		`56150_A0`	Configured LED Processor scan delay values for Hurricane-2.
SDK-48131	651142	`88650_B1`	Fixed definitions of EEDB tables.
SDK-48144	661311	`88650_B1`	Field Processor: Data qualifiers configuration was only relevant for Ingress PMF lookup. Stage parameter was added to `bcm_field_data_qualifier_t` struct, in order to allow the user to configure the lookup stage for the data qualifier. Supported values for the stage parameters are: bcmFieldStageIngress, bcmFieldStageEgress and bcmFieldStageExternal. Ingress and external stages can be used for predefined and header data qualifiers. Egress stage can be used for predefined data qualifiers only (header DQ not supported). Backwards compatibility is supported. If the stage is not indicated, the default stage is ingress.
SDK-48157	653203	`88650_B0 88650_B1 88660_A0`	Issue #1: Separated configuration of `add_crc` in `bcm_fabric_tdm_editing_set` api for Egress and Ingress. Previously it configured both ingress and egress at the same time. Issue #2: TDM cells coming from PB to ARAD have VCS128 format. Modified ARAD B0/B1/+ default configuration to account for discard information in VCS128 cells.
SDK-48162	614371	`88650_B1`	L2Gre cint example: fix and enhance documentation.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48183	664095	All 56440_A0 56440_A1 56440_B0	When probe port was configured and `GPORT_UMAC_CONTROL` register was set for the entire block to which the port belongs, the entire block of ports were reset losing the pre-configuration. Now, it resets only the corresponding probe port.
SDK-48184	664509	56640_A0 56850_A0 56450_A0 56340_A0 56640_B0	The code which generated the DFA states was disabled. Having zero states was causing the crash (zero states should never happen).
SDK-48228	665377	88650_A0 88650_B0 88650_B1	Added additional RCI (Routing Congestion-Indication) support. No change in default configuration. RCI is a mechanism used to indicate the level of congestion in the fabric. This indication is used by the end to end schedule to throttle the credit rate accordingly. *. Configure RCI increment value - the value that will be added to RCI bucket whenever a cell carrying RCI indication arrives. `bcm_port_control_set(unit,` bcmFabricRCIIncrementValue, value); Threshold range: [0, 0x7f] * Generating RCI Flow Control Local RCI.(This mechanism changed to be enabled by default) 1. Enable/Disable generating Local RCI by calling: `bcm_fabric_control_set( unit,` bcmFabricRCIControlSource, `enable_source)` ARAD local RCI generation Enable/Disable per pipe is not supported. Therefore, the possible values for `enable_source` are as follow Values are as follows: NONE(0)|BOTH (3). Local RCI generation is enabled by default. 2. Adjust local RCI threshold by calling: `bcm_fabric_link_thresholds_set(unit, -1, array_count, array_types, array_values):` The API receives list of thresholds (`array_types`) and values to configure (`array_values`). Relevant threshold types: o bcmFabricLinkRciFC Threshold range: [0, 0x7f]
SDK-48229	665380	88650_A0 88650_B0 88650_B1	Added new thresholds to control the fabric rx interface delete-FIFO, at the device egress. Default configuration did not change (backward compatible). To configure Delete-FIFO thresholds, use the following SOC properties: - `egress_fabric_drop_threshold_multicast_low` Drop multicast best effort according to Delete-FIFO available resources (number of packet descriptors which can be added to Delete-FIFO). - `egress_fabric_drop_threshold_multicast` Drop multicast according to Delete-FIFO available resources (number of packet descriptors which can be added to Delete-FIFO). - `egress_fabric_drop_threshold_all` Drop all traffic according to Delete-FIFO available resources (number of packet descriptors which can be added to Delete-FIFO).
SDK-48262	665967	56150_A0	Implemented SMBUS Block Read / Write Functions.

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Table 52:

Number	CSP #	Chips		Release Notes For 6.3.2
SDK-48274	661389	88650_A0	88650_B0 88650_B1	Diagnostics: Fixed error tag information from diag command "diag pp parsing info".
SDK-48275		All		`bcm_attach()` of remote devices would fail if `BCM_CONTROL_API_TRACKING` was enabled.
SDK-48277		All		Added defensive checks to keep the get/set reg commands from firing asserts, when they are dumped from the diag shell, using invalid combinations of addresses/block numbers.
SDK-48278		88650_A0	88650_B0 88650_B1	For certain configurations with both Petra B and Arad devices, the configuration of adding fabric CRC for TDM bypass packets needs to be different in ingress and in egress. We now allow configuring this way. When the new `BCM_FABRIC_TDM_EDITING_NON_SYMMETRIC_CRC` flag is used in the structure provided to the `bcm_fabric_tdm_editing_set` API, the CRC configuration is made only to ingress/egress based on the `BCM_FABRIC_TDM_EDITING_INGRESS` / `BCM_FABRIC_TDM_EDITING_EGRESS` flag that is used. `bcm_fabric_tdm_editing_get` will use the new flag to return the specific CRC configuration of the ingress/egress.
SDK-48281	652032	88650_A0		Added SOC property `stat_if_report_multicast_single_copy` that indicate if a report should be sent for every copy or one time per MC packet in the ingress.
SDK-48292	666051	88650_A0		L3 RPF: Change the soc RPF definition as the bcm RPF definition.
SDK-48296		88650_A0		When working with external TCAM, a master-key is sent from BCM886XX to KBP device with all the necessary fields for the forwarding and external ACL lookups. A diagnostic has been built to show the order of the fields in the master-key and master-result: BCM> kbp print master
SDK-48305 SDK-43330	665205	56850_A0 56850_A2	56850_A1	Fix Ypipe index error when operating `MMU_QCN_ENABLE_1` memory(for Ypipe port).
SDK-48308	666639	88030_A0		BCM88030 - C3Debug application respects the task and predication of the original instruction.
SDK-48330	652729	88650_B1		Bug: A new mep is always added with a default profile, and after an existing mep profile was changed adding a new one should result in failure. Fix: Add a default profile unless there already was a mep configured on same lif, then we will give it the same profile as to the existing mep.
SDK-48334	662397	56440_A0	56440_B0	Corrected retrieval of port and queue info in `bcm_multicast_egress_subscriber_get`.
SDK-48349	667677	88030_A0		Support added for configuring PPE rules using CSV type syntax. This enables the rules to be edited in a spreadsheet. Please see the release notes for how to use, examples and formats.
SDK-48350	667675	88030_A0		GoTo feature (combined with search and selection by colors) are now part of new version (for vars, consts, and labels)
SDK-48355	667475	88650_A0 88650_B1	88650_B0	When `bcm_cosq_gport_sched_set()` was called to change the fabric clos or fabric mesh scheduler weights the shaper settings are also changed even though `bcm_cosq_gport_bandwidth_set()` is not being called. The issue was fixed.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48357	663576	88650_A0	In Field Processor, at ingress stage (Ingress PMF HW block), the HW allows (per PMF-Program) the allocation of multiple keys in 2 cycles. When inserting a new Database, by default, the Driver was selecting the cycle with most number of available instructions. The cycle selection is optimized: if one of the cycle does not admit a 320 bit key, this cycle is tested first. This way, a 160b key will not consume the place of a 320b key.
SDK-48365	667957	56634_A0 56640_B0	Wlan virtual port assignment is now independent of the other type virtual port assignment
SDK-48366		88660_A0	BCM88660 introduces PON 3 Tags manipulation which includes 2 Egress VLAN editing and Tunnel-ID tag addition. See an example in : `src/examples/dpp/pon/cint_pon_application.c`
SDK-48373	667548	88650_A0	Programmable editor SW state was not saved per unit, thus not supporting multiple unit with a different set of programs under the same SDK instance.
SDK-48398	665296	88030_A0	12x10G to 12x10G is not a supported swap case in the last patch. Please try 1x100G to 12x10G as described in the release doc
SDK-48399	665287	88030_A0	Fixed.
SDK-48401	667520	56850_A0 56850_A1 56850_A2	Fix to cleanup invalid action data structures.
SDK-48405	662234	56440_A0 56440_B0	The encoding of NH and INTF in `EXT_MC_QUEUE_LIST0` is corrected to forward packets correctly through subscriber queues.
SDK-48488		56150_A0	The phy542xx.c driver accepts the correct primary and offset values for the built-in QGPHYs in BCM56150.
SDK-48493	667641	All 88030_A0	fix the taps resource leak during delete for bcm88030 device
SDK-48500	664376	88650_B1 88660_A0	In Field Processor module, a SOC property is added to control the size of the Trap action: - `custom_feature_reduced_trap_action` - when set, the trap action encoding includes only trap code and trap strength (11 bits). The trap qualifier is not included in the trap action encoding and its value is not used by the user. When not set, the trap action encoding includes trap code, trap strength and trap qualifier (27 bits).
SDK-48516	666270	88650_B1	TPID settings: Added an error in case the number of different TPIDs is larger than device capabilities (4 in ARAD)
SDK-48518		88650_A0 88650_B0 88650_B1	SW perform soft reset without fabric as default action for interrupt `"hard_reset"` corrective action, and where fabric reset is needed SW perform soft reset with fabric
SDK-48522	667062	88650_A0 88640_A0	Fix for a possible contention issue in the resource manager init. Resource management actions may be called in parallel for different units, but init and detach of a specific unit must not be called concurrently with other functions for that same unit.
SDK-48524	667951	88030_A0	If the OCM memory allocation exceeds that which is available the assembler will quit with an error message and a table of the current allocations. Additionally if a port allocation exceeds that which is available to it the assembler will quit with an error message and a table of the current port allocations.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48530	670224	All	fixed the tx dma error during taps insert when ipv6 table is almost full for bcm88030
SDK-48547	668480	`88030_A0`	hread constraint added. Violating the constraint will produce the following error: Error! [51059] `g3p1_ing_bridge.lrp->236:32->1.95` = constraint H-000-2 Header Load Latency (1)
SDK-48558	621392	`88650_A0 88650_B0`	Initial-VID: Initial VID is now supported. In order to support a port to be Initial-VID for both tagged and untagged packets enable port use soc property `vlan_translation_initial_vlan_enable.` bcmVlanLookupMACEnable didn't work correctly before. Now the VLAN control enable Only MAC VLAN Assignment procedure. See an example of use in `src/examples/dpp/cint_vlan_port_initial_vid.c`
SDK-48572	669205	`56640_A0 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2`	Added the support for forwarding type and forwarding field in egress mode for Trident 2
SDK-48573 SDK-50119	668627	All	Added little-endian host support.
SDK-48574	636126	`88650_B1`	VSWITCH: One directional cross connect is now supported using flag `BCM_VSWITCH_CROSS_CONNECT_DIRECTIONAL`
SDK-48578	662404	`88650_A0`	Vxlan: packet native to VLAN had corrupted encapsulation - IP and UDP length fields were incorrect - The I flag was set to 0, instead of 1.
SDK-48581		`88650_A0`	In Field Processor, a change in 6.3.0 implies that the bcmFieldQualifyForwardingType is mapped to 2 HW qualifiers to allow the support of bcmFieldForwardingTypeMplsLabel1/2/3. This option can be disabled by commenting the compilation flag `_BCM_DPP_FIELD_FORWARDING_TYPE_COMPOSED.`
SDK-48586		`88650_A0 88650_B0 88650_B1`	1. `cint_cnm` example was fixed. 2. When a CNM queue was configured (using `bcm_cosq_qcn_config_set` API), it could override the parameter for all queues. This issue is fixed.
SDK-48587		`88650_A0`	Field Processor: 2 SOC properties are added: 1. `custom_feature_fp_restricted_forwarding_type` - when set, this SOC property does not allow the bcmFieldQualifyForwardingType to be a composed qualifier. In this case, the values bcmFieldForwardingTypeMplsLabel1/2/3 cannot be used. 2. `custom_feature_pmf_320b_key_opt_disable` - when set, the 320 bit key optimization is disabled during key allocation.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48612	670951	`88650_A0 88650_B0 88650_B1`	The Counter Processor module runs background threads to collect the highest counters into a SW database. If the Soc property `counter_engine_sampling_interval` is set to 0, the Counter Processor background thread will not run during the initialization sequence. This must be used only if: - either the user is not using the Counter processor - or all the Counter Processor formats `(counter_engine_format_)` are PACKETS or BYTES
SDK-48613	670936	`88030_A0`	RXAUI 10G port support for specific configurations (up to 6x10G) is now supported on Caladan3.
SDK-48615		`56524_A0 56524_B0`	bcmPortControlLinkFaultLocalEnable and bcmPortControlLinkFaultRemoteEnable results in segmentation fault in `bcm_port_control_get()` for devices using bigmac, such as BCM56524.
SDK-48643		`88650_A0`	`inband_mem_handle()` would leak memory on error return.
SDK-48644		All	`_topo_info_t_create()` would leak memory on an error return
SDK-48649		`56524_A0 56524_B0`	`bcm_port_control_set()` does not set correct value for bcmPortControlLinkFaultLocalEnable and bcmPortControlLinkFaultRemoteEnable for devices using bigmac, such as BCM56524.
SDK-48650	671419	`56224_B0 56224_A0`	Fixed tunnel initiator warm boot recovery for XGS III chips
SDK-48653	670916	`56640_A0 56644_A0`	The issue is fixed in SDK so that user can create FP group with bcmFieldQualifyIpProtocol qualifier when using ESM and `ESM_IPv4` or `ESM_L2_IPv4` profile. With this fix, following IP protocol numbers (used in the Protocol field of the IPv4 header), can be used to qualify the packets using IpProtocol qualifier: TCP (6), UDP (17), ICMP (1), IGMP (2), IPv4 (4), IPv6 (41), MPLS (137)
SDK-48656	669385	`All 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2`	fixed code to support sp schedule for cpu port.
SDK-48666	660786	`88650_A0 88650_B0 88650_B1`	VLAN-Port: Added a fix to support 32K AC-LIFs. On some cases specific LIF IDs returned Internal error when created.
SDK-48667	644027	`88650_A0 88650_B0 88650_B1 88660_A0`	G.8032 Ring Protection: It is now possible to associate Fast Flush LIFs to ERP blocking groups. The `ingress_failover_id &` `failover_port_id` fields can be modified by `bcm_vlan_port_create` in REPLACE mode, with the values of a `failover_id` that is dedicated to ERP grouping. A CINT example is provided in `cint_l2_fast_flush.c`.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48668	651858	`88650_A0` `88650_B0` `88650_B1`	Tail drop for ISQs per color was not supported. Added support for accepting ISQ gport types.
			Now it is possible to use `BCM_COSQ_GPORT_ISQ_SET(gport, qid)` And then `bcm_cosq_gport_color_size_set(unit ,gport,cosq,bcmColorBlack,BCM_COSQ _GPORT_SIZE_BYTES,&q_size_ucast);`
			Instead a work around: Configuring the wanted ISQ qid, by using `BCM_GPORT_UNICAST_QUEUE_GROUP_SET( gport, qid);`
SDK-48669		`88650_A0`	Added a new compilation flag `BCM_CONTROL_API_TRACKING` With this flag is in use, `BCM_API` calls are not allowed when the device is detached
SDK-48681	669901	`56850_A0` `56850_A1` `56850_A2`	1. Enabling `ING_HASH_CONFIG_0` register 2. Fix existing bug on programming `RTAG7_HASH_CONTROL` 3. Adding valid bit to a `flex_hash_entry` before it is programmed into the tcam
SDK-48683		`88650_A0`	Release/Free/Destroy Semaphores/Mutexes which were allocated during init.
SDK-48684	670470	`56640_A0` `56640_A1` `56640_B0`	OAM endpoint traversal would skip the remaining endpoints if the callback routine modifies the endpoint. This has been corrected.
SDK-48693	670822	`56450_A0`	With wc40.c patch , RXAUI mode is working fine. Also with below config variables, RXAUI mode works fine with init all. `port_init_autoneg_xe6=0` `port_init_speed_xe6=10000`
SDK-48694	664945	`56850_A0`	Fix confusion when configuring CPU's queue assignment after XE's.
SDK-48697		All	The Linux kernel module linux-kernel-bde now supports enabling/disabling the use of MSI interrupts on PCIe.
SDK-48700		`88650_A0`	IPv4 Multicast and IPv6 forwarding tables are located in the TCAM. The entry shuffle in the TCAM for these Databases was flawed for specific scenarios and is fixed.
SDK-48704	635324	`88650_A0` `88650_B1`	Warmboot state was not recovered for unit different than zero
SDK-48714		All	Added Coverity killpath annotation to `_sal_assert()`
SDK-48715	671569	`88650_A0`	`bcm_cosq_gport_threshold_set` was setting the wrong parameter, causing the port FC threshold `(port_fc_data_buffers)` to not get configured. The issue is fixed.
SDK-48721	653118	`56224_B0` `56224_A0`	`UDF_ETHERTYPE_MATCH` issue has been addressed.
SDK-48726	671075	`88650_A0`	Port LLP COS profile: Drop precedence profile should be 2 bits (0-3) and not 1.
SDK-48733		`88650_A0`	Added port controls, allowing to separately enable/disable fabric links in RX/TX directions: `bcm_port_control_set(unit, port, bcmPortControlRxEnable`, value = 0/1); `bcm_port_control_set(unit, port, bcmPortControlTxEnable`, value = 0/1);

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48738		`56340_A0`	Added support for BCM56340 for flushing the MMU, clearing the backpressure and freezing the egress metering when the port is disabled.
SDK-48743		`88650_A0`	For BCM886xx devices, a gport may have more than one QoS profile. In this case, the `bcm_qosa_port_map_get` has no way to know which one should be returned. In this enhancement a new API is introduced - `bcm_qos_port_map_type_get` that allows the user to get a QoS profile of a gport according to the QoS profile type (the same QOS type that is passed to `bcm_qos_map_create`).
SDK-48759		`88650_A0 88660_A0`	Changes in the color resolution are done: 1. The egress Drop Precedence was equal to Drop-Precedence / 2 by mistake, taking only the values 0/1. It is equal to incoming Drop Precedence from now (when the DP-Meter command is set to modify the egress DP, e.g. by default)
			2. The policer 'yellow' was encoded as DP=2. It is DP=1 from now on.
			3. In BCM88660, a differentiation of RED from Ethernet policer and meter processor is implemented. Usually when a packet is assigned a red color by a meter, the user has no way of knowing how this decision was made. Red is always represented by DP=3.
			In this enhancement a new drop resolution mode is presented that allows the user to obtain more information about the drop source (i.e. the component that assigned the red color to the packet). If `policer_color_resolution_mode=1`, then this mode is active. In this mode, there are two types of red. Pre-Meter drop (DP=3): If the meter receives a red packet, then the output DP would be 3 (e.g. if an Ethernet policer dropped the packet). Meter drop (DP=2): If the meter assigns a red color to the packet, then the output DP would be 2.
SDK-48775	671603	`56850_A0 56850_A1 56850_A2`	Resolve strict priority failed on TD2.
SDK-48792		All	Resolution of an issue where the diag command 'fp stat create' would intermittently crash.
SDK-48798	672473	`56850_A0 56850_A1 56850_A2`	Delete ingress nat entries no matter the following flags set or not in hardware table, when they are not set in argument flags in `bcm_l3_nat_ingress_delete_all`: `BCM_L3_NAT_INGRESS_HIT`, `BCM_L3_NAT_INGRESS_MULTIPATH`, `BCM_L3_NAT_INGRESS_RPE`, `BCM_L3_NAT_INGRESS_DST_DISCARD`.
SDK-48817	654269	`88650_A0 88650_B0 88650_B1`	Counter processors are counting according to one of multiple sources, e.g. Ingress or Egress OAM. The following modifications have been done when counting with OAM source: - remove redundant code in the assignment of OAM counter processors
SDK-48825	668611	`88650_A0`	tr40 add type ID variable with default: tpid=0x8100, before the fix this value was hard coded to 0x9000
SDK-48836		`88650_A0 88650_B0 88650_B1`	Allow using `bcm_cosq_pfc_config_set` API to configure FC for VSQ types: CT, CTTC, CTCC, STF.
SDK-48837		`88650_A0 88650_B0 88650_B1`	For Out Of Band FC, fix configuration of reception path to LLFC, using `bcm_cosq_fc_path_add` API.

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Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48839	640074	88650_A0 88650_B0 88650_B1	In the Statistic-Interface configuration, the configuration of the egress Counter-Pointer format was done through the Counter Processor configurations. The user can configure from now on the Egress Counter `_pointer` formats without configuring a Counter Engine to count at egress by using the following SoC properties: `counter_engine_source_stat0` `,counter_engine_source_stat1`
SDK-48844	671536	88650_A0 88650_B0 88650_B1	In ELK application, the KBP diagnostic "BCM>kbp print" displays also per Database: 1. the number of entries 2. an estimation of the remaining capacity (number of entries). This estimation is valid only when the Database has at least an entry.
SDK-48854		88650_A0	TDM: API `bcm_fabric_editing_set` returns error by mistake when System port allocations is not symmetric (same port allocation on all devices). Fix included removed the constraint between Symmetric systems and API handle.
SDK-48857		88650_A0 88650_B0 88650_B1 88660_A0	The credit watchdog configuration and the predefined credit request profiles, now work properly with warm boot. The burstiness of credit watchdog configurations using a small range of queues was improved. A new credit watchdog mode was added for 88660 only. It is called the Common Message Generation Period mode, and is the default mode for 88660. In this mode the Message Generation Period is common to the whole device, the same for all the queues in the credit watchdog range. The supported (common) message generation periods are 0 (disabled), 125us, 250us, 500us, 1ms, 2ms (default), 4ms. The lower periods require that the credit watchdog will not be configured for all of the queues. The precise rule on the number of queues configured for the credit watchdog is: `number_of_queues` < 120 * `scan_time_in_us.` The supported range of the delete queue threshold is also 2ms-7.6s, and the default is 512ms. Changing back to this mode after changing to a different mode is done using: `bcm_fabric_control_set(unit,` bcmFabricWatchdogQueueEnable, `BCM_FABRIC_WATCHDOG_QUEUE_ENABLE_C` `OMMON_STATUS_MESSAGE);` In this mode the Common Message Generation Period can be set and retrieved using: `bcm_cosq_delay_tolerance_t` dt; `dt.credit_request_watchdog_status_` `msg_gen` = 125; /*period in us, or 0 for no messages */ `bcm_cosq_delay_tolerance_level_set` `(unit,` `BCM_COSQ_DELAY_TOLERANCE_SET_COMMO` `N_STATUS_MSG, &dt);` /* set the period */ `bcm_cosq_delay_tolerance_level_get` `(unit,` `BCM_COSQ_DELAY_TOLERANCE_SET_COMMO` `N_STATUS_MSG, &dt);` /* get the period */
SDK-48870	666202	88650_B1	After warmboot recovery, only 16K AC-LIFs were recovered. now all LIFs should recover.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-48873	673082	All `56850_A0` `56850_A1` `56850_A2`	Weight 0 can be configured for WRR or WERR scheduled nodes.. Configuration to support hybrid combination of scheduling, strict+WRR or strict+WERR is allowed.
SDK-48887	670870	`88650_A0` `88650_B0` `88650_B1`	In Field Processor, the entry-ids are allocated according to the Database type: 1. The TCAM databases get the first entry-ids [0 ; x-1] 2. The Direct extraction have 16 possible entry-ids [x ; x+16] Due to the insertion of external TCAM database support, the following changes are done: 1. The external databases get a third range of entries [x; 2x] 2. When compiling the KBP code, `x=SOC_TMC_TCAM_NL_88650_MAX_NOF_EN TRIES=1<<16.` Otherwise, x=28K 3. The SW state increases tremendously when compiling with KBP code. Most of the SW state saves the FP entry attributes (1 KB per entry). Thus the SW state size is 1K * x. 4. To reduce the SW state, the user can reduce the maximal number of qualifiers (`SOC_PPC_FP_NOF_QUALS_PER_DB_MAX` set to 32) and actions (`SOC_PPC_FP_NOF_ACTIONS_PER_DB_MAX` set to 16) according to the maximal size in its scenarios. 5. For KBP users, the x can be changed to the maximum by defining `SOC_TMC_TCAM_NL_88650_MAX_NOF_ENTR IES=1<<20.`
SDK-48889	674382	`88650_A0`	`bcm_port_force_forward_set()` returned an error when called on a disabled port
SDK-48895	670658	`88650_A0` `88650_B0` `88650_B1`	In Field processor, the user can define data qualifiers. The number of data qualifiers is increased from 16 to 64.
SDK-48896		`88650_A0` `88650_B0` `88650_B1`	Add the option configure the WFQ weight of port schedule to 0 (both ETM and E2E ports). When weight 0 is set for a TCG it'll get SP.
SDK-48897	611729	`88650_A0` `88650_B0`	Disabling NIF port (using `bcm_port_enable_set` API) results in an error whe port is extremely shaped and oversubscribed. Workaround; Disable port shaping before disabling a port. Resolved by disabling and enabling back the shapers inside the API.
SDK-48917		`88650_A0` `88650_B0` `88650_B1`	In `bcm_vlan_port_create` `port.learn_ac` is set for all non CEP ports, even if the port was previously set to no learning.
SDK-48918		`88650_A0`	Added support for HCFC protocol in oob port (`fc_oob_type=3`)
SDK-48930 SDK-49401		`88650_A0` `88650_B0` `88650_B1`	Advanced VLAN edit mode supports PCP/TPID modifications for tags with unchanged VID value.
SDK-48943	675017	`56640_A0` `56634_A0` `56634_B0`	`56640_A0` `56634_A0:` Added support for handling SER events for IPFIX tables.

Table 52:

Number	CSP #	Chips		Release Notes For 6.3.2
SDK-48959		`88650_A0`		LIF & L2 FEC System resources: The BCM API has an allocation manager. When an object is created and `_WITH_ID` flag is set, then user can provide the allocation of the object. In case of LIF and L2 FEC we introduce two modes of system resources: Global and Local. Global is the default mode where it assumes that LIF & L2 FEC are global resources. In case LIF is being allocated on one device, it is expected to run `WITH_ID` over all other devices with the same settings. In global mode, the system can support up to 64K LIFs and 16K L2 FECs (the same as one device). In case of Local mode, user has a full control of the allocation IDs. Thus, allowing use of Lif entries, and FEC entries in different devices with the same ID to store different objects. The allocation of objects IDs is done at the user application level. Local mode is available for `VLAN_PORT` and `MPLS_PORT.` To enable system resource soc property use: `bcm88xxx_system_resource_managemen t` See CINT examples of local mode in : `src/examples/dpp/cint_system_vswitch.c src/examples/dpp/ cint_system_vswitch_vpls.c`
SDK-48962		`88660_A0`		MPLS termination: In BCM88650 a MPLS tunnel is determined both by the label and the BOS bit. In BCM88660 introduces a new mode that allows the driver to ignore the BOS bit. The MPLS tunnel is determined by the label. If the SOC property `bcm886xx_mpls_termination_key_mode` is 1 then the BOS bit is ignored, and only the label is used as a key (for tunnel lookup).
SDK-48965		`88650_A0`		New improvement PON Local route switch: PON Local route switch introduce the ability of sending traffic from PON-LIF to other PON-LIF. 1. To enable feature set soc `property:local_switching_enable=1;` 2. For Forwarding group rules set bcmPortClassForwardIngress and bcmPortClassForwardEgress in `bcm_port_class_get/set()` APIs. 3. To enable Local Route switch per LIF set bcmPortControlLocalSwitching in `bcm_port_control_get/set()` APIs. Full application and example can be read in `cint_pon_local_route.c`
SDK-48990		`88650_A0`		Allocating dual shaper egress scheduler element might fail. Fixed.
SDK-49002	675026	`88650_A0` `88650_B1`	`88650_B0`	Setting and getting the assigned credit request profile of Ingress Shaping Queues (ISQs), using the `bcm_cosq_gport_sched_set` API, is now supported.
SDK-49003		`88650_A0` `88650_B1`	`88650_B0`	VLAN translation new mode: All PP application examples cints are compatible with the new vlan translation mode (soc property `bcm886xx_vlan_translate_mode=1).` For specific examples of VLAN translation new mode see `src/examples/dpp/ cint_vlan_translation_new_mode.c`
SDK-49010	676225	`56850_A0` `56850_A2`	`56850_A1`	Trident2 weights can be calculated based on LLS/HSP based scheduling type associated to the port, in either case the maximum weight can be 127.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49012	673165	`88650_A0`	88650 interrupts: EGQ ECC interrupt may be raised with no real reason for BufLink memory, in this case we changed the corrective action in the interrupts application to none.
SDK-49025	676726	`88650_A0`	Fix "diag count" - internal counters diagnostics command. Some counters names were not displayed correctly.
SDK-49031		`88650_A0`	TM/PP device mode: In case device mode is TM then no need to initialize port PP settings and QOS module.
SDK-49032		`88650_A0`	In Field Processor, the same BCM Action (bcmFieldActionSrcGportNew) was mapped to 2 HW actions: 1. Source-System-Port 2. In-LIF Thus, the action size is increased when adding the BCM action and it prevents these actions from being used for Direct Extraction (a 1x1 mapping between the BCM and HW action is mandatory). The BCM mapping has been changed: - bcmFieldActionSrcGportNew is mapped to Source-System-Port - bcmFieldActionIngressGportSet is mapped to In-LIF

The user MUST change its BCM action from bcmFieldActionSrcGportNew to bcmFieldActionIngressGportSet when the In-LIF is changed in Field processor. |
SDK-49040		All	Improve KNET NAPI performance by increasing the number of packets processed per interrupt.
SDK-49056		`88750_A0  88750_B0`	88750: BCM command shell "diag queues" now shows different format: it shows [link number, max size]
SDK-49057	676332	`88650_B0`	Fix default MC TC mapping to service pools such that: 1. TC0-3 are mapped to SP0 2. TC4-7 are mapped to SP1 regardless of number of priorities mode.
SDK-49082		`88650_B1`	added a config variable to specify cl37 without bam to speed up the link up time
SDK-49083	676830	`88650_B1`	VPLSoGRE: MPLS ttl0 trap invoked in case of running VPLSoGRE packet. Added a new FLP program in order to remove trap issue.
SDK-49090		`88650_A0`	Failover: API function `bcm_failover_cleanup()` did not clean the failover SW DB in alloc mngr. Added proper handling to failover SW DB.
SDK-49094	670228	`56342_A0  56344_A0` `56340_A0`	APIs `bcm_l2_age_timer_set/get()` should now work for bcm56340 type switch devices.
SDK-49099	669195	`88650_A0`	new soc property provided: `ilkn_retransmit_rx_reset_upon_watchdog_error_enable.` previous setting was set to enabled. This new property is provided in order to avoid reseting when watchdog error occurs.
SDK-49100	664670	`56850_A0  56850_A1` `56850_A2`	Set `VOQ_COS_MAP.VOQ_COS_USE_MOD` to enable DMVOQ feature in MMU.
SDK-49104		`88660_A0`	Add new values to `bcm_cosq_gport_stats_t:` bcmCosqGportNotGreenDroppedPkts bcmCosqGportNotGreenDroppedBytes bcmCosqGportNotGreenAcceptedPkts bcmCosqGportNotGreenAcceptedBytes

These modes are in use in the third entry in `FULL_COLOR, GREEN_NOT_GREEN` and in 88660 in `SIMPLE_COLOR_DROP` and `SIMPLE_COLOR_FWD.` |

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49115		`88650_B1`	In VxLAN application, no default trap or snoop can be configured in case of no hit in VNI mapping and Source-IP lookups. A Field processor CINT is proposed to handle this case: `cint_field_vxlan_lookup_unfound.c`
SDK-49128		`88650_A0` `88650_B0` `88650_B1`	In Advanced VLAN edit mode, the number of Egress VLAN edit profiles changes from 8 to 16 as the HW permits. Hence, the number of supported Egress VLAN edit actions changed from 128 to 256.
SDK-49133		`88650_A0`	diag cosq `print_flow_and_up` didn't display accurate value of Credit rate , now it displays the accurate value
SDK-49150	678454	`56640_A0` `56850_A0` `56640_A1` `56640_B0` `56850_A1` `56850_A2`	Initialized the LAG and HGTRUNK resolution on Triumph 3 and Trident 2 devices.
SDK-49151		`88650_A0` `88650_B0` `88650_B1`	Advanced VLAN editing: Added in CINT examples the support of advanced VLAN mode (soc property `bcm886xx_vlan_translate_mode=1)` on PON application CINTs.
SDK-49152		`88650_A0`	VPLSoGRE: Update CINT of VPLSoGRE 2 pass solution to have a correct RIF when sending to recycle port. Before RIF caused on the second pass "sa equals da" trap. For more details about the solution see `cint_vswitch_vpls_gre.c.`
SDK-49153		`88650_B0` `88650_B1`	Port field in Trill adjacency check was not enabled (feature was added in Arad-B0, but was not enabled by SDK).
SDK-49159	678514	`88650_A0`	In previous versions (pre 6.3.2) the vlan information (id, priority, cfi) was encoded inside the vlan field in `bcm_port_congestion_config_t` struct. The implementation changed such that the following fields in `bcm_port_congestion_config_t` represent the VLAN information: - vlan - cfi - pri When 'vlan' is set to `BCM_VLAN_INVALID,` the vlan, cfi and pri won't be configured to the device. The API is used to control the CNM PDU vlan tag. It's also optional to provide vlan edit command when working in PP mode. The API configures the vlan id, pri & cfi in the edit command fields, but it doesn't update the command field (default command is don't edit). Modifying VLAN edit command is currently not supported by API (can be done on register-level, please consult BCM AE team if relevant)

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49166		88650_A0	Added new feature. Feature description: The BCM88650BCM88660 device has the ability to save User-Data in the DRAM packet memory. The DRAM is partitioned into fixed-size buffers. These buffers are typically used for packet queuing. A sub-range of DRAM buffers can be allocated to store User-DATA. The number of DRAM buffers used for packet queuing is the minimum of Packet Descriptors Memory (PDM) maximum buffers descriptors capacity DRAM size divided by DRAM buffer size, where the DRAM size is total available DRAM size minus the number of buffers allocated for User-Data. The amount of User-Data DRAM buffers is defined by the user. The total number of DRAM buffers descriptors is 2M buffers. With 8 DRAM interfaces, each interface serving two DRAM devices of 2Gbit, the DRAM total size is 4GByte. For example, in a system with standard PDM configuration, with 8 DRAM interfaces, the maximal descriptors capacity for packet queuing is 1.5M buffer descriptors. When DRAM buffer size is set to 1KB, up to 1.5GB of DRAM memory can be used for packet queuing. The remaining 0.5M buffers can be allocated to user-data, without effecting the amount of memory available for data queuing. Notes: Access to DRAM User Data is available only after completing the device initialization. Performing DRAM calibration (Shmoo), Device Hard reset will corrupt the DRAM Use-Data.

Driver Reference SoC Properties The SoC property `user_buffer_size_dram=<User-Data MBytes>` (Default: 0) Sets the User-Data size. BCM API To access User-Data buffer: `int bcm_switch_user_buffer_write( int unit, uint32 flags, bcm_switch_user_buffer_type_t buff_type, uint8 *buf, int offset, int nbytes); int bcm_switch_user_buffer_read (int unit, uint32 flags, bcm_switch_user_buffer_type_t buff_type, uint8 *buf, int offset, int nbytes);` flags - for logical to physical address translation use `BCM_SWITCH_USER_BUFFER_LOGICAL2PHY _TRANS` flag. Note: Due to HW errata in BCM88650-A0/BCM88650-B0, logical to physical address translation must be used if OCB enabled in the system. `buff_type` - for DRAM User buffer type use BcmSwitchUserBufferTypeDram. *buf - In write access function contain Data buffer to be written to DRAM User buffer, in read function store the data read from DRAM User buffer. offset - The offset in the User DRAM buffer where. Start of dram User buffer resides in offset '0'. nbytes - Number of bytes to be written or read. WarmBoot DRAM User-Data can be used to save WarmBoot Database. By registering DRAM User Data access function to WarmBoot Callbacks, the WarmBoot Database will be saved to DRAM. Since part of WarmBoot se-quence is done during SOC initialization, before BCM API calls are accessible, the corresponding SoC API can be used instead: `uint32 soc_arad_user_buffer_write( int unit, uint32 flags, uint8 *buf, int offset, int nbytes); uint32 soc_arad_dram_user_buffer_read(int unit, uint32 flags, uint8 *buf` offset, int nbytes); The functions parameters match those of the corresponding BCM API functions.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49181		`88650_A0` `88650_B0` `88650_B1`	VLAN translation new mode: IVE action ids 0-13 had incorrect FHEI size (3B). FHEI size (5B) is now set instead.
SDK-49190	672457	`88650_A0` `88650_B0` `88650_B1`	When traversing the Large Exact Match table (e.g. when traversing MACT or IP host tables), some entries were appearing twice in some scenarios. This bug is fixed.
SDK-49194	676557	All `56634_B0`	fix `vlan_subnet_entry_delete` error when `VLAN_SUBNET` table is full
SDK-49195	675324	`88650_B0` `88650_B1`	Interop between PB and ARAD in PP mode. In order to support this mode, ARAD should be configured to handle PB FTMH. If ARAD is working in PP mode and PB in the system is configured, Arad will be automatically configured to support PB FTMH headers. Relevant only for ARAD B0/B1 devices
SDK-49198	679516	`88650_B0`	Fixed bug in port speed set by auto-negotiation - `bcm_port_update:` in case of link up as a result of auto negotiation, set also the mac speed according to the auto negotiation. `bcm_port_speed_get:read` the speed from the serdes.
SDK-49200	677111	`88650_A0` `88650_B0` `88650_B1`	When using external TCAM for IPv6 Multicast forwarding lookup, the lookup key was in the Multicast table: {In-RIF, Destination-Multicast-Group[119:0]}. It is from now on: {In-RIF, Source-IPv6[127:0], Destination-Multicast-Group[119:0]}. The Source-IPv6 parameter is set during the entry addition via `'s_ip6_addr'` in `bcm_ipmc_addr_t.`
SDK-49203		`56640_A0` `56640_A1` `56640_B0`	CRC checking is enabled when device operates with a maximum of 16 lanes.
SDK-49212	679834	`56850_A0`	Completed support for internal priority override on mirror packets.
SDK-49221	679524	`56850_A0`	Corrected the initializing code, so that it doesn't throw false alarm
SDK-49222	680016	`56334_B0` `56334_A0`	Disabled `sample_thresh16` feature for enduro as sflow threshold is changed from 16bit to 24bit in enduro.
SDK-49243	636292	`88650_A0` `88650_B0` `88650_B1`	In Field Processor, the following BCM qualifiers were not correctly implemented for IPv6 routed packets: - bcmFieldQualifyIp6NextHeader = bcmFieldQualifyIpProtocol - bcmFieldQualifyIp6FlowLabel
SDK-49258	675009	`88650_A0`	Fixed: allocation of two composite scheduling elements with two sequential `flow_ids` might fail.
SDK-49260	673477	`56850_A0`	Added code, so that forwarded vlan is configured irrespective of `ingress_map_mode` config variable
SDK-49261		`56640_B0`	N/A
SDK-49286 SDK-49309		`88650_A0` `88650_B0`	Background: The OAMP has a configuration corresponds to the correct core clock. Bug: This value is fixed to 500Mhz clock. Solution: Clock is taken from `SYSTEM_REF_CORE_CLOCK` soc property.
SDK-49292		`56850_A0` `56850_A1` `56850_A2`	bcmFieldQualifyVnTag qualifier(F2-7) offsets are adjusted to correct values in VFP.
SDK-49293 SDK-49294		`56640_A0` `56640_B0`	Issue fixed to make external L2 ACL work on TR3
SDK-49302	680992	`88030_A0`	Read API for coherent counter.
SDK-49305	677200	`88650_A0`	Congestion Notification: fix CNM packets generation in sampling mode. 1. Driver code fixes 2. Add missing functionality to cint example (`src/examples/dpp/cint_cnm.c`)

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49307	678192	88650_A0 88650_B0 88650_B1	For IP forwarding databases located in TCAM, the traverse function was skipping entries. This is fixed.
SDK-49310	681349	56850_A0	Add code reading of yellow limit is for multicast queue
SDK-49312	680636	56850_A1	Corrected the code in routine `_soc_counter_trident2_non_dma_init` to fix the problem of memory being over-written.
SDK-49333	671402	All 56850_A0 56850_A1 56850_A2	Corrected SNAT HIT status.
SDK-49339	680069	88650_B1	Fixed: If recycle ports are defined (in config.bcm), and outbound mirroring of a port was set up and than deleted, then `bcm_cosq_gport_bandwidth_set()` would fail. This may also have happened with OAM/PMF/egress ACL and not just with mirroring.
SDK-49340	671446	88650_A0 88650_B0 88650_B1	VLAN: Set lif VSI assignment mode equals VLAN if vlan port criteria is BCM_VLAN_PORT_MATCH_PORT and vsi is -1.
SDK-49346	678063	All	Support Encapsulated HiGig packet in Both L2 and IP GRE mode.
SDK-49348		56852_A1 56852_A0 56850_A0 56852_A2	The release notes has been updated with Preview mode support for 56852.
SDK-49349	674832	56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	Fixed the counters issue for oversize and runtime packets on TR3 platform
SDK-49350	681799	56640_A0 56340_A0	FIx for retrieving available and free counters on TR3 and Helix4
SDK-49360	668571	88650_A0	L2GRE: Use bounce back filter to perform split horizon. The filter is now configured at the init stage in the driver in case L2GRE/VXLAN is enabled. To activate the bounce back filter, use: `bcm_rx_trap_set.` See example in `cint_l2gre`
SDK-49366	682107	56450_A0	Enhanced init time port attributes (which were missing) for SubportPktTag and LinkPHY subport
SDK-49389	678486	56340_A0	Support 25Mhz clock source in Helix4
SDK-49390	680811	56840_A0 56640_A0 56850_A0 56850_A1	`EFP_TCAM` entry KEY field width is increased in TD2 and TR3 as compared to TD/TR2. So, relevant changes are made in EFP recovery logic (warm boot) to support this change for TD2 and TR3 separately. Also, changes are made to recover SrcIp, DstIp qualifiers without Ip4 qualifier being part of the Group's QSET.
SDK-49396	680823	56850_A0 56850_A1 56850_A2	Call user defined callback in `bcm_l3_nat_ingress_age.`
SDK-49402		88650_A0 88650_B0 88650_B1	Cannot dump `EPNI_AC_FORMAT` for banks different than 0, this issue have been solved.
SDK-49403		88650_A0	If the IPv4 Unicast table is located in the external TCAM (KBP), the handling of the IPv4 Multicast BiDir processing was missing.
SDK-49408	681629	88650_A0	Unnecessary dynamic allocation that cause run time overhead replaced by using the system's stack.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2

SDK-49411	679277	`56640_A0 56620_B0`
		`56850_A0 56640_A1`
		`56640_B0 56850_A1`
		`56850_A2`
			Removed incorrect check for invalid virtual port number - 1 in `bcm_mpls_port_add()` API. This potentially fixes an issue that the API cannot create more than 31 VPWS ports due to the result of compiler dependent negative value shift operation.

SDK-49423		`56851_A0 56852_A1`
		`56852_A0 56853_A1`
		`56853_A0 56850_A0`
		`56855_A0 56854_B0`
		`56854_A0 56850_A1`
		`56851P_A1 56851_A1`
		`56850_A2 56851_A2`
		`56851P_A2 56854_A2`
		`56853_A2 56852_A2`
		`56855_A2`
			Fixed incorrect register access in `bcm_rx_queue_channel_get()` to read rx queue vs. channel mapping.

SDK-49427	682375	All	Leave CPU COS queue DMA mappings unchanged if warm-booting.
SDK-49431	680820	`56150_A0`	Support new port configuration, 24*1G+2*1/10G(TSC0)+2*1/10G(TSC1), of BCM56150, BCM56151 and BCM53346.
SDK-49435	681921	`88650_A0 88650_B0` `88650_B1`	In Field Processor, the key-id allocation of the 2nd-lookup cascaded Field Group (i.e. with the qualifier bcmFieldQualifyCascadedKeyValue in its QSET) was always Key-A. This field group was superposing other Field groups already using the same Key-A by mistake. After the fix, an analysis is performed in the Driver to find the same Key-ID in all the PMF-Programs where this Field Group is present. The constraint of an unique Key-ID is specific to 2nd-lookup cascaded Field Groups: the Key-ID is written in the TCAM entry action when changing the cascaded value.
SDK-49436		`88650_A0`	Diagnostic "show counters full" BCM shell command wasn't functional for fabric links. Fixed.
SDK-49438		`88650_A0`	Calling `bcm_cosq_gport_bandwidth_set` with fabric clos fmq gport and max rate 0, caused segmentation fault. Fixed.
SDK-49457	683576	`56850_A0`	Atmost eight contiguous child nodes can be configured with schedule mode strict priority.
SDK-49459	681835	All	fixed 'snmpIfOutDiscards always returns `BCM_E_PARAM` for MXQports'
SDK-49463	683475	`56150_A0`	Add the support to enable bcm953150's QSGMII/SerDes to work at SGMII/SerDes mode.
SDK-49466		`88650_A0`	XGS programs in the programmable editor should be loaded only if at least one XGS port exists.
SDK-49483	683903	All	Sounds like TD+ from CSP
SDK-49485	684014	`All 56850_A0` `56850_A1 56850_A2`	fix issue: deleting NAT egress entries incorrectly.
SDK-49489	680869	`56640_A0 56540_A0`	Aligned Module Id offset in LMEP.DEST field.
SDK-49499	684229	`56450_A0`	Provided patch files (as attachment) for 6.3.1 branch from HEAD-TOT(6.3.2) branch
SDK-49511	683836	`88030_A0`	fixed TMU chain hash delete issue for non-64 bits chained hash on bcm88030

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49528	684297	`56851_A0 56852_A1 56852_A0 56853_A1 56853_A0 56850_A0 56855_A0 56854_B0 56854_A0 56850_A1 56851P_A1 56851_A1 56850_A2 56851_A2 56851P_A2 56854_A2 56853_A2 56852_A2 56855_A2`	Added 10 bit ClassID for TD2 and TR3 devices in `L3_ENTRY_IPV4_UNICAST` and `L3_ENTRY_1` respectively.
SDK-49532	684507	All	Fix `BAD_PTR` check for 64-bit pointers.
SDK-49546		All	Binaries output in systems/linux target folders has been replaced with soft-links to binaries in build directory in order to save space.
SDK-49550	684265	`56820_A0 56820_B0`	Support `BCM_IPMC_HIT_CLEAR` in firebolt ipmc.
SDK-49557		`88650_A0`	In TCAM, two shuffle methods are used: 1. "Old method": Each database has different set of entries, gathered by priority. For each new insertion, at the most one entry per group will be shuffled by being written in the new location and remove from the previous location. The number of shuffles is limited by the number of priorities. This method is used for non-FP TCAM Databases and Direct table databases since their number of entry priorities is limited. 2. "New method": use the HW TCAM command allowing to move a whole block of entries (data, mask and action) in one command. This method is used for FP databases, since the number of entry priorities may be huge. The Driver allows to use the "old method" for Field groups when setting the `BCM_FIELD_GROUP_CREATE_SPARSE_ENTRY_PRIORITIES` flag at their creation. This method is recommended if the user knows that the number of priorities used for this Database will be low, since it is an upper limit on the number of shuffles for each new entry insertion. It is recommended to use this flag with the `BCM_FIELD_GROUP_CREATE_INSERTION_ORDER_LOOSE` flag
SDK-49560		`88650_A0`	In Policer module, Meter configurations (meter profiles) are by default managed by the driver in the background. This simplifies the interface for the user by allowing the specification of configuration for a meter, without having to manage separate configurations as well as meters. New policer attributes (`BCM_POLICER_REPLACE_SHARED` and `entropy_id`) allows direct control over the meter configuration, called a meter profile. With this new API, changing the configuration of a meter profile can change the configurations of all meters that use this profile atomically. More details can be found in the user manual and in the CINT example `cint_policer_metering_example.c`

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49563		`88650_A0`	ITMH and RX Trap collision: Due to an HW constraint, the parsing of the ITMH snoop fields requires an equal number of RX user-defined traps previously allocated to the number of snoop commands. Thus, at init, the HW order of the user-defined traps is changed: 1. The User-defined HW traps indexes are changed. It may have an influence on the user when parsing the FTMH trap code in CPU packets 2. The 16 last user-defined traps are allocated by default at init for the ITMH.Snoop field parsing.
			If the user wants to increase the number of User-defined traps without using the whole Snoop field in ITMH, a control (bcmRxControlTmSnoopCount) is given to indicate the number of User-Defined traps to reserve for the TM
SDK-49567		`56850_A0`	In the previous release identified that the current implementation was not complete for `bcm_l3_route_stat_attach()` API. Support L3 route flexible counter in LPM mode has now been added.
SDK-49570	660874	`88650_A0`	Fixed SGMII 10Mbps mode
SDK-49572		`88750_A0` `88750_B0`	Default thresholds values at the DCM block (drop thresholds, GCI thresholds and fullalmost full thresholds) were not configured correctly during initialization. Fixed. Note: default configuration change. Applied upon cold boot only.
SDK-49573		`56850_A0` `56854_A0` `56850_A1` `56850_A2`	Fixed `AT_vxlan_08` related to Higig Proxy forwarding on TD2 hardware
SDK-49598	680786	`88640_A0`	In BCM88640, in Field Processor, the definition of the L4 ports (UDP / TCP Source and Destination ports) were set according to an offset from the IP header as base-header. To support their extraction even when the IP header has options, their definition is set according to base-header=header-after-IP.
SDK-49600		`88650_A0`	Add clearing IDR memory to avoid ECC errors upon initialization. The fix is committed under SDK-49166.
SDK-49607	685078	`56640_A0` `56640_A1` `56640_B0`	With this fix in SDK, OVID is supported as a key in `ESM_L2_IPV4_ACL` profile on TR3.
SDK-49620	684645	`56850_A0`	Fixed addition of a member to an empty LAG, Higig trunk or ECMP group, when resilient hashing is enabled. This fix is applicable to BCM56850 device.
SDK-49621	672357	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	When trying to delete one of first 257 CL SE using `bcm_cosq_gport_delete` API error is returned. Fixed.
SDK-49628		`88650_A0` `88650ACP_A0` `88650_B0` `88650_B1`	In advanced VLAN edit mode, The VID value of the outer most tag for added or replaced VIDs, is always set according to the configured new outer VID. Therefore, if the outer most tag after a VLAN editing operation, was created due to Add or Replace VID actions `(bcm_petra_vlan_translate_action_id_set)`, the VID value will be according to the `new_outer_vlan` value (configured by `bcm_vlan_port_translation_set)`. In the same way, the VID value for the next tag is derived from `new_inner_vlan` value in case it's a result of Add or Replace VID actions. This logic is irrespective to whether the tag was created/modified by `bcm_petra_vlan_translate_action_id_set` using the `dt_outer` or `dt_inner` fields.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49633	685543	All 56639_A0 56636_A0 56634_A0 56638_B0 56636_B0 56634_B0	`bcm_init()` should work now for BCM56636 with `DEBUG_IFDEFS=FALSE` in make file
SDK-49647		56850_A0	EFP bcmFieldQualifyForwardingVlan/vrf/Vpn qualifier initialization has been fixed for Trident2 device.
SDK-49653	683688	56334_B0 56334_A0	Fixed policer delete internal function.
SDK-49654	686137	All	`bcm_esw_vlan_gport_delete/_all` delete `UMC_IDXf/UUC_IDXf` when it's in wlan.
SDK-49672	686076	56850_A0	Introduced new flags to Drop or Copy IPMC packets to CPU on RPF failure
SDK-49679		All	Fixed Warmboot link flap issue on "exit clean"
SDK-49680	685195	56840_A0	`bcm_vlan_control_vlan_set()` API should now work with protocol packet control feature on the BCM56840 device
SDK-49681	671511	56334_B0 56334_A0	Corrected remote endpoint replace procedure.
SDK-49685	675798	56850_A2	Resolving `_bcm_td2_l3_ent_parse()` tries to access `NULL` pointer issue which lead to SDK crash when we use `bcm_l3_host_add()`.
SDK-49695	681301	88030_A0	improve taps lookup performance on bcm88030
SDK-49705		88650_A0	Configuring max burst using the following API with E2E gport is no longer supported. `bcm_cosq_control_set(unit,` gport, 0, bcmCosqControlBandwidthBurstMax, value). The API was not functional, now considered deprecated for E2E gport and will return error if called.
SDK-49731	685391	88650_A0 88650_B0 88650_B1	Source routed cell debug feature - generating source routed cells was not functional - fixed.
SDK-49732		88650_A0	A mutex-destroy was missing in `soc_dfe_attachdetach,` causing a memory leak. Fixed.
SDK-49736	685097	88650_B1	OAM DA MAC address should be identified as multicast only if LSB on 1st byte is 0x1 (and not if first byte value is 0x1)
SDK-49739	679590	88650_B1	L2GRE: Added support for GRE Tunnel Keepalives (Next-Protocol == 0). In that case, packet is not terminated and expected to forward the packet to CPU according to the packets DIP.
SDK-49744	680968	88650_A0	Device Soft Reset is used as a corrective action for some device interrupts. Device soft reset should not be triggered during an active DMA transaction. To insure this, we now take DMA mutexes/semaphores before performing Device Soft Reset.
SDK-49749		88030_A0	fix taps route delete not working for certain routes on bcm88030 device
SDK-49751	681330	56340_A0 56640_A1 56640_B0 56643_B0 56540_B0	Disable parity on `PORT_OR_TRUNK_MAC_COUNT` and `PORT_OR_TRUNK_MAC_LIMIT`.
SDK-49760		56150_A0	1. Double Wide Mode is not supported for VFP on HR2, removed the Support. 2. Fixed the `VFP_KEY_CONTROL` update implementation, it was overwritten by 2nd Part of the VFP TCAM during TCAM parts iteration.
SDK-49768	675820	56850_A0	`bcm_port_ifg_set()` API should now be able to configure the interframe gap parameter for the port speeds greater than 10G on BCM56850 switches

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Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49779		`88650_A0`	In Field processor, when the user is using the VLAN-Editing advanced mode (the SOC property `bcm886xx_vlan_translate_mode` is set to 1), the param0 of the bcmFieldActionVlanActionSetNew action is the explicit HW VLAN-Edit-Command. param1 is unused.
SDK-49783		`88650_A0`	Counter was not stamped on OAM upmep LMM injected packets
SDK-49784	686895	`88650_B0`	In a system with both VSC128 and VSC256 FAPs. Cells sent by VSC128 FAP was dropped at the egress of VSC256 `ARAD_B0` device. Fixed.
SDK-49786	648116	`88030_A0`	Burst size will remain 1000 bit for 1k, fixed minor bugs in burst size calculation on bcm88030
SDK-49800		`88650_A0` `88650_B0`	0 is a valid value of sip. Add a fix to support to bind sip 0 under ip anti-spoofing mode.
SDK-49802	687697	`88650_A0` `88650_B0` `88650_B1`	For non-Field Processor TCAM databases (e.g. IP TCAM databases), the entry insertion in the TCAM is done according to the entry content. An hash list is built internally to allocate a unique entry-id to each new entry content. When adding an existing entry to a full TCAM, the TCAM insertion function is returning an error without removing the existing entry. However, the existing entry was removed from the hash list, generating a mismatch between the TCAM state and the hash list state.
SDK-49856 SDK-53601	688600	`56640_A0` `56640_A1`	`SOURCE_FIELD_MASK` in `MY_STATION_TCAM` is programmed correctly
SDK-49859	687640	`88030_A0`	support RCE table access API on bcm88030
SDK-49870		`88650_A0`	New PP diagnostics: diag alloc InLif/OutLif/FEC. Display used inlif, outlif or fec. diag pp GPort id=123. Display information about gport id. Existing resources for this gport id: inLif, outLif, fec, multicast id. diag pp CC. Display cross connection between inlif and outlif. (cross connection: an inlif is connected directly to an outlif, no need to mac table lookup)
SDK-49874	686953	`88030_A0`	The LP, OI, FT resource leak for MPLS LSR is fixed.
SDK-49876		`88660_A0`	Diagnostics shell improvement: If `PQP_Discard` or `RQP_Discard` counters are non-zero, diag count diagnostics command will display the reasons for discarding packets
SDK-49879	686328	`88030_A0`	Fixed taps update excessive error message on bcm88030.
SDK-49880	688875	`56850_A0`	Add WRED Time Domain configuration.
SDK-49881		`56150_A0`	Add timestamping support for Hurricane2: - Enable 2-step timestamping for packet TX/RX - `bcm_time_capture_get` to do immediate capture and read timestamp from FIFO
SDK-49886	688548	`56850_A0`	The `L3__HG_HDR_SEL` field is always set to 1 for the virtual port routing feature
SDK-49906		All	Avoid potential divide-by-zero when reading KNET Linux proc file /proc/bcm/knet/debug.
SDK-49912	683210	`54640E_B0`	The duplex setting in the SGMII slave mode is now correctly reported for BCM54640(E)/BCM682(E)/BCM685(E) PHYs.
SDK-49914	689580	`56850_A0`	Fixed L3 ingress replace when both `BCM_L3_INGRESS_REPLACE` and `BCM_L3_INGRESS_WITH_ID` flags are set

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-49919	687667	`88650_B1`	Deleting VOQ connector using `bcm_cosq_gport_delete` wasn't saved in Warm Boot SW-DB. This could result in a WB error in some cases. The issue was fixed.
SDK-49921	688574	`88650_A0  88650_B0` `88650_B1`	V-LAN fields in the `endpoint_info_t` struct must be consistent (either both the tpid and the vlan are 0 or neither one of them is zero) and the `tx_gport` must be a either invalid or a system port.
SDK-49939	688983	`88650_A0`	In TCAM, the database id of the Coupling LSR accessed at Termination block and Database 0 of ACL block (PMF) was identical. This is fixed.
SDK-49952	689261	`56150_A0`	Prevent 10G MAC been unable for packet transmit always after port is disabled.
SDK-49960	689627	`56850_A0`	`bcm_l3_egress_create` api supports the change operation in which the flags can also be modified.\n\nThe flags can be unset by user application and thus has to be unset from the SDK/hw. the code to unset the flag was missing in sdk and therefore once set, the flags will always remain set.\n\nWith this fix, SDK will always look into the incoming flags and set/unset the L3 flags.\n\nThe user application has the onus to set/unset the flags according to its needs and always pass the flags which it wants to remain set. SDK does not maintain any local copy of flags.
SDK-49963	688347	`56440_B0`	TOQ memory needs to be updated in B0 when redirection pointer is modified.
SDK-49986		`88650_A0`	In Field Processor, the entry value settings for the actions bcmFieldActionSrcGportNew & bcmFieldActionLearnSrcPortNew were incorrect.
SDK-49987	686341	`88650_B1`	moved warmboot modules definitions to a central location to protect scache handlers from collisions.
SDK-49998	687589	`56850_A0`	Added additional check to make sure the correct node is picked up in case of Y pipe ports.
SDK-50008	690020	`56850_A1`	In the function `_bcm_tx_gport_resolve()`, the virtual port get is complete
SDK-50010		`88650_A0`	MPLS termination: added the ability to change the location of MPLS termination databases. In BCM886XX, there are up to three MPLS databases that reside in 2 physical databases SEM-A and SEM-B. SOC property: `bcm886xx_mpls_termination_database_mode`
SDK-50027		`88650_A0`	In Field Processor, the action allocation for Ingress TCAM Field groups is done via HW FES machines. Due to HW constraints related to FES, the bcmFieldActionClassDestSet & bcmFieldActionClassSourceSet actions are limited to 31b in their action value when used for TCAM Field groups.
SDK-50050	691203	`88650_A0  88650_B0` `88650_B1`	In the Counter processor module, the DMA access was not disabled during the counter processor detach, causing DMA transactions even after the device was detached.

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-50077		`88650_A0 88650_B0 88650_B1 88660_A0`	To define VOQ as a "Push Queue" you need to call: `bcm_cosq_gport_sched_set(unit, VOQ, cosq, BCM_COSQ_DELAY_TOLERANCE_15, 0)` This stopped working in release 6.2.2. This was fixed to work again. Now `bcm_cosq_delay_tolerance_level_set /get(unit, BCM_COSQ_DELAY_TOLERANCE_15, &delay_tolerance);` will return an error. This is since `BCM_COSQ_DELAY_TOLERANCE_15` represents push queues and not a credit request profile which can be changed.
SDK-50078	690440	All `88030_A0`	The problem was that the packet was going to exception stream since an invalid value was returned by v6sa table. The reason for this issue was that there was no default route for on chip mode. This is now fixed by inserting a default entry 0/0.
SDK-50086	691136	`56440_A0 56440_A1 56440_B0`	Fixed issue with non-zero modid for bcmFieldActionFabricQueue for BCM5644x devices.
SDK-50100	692001	`56450_A0`	Allocated memory for all (including unused) port at init time so that when ports are created fresh with flex-io operations , `NULL` pointer situation will not arise.
SDK-50116		`56850_A0`	Added support for creating multicast L3 egress object on virtual ports. Please see the `bcm_l3_egress_create` API description for more details.
SDK-50120	681772	`88650_B1`	bcmVlanPortDoubleLookupEnable: In case port supports double lookup (Port x VLAN x VLAN and Port x VLAN), Untagged and priority tag packets were dropped. Added a new program selection and program to take care of untagged and priority tag packets
SDK-50123		`88650_A0`	In L2 module, the MACT entry insertion performance has been improved.
SDK-50135	662939	`88650_A0`	Trap strength remain with its default value of 4, and was not changed while using `bcm_l2_cache` APIs
SDK-50140		All	(1) soc properties now have whitespace stripped before being parsed, so " x = 7 " is equivalent to "x=7". (2) "make propgen" now creates a big list of all valid properties in property.h, and `sal_config_refresh` uses the list to determine if a given property is valid, and displays a warning when invalid ones are set (3) A new soc property can be set to suppress the warnings from item #2: `suppress_unknown_prop_warnings=1` Code review #11759
SDK-50159	692837	`56850_A0 56850_A1 56850_A2`	Resolved SDK crash when "show pci" diag shell command is run without probing any device.
SDK-50177		`88650_A0 88650_B0 88650_B1 88660_A0`	diag EGQ graphic displayed TCG bandwidth 0 as unlimited. Fix to display 0.
SDK-50198	691823	`88650_B1`	IP packets with Priority tag packets: Fixed IPV4oE packet with priority tag (VLAN = 0) to classify according to initial-VID.
SDK-50221	693418	`88650_A0`	During the detach of the Counter Processor module `(bcm_dpp_counter_detach),` the background SW counter thread must be de-initialized only if it was initialized. This was not the case.
SDK-50257	689596	`88030_A0`	fix 8x10G+16x1G linerate issue on bcm88030

Table 52:

Number	CSP #	Chips		Release Notes For 6.3.2
SDK-50286	690665	56150_A0		Fixed the incorrect number of meter pairs per slice for Hurricane2.
SDK-50287	692402	56150_A0 56340_A0	56450_A0	Added iProc support for VxWorks BDE on Keystone processor.
SDK-50294		88650_A0		In IP TCAM management, when all the IP route entries of a TCAM bank were removed from a TCAM bank, the bank was not freed for other purposes than IP. Now it can be used also for Ingress/Egress PMF or Termination (VTT).
SDK-50301		56845_B0 56840_A0 56644_A0 56843_B0 56841_B0	56845_A2 56640_A0 56850_A0 56841_A3 56850_A1	Trill Payload offset base is supported in UDF
SDK-50417		88650_A0		While loading SerDes firmware using SoC property `load_firmware=2` (fast load), the initialization sequence might fail in a multistage environment (Few devices controlled by the same CPU). Fixed.
SDK-50424		88650_A0 88650_B1	88650_B0 88660_A0	VLAN: In case match criteria is `BCM_VLAN_PORT_MATCH_NONE`, `bcm_vlan_port_create` add an ESEM entry while it shouldn't. Bug fix was to eliminate the addition of ESEM entry. To add entries to ESEM in that case should be done using `bcm_port_match_add`.
SDK-50428		88750_A0		Fixed possible memory leak when `soc_dfe_init` fails.
SDK-50439	695545	88030_A0		Has been implemented already (see MDEStatementView in Multistream Editor Prespecftive)
SDK-50448		56640_A0		The API Guide is updated regarding warm boot support.
SDK-50461	696000	56450_A0		For BCM5645x device, added fix for port property configuration which was missing after flex IO swap from xaui to 4xGE
SDK-50480		88650_A0	88650_B1	Warmboot feature should now work for devices !=0 it didnt work due to hard coded 0 `"prime_handle"` field in sand data structures. changed the field to equal `device_id`
SDK-50503	696244	88650_A0		SMPFullLevel1, SMPFullLevel2 and FCTFIFOOvf interrupts are not cleared correctly. this issue is solved.
SDK-50552		88660_A0		In PMF HW-block, the default action in Arad+ was to set the PCP-DEI value to 0 instead of doing nothing. It implied that Ingress-VLAN-Editing with a new non-zero value of PCP or DEI was faulty.
SDK-50586	697601	88030_A0		Low 32register and high 32register has been swapped for LrpEditor tooltip.
SDK-50609		88650_A0 88650_B1	88650_B0	L2 PON: Flush database isn't set to be invalid after flushing action done by "l2 clear all". Issue caused traffic to drop after l2 clear all. Issue is now fixed.
SDK-50744	699029	88650_A0		OAM warmboot SW database allocated 67125248 entries instead of 16K
SDK-50856		56640_A0 56150_A0 56640_B0	56850_A0 56340_A0	CMICm-based devices (XGS5) no longer require any calls to the BCM Rx API when the Linux KNET module is configured to use socket buffers for DMA (`use_rx_skb=1`).
SDK-50870	694419	56640_A0 56640_A1	56850_A0 56640_B0	Unlock semaphore correctly in `bcm_tr2_vlan_gport_add()`.
SDK-51003		56850_A0		N/A

Table 52:

Number	CSP #	Chips	Release Notes For 6.3.2
SDK-51755	713642	`88650_A0` `88650_B0` `88650_B1` `88660_A0`	System resources FEC remove: The API `bcm_vlan_port_destroy()` enables deletion of VLAN-Ports as well as protection FEC IDs. The API failed when a FEC ID was the supplied `gport_id.`
SDK-51797 SDK-52325	716343	`56850_A0`	Application can use `BCM_PORT_PHY_CONTROL_TX_LANE_SQUEL CH` before enabling mac loopback to avoid noise on the link.

Section 23: Resolved Issues for 6.3.1

The following issues are resolved in version 6.3.1 of the SDK.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-20665		All	Fix `'bcm_field_qualify_InnerIp6HopLimit'` and `'bcm_field_qualify_InnerIp6NextHeader_get'` API support for XGS devices.
SDK-30093		All	Update modular debug print interface to support management by external application. Previously the modular debug print interface could only be controlled via the Broadcom CLI.

SDK-34767	434653	`56548_A0 56546_A0`
		`56545_A0 56544_A0`
		`56542_A0 56541_A0`
		`56540_A0 56526_A0`
		`56524_A0 56521_A0`
		`56545_A1 56526_B0`
		`56524_B0 56540_B0`
		`56541_B0 56546_B0`
			Fixed auto addition of InPort/InPorts qualifier in group's QSET during warm start.

SDK-35130	441537	`56639_A0 56638_A0` `56636_A0 56634_A0`	Modified field processor entry reinstall to update only the policy table without modifying the TCAM table
SDK-36480		`88650_A0 88640_A0`	Added support for System Red in BCM SDK. For more details please reference System RED section in UM.
SDK-38173		`56840_A0`	TERR in snmpIfOutErrors counter
SDK-39043	513610	All	AllChips: Preserve DROP and COPYTOCPU CML flags during L2 freeze.
SDK-39202 SDK-42621		`56640_A0 56540_A0`	Fixed bcmFieldActionCopyToCpu action support for Triumph3 Stage Egress.
SDK-39512		`88650_A0`	88650: `bcm_port_local_ability_get` - should return bitmap in the field of `full_duplex` instead of the maximum speed
SDK-39576		`56846_A0`	Set/Get value mismatch for port control bcmPortControlPrbsRxEnable
SDK-39784		`56840_A0 56640_A0` `56440_A0`	Added support for flag `BCM_L2_REPLACE_AGE` to perform selective aging on L2 entries using `L2_BULK_CONTROL`
SDK-40510		`88650_A0`	Dump NBI tables through diag shell was fixed
SDK-41648	555907	`88650_A0`	MACT learning management: 1. Provided BCM API to handle the MACT events directly by Host CPU without the intervention of OLP. please refer to `cint_l2_cpu_learning.c` for example to use. 2. In order to enable Host CPU learning use `bcm_l2_addr_msg_distribute_set`. Parsing DSP packets examples can be seen in `rx_nonintr_callback()`.
SDK-41680	560553	All	gcc warnings resolved

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-41788	558335	`56440_A0`	Added support for micro meter creation with different policer group modes.
SDK-41793	554763	`88650_A0`	MACT traverse: add new API to traverse MACT entries match given rule with masking. new API added `bcm_l2_replace_match`. Example of usage: `SDKsrcexamplesdppcint_mact_bulk_operations.c:` `mact_bulk_rule_mask_vlan_example`
SDK-42140	566499	`56840_A0`	Made below actions as color independent actions bcmFieldActionColorIndependent bcmFieldActionL3ChangeVlan bcmFieldActionL3ChangeVlanCancel bcmFieldActionL3ChangeMacDa bcmFieldActionSrcMacNew bcmFieldActionDstMacNew bcmFieldActionL3ChangeMacDaCancel bcmFieldActionL3Switch bcmFieldActionL3SwitchCancel bcmFieldActionAddClassTag bcmFieldActionOuterVlanNew bcmFieldActionRedirectVlan bcmFieldActionRedirectMcast bcmFieldActionRedirectIpmc bcmFieldActionEgressPortsAdd bcmFieldActionEgressMask bcmFieldActionRedirectCancel bcmFieldActionRedirect bcmFieldActionRedirectTrunk bcmFieldActionRedirectEgrNextHop bcmFieldActionVnTagNew bcmFieldActionVnTagDelete bcmFieldActionRedirectPbmp bcmFieldActionOffloadRedirect bcmFieldActionRedirectBcastPbmp bcmFieldActionFabricQueue bcmFieldActionMirrorEgress
SDK-42313	569643	`88650_A0 88650_B1`	The mirroring probability of a mirror destination is set using the two new fields of the `bcm_mirror_destination_t` structure listed below. They are passed to `bcm_mirror_destination_create()` when creating the destination. `uint32 sample_rate_dividend;` /* The probability of mirroring a packet is: `sample_rate_dividend >= sample_rate_divisor ?1: sample_rate_dividend / sample_rate_divisor` */`uint32 sample_rate_divisor;` /* For Arad we recommend a divisor of 0x10000 which matches the resolution that the hardware can provide */
SDK-42318	569513	All	Incorrect `otmh_extensions_en.outlif_ext_en` was used when not using FTMH extension with mesh. The incorrect extension used was `PETRA_PORTS_FTMH_EXT_OUTLIF_IF_MC`. This is now changed to `PETRA_PORTS_FTMH_EXT_OUTLIF_NEVER`.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-42377	483568	`56840_A0`	Add the support to enable/disable the event of `L2_OVERFLOW` and the dealing process for `L2_OVERFLOW` event, which will call the related callback routines.
SDK-42895	579601	`56640_A0` `56541_A0`	Using `BCM_OAM_GROUP_REPLACE` flag was causing creation of a new OAM group, this has been fixed and `BCM_OAM_GROUP_REPLACE` now updates the existing group instead of creating a new one.
SDK-42962	581130	`56440_A0`	`bcm_field_qualify_data_get` API is now supported for Katana and Katana2 devices.
SDK-43000	568920	`88030_A0`	Support software linkscan
SDK-43051	581274	All	Removed duplicate comments in release notes.
SDK-43078	572351	`88650_A0`	Enable Mirroring to other TM domain port in stacking system.
SDK-43094		`88650_A0`	Fixed incorrect configuration when working ILKN+XMAC under same MLDCLP. Note: ILKN reserve 8 lanes also when it uses less than 8 lanes. So only upper XMAC can be used for bob-ILKN ports.
SDK-43210 SDK-43201	583727	`56850_A0`	Change code to allow XLMAC to support 20G front panel port.
SDK-43230	584608	`88750_A0`	88750: BCM88750 endianess configuration has been changed to be identical to BCM88650 endianess configuration. Wrong configuration of the endianess can cause access failures at the initialization sequence/access tests. BCM88750 will not support soc property `'system_set_dma_low_endianess'`. Instead endianess configuration will be done using `soc_cm_device_init` (unit, and `dev_vectors`). PCI specific endianess: `dev_vectors.big_endian_pio` - Must be set to 1 if CPU register read/write operations are big endian, or 0 otherwise. `dev_vectors.big_endian_other` - Must be set to 1 if non-packet DMA operations are big endian, or 0 otherwise. Broadcom application reference configure endian parameters (`dev_vectors.big_endian_pio` and `dev_vectors.big_endian`) according to compilations flags: `SYS_BE_PIO` and `SYS_BE_OTHER`.
SDK-43330 SDK-48305	584507	`56850_A0`	release version is 6.3.1
SDK-43342	586043	`56744_A0`	BCM diag shell command "cos show" should now work on BCM56840 type switch devices
SDK-43361		NA	1. Increased the size of the (`_BCM_CLI_STAT_ARR_SIZE`) macro to print all stat enumerations. 2. Made changes in diag shell parser code to print strings correctly.
SDK-43389	580332	All	Add support for remote loopback for xgxs16g1l driver
SDK-43459		`88650_A0`	state of bcmSwitchControlAutoSync is no longer lost, user doesnt need to re-configure it any more.
SDK-43485	583737	`88650_A0`	88650: Unidirectional traffic loss in mesh configuration. The driver fixed to reconfigure `MESH_TOPOLOGY` block according to system properties. All the fabric links must configured to the same encoding and speed. The registers are reconfigured automatically in case of changing the speed or the encoding.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-43523	588139	56643_A0 56643_A1	Added support for OAM Y.1731 Loss and Delay Measurement.
SDK-43535		88650_A0	Diagnostics: All diag pp commands can be retrieved by entering "diag pp ?" in BCM shell.
SDK-43667		88750_B0 88650_B0 88650_B1	Add new SOC API and UI to get the device AVS (= Adjustable Voltage Scaling) .
SDK-43760		56840_A0 56850_A0	Fixed trill port resolution for Empty ECMP group
SDK-43883		88650_A0 88650_B0 88650_B1	Added support for EVB application. Please see more information in the CINT example `src/examples/dpp/cint_evb_example.c`
SDK-44018	566118	88640_A0	Flooding traffic transmitted out from one port of LAG members. This port is selected from the FTMH. A new soc property `system_ftmh_load_balancing_ext_mode.BCM88640` is added to support this feature.
SDK-44053	584161	56640_A0 56850_A0 56640_B0 56440_B0	Made changes in `bcm_rx_redirect_reasons_set` function to configure all entries of `CMIC_PKT_REASON_{0/1}_TYPE[0:15]` register with valid reason codes.
SDK-44081		88650_A0 88650_B0 88650_B1	Added `soc_ppd_frwrd_trill_multicast_source_get`. The BCM implementation needs API changes.
SDK-44122		88650_A0 88650_B0 88650_B1	All `vlan/mpls/mim_port` APIs that support the REPLACE flag follow the defined guidelines: Usage of the `WITH_ID` flag without the REPLACE flag allowed only for non-existent ports. Usage of the `WITH_ID` with the REPLACE flag allowed only for existing ports of the required type. Usage of the REPLACE flag without the `WITH_ID` flag isn't allowed. A REPLACE operation will be allowed only for parameters that dont participate in the appropriate table key, and for parameters that dont allocate resources. Other replace APIs will follow those guidelines whenever it's possible.
SDK-44125	598954	88650_A0	Added support for probability of mirror destinations. The probability is specified using two new fields of `bcm_mirror_destination_t: uint32 sample_rate_dividend; /* The` probability of mirroring a packet is: `sample_rate_dividend >= sample_rate_divisor ?1: sample_rate_dividend / sample_rate_divisor */uint32 sample_rate_divisor;` The recommended value of `sample_rate_divisor` is 0x10000 to match the hardware resolution.

Table 53:

Number	CSP #	Chips		Release Notes For 6.3.1
SDK-44186	599876	`56640_A0`	`56640_A1` `56640_B0`	Added support for following qualifiers for Triumph3 External Stage bcmFieldQualifySrcClassL2 bcmFieldQualifySrcClassL3 bcmFieldQualifySrcClassField bcmFieldQualifyDstClassL2 bcmFieldQualifyDstClassL3 bcmFieldQualifyDstClassField bcmFieldQualifyInterfaceClassPort bcmFieldQualifyInterfaceClassL3 bcmFieldQualifyInterfaceClassL2
SDK-44200	599325	`56850_A1`	`56850_A0`	Fix code to prevent disabling CPU port through `pbmp_valid.`
SDK-44277		All		Fixed using uninitialized values during SOC INIT of the Out Fabric Port rates channelized arbiters.
SDK-44291	601612	`56440_A0`		Included the code for GRRPKT and GRRBYT
SDK-44410	600714	`56840_A0`		Fixed the validation of the classification tag value.
SDK-44418		`88750_A0` `88640_A0`	`88650_A0`	fixed the compilation error, the code now compiles successfully when compiling with `BCM_WARM_BOOT_SUPPORT` and without `BCM_WARM_BOOT_SUPPORT_SW_DUMP.`
SDK-44466		`56340_A0`		Stacking support for BCM956340K added.
SDK-44476		`56840_A0` `56841_B0`	`56850_A0` `56850_A1`	Soft-Error Recovery support added for TCAM tables on BCM5684x and BCM5685x devices.
SDK-44485		`88650_A0`	`56640_B0`	Disable cl73 bam while cl73 is enabled
SDK-44552		`88650_A0`		The field code which is part of the configuration necessary to operate in the mode of 32K I-SIDs for Mac-in-Mac was moved to a cint `(cint_field_mim_32k_isids.c).` Customers using this mode must run the cint before making any MiM configurations.
SDK-44564 SDK-45299	605416	`56850_A1`		TD2. Added flexibility in SP node configuration and corrected bugs during Node attach, affecting existing SP children of the current Node's siblings.
SDK-44582		NA		N/A
SDK-44602		`88650_A0`		Added support for Warmboot for Mac-In-Mac
SDK-44605	608221	`88650_A0`		Fixed setting `dtm_flow_mapping_mode_region` configuration, So there is no need to configure at least one region of type 2.
SDK-44616	608210	`88650_A0` `88650_B0`	`88640_A0`	VLAN: Fixed a bug where `bcm_vlan_translate_action_traverse` did not traverse over the actual correct `vlan_translate` actions.
SDK-44674		`88750_A0` `88640_A0`	`88650_A0`	Replaces all 'static' declaration on functions with 'STATIC' in DNX code
SDK-44733		All		Improved portability to non-POSIX platforms that do not support File IO.
SDK-44736		`56850_A1`		The 3-lane TSC configuration is now transcribed properly to TSC 31.
SDK-44749		`88650_A0`		Fixed using uninitialized values in template manager during BCM INIT; uninitialized values in vsq rate cls: the field `wred_ignore_packet_size` insize `exact_rate_class_info,` was not set.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-44750		88650_A0	memory overrun at warmboot: writes & read immediately after allocated memory. Fixed offset for memory write in template manager warmboot.
SDK-44802 SDK-45614	608366	88650_A0	Support 2-pass solution for Trill-MC: New implementation used 1st pass in the ARAD to send copies to next-hop RBridges. If directly connected hosts are attached, a copy is snooped to recycle port, and packet is bridged during 2nd pass in the Arad. Example: See `cint_trill.c`, `trill_mc_transit_fecless_config`. Configured port 40 is recycling port is also required for this example. Known issue: When there is no match in the MACT in the 2nd pass and the packet is flooded, copies that go back to the trill network are not filtered (bounce-back filter).
SDK-44822		All	Fix to remove unnecessary lock of stack in API `bcm_ptp_time_format_set()`.
SDK-44824		All	Added error check for the function.
SDK-44848		56450_A0	1.MMU settings corrected for 10G and CPU port. Following issues are fixed. a. 10G ports was being allocated the same amount of headroom as the 1G ports. b. CPU queues was always being bound to internal memory. 2. Corrected the default `THDO_OPNCONFIG` programming
SDK-44863	609656	56840_A0	The memory allocated is released and reallocated to prevent under-runs(if any).
SDK-44891		56634_A0 56440_A0	N/A
SDK-44911	610117	56850_A0	Added new actions "bcmFieldActionIngSampleEnable" and "bcmFieldActionEgrSampleEnable" to control Ingress and Egress SFLOW sampling in Ingress Field Processor.
SDK-44922		88650_A0	Compilation error when compiling ARAD for PCID
SDK-44982		88650_A0	Adding `bcm_oam_group_traverse` and `bcm_oam_endpoint_traverse` apis
SDK-44988 SDK-47952		88650_A0	OAM Warmboot support
SDK-44995	553755	88650_A0	Support MACT entries traverse/replace according to group-id Example `cint_mact_bulk_operations.c`
SDK-45009	608116	All	Support the following Soft Reset modes: `SOC_DPP_RESET_MODE_BLOCKS_AND_FA BRIC_SOFT_RESET 0x100` `SOC_DPP_RESET_MODE_BLOCKS_AND_FA BRIC_SOFT_INGRESS_RESET 0x200` `SOC_DPP_RESET_MODE_BLOCKS_AND_FA BRIC_SOFT_EGRESS_RESET 0x400` Change Arad traffic disable sequence, mainly Fabric traffic stop (instead of packet discarding, trap packets) to avoid Fabric Irrecoverable states.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45012		`56224_B0 56224_A0` `56018_A2 56018_A0` `56018_A1 56014_A2` `56014_A1`	Memory Leak in `_field_raven_stage_reinit()` function for Raven is Fixed.
SDK-45019		`88650_A0 88650_B0` `88650_B1`	MPLS: The `WITH_ID` and REPLACE functionalities are now supported for the following features with the following flags: `bcm_mpls_tunnel_switch_create:` Add flag `BCM_MPLS_SWITCH_REPLACE` Add flag `BCM_MPLS_SWITCH_WITH_ID` `bcm_mpls_tunnel_initiator_create`: Add flag `BCM_MPLS_EGRESS_LABEL_REPLACE` Add flag `BCM_MPLS_EGRESS_LABEL_WITH_ID`
SDK-45047		`56840_A0 56640_B0` `56850_A1`	56840, 56640: Handle L2 BULK operation during SER.
SDK-45090	607085	`88650_A0`	Added support for creation of composite FQ and HR aggregates, as part of the end-to-end scheduler hierarchy. Creating composite aggregates is possible only in region type 2, To configure a region to type 2, use the following SOC property: `dtm_flow_mapping_mode_region_<region_id>.BCM88650=2` Please be advised that there are dependencies between available resources of VOQ connectors and composite SEs in region type 2 - please refer to Arad user manual documentation for details.
SDK-45117		All	Changed an assert() in declaration parameter checking to an error return.
SDK-45138		`56440_A0`	Fixed LED Scan issue in Katana, when one or more GPORT blocks are disabled.
SDK-45143	556970	`84064_A0`	Properly handle HiGig packets while in reverse mode
SDK-45148		`56725_A0 56720_A0`	SOC Port Valid check is applied to avoid the segmentation fault as it exceeds the MAX limit and corrupts the stack. The issue is seen only in case of CONQUEROR.
SDK-45154 PHY-883	607244	`54380_B0`	Cable diag for BCM543xx/BCM532xx returns with error "operation failed" fixed
SDK-45163	509662	`88750_A0`	In "phy diag eyescan" shell command, add the option to set the eyescan counter parameter as a string.
SDK-45168	611724	`88650_A0`	Fixed API's `bcm_port_enable_set` failures to clear queues when disabling a port.
SDK-45194	612584	`56334_B0`	Add switch control 'bcmSwitchWredForAllPkts' to apply WRED per color profiles on all packets for Enduro.
SDK-45215		`88650_A0`	API `bcm_stat_get` for ILKN port did not take into consideration interleaving, resulting in incorrect counter values - fixed.
SDK-45217		`88650_A0`	ARAD: Fixed the unexpected return value for external phy that doesn't support remote loopback.
SDK-45249	611829	`88030_A0`	Add "QueueInfo" command for C3
SDK-45263	615806	`56850_A0 56850_A1`	Add the support of L2 overflow for Trident2.

Table 53:

Number	CSP #	Chips		Release Notes For 6.3.1
SDK-45265		`88650_A0`		VLAN translation: `bcm_vlan_translate_egress_action_delete` did not update correctly `VLAN_PORT` unmap action-id once action is deleted. This caused error on `bcm_vlan_translate_egress_action_add` right after delete on the same `VLAN_PORT`. The issue is now fixed.
SDK-45267	613345	`88650_A0` `88650_B1`	`88650_B0`	Egress editor for ARAD-XGS MAC extender boards: Added new program combining xgs MAC extension and SPAN
SDK-45276		`88650_A0`		MACT: Support multiple match rules in one Hardware traverse API: New switch control bcmSwitchTraverseMode with values according `bcm_switch_table_update_mode_t` enumeration.
SDK-45296	613481	`88650_A0`		In TCAM management, the user can define databases (Field groups in FP) and add entries but does not set explicitly the location of the resources. The TCAM management handles them. After allocating multiple entries and destroyed part of them, the user can compress the Database in FP via a new supported API: `bcm_field_group_compress.` Besides, during the attribution of a new bank, an optimization is implemented to balance the load of the Database between the adjacent banks.
SDK-45304	603917	`88650_A0`		IPv4: dumping IPv4 host table run into dead loop in some cases.
SDK-45307	616535	`88650_B0`	`88650_B1`	Fix Enable EGQ-Reassembly misconfiguration, that could potentially lead to MulticastTraffic being dropped between FRD and RQP
SDK-45335		`56850_A0`	`56850_A1`	Turn off Trill and NIV counter parity in TD2 A1 due to TD2-3465.
SDK-45352 SDK-44428		All		Changed the description of the Enum 'bcmFieldActionOuterTpidNew' to the right meaningful sentence in sdk/doc/grog/api/field.grg.
SDK-45358	616935	`5389_A0`		Fixed the issue that some enums of register/field/ memory were not properly wrapped with the INDEX() macro for Robo SDK.
SDK-45373	617575	`56840_A0` `56854_B0`	`56850_A0`	support for Matching SRC mod/port for a trunk member is added
SDK-45387	617450	`56640_B0`		All the HIT fields are processed
SDK-45393	618025	`56850_A0`	`56850_A1`	Fixed BCM56850 default trust DSCP ptr value.
SDK-45394	570376	`88650_A0` `88650_B1`	`88650_B0`	ARAD 88650 `print_flow_and_up` command used to fail during heavy traffic. problem solved with addition of FQP bubbling configuration.
SDK-45419		`56046_B0`	`56045_B0`	Added FP support (all stages) for Ranger+ (BCM56045/BCM56046) device

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45475		`88650_A0`	Background: IPv4 MC program may do RPF check as well as MC entry search. In that case the search is done in the IPv4 UC tables.
			Limitation: When using ELK for IPv4 MC tables - then IPv4 UC tables should use ELK as well for the RPF check to succeed. Same happens when IPv4 MC doesn't use ELK. The driver forces the use of ELK for both tables or none (will produce an error if MC table uses ELK but UC table doesn't or the opposite).
SDK-45480		`88650_B0 88650_B1`	NVGRE MC: Added support for 2-pass solution for NVGRE MC. On first pass, multicast is according to IP header. One packet is snoop to recycle port (using FP APIs). On second pass, multicast is according to inner Ethernet header.
SDK-45484	608351	`56440_A0 56440_B0`	Enabled `bcm_mpls_port_add` to accept Next Hop egress port is of type Unicast Subscriber Queue.
SDK-45523		All `56850_A0` `56850_A1`	Fix `PGW_MAC_RSV_MASK` programming on BCM5685x.
SDK-45545	605346	`56620_B0`	Fixed incorrect new inner vlan assignment for `bcm_vlan_translate_action_add()` API on bcm56620 type switch devices
SDK-45547		`56636_A0`	bcmFieldActionL3IngressSet Action is added to set `L3_IIF` from vfp
SDK-45549		`56636_A0`	New Action bcmFieldActionL3IngressSet is added to set `L3_IIF` from VFP
SDK-45577	616395	`88650_A0`	The bug was ,when statistic interface defined as 4 lanes port and `stat_if_enable` flag is set, then the interface would not work well. It was fixed in the code that determines if the statistic interface is Rxaui14, Rxaui15 or else.
SDK-45598		`88650_B0`	MIM learning implementation was changed. Lookup done for Learning moved from LLR to FLP. Learning lookup includes In-Port, BVID and BSA and not only BVID,BSA as before. To support the learning sequence, FP rules were introduced. Please see the additional FP settings of MIM learning in `cint_mim_mp.c`, `cint_field_mim_learn_info_set.c`
SDK-45601	612031	`56840_A0`	Use vp-less MPLS port to support the software based failover for switch devices such as BCM56680
SDK-45604	617859	`88030_A0`	Added traverse routines for LPM Taps.
SDK-45606		All	`bcm_attach()` could segfault if called from multiple threads.
SDK-45607		All	`bcm_detach()` could crash while BCM calls are active in other threads. This has been fixed.
SDK-45609		All	`bcm_pkt_flags_init()` now track if BCM API calls are active.
SDK-45612		All	`bcm_esw_stk_init()` erronously using `BCM_IS_LOCAL`
SDK-45618		`88650_A0`	Ingress-Egress Cascaded Field Processor is a useful ability to transmit data from ingress FP to Egress. This can be Egress FP or Egress Editor. This feature is based on configurable User-Headers that are added in the fabric between the system headers (FTMH, PPH) and the network headers. The register configuration to retrieve the location of these headers in the packet are different in Arad-A0, and thus this feature is not supported on Arad-A0

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45626		88650_A0 88650_B0 88650_B1	MAC-in-MAC: Function `bcm_mim_port_delete()` returns error value `E_PARAM` by mistake. Fix includes proper use of `soc_ppd_soc` in `bmac_key` construction, which is used to access the bmact and remove the entry.
SDK-45627		88650_A0	88650: RX LOS application - The default value stand for the time the application waiting between RX sequence restart and link up check should be bigger. The time required for link with autoneg is bigger. Fix: Default value of "short sleep" changed to 500000 micro seconds
SDK-45634		88650_A0 88650_B0	PON: Added support to have the option of ingress learning mode when PON L3 Source-bind is enabled.
SDK-45638	619034	56640_A0 56640_A1	FP counter wrap if fixed
SDK-45640		88650_A0	In Petra-B compatibility mode, the packets have all a Petra-B FTMH packet format to enable smooth data path between Petra-B (88640) and Arad (88650) devices. However, both ITMH and OTMH headers are according to the device (in Petra-B mode in Petra-B devices, in Arad mode in Arad devices).
SDK-45642		56640_A0 56314_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	Fix to configure meter settings in valid meter locations.
SDK-45648		88650_A0	`bcm_port_stat_get` get local port -gport as parameter
SDK-45654		56624_B0	srcTrunk Qualifier on HIGIG port is corrected.
SDK-45658		88650_A0	In stacking application, the "egress device" receives packets starting with their original FTMH (the one built in the first device). In Petra-B mode, the FTMH is a Petra-B FTMH. The Multicast-ID extracted was of 16b instead of only 14b Multicast-ID.
SDK-45660	618207	56648_B0	At the ingress stage (IFP) changed counter hardware allocation logic in the implementation of `bcm_field_entry_prio_set` API.
SDK-45661	611636	88650_A0 88650_B0 88650_B1	Double tagged frame with outer-tag being priority tag (VLAN = 0) should be forwarded according to Initial-VID and not the inner-vlan.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45668		88650_A0 88660_A0 88650_B0 88650_B1	VLAN-port: Introduce new settings to enable/disable Same-interface filter per Incoming-LIF. In case SOC property `bcm886xx_logical_interface_bridge_filter_enable` is set, then a property of the Inco ming-LIF (1b from the In-Lif-Profile) is used to denote Same-interface-filter-Enable. Per Incoming-LIF user can disable same-interface-filter (using bcmPortControlBridge) and is qualified/ set with bcmField*IngressVPortBridgeDisable.
			In case same interface filter per Incoming-LIF is set then LIF-profile is encoded in only 3 bits instead of 4. The LSB bit is taken for the Same-interface-filter.
			In ARAD, user needs to have additional FP settings to enable same-interface per Incoming LIF functionality, see an example of settings in: `cint_field_learn_data_rebuild.c`
			An example functionality that use Same-interface-filter is EVB (Reflective-Relay enable). For more information see `cint_evb_example.c`
SDK-45680	618979	All	Remove statistic interface from the list of NIFs in the linkscan test(TR60)
SDK-45682		56850_A0	Allow preemphais setting per lane based on `SOC_PHY_CONTROL_PREEMPHASIS_LANE [0-3]` or per port based on `SOC_PHY_CONTROL_PREEMPHASIS` through API.
SDK-45709		88650_A0	Shared pool assignment in case of number of priories = 0 is fixed
SDK-45710	599083	88030_A0	Check that configured epoch length does not exceed actual epoch length. This only applies if the user specifies the epoch length and epoch extension is not used.
			Example error message:
			Error! [51055] inject->2:0->1.0 = Actual epoch length 147 does not equal configured epoch length 100
SDK-45718	618015	88030_A0	PSC functionality added to C3.
SDK-45730	619631	56440_A0 56440_A1	Added new configurations for Katana.
SDK-45745		88750_A0 88650_A0	Interrupt handler crashed if interrupt deinit is called more than one time, fixed by checking NULL pointers on freed resources. solved in SDK-45757 - deinit interrupt cause assertion on the second run.
SDK-45758		88640_A0	When starting up the device in Mesh mode, the IPT thresholds were being configured incorrectly. Due to an incorrect sequence of actions the IPT thresholds were being configured before the fabric connectivity mode. Therefore when setting the IPT thresholds the driver assumed the mesh mode is disabled.
			This is now fixed, and the driver correctly identify the mesh mode and then set the IPT thresholds accordingly.
SDK-45762	618633	88230_C0 88230_B0 88230_A0	Fix for Sirius device - changing the scheduling discipline (`bcm_cosq_sched_set()`) might fail when egress independent flow control is enabled. Provided fix to prevent this issue.
SDK-45777	612311	88030_A0	G3P1 microcode v.200 fixes qos and dscpqos table segmentation in `g3p1_ocm_cfg.lrp`

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45787		`56850_A0 56850_A1`	Action fields bcmFieldActionNewClassId, EgressClassSelect and HiGigClassSelect are supported in Ingress Stage for Trident2.
SDK-45796	607348	`88650_A0`	Description: At egress Field Processor, the HW correlates the counting action (bcmFieldActionStat) with the redirection (bcmFieldActionRedirect). An improper SW implementation was forcing the user to set a stat-id related to the entry-id for simplicity. Since the number of stat-ids is limited, an error was occurring for high entry ids.
			Fix: The sequence of using both actions at egress (bcmFieldActionStat & bcmFieldActionRedirect) is changed: - when an entry must redirect and count, the user must indicate in bcmFieldActionRedirect the destination port, and in bcmFieldActionStat the stat-id (in param0). From now on, the user sets also in param1 of bcmFieldActionStat the destination port again. The stat-id must be between 1024 and 3839 (Counter-ID value). Refer to `cint_field_egress_modify_tc_per_ port.c` for example. - when an entry must only redirect, the user must call both actions (bcmFieldActionStat & bcmFieldActionRedirect) similarly to the previous, with stat-id = 0 to indicate the Counter-ID is not to be changed. - An entry cannot only change the Counter-ID without redirecting due to an HW limitation
			Besides, the user cannot use `bcm_field_stat_create[_id]` and `bcm_field_entry_stat_attach` at egress.
			WA: None
SDK-45800	618773	`56850_A0 56855_A0 56854_B0 56854_A0 56850_A1`	`bcm_port_phy_get/set/modify` API should now work with MDIO bus number greater than three.
SDK-45808	620297	`88650_A0`	TRILL: Delete MAC entries according to `dest_nick_name` in payload doesn't work
SDK-45829	621360	All	`_bcm_board_trunk_make()` could segfault under some conditions.
SDK-45834		All	WCMOD: Incorrect use of `soc_port_if_t` in interface set
SDK-45851	617348	`56544_A0 56542_A0 56540_B0 56541_B0`	Memory sanity scripts are included in the FILES.esw package.
SDK-45852	621548	`88650_A0 88650_B0 88650_B1`	88650: When using dynamic ports change. the initial speed port (after dynamic change) is taken from the soc property `"port_init_speed"`. This might cause an error if this speed is not supported by this interface. Fixed - When using dynamic ports the interface speed will be the default speed.
SDK-45868		`88650_A0`	implemented Arad RCPU support. For implementation detail use Arad UM, cint example application `cint_cmic_rcpu.c`
SDK-45872		`88650_A0`	Change of default behavior: Initialization will fail if dram is not tuned (previous behavior was to print a warning). If oen want to initialize without tuning, SOC property `'bist_enable_dram'` should be set to 0 (default is 1), which will not run bist during init.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45875	606387	88650_A0 88650_B0 88650_B1	88650: At unreachable-credit events, wrong queue number was reported as OFF to the SCH. FCT unreachable destination was then asserted. Now, the interrupt application will change the flows queue status to OFF, so credits to this queue will be stopped.
SDK-45879	612625	56850_A0 56850_A1	Added support for L3 multicast cut-through mode in BCM56850. Specifically, the L3_IPMC table's REPL_HEAD_BASE_PTR field is now configured by bcm_multicast_* APIs.
SDK-45885	618944	All 56640_A0 56640_A1 56640_B0	Clear counters when there no flex object references to flex counters.
SDK-45892	620498	56846_A0	Toggling 20G link causes adjacent 10G link to bounce on same warpcore
SDK-45893		56850_A0 56850_A1	HW PCB hang problem causing register access failure is fixed by SW WAR (SDK-46060).
SDK-45901	600961	88650_A0	Controlling flooding for unknown IPMC: "bcmSwitchL3McastL2" switch control should be used instead of "bcmSwitchIpmcCompatibleEnable".
SDK-45908		56854_A0 56850_A0 56855_A0	bcmFieldQualifyColor qualifier is now supported in Trident2 device Ingress Stage.
SDK-45915		All	New interrupt thread is no longer created when SDK re-initialized after detach if previous thread is still running.
SDK-45917		All	Support pluggable PHYs phy8481.c phy84740.c phy8706.c
SDK-45918	619564	56850_A1	Clear out the encoding Rx reason codes if it is not part of the input reasons.
SDK-45933	622328	56850_A1	Add SOC property low_power to indicate whether the unused shared UFT banks are disabled or not.
SDK-45941		88750_A0	88750: Added support for FE1600 soft reset and graceful shutdown.
			Soft reset: - graceful shutdown - reset it without changing configuration - un-graceful shutdown API: soc_init(unit)
			Graceful shut down: - isolate the device - reset the links API: bcm_fabric_control_set(unit, bcmFabricShutdown ,is_shutdown)
SDK-45943		88650_A0 88650_B0	ARAD Field warm boot, following was not restored after : 1. preselectors. 2. tcam actions. 3. entry flags (less critical, has effect only when doing WB in the middle of field API sequence).
SDK-45946	621865	88640_A0	In BCM88640, the ITMH Source-System-Port extension did not support LAG ports in its parsing. This issue is fixed.
SDK-45953	623653	88650_A0	88650: Diagnostic commands: "phy measure" and "diag nif" does consider correctly lane swap. Fixed.
SDK-45954 SDK-44501	622527	All 56440_A0 56850_A0 56440_A1 56440_B0 56850_A1	Fixed host entry add with ipv6_lpm_128b_enable set to zero.
SDK-45957	611540	56636_A0 56636_B0	Moving of entries in the FP_GLOBAL_MASK_TCAM table is fixed.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-45968		`88650_A0 88650_B0`	compilation error when compiling for ARAD only with warm boot support: BCM_PTL_SPT=1 `BCM_88650_A0=1 BCM_88650_B0=1 #` `BCM_88640_A0=1` (No definition) CFGFLAGS += -`DBCM_WARM_BOOT_SUPPORT`
SDK-45972	619045	`56850_A0 56855_A0` `56854_B0 56854_A0` `56850_A1`	Process channel 0 for l2 mod fifo in case of TD2.
SDK-45973		`88750_A0 88650_A0` `88750_B0 88650_B0`	Interrupts data protection were added to prevent situation when the interrupts data accessed after interrupts deinit.
SDK-45988	618997	`56850_A0 56850_A1`	Fixed QOS port map setting with VXLAN port.
SDK-45995	620949	`56440_A0 56450_A0`	Added IPBM Overlay support for Katana and Katana2 in order to support fields like `S_FIELD` in second slice.
SDK-46014	629346	`56850_A1`	Added sw based L2 matched traverse support.
SDK-46020		`88650_A0 88650_B0`	Bug description: When enabling default OAM behavior, it uses the same profile as the non-default. Thus both default trap behavior and trapping through endpoint insertion can not be use in the dame time.
SDK-46021		`88650_A0 88650_B0`	LM and DM packets that are trapped to the CPU have OAM-TS header that contains the counter / timestamp information. Bug: In OAM-TS header bit 42 is indicating up-mep direction. was always 0.
SDK-46022		`88650_A0`	88650: SerDes might be un-functional if configuring it while HW linkscan is enabled. Fixed.
SDK-46031	623835	`56820_A0 56820_B0`	Deadlocks from l3 memory locks are resolved with l3 module locks for all l3 xgs routines.
SDK-46039	623076	All	Shell command "GlobalMeter Policer Set" help [misspelling] for <Committed> is corrected
SDK-46041		`56640_A0 56640_A1` `56640_B0`	Updated doc about bcmSwitchFieldStageEgressToCpu switch control.
SDK-46043		`56640_A0 56641_A0` `56642_A0 56643_A0` `56644_A0 56645_A0` `56648_A0 56640_A1` `56643_A1 56644_A1` `56640_B0 56644_B0` `56643_B0 56648_B0` `56649_B0 56649_A0`	New switch control has been added to enable egress copy-to-cpu action.
SDK-46044		`56640_A0 56440_A0`	Support for configuring policers for all group modes in 2 level service meters has been added by incorporating new API `bcm_policer_envelop_group_create`
SDK-46059	622251	`88650_A0`	Fixed the following: during soft reset sequence full multicast dbuff pointers autogen bit was not reasserted, breaking the Ingress MC replication logic.
SDK-46075		`88750_A0 88650_A0` `88750_B0 88650_B0` `88650_B1`	Fixed issue: 'phy measure' diag shell command returns wrong results, or no results at all for fabric ports.
SDK-46076	625611	`88130_B0 88130_A1` `88025_A0 88020_A0` `9600_A0 3200_B0` `2000_A1`	Convert static function to macro to prevent compiler warning for certain compilers on xcore devices.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46099		`88650_A0 88650_B0`	VLAN port create does not provide an ability to allocate local Ingress LIF. Until 6.3.0 SDK version, the allocation of Ingress was according to `vlan_port_t.vsi` != 0. Now, `vlan_port_t.vsi` != 0 has the only meaning of identify if to allocate ISEM , ESEM entries. New flags introduce `BCM_VLAN_PORT_CREATE_INGRESS_ONLY` , `BCM_VLAN_PORT_CREATE_EGRESS_ONLY` to allocate local asymmetric LIF. Those flags are not implemented yet. Workaround provided to allocate local ingress LIF as previous behavior before 6.3.0 release.
SDK-46102		`88650_A0 88650_B1`	ARAD-XGS MAC extender: Added the support of having RSPAN in a system with XGS MAC extender application
SDK-46103		`88650_B1`	Support for ARP extender + XGS interop for 1G LC
SDK-46114	625123	`56850_A1`	Counters update properly for X and Y pipes for PG and WRED based counters.
SDK-46127	625111	`88650_A0`	Arad: Dynamic NIF change- After change port the egq calendar was not updated and as a result in transition that increased the bandwidth for single logical port (e.g: 4*10G to 1*40G) we got FCS. Fix: use `custom_feature` soc property `dynamic_port` In this mode we update the egq calendar due to the new configuration.
SDK-46132		`88650_A0`	When enabling HW linkscan it'll report all links are down, instead of reporting actual link status, until first interrupt will occur. This issue is fixed.
SDK-46134	620221	`88650_A0`	`ipmc_enable` issue after warmboot was fixed.
SDK-46135		`88750_A0 88650_A0`	88650, 88750: `bcm_port_link_status_get` for fabric links returns true (link is up indication) if the port is disabled. Fixed.
SDK-46137		`88650_A0`	Disallow higig mode speed on non-higig port
SDK-46140		`88650_A0 88650_B0 88650_B1`	The module detach function is called for DNX devices in two separate cases: - during Warm-boot. Then no HW access must be done by definition (only the SW is reset). - during init / de-init. Then the init comprises also a SOC init, i.e. a device reset. Thus, any HW access at the de-init phase has no influence since the device is reset. In Field Processor, the HW was accessed during de-init (all the Field group entries were removed). This HW access is removed.
SDK-46142	575762	`88640_A0`	In BCM88640, in stacking application, the FTMH extension Stacking-Route-History indicates for each packet its TM-Domain history. It must be set to 0 at the first TM domain, and for each TM-Domain, the respective bit is set in this bitmap. Its value was not set to 0 but was depending on the packet content. This is fixed.
SDK-46143	624493	All	Fixed PHY partial compile failure

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46147		88650_B1	In Field Processor, the qualifier bcmFieldQualifyHeaderFormat was enumerating explicit L2 & L3 packet format codes. For example, bcmFieldHeaderFormatIp4 selects Layer-4overIPv4oETH packets, but not IPv4overIPv4overETH packets. New Header-Formats are introduced all types of IPv4 or IPv6 or MPLS-1/2/3 packets: bcmFieldHeaderFormatIp4AnyL2L3, bcmFieldHeaderFormatIp6AnyL2L3, bcmFieldHeaderFormatMplsLabel1AnyL2L3, bcmFieldHeaderFormatMplsLabel2AnyL2L3, bcmFieldHeaderFormatMplsLabel3AnyL2L3 For example, the user can match all the IPv4 packets with bcmFieldHeaderFormatIp4AnyL2L3
SDK-46169	621365	88650_A0	`bcm_mpls_tunnel_switch_get()` fails when the entry hit indication is set
SDK-46182	624961	88650_A0	QOS: Default mapping of Egress PCP mapping was changed in case of untagged packets. In case of untagged packets default egress VLAN editing adds a new VLAN tag, VLAN = VSI. The new mapping of PCP field will be according to TC. The default mapping is useful in order to maintain the incoming COS value. User can control the default mapping by creating Egress PCP-DEI QOS default profile handle: `bcm_qos_map_create` flags `BCM_QOS_MAP_L2_VLAN_PCP`|`BCM_QOS_MAP_EGRESS`|`BCM_QOS_MAP_WITH_ID` and profile = 0. Add QOS mappings of TC,DP to PCP by `bcm_qos_map_add.`
SDK-46191		84848_A0	Warpcore: 100M (SGMII) Transmit FIFO issue
SDK-46194		56850_A0 56850_A1	Fix `MMU_THDU_X/YPIPE_CONFIG_PORT` and `MMU_THDU_X/YPIPE_RESUME_PORT` index calculation for pool 1, 2, and 3. Fix `MMU_THDM_DB_PORTSP_CONFIG_0/1` and `MMU_THDM_MCQE_PORTSP_CONFIG_0/1` index calculation on BCM5685x.
SDK-46200	626518	53115_B0	BCM CLI command mode to ROBO mode is available in BCM CLI init process.
SDK-46202	623810	88650_A0 88650_B0	Trill Adjacent - Bug fix -The port in the key was not included correctly
SDK-46208		88650_B1	Added support for outbound mirror for XGS MAC extender ports (with HG header).
SDK-46216	624606	88230_C0 88230_B0 88230_A0	Set the default behavior for the Sirius ts scheduler hierarchy setup configured through `bcm_cosq_gport_sched_set()` to allow for a scheduling element parent with a single child to be set up in flat scheduling mode as the root relay to allow for additional children to be added at a later time. `ts_single_child_passthrough_disable` is by default set to 0. To force a parent to only be configured as the root relay if it has multiple children, clear this property.
SDK-46235	619508	88650_A0	MIM: Added the support for Split horizon in MIM application. In case packet comes from MIM port (PBB) and send back to MIM port then packet will be dropped. In order to disable Split horizon filter call `bcm_rx_trap_type_destroy` with `trap_type` = bcmRxTrapEgSplitHorizonFilter.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46237		`88650_A0` `88650_B0` `88650_B1`	warmboot: dynamic variables get wrong error for being size=0 before being enabled. changed `add_var` to not return error on size=0 for dynamic vars
SDK-46263	627186	`56334_B0` `56334_A0`	Added the code for outbound counters in `stat_fe.c` and `stat_xe.c`
SDK-46264		`88650_B1`	Background: Arad uses XGS as MAC extender In the ingress direction, XGS will set VID =1 in HIGIG header by default. In the egress direction, XGS only recognizes VID=1 in the HIGIG Header by default. Bug: SDK should be changed to set VID=1 in the egress direction so that there will be no need to change the XGS default configuration.
SDK-46268		`88650_A0` `88650_B0`	OAM LM Bug: LM downmep packet trapping increases egress counters.
SDK-46273		`88650_A0`	Fixed: `bcm_cosq_fc_path_add` API returns error when configuring PFC/SAFC reception.
SDK-46277	628080	`88650_A0` `88650_B0` `88650_B1`	In Petra-B compatible mode, the parsing of the FTMH is different at egress because the FTMH is in Petra-B mode. The CUD was not parsed correctly at egress in Petra-B compatible mode. Therefore, the CUD extension value in OTMH was not correct.
SDK-46311	627975	All	"Wait for Linkup" after serdes loopback set, moved out of the port lock scope.
SDK-46313 SDK-44449	617061	All	IngressGportSet support is added for new GPORT types
SDK-46326		`88750_A0` `88650_A0`	88650, 88750: RX LOS application - two connected ports which monitored by RX LOS application might have done many iterations of RX resetting on system initialize.
SDK-46330	627749	`88650_A0` `88650_B0` `88650_B1`	The the default value for STP per port is now set to Block instead of Forward, as required. Attachment of a port to an STP group will not block traffic.
SDK-46331	540502	`88650_A0`	Skip dynamic read only Tables during table access TR (50, 51, 52)
SDK-46342	609631	`88650_A0` `88650_B0` `88650_B1`	Fix Arad throughput below line rate when working with 4 DRAM devices
SDK-46378		`88650_A0`	MPLS: When calling `bcm_mpls_tunnel_initiator_create` there might be a use of memory outside of the allocated memory which could lead to undefined behavior. Fix implemented as part of another issue. It includes appropriate memory usage in `shr_res_bitmap_alloc_align()`.
SDK-46380		`88650_A0`	When calling `bcm_petra_tunnel_terminator_create` there might be a use of uninitialized stack variables that could lead to undefined behavior. Fix implemented as part of another issue but basically includes initializing these stack variables.
SDK-46387		`88650_A0`	L2 remote CPU mode disables XGS programmable editor programs to avoid conflicting instructions

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46390	615798	`88750_A0` `88750_B0`	Compiling with both `BCM_WARM_BOOT_SUPPORT` and `BCM_EASY_RELOAD_SUPPORT` was not allowed. In order to support both Easy Reload feature and Warm boot feature in the same SDK image (for different devices), use the following compilation flags: `BCM_WARM_BOOT_SUPPORT`, `BCM_EASY_RELOAD_WB_COMPAT_SUPPORT`.
SDK-46391	626558	`88650_A0`	TDM direct routing fixed (`bcm_fabric_tdm_direct_routing_set`): Before: configuring cells to be routed through was ignored; routing was done through all cells.
SDK-46393	628573	All	Resolved as part of SDK-47244. add `"__DUNE_GTO_BCM_CPU__"` macro above all `"cpu_i2c_write"` operation in kbp.c.
SDK-46398	627557	All `56440_A0` `56445_A0` `56440_A1` `56445_A1` `56444_A1` `56449_B0` `56445_B0` `56440_B0` `56447_B0` `56443_B0` `56441_B0` `56446_B0`	Fixed Katana VFP source mod-port qualifiers.
SDK-46405		`88650_B0` `88650_B1` `88660_A0`	Mac-in-MAC: Split horizon filter was enabled in MIM application globally and didn't allow users to support ISID-to-ISID application. Support of flag `BCM_MIM_PORT_TYPE_PEER` was added in function `bcm_mim_port_add()`, which sets the ISID orientation as SPOKE and thus, prevents the hub-hub split horizon filterring.
SDK-46411		All	Applied proper validation checks for the return type of functions `_field_group_free_unused_slices()` and `bcm_esw_field_group_compress` and `_field_stage_groups_compress()`.
SDK-46426		`88650_A0` `88650_B0`	OAM: MIP is both upMEP and downMEP - should have no passive side. MIP packets should be handled from both ingress and egress.
SDK-46429		`88650_A0`	The NIF to EGQ Flow-Control mapping is wrong for 1P and 2P modes. When working with less than 8 priorities PFC indication will be incorrect, or won't appear at all. Mapping was fixed.
SDK-46461	627415	`56850_A1`	Change MMU port number and queue assignment for BCM5685x to meet VBS ports restriction.
SDK-46480	629751	`88650_B1`	In Field Processor, the allocation of preselectors & Field groups is dynamic. The SW Driver must handle the PMF-Program, TCAM databases and all their attributes internally. At egress stage, the TCAM DB profile of existing Field groups were not kept when duplicating PMF-Programs. The bug is fixed. WA: none
SDK-46481	629771	All	Reinstate DV integrity check in `soc_dma_done_chain()` for CMIC-based devices.
SDK-46482	631621	All	GPL versions of the Linux BDE kernel modules now compile again.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46500	627006	`56840_A0`	In this release we now handle MPLS type of egress object for `bcm_l3_egress_stat_attach()` API correctly.
SDK-46501	631625	`56850_A0 56850_A1`	VXLAN Network ports may share the same egress object. In such a scenario, deletion of a specific VXLAN port should not affect the behavior of the egress object. Fixed the problem observed during such sharing scenarios for VXLAN functionality.
SDK-46503		`56640_A0 56640_A1` `56640_B0`	ESM may not by bypassed if there is no esm configuration on a Tr3 device. This fix makes sure ESM is bypassed if there are no external tables configured on a tr3 device.
SDK-46507	497533	`56846_A0 56840_A0` `56846_A1`	Disabled parity for `FP_METER_TABLE` on TD/TD+.
SDK-46511	631335	`88030_A0`	Fixed Caladan3 synchronous ethernet clock default value
SDK-46515	629523	All `56850_A1`	New flag is added to disable TTL check on multicast packets
SDK-46517	619145	`88650_A0 88650_B0` `88650_B1`	VLAN: creation AC-LIF without any transforms, using the `bcm_vlan_port_create()` API are supported now for both ingress and egress. Use flags `BCM_VLAN_PORT_OUTER_VLAN_PRESERVE` and `BCM_VLAN_PORT_INNER_VLAN_PRESERVE`.
SDK-46518	619042	`88650_A0 88650_B0`	Vlan ports can now be created without port match. To use, call `bcm_vlan_port_create` with `criteria=BCM_VLAN_PORT_MATCH_NONE`. Port matches can later be added by using `bcm_port_match_add`. Note that as a side effect, when using this method vlan translation will not be defined either, and will need to be added separately.
SDK-46519		`88650_A0 88650_B0`	L3: Extend ARP table from 32K to 256K (32K x 16) by providing additional 4b from Host table. To enable the feature set SOC property: `bcm886xx_next_hop_mac_extension_enable` /* If set ARP table (next Hop MAC address) is extended. In BCM 88650 ARP table extend from 32K to 256K, in case soc property is set System headers for PP packets always contain 5Bytes Learn extension header. */
SDK-46523	631635	`56640_B0`	IPFIX enabled during init.
SDK-46528		`56440_A0 56445_A0` `56440_A1 56445_A1` `56444_A1 56449_B0` `56445_B0 56440_B0` `56447_B0 56443_B0` `56441_B0 56446_B0`	Added ability to implement PW/LSP-based queuing. To do this, we needed to be able to set the `EH_TAG_TYPE` and `EH_QUEUE_TAG` in the `ING_L3_NEXT_HOP` table entry used by MPLS. Previously, it was only possible to set these values for the L3 egress object.This has been fixed.
SDK-46531	631038	`56224_B0 56224_A0`	Fixed configuration issue of `IFP_PORT_FIELD_SEL` table.
SDK-46549	633259	`56334_B0 56334_A0`	Fix is already available in TOT .
SDK-46557		`88030_A0`	Add VRRP to IPv4

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46564	631612	`88750_A0` `88650_A0` `88750_B0` `88650_B0` `88650_B1`	88750, 88650: Added new BCM API which retrieves the current link-partner information of a single link. extern `int bcm_fabric_link_connectivity_status_single_get( int unit, bcm_port_t link_id, bcm_fabric_link_connectivity_t *link_partner_info);`
SDK-46573		`88650_A0` `88650_B0` `88650_B1`	Incorrect pointer assignment caused segmentation fault in ELK application initialization UI. This has been fixed.
SDK-46576	616031	`88650_A0`	Support ICMP packets trapping: APIs to use - `bcm_switch_control_port_set(0,port,bcmSwitchIcmpRedirectToCpu,enable);` //per port ICMP trap enable - bcmRxTrapIcmpRedirect: RX trap to globally control ICMP trapped packets.
SDK-46581	633727	`88650_A0`	`bcm_port_phy_control_get-` add support to get gport in order to enable get phy control information about the internal and external phy.
SDK-46591	627700	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1`	Add the support of cut-through by adding a switch control property to api `bcm_switch_control_port_set.`
SDK-46599		`88650_A0` `88650_B0`	When working in Petra-B mode `(system_is_petra_b_in_system=1),` the header formats are: - FTMH is in Petra-B mode - ITMH and OTMH are in Arad mode. A bug in the parsing of the ITMH in this mode is fixed. WA: none
SDK-46601		`88650_A0` `88650_B0` `88660_A0`	schan HW timeout is now proportionate (and smaller in time) than schan SW timeout
SDK-46602	632985	`88650_A0` `88650_B0` `88650_B1`	Direct mapping supported systems with more than 4K System Ports. The API `bcm_cosq_gport_add` return error for such ports in direct mode. Fixed.
SDK-46606		All	Fixed macro
SDK-46608		`8750_A0` `8752_A0` `8754_A0`	control phy bcm875x for low power mode while setting phy enabled or not to generate link status change interrrupt
SDK-46610	632939	`56850_A0`	Fix `soc_mem_field_get` buffer overrun for `L2_USER_ENTRY` TCAM mask.
SDK-46611 SDK-50006	632888	`88650_A0`	Arad: Use the soc property `bcm_stat_jumbo` to change the size of packets that counted as jumbo packets. The default value is 1518.
SDK-46618		`88650_A0` `88650_B0` `88650_B1`	VLAN translation: New BCM API VLAN actions were added in order to support Egress Vlan Editing usage of VSI as the source VID - bcmVlanActionMappedAdd & bcmVlanActionMappedReplace. Those actions values can be used the same way as bcmVlanActionAdd & bcmVlanActionReplace are used, but the VLAN value result that is used is the VSI instead of a newly supplied VLAN value as in the latter actions.

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Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46619		`88650_A0 88650_B0` `88650_B1`	New BCM API actions were added in order to support EVE usage of VSI as the source VID - bcmVlanActionMappedAdd & bcmVlanActionMappedReplace. Those actions values can be used the same way bcmVlanActionAdd & bcmVlanActionReplace are used respectively, but the VLAN value that is used is the VSI instead of a newly supplied VLAN value as in the latter actions.
SDK-46622		`88660_A0`	ARAD+: To set rx clock recovery lane use the SOC property `caui_rx_clock_recovery_lane:` `caui_rx_clock_recovery_lane_x(0/1)=0-3` (default value: 0) In warm boot and dynamic port we read this soc property again.
SDK-46642	627589	`88650_B1`	When deleting an entry from TCAM (`bcm_trill_multicast_source_delete` for example), an error wasn't returned if entry did not exist
SDK-46650	634058	`88650_A0 88650_B0` `88650_B1`	Added support for setting the credit request profile (queue type) of Fabric Multicast Queues (FMQs). The `bcm_cosq_gport_sched_set` API can now be used with FMQ gport type as input.
SDK-46651	627582	`88650_B1`	Background: Validation of TCAM entries is done while reading all entries per database. The loop which reads the entries used the wrong database ID range, which may have been invalid in some cases. Fix: Change of database ID to right range.
SDK-46653	634167	`84756_A0 84756_C0`	New sequence so link stays up when link partner disables auto negotiation
SDK-46678	620403	`56440_A0`	Fixed stack overflow issue while invoking bcm shell group create command in linux kernel mode.
SDK-46679		`56634_B0`	Data returned by `bcm_custom_port_get()` from a remote device could be corrupted.
SDK-46680	633317	All	Code now includes exclusion of Interlaken ports when generating port list at appropriate code points.

SDK-46683	633416	`56850_A0 56855_A0`
		`56854_B0 56854_A0`
		`56850_A1`
			Interface `CLASS_ID` classifier for IFP is added for Trident2

SDK-46712	634930	`56840_A0`	MC Prio2Cos values have been corrected to reset properly
SDK-46718	628264	`56850_A1`	TD2 BST issues corrected.
SDK-46722	624598	`56640_A0 56640_A1` `56640_B0`	Hardware does not support Ingress Port match capability in TR3 external FP stage. Removed InPort qualifier initialized in `ACL_L2C` database in SDK. Alternate method to qualify on Ingress Port is to match on the Port Class ID value using "bcmFieldQualifyInterfaceClassPort" qualifier in TR3 External Stage.
SDK-46732		`88650_A0 88650_B0` `88650_B1`	When de-attach MPLS port using `bcm_vswitch_port_delete,` API returned error since PWE LIF settings weren't cleared correctly.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46742	636288	`88030_A0`	Integration of BCM shell and MDE GUI is implemented. MDEConnectionsView has been rewritten completely, and new view (MDE Execution Status view) was been created. Now, user can use Telnet sessions to interact with BCM from MDE GUI application. MDE GUI supports any number of telnet connections simultaneously, ne Telnet console per session. This is a prt of MDE GUI 2.138 release.
SDK-46769	636075	All	Change SW sequence after blocks init in order to avoid IQM Schan error.
SDK-46773		`88650_A0`	Support IPv4 MC BIDIR protocol and APIs. Remarks: - Cint example with all details at `SDKsrcexamplesdppcint_ipmc_bidir.c` - `bcm_ipmc_range_add` not implemented.
SDK-46782		`88650_A0 88650_B0 88650_B1`	MIM: LIF-ID for ISID creation could not be controlled by the user. An option to control the allocated ISID LIF-ID was added. `bcm_if_t service_encap_id` member was added to `bcm_mim_port_t` and `bcm_mim_vpn_config_t` structs. This new member may be used to control the allocated LIF-ID with the use of the new supported flags `BCM_MIM_PORT_SERVICE_ENCAP_WITH_ID` and `BCM_MIM_VPN_SERVICE_ENCAP_WITH_ID` used in functions `bcm_mim_port_add()` and `bcm_mim_vpn_create()` respectively.
SDK-46791		`88650_A0 88650_B0 88650_B1`	88650: ARAD interlaken interface supports sending status messages through an out-of-band interface. In order to avoid sending this messages use the following soc property: `"ilkn_interface_status_oob_ignore=1"`
SDK-46795		`88750_A0 88650_A0`	88650, 88750: RX LOS application - `rx_los_unit_attach` is running over RX LOS semaphore. Using `rx_los_unit_attach` when all the ports are in stable state might cause RX LOS application to stuck. Fixed.
SDK-46800		`88650_A0`	At egress Field Processor, the user can preselect according to the Forwarding-Type. The following Forwarding-Types were failing: bcmFieldForwardingTypeSnoop, bcmFieldForwardingTypeTrafficManagement and bcmFieldForwardingTypeFCoE. By default, a different space in preselection table is allocated for TM field groups and Ethernet-based Field groups at ingress stage. At egress, the fix is to have a single space for both types. The user can preselect on every supported Forwarding-Types. The user needs after this fix to preselect on Forwarding-Type=bcmFieldForwardingTypeAny to get a preselection only on Ethernet packets (except FCoE packets). After this fix, a Database without preselection is applied both on TM (e.g. OLP learning messages) and Ethernet-based packets.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46801		`88750_A0 88750_B0`	compilation error for 88750 single chip compilation when compiling with WB flags: `BCM_PTL_SPT=1 BCM_88750_A0 = 1 CFGFLAGS += -DBCM_WARM_BOOT_SUPPORT CFGFLAGS += -DBCM_WARM_BOOT_SUPPORT_SW_DUMP`
SDK-46814	618010	`88030_A0`	fix interrupt handling to support large tmu hash capacity in caladan3 device
SDK-46847	631611	All	88650, 88750: RX LOS application - register a callback
			RX LOS application will notify when port is stable (i.e. the port status do not requires RX resetting)
			Therefore, the RX LOS application will use a callback mechanism. The callback will be called when a port move to a stable state or active stable state: * `rx_los_state_ideal_state` * `rx_los_state_no_signal` * `rx_los_state_no_signal_active`
			Registering a callback is supported per unit:
			typedef void (`*rx_los_callback_t`) (int unit, `bcm_port_t` port, `rx_los_state_t` state);
			`int rx_los_register(unit, rx_los_callback_t callback);`
SDK-46856	627827	`88650_A0` `88650ACP_A0` `88650_B0 88650_B1`	ARAD: Change number of ILKN lanes without disable the port is possible with `bcm_port_control_set(bcmPortControlLanes)`. This feature is supported for ILKN interface up to 12 lanes. It's impossible to increase the number of lanes above the init number of lanes. To see the actual number of lanes use the `bcm_port_control_get(bcmPortControlLanes)` function. Diag nif will show the init num of lanes and will not update by the use of this feature.
SDK-46858		`88750_A0 88650_A0` `88750_B0 88650_B0` `88650_B1`	PHY speed which requires refclock of 125MHz might be not configured correctly in previous release. This has been fixed.
SDK-46860	616502	`88030_A0`	The following syntax is now supported on all but ELEN type `pkt_header` descriptions:
			`varlen_mod = true : varlen_units = 0 : varlen_size = 48 : varlen_posn = 12`
SDK-46863	632416	`88030_A0`	Wrapped TMU table creation with `SOC_IF_ERROR_RETURN` to catch exceptions.
SDK-46865	636822	`88030_A0`	You should use these cmds to dump RCE entries
			BCM.0> g3p1rceget Usage (G3P1RceGet): g3p1rceget all g3p1rceget {ifp|efp} all g3p1rceget {ifp|efp} <groupId> all g3p1rceget {ifp|efp} <groupId> <entryId>
SDK-46878		`88650_A0 88650_B0` `88650_B1`	The `bcm_mpls_vpn_id_destroy_all` API removes all the configured VPNs for the unit, not just the MPLS ports as previously.
SDK-46882	638847	`56150_A0`	Fixed

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46889		`88030_A0`	Support added for 3 label lookup. Now the labels are unique per interface per layer. - First label lookup uses port, label1, 0 (for label2) as index to labels table. - Second label lookup uses port, label1, label2 as index to labels table. - Third label lookup uses port, label1, label2 as index.
			Limitations: 1. The per layer unique label support assumes the LSP label is same on both ingress and egress direction. 2. The trunk update support needs to be added for per-interface per layer unique label feature.
SDK-46914		`89500_A0` `53010_A0` `53017_A0` `53022_A0` `53011_A2`	Fix the problem about the packets egress to NNI port are always untagged on BCM5301x, BCM5302x and BCM8950x devices.
SDK-46921		`88650_A0`	Issue: Packet incomes from VXLAN port and flooded over VSI gports was sent toward VXLAN network Fix: configure bounce back filter to discard such copies at egress.
SDK-46929	568166	`88650_A0`	VLAN translation (`bcm886xx_vlan_translate_mode=1`) : Using the new VLAN translation model, TPID APIs can set more than one Inner-TPID (up to 2 TPIDs) for a sepcific port
SDK-46932		`56820_B0`	FP reinstall Assertion Fixed: The assertion happened because it was trying to install the invalid action of the entry. The check has been made to process only the valid actions.
SDK-46956		`88650_A0` `88650_B0`	Bug description: In case `action_set` is used with downmep endpoint and then with upmep endpoint while destination is the same, upmep trapping will not work.
SDK-46957		All	Added support for KNET feature on iProc host.
SDK-46961	636587	`88650_A0`	VLAN: When port is enabled bcmVlanPortDoubleLookupEnable then by mistake untagged packets were not matched correctly.
SDK-46964		`88650_A0`	Several BCM APIs use uninitialized stack variables which may lead to undefined behavior. Fix includes initializing these stack variables in `_bcm_ppd_frwrd_ipv4_mc_route_find()`, `arad_iqm_cnm_ds_tbl_set_unsafe()`, `arad_pp_eg_qos_params_remark_get_unsafe()`
SDK-46965	637707	All	Access the register with the correct function. Use the function which can access 64Bit register, instead of 32Bit.
SDK-46968		`88650_A0`	VLAN: When calling `bcm_vlan_port_protocol_action_add/delete` there might be a use of uninitialized stack variables that could lead to undefined behavior. Fix includes initializing of these stack variables in `_bcm_petra_vlan_port_protocol_entry_set()`.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-46971		88650_A0	MPLS: When calling `bcm_mpls_port_add` there might be a use of uninitialized stack variables that could lead to undefined behavior.. Fix includes initializing of these stack variables in `_bcm_dpp_mpls_port_pwe_set()`.
SDK-46972		88650_A0	When calling some BCM API functions that approach the LIF table (`bcm_petra_vxlan_port_add()` for example), there might be an internal use of uninitialized stack variables which could lead to undefined behavior. Fix includes initialization of these stack variables.
SDK-46976		88650_A0	When calling some BCM API functions that get entry information from the Egress encapsulation, there might be a memory copy command with source and destination overlapping. Fix includes removal of unnecessary memcpy from `arad_pp_eg_encap_data_entry_data_exact_info_get_unsafe()`.
SDK-46979		88650_A0 88650_B0 88650_B1	VPN creation: Add ability to update exist VPN (created by `vswitch_create`) for MiM usage without impact traffic
SDK-46982	639073	56850_A0 56855_A0 56854_B0 56854_A0 56850_A1	Fixed 'l3 replace' for ecmp for BCM5685x devices.
SDK-46983	637395	56850_A0 56850_A1	`bcm_l2_replace(MATCH_DEST)` can now be changed from `NIV_gport` to `trunk_gport` successfully.
SDK-46998	638019	88030_A0	Before this change, we were not able to change the speed on 10G port to 1G because of the consistency check that would block such and change. This has been fixed
SDK-47024	640408	All	Recovery of qualifierID's greater than 255 is now handled properly.
SDK-47033		88650_A0	88650 there is a HW bug in DRAM mmu indirect reading/writing under traffic. That is why deleted dram buffers seems to be changed under traffic. The problem solved when OCB is disabled.
SDK-47037		88650_A0 88650_B0 88650_B1	88650: If the packet is rejected at the egress (reassembly errors, filtered packets or due to congestion), the packet descriptor stored in the delete FIFO. ARAD egress did not allocate bandwidth to the delete fifo - required in order to delete the packet data.
SDK-47038		88650_A0 88650_B0 88650_B1	88650: Link-Level Flow Control (LLFC)This flow control is generated by the BCM88650 according to the fabric link receiver fifo occupancy. The fabric LLFC role is to adjust the incoming rate from the input link due to momentary congestion. To tune this mechanism, call `bcm_fabric_link_thresholds_set(unit, -1,array_count, array_types, array_values)`: While the array types includes the following type and array count his matching value: bcmFabricLinkRxFifoLLFC Threshold range: [0, 0xff]

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47039		`88650_A0`	88650: BCM88650 fabric multicast queue eligibility can be regulated by random-backoff and slow-start mechanisms. Added tuning support using BCM APIs. To tune the GCI random-backoff mechanism use the following API: `bcm_fabric_link_thresholds_set(unit, -1,array_count, array_types, array_values)` While the array types includes the following types and array count their matching values: o bcmFabricLinkTxGciLvl1FC o bcmFabricLinkTxGciLvl2FC o bcmFabricLinkTxGciLvl3FC Threshold range: [0, 0x800-1] To enable the slow start mechanism: Obtain the appropriate gport handles for fabric MC contexts by calling: `bcm_cosq_gport_handle_get(unit, gport_type, &gport_info)` with `gport_type:` bcmCosqGportTypeGlobalFabricClosFmqGuaranteed bcmCosqGportTypeGlobalFabricClosFmqBestEffort Enable the mechanism using the following API `bcm_cosq_control_set(unit, gport, 0,` bcmCosqControlFlowSlowRate, enable) To configure rate1 or rate2 of slow start mechanism: Configure a percentage value between 0 to 100 from the normal mode shaper using the following APIs `bcm_cosq_control_set(unit, gport, 0,` bcmCosqControlFlowSlowRate1, `rate1_percent)` `bcm_cosq_control_set(unit, gport, 0,` bcmCosqControlFlowSlowRate2, `rate2_percent)`
SDK-47040		`88650_A0` `88650_B0` `88650_B1`	Wrong default configuration of internal Flow Control mapping in the device ingress path (between IPT and IPS blocks). Wrong behavior: Flow control from some class stops only its own class, instead of its own and lower priority classes. This configuration could potentially cause sub-optimal performance of the ingress path. The issue was fixed.
SDK-47078		`88650_A0` `88650_B0` `88650_B1`	Fixed `bcm_cosq_gport_sched_get,` With flags bcmCosqGportTypeLocalPortTCG to return correct configuration. That is: Before disabling WFQs for TCG gport caused enabling it, and enabling WFQs for TCG gport caused disabling it.
SDK-47081	638082	`88650_A0`	Private VLAN is supported both for single port and trunk.
SDK-47087	642080	`88030_A0`	The Asm3 tool now supports "direction = both" for the OCM and TMU tables where the "direction" argument is supported. Using the "direction = both" argument will result in generation of both ing_* and egr_* LRP variables.
SDK-47089	640570	`88030_A0`	Fixed cmc corruption issue during interrupt mask handling on cmicm.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47090	636591	`88650_A0 88650_B0 88650_B1`	Advanced VLAN edit mode was introduced under the new SOC property `bcm886xx_vlan_translate_mode`, with new dedicated BCM APIs. The new mode is aimed to enable user enhanced utilization and flexibility of the HW VLAN edit capabilities. In the Advanced mode, all the entries in the HW VLAN edit action table are available for user configuration as well as freedom to associate an action with any combination of up to 16 user defined tag formats that are TPID based, and up to 8 user defined VLAN edit profiles. For CINT usage examples please refer to `cint_vlan_translation_new_mode.c`
SDK-47093		`88650_A0 88650_B0`	Mirror: Added support to set system mirror ID for Egress-Mirror ports using new API `bcm_mirror_port_info_set.` When egress mirroring is configured per egress port, it is sent through the recycling interface to a reassembly context in the ingress and is associated with the System-Source-Port carried in the FTMH. It is used by the receiving CPU to identify the packet as an egress-mirrored packet from a specific port. Thus, every port is associated with an Egress-Mirror-System-Source-Port, which is the Source-Port field in the FTMH of the egress mirrored packets from that port.
SDK-47102	642084	`88030_A0`	Because fatal key definition errors had been suppressed the key status records contained invalid indexes and should not have been used in subsequent key validation checks.
SDK-47104	640327	`88030_A0`	G3P1 PPE egress rules skipped cam 1 (and used cam 0 twice). Rule update to correct the cam usage convention.
SDK-47113	640154	`88650_A0`	Fixed statistic counters: snmpBcmEtherStatsPkts4095to9216Octets, snmpBcmReceivedPkts9217to16383Octets, snmpBcmTransmittedPkts9217to16383Octets
SDK-47158	635512	`56850_A0`	Fixed `bcm_trunk_set()` API failure issue with the HiGig trunk IDs on BCM56850 switch devices
SDK-47161	636799	`88030_A0`	Tools support has been added. Please see the sample `g3p1_rce_cfg.lrp` file for configuration format.
SDK-47174	634117	`88650_A0`	Relevant for Arad-A0 only. Fixed the workaround for the IQM hardware bug (VoQ corrupt Errata).
SDK-47176	636654	`88650_A0`	MIM: VPN destroy does not work correctly, returns error by mistake. Fix includes proper use of `vlan_info` SW DB which was partially supported by the BCM MIM API.
SDK-47206		`88650_A0 88650_B0`	Overlay (VXLAN, NVGRE, Trill, MIM) Multicast: Added enhancement to support multicast Overlay application. Multicast requires 2pass solution. First pass is for multicast transit replications and second pass is for multicast access replications. PRGE program is introduced to provide the same Source-System-Port/In-PP-Port on the 2nd pass.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47208	635229	`88650_A0  88650_B0` `88650_B1`	Control packets (IGMP, etc.) over IP tunnels: Issue: In case control packets are send over IP tunnels then ARAD terminates IP tunnel even tough IP tunnels should not be terminated. Solution: Added the support for control packets over IP tunnels. This is done by defining a new VTT program selection to different between control packets and other packets (In case Packet format code is IPV4oE then it is control packets, otherwise it is tunnel for example EoIPoE, IPoIPoE...). In case of match in VTT program selection do not terminate IP tunnel.
SDK-47210		`88750_A0`	88750: Easy Reload - diagnostic: Controlling Easy Reload flags with BCM shell commands: " Usage (XXReload): Parameters on -- Put the chip in reload mode off -- Put the chip in the normal mode show -- Show the mode "
SDK-47219	635011	`56440_A0`	TCP control Qualifier offset for double wide mode has been fixed.
SDK-47220	643269	All `88750_A0` `88750_B0`	Only TR tests which are supported by BCM88750 can be run on it.
SDK-47224	643297	`88030_A0`	The incorrect port width was being used to calculate bit positions for OCM metadata table entry.
SDK-47226		`56640_A0`	Fixed OAM endpoint deletion failing after OAM group name modification.
SDK-47236		`88650_A0` `88650ACP_A0` `88650_B0  88650_B1`	PON: Fixed bcmVlanPortDoubleLookupEnable Port property. Once enabled, PON double lookup classification introduced. First lookup key is {PON-Port, Tunnel-ID, SVLAN, CVLAN}, Second lookup key is {PON-Port, Tunnel-ID, SVLAN}.
SDK-47237		`88650_A0  88650_B0` `88650_B1`	Fixed: `bcm_port_selective_get` with `BCM_PORT_ATTR_FRAME_MAX_MASK` on ILKN ports fails. As a result: 1. `bcm_port_selective_get` with `BCM_PORT_ATTR_ALL_MASK` fails for ILKN ports. 2. `bcm_petra_port_info_get` fails for ILKN ports. 3. Enable linkscan for ILKN port fails. 4. PS command will fail when ILKN port is defined.
SDK-47248	608493	`88030_A0`	Fixed in 6.3.0 and TOT
SDK-47252	642876	All	Zeroed out private area at the end of `phy_ctrl_t` struct (This private area of size=pc->size is maintained by the phy driver)
SDK-47253	568886	`88030_A0  88025_A0`	Removed invalid VID checks in `bcm_l2_addr_delete_by_` APIs.
SDK-47261	642571	`88030_A0`	Not supported by hardware.
SDK-47262	645248	All	Fix bug in setting KNET interrupt disable mask for CMICe-based devices.
SDK-47263		`88650_A0`	VLAN: When calling `bcm_vlan_port_add/` `get/remove` and `bcm_vlan_gport_get` VLAN membership information might return wrong information when ports numbers are > 32. Fix included on clearing correctly ports array in `arad_pp_llp_filter_ingress_vlan_` `membership_get_unsafe`.
SDK-47274	641649	`56334_B0  56334_A0` `56132_B0  56132_A0`	Fix port configuration fail on HiGig Lite port.
SDK-47286		All	Ensure that Linux KNET module can be safely unloaded with active interrupts on SMP systems.

Table 53:

Number	CSP #	Chips		Release Notes For 6.3.1
SDK-47350		`56850_A0`		Do not allow to bypass oversubscribe buffer if more than one port is configured in an OBM on `BCM5685x_A0` and A1.
SDK-47365	647769	`56850_A1`		TSCMOD changes its design to support interop with TD+.
SDK-47370	643041	`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0`		Fix field names for `L2_ENTRY_2` memory.
SDK-47373	622583	`88650_A0`		The initialization (to zero) of the two dynamic memories in the MMU IDF and FDF is inserted. The absence of initialization was causing 1b/2b ECC errors during the first read access.
SDK-47384		`56640_A0` `56640_A1` `56640_B0`		After this fix, the entries with counter attached to it, can move across slices.
SDK-47388	620800	`88650_A0` `88650_B0` `88650_B1`		IPv4 Multicast entries encoding in ELK was defected in the calculation of important bits. Fixed.
SDK-47394	644395	`88650_A0`		VLAN: Added the support of matching priority tagged frames with bcmVlanPortDoubleLookupEnable set on a port.
SDK-47420	587404	All		Fix Linux kernel oops caused by calling printk with SPL lock held.
SDK-47429	620063	`56850_A1`		Added the feature set to support 8 meter pools for 56850
SDK-47434	640577	`56640_A0` `56440_A0`		Fix for proper computation of meter granularity when committed rate is zero is provided.
SDK-47436	648381	`56334_B0` `56334_A0`		Reverted code changes done in SDK-44254, which broke F2.8 Enduro UDF support.
SDK-47439		`88650_A0`		In Field Processor, the Counter action may have 2 sizes at ingress: - 16 bits when using it for Counter Processor - 22 bits when using it for the Statistic Report in billing mode. The `cint_field_dir_ext_counter_inlif.c` CINT is updated to support both modes.
SDK-47442	649144	`88650_A0`		In Arad, the egress counter header compensation is done with the bcmSwitchCounterAdjust switch control and not bcmSwitchCounterEgressAdjust as written previously.
SDK-47450	649166	`56440_A0` `56440_B0`		Modified `bcm_cosq_gport_delete` to accept non zero modid.
SDK-47460		`88660_A0`		IP Tunnels: In BCM88660 we introduce the ability to counter/meter IP tunnel packets. In-LIF is now being updated for IP tunnel termination packets. See an example in : `src/examples/dpp/cint_field_dir_ext_counter_inlif.c`
SDK-47461		`56850_A1`		Print out error message if ALPM is enabled but ALPM code is not compiled in.
SDK-47471	642164	`56440_A0` `56440_A1` `56440_B0`		subscriber add stores `EGR_NEXT_HOP` or `L3_INTERFACE` index , the subscriber delete call checks the `encap_id` if valid for stored `EGR_NEXT_HOP` or `L3_INTERFACE` for subscriber entry.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47480	649548	`56640_A0` `56644_B0` `56643_B0`	Fixed warmboot system crash issue when `bcm_port_stat_enable_set()` API is used with MPLS VPWS port on BCM56640 type of devices.
SDK-47481	649799	`56644_B0`	At the ingress stage (IFP), the issue related to the recovery of FP group information during warm boot level 2 is fixed.
SDK-47485	653227	`88650_A0` `88650_B0` `88650_B1`	When disabling a port using `bcm_port_enable_set,` the API blocks traffic from entering the relevant queues at the EGQ and then waits for these queues to become empty. In case of high rate traffic towards the disabled port, compared to the configured port shaper rate, the EGQ isn't cleared within timeout. Fixed by increasing the timeout.
SDK-47492	650009	All	N/A
SDK-47504	643596	`56440_A0`	For assignment of egress queue using action = bcmFieldActionFabricQueue in API `bcm_field_action_add( int unit, bcm_field_entry_t entry, bcm_field_action_t action, uint32 param0, uint32 param1)` use param0 to pass ucast queue group/subscriber queue group cosq gport and param1 to pass the `BCM_FABRIC_QUEUE_XXX` flags and QoS profile index (qos map id). If (param1 == `BCM_FABRIC_QUEUE_CUSTOMER)` then it will set EH _TAG_TYPE=1 If (param1 = `BCM_FABRIC_QUEUE_DEST_OFFSET | profile_index)` i.e., If(param1 & `BCM_FABRIC_QUEUE_CUSTOMER)` then it will set EH _TAG_TYPE=2
SDK-47509	649460	`56850_A1`	Fixed the Gport API's for HSP ports.
SDK-47510	648141	`88030_A0`	Implement additional parameter checking for Taps LPM driver on bcm88030
SDK-47511		`88650_A0` `88650_B0` `88650_B1`	Fixed issue where `bcm_cosq_fc_path_get` with direction-generation returns wrong result.
SDK-47523	648942	`56850_A0` `56850_A1`	Fixed configuration of `PORT_INITIAL_COPY_COUNT_WIDTH` register on BCM56850.
SDK-47560		All	After this fix, the newly added port in the existing trunk inherits the `INNER_VLAN RANGE` properties of the existing ports in the trunk.
SDK-47565		`88650_A0`	In Field Processor, the Field groups may be of type TCAM, Direct Extraction or Direct Table. In Direct Table case, the key is accessing as index the TCAM Action to retrieve the actions to perform. By definition, keys of different entries cannot overlap since they access the same table index. Due to a bug, non-overlapping keys were returning error at insertion. This is fixed.

Table 53:

Number	CSP #	Chips		Release Notes For 6.3.1
SDK-47568	638934	`88650_A0`		88650: ARAD uses Soc property `'port_init_speed_sfi'` in order to configure initial fabric links rate. Loading the chip without soc property `port_init_speed_sfi!=0` wasn't functional. Fixed (the fabric links rate will be max rate).
SDK-47573	648718	`88650_A0` `88650_B0` `88650_B1`		Remove ELK interface from the EGQ calendars
SDK-47582	633655	`56334_B0` `56334_A0` `56150_A0`		Fix Enduro, Hurricane2 `bcm_field_data_qualifier_create( )` and `bcm_field_data_qualifier_packet_format_add()` API support.
SDK-47593		`88650_A0` `88650_B0` `88650_B1`		When using Counter processor to count VOQs, all the types of gport mapped to VOQs in the HW should be supported in `bcm_cosq_gport_stat_get()`. The ingress shaping are now also supported.
SDK-47601	650723	All		Fixed reference count for ECMP table.
SDK-47624	650405	`56850_A0`		`bcm_vxlan_stat_detach()` API now detaches both ingress counter and egress counter.
SDK-47626	650791	`88030_A0`		Route autocaching supported for multiple units
SDK-47627	638988	`88650_A0` `88650_B0` `88650_B1`		VLAN translation (`bcm886xx_vlan_translate_mode=1`) : 1. Added an example of settings Ingress vlan editing (IVE) action with TPID transparent. Example demonstrates how to configure IVE so that the TPID is transparent and only vlan-id is replaced. See reference example in `cint_vlan_translation_new_mode.c` main function: `ive_translation_main` 2. Added an example of settings Egress vlan editing (EVE) action with TPID transparent. Example demonstrates how to configure EVE so that the TPID is transparent and only vlan-id is replaced. See reference example in `cint_vlan_translation_new_mode.c` main function: `eve_translation_main`
SDK-47630	649094	`88650_A0` `88650_B0`		VLAN translation (`bcm886xx_vlan_translate_mode=1`) new mode examples: 1. Added an example of settings Ingress Port default Ingress vlan editing (IVE) action. Action invoked when no lookup found in L2 ISEM database. See reference example in `cint_vlan_translation_new_mode.c` main function: `ive_main_port_default_run` 2. Added an example of settings Egress Port default Egress vlan editing (EVE) action. Action invoked when no lookup found in L2 ESEM database. See reference example in `cint_vlan_translation_new_mode.c` main function: `eve_default_translation_main`

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47639		`88650_A0`	MAC-in-MAC: It is not possible for the user to control LIF-IDs of default MIM-L2-LIFs which are allocated in `MIM_INIT`. New SOC properties, `"logical_port_mim_in/out"`, are supported to allow the user to control the default MIM-L2-LIF-IDs.
SDK-47654	650672	`56850_A1 56850_A2`	Support added for DF configuration for IPV6 using `BCM_TUNNEL_INIT_IPV6_SET_DF`
SDK-47661	650813	`88650_A0`	MACT dump: in MACT dump entry 130 was showed twice.
SDK-47664		`88650_A0 88650_B0`	L2CP bcm traps added: For drop or peer actions, create a trap with `bcm_rx_trap_t` bcmRxTrapL2cpPeer or bcmRxTrapL2cpDrop for DROP
SDK-47681		`88750_A0 88650_A0`	88650, 88750: RX LOS App - Waiting for a stable port. RX LOS application API will return when the requested port is stable (i.e. the port status do not requires RX resetting) The API will returned when a port move to a stable state or active stable state: * `rx_los_state_ideal_state` * `rx_los_state_no_signal` * `rx_los_state_no_signal_active` `int rx_los_port_stable(int unit, bcm_port_t port, int timeout_usec, rx_los_state_t *state);` `timeout_usec` defines the max time the API will wait for the port RX LOS state to change to stable. state is the specific stable state (mentioned above), if the port is not monitored by RX LOS application the returned state value will be `rx_los_states_count.`
SDK-47708	631536	`88650_A0 88650_B0 88650_B1`	MAC-in-MAC: add option to create MIM gport with dummy protection, and later update the gport with actual protection. seuqnce example: `examplesdppcint_mim_mp.c: mim_port_with_reserved_protection`
SDK-47712	651282	`56850_A0`	1. API `bcm_ipmc_add()` should have `BCM_IPMC_POST_LOOKUP_RPF_CHECK` flag set 2. API `bcm_ipmc_add()` is called with, `bcm_ipmc_addr_t.l3a_intf` = < `EXPECTED_L3_IIF>` 3. Default action for packets not matching `EXPECTED_L3_IIF` --> 'packet drop and copy to CPU'.
SDK-47719		`56640_A1 56850_A1`	Modid retrieval corrected.
SDK-47747 SDK-29527 SDK-30977	653228	All	Ensure QoS mapping takes effect when `bcm_qos_port_vlan_map_set()` is called

Table 53:

Number	CSP #	Chips		Release Notes For 6.3.1
SDK-47761	653323	`88650_A0`		MIM: Added the support of having on the same port MIM packets and Single-tag P2P services. In previous versions, when port is MIM (i.e. when calling `bcm_port_control_set` bcmPortControlMacInMac) all packets with no I-TPID were discarded. Now, in order to mimic this logic, call `bcm_port_discard_set` with `BCM_PORT_DISCARD_TAG`
SDK-47766	651289	`88650_A0`		MIM: TPID changes were not handled correctly. Validated TPID changes for MIM and EVE
SDK-47776	653504	`56640_B0`	`56643_B0`	removed the constraint for the switch from 40G to 1G
SDK-47784		`88650_A0` `88650_B1`	`88650_B0`	Fixed: Driver initialization fail with SOC property `fc_oob_type=1` due to register size mismatch.
SDK-47792		`56846_A0` `56845_A2` `56842_A0` `56843_B0` `56846_A1`	`56845_B0` `56844_A0` `56840_A0` `56841_A3` `56841_B0`	Added support for `MMU_IPMC_GROUP_TBLs`/ `MMU_IPMC_VLAN_TBL` mems SER correction.
SDK-47796	653773	`88750_A0` `88750_B0` `88650_B1`	`88650_A0` `88650_B0`	Eyescan: Error message was added when the sample time is bigger than time upper bound (default value: 256000).
SDK-47807	653522	`56620_B0`		Added conflicts for PrioPktAndIntNew when PrioIntNew is already added for stage ingress and stage external
SDK-47810		`88650_A0` `88660_A0`	`88650_B0`	In the PPH (base); `FW_HEADER_OFFSET` should point to the start of the PDU rather than start of the Ethernet frame.
SDK-47813	654097	`88030_A0`		fix assert in taps driver insert route error handling code for bcm88030 devic
SDK-47817	654102	`88030_A0`		fix taps driver command pool leak issue for bcm88030 device
SDK-47832	654476	`88650_B1`		In Field Processor, the qualifiers bcmFieldQualifyOutPort and bcmFieldQualifyOutPorts can be used to preselect according to outgoing port(s). A bug was inserted where the internal configuration of these qualifiers for preselectors was failing. Thsi bug is fixed.
SDK-47833		All		The Linux KNET uk-proxy support is now turned off (compiled out) by default. For best performance, the recommended user/kernel communication path for KNET is native IOCTL, which requires that an associated device file is created: mknod /dev/linux-bcm-knet c 122 0
SDK-47834	643585	`88650_A0`		Added the ability to have IP tunnels and VXLAN on the same device.
SDK-47837		All		`VIRTUAL_PORT_ENf` is been validated on all supported silicons
SDK-47843		All		Added information about new port control in document.
SDK-47852	651897	`56850_A0` `56850_A2`	`56850_A1`	only 6.2.7 release have this issue.
SDK-47856	653182	`56850_A0` `56850_A2`	`56850_A1`	Functionality for IFP NAT action 'bcmFieldActionNatEgressOverride' is added. Warmboot support for the actions bcmFieldActionNatCancel, bcmFieldActionNat and bcmFieldActionNatEgressOverride are also added.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47881	654427	`56334_B0 56334_A0 56132_B0 56132_A0`	The `_egr_qos_id2hw_idx()` converts a logical qos Id to the hardware table index. Currently , the hardware index for `EGR_MPLS_EXP_PRI_MAPPING` profiles (or with flags `BCM_TR_MPLS_EXP_MAP_TABLE_TYPE_EGRESS_L2)` is not returned, So in this release the routine `_egr_qos_id2hw_idx()` is fixed to return the index for the `EGR_MPLS_EXP_PRI_MAPPING` profiles.
SDK-47896	650788	All	Fixed `bcm_xgs3_tunnel_initiator_set()` when a mix of IPV4 and IPV6 entries are added.
SDK-47902		`88650_A0 88650ACP_A0 88650_B0`	Advanced VLAN edit mode was introduced under the new SOC property `bcm886xx_vlan_translate_mode,` with new dedicated BCM APIs. The new mode is aimed to enable user enhanced utilization and flexibility of the HW VLAN edit capabilities. In the Advanced mode, all the entries in the HW VLAN edit action table are available for user configuration as well as freedom to associate an action with any combination of up to 16 user defined tag formats that are TPID based, and up to 8 user defined VLAN edit profiles. For CINT usage examples please refer to `cint_vlan_translation_new_mode.c`
SDK-47903		`88650_A0 88650_B0 88650_B1`	Advanced VLAN edit mode was introduced under the new SOC property `bcm886xx_vlan_translate_mode,` with new dedicated BCM APIs. The new mode is aimed to enable user enhanced utilization and flexibility of the HW VLAN edit capabilities. In the Advanced mode, all the entries in the HW VLAN edit action table are available for user configuration as well as freedom to associate an action with any combination of up to 16 user defined tag formats that are TPID based, and up to 8 user defined VLAN edit profiles. For CINT usage examples please refer to `cint_vlan_translation_new_mode.c`
SDK-47913	660352	`56640_A1 56850_A1`	Updated with the correct sequence of init during Warm boot.
SDK-47923	644598	`88030_A0`	fix taps driver memory leak issue for bcm88030 device
SDK-47947	660194	`88650_A0`	Support of down-MEP/MIP trapping of CFM frames inside a MiM service. To enable MIM configure soc property `cusom_feature_oam_mim` = 1.
SDK-47965		`88650_A0`	When dumping debug signals, all signals were shown as zeros
SDK-47966		`88650_A0 88650_B0 88650_B1`	VLAN: Fixed an error that happened when creating new vlan ports - their vsi was not saved in the software database. Therefore, when deleting them, their egress ac port vsi info was not cleared. The vsi is now saved, and cleaned properly.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-47971	652191	`88650_A0 88650_B0 88650_B1`	Fix incorrect interpretation of gport handles by `bcm_cosq_gport_sched_set(),` when used to configure ingress scheduler weights. When configuring ingress shaper weights, the matching between the GPORT types to actual field in the device was incorrect. Note: this change will cause a different behavior under existing application!!! The weight effected by each gport type changed.
SDK-47984	638594	`56640_A0`	Prevent Seg Fault(Div by 0) when calculating the default burst size.
SDK-47987		`88650_A0`	In Field Processor, the BCM TCAM entry IDs were spanning from 0 to 64K. The Direct Extraction entry Ids were over 64K. Due to the implementation of ACLs over external TCAM (KBP), the number of TCAM entry IDs is increased to 1M. The Direct Extraction entry Ids start over 1M. A modification in an application which is managing the entry id (when creating entries with specific IDs) may be needed.
SDK-47994		`88650_A0`	The Ethernet policer is a mechanism that filters Ethernet packets based on ports and Ethernet type. Ethernet policers allow a certain configured rate of packets to pass. There are two modes for the rate - bit mode (where the rate is specified in kbit/s) and packet mode (where the rate is specified in packets per second).
			Using the `bcm_rate_bandwidth_set` function, the rate can be set. This API usually treats the rate in kbit/s, but if the `BCM_RATE_PACKET_MODE` flag is specified, then the rate is in packets per second.
			Due to an internal bug, in packet mode, the configured rate used for a meter was actually double of the expected rate. This is fixed.
			To work around this problem without the fix, specify half the rate for the Ethernet policer to get the expected rate.
SDK-47996	648261	`88030_A0`	The model now supports arbitrary user defined TMU tables.
SDK-47999	660575	`88030_A0`	Added counter support in the simulator.
SDK-48000	660580	`88030_A0`	If PPE and/or PED data debugging verbosity is enabled, the MDE now shows: PPE header dump PED in header dump PED out (reassembled) header dump.
SDK-48001	660600	`88030_A0`	Skipped instructions (both for software simulator and hardware envirobment) are marked by colour and special marker (in style which is similar to breakpoints markers). See also JIRAs 44235 and 40773.
SDK-48008	661383	`56850_A0`	Fix dynamic load balancing on BCM5685x.
SDK-48012	661373	`54682E_A1 54685`	Removed the extraneous reset after running cable diags in 65nm GPHY devices. Reset and restore the port settings if link was broken in 65nm GPHY devices while running cable diags.
SDK-48027		`88650_B1`	Programmable editor: On some cases stacking program was not consistent and resolved in corrupt functionality. This issue has been fixed.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-48066	662330	56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	`bcm_vlan_port_default_action_set ()` API should now set the user supplied inner vlan priority to the BCM56640 type switch devices
SDK-48069	661399	88650_B1	Background: `bcm_oam_endpoint_action_set` api allows changing the trap destination of OAM packets. Bug: If `action_set` is called twice with the same destination, the trap code will be deleted and no more packets will be trapped to this destination.
SDK-48080		56640_A0 56641_A0 56642_A0 56643_A0 56644_A0 56645_A0 56648_A0 56640_A1 56643_A1 56644_A1 56640_B0 56644_B0 56643_B0 56648_B0 56649_B0 56649_A0	Fixed packet corruption issues by adjusting the dv dma buffer size.
SDK-48086	604702	All	Add lock to synchronize `interrupt_disconnect` with interrupt handler in Linux user mode.
SDK-48117	662857	88030_A0	To enable locking on the TMU for multithreaded applications add the following to Make.local: CFGFLAGS += BCM_SOC_TMU_USE_LOCKS
SDK-48122	662582	88030_A0	add 2133 DDR support for bcm88030 device
SDK-48123	662902	56440_A0	User can set the exp and ttl values in the MPLS outer label by setting the `egress_label.exp` and `egress_label.ttl` values in `bcm_bfd_endpoint_info_t`.
SDK-48127	401812	All	Assign POSIX thread names in Linux user mode if supported by the operating system.
SDK-48129	660820	56640_A1	Endpoint index was not getting populated correctly in OAM callbacks. Added mapping for Remote endpoint H/w index to logical index.
SDK-48145	663550	All	Add API details in document.
SDK-48147	663680	56850_A1	(SDK-46806) tracks support for Oversub Flex port.
SDK-48152	634262	88650_B1	MAC-in-MAC: Tunnel termination programs were loaded even if MIM was not supported in SOC properties. Fix includes loading of MIM related TT programs according to SOC property `bcm886xx_auxiliary_table_mode` value (indicated MIM support).

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-48155		`88650_A0` `88650_B0` `88650_B1`	Predefined credit resolution profiles were not configured properly, and this was fixed. Some of the user defined profiles that contain thresholds with absolute values above 28*1024, may also have been misconfigured. This bug was fixed. Some of the thresholds of the `BCM_COSQ_DELAY_TOLERANCE_200G_LOW_DELAY` profile were changed to be in the range that the hardware supports. These profiles changed to work with the correct credit resolution: `BCM_COSQ_DELAY_TOLERANCE_1G:` Delay tolerance adjusted for 1Gb ports `BCM_COSQ_DELAY_TOLERANCE_10G_LOW_DELAY:` Delay tolerance adjusted for low delay 10Gb ports `BCM_COSQ_DELAY_TOLERANCE_40G_LOW_DELAY:` Delay tolerance adjusted for low delay 40Gb ports `BCM_COSQ_DELAY_TOLERANCE_100G_SLOW_ENABLED:` Delay tolerance adjusted for slow enabled 100Gb ports `BCM_COSQ_DELAY_TOLERANCE_200G_SLOW_ENABLED:` Delay tolerance adjusted for slow enabled 200Gb ports
SDK-48180	663907	`88030_A0`	Support 1.1Ghz LRP clock for bcm88030 device
SDK-48182	650104	All	All modes now default to setting `HDR_XLATE_T_ENABLE` to TRUE on BCM8823X devices
SDK-48185	630458	`56840_A0`	Fixed Trill stat clear issue
SDK-48197	663864	`88030_A0`	Removed #ifdef that was only including some code when compiled with QE2000 support.
SDK-48237		`88650_A0`	When changing learning mode from `BCM_L2_EGRESS_INDEPENDENT` to `BCM_L2_INGRESS_CENT,` driver had transitioned vi an intermediate state that enabled learning incorrect MAC addresses.
SDK-48252	665219	All	Update GPL modules license to Broadcom dual GPL/Proprietary license.
SDK-48259	640482	`88650_A0` `88650_B0` `88650_B1`	VPLS: When packet is PWE terminated and next header is Ethernet. In case inner DA ethernet header is 00:00:07:xx:xx:xx then packet won't be terminated by mistake. Fix include changing MPLS ELI (Reserved label 7) program selection to be more restrictive
SDK-48261	654482	`88650_A0` `88650_B0` `88650_B1`	The longest prefix match has the highest priority for ip subnet VLAN assignment.
SDK-48262	665967	`56150_A0`	Implemented SMBUS Block Read / Write Functions.
SDK-48268	666152	`56850_A0` `56850_A1`	Fix mirrored packets destined for remote MTP problem on BCM5685x
SDK-48286	665552	`56850_A0`	Added `iif_profile` update functionality in `_bcm_l3_iif_profile_add()` Before new `iif_profile` add, code (`_bcm_l3_iif_profile_entry_update())` will search for existing iif profile and if `iif_profile` exist, entry will be updated otherwise new `iif_profile` entry will be added
SDK-48307		`84848_A0`	Enabled the `HW_FR_EMI_MODE` and `EMI_MODE` after running pair swaps at initialization in BCM8483X/BCM8484X.

Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-48319		88650_A0	VPLS QOS: Provided a full example of VPLS QOS application. CINT set mapping between PCP <-> EXP. On the case of PWE termination, set EXP to PCP. On the case of PWE encapsulation , set PCP to EXP. Please find the example in: `src/examples/dpp/cint_qos_vpls.c`
SDK-48326	616118	88650_A0 88650_B0 88650_B1	MACT traverse: calling SOC diag API `soc_ppd_frwrd_mact_traverse` returned incorrect number of matched entries.
SDK-48347		All	RPC client-only applications not calling `soc_cm_init()` would segfault in `bcm_attach()` with `BCM_CONTROL_API_TRACKING` enabled.
SDK-48393	665225	88650_A0	For the hardware flush is very-very fast, so the current code just poll the `REPLY_FIFO_ENTRY_COUNT` until it is full and then stop the flush and read the entry from the REPLY FIFO, but this code only will be run on `block_range->entries_to_act ==` 130, so change the code to set the `entries_to_act` = 130.
SDK-48395	664224	88650_A0 88650_B0 88650_B1	For the following types: bcmCosqGportTypeGlobalFmqRoot, bcmCosqGportTypeGlobalFmqGuaranteed and bcmCosqGportTypeGlobalFmqBestEffortAggregate, the bandwidth resolution (using `bcm_cosq_gport_bandwidth_set` API) was `8*credit_size`. The API fixed and the resolution is now `1*credit_size`.
SDK-48490		88650_A0	MPLS ELI: Introduced new soc property to enable / disable ELI VTT programs. In case user does not use ELI (Entropy Label Indicator) then he can disable the feature by setting SOC property: `mpls_entropy_label_indicator_enable`.
SDK-48532	669895	56850_A0	Mode Mask updated for IPV6 entries
SDK-48542		88650_A0	`VLAN_PORT:` When deleting remote `VLAN_PORT` and then creating it again an error might happen. Fixed issue by clearing correctly a remote `VLAN_PORT` when calling `bcm_vlan_port_destroy.`
SDK-48553	670263	56850_A0 56850_A1 56850_A2	Resolve L2 address notifications do not contain VPN ID in the VLAN field for addresses, learned on VXLAN ports
SDK-48556	651240	88650_A0	VLAN: Fixed a case where `bcm_vlan_gport_get` received port x VLAN that mapped to P2P service. In order to retrieve VLAN only information call `bcm_vlan_gport_info_get` with flags = 0 and vlan. In order to retrieve VSI only information call `bcm_vlan_gport_info_get` with flags = `BCM_VLAN_GPORT_ADD_SERVICE` and vsi.
SDK-48557	669206	88650_B1	VLAN translation `(bcm886xx_vlan_translate_mode=1)` : New mode allows to set different VLAN editing for priority tagged packets using API `bcm_port_tpid_class_set().` See reference example in `cint_vlan_translation_new_mode.c`

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Table 53:

Number	CSP #	Chips	Release Notes For 6.3.1
SDK-48641	669208	`88650_A0`	VLAN translation (`bcm886xx_vlan_translate_mode=1`) : Added a Cint example of configuration that sets different priority packets handling on different in-ports. Configuration is done in LLVP using the API `bcm_port_tpid_class_set()`. See reference example in `cint_vlan_translation_new_mode.c` main function: `ive_priority_tags_main()`
SDK-48714		All	Added Coverity killpath annotation to `_sal_assert()`
SDK-48791	673145	`56846_A0` `56640_A0` `56850_A0`	TR3/TD/TD2 - Packet based WRED counting is not supported. Only Byte based discard supported. Use of flag `BCM_COSQ_DISCARD_BYTES` is required for above devices
SDK-48892	652937	`56850_A0`	Fixed HSP port attach for Y pipe based ports.
SDK-49630		`56850_A0` `56850_A1` `56850_A2`	The field actions contains the list of valid and invalid actions (Invalid actions are either removed actions or modified actions). Modified the code to scan the entire list instead of scanning till the first invalid action in the list. This allows the SDK to retain the valid actions when unwanted action is removed
SDK-49797	686890	`56850_A0` `56850_A1` `56850_A2`	TD2. Fixed BST crash when setting Device level threshold. In previous release `bcm_cosq_bst_profile_set ()` could result in an API crash.
SDK-49878	688698	`88030_A0`	Queue allocation can be driven from the config file. Queue parameters can also be set from the config file
SDK-50118	690082	`56850_A1`	BST thread exit code added.
SDK-53793	739917	`88030_A0`	Avoid reordering by source queue

Section 24: Resolved Issues for 6.3.0

The following issues are resolved in version 6.3.0 of the SDK.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-25090		All	Updated `bcm_field_entry_remove()` API to check entry installed status before performing remove from hardware operation.
SDK-28441		All	Updated field grog documentation for `bcm_field_group_create()` API, priority input parameter restrictions.
SDK-30761		`88230_B0 88230_A0`	FIC mode no longer generates bitmap entries for requeue ports.
SDK-32674		`56334_B0`	Fixed the reference count of VLAN range profiles when creating, updating, or deleting VLAN range translation on a trunk group.
SDK-32951		`56634_A0 56624_B0`	Fixed ESM hardware counter mode to software STAT type bitmap translation routines for Triumph and Triumph2 devices.
SDK-34493	424317	All	Resolved removing FP mirror actions mirrors unwanted packets to modport(0,0), i.e CPU in case of single chip unit, for a short while issue.
SDK-36480		`88650_A0 88640_A0`	Added support for System Red in BCM SDK. For more details please reference System RED section in UM.
SDK-37680		All	The default value of the configuration property `trunk_extend` has been changed from 0 to 1, since the devices that do not support extended trunk mode are no longer supported in the SDK.
SDK-38133		All	When adding more than 256 FQ scheduling elements, the driver will start using already allocated FQs. Fixed by changing the order of execution so the `pool_base` and `pool_offset` will be calculated correctly. After this change, using more than 256 FQs will not use already allocated FQs.
SDK-38185		All	`bcm_field_data_packet_format_t_init()` API initializes input parameter structure in a backwards-compatible manner.
SDK-38826	442465	`88025_A0`	Added to 5.0.0-exa branch
SDK-38960		All	`topo_board_program()` was calling `_topo_stk_ports_update()` twice.
SDK-40250		`88750_A0`	Added new diagnostics: * Bcm shell cmd 'diag link clear' * Diagnostics for fifos thresholds
SDK-40304		`56845_B0 56725_A0` `56720_A0 56700_A0` `56685_B0 56680_A1` `56639_A0 56538_B0` `56841_A3 56841_B0` `56526_B0`	Fixed `bcm_trunk_failover_get` API to return correct Higig trunk failover ports.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-40893		`88650_A0 88640_A0`	88650: Mac-in-Mac packets that arrive at egress with B-tag, are not recognized as tagged packets. Fixed the miss-configuration of Mac-in-Mac TPID profile, to allow Mac-in-Mac packets with B-tag, to be recognized as tagged packets in egress.
SDK-41286		`88650_A0`	The packet trap print has been adjusted to routing for ARAD. The VRF field was added and the fields `in_ac` & rif are assigned depending only when relevant.
SDK-41307		`88650_A0`	Add new SOC property for padding runt packets. The property is per port, it's avaliable for NIF ports (except ILKN). Property name: `packet_padding_size` Values range:0-127 Default:0 - means disable padding
SDK-41581		All	Removed unused STATIC routines from the ~bcm/field.c file: 1. `_field_qual_stage_name()` 2. `_field_qual_IpType_name()`
SDK-41865		`88650_A0`	Stop counter processor on TR 6. Note: the counter processor should be manually activated after running TR 6.
SDK-41870		`88640_A0`	In PetraB, when configuring the port header type to be `TDM_RAW,` the user must set the static destination of each source TM-Port. The encoding translation of this destination was not correct.
SDK-41989		`88650_A0`	L2GRE IP: IP tunnel termination can be done by one lookup of <SIP,DIP> or two separated lookups of <DIP>, <SIP> this can be control by soc-property `bcm886xx_ip4_tunnel_termination_mode.`
SDK-42018	563672	`88640_A0`	"phy info" command is not supported by Petra-B. Fix the current command to return failure in case of Petra-B.
SDK-42124		`88650_A0`	Background: RX packets parsing would fail if rx `port_header_type_out` is not CPU. Fix: Port is now checked for having CPU header type. Otherwise parsing is skipped.
SDK-42159		`56440_A0 56440_A1`	Add TCAM SER protection support for KT. Clear TCAM mems at init time.
SDK-42685		`88650_A0`	88650: traffic fails when changing port configuration dynamically from 100G to 10G.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-42777		`88640_A0`	Implement outbound mirror for Petra-B based on port or port-vlan. Note: outbound mirror in Petra-B allocate only one mirror profile per port. The Petra-B mirror can support two mirror modes. Use `bcm_mirror_mode_set/ get` to set mirror mode. If the mode equals to 0, then device supports only Inbound mirroring using `bcm_mirror_port_set` API. else, device support both inbound and outbound mirroring using `bcm_mirror_destination_create` API. Default mode was changed and it is set to 1 `(bcm_mirror_destination_create)`.
			Basic sequence to support mirror in Petra-B will be as below: 1. `bcm_mirror_destination_create` to create the inbound or outbound mirror profile. 2. `bcm_mirror_port_vlan_destination_a dd` or `bcm_mirror_port_destination_add` to attach the mirror profile to inbound mirror port or outbound mirror port. 3. `bcm_mirror_port_vlan_destination_d estroy` or `bcm_mirror_port_destination_destro y` to dis-attach the mirror profile to inbound mirror port or outbound mirror port.
SDK-42855	575758	`88640_A0`	Minor fix, no functional change. Fixed tables database issue with `pcb_link_tbl` attributes being overwritten. Both `irr.rsq_fifo_tbl` and `pcb_link_tbl` databases are configured correctly. These tables are not accessed by the driver, and therefore the bug did not have any functional impact
SDK-42866		`56340_A0`	Using misc init from TR3 thereby enabling memscan.
SDK-42907		`88750_A0`	Added missing counters in DCM.
SDK-42933		`88650_A0`	A new TM application allows TM packets to go through two rounds (via recycle port), where the packet format consists in a double-ITMH-Tag. This application requires a specific microcode at egress editor, and is set per port at init via `tm_port_otmh_outlif_ext_mode_<port -id>=DOUBLE_TAG`
SDK-43023	577999	`88650_A0`	The IVE size in the FHEI for IVEC-IDs that are associated with IVE Profiles 0 & 1 was changed to 0 & 3B respectively (instead of 5B).
SDK-43024	581020	All	Add support for `bcm_port_queues_count_get` API on BCM5684x.
SDK-43139	575201	`88640_A0`	PetraB port names were changed to "prefix, local port num" (now port names are xe1, xe2 .. and not xe0, xe1..)
SDK-43175	580345	`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0`	`bcm_mpls_port_stat_counter_get()` API instead of `bcm_mpls_label_stat_counter_get()` API should be used to retrieve counters associated with the MPLS gport.
SDK-43299	584719	`56334_A0`	Remove unnecessary checking when setting `bcm_rate_mcast_set()`.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-43300		`88650_A0` `88650_B0` `88650_B1`	88650: turn off WC4 in case not in use for power consumption efficiency (previously: was always on in case of ILKN0 with more than 12 lanes).
SDK-43354	567520	`88650_A0`	Fixed info get for COSQ VOQs that were created using `TM_FLOW_ID` flag.
SDK-43404		`88650_A0`	Added support for APIs: `bcm_port_match_add/delete/set/replace` in order to have multiple match criteria. Sequence is to create first vlan port by calling `bcm_vlan_port_create` then call `bcm_port_match_*` APIs with Ingress only or egress only flags and specify the additional match lookups required for the same Logical interface. Supported APIs: `bcm_port_match_add/delete/replace/set.` Limitation: User can't remove / replace the original match that was specified by `bcm_vlan_port_create.` In order to remove it call `bcm_vlan_port_destroy.` Note: Logical interface with multiple match criteria learn information should be disabled.
SDK-43500	587499	`56440_A0` `56445_A0` `56440_A1` `56445_A1` `56444_A1` `56445_B0` `56440_B0`	Resolving this JIRA as the customer case is resolved
SDK-43522	589162	`88230_C0`	Fixed bug in `parity_enable` support.
SDK-43572	583285	`88650_A0`	A new cosq control type bcmCosqControlMulticastPriorityIngressScheduling was added to map ITMH->TC to HP-MC and LP-MC. The new control will be called from `bcm_cosq_control_set` API. Where cosq is the traffic class to be mapped is the traffic class to be mapped, a and arg is the priority the traffic class is mapped to: `BCM_COSQ_HIGH_PRIORITY` or `BCM_COSQ_LOW_PRIORITY.` `bcm_petra_cosq_control_set(int` unit, `bcm_gport_t` port, `bcm_cos_queue_t` cosq, `bcm_cosq_control_t` type, `int` arg) Where: Port=0 Cosq=TC Type=bcmCosqControlMulticastPriorityIngressScheduling Arg=`BCM_COSQ_HIGH_PRIORITY / BCM_COSQ_LOW_PRIORITY`
SDK-43574		`88650_A0` `88650_B0` `88650_B1`	BCM diag commands: "diag pp `Ing_Vlan_Edit_info`" and "diag pp `PKT_associated_TM_info`" where updated to Arad settings. For the latter command, new TM info fields were added: `ETH_METER_PTR, INGRESS_SHAPING_DEST, ETH_ENCAPSULATION, ETH_DA_TYPE, ST_VSQ, LAG_LB_KEY & IGNORE_CP.`

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-43589	589004	`88650_A0`	Added support for multicast id offset, Please use SOC property `multicast_id_offset` as such: `multicast_id_offset_<port-id>.BCM88650=<offset>` For example `multicast_id_offset_2.BCM88650=10000` Or `multicast_id_offset_rcy.BCM88650=10000` Etc... So, if a multicast packet will be received through <port-id> its multicast-id will be changed to <offset+multicast-id> This fix is relevant for Arad only.
SDK-43599		All	gcc 4.7.2 compilation support.
SDK-43604		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43605		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43606		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43607		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43608		`88650_A0`	BFD API enhancements: 1) Flag in `endpoint_info` `BCM_BFD_ENDPOINT_IN_HW,` to indicate whether the endpoint is handled in HW or not. 2) Timein/ Timeout events: bcmBDFEventEndpointRemote, bcmBDFEventEndpointRemoteUp flags. 3) `bcm_bfd_endpoint_t.remote_gport` field - remote destination of BFD packets.
SDK-43612		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43613		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43614		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43616		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43617		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43618		All	fix gcc 4.7.1 warnings(unused-but-set-variable).
SDK-43619	589674	`88650_A0`	88650: fixed "show patches" bcm shell command (was missing on 6.2.1-hotfix1)
SDK-43623 SDK-44728	586564	`56850_A0`	LED support is added for TD2. 'led init' in sdk will work as long as the physical - logical port mapping is sorted. random mapping between physical and logical port will require `CMIC_REMAP` registers to be programmed through a soc script.
SDK-43631	590287	`88650_A0`	88650: BCM Diagnostics Shell command "diag cosq `non_empty_queues"` doesn't work for FMQs, In case of non-empty FMQs with SOC property `voq_mapping_mode=DIRECT,` the diagnostics reports errors for FMQs, but still prints correct information for VoQs.
SDK-43706	591471	`56850_A0` `56855_A0` `56854_B0` `56854_A0` `56850_A1`	Fixed incorrect routing behavior due to flag bit overloading.
SDK-43713	589448	`88650_A0`	The OTMH formats were not correct in case of IF_MC OTMH-CUD-Extension mode: in this case, the extension is from now on added only for Multicast packets, according to the latest CUD known on the egress pipe (similarly to the ALWAYS mode)
SDK-43716	591808	`56440_A0`	The stat value for GT16383 and GR 16383 can be read from API `bcm_stat_ge_get`
SDK-43740	592383	`88650_A0`	DNX: Fixed help text for "dump" command

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-43770		`88650_A0`	Added CGM Counters to BCM shell diagnostics diag counters graphical diag counters `packet_flow`
SDK-43807		`88650_A0`	BCM88650: "diag retransmit" command added. when called, presents relevant retransmit parameters for ILKN0 and ILKN1.
SDK-43837		`88650_B0`	Vxlan: in encapsulated packet IP protocol was set to GRE instead of UDP
SDK-43872		`88650_A0`	The BCM Meter Action (bcmFieldActionPolicerLevel*) was changing both Meter-Pointer0/1 and the DP-Meter-Command. A double HW action is impossible when using the TM & FP functionality. Besides, the DP-Meter-Command has a dedicated BCM action (bcmFieldActionUsePolicerResult), and the default value (0) is the value changing both at ingress and egress. Thus the DP-Meter-Command HW action is not needed and removed from the meter actions.
SDK-43883		`88650_A0` `88650_B0` `88650_B1`	Added support for EVB application. Please see more information in the CINT example `src/examples/dpp/cint_evb_example.c`
SDK-43921		`88650_B0`	In the Counter processor, in Arad-B0, different packet statistics can be set with 1 counter per Counter processor line (i.e. per Counter-ID): FWD, DROP, and ALL. In case the user sets one of them, but requires the counters of another (e.g., he sets DROP and requires the FWD counters), the Driver should fail instead of returning the counter of DROP.
SDK-43949		`88650_A0`	Support a new feature - Ring Protection Fast Flush. CINT example - `cint_l2_fast_flush.c`
SDK-43956	595868	All	WC B0: KR2(brcm) link does not resolve in SDK branches after `SDK_6_2_0_EA2`
SDK-43957		`88650_A0` `88650_B0`	The egress does not terminate large headers correctly. Thus, a walk-around (WA) is built to terminate headers at ingress FP stage when the Forwarding-Header is too far (more than 32 Bytes). The WA removes up to the 14 Bytes after the Ethernet header location.
SDK-43977	595227	`56850_A0`	Fixed inaccuracy in shaper programming on TD2
SDK-43986		`56640_A0` `56640_A1` `56640_B0`	Added diag shell support for field action set. Supported options are Add/Delete/Clear/Show.
SDK-43992	581119	All	Fixed.
SDK-43993	583971	`88030_A0`	TPID getting/setting now supported
SDK-43994	560768	`88030_A0`	OCM table access methods will now work correctly for entries that are not 32bit aligned.
SDK-43996		`56640_A0` `56641_A0` `56642_A0` `56643_A0` `56644_A0` `56645_A0` `56648_A0` `56640_A1` `56643_A1` `56644_A1` `56640_B0` `56644_B0` `56643_B0` `56648_B0` `56649_B0` `56649_A0`	In RCPU scenario, to redirect incoming packet from CMIC to a specific port in the same unit, we have to configure prepare DCB and that DCB information should be configured in `CMIC_PKT_RMHx` CMIC registers. On earlier chips, to redirect a packet (SOBMH) from CMIC to a specific port, configuring that port information in DCB would be sufficient, but on latest devices where we can configure cosq's flexibly, we have to specify the cosq number in DCB. Otherwise all redirected packets will go to 0th cosq. This patch configures the cosq number of the egress port in dcb, so that CMIC will inject SOBMH packets to that cosq.
SDK-44001	571844	`88650_A0`	88650, 88750: Add show temp-PVT command to help message

Table 54:

Number	CSP #	Chips		Release Notes For 6.3.0
SDK-44004		56850_A0	56850_A1	Failover feature on front panel lag is now enabled.
		56850_A2		
SDK-44010	597002	All		fixed the bug in the port enable function for QSGMII core
SDK-44016		88650_A0	88650_B0	Outbound mirror functionality is now working correctly.
		88650_B1		
SDK-44021		88650_A0	88640_A0	VSQ discard set and color size set should not take into account VSQ Global - added type checking
		88650_B0	88650_B1	
SDK-44022		88650_A0	88650_B0	Set VSQs rate class default values for Tail Drop to be maximum as defined by hardware.
		88650_B1		
SDK-44027	594874	88650_A0		In case ARAD port is in XGS-MAC-EXT mode, PP port is derived according to FRC.Source-Port[7:0]. It is user responsible to configure system ports in ARAD to be as follows: [XGS.Modid][ARAD.LocalPort]. Example: In case ARAD local port 41 is faced to XGS Modid 1 then ARAD system port is 297.
SDK-44036		88650_A0		The ITMH Destination has different modes. The modes where the Destination Extensions are used, are setting the Destination incorrectly - mainly the Out-LIF mode and the Ingress Shaping mode.
SDK-44038	597121	88650_A0	88650_B0	`bcm_mpls_tunnel_switch_create()` with the `BCM_MPLS_SWITCH_ACTION_POP` action now returns the `tunnel_id` created.
		88650_B1		In addition, it can be called with `tunnel_id` != 0 and flags = 0x02000000 (temporary, a flag `BCM_MPLS_SWITCH_REPLACE` will be added to API) to update existing switch.
SDK-44045		88650_A0		The Counter Processor uses the DMA FIFO mechanism to collect the counters from HW. In HW, the counters of the Counter Processors are buffered in a FIFO with approx. 60 entries. This FIFO is read repeatedly by the FIFO DMA and the results are saved in a buffer. The size of this buffer was 1K, and is increased now to its maximum, 16K. Besides, the timers are changed in BCM level (SW timers of CPU access to DMA FIFO buffer that can increase the CPU usage) to minimize the CPU usage from ~50 ms to ~0.5 sec. These timers are dynamic and their values are adapted according to the load of the DMA FIFO.
SDK-44047		88650_B0	88650_B1	Multicast Overlay: Added support for overlay IPMC Recycle port use: bcmPortControlIPTerminationOverlayRecycle
SDK-44070		All		Removed non-ASCII characters from register description.
SDK-44074		56850_A0		Code reorganized to handle mem clear issues in simulations.
SDK-44078		88650_A0	88650_B0	DNX: Packet that is trapped to CPU can be parsed either in non-interrupt context (default), or in interrupt-context (using compilation flag `BCM_ARAD_PARSE_PACKET_IN_INTERRUPT_CONTEXT`). In the second case the device is not accessed and fields `src_port src_mod` will be set to 0.
		88650_B1		
SDK-44086		88650_A0		In Counter Processor, one of the statistics was documented as: - `FWD_COLOR:` forward green, forward not green counters Actually, the HW supports the following mode, which replaces `FWD_COLOR: - SIMPLE_COLOR:` green, not green counters
SDK-44105		All		Removed -Wp per-processor option from Kernel flags as options are not passed.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44118		`88750_A0` `88650_A0`	API `bcm_stk_module_enable` has a parameter where it can disable/enable fabric connectivity. The API was implemented that traffic enable sequence was run, without referring to enable parameter. The issue is fixed.
SDK-44123	598867	`88650_A0` `88650_B0` `88650_B1`	TDM optimize : Maximum destination ports in FTMH for TDM traffic is fixed
SDK-44170	597142	`56850_A1` `56850_A0`	Support for UDF qualifiers for VCAP/VFP stage.
SDK-44171		`88650_A0`	In Petra-compatible header mode, the program parsing packets arriving at ingress with an FTMH header (e.g. for stacking, or after recycling / outbound mirroring) was not implemented and is implemented now.
SDK-44180		`88650_A0`	In Field Processor, up to 32 simple action macros (called FESes) can be used per PMF-Program. In general, the user tries to allocate the first 16 actions to the 2nd FES group: FES 16-31. Once this FES group is full, the Driver tries to allocate in the 1st FES group: 0-15. In case there is no Direct Extraction Database, and there is a less important Database in the 2nd FES group, the Driver moves this FES to the 1st FES group and allocates the new FES at its place. A bug was not considering the FES-group-index correctly.
SDK-44191		All	TC 2 TC mapping for 8 priorities mode, did not map traffic classes 3-7 properly. TC 2 TC mapping 8 priorities mode did not consider global offset of flow2voq mapping, hence - when called the gport value should have been minus the offset, after the fix use the gport value should be the value retrieved by `BCM_COSQ_GPORT_UCAST_QUEUE_GROUP` as usual.
SDK-44194		`88650_A0`	The LAG ranges of each port are defined in the HW table EGQ.PPCT which is accessed according to the Queue-Pair. This table was accessed only according to the Base-Queue-Pair of each port, and not according to all the port Queue-Pairs. Fixed now EGQ.PPCT init for all Queue-Pairs.
SDK-44205	595775	`88750_A0`	`bcm_stk_modid_set` activated reachability messages for each link. This operation took 128 readwrite operations and 128 sleep(20ms). API performance improved: Reduced to one readwrite to register operation and one sleep for all 128 links.
SDK-44212		`88650_A0`	`bcm_port_force_forward_get` returned and error for multicast id as GPORT
SDK-44216		`88650_B0`	Register access optimization for ARAD (redundant verification was removed). Speeds up Negev initialization by 10%.
SDK-44228	597091	`56334_B0`	Fix erroneous counter status in `bcm_field_group_status_get` API.
SDK-44233		`56840_A0` `56634_A0` `56440_A0` `56850_A0` `56640_B0`	Start automatic TCAM memscan only if parity is enabled.
SDK-44238	598928	`88650_A0`	Fixed `bcm_cosq_port_mapping_set` for system ports, Please use `BCM_GPORT_SYSTEM_PORT_ID_GET` to get a handle to system ports
SDK-44239		`88640_A0`	hub/spoke orientation setting for out-AC using `ppd_eg_filter_split_horizon_out_ac_orientation_set` failed.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44246		`88650_A0`	In Field Processor, data qualifiers allow the user to extrapolate bits either from the packet headers or from common qualifiers. In case of packet headers, the user can control the number of bits, and the location which is composed of the base-header and how many bits to jump. In 88650, the jump can be done in both directions (i.e. the offset can be positive or negative): inside the base-header or from the previous header. For example, extracting EtherType without considering the number of VLAN tags is done by taking the base-header as Header-after-Ethernet, and jumping 2 bytes backward. The implementation of the negative offset (`BCM_FIELD_DATA_QUALIFIER_OFFSET_N EGATIVE` flag) was not done
SDK-44270	599851	`88650_A0`	Statistics counter flag: all fabric counters thread priority flags were updated to High. This means that all fabric counters are accumulated by the counters thread. This change makes the property `soc_counter_control_level` not relevant for fabric ports.
SDK-44273	600308	`56640_A0` `56640_A1` `56640_B0`	Fix L2 mem locks w.r.t freeze and thaw.
SDK-44284		`88650_A0`	Fixed the usage of partially uninitialized buffers.
SDK-44299		`56540_A0` `56340_A0` `56640_A1` `56643_A1` `56640_B0` `56643_B0` `56648_B0`	Add per unit global variable instances for port and flex config.
SDK-44321		`88650_A0`	Both ingress & egress Field Processors can match on IpType, which corresponds to a parsed EtherType. For MPLS, at egress the parsing of bcmFieldIpTypeMplsUnicast was not correct. Besides, bcmFieldIpTypeMplsMulticast was added both at ingress and egress.
SDK-44324		`88650_A0`	In the Field Processor & ITMH (aka PMF-Extension-Headers) application, Field groups are preselected with particular preselectors, when Forwarding-Type = bcmFieldForwardingTypeTrafficManagement. The release of these preselectors was not correct. Thus, when using the same preselector-id for an Ethernet-based Field group, an internal error was appearing.
SDK-44325		`88650_A0`	In Field Processor, both: - Implement bcmFieldQualifyTranslated* qualifiers at ingress - and fix the parsing of bcmFieldQualifyTranslated* at egress
SDK-44336		`88650_A0` `88650_B0` `88650_B1`	Implemented BCM diag command "diag pp ENCAP" for 88650
SDK-44341		`56850_A0`	Resolved under SDK-44074 .
SDK-44344		`88640_A0`	Vlan editing: Change Egress vlan editing operation of NONE on tagged vlan from Ignore to Remove and Add again. This will let Transmit tag/untag and Outbound mirroring features to work.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44348		`88650_A0`	Due to incorrect allocation of reserved packet descriptors during init, some EGQ resources were wasted. Wasting EGQ resources can limit the device max supported traffic rate. The reason for this wrong allocation was that the formula for Service Pools in the EGQ was counting the reserved resources per port twice, instead of counting per service pool only the ports that used it. The fix was to calculate the reserved packet descriptors per Service Pool by only counting the resources of the ports using the service pool.
SDK-44352		`88650_A0` `88650_B0`	CrpsActCntrsCnt counters were removed from "diag counters", due to the fact that these counters should not be read when counter mode is QSIZE and "diag" is general to all modes.
SDK-44357		`88650_A0`	In Field Processor, the user can assign a new trap with the action bcmFieldActionTrap. In previous implementation, this action sets the new {Trap-strength; Trap-Id} according to the assumed HW abilities. 2 options were given to the user when setting the action value with `bcm_field_action_add:` 1. param0 is a Trap GPORT, encoding the strength and the new trap-code. param1 is not used 2. param0 is the new trap-code, param1 is the trap strength. In practice, the HW assigns {Trap-qualifier, Trap-strength and Trap-Id}. Thus when setting the action value with `bcm_field_action_add`, the use must indicate: - param0 is a Trap GPORT, encoding the strength and the new trap-code - param1 is the trap qualifier The user must pay attention that this action size goes from 11 bits to 27 bits.
SDK-44359		`88650_A0`	Solved OAM event not being generated by the OAMP.
SDK-44363		`88650_A0`	The detach feature in Field Processor was not working properly in case that Direct Extraction Field groups with entries were installed to the HW. This is fixed.
SDK-44367	601121	`88650_A0`	learning setting Fixes: - Enable to configure distribution header (`bcm_l2_learn_msgs_config_set`) separately from enable message generation. - when learning managed by OLP (not CPU) then both learning and shadow FIFOs have dsp-generation configured
SDK-44379		`88650_A0`	OAM mirroring did no work if OAM init was called before calling outbound mirroring API. Now OAM allocates the highest mirror profiles for mirroring, so order does not matter.
SDK-44380		`88650_A0` `88650_B0` `88650_B1`	Release to customers trunk example `cint_trunk.c`
SDK-44395		`88650_A0`	In Field Processor, the SOC property `field_class_id_size` sets the User-Header size that can be located between the end of System-Headers (FTMH + PPH + their extensions) and the beginning of the Network headers (Ethernet and following header stack). This SOC property is used for example in the Cascaded-Ingress-Egress Field Processor application. The location of the beginning of the Network headers was not correct in 2 cases: - in the HW, because of an internal misconfiguration at egress - in the parsing of the trapped packets. Both cases are solved.
SDK-44396		`88750_A0` `88650_A0` `88750_B0` `88650_B0` `88650_B1`	88650, 88750: `bcm_port_phy_control_get(BCM_PORT_PHY_CONTROL_PREEMPHASIS)` returns lane 0 taps for all lanes.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44399		`56546_A0  56542_A0` `56541_A0  56545_A1`	Bringup and sanity fixes done.
SDK-44423		All	LDK-3.0.3 software for iProc is integrated into SDK
SDK-44425	600706	`56850_A0  56850_A1`	Fixed E2ECC message not being transmitted on TD2
SDK-44436		All	Created src/soc/common/ser.c file
SDK-44439		`88650_A0`	When closing MAC loopback on the NIF side, MAC loopback FIFOs are sometimes out of sync. This occasionally results in partial traffic loss. Fixed.
SDK-44444		`88650_A0`	Added a soc property `"mim_num_vsis"`. Values are 4096 (default) or 32768. If it is set to 32768, then 32K different I-SIDs may be configured, but ingress VLAN editing is disabled for access facing (UNI) In-ACs.
SDK-44458		`88650_A0`	Background: The ITMH parsing is done through microcode. Some of the ITMH formats (Out-LIF, Ingress-Shaping, MC-Flow) are using the Destination extension. In the case of Ingress-Shaping, the microcode is supposed to indicate that the forwarding decision (i.e. the destination) is taken according to the ITMH-Destination-extension field. Limitation: A bug was found on the microcode of the Ingress-Shaping parsing. This bug is fixed. WA: None
SDK-44487		`88650_B0  88650_B1`	ECN using queue size in bytes to determine congestion is now supported in 88650 B0 and up. But (88650 B0/B1) due to a hardware erratum, only values of up to 0x7e00000 bytes (126MB) can be supported (the limitation is only when using bytes and not descriptors!) A value of 0x80000000 (2GB) can be used to disable the bytes limit after it is set. If the bytes limit is used in B0/B1, be sure to also configure tail drop of less than 128MB on the same queues. If values above 126MB are needed in B0,B1 the same affect can be achieved using the ECN WRED configuration.
SDK-44489		`88650_B0`	Added support for Fine-grained Trill. See example in `cint_trill.c.`
SDK-44494		All	The CINT API wrapper for `bcm_l2_addr_t_init()` would fail to compile with the Wind River Diab Compiler dcc.
SDK-44510	606330	`88650_A0`	XGS Diffserv: Added support for new system port encoding where System port is being extracted according to [FRC.MODID 8 bits , 0, FRC.PORT 7 lsbs]. Default mode was taking [0,FRC.MODID 7 bits, FRC.PORT 8 bits].
SDK-44519		All	Updated license information for APIMODE, BIGDIGITS, CINT, ED Editor and VxWorks
SDK-44528		`56640_A0`	Fixed `bcm_tr3_cosq_port_sched_set` return `BCM_E_PARAM` if port gport is passed as argument.
SDK-44536	595066	`56850_A0  56850_A1`	In TD2, for Adv Flex Counter, set operation on stats should set both X and Y pipe.
SDK-44554		`88650_A0`	Add to tr 140 NoReset parameter, DRAM bist perform soft reset in the end of the test unless this parameter set to 1.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44556		`88650_A0` `88650_B0` `88650_B1`	Command added to api: DIAG rates <OPTION> <parameters> OPTIONS: - EGQ - to calculate EGQ rate. Requires: `port=<port_id>` `tc=<traffic_class>` - PQP - to calculate PQP rate. Requires: `port=<port_id>` `tc=<traffic_class>` -EPEP- to calculate EPE port rate. Requires: `port=<port_id>` `tc=<traffic_class>` - EPEI- to calculate EPE interface rate. Requires: `if=<interface_id>` - EPNI- to calculate EPNI interface rate. Requires: `scheme=<measure_scheme>` `[bw=<bw_id>]` Schemes available: 0-measure total, 1-bw on interface, 2-bw on port, 3-bw on Q-pair, 4-bw on channel, 5-bw for mirror/not mirror
SDK-44581	607129	`88650_A0`	APIs `bcm_port_frame_max_setget` were fixed to configure `fram_max` on MAC. These APIs are supported for all NIF ports except ILKN.
SDK-44583		`56820_A0` `56725_A0` `56680_A0` `56624_B0` `56624_A0`	Added new reg files and ran code generation script.
SDK-44592		All	`bcm_stk_port_set()` now avoids updating hardware tables if the stack port membership has not changed.
SDK-44595		`88650_A0` `88650_B0` `88650_B1`	TDM Optimized mode, `bcm_fabric_tdm_editing_set/get:` Fixed getting user defined field from TDM editing in case of TDM optimized should always return 0. Please notice that this field can be configured only when using standard TDM mode. Note: When getting the user define count field in TDM standard mode, the return value will always be the maximum number of bits allowed for user define field.
SDK-44598		`88650_A0` `88650_B0` `88650_B1`	PON 3 tags manipulation is supported completely. Tunnel tag is processed in `bcm_port_vlan_create`. And other 2 VLAN tags are processed by PON egress VLAN translation.
SDK-44600		`88650_A0` `88650_B0` `88650_B1`	Fixed: When setting `port_init_speed=-1` on the NIF side, default rate is set to a wrong value.
SDK-44617	608209	`88650_A0`	MAC based VLAN assignment: In order to enable the functionality user needs to set soc property `sa_auth_enabled` = 1.
SDK-44633		`56840_A0` `56640_B0` `56540_B0`	For SER related `soc_switch_event` callbacks, removed the newer enums defined for use in BCM5664x and BCM5685x devices. Add encoding in the second to last param of the event notifier for the new data formats.
SDK-44636		`88650_A0` `88650_B0` `88650_B1`	`BCM_VLAN_PORT_MATCH_PORT_TUNNEL_VLAN_ETHERTYPE` is now supported for AC creation on `Tunnel_ID` + SVLAN. `BCM_VLAN_PORT_MATCH_PORT_TUNNEL_VLAN_STACKED_ETHERTYPE` is now supported for AC create on `Tunnel_ID` + SVLAN + CVLAN.
SDK-44645		`88650_A0`	88650: Added warm boot support for dynamic ports change.
SDK-44646	606367	`56850_A0`	Fixed BUD/LEAF loopback port init/deinit issue.
SDK-44672	604494	`56850_A0` `56850_A1`	`bcm_cosq_gport_add` can allocate more than `NUM_COS` UC queues for td2 and tr3.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-44688		`88650_B0` `88650_B1`	88650: Added new SOC property to indicate which implementation of ECN for MPLS is used: `mpls_ecn_mode.` Valid values are 1 (1-bit mode), or 2 (2-bits mode).
SDK-44740	609484	`56546_A0` `56545_A0` `56544_A0` `56542_A0` `56541_A0` `56540_A0` `56545_A1` `56540_B0`	Fixed LPM memory sizes for various configs/SKUs.
SDK-44748		`88650_A0`	Fixed access (reads) to non allocated memory during driver startup, which may have caused segmentation faults in some systems.
SDK-44766	610133	`88650_A0` `88650_B0` `88650_B1`	Port command was fixed to support also Fabric ports.
SDK-44800		`88650_A0` `88640_A0`	QOS: Changed logic of `WITH_ID` flag in `bcm_qos_map_create` to handle correctly the value of `qos_id.`
SDK-44803		All	Fix function by Adding check to BCM state - init/deinit
SDK-44806		`88650_A0` `88650_B0` `88650_B1`	New option: diag cosq voq Displays all of the non empty VOQs and their current size in bytes. Two filtering option are enabled: diag cosq voq most=x - displays only the <x> most congested VOQs. diag cosq voq id=x - displays only VOQ <x>
SDK-44813		`88750_A0`	88750: Multi-thread support: Missing `bcm_lock` to `bcm_dfe_init` was added.
SDK-44839	607723	`88650_A0` `88650_B0` `88650_B1`	Background: When the port header type set to STACKING, its internal `LB_PROFILE` is set to ONE. Limitation: The port internal `LB_PROFILE` was not set to 0 when the header type was set to Ethernet for example, and not stacking. WA: None.
SDK-44857	606402	`56540_A0` `56540_B0`	Corrected String length for strncat, such as not to over run buffer in corner cases.
SDK-44912	612131	`88640_A0`	Resolved: Internal indexing error could result in failure to enable control cells during initialization when using FEC.
SDK-44918	605584	`88650_A0`	Background: The ITMH parsing of the Mirror-Enable bit (aka `IN_MIRR_FLAG`) should disable mirroring if the bit is unset. Limitation: If this bit is unset, the mirror profile should be 0. It was in practice dependent on packet's content. This is fixed WA: None
SDK-44926		`88650_A0`	In Field processor, a CINT called `cint_field_dir_ext_counter_inlif.c` has been added to illustrate how to attach a Counter-Pointer = In-LIF to the packet via Direct Extraction Field group.
SDK-44930	612050	`88650_A0`	MIM: Added support `WITH_ID` flag for `bcm_mim_port_add` API.
SDK-44947		All	Improve performance of API `bcm_tunnel_initiator_set()` when called before any next hop entries are set for a given interface (e.g. L3 egress objects).
SDK-44968	606209	`88650_A0`	In Stacking system, MC over stacking ports was not working due to bug in header programming, The issue was fixed.

Table 54:

Number	CSP #	Chips		Release Notes For 6.3.0
SDK-44969	609615	`56850_A1`		cleaned up detachment of node and free up index range when all the children are gone.
SDK-44984		`88650_A0`		OAM: When sending upmep LM RX packet in is trapped to the CPU but in addition the counter with the index of the stamped value is increased.
SDK-44991		`88650_A0` `88650_B1`	`88650_B0`	When external phy is connected, TX parameters for lane 0 in a quad not always set correctly (depends on ext phy implementation). This issue was fixed.
SDK-45067 SDK-44051	613032	`56850_A0`		Fixed VXLAN functionality for match criterion = `BCM_VXLAN_PORT_MATCH_PORT_VLAN`
SDK-45132		All		New switch controls bcmSwitchDosAttackIcmpV4, bcmSwitchDosAttackIcmpV6 added to enable/disable ICMPV4 and ICMPV6 size check respectively
SDK-45148		`56725_A0` `56720_A0`		SOC Port Valid check is applied to avoid the segmentation fault as it exceeds the MAX limit and corrupts the stack. The issue is seen only in case of CONQUEROR.
SDK-45151		`88750_A0` `88650_A0`		88650, 88750: RX los application improvements - Updated application notes will be supplied.
SDK-45158		`88650_A0` `88650_B1`	`88650_B0`	Setting `port_init_speed_<p>=-1` should disable port p. However this configuration influence other ports. This was fixed.
SDK-45179		`88650_A0` `88650_B1`	`88650_B0`	Allow setting FW mode by SOC property for 10G ports. Use `serdes_firmware_mode=0(default)` to reserve current behavior.
SDK-45239	612680	`56640_A0` `56640_B0`	`56640_A1`	Adjusted default hash offset configs to take into account the scenario when all banks are used by a single memory type.
SDK-45249	611829	`88030_A0`		Add "QueueInfo" command for C3
SDK-45256	615804	`56846_A1`		Link flap on the port associated with lane0 if port associated with lane2 is disabled/enabled in KR2 mode
SDK-45261		All		Skip mem cache use in test mode in all memory ops. Enable test mode in tr tests like cpu benchmark tests tr 21 etc.
SDK-45289	576151	`88640_A0`		Background: In Field Processor module, Field groups (aka Databases) do not have necessarily pre-selectors. If not set, for the BCM88640 device, an implied pre-selector is selected according to the Field group qualifiers. Issue: Databases without explicit pre-selectors were not selected because the implied pre-selector was not set correctly. WA: None
SDK-45295	617162	`88750_A0`		88750: Software Reset should not isolate the chip. Fixed.
SDK-45331		`88650_A0` `88650_B1`	`88650_B0`	Change (without any additional configuration) the division to 1/64 instead of 1/16. Add the ability to use "virtual stack" (will be limited to 4 TMD connection). User can define any set of stacking ports as virtual stack.
SDK-45339	617523	`88650_A0`		Add user parameters validation to `bcm_cosq_threshold_set()` API. The `QDCT_TABLE` PD thresholds are 15 bits wide but the values are restricted to 4k. The driver will now throw an error when trying to configure those thresholds with illegal values. When calling the API `bcm_cosq_threshold_set()` to set queue's PD threshold (either drop or flow control) the API will return an error if trying to set a value greater than 4k.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-45340		`88650_A0`	88650: ARAD supports changing port interfaces dynamically. The feature supports the following interfaces: XFI, XLAUI, CAUI. Support for the following interfaces added: ILKN, RXAUI, XAUI and SGMII.
SDK-45342		`88650_A0`	Egress same-interface filter was disabled on init, by mistake. Fixed the code to enable the same-interface filter. User can control per port enable/disable the filter by calling API `bcm_port_control_set` with `control_type` = bcmPortControlBridge
SDK-45353		`88650_A0  88650_B0` `88650_B1`	Force all incoming traffic from given port to invalid destination in the IRE. The default configuration is not change, meaning no additional configuration needed for one which is not using this feature (Panini for example). In order to discard the traffic, the API should be called. Please refer to the following example: Driver init: 1. Call to `bcm_stk_my_modid_set()` to set the mod-id. 2. Disable all the TDM ports by calling the API. 3. Call to `bcm_stk_module_enable()` . Provisioning example 1. Configure the Ingress and Egress by calling to `bcm_fabric_tdm_editing_set()` 2. Enable the traffic by calling the `bcm_port_control_set()` De-provisioning sequence example 1. Disable incoming traffic by calling to `bcm_port_control_set()` Bug
SDK-45385	617412	`56840_A0`	Added Rx packet rate control for Linux KNET kernel module.
SDK-45475		`88650_A0`	Background: IPv4 MC program may do RPF check as well as MC entry search. In that case the search is done in the IPv4 UC tables.
			Limitation: When using ELK for IPv4 MC tables - then IPv4 UC tables should use ELK as well for the RPF check to succeed. Same happens when IPv4 MC doesn't use ELK. The driver forces the use of ELK for both tables or none (will produce an error if MC table uses ELK but UC table doesn't or the opposite).

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-45476		`88650_A0`	Restrict APIs from committing changes during traffic.
			=== CAUTION === This change may affect existing applications. Some invalid scenarios, previously not verified by the driver, are now verified and will return an error indication if encountered. The APIs/attributes listed below must be called before enabling traffic, which is done by the `bcm_stk_module_enable()` API. Calling these APIs after `bcm_stk_module_enable()` is not permitted, and will result in driver error. The following APIs will return an error if called after traffic is enabled: - `bcm_cosq_gport_threshold_set()` + if threshold->type = bcmCosqThresholdAvailablePacketDescriptors + if threshold->type = bcmCosqThresholdAvailableDataBuffers - `bcm_cosq_gport_egress_multicast_config_set()` + Always, regardless of input parameters. - `bcm_cosq_gport_egress_map_set()` + Always, regardless of input parameters. -- An override option using a custom SOC property is available, to be used only if guided by Broadcom AE.
			Also, before enabling traffic the driver verifies the following: - Each egress queue can only use a single service pool. - The MAX reserved value is equal to the sum of the reserved PDs per queue per service pool - The MAX reserved value is less than the maximum PDs allowed per service pool (13k)
SDK-45491	616124	All	Jumps in time provided by `sal_time()` no longer cause discrepancies in signaling message times, given that the SAL has a monotonic `sal_time_usecs()` function.
SDK-45521		`56850_A0`	Following qualifiers are now supported in Trident2 Egress Stage with the JIRA fix bcmFieldQualifySrcClassL3 bcmFieldQualifySrcClassField bcmFieldQualifySrcClassL2 bcmFieldQualifyDstClassL3 bcmFieldQualifyDstClassField bcmFieldQualifyDstClassL2 bcmFieldQualifyInterfaceClassL2 bcmFieldQualifyInterfaceClassL3
SDK-45576		`88650_A0 88650_B0`	wrong warmboot data restore that can mainly effect following APIs after warmboot: `bcm_cosq_gport_threshold_set/get` `bcm_cosq_control_set/get`
SDK-45585		`56840_A0 56845_B0` `56841_B0`	Handle TD+ MMU SER correction for ES, THDI, MTRO regs.
SDK-45613		`88650_A0 88650_B1`	Fixed the FC init function to properly handle SAFC settings due to SOC Properties.
SDK-45624		`88650_A0`	Fixed an issue that when calling `bcm_vlan_translate_egress_action_set` to change `outer_tpid_action` and then `bcm_vlan_translate_egress_action_get,` the returned inner tpid was the new `outer_tpid.`

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0

SDK-45643		`53600_A0 53288_A0`
		`53286_A0 53284_A0`
		`53283_A0 53282_A0`
		`53262_B1 53242_B1`
		`53242_A0 53001_A0`
			Fix the issue that removing FE0 port from the bcm config `pbmp_valid` causes the initialization fail for FE+GE switches of ROBO FE family

SDK-45727	619823	`56850_A1`	56850: Fixed issue with group create on EFP with CpuQueue(bcmFieldQualifyCpuQueue) as qualifier.

SDK-45729		`88650_A0`
		`88650ACP_A0`
		`88650_B0 88650_B1`
			For PON 2 tags manipulation, `bcm_vlan_translate_egress_action_add` of PON ports just needs to do the outer VLAN translation. It's not necessary to take care of `tunnel_id` anymore.

SDK-45768	587055	`88650_A0 56640_A0` `56640_B0`	Always return `SOC_E_FUNC_NOT_FOUND` for function searchPCSFuncTable
SDK-45796	607348	`88650_A0`	Description: At egress Field Processor, the HW correlates the counting action (bcmFieldActionStat) with the redirection (bcmFieldActionRedirect). An improper SW implementation was forcing the user to set a stat-id related to the entry-id for simplicity. Since the number of stat-ids is limited, an error was occurring for high entry ids. Fix: The sequence of using both actions at egress (bcmFieldActionStat & bcmFieldActionRedirect) is changed: - when an entry must redirect and count, the user must indicate in bcmFieldActionRedirect the destination port, and in bcmFieldActionStat the stat-id (in param0). From now on, the user sets also in param1 of bcmFieldActionStat the destination port again. The stat-id must be between 1024 and 3839 (Counter-ID value). Refer to `cint_field_egress_modify_tc_per_port.c` for example. - when an entry must only redirect, the user must call both actions (bcmFieldActionStat & bcmFieldActionRedirect) similarly to the previous, with stat-id = 0 to indicate the Counter-ID is not to be changed. - An entry cannot only change the Counter-ID without redirecting due to an HW limitation Besides, the user cannot use `bcm_field_stat_create[_id]` and `bcm_field_entry_stat_attach` at egress. WA: None
SDK-45798	620819	`88650_B1`	Background: When calling entry install, a first attempt is performed to insert the entry and if it fails because there is no bank or bank is full, a new bank is allocated to the field group. The problem was that there was no validation that this bank has free entries. Then a second attempt is performed and if the allocated bank had no free entries the action fails. Fix: Add validation that bank is not full when allocating it.
SDK-45807	616113	`88650_B1`	Background: In Field processor configuration, PMF programs are HW entities not directly handled by the user. The PMF program is unique by its set of supported Databases. When removing a FP database, the Driver looks if another PMF program exists with the same set of Databases. If not, the resources taken by this database in this program are freed. If so, the whole PMF program is freed by copying a clean program to it. In case of an Egress database, the PMF program erase was not correct. Fix: Added a fix in the copy method of Egress programs.

Table 54:

Number	CSP #	Chips	Release Notes For 6.3.0
SDK-45851	617348	`56544_A0 56542_A0 56540_B0 56541_B0`	Memory sanity scripts are included in the FILES.esw package.
SDK-45908		`56854_A0 56850_A0 56855_A0`	bcmFieldQualifyColor qualifier is now supported in Trident2 device Ingress Stage.
SDK-45943		`88650_A0 88650_B0`	ARAD Field warm boot, following was not restored after : 1. preselectors. 2. tcam actions. 3. entry flags (less critical, has effect only when doing WB in the middle of field API sequence).
SDK-45944	622458	`88130_B0 88130_A1`	`bcm_crossbar_enable_set()` fix for BM9600 - when BAG rate is 0, do not scale result to avoid divide by 0 issue.
SDK-45968		`88650_A0 88650_B0`	compilation error when compiling for ARAD only with warm boot support: BCM_PTL_SPT=1 `BCM_88650_A0=1 BCM_88650_B0=1 # BCM_88640_A0=1` (No definition) CFGFLAGS += `-DBCM_WARM_BOOT_SUPPORT`
SDK-46012	620324	`88030_A0`	The issue has been resolved.
SDK-46651	627582	`88650_B1`	Background: Validation of TCAM entries is done while reading all entries per database. The loop which reads the entries used the wrong database ID range, which may have been invalid in some cases. Fix: Change of database ID to right range.
SDK-47645	649813	All `88650_A0` `88650_B0 88650_B1`	Added support for running ARAD dram tunning algorithm ('shmoo') on multiple devices in parallel
SDK-50501	696776	`56850_A0`	It is required to disable linkscan on the port to be converted by flex port, and re-enable linkscan afterward. This is defined in flex port section in port module of API reference manual.
SDK-51442	707742	`56850_A2`	Disabling CL37 error timer to prevent TSC to restart CL37 through link down process will fix the problem of this JIRA.