# Software Development Kit
# Release Notes
# SDK 6.3.4

December 19, 2013

***Broadcom***
***Network Switching***

# Section 1: About This Document

These are the Release Notes for the Broadcom Network Switching Software Development Kit Release 6.3.4.

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-PG634-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: 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 4: Support

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

# Section 5: Firmware Compatibility Matrix

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

# BCM56440 FIRMWARE COMPATIBILITY MATRIX

***Table 2:***

| *SDK* | *Firmware 2.0* | *Firmware 2.1* | *Firmware 2.2* | *Firmware 3.0.0* | *Firmware 3.0.1* | *Firmware 3.1.0* | *Firmware 3.2.0* | *Firmware 3.2.1* | *Firmware 3.2.2* |
|---|---|---|---|---|---|---|---|---|---|
| SDK-6.2.0 | Yes | No | No | No | No | No | No | No | No |
| SDK-6.2.1 | No | No | Yes | No | No | No | No | No | No |
| SDK-6.2.3 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.4 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.5 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.6 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.7 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.8 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.2.9 | No | No | Yes | Yes | Yes | Yes | No | No | No |
| SDK-6.3.0 | No | No | No | Yes | Yes | No | Yes | No | No |
| SDK-6.3.1 | No | No | No | No | No | No | Yes | Yes | Yes |
| SDK-6.3.2 | No | No | No | No | No | No | Yes | Yes | Yes |
| SDK-6.3.3 | No | No | No | No | No | No | Yes* | Yes* | Yes* |
| SDK-6.3.4 | No | No | No | No | No | No | Yes | Yes | Yes |

* 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 3:***

| *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* |
|---|---|---|---|---|---|---|
| SDK-6.2.3 | No | No | No | No | No | No |
| SDK-6.2.4 | No | No | No | No | No | No |
| SDK-6.2.5 | Yes | Yes | Yes | No | No | No |
| SDK-6.2.6 | No | No | Yes | No | No | No |
| SDK-6.2.7 | No | No | Yes | No | No | No |
| SDK-6.2.8 | No | No | Yes | No | No | No |
| SDK-6.2.9 | No | No | Yes | No | No | No |
| SDK-6.3.0 | Yes | Yes | No | No | No | No |
| SDK-6.3.1 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.2 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.3 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.4 | No | No | No | Yes | Yes | Yes |

# BCM88650 FIRMWARE COMPATIBILITY MATRIX

***Table 4:***

| *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* |
|---|---|---|---|---|---|---|
| SDK-6.2.3 | Yes | Yes | No | No | No | No |
| SDK-6.2.4 | Yes | Yes | No | No | No | No |
| SDK-6.2.5 | Yes | Yes | No | No | No | No |
| SDK-6.2.6 | No | No | Yes | No | No | No |
| SDK-6.2.7 | No | No | Yes | No | No | No |
| SDK-6.2.8 | No | No | Yes | No | No | No |
| SDK-6.2.9 | No | No | Yes | No | No | No |
| SDK-6.3.0 | Yes | Yes | No | Yes | No | No |
| SDK-6.3.1 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.2 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.3 | No | No | No | Yes | Yes | Yes |
| SDK-6.3.4 | No | No | No | Yes | Yes | Yes |

# BCM56850 FIRMWARE COMPATIBILITY MATRIX

***Table 5:***

| *SDK* | *Firmware 3.1.0* | *Firmware 3.2.0* | *Firmware 3.2.1* | *Firmware 3.2.2* |
|---|---|---|---|---|
| SDK-6.2.6 | Yes | No | No | No |
| SDK-6.2.7 | Yes | No | No | No |
| SDK-6.2.8 | No | Yes | No | No |
| SDK-6.2.9 | No | Yes | No | No |
| SDK-6.3.0 | No | Yes | No | No |
| SDK-6.3.1 | No | Yes | Yes | Yes |
| SDK-6.3.2 | No | Yes | Yes | Yes |
| SDK-6.3.3 | No | Yes | Yes | Yes |
| SDK-6.3.4 | No | Yes | Yes | Yes |

# BCM88030 FIRMWARE COMPATIBILITY MATRIX

***Table 6:***

| *SDK* | *Firmware 3.2.0* | *Firmware 3.2.1* | *Firmware 3.2.1* |
|---|---|---|---|
| SDK-6.2.8 | Yes | No | No |
| SDK-6.2.9 | Yes | No | No |
| SDK-6.3.1 | Yes | Yes | Yes |
| SDK-6.3.2 | Yes | Yes | Yes |
| SDK-6.3.3 | Yes | Yes | Yes |
| SDK-6.3.4 | Yes | Yes | Yes |

# BMACSEC SDK COMPATIBILITY MATRIX

***Table 7:***

| *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 |

# Section 6: New in this Release

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

# SUMMARY OF NEW FEATURES

## TRIDENT2 (BCM56850)

- ALPM feature is GA in this release. The ALPM feature supports, IPv4, IPV6-64 and IPV6-128 routes in Parallel and Combined Modes. To enable ALPM feature compile flag `ALPM_ENABLE` needs to be added to Make.local file.
- The following config properties could be configured for ALPM mode operation. The Trident2 UFT configuration needs to be configured for ALPM mode.

***Table 8:***

| *l2_mem_entries* | *Number of L2 entries* | |
|---|---|---|
| `l3_alpm_enable` | The config property `l3_alpm_enable` need to be configured to enable ALPM. | • 0 - ALPM Disable<br>• 1 - ALPM Parallel Mode<br>• 2 - ALPM Combined Mode |
| `ipv6_lpm_128b_enable` | Enable V6-128 bit or V6-64 bitroutes. | • 1 - Enable V6-128bit. Default is disabled.<br>• 0 - Enable V6-64bit. Also `num_ipv6_lpm_128b_entries` should be 0. |

- Following table sizes have been verified in 6.3.4 Relase

***Table 9:***

| | *Parallel Mode* | *Combined Mode* |
|---|---|---|
| IPV4 | 64K + 64K | 128K |
| IPV6-64 | 21K + 21K | 85K |
| IPV6-128 (50-50 IPV4 Profile) | 2.5K + 2.5K / 32K + 32K IPV4 | 5K / 64K IPv4 |

## ARAD

- Support new IP tunnel termination lookup key {DIP, SIP, IPV4.Next-protocol}. IPV4 next protocol is useful to configure multiple separate VPNs, with same DIP and SIP, but with different tunnel-types.
- Improved TM diagnostics. Display TDM editing: tdm edit port=x Use block-level timer to synchronize debug counter readings and allow rate measurements on block level (GTimer enable/trigger/read/stop, diag count interval=x) Display E2E scheduler rate (diag rates sch) Display ingress resources congestion level ("diag `ing_congestion`"

## HELIX4

- APP-IQ has been enhanced. In some case new APIs have been added or existing APIs augmented. The feature improvements fall under the following category. The Flow tracker must be available as an independent entity. It is not necessary for FT to work in conjunction with Signature Match Engine. Provides the ability for Signature Match Engine to just provide/send packets to the HOST CPU (after the match with all information regarding the match made available) so that the Host CPU can install the policy/actions to take for a flow. Allows customers to see the resource usage for a given "Rule" and determine if this can be accommodated. Exposes all Actions and Statistics from HW. Flow tracker is available as an independent entity. It is not necessary for FT to work in conjunction with Signature Match Engine.
- Warmboot feature has been qualified to be BETA quality. SDK release 6.3.4 is also tested for upgrade path from the previous

maintenance release SDK 6.3.3

- Flexport Hotswap - Beta Quality The Flexport hotswap feature is supported for the following SKUs: BCM56340, BCM56342, BCM56344, BCM56040, BCM56041, BCM56547, BCM56548 The following Flexport transitions have been verified on HX4 SKUs. HG[42] -> 2xHGd[21], 4xHGs[11], 4xXFI, 4x1GE, 4x2.5GE HG[21] -> 2xHGd[21], 4xHGs[11], 4xXFI, 4x1GE, 4x2.5GE 2xHGd[21] -> HG[42], 4xXFI, 4x1GE, 4x2.5GE 4xHGs[11] -> HG[42], 2xHGd[21], 4xXFI 2xRXAUI -> HG[42], 2xHGd[21],4xHGs[11] 4xXFI -> HG[42], 4xHGs[11] 4x1GE -> HG[42], 4xHGs[11] 4x2.5GE -> HG[42] Known issues: The following Flexport transitions are not supported in 6.3.4 due to known issues. Port transitions to 2xRXAUI, HG[21] 4xXFI/4x1GE/4x2.5GE to 2xHGd[21]

## KATANA2

- Destination Module based VoQ (DMVoQ) is now available. Please note that this feature is still under test.
- SDK now supports additional APIs that allow TR- 101/156/200 compliance. The APIs in the following areas were enhanced create subport Virtual port based on LLVID, LLVID + INNER VID or LLVID + OUTER VID. support the new VLAN TRANSLATE KEY(LLVID, LLVID + INNER VID and LLVID + OUTER VID) to support drop action to deal lltag/unlltag packets per chip control of LLTAG relevant attributes Virtual Port cross connect
- Warmboot support is available for preview ONLY.
- Soft Error Recovery infrastructure is complete with the addition of coverage for TCAMs

## ARAD+

- Support for IPMC and IGMP-snooping after exiting tunnel (VXLAN, L2GRE, VPLS)
- Support for Trill multi-homing: End-station is multi-homed to multiple RBridges.
- Allow the unicast LAG-LB-Key in stacking to be 16 bits
- OAM events: Support the DMA reroute writes intended to the Interrupt Message Register to a local host memory
- Support OAM accelerated loopback
- Support new IP tunnel termination lookup key {DIP, SIP, IPV4.Next-protocol}. IPV4 next protocol is useful to configure multiple separate VPNs, with same DIP and SIP, but with different tunnel-types.
- Improved TM diagnostics: Display TDM editing: tdm edit port=x Use block-level timer to synchronize debug counter readings and allow rate measurements on block level (GTimer enable/trigger/read/stop, diag count interval=x) Display E2E scheduler rate (diag rates sch) Display ingress resources congestion level ("diag `ing_congestion"`)

## CALADAN3

- MPLS RCE: Broadcom G3P1 microcode supports ingress MPLS stream enhanced with RCE lookup customized for MPLS traffic.
- E-Tree: Broadcom Microcode and SDK E-Tree enhancements provide host applications the ability to implement E-Tree services over MPLS networks.
- E-LAN: Broadcom Microcode and SDK enhancements to provide host applications the ability to implement E-LAN solutions specifically related to MPLS PW.
- Support for overlapped tables in assembler, MDE and Model : Broadcom MDE tools supports overlapping of tables in the assembler, model and MDE tools environment.
- PPE table view: MDE User Interface view support for PPE CSV (comma separated values) rules file.
- Full fast set/get support: Some custom streamlined table access methods have been added to MDE to provide faster access to some fields.
- Improved multi-stream editor view: The multi-stream view has been reworked in the MDE to provide editor linkage, better layout and greater flexibility

## HURRICANE-2

- Production Ready
- Support for 4x10GE on TSC1 has been added for the following devices 56150, 56151, 56152, 53347, 53346

## TRIUMPH-3

- APP-IQ has been enhanced. See HELIX4 （page 14） for details

## WARMBOOT: VALIDATED WARMBOOT UPGRADES.

Following warmboot upgrades have been validated in this release.

***Table 10: Validated Warmboot upgrades***

| *Software upgrade* | *Supported* |
|---|---|
| 6.3.3 to 6.3.4 | Yes |
| 6.2.9 to 6.3.4 | Yes |

# 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.

## WARMBOOT: KNOWN ISSUES

Customers can upgrade from SDK-6.2.9 to SDK-6.3.2 except when Flexible Statistics are used in conjunction with VFP. Customers need to patch the fix for SDK-43743 in order to upgrade to SDK-6.3.2 only when using Flexible Statistics with VFP rules.

Please contact your Broadcom FAE for any help.

## 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 1.06 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.

# 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 11: Supported Switch Devices***

| *Family* | *Devices* | *Description* |
|---|---|---|
| BCM56230 | BCM56230 B1 | 12-Port GbE Multilayer Switch |
| BCM56231 B1 | 6-Port GbE Multilayer Switch | |
| BCM56340 | BCM56040 A0 | 1xF.QSGMII + 3xF.HG[42] + 1GE |
| BCM56340 | BCM56042 | 12x2.5GE/1GE + 12x2.5GE/1GE + 1GE |
| BCM56340 | BCM56344 | 10xF.QSGMII + 3xFlex[4x10] + 1GE |
| BCM56640 | BCM56045 B0 | 3xF.40GE + 3xF.HG[42] + 1GE |
| BCM56640 | BCM56046 B0 | 3xF.40GE + 2xF.HG[42] + 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 |
| BCM56450 | BCM56450 A0 | 24-port GbE Multilayer Switch with 4-port 10 GbE uplinks, stacking, integrated CPU and Traffic Manager |
| BCM56450 | BCM56455 | 2 x 20GE (G.INT) + 2 x HG13 |
| BCM56450 | BCM56456 | 1 x XAUI + 8 x GE |
| BCM56544 | BCM56544 B0 | 10xF.XAUI + 4xHG[21] + 1GE, 10xF.XAUI + 4xXFI, 10xF.XAUI + 2xHG[42], 4xXAUI + 12xXFI + 1GE Multilayer Ethernet Switch |
| BCM56545 | BCM56545 B0 | 48xGE + 2xHG[42] + 2xHG[21] + 1GE, 48xGE + 4xXFI + 2xHG[42] + 1GE, 48xGE + 8xXFI + 1GE, 24xGE + 4xXAUI + 2xXFI + 2xHG[12] + 1GE Multilayer Ethernet Switch |
| 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 |
| BCM56850 | BCM56830 A1 | 960Gbps Ethernet Switch |
| 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 |
| BCM56851 | BCM56751 A2 | 1.28Tbps I/O, 960Gbps Core Ethernet Switch Fabric |
| BCM88650 | BCM88650 B1 | 200 GBps DNX Traffic Manager and Packet Processor |
| BCM88030 | BCM88030 A0 | Scalable Switching 100Gbps Full-Duplex Programmable Packet Processor |
| 88660 | 88660 A0 | DNX 200G Flexible Packet Processor with Integrated Traffic Management |
| BCM56340 | BCM56041 | Ranger device, meant for embedded connectivity supports 1Ge (port 49), 2 X GE (iPROC), Flex 4x10G, 3 X 4 X 10G |
| BCM56850 | BCM56852 A2 | 100x10G, 960Gbps Multilayer Switch |

***Table 12: Preview Switch Devices***

| *Family* | *Devices* | *Description* |
|---|---|---|
| BCM56450 | BCM55455 | Katana2 Access 1 x XAUI + 8 x GE without L3 routing and MPLS features |

*Table 13: Preview PHYS*

| *Device* | *Driver Family* | *Description* |
|---|---|---|
| BCM84780 | BCM84740 | Octal-Channel 10 GbE SFI-to-XFI PHY with 1588. Firmware version 0x128 Implemented `postcursor2_tap` config setting in preemphasis set/get API. Add PRBS support for 1Gbps mode. Enhance Interface set/get. Expose Squelching & Polarity flip to user through `control_set.` |
| BCM84784 | BCM84740 | Dual 40GbE/Octal 10GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version 0x125 Implemented `postcursor2_tap` config setting in preemphasis set/get API. Add PRBS support for 1Gbps mode. Enhance Interface set/get. Expose Squelching & Polarity flip to user through `control_set.` |
| BCM84758 | BCM84740 | 10GbE Quad SFI-XFI PHY with IEEE 1588 Firmware version 0x128 Implemented `postcursor2_tap` config setting in preemphasis set/get API. Add PRBS support for 1Gbps mode. Enhance Interface set/get. Expose Squelching & Polarity flip to user through `control_set.` |
| BCM84164 | BCM84740 | Quad 10GBASE-KR-to-XFI or 40GBASE-KR4-to-XLAUI Transceiver Firmware version 0x128 Add PRBS support for 1Gbps mode. Bug fix for Auto negotiation. Enhance Interface set/get. Expose Squelching & Polarity flip to user through `control_set.` |
| BCM84168 | BCM84740 | Octal 10GBASE-KR-to-XFI or Dual 40GBASE-KR4-to-XLAUI Transceiver. Firmware version 0x128 Add PRBS support for 1Gbps mode. Bug fix for Auto negotiation. Enhance Interface set/get. Expose Squelching & Polarity flip to user through `control_set.` |
| BCM82328 | BCM82328 | Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version 6 "(Preview) CR/CR4 preview support is added i.e. new FW version 0x6 Fast eyescan support is added. DSC support is added. Setting of config property `spn_PHY_MOD_AUTO_DETECT` is added |
| BCM84741 B0 | BCM84756 | 40GbE XLPPI-to-XLAUI/Quad 10G with IEEE MACsec/1588 Firmware version 0x0128 [Preview] |
| `BCM84333_B1` | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.67 (Preview) (Needs additional software component) |

# 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-PG634-R]. (See section 2 earlier in this document for availability).

## SECURITY

New Authentication mode flag has been added.

- `BCM_AUTH_DROP_UNKNOWN` - Drop SLF packets without L2 learning while authorized

## BIDIRECTIONAL FORWARDING DETECTION

## BFD ENDPOINT INFO

New field has been added to `bcm_bfd_endpoint_info_s` structure.

```
typedef struct bcm_bfd_endpoint_info_s {
    ...
 bcm_bfd_endpoint_t remote_id;   /* remote endpoint identifier */
    ...
} bcm_bfd_endpoint_info_t;
```

## CLASS OF SERVICE CONFIGURATION

New COSQ control types have been added.

***Table 14: CoSQ Control Type Values***

| *Value* | *Description* | *Arg value* |
|---|---|---|
| `bcmCosqControlPortQueueUcast` | According to port and cosq, retrieve hw queue number used by PBSMH UC header | `hw` queue number of PBSMH UC packet headers. |
| `bcmCosqControlPortQueueMcast` | According to port and cosq, retrieve hw queue number used by PBSMH MC header | `hw` queue number of PBSMH MC packet headers. |

New enums for CosQ controls for drop limit alpha values have been added.

***Table 15: bcmCosqControlDropLimitAlpha Arg value***

| *Name* | *Description* |
|---|---|
| `CosqControlDropLimitAlpha_1_64` | Use 1/64 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_1_32` | Use 1/32 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_1_16 i` | Use 1/16 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_1_8` | Use 1/8 as the alpha value for dynamic threshold |
| `CosqControlDropLimitAlpha_1_4` | Use 1/4 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_1_2 i` | Use 1/2 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_1 i` | Use 1 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_2` | Use 2 as the alpha value for dynamic threshold. |
| `CosqControlDropLimitAlpha_4` | Use 4 as the alpha value for dynamic threshold. |

*Table 15: bcmCosqControlDropLimitAlpha Arg value*

| *Name* | *Description* |
|---|---|
| CosqControlDropLimitAlpha_1_128 | Use 1/128 as the alpha value for dynamic threshold. |
| CosqControlDropLimitAlpha_8 | Use 8 as the alpha value for dynamic threshold. |

Following CosQ API's have been modified .

## bcm_cosq_bst_profile_set
## bcm_cosq_bst_profile_get

Set/Get the BST profile for CosQ objects

### Syntax

```
#include <bcm/cosq.h>
int bcm_cosq_bst_profile_set(int unit, bcm_gport_t port,
                        bcm_cos_queue_t cosq, bcm_bst_stat_id_t bid,
                               bcm_cosq_bst_profile_t *profile);
```

### Parameters

| | |
|---|---|
| unit | BCM device number |
| port | Device or logical port or GPORT ID |
| cosq | Cosq object offset identifier |
| bid | BST stat ID to identify the COSQ resource/object |
| profile | BST profile configuration |

### Description

Configure or retrieve the BST (buffer statistics tracking) configuration for the specified MMU resource. MMU resource is identified by the combination of port, cosq and bid parameters. port parameter can be port gport, queue gport. bid parameter identifies the MMU resource, for instance the bid bcmBstStatIdEgrPool identifies the egress service pool resource. cosq parameter identifies the object within the various instances of resources within the identified resource.

The bid parameter can be one of the following from the table

*Table 16: BCM BST CoSQ IDs*

| *flag* | *Description* |
|---|---|
| bcmBstStatIdDevice | Device wide resource |
| bcmBstStatIdEgrPool | Egress service pool |
| bcmBstStatIdIngPool | Ingress service pool |
| bcmBstStatIdPortPool | Shared pool per port per service pool |
| bcmBstStatIdPriGroupShared | Priority group |
| bcmBstStatIdPriGroupHeadroom | Headroom buffer |
| bcmBstStatIdUcast | unicast queue |
| bcmBstStatIdMcast | multicast queue |

```
typedef struct bcm_cosq_bst_profile_s {
    uint32 byte;
```

```
} bcm_cosq_bst_profile_t;
```

### Returns

```
BCM_E_NONE
BCM_E_XXX
```

---

## bcm_cosq_bst_stat_sync

Sync the HW stats value to SW copy for all or given BST resource.

### Syntax

```
#include <bcm/cosq.h>
int bcm_cosq_bst_stat_sync(int unit, bcm_bst_stat_id_t bid);
```

### Parameters

| | |
|---|---|
| `unit` | BCM device number |
| `bid` | BST stat ID to identify the COSQ resource/object |

### Description

API to sync the Hardware stats for all or given BST resources to the Software copy. During this sync, BST status will be disabled, in order to maintain consistency of the stats to a defined time and Post sync, the BST status will be restored. This is required to be used before calling `bst_stat_get()` to get latest or updated stats value.

### Returns

```
BCM_E_NONE
BCM_E_XXX
```

---

## bcm_cosq_bst_stat_get

Get the current statistic/count of specified BST profile

### Syntax

```
#include <bcm/cosq.h>
int bcm_cosq_bst_stat_get(int unit, bcm_gport_t gport, bcm_cos_queue_t
cosq,
                          bcm_bst_stat_id_t bid, uint32 options,
uint64 *pvalue);
```

### Parameters

| | |
|---|---|
| `unit` | BCM device number |
| `port` | Device or logical port or GPORT ID |
| `cosq` | Cosq object offset identifier |
| `bid` | BST stat ID to identify the COSQ resource/object |
| `options` | options to perform clear-on-read |
| `pvalue` | stat value to return. |

### Description

Retrieve the BST (buffer statistics tracking) statistic for the specified MMU resource. MMU resource is identified by the combination of port, cosq and bid parameters. port parameter can be port gport, queue gport. bid parameter identifies the MMU resource, for instance the flag bcmBstStatIdEgrPool identifies the egress service pool resource. cosq parameter identifies the object within the various instances of resources within the identified resource. if option `BCM_COSQ_STAT_CLEAR` is present, a memory/register clear will be performed after stat reading.

### Returns

`BCM_E_NONE`
`BCM_E_XXX`

---

## bcm_cosq_bst_stat_multi_get

Get the current statistic/count of multiple specified BST profile

### Syntax

```
            #include <bcm/cosq.h>
            int bcm_cosq_bst_stat_multi_get(int unit, bcm_gport_t gport,
bcm_cos_queue_t cosq,
                                            uint32 options, int max_values,
bcm_bst_stat_id_t *id_list, uint64 *values);
```

### Parameters

| | |
|---|---|
| unit | BCM device number |
| gport | Device or logical port or GPORT ID |
| cosq | Cosq object offset identifier |
| options | options to perform clear-on-read |
| max_values | Number of elements in id_list and pvalue |
| id_list | Array of BST stat ID list to identify the COSQ resource/object |
| pvalue | Array of stat value to return. |

### Description

Retrieve the BST (buffer statistics tracking) statistic for multiple specified MMU resource. MMU resource is identified by the combination of port, cosq and bid parameters. port parameter can be port gport, queue gport. bid parameter identifies the MMU resource, for instance the flag bcmBstStatIdEgrPool identifies the egress service pool resource. cosq parameter identifies the object within the various instances of resources within the identified resource. if option BCM_COSQ_STAT_CLEAR is present, a memory/register clear will be performed after stat reading.

### Returns

BCM_E_NONE
BCM_E_XXX

---

## bcm_cosq_bst_stat_clear

Clear the current statistic/count of specified BST profile

### Syntax

```
            #include <bcm/cosq.h>
            int bcm_cosq_bst_stat_clear(int unit, bcm_gport_t gport,
bcm_cos_queue_t cosq,
                                        bcm_bst_stat_id_t bid);
```

### Parameters

| | |
|---|---|
| unit | BCM device number |
| gport | Device or logical port or GPORT ID |
| cosq | Cosq object offset identifier |
| bid | BST stat ID to identify the COSQ resource/object |

### Description

Clear the BST (buffer statistics tracking) statistic for the specified MMU resource. MMU resource is identified by the combination of port, cosq and bid parameters. port parameter can be port gport, queue gport. bid parameter identifies the MMU resource, for instance the bid bcmBstStatIdEgrPool identifies the egress service pool resource. cosq parameter identifies the object within the various instances of resources within the identified resource.

### Returns

BCM_E_NONE
BCM_E_XXX

---

## bcm_cosq_stat_sync_get
## bcm_cosq_stat_sync_get32

Force an immediate counter update and retrieve MMU drop statistics.

### Syntax

```
#include <bcm/cosq.h>
int
bcm_cosq_stat_sync_get(
    int unit,
    bcm_gport_t gport,
    bcm_cos_queue_t cosq,
    bcm_cosq_stat_t stat,
    uint64 *value);
int
bcm_cosq_stat_sync_get32(
    int unit,
    bcm_gport_t gport,
    bcm_cos_queue_t cosq,
    bcm_cosq_stat_t stat,
    uint32 *value);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| gport | (IN) GPORT ID. |
| cosq | (IN) CoS Queue. |
| stat | (IN) Statistic to be retrieved. See table |
| value | (OUT) (for "_get") statistic value. |
| value | (IN) (for "_set") statistic value. |

### Description

Similar to bcm_cosq_stat_get(), value returned is software accumulated counter synced with the hardware counter.

**Returns**

BCM_E_NONE
BCM_E_XXX

## FIBER CHANNEL OVER ETHERNET

Following new fields have been added to bcm_fcoe_intf_config_t structure.

```
typedef struct bcm_fcoe_intf_config_s {
    ...
    bcm_fcoe_intf_vsan_id_source_t vsan_source;
    bcm_fcoe_intf_vsan_pri_source_t vsan_pri_source;
} bcm_fcoe_intf_config_t;

/* FCOE Interface VSAN ID source */
typedef enum bcm_fcoe_intf_vsan_id_source_e {
    bcmFcoeIntfVsanSet,          /* Get VSAN ID from table entry */
  bcmFcoeIntfVsanInternal,    /* Get VSAN ID from internal VSAN ID */
    bcmFcoeIntfVsanInnerVlan,   /* Get VSAN ID from internal ITAG */
    bcmFcoeIntfVsanOuterVlan    /* Get VSAN ID from internal OVID */
} bcm_fcoe_intf_vsan_id_source_t;

/* FCOE Interface VSAN Priority source */
typedef enum bcm_fcoe_intf_vsan_pri_source_e {
    bcmFcoeIntfVsanPriSet,      /* Use VSAN PRI from table entry */
    bcmFcoeIntfVsanPriInternal, /* Get VSAN PRI from internal VSAN
PRI */
    bcmFcoeIntfVsanPriRemark    /* Get VSAN PRI from internal PRI */
} bcm_fcoe_intf_vsan_pri_source_t;
```

Following flags have been deprecated and enums have been added instead.

```
#define BCM_FCOE_INTF_VSAN_SET          0x00000008 /* From Egress
Interface */
 #define BCM_FCOE_INTF_VSAN_INTERNAL     0x00000010 /* From Internal
Vsan ID */
#define BCM_FCOE_INTF_VSAN_INNER_VLAN   0x00000020 /* From Inner-VID */
#define BCM_FCOE_INTF_VSAN_OUTER_VLAN   0x00000040 /* From Outer-VID */
   #define BCM_FCOE_INTF_VSAN_PRI_SET      0x00000080 /* From Egress
interface */
 #define BCM_FCOE_INTF_VSAN_PRI_INTERNAL 0x00000100 /* From Internal
Vsan Pri */
  #define BCM_FCOE_INTF_VSAN_PRI_REMARK   0x00000200 /* Remark using
QOS map id */
```

New FCOE VSAN translate keys have been added.

*Table 17: FCOE VSAN Translate Keys*

| *Name* | *heading Purpose* |
|---|---|
| bcmFcoeVsanTranslateKeyInvalid | Invalid Key Type |
| bcmFcoeVsanTranslateKeyDouble | Use O-VID and I-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyOuter | Use O-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyInner | Use I-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyOuterTag | Use O-TAG, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyInnerTag | Use I-TAG, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyOuterPri | Use (VLAN-PRI, VLAN-CFI of O-TAG), use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortDouble | Use Port, O-VID and I-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortOuter | Use Port, O-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortInner | Use Port, I-VID, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortOuterTag | Use Port, O-TAG, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortInnerTag | Use Port, I-TAG, use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| bcmFcoeVsanTranslateKeyPortOuterPri | Use Port, (VLAN-PRI, VLAN-CFI of O-TAG), use only with BCM_FCOE_VSAN_ACTION_INGRESS flag |
| BcmFcoeVsanTranslateKeyPortDoubleVsan | Use Port, I-VID, O-VID and VSAN-ID |
| bcmFcoeVsanTranslateKeyPortInnerVsan | Use Port, I-VID and VSAN-ID |
| bcmFcoeVsanTranslateKeyPortOuterVsan | Use Port, O-VID and VSAN-ID |

## FIELD PROCESSOR

New BCM FIELD Data Formats for MPLS packet have been added.

*Table 18: Number of MPLS Labels*

| *Mpls Flags* | *Purpose* |
|---|---|
| BCM_FIELD_DATA_FORMAT_MPLS_THREE_LABELS | Three labels MPLS packet. |
| BCM_FIELD_DATA_FORMAT_MPLS_FOUR_LABELS | Four labels MPLS packet. |
| BCM_FIELD_DATA_FORMAT_MPLS_FIVE_LABELS | Five labels MPLS packet. |

New BCM FIELD Data Formats for have been added.

*Table 19: Misc Flags*

| *Misc Flags* | *Purpose* |
|---|---|
| BCM_FIELD_DATA_FORMAT_F_ENCAP_STACK | Indicates incoming packet is a Higig Packet. |
| BCM_FIELD_DATA_FORMAT_F_MASK | Mask. |

New Field has been added to `bcm_field_data_packet_format_t` structure.

```
/* Packet format based DATA qualifier specification structure. */
typedef struct bcm_field_data_packet_format_s {
    ...
    uint32 flags;            /* Flags. (FIELD_DATA_FORMAT_F_XXX) */
} bcm_field_data_packet_format_t;
```

New BCM Field Fibre Channel Zone Check values have been added.

***Table 20: FibreChanZoneCheck values (for bcm_field_qualify_FibreChanZoneCheck)***

| *BCM_FIELD_FIBRE_CHAN_ZONE_CHECK_xxx* | *Purpose* |
|---|---|
| BCM_FIELD_FIBRE_CHAN_ZONE_CHECK_NOT_DONE | Zone Check is not enabled |
| BCM_FIELD_FIBRE_CHAN_ZONE_CHECK_ALLOW | Zone Check entry Hit and action is Allow |
| BCM_FIELD_FIBRE_CHAN_ZONE_CHECK_MISS | Zone Check entry Miss |
| BCM_FIELD_FIBRE_CHAN_ZONE_CHECK_DENY | Zone Check entry Hit and action is Deny |

New Field Qualifiers have been added.

***Table 21: Field Qualifiers***

| *Qualifier* | *Purpose* |
|---|---|
| bcmFieldQualifyOamMdl | Qualifies OAM Maintenance Domain Levels. |

New Field Actions have been added.

***Table 22: Field Actions***

| *Action* | *Description* | *param0* | *param1* |
|---|---|---|---|
| bcmFieldActionEtagNew | Replace packet Port Extender ETAG if present, add if not present. Action will be taken irrespective of the incoming packet color. | ETAG | n/a |
| bcmFieldActionEtagDelete | Delete packet Port Extender ETAG. Action will be taken irrespective of the incoming packet color. | n/a | n/a |

New Field has been added to `bcm_field_group_config_t` structure.

```
/*
 * Group configuration structure. Used to create a field group with
 * specific attributes.
```

```
             */
            typedef struct bcm_field_group_config_s {
                ...
             int max_entry_priorities;         /* Number of entries priorities
in the
                                                  group. 0 means unlimited. */

            } bcm_field_group_config_t;

            typedef bcm_field_group_config_t    bcmx_field_group_config_t;
```

New Field APIs have been added.

## bcm_field_qualify_XXX

Add a qualification to a field entry

### Syntax

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

int bcm_field_qualify_HiGigProxy(int unit, bcm_field_entry_t entry,
                                 uint8 data, uint8 mask);

int bcm_field_qualify_OamMdl(int unit, bcm_field_entry_t entry,
                             uint8 data, uint8 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_HiGigProxy_get(int unit, bcm_field_entry_t entry,
                                     uint8 *data, uint8 *mask);
```

```
int bcm_field_qualify_OamMdl_get(int unit, bcm_field_entry_t entry,
                                 uint8 *data, uint8 *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.

## KERNEL NETWORK (KNET) CONFIGURATION

New Rx packet filters have been added.

```
typedef struct bcm_knet_filter_s {
    ...
 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. */
    ...
} bcm_knet_filter_t;
```

## L2GRE

New L2GRE VPN flags have been added.

***Table 23: L2GRE VPN flags***

| *BCM_L2GRE_VPN_REPLACE* | *Replace attributes of an existed VPN* |
|---|---|
| BCM_L2GRE_VPN_UNKNOWN_UCAST_REPLACE | Replace unknown unicast mc-group of an existed VPN |
| BCM_L2GRE_VPN_UNKNOWN_MCAST_REPLACE | Replace unknown multicast mc-group of an existed VPN |
| BCM_L2GRE_VPN_BCAST_REPLACE | Replace broadcast mc-group of an existed VPN |

L2GRE port flag has been deprecated.

***Table 24: L2GRE port flags***

| *Name* | *Purpose* |
|---|---|
| BCM_L2GRE_MULTIPATH | Create L2GRE port with specified ID |

## LAYER 3 MANAGEMENT

New Layer 3 flags have been added.

*Table 25: BCM Layer 3 Flags*

| *Name* | *Purpose* |
|---|---|
| BCM_L3_ECMP_RH_REPLACE | Replace ECMP member without RH flowset table shuffle. |

## OPERATIONS, ADMINISTRATION, AND MAINTENANCE

## OAM LOSS MEASUREMENT OBJECT

New OAM Loss Measurement flag has been added.

*Table 26: OAM Loss Measurement Flag Definitions*

| *Flag* | *Description* |
|---|---|
| BCM_OAM_LOSS_UPDATE | Update LM settings for given endpoint (statistics remain unchanged). |

## OAM DELAY MEASUREMENT OBJECT

New OAM Delay Measurement flag has been added.

*Table 27: OAM Delay Measurement Flag Definitions*

| *Flag* | *Description* |
|---|---|
| BCM_OAM_DELAY_UPDATE | Update DM settings for given endpoint (statistics remain unchanged). |

## OAM LOOPBACK OBJECTS

New field has been added to bcm_oam_loopback_t structure.

```
            /* OAM loopback object. */
            typedef struct bcm_oam_loopback_s {
                ...
                bcm_mac_t peer_da_mac_address       /* MAC DA in Loopback
injection, in
                                                    case remote_id is not specified */
            } bcm_oam_loopback_t;
```

New OAM Loopback flag has been added.

*Table 28: OAM Loopback Flag Definitions*

| *Flag* | *Description* |
|---|---|
| BCM_OAM_LOOPBACK_UPDATE i | Update loopback settings for given endpoint (statistics remain unchanged). |

## POLICER CONFIGURATION

New Policer Group Mode has been added.

*Table 29: Policer Group Modes*

| *Mode* | *Description* |
|---|---|
| bcmPolicerGroupModeShortIntPri | A set of 8 policers based on internal priority |

New Policer flag has been added.

*Table 30: Policer Flags*

| *Mode* | *Purpose* |
|---|---|
| BCM_POLICER_MIXED_MICRO_MACRO | Micro Policer not assosiated to Hierarchy/Macro Envelope. |

## PORT CONFIGURATION

New Port Controls have been added.

*Table 31: bcm_port_control_t*

| *bcmPortControlRxFastLOS* | *Enable/disable accelerated linkscan capability on port.* |
|---|---|
| bcmPortControlStatCollectionEnable | Enable/disable the gathering of MIB statistics on the port. |
| bcmPortControlFcoeTranslateKeyFirst | Sets FCOE VSAN translation first key type, use with bcm_fcoe_vsan_translate_key_t types |
| bcmPortControlFcoeTranslateKeySecond | Sets FCOE VSAN translation second key type, use with bcm_fcoe_vsan_translate_key_t types |
| bcmPortControlMmuDrain | Request to drain the cells of the port. |
| bcmPortControlMmuTrafficEnable | Request to enable/disable enqueuing the packets to the port. |

New Port PHY Controls for RX LOS have been added.

*Table 32: RX_LOS Values*

| *Value* | *Meaning* |
|---|---|
| BCM_PORT_PHY_CONTROL_RX_LOS_NONE | Specify to Disable Software/Firmware Rx Los Feature |
| BCM_PORT_PHY_CONTROL_RX_LOS_SOFTWARE | Specify to Enable Software Rx Los Feature |
| BCM_PORT_PHY_CONTROL_RX_LOS_FIRMWARE | Specify to Enable Firmware Rx Los Feature |

New Port PHY control has been added.

New Generic Port match flags have been added.

*Table 33: Generic Port Match Criteria*

| *BCM_PORT_MATCH_PORT_VLAN16* | *Match on the physical port and outer VLAN Tag.* |
|---|---|
| BCM_PORT_MATCH_PORT_PON_TUNNEL_PCP | Mod/port/trunk + PON Tunnel Value + Outer PCP. |

New Port Class Id selection has been added.

## REGEX API

New flag has been added to bcm_regex_config_t.

*Table 34: bcm_regex_config_t flags*

| *flag Value* | *Description* |
|---|---|
| BCM_REGEX_USE_POLICY_ID | Actions are provided to matches via policies. |

New flag has been added to report events

*Table 35: bcm_regex_config_t report_flags*

| *flag Value* | *Description* |
|---|---|
| BCM_REGEX_REPORT_ALL | Provide all notifications including when a session does not match. |

New fields have been added to bcm_regex_match_t structure.

```
            typedef struct bcm_regex_match_s {
                ...
               int sig_id;                          /* The signature ID assigned
by the SDK */
                bcm_regex_policy_t policy_id;       /* The ID of the policy to
be used if
                                                       BCM_REGEX_USE_POLICY_ID is
                                                          configured. */
            } bcm_regex_match_t;
```

New flag has been added to bcm_regex_match_t.

*Table 36: bcm_regex_match_t flags*

| *flag Value* | *Description* |
|---|---|
| BCM_REGEX_MATCH_SIG_ID_RETURN | Return the hardware signature ID. |

The value BCM_REGEX_MAX_PATTERN_SIZE specifies the size of the largest regular expression pattern that can be configured as part of a match.

- BCM_REGEX_MAX_PATTERN_SIZE

New fields have been added to bcm_regex_report_t structure.

```
typedef struct bcm_regex_report_s {
    ...
 uint32 refresh_timestamp;      /* Session refresh packet timestamp
(10ms
                                                granularity). */
} bcm_regex_report_t;
```

## bcm_regex_get_match_id

Return user-provided Match ID for a created signature ID.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_get_match_id(int unit,
                           int signature_id,
                           int *match_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| signature_id | (IN) Signature ID for which to get Match ID |
| match_id | (OUT) Match ID used when signature created |

### Description

bcm_regex_get_match_id will return the user-provided match ID for a given hardware signature.

### Returns

BCM_E_xxx

## bcm_regex_get_sig_id

Return hardware Signature ID for a user provided Match ID.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_get_sig_id(int unit,
                         int match_id,
                         int *signature_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| match_id | (IN) Match ID for which to get Signature ID |
| signature_id | (OUT) Signature ID used when signature created |

### Description

bcm_regex_get_sig_id returns the hardware signature ID for a user-provided match ID.

### Returns

BCM_E_xxx

---

## bcm_regex_engine_info_get

Return information about the Signature Matching Engine.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_engine_info_get(int unit,
                              int engine_id,
                          bcm_regex_engine_info_t *regex_engine_info);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| engine_id | (IN) Engine ID for which to get the info. |
| regex_engine_info(OUT) | Information about the signature matching engine. |

### Description

Returns info about a particular engine or all engines. The info is returned in a bcm_regex_engine_info_t structure:

```
typedef struct bcm_regex_engine_info_s {
   int size;       /* Static size of largest memory that a single
engine (or
                      SME) can use. */
  int free_size;  /* Available free memory on the specified engine,
or on all
                      engines. */
} bcm_regex_engine_info_t;
```

The value BCM_REGEX_ENGINE_ALL used as engine_id in the bcm_regex_engine_info_get API specifies that the info to be returned is for all engines (i.e. the whole SME).

- BCM_REGEX_ENGINE_ALL

### Returns

BCM_E_xxx

## bcm_regex_info_get

Return various info about the Flow Tracker Session and Policy tables.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_info_get(int unit,
                       bcm_regex_info_t *regex_info);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| regex_info | (OUT) Information about the FT session and policy |

### Description

bcm_regex_info_get returns information about the session and policy tables in a bcm_regex_info_t structure. The format of the structure is:

```
typedef struct bcm_regex_info_s {
  int session_size;          /* Static size of entire Flow Tracker
session table. */
 int session_free_size_ipv4; /* Total free memory for IPv4 sessions
available in the FT. */
 int session_free_size_ipv6; /* Total free memory for IPv6 sessions
available in the FT. */
   int policy_size;           /* Size of the Flow Tracker policy
table (number of entries). */
  int policy_free_size;      /* Free entries in the Flow Tracker
policy table. */
} bcm_regex_info_t;
```

### Returns

BCM_E_xxx

## bcm_regex_stat_get

Retrieve a specified regex Flow Tracker statistic.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_stat_get(int unit,
                       bcm_regex_stat_t type,
                       uint64 *val);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| type | (IN) The enum value of the statistic to get. |
| val | (OUT) Value of the Flow Tracker statistic specified in |

### Description

bcm_regex_stat_get returns one of the flow tracker statistics. Which statistic is determined by using one of the following enumerated values:

```
            typedef enum bcm_regex_stat_e {
              bcmStatRegexSessionFirst = 0,       /* Beginning of Session part
of list */
               bcmStatRegexSessionEntriesInUse = 0, /* 32-bit counter, Current
number of
                                                       session entries in use */
             bcmStatRegexSessionFlowsCreated = 1, /* 32-bit counter, Cumulative
number of
                                                  flows created in flow tracker session
                                                       table */
              bcmStatRegexSessionMaxFlowsInUse = 2, /* 32-bit counter, Maximum
number of
                                                    flows in use, high watermark */
                bcmStatRegexSessionFlowsMissedTCP = 3, /* 32-bit counter,
Cumulative number of
                                                  TCP flows that could not be inserted
                                                       because of bucket full */
                bcmStatRegexSessionFlowsMissedUDP = 4, /* 32-bit counter,
Cumulative number of
                                                  UDP flows that could not be inserted
                                                       because of bucket full */
             bcmStatRegexSessionCmdWaitTimeouts = 5, /* 32-bit counter, Number
of flows for
                                                        which no results packet
was received */
               bcmStatRegexSessionUnusedResults = 6, /* 32-bit counter, Number
of results
                                                     packets that were ignored */
                bcmStatRegexSessionSuppressedActions = 7, /* 32-bit counter,
Number of flows
                                                   created where actions inhibited by
                                                       VFP */
                bcmStatRegexSessionTcpSynData = 8,  /* 32-bit counter, Number
of flows
                                                    created with TCP SYN data */
                bcmStatRegexSessionL4Invalid = 9,   /* 32-bit counter, Number
of packets
                                                  seen where L4 offset/length could not
                                                       be determined */
                bcmStatRegexSessionL4PortsExcluded = 10, /* 32-bit counter,
Number of flows not
                                                  created because of L4Port Table
```

```
                                                        exclusion */
            bcmStatRegexSessionLast = 10,      /* End of Session part of list */
               bcmStatRegexSigMatchFirst = 21,     /* Beginning of SigMatch
part of list */
                bcmStatRegexSigMatchPacketsReceived = 21, /* 32-bit counter,
Number of packets
                                                 received by the Signature Match for
                                                        inspection */
              bcmStatRegexSigMatchPacketsSent = 22, /* 32-bit counter, Number
of packets
                                               sent by Signature Match for reporting
                                                        to the Flow Tracker */
             bcmStatRegexSigMatchPacketsDropped = 23, /* 32-bit counter, Total
number of
                                                   packets dropped without match
                                                        processing */
              bcmStatRegexSigMatchBytesMatched = 24, /* 32-bit counter, Number
of L4 payload
                                                        bytes processed by the
regex engines */
              bcmStatRegexSigMatchMatchedFlows = 25, /* 32-bit counter, Number
of flows that
                                                    were successfully matched */
               bcmStatRegexSigMatchUnmatchedFlows = 26, /* 32-bit counter,
Number of flows that
                                                 were not successfully matches */
              bcmStatRegexSigMatchTotalMatch = 27, /* 32-bit counter, Number
of matches
                                               successfully detected by the Regex
                                                    engines (includes unreported
matches) */
             bcmStatRegexSigMatchCrossSigFlags = 28, /* 32-bit counter, Number
of updates to
                                                       cross-signature flags */
               bcmStatRegexSigMatchFragmentsReceived = 29, /* 32-bit counter,
Number of fragmented
                                                        packets received */
             bcmStatRegexSigMatchInPacketError = 30, /* 32-bit counter, Number
of packets
                                              dropped for incorrect framing signals
                                                (SOP, EOP) or error signal asserted
                                                       anywhere in the packet */
               bcmStatRegexSigMatchFlowTrackerError = 31, /* 32-bit counter,
Number of packets
                                                dropped because the FT indicated an
                                              error in a queued packet before EOP */
              bcmStatRegexSigMatchPacketLengthError = 32, /* 32-bit counter,
Number of packets
                                                 dropped because of a length error */
               bcmStatRegexSigMatchL4ChecksumError = 33, /* 32-bit counter,
Number of packets
                                                    dropped because of an invalid L4
                                                        (TCP/UDP) checksum */
```

```
                bcmStatRegexSigMatchFlowDonePacketDrop = 34, /* 32-bit counter,
Number of flows that
                                                    encountered an invalid Flow Table
                                                            entry error */
                bcmStatRegexSigMatchFlowTimestampError = 35, /* 32-bit counter,
Number of packets
                                                  with timestamp errors -- the first
                                                packet of the current flow was lost */
                bcmStatRegexSigMatchFlowPacketNumError = 36, /* 32-bit counter,
Number of flows that
                                                    encountered an FT packet number
                                                            mismatch */
                bcmStatRegexSigMatchECCError = 37,  /* 32-bit counter, Number of
                                                uncorrectable ECC errors detected */
                 bcmStatRegexSigMatchLast = 37,      /* End of SigMatch part of
list */
                  bcmStatRegexLast = 37,              /* End of list */
                  bcmStatRegexCount = 27              /* Number of unique enums
in the list */
              } bcm_regex_stat_t;
```

### Returns

`BCM_E_xxx`

---

## bcm_regex_stat_set

Set a specified regex Flow Tracker statistic.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_stat_set(int unit,
                       bcm_regex_stat_t type,
                       uint64 val);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `type` | (IN) The enum value of the statistic to set. |
| `val` | (IN) Value of the Flow Tracker statistic to set |

### Description

`bcm_regex_stat_set` will set the value of the indicated counter.

### Returns

`BCM_E_xxx`

## REGEX POLICIES

Actions taken as a result of a signature match are configured using policies. The policy table used by the regex module is identical to that used by the Ingress Field Processor. The APIs for configuring policies are also similar to those used by the Field Processor. Note that policy 0 is reserved. It is used when the Flow Tracker fails to create a session entry in its table.

### bcm_regex_policy_create

Create a blank regex policy.

#### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_create(int unit,
                            int flags,
                            bcm_regex_policy_t *policy);
```

#### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `flags` | (IN) REGEX_POLICY_xxx flags |
| `policy` | (OUT) ID of policy to be created. |

#### Description

Creates an empty policy. To create a policy with a given ID, use the `BCM_REGEX_FLOW_WITH_ID` flag. To destroy the policy, use the `bcm_regex_policy_destroy` api.

The flag value `BCM_REGEX_POLICY_WITH_ID` passed to the flags parameter, specifies that the policy parameter is to be used as the policy ID to be created.

- `BCM_REGEX_POLICY_WITH_ID`

#### Returns

`BCM_E_xxx`

### bcm_regex_policy_destroy

Destroy a regex policy. This deallocates memory only.

#### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_destroy(int unit,
                             bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) ID of policy to be destroyed. |

### Description

This API deallocates the memory which contains a software policy. If the policy has been installed in hardware, the function would invoke a `bcm_regex_policy_remove` API to clean up the policy in hardware and free hardware resources.

### Returns

`BCM_E_xxx`

---

## bcm_regex_policy_destroy_all

Destroy all regex policy entries.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_destroy_all(int unit);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |

### Description

Destroys all regex policy entries.

### Returns

`BCM_E_xxx`

---

## bcm_regex_policy_install

Install a regex policy into the hardware tables.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_install(int unit,
                             bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) ID of policy to be installed. |

### Description

Installs a policy into the hardware tables. The policy should be configured before installing by adding actions using bcm_regex_policy_action_add. The bcm_regex_policy_t object is not consumed or destroyed. It can be used to remove or update the policy.

### Returns

BCM_E_xxx

---

## bcm_regex_policy_remove

Remove a regex policy from the hardware tables.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_remove(int unit,
                            bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) ID of policy to be removed. |

### Description

Removes a policy from the hardware tables. This does not destroy the policy; it only uninstalls it from the hardware tables. Destroy a policy using bcm_regex_policy_destroy.

### Returns

BCM_E_xxx

---

## bcm_regex_policy_action_add

Add an action to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_add(int unit,
                                bcm_regex_policy_t policy,
                                bcm_field_action_t action,
                                uint32 param0,
                                uint32 param1);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) ID of policy to be modified. |
| `action` | (IN) Field processor action value |
| `param0` | (IN) Action-dependent value; 0 if not used |
| `param1` | (IN) Action-dependent value; 0 if not used |

### Description

Adds an action to be performed when this policy is applied to a packet. Multiple actions may be added for a policy by calling this function repeatedly. The actions which may be added are a subset (hardware dependent) of those defined in the `fp_actions` section.

### Returns

`BCM_E_xxx`

---

## bcm_regex_policy_action_mac_add

Add an action to a policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_mac_add(int unit,
                                    bcm_regex_policy_t policy,
                                    bcm_field_action_t action,
                                    bcm_mac_t mac);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) Regex policy Id. |
| `action` | (IN) Field action value |
| `mac` | (IN) MAC address for actions involving src/dst MAC. |

### Description

Add an action involving a src/dst MAC to a policy.

### Returns

`BCM_E_xxx`

---

## bcm_regex_policy_action_ports_add

Add an action to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_ports_add(int unit,
                                      bcm_regex_policy_t policy,
                                      bcm_field_action_t action,
                                      bcm_pbmp_t pbmp);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) regex policy ID |
| `action` | (IN) Field action value |
| `pbmp` | (IN) pbmp for actions involving port bitmap |

### Description

Add an action involving a pbmp to a regex policy.

### Returns

`BCM_E_xxx`

## bcm_regex_policy_action_delete

Delete an action from a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_delete(int unit,
                                   bcm_regex_policy_t policy,
                                   bcm_field_action_t action,
                                   uint32 param0,
                                   uint32 param1);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) ID of policy to be modified. |
| `action` | (IN) Field processor action value |
| `param0` | (IN) Action-dependent value; 0 if not used |
| `param1` | (IN) Action-dependent value; 0 if not used |

### Description

Delete an action from a regex policy.

### Returns

`BCM_E_xxx`

## bcm_regex_policy_action_get

Retrieve the parameters for an action previously added to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_get(int unit,
                                bcm_regex_policy_t policy,
                                bcm_field_action_t action,
                                uint32 *param0,
                                uint32 *param1);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) regex policy ID. |
| `action` | (IN) Field processor action value |
| `param0` | (OUT) Action-dependent value |
| `param1` | (OUT) Action-dependent value |

### Description

Retrieves the parameters used for a particular action that was previously added to a regex policy.

### Returns

`BCM_E_xxx`

## bcm_regex_policy_action_mac_get

Retrieve the parameters for an action previously added to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_mac_get(int unit,
                                    bcm_regex_policy_t policy,
                                    bcm_field_action_t action,
                                    bcm_mac_t *mac);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |
| action | (IN) Field action value. |
| mac | (OUT) MAC address for actions involving src/dst MAC. |

### Description

Retrieve the parameters for an action involving a src/dst MAC previously added to a regex policy.

### Returns

BCM_E_xxx

## bcm_regex_policy_action_ports_get

Retrieve the parameters for an action previously added to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_ports_get(int unit,
                                      bcm_regex_policy_t policy,
                                      bcm_field_action_t action,
                                      bcm_pbmp_t *pbmp);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID |
| action | (IN) Field action value |
| pbmp | (OUT) pbmp for actions involving port bitmap |

### Description

Retrieve the parameters for an action involving a pbmp previously added to a regex policy.

### Returns

BCM_E_xxx

## bcm_regex_policy_action_remove

Remove an action from a regex_policy. Same as bcm_regex_policy_action_delete for actions without parameters.

### Syntax

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

```
int bcm_regex_policy_action_remove(int unit,
                                   bcm_regex_policy_t policy,
                                   bcm_field_action_t action);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) ID of policy to be modified. |
| action | (IN) Field processor action value |

### Description

Remove an action from a regex_policy. Same as bcm_regex_policy_action_delete for actions without parameters.

### Returns

BCM_E_xxx

---

## bcm_regex_policy_action_remove_all

Remove all actions from a regex_policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_action_remove_all(int unit,
                                       bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) ID of policy to be modified. |

### Description

Remove all actions from a regex_policy.

### Returns

BCM_E_xxx

# REGEX POLICY POLICERS

The regex engine policies may have policers (meters) attached for tracking ingress bandwidth. Since each policy may be applied to multiple flows, the tracking granularity is on a per-policy basis. Only one meter pool is allocated for use by the regex engine. As a result, hierarchical meters are not supported so only level 0 may be used.

---

## bcm_regex_policy_policer_attach

Attach a policer to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_policer_attach(int unit,
                                    bcm_regex_policy_t policy,
                                    int level,
                                    bcm_policer_t policer_id);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) Regex policy ID. |
| `level` | (IN) Policer level. |
| `policer_id` | (IN) Policer ID. |

### Description

Attach a policer to a regex policy. See `fp_apis_policer` for policer creation and properties definition.

### Returns

`BCM_E_xxx`

## bcm_regex_policy_policer_detach

Detach a policer from a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_policer_detach(int unit,
                                    bcm_regex_policy_t policy,
                                    int level);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `policy` | (IN) Regex policy ID. |
| `level` | (IN) Policer level. |

### Description

Detach a policer from a regex policy.

### Returns

`BCM_E_xxx`

## bcm_regex_policy_policer_detach_all

Detach all policers from a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_policer_detach_all(int unit,
                                        bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |

### Description

Detach all policers from a regex policy.

### Returns

BCM_E_xxx

---

## bcm_regex_policy_policer_get

Get the policer(s) attached to a regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_policer_get(int unit,
                                 bcm_regex_policy_t policy,
                                 int level,
                                 bcm_policer_t *policer_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |
| level | (IN) Policer level. |
| policer_id | (OUT) Policer ID. |

### Description

Get the policer(s) attached to a regex policy.

### Returns

BCM_E_xxx

# REGEX POLICY STATISTICS

---

## bcm_regex_stat_create

Create stat collection entity.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_stat_create(int unit,
                          int flags,
                          int nstat,
                          bcm_field_stat_t *stat_arr,
                          int *stat_id);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `flags` | (IN) REGEX_STAT_xxx flags |
| `nstat` | (IN) Number of elements in stat_arr - counter types |
| `stat_arr` | (IN) Array of counters to be collected in statistics |
| `stat_id` | (OUT) Statistics entity ID. |

### Description

Creates an aggregated entity describing set of counters. The entity might be attached to regex policy entries and used for various counters collection.

The flag value `BCM_REGEX_STAT_WITH_ID` passed to the flags parameter, specifies that the `stat_id` parameter is to be used as the statistics ID to be created.

- `BCM_REGEX_STAT_WITH_ID`

### Returns

`BCM_E_xxx`

---

## bcm_regex_stat_destroy

Create stat collection entity.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_stat_destroy(int unit,
                           int stat_id);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `stat_id` | (IN) Statistics entity ID. |

### Description

Create stat collection entity.

### Returns

BCM_E_xxx

## bcm_regex_policy_stat_attach

Attach statistics entity to Regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_stat_attach(int unit,
                                 bcm_regex_policy_t policy,
                                 int stat_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |
| stat_id | (IN) Statistics entity ID. |

### Description

The purpose of this API is to attach statistics collection entity to a regex policy.

### Returns

BCM_E_xxx

## bcm_regex_policy_stat_detach

Detach statistics entity from Regex policy.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_stat_detach(int unit,
                                 bcm_regex_policy_t policy,
                                 int stat_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |
| stat_id | (IN) Statistics entity ID. |

### Description

The purpose of this API is to detach statistics collection entity to a regex policy.

### Returns

BCM_E_xxx

## bcm_regex_policy_stat_get

Get 64 bit counter value for specific statistic type.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_policy_stat_get(int unit,
                              bcm_regex_policy_t policy,
                              int *stat_id);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| policy | (IN) Regex policy ID. |
| stat_id | (OUT) Statistics entity ID. |

### Description

The purpose of this API is to check if any statistics collection entity is attached to a policy.

### Returns

BCM_E_xxx

## REGEX SESSION MANAGEMENT

The Regex engine provides for management of the session table.

## bcm_regex_session_key_t_init

Initialize regex session key structure.

### Syntax

```
#include <bcm/bregex.h>
void bcm_regex_session_key_t_init(bcm_regex_session_key_t *session_key);
```

### Parameters

| | |
|---|---|
| session_key | (IN/OUT) Pointer to the session key to initialize. |

### Description

Initialize regex session key structure.

The following structure summarizes the session key:

```
typedef struct bcm_regex_session_key_s {
```

```
    int flags;          /* REGEX_SESSION_KEY_xxx flags */
    bcm_ip_t sip;       /* Source IPV4 address. */
    bcm_ip_t dip;       /* Destination IPV4 address. */
    bcm_ip6_t sip6;     /* Source IPV6 address. */
    bcm_ip6_t dip6;     /* Destination IPV6 address. */
    uint32 dst_port;    /* L4 destination port */
    uint32 src_port;    /* L4 source port */
    uint8 protocol;     /* IP protocol. */
} bcm_regex_session_key_t;
```

The flags member of the `bcm_regex_session_key_t` structure controls various features of the session table. The following table summarizes the various flags that can be used with the session keys.

***Table 37: bcm_regex_session_key_t flags***

| *flag Value* | *Description* |
|---|---|
| `BCM_REGEX_SESSION_KEY_IPV6` | Key is IPv6. If not set, key is IPv4. |
| `BCM_REGEX_SESSION_KEY_REPLACE` | If key found in table when adding, replace entry; if not found, then return error. |

### Returns

`BCM_E_xxx`

## bcm_regex_session_t_init

Initialize regex session structure.

### Syntax

```
#include <bcm/bregex.h>
void bcm_regex_session_t_init(bcm_regex_session_t *session);
```

### Parameters

`session` (IN/OUT) Pointer to the session data to initialize.

### Description

Initialize regex session structure.

The following structure summarizes the session object:

```
typedef struct bcm_regex_session_s {
    int flags;                  /* REGEX_SESSION_xxx flags */
 bcm_regex_policy_t policy;  /* The policy to apply to this flow. */
    uint32 inactivity_timeout;  /* Units are usec. */
 uint32 timestamp;          /* Output - session entry's timestamp. */
} bcm_regex_session_t;
```

The flags member of the bcm_regex_session_t structure controls various features of the session table. The following table summarizes the various flags that can be used with the session objects.

*Table 38: bcm_regex_session_t flags*

| *flag Value* | *Description* |
|---|---|
| BCM_REGEX_SESSION_STATIC | This flag will either convert an existing dynamic session to static or create a new static session. If this flag is not set, the session is assumed to be dynamic and will only be updated if it already exists. |

### Returns

BCM_E_xxx

## bcm_regex_session_add

Adds or updates a session entry. Flags param for future use, values 0x1-0x8 are reserved.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_session_add(int unit,
                          int flags,
                          bcm_regex_session_key_t *key,
                          bcm_regex_session_t *session);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| flags | (IN) REGEX_SESSION_xxx flags. |
| key | (IN) The session key. |
| session | (IN) The session data. |

### Description

Adds or updates a session matching the key specified in bcm_regex_session_key_t Session must be in an appropriate state in order to be updated. Sessions that are in a Retired state are never updated. The flags parameter is supplied for future use by the api, though flag values 0x1-0x8 are reserved for internal use.

### Returns

BCM_E_xxx

BCM_E_BUSY
BCM_E_FULL
BCM_E_NOT_FOUND

## bcm_regex_session_policy_update

Updates the policy ID in a session entry.

### Syntax

```
#include <bcm/bregex.h>
int
bcm_regex_session_policy_update(
    int unit,
    int flags,
    int flow_index,
    bcm_regex_policy_t policy);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `flags` | (IN) REGEX_SESSION_xxx flags. |
| `flow_index` | (IN) The index into the session table. |
| `policy` | (IN) The policy ID to be updated in the session table. |

### Description

Updates the policy ID in a session entry. The session is referred to by parameter `flow_index,` which is the index into the session table. This `flow_index` is provided by the egress metadata packet sent when a regex match event occurs.

### Returns

`BCM_E_xxx`

## bcm_regex_session_delete

Deletes an entry from the regex session table.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_session_delete(int unit,
                             bcm_regex_session_key_t *key);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `key` | (IN) The session key. |

### Description

Deletes an entry from the regex session table.

### Returns

BCM_E_xxx

## bcm_regex_session_get

Returns the session data (if any). Flags param for future use.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_session_get(int unit,
                          int flags,
                          bcm_regex_session_key_t *key,
                          bcm_regex_session_t *session);
```

### Parameters

| | |
|---|---|
| unit | (IN) Unit number. |
| flags | (IN) REGEX_SESSION_xxx flags. |
| key | (IN) The session key. |
| session | (OUT) The session data. |

### Description

Returns the session data (if any).

### Returns

BCM_E_xxx

## bcm_regex_session_traverse

Traverse regex sessions.

### Syntax

```
#include <bcm/bregex.h>
int bcm_regex_session_traverse(int unit,
                               int flags,
                               bcm_regex_session_traverse_cb cb,
                               void *user_data);
```

### Parameters

| | |
|---|---|
| `unit` | (IN) Unit number. |
| `flags` | (IN) REGEX_SESSION_xxx flags. |
| `cb` | (IN) A pointer to the callback function to call for |
| `user_data` | (IN) Pointer to user data to supply in the callback |

### Description

This API will traverse the session table can call function cb for each entry.

The signature of the callback function must be like this:

```
            typedef int (*bcm_regex_session_traverse_cb)(int unit,
                                                         bcm_regex_session_key_t
*session_key,
                                                   bcm_regex_session_t *session_data,
                                                               void *user_data);
```

By default, only static sessions are traversed. If the flag `BCM_REGEX_SESSION_TRAVERSE_ALL` is set, then all sessions (dynamic and static) are traversed.

### Returns

`BCM_E_xxx`

# PACKET RX/TX

The packet timestamp mode options describe the timestamp modes which may be specified in SOBMH header for OAM DM TX packets.

*Table 39: OAM Packet time stamp mode Descriptions*

| *Name* | *Description* |
|---|---|
| BCM_PKT_TIMESTAMP_MODE_NONE | No timestamp |
| BCM_PKT_TIMESTAMP_MODE_PTP | Timestamp mode is PTP. |
| BCM_PKT_TIMESTAMP_MODE_NTP | Timestamp mode is NTP. |

New packet loss measurement counter mode options describe the LM counter actions which may be specified in SOBMH header for OAM LM TX packets.

*Table 40: OAM Packet time stamp mode Descriptions*

| *Name* | *Description* |
|---|---|
| BCM_PKT_OAM_LM_COUNTER_MODE_NONE | No LM counter operation |
| BCM_PKT_OAM_LM_COUNTER_MODE_INCREMENT | Increment LM counter. |
| BCM_PKT_OAM_LM_COUNTER_MODE_SAMPLE | Sample LM counter value. |

Existing field datatype has been updated in bcm_pkt_t structure.

*Table 41: bcm_pkt_t Structure Description*

| *Field* | *Type* | *Description* |
|---|---|---|
| src_trunk | bcm_trunk_t | Source trunk group ID if src_port/src_mod is not used. |

New fields have been added to bcm_pkt_t structure.

*Table 42: bcm_pkt_t Structure Description*

| *Field* | *Type* | *Description* |
|---|---|---|
| _dcb | void * | Pointer for dcb. Used when BCM_RX_F_PKT_UNPARSED flag is set. See flags descriptions in bcm_rx_chan_cfg_t . |
| oam_lm_counter_index_2 | uint16 | OAM Second LM counter index used in SOBMH header. See Packet Flags Descriptions for flags2 (page 60) |
| ma_ptr | uint16 | OAM MA Pointer value. For BCM5645x, this corresponds to endpoint group index . See Packet Flags Descriptions for flags2 (page 60) |

*Table 42: bcm_pkt_t Structure Description*

| *Field* | *Type* | *Description* |
|---|---|---|
| timestamp_mode | bcm_pkt_timestamp_mode_t | OAM DM timestamp mode. See Packet Flags Descriptions for flags2 (page 60) and OAM Packet time stamp mode Descriptions (page 59) |
| counter_mode_1 | bcm_pkt_oam_lm_counter_mode_t | OAM LM counter-1 mode. See Packet Flags Descriptions for flags2 (page 60) and OAM Packet time stamp mode Descriptions (page 59) |
| counter_mode_2 | bcm_pkt_oam_lm_counter_mode_t | OAM LM counter-2 mode. See Packet Flags Descriptions for flags2 (page 60) and OAM Packet time stamp mode Descriptions (page 59) |
| timestamp_offset | uint8 | Offset to be placed in the timestamp of the packet |

New Packet flags have been added.

*Table 43: Packet Flags Descriptions for flags2*

| *Flag* | *Description* |
|---|---|
| BCM_PKT_F2_TIMESTAMP_MODE | This flag indicates the transmitted OAM packet needs to be inserted with the timestamp mode value in SOBMH mode. |
| BCM_PKT_F2_SAMPLE_RDI | This flag indicates that transmitted OAM packet needs to sample RDI bit in SOBMH mode. |
| BCM_PKT_F2_MA_PTR | This flag indicates that transmitted OAM packet needs to insert MA PTR value in SOBMH mode. |
| BCM_PKT_F2_MEP_TYPE_UPMEP | This flag indicates that transmitted OAM packet needs to make use of SOBMH UPMEP TX mode. If this flag is not specified, DOWNMEP TX mode is used. |
| BCM_PKT_F2_LM_COUNTER_INDEX_2 | This flag indicates the transmitted packet is specified with Second Loss Measurement counter index to be inserted into packet in SOBMH mode |
| BCM_PKT_F2_COUNTER_MODE_1 | This flag indicates the transmitted OAM packet needs to make use of the counter action specifed in counter mode 1 in SOBMH mode. |
| BCM_PKT_F2_COUNTER_MODE_2 | This flag indicates the transmitted OAM packet needs to make use of the counter action specified in counter mode 2 in SOBMH mode. |

New Packet Rx Reason codes have been added.

*Table 44: Packet RX Reasons.*

| *Reason* | *Description* |
|---|---|
| bcmRxReasonOAMCCMSlowpath | OAM CCM Packets to CPU - slowpath processing |
| bcmRxReasonBHHOAM | BHH OAM Packets to CPU |

# SUBPORT CONFIGURATION

New Subport Group flag has been added.

*Table 45: Subport Group Flags*

| *Name* | *Purpose* |
|---|---|
| BCM_SUBPORT_GROUP_TYPE_SUBPORT_PKTTAG | Create a LLTAG subport group |

New enums for Subport Match criteria have been added.

*Table 46: SUBPORT Match Criteria*

| *Name* | *Purpose* |
|---|---|
| BCM_SUBPORT_MATCH_INVALID | Illegal. |
| BCM_SUBPORT_MATCH_PKT_VID | Mod/port/trunk + LLTAG VID. |
| BCM_SUBPORT_MATCH_PKT_VID_INNER_VLAN | Mod/port/trunk + LLTAG VID + inner VLAN. |
| BCM_SUBPORT_MATCH_PKT_VID_OUTER_VLAN | Mod/port/trunk + LLTAG VID + outer VLAN. |

New fields have been added to `bcm_subport_config_t` structure.

```
typedef struct bcm_subport_config_s {
    ...
    bcm_vlan_t inner_vlan;              /* 12-bit inner VLAN */
    bcm_vlan_t outer_vlan;              /* 12-bit outerVLAN */
    ...
    bcm_subport_match_t criteria;       /* match criteria. */
} bcm_subport_config_t;
```

# SWITCH CONTROL

New Switch Controls have been added.

*Table 47: Switch Type Values*

| *Value* | *Description* | *Arg Value* |
|---|---|---|
| bcmSwitchMirrorUnicastCosq | Set the CoS queue for mirrored unicast traffic. | 0-15, -1 to disable |
| bcmSwitchMirrorMulticastCosq | Set the CoS queue for mirrored multicast traffic. | 0-15, -1 to disable |
| bcmSwitchHashNivSrcIfEtagSvidSelect0 | Select VN-TAG.src_vif or E-Tag.svid for hashing computation in Hash A buckets (default 0). | 0-1 |
| bcmSwitchHashNivSrcIfEtagSvidSelect1 | Select VN-TAG.src_vif or E-Tag.svid for hashing computation in Hash B buckets (default 0). | 0-1 |
| bcmSwitchHashNivDstIfEtagVidSelect0 | Select VN-TAG.dst_vif or E-Tag.vid for hashing computation in Hash A buckets (default 0). | 0-1 |
| bcmSwitchHashNivDstIfEtagVidSelect1 | Select VN-TAG.dst_vif or E-Tag.vid for hashing computation in Hash B buckets (default 0). | 0-1 |
| bcmSwitchBstSnapshotEnable | Enable/Disable BST Snapshot mode for each THDO/THDI/CFAP resource. | 0-7 (each bit for one resource) |

*Table 47: Switch Type Values*

| *Value* | *Description* | *Arg Value* |
|---|---|---|
| bcmSwitchSymmetricHashControl | Selects which starting packet to use for symmetric hashing | • BCM_SYMMETRIC_HASH_0_IP4_ENABLE - Enable symmetric key hashing on Hash A for IPV4 packets.<br>• BCM_SYMMETRIC_HASH_1_IP4_ENABLE - Enable symmetric key hashing on Hash B for IPV4 packets.<br>• BCM_SYMMETRIC_HASH_0_IP6_ENABLE - Enable symmetric key hashing on Hash A for IPV6 packets.<br>• BCM_SYMMETRIC_HASH_1_IP6_ENABLE - Enable symmetric key hashing on Hash B for IPV6 packets.<br>• BCM_SYMMETRIC_HASH_0_SUPPRESS_UNIDIR_FIELD_ENABLE - Enable setting SPI, TEID, L2 GRE Key to zero for Hash A calculation.<br>• BCM_SYMMETRIC_HASH_1_SUPPRESS_UNIDIR_FIELD_ENABLE - Enable setting SPI, TEID, L2 GRE Key to zero for Hash B calculation.<br>• BCM_SYMMETRIC_HASH_0_FCOE_ENABLE - Enable symmetric key hashing on Hash A for FCoE packets.<br>• BCM_SYMMETRIC_HASH_1_FCOE_ENABLE - Enable symmetric key hashing on Hash B for FCoE packets. |
| bcmSwitchL2ExtLearn | Select where L2 addresses are learnt | • bcmSwitchL2LocInternal /* Learn MAC addresses on Internal Memory */<br>• bcmSwitchL2LocExternal /* Learn MAC addresses on External Memory */ |
| BcmSwitchMcQueueSchedMode | Schedule mode select for multicast queues. | • bcmSwitchMcUcPairGroupMode - Each MC queue is paired with one UC queue.<br>• bcmSwitchAllMcGroupMode - All MC queues are grouped together. |

*Table 47: Switch Type Values*

| *Value* | *Description* | *Arg Value* |
|---|---|---|
| bcmSwitchHashSelectControl | BCM56700/BCM56800/BCM56580 field selection control for enhanced hashing algorithm. | • BCM_HASH_FIELD0_DISABLE_TUNNEL_IP4_GRE_IP4 - selection 0 for tunnel IPv4 over GRE IPv4 pkts<br>• BCM_HASH_FIELD0_DISABLE_TUNNEL_IP4_GRE_IP6 - selection 0 for tunnel IPv4 over GRE IPv6 pkts<br>• BCM_HASH_FIELD1_DISABLE_TUNNEL_IP4_GRE_IP4 - selection 1 for tunnel IPv4 over GRE IPv4 pkts<br>• BCM_HASH_FIELD1_DISABLE_TUNNEL_IP4_GRE_IP6 - selection 1 for tunnel IPv4 over GRE IPv6 pkts<br>• BCM_HASH_FIELD0_DISABLE_TUNNEL_IP6_GRE_IP4 - selection 0 for tunnel IPv6 over GRE IPv4 pkts<br>• BCM_HASH_FIELD0_DISABLE_TUNNEL_IP6_GRE_IP6 - selection 0 for tunnel IPv6 over GRE IPv6 pkts<br>• BCM_HASH_FIELD1_DISABLE_TUNNEL_IP6_GRE_IP4 - selection 1 for tunnel IPv6 over GRE IPv4 pkts<br>• BCM_HASH_FIELD1_DISABLE_TUNNEL_IP6_GRE_IP6 - selection 1 for tunnel IPv6 over GRE IPv6 pkts |

# TRILL MANAGEMENT

New Trill port flags have been added.

***Table 48: TRILL port flags***

| *Name* | *Purpose* |
|---|---|
| BCM_TRILL_MULTICAST_REPLACE_DYNAMIC | Replace an existing dynamic L2 entry with TRILL entry, when table is full |
| BCM_TRILL_PORT_VIRTUAL | Virtual/pseudo nicknames for trill multi homing support |

# VLAN MANAGEMENT

New Port match criteria for a Logical Layer 2 has been added.

*Table 49: bcm_vlan_port_match_t*

| *Value* | *Meaning* |
|---|---|
| BCM_VLAN_PORT_MATCH_PORT_TUNNEL_PCP_VLAN | Mod/port/trunk + Tunnel Value + outer PCP + outer VLAN. |

## bcm_vlan_control_vlan_selective_set bcm_vlan_control_vlan_selective_get

Set or retrieve current VLAN properties selectively.

### Syntax

```
#include <bcm/vlan.h>
int bcm_vlan_control_vlan_selective_set(int unit,
                                bcm_vlan_t vlan,
                                uint32 valid_fields,
                                bcm_vlan_control_vlan_t *control);
int bcm_vlan_control_vlan_selective_get(int unit,
                                bcm_vlan_t vlan,
                                uint32 valid_fields,
                                bcm_vlan_control_vlan_t *control);
```

### Parameters

| | |
|---|---|
| unit | BCM device number |
| vlan | VLAN |
| valid_fields | Valid fields for VLAN control structure |
| control | (for "_set", IN) (for "_get", OUT) structure which contains VLAN property, see bcm_vlan_control_vlan_t |

### Description

Sets/gets miscellaneous VLAN-specific properties selectively. The valid fields is used to control which fields will be got/set, and can be any combination of BCM_VLAN_CONTROL_VLAN_MASK_table. The control properties are from bcm_vlan_control_vlan_t , see bcm_vlan_control_vlan_set/get for detail.

*Table 50: VLAN Control Valid Field Mask*

| *VLAN Control Valid Field Mask* | *Meaning* |
|---|---|
| BCM_VLAN_CONTROL_VLAN_VRF_MASK | Enable .vrf field. |
| BCM_VLAN_CONTROL_VLAN_FORWARDING_VLAN_MASK | Enable .forwarding_vlan field. |
| BCM_VLAN_CONTROL_VLAN_INGRESS_IF_MASK | Enable .ingress_if field. |
| BCM_VLAN_CONTROL_VLAN_OUTER_TPID_MASK | Enable .outer_tpid field. |

*Table 50: VLAN Control Valid Field Mask*

| *VLAN Control Valid Field Mask* | *Meaning* |
|---|---|
| BCM_VLAN_CONTROL_VLAN_IP6_MCAST_FLOOD_MODE_MASK | Enable .ip6_mcast_flood_mode field. |
| BCM_VLAN_CONTROL_VLAN_IP4_MCAST_FLOOD_MODE_MASK | Enable .ip4_mcast_flood_mode field. |
| BCM_VLAN_CONTROL_VLAN_L2_MCAST_FLOOD_MODE_MASK | Enable .l2_mcast_flood_mode field. |
| BCM_VLAN_CONTROL_VLAN_IF_CLASS_MASK | Enable .if_class field. |
| BCM_VLAN_CONTROL_VLAN_FORWARDING_MODE_MASK | Enable .forwarding_mode field. |
| BCM_VLAN_CONTROL_VLAN_URPF_MODE_MASK | Enable .urpf_mode field. |
| BCM_VLAN_CONTROL_VLAN_COSQ_MASK | Enable .cosq field. |
| BCM_VLAN_CONTROL_VLAN_QOS_MAP_ID_MASK | Enable .qos_map_id field. |
| BCM_VLAN_CONTROL_VLAN_DISTRIBUTION_CLASS_MASK | Enable .distribution_class field. |
| BCM_VLAN_CONTROL_VLAN_BROADCAST_GROUP_MASK | Enable .broadcast_group field. |
| BCM_VLAN_CONTROL_VLAN_UNKNOWN_MULTICAST_GROUP_MASK | Enable .unknown_multicast_group field. |
| BCM_VLAN_CONTROL_VLAN_UNKNOWN_UNICAST_GROUP_MASK | Enable .unknown_unicast_group field. |
| BCM_VLAN_CONTROL_VLAN_TRILL_NONUNICAST_GROUP_MASK | Enable .trill_nonunicast_group field. |
| BCM_VLAN_CONTROL_VLAN_SOURCE_TRILL_NAME_MASK | Enable .source_trill_name field. |
| BCM_VLAN_CONTROL_VLAN_TRUNK_INDEX_MASK | Enable .trunk_index field. |
| BCM_VLAN_CONTROL_VLAN_PROTOCOL_PKT_MASK | Enable .protocol_pkt field. |
| BCM_VLAN_CONTROL_VLAN_NAT_REALM_ID_MASK | Enable .nat_realm_id field. |
| BCM_VLAN_CONTROL_VLAN_L3_IF_CLASS_MASK | Enable .l3_if_class field. |
| BCM_VLAN_CONTROL_VLAN_ALL_MASK | Enable all fields in bcm_vlan_control_vlan_t structure. |

### Returns

| | |
|---|---|
| BCM_E_NONE | Operation completed successfully |
| BCM_E_UNAVAIL | Operation not supported |
| BCM_E_XXX | Operation failed. |

# VXLAN MANAGEMENT

New VXLAN port flags have been added.

***Table 51: VXLAN port flags***

| *Name* | *Purpose* |
|---|---|
| BCM_VXLAN_VPN_REPLACE | Replace attributes of an existed VPN |
| BCM_VXLAN_VPN_UNKNOWN_UCAST_REPLACE | Replace unknown unicast mc-group of an existed VPN |
| BCM_VXLAN_VPN_UNKNOWN_MCAST_REPLACE | Replace unknown multicast mc-group of an existed VPN |
| BCM_VXLAN_VPN_BCAST_REPLACE | Replace broadcast mc-group of an existed VPN |

Following VXLAN port flags has been deprecated.

***Table 52: VXLAN port flags***

| *Name* | *Purpose* |
|---|---|
| BCM_VXLAN_MULTIPATH | Multipath flag for VXLAN |

# Section 7: Resolved Issues for 6.3.4

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

***Table 53:***

| *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-31914 | 364321 | All | Added Diag shell command to dump group info without entries |
| SDK-37866 | | 88650_A0 88640_A0 56850_A0 56850_A1 56850_A2 | Fix conflicted command gport with getreg |
| SDK-38177 | | All | BCM_FIELD_USER_XXX flags are deprecated. All those flags are still used in code so they are moved to include/bcm_int/esw/field.h file. |
| SDK-38956 | | 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 | Added UDF support for MPLS packets with 3,4 and 5 labels in Triumph 3 device |
| 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 | Instead of iterating on all ports. The iteration is on the list of ports added to the multicast group. |
| SDK-41495 | 557384 | 56640_B0 | Support Triumph 3 in bcm_switch_pkt_info_hash_get() API and fix incomplete functionalities in compute load balancing and compute trunk hash of tridetn2. |
| 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. . |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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. |
| 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 | Made code changes to configure L3_IIFf in VLAN_TABm during init. |
| 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 | Fix to address inconsistent callbacks on TR3, in polling mode. |
| 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).<br>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 | SDK-48018 & SDK-48095 cosq bandwidth related setting. |
| 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 | there was 'if' check preventing to return the egress enabled flags. For this, code fixed, to return the egress mirroring enabled flag . |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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()<br>The corresponding actions are supported in the hardware for RAPTOR/RAVEN/HAWKEYE devices. |
| 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 | Support add higig port into a trunk and related functions. |
| 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-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 | Modified to install the selcodes in the slice if the slice was not empty and this is the first entry for the group in that slice |
| 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_A1 56850_A2 | According to port and cosq, retrieve hw queue number used by PBSMH header. |
| SDK-50162 | 692128 | All | Multiple RX interrupt packet handlers would be called when a packet was handled. |
| SDK-50212 | | 56850_A2 | The code supports for 40G/42G HG FEC are added. |
| SDK-50288 | 692335 | All | This is a duplicate of SDK-50288 BFD can not be supported in the LAN network because of IP addresses limitation. This has been fixed. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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: 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 |
| 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 | Add new soc property eb2_2bytes_big_endian to support EB2 endianism |
| SDK-50651 | 697868 | All | Improve counter thread performance. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 covered that 15 profiles could be created for the mapping from internal priority to MPLS Exp at the egress but 16 profiles could be created successfully when repeating the profiles creation. 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 to default boot in 64 port single modid mode 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 | Corrected the offset of the qualifiers L4SrcPort, L4DstPort for external FP during qualifiers init. |
| 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 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| SDK-51405 | | 56640_A0 56640_A1 56640_B0 | L2 entries learnt on the trunk ports are not 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 BCM_L2_STATION_COPY_TO_CPU configuration in l2 station entry for TD/TD2/TT2. |
| 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 is 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 | Correct the VLAN_PROFILEm configuration flow in qos module. |
| SDK-51568 | 705719 | 56850_A0 56850_A1 56830_A1 56850_A2 56830_A0 56830_A2 | Modify 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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 symmetric hash for Resilient Hashing in 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-51857 | 715638 | All 56440_A0 56440_A1 56440_B0 | Fixed bug in stat_group_create which was intializing '256' counters, which was causing this behavior, |
| SDK-51865 | | 56450_A0 | Changes made to use the existing field encap_id in bcm_mpls_port_t structure to pass the NHI for bcm_mpls_port_add. |
| SDK-51900 | | 56640_B0 | The table supports 16 entries per profile. There is 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.<br>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 53:*

| *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.<br>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.<br>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>=13. 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 | Show MC prefix MCAST PERMITS in 'show c' |
| 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 | 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.<br>See cint_trill_multi_homing.c for more description and packet-flows |

*Table 53:*

| *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-52142 | 719652 | All | Documentation update for Field API bcm_field_entry_prio_set. |
| 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 | In double wide mode CosQCpuNew and ServicePoolIdNew actions are not treated as conflicting by putting them in different parts of the entry. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 | 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 | 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. |
| SDK-52361 | 722981 | 56850_A2 | Add 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. |
| 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-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 | Support 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 |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| SDK-52434 | 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-52469 | 701853 | All | BCM_FIELD_DATA_QUALIFIER_OFFSET_NEGATIVE 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-52476 | | 56850_A1 56850_A2 56850_A0 | Added 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 | Added support to specify the timestamp offset during CPU packet tx. |
| SDK-52496 | 723483 | 84756_A0 84756_C0 | phy84756_fcmap.c driver : Added pluggable PHY support |
| SDK-52501 | | 56640_B0 | NL11K external tcam uses 80-bit wide registers. The CLI command "tcam dbreg" is 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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.<br>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.<br>The resource freeing during destroy, was fixed for the MATCH_PORT criteria objects as well.<br>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 | Added queue configuration assuming internal-lossless settings |
| SDK-52588 | 725824 | 56450_A0 | Fixed to handle -1 as numq for scheduler gport. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 | 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. |
| 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 | 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.<br>THDU_OUTPUT_PORT_RX_ENABLE0_64<br>MMU_THDM_DB_PORTSP_RX_ENABLE0_64<br>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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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-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 |
| 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-52759 | | 56850_A0 56850_A1 56850_A2 | Fixed range check for VXLAN VN_ID and L2GRE VPNID during vpn create API |
| SDK-52760 | | 88650_A0 88650_B0 88650_B1 | PON: VLAN-Port destroy for 3-tags manipulation in PON application should clean also EEDB resource. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 | Clear 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 | 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. |
| SDK-52806 | 728092 | 56648_A0 | On change of priority for the VLAN. A small delay is introduced as new priority mapping happens after deletion of old index. On live traffic, this transitional delay causes 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 bcm_cosq_stat_sync_get bcm_cosq_stat_sync_get32.<br>Same as 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) |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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).<br>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.<br>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 |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 removed unused code bcm_trill_multicast_source_add/ bcm_trill_multicast_source_delete/ bcm_trill_multicast_source_get for ARAD. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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. |
| 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_mode.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-53255 | 728560 | 56640_B0 | check the fiber_pref during speed set |
| SDK-53283 | 733471 | 56450_A0 | Clear HQOS configuration while switching from extended queuing to diffserv queuing. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| SDK-53286 | 733518 | 88650_A0 88660_A0 | PON: Add a new criteria "BCM_VLAN_PORT_MATCH_PORT_TUNNEL_PCP" 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 |
| 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_disable=1. User can mimic check using ACLs. |
| 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.<br>The indirection object (Forward-group) that consist both the physical-destination and the outgoing logical-interface (out-LIF) is implemented in DNX using FEC.<br>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_port,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. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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 |
| 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 | Released hardware resources of strict priority children when number of children becomes zero and make node unresolved function to be 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-53513 | 736830 | All | Initialize common logical to physical index and reverse mapping tables in alpm mode. |

*Table 53:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.4* |
|---|---|---|---|
| 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() . |

# Section 8: Unresolved Issues for 6.3.4

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

***Table 54:***

| *Number* | *CSP #* | *Chips* | *Release Notes* |
|---|---|---|---|
| SDK-30856 | | All | When mirror-to port resides on a different unit, the mirrored packet may not egress correctly. |
| SDK-32461 | | 56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 | On BCM5684x devices one can observe inaccurate packet discard, when it is based on packet color (CNG bits). |
| SDK-32676 | 381244 | All | The switch control bcmSwitchL2PortBlocking is not correctly preserved for Level 2 warmboot. |
| 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.<br>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-42259 | | 56440_A0 56440_A1 | Spurious error messages may be seen when executing Rx/TX tests TR90 and TR91 when the KNET modules is loaded. |
| SDK-42527 | | 88650_A0 | TR90 and TR91 are not supported for the Arad (88650). These TR's Run a TX/RX reload test to check DMA speed. |
| 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-44471 | 599747 | 56544_A0 | BCM56544 XAUI ports support single lane GE operation via lane 0 (at boot time). The applicable config is bcm56544_4x10_12x10=1. However, current software has not supported this yet. Modifying the src/soc/esw/triumph3.c->port_speed_max_94 as following can support GE operation:<br>static const int port_speed_max_94[] = { -1, 1/* 10 */, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, 1/* 10 */, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, 1/* 10 */, -1, -1, -1, -1, -1, -1, -1, 1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, 1/* 10 */, -1, -1, -1, -1, -1, -1, -1, 10, 10, 10, 10, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, 10, 10, 10, 10, 10, 10, 10, 10, -1, -1, -1, -1, -1 };<br>However, there should be more decent way to achieve this feature. |
| SDK-44506 | 593957 | 56842_A0 | If an L3 interface entry is in the my station TCAM instead of the usual L2 table it will not be restored upon warmboot. |

*Table 54:*

| *Number* | *CSP #* | *Chips* | *Release Notes* |
|---|---|---|---|
| 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-45234 | | 88650_A0 88650_B0 88650_B1 | src/examples/dpp/cint_pkt_test example returns an error when executed |
| 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-45965 | 623105 | 56446_B0 56440_A0 56445_A0 56440_A1 56445_A1 56444_A1 56449_B0 56445_B0 56440_B0 56447_B0 56443_B0 56441_B0 | Due to an oversight, the fields new_inner_pkt_priority and new_inner_cfi, priority and new_outer_cfi from bcm_van_action_set_t are not programmed correctly for a default, port-based action. |
| SDK-46556 | 621213 | 88650_A0 88650_B0 88650_B1 | bcm_l2_cache_delete() API does not delete general_trap entry configuration in HW |
| SDK-46641 | 633505 | 88650_A0 88650_B0 | Simple bridge: When packet comes in with length = 0 (i.e. ethertype = 0) then packet is parsed incorrectly as Trill packet and not as Ethernet packet. |
| 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.<br>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. |
| SDK-47905 | 654763 | All | The structure bcm_pkt_t representing the packet metadata contains the src_trunk field, which is filled with the trunk ID in the case the packet ingresses on a port, that is a member of a trunk (LAG).<br>The width of the src_trunk field in bcm_pkt_t is 8 bits. However, a number of modern devices allow up to 1024 trunk IDs. If a packet is received on such a trunk and is passed to the CPU, the src_trunk field will contain only the lower 8 bits of the trunk ID. |
| 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-48101 | 689094 | 56845_B0 56845_A2 | The "phy diag prbs" command does not work correctly on BCM56850 device in 40G mode and should not be used. |
| SDK-49047 | | 88650_B0 | when enabling 1588 for port A: bcm_port_timesync_config_set(unit, A, config_1, .....); 1588 packets received from any other port will be stamped/dropped/trapped according to the 1588 'config_1' configured for port A.<br>then, when configuring port B with config_2: bcm_port_timesync_config_set(unit, B, config_2, .....); when 1588 packets received from port B will be stamped/dropped/trapped according to the configuration in 'config_2'. 1588 received from A or any other port will be stamped/dropped/trapped according to 'config_2'. |

*Table 54:*

| *Number* | *CSP #* | *Chips* | *Release Notes* |
|---|---|---|---|
| SDK-49107 | 669198 | 56634_A0 56634_B0 | Under certain conditions, the counters associated with the external TCAM may not counter Red/Yellow packets as they should resulting in incorrect counts. |
| SDK-49543 | 663298 | 88650_A0 88650_B0 88650_B1 | The LED on NEGEVII does not work well. Even the link is on, the LED is off. |
| SDK-49910 | | 56640_A0 56640_A1 56640_B0 | If the default schedule hierarchy is changed, subsequent calls to various "cos" commands may fail with an "INVALID PORT" error, "cos config" is one example. |
| SDK-50431 | | 88660_A0 | ERSPAN with XGS MAC extender is not working for ARAD+. |
| SDK-50788 | | 56640_B0 | For BCM56640 (Triumph3) family devices (B0 stepping), if queues are detached and reattached, subsequent calls to bcm_cosq_gport_sched_set() may fail. |
| SDK-50899 | 634474 | 56840_A0 | When configuring BCM56840 (Trident) family devices for Weighted Random Early Discard (WRED) the TCP specific flags BCM_COSQ_DISCARD_TCP and BCM_COSQ_DISCARD_NONTCP have the opposite effect. The "discard TCP" flag causes non-TCP packets to be discarded and the "discard non-TCP" flag causes TCP packets to be discarded. |
| SDK-51099 | 695521 | 88650_A0 88650_B0 88650_B1 | In L2, in distributed systems under extreme scenario, the MAC Table reply FIFO may be empty but its interrupt is up. In this case, the interrupt should be reset before trying inserting a MAC Table address, otherwise a failure in the insertion will be returned by the Driver. |
| SDK-51144 | | 88660_A0 | Arad+ OAM: Currently no support for accelerated SLM |
| SDK-51182 | 704777 | All | Functions in CINT can be redeclared but the redeclaration does not take effect. The function cint_reset() must be called to delete the original function. |
| SDK-51352 | 708790 | 56846_A0 56845_B0 56845_A2 56840_A0 56846_A1 | The memory test built in the diagnostic shell "tr 50" may report false errors on some memories. This is a result of some bits in these memories being "read only". Parity is an example of a read only bit in memory. |
| SDK-51360 | 692893 | 56840_A0 | For BCM56840 (Trident) family devices, requests for VFP stat counters may be rejected if other non-VFP flex counters have already been created. |
| SDK-51443 | 692824 | 56850_A0 56850_A1 56850_A2 | Setting 100M forced speed mode may cause link down, or FCS error. |
| SDK-51658 | | 88650_A0 88650_B0 88650_B1 88660_A0 | Out-LIF non VLAN-Port: Out-LIF discard state for LIFs of type other than VLAN (MPLS, MIM, VXLAN, etc) isn't reset during Out-LIF deletion or creation. The following sequence will not work for example: 1. Create MPLS-Port using bcm_mpls_port_add 2. Call bcm_port_discard_set for mpls_port_id with the value BCM_PORT_DISCARD_EGRESS. 3. Destroy MPLS-Port using bcm_mpls_port_delete 4. Create again same mpls_port_id using bcm_mpls_port_add 5. Discard Out-LIF state will be drop and all packets on that MPLS-Port will drop until calling bcm_port_discard_set with removing discard value. |
| SDK-51698 | | 88650_A0 88650_B0 | VLAN-Port VTT lookups: In case port is double-lookup enable (bcmVlanPortDoubleLookupEnable) packet will not match correctly for packet with two valid TPIDs on that port and outer-tag is Priority tag (VLAN ID 0) |
| SDK-51810 | | 88650_B1 88660_A0 | bcm_vlan_port_find returns failover_port_id==1 even though port has no protection. |
| 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-52072 | 716983 | 88650_A0 | ERSPAN: ERSPAN removal is not done correctly in SW DB. Following sequence will fail: 1. Create ERSPAN entry with ID X. 2. Destroy ERSPAN entry ID X 3. Create again ERSPAN entry ID X. |

*Table 54:*

| *Number* | *CSP #* | *Chips* | *Release Notes* |
|---|---|---|---|
| SDK-52125 | | 88650_A0 88650_B0 88660_A0 | Piggy back CCM (CCMs with LM statistics stamped on them) has only been implemented for accelerated endpoints on arad+, but not in other cases. |
| SDK-52355 | | 56846_A0 56845_B0 56845_A2 56844_A0 56850_A0 56843_B0 56846_A1 56841_B0 56854_A0 56850_A1 56830_A1 56850_A2 56854_A2 | This problem affects Inserts/Delete calls for memories (Mostly hashed) which do not have inline correction support.<br>Insert: Many of the BCM APIs perform a read followed by an insert. If there is an Parity error sitting in the memory index being read, then read will generate an event, but the soc call for read will succeed as it returns cached data and expects it to get fixed by SER correction mechanism in the DPC Thread. Now BCM API continues further (since soc read is successful) and then issues an insert command which sees a failure as the correction has still not happened.<br>We will see similar problem for delete. A patch for this will be available in December |
| SDK-52383 | | 88650_A0 88650_B0 | Cud extension for Arad is not supported |
| SDK-52454 | | 88650_A0 88660_A0 | VLAN destroy all (bcm_vlan_destroy_all) returns error when VXLAN/VPLS VPNs exist in the device |
| SDK-52635 | 726506 | 88650_A0 | When using api bcm_trunk_delete_membr to delete trunk member some members can not be delete when using ModPort. User can still delete trunk members with in following ways: 1. Use bcm_trunk_set() API to remove members. 2. Use system port and not ModPort 3. Delete members in decreasing order |
| SDK-53529 | | 88650_B1 | When a DMM packet is trapped it is added OAM-TS header on which the clock is stamped.<br>Bug: The OAM-TS only contains the 4LSBs of the clock and there is no way to retrieve the MSB clock information. |
| SDK-53625 | 737814 | 88650_A0 88650_B0 88660_A0 | when creating a new mep with mdlevel 0 the SDK returns error. |
| SDK-53824 | | 56450_A0 | SDK initialization sequence fails when maximum number(128) of sub ports configured in BCM56450_A0. This specific configuration tries to configure THDO_OPNCONFIG memory with invalid index that results in a failure. A patch for this will be available in December. |
| SDK-53890 | | 88750_A0 88650_A0 88650_B0 88660_A0 | Compilation fail when adding KBP support flags and removing following Warmboot flags : CFGFLAGS += -DBCM_WARM_BOOT_SUPPORT CFGFLAGS += -DBCM_WARM_BOOT_SUPPORT_SW_DUMP CFGFLAGS += -DBCM_EASY_RELOAD_WB_COMPAT_SUPPORT |

# 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 55:***

| *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.

# 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 56:***

| | ***sdk-6.3.4*** | ***sdk-6.3.3*** | ***sdk-6.3.2*** | ***sdk-6.2.9*** |
|---|---|---|---|---|
| | | | | |
| golden | 154 | 154 | 154 | 154 |
| warmboot | 2208 | 2208 | 1644 | 1524 |
| | | | | |
| bfd | 16 | 16 | 16 | 16 |
| bhh | 15 | 15 | 15 | 15 |
| cosq | 290 | 290 | 289 | 289 |
| dvapi | 1003 | 1001 | 997 | 985 |
| fcoe | 23 | 20 | 19 | 0 |
| field | 711 | 704 | 704 | 704 |
| higigproxy | 129 | 129 | 123 | 0 |
| l2 | 229 | 223 | 223 | 222 |
| l3 | 219 | 213 | 212 | 211 |
| l3.alpm.combined | 63 | 61 | N/A | N/A |
| l3.alpm.combined.64 | 51 | 49 | N/A | N/A |
| l3.alpm.parallel | 63 | 61 | N/A | N/A |
| l3.alpm.parallel.64 | 51 | 49 | N/A | N/A |
| mpls | 81 | 81 | 81 | 80 |
| ptp | 115 | 115 | 115 | 1 |
| ser | 52 | 52 | 46 | N/A |
| stack | 49 | 49 | 49 | 49 |
| stat | 98 | 98 | 71 | 65 |
| trill | 40 | 40 | 40 | 36 |
| trunk | 173 | 139 | 139 | 139 |
| tunnel | 65 | 65 | 65 | 65 |
| subport | 12 | 12 | 12 | 12 |
| vlan | 199 | 199 | 199 | 186 |
| vxlan | 42 | 42 | 41 | 41 |
| Total | 6151 | 6043 | 5254 | 4794 |

# 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 57:***

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* | *sdk-6.2.9* |
|---|---|---|---|---|
| golden | 2.5 % | 2.6 % | 3.3 % | 5.1 % |
| warmboot | 3.2 % | 4.4 % | 7.8 % | 8.2 % |
| bfd | 0.6 % | 0.1 % | 0.1 % | 0.0 % |
| bhh | 1.7 % | 4.8 % | 4.7 % | 5.5 % |
| cosq | 1.7 % | 2.4 % | 2.3 % | 3.2 % |
| dvapi | 2.5 % | 2.6 % | 3.1 % | 3.4 % |
| fcoe | 0.1 % | 0.4 % | 0.7 % | DNE |
| field | 1.9 % | 1.8 % | 1.9 % | 2.2 % |
| higigproxy | 1.7 % | 1.7 % | 2.3 % | DNE |
| l2 | 3.0 % | 2.5 % | 2.8 % | 1.8 % |
| l3 | 2.8 % | 2.3 % | 2.4 % | 3.1 % |
| l3.alpm.combined | 0.0 % | 18.9 % | 16.7 % | 10.4 % |
| l3.alpm.combined.64 | 0.0 % | 25.5 % | DNE | DNE |
| l3.alpm.parallel | 0.0 % | 18.9 % | 13.6 % | 10.2 % |
| l3.alpm.parallel.64 | 0.0 % | 28.6 % | DNE | DNE |
| mpls | 2.2 % | 2.3 % | 0.9 % | 1.3 % |
| ptp | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| ser | 0.6 % | 1.0 % | 2.2 % | DNE |
| stack | 0.1 % | 0.4 % | 1.1 % | 1.2 % |
| stat | 0.6 % | 0.4 % | 1.1 % | 4.5 % |
| trill | 2.2 % | 2.5 % | 8.1 % | 10.5 % |
| trunk | 1.8 % | 0.8 % | 1.1 % | 1.3 % |
| tunnel | 0.8 % | 0.1 % | 0.1 % | 0.2 % |
| subport | 6.2 % | 9.6 % | 33.8 % | 36.6 % |
| vlan | 1.8 % | 2.1 % | 3.1 % | 1.5 % |
| vxlan | 0.0 % | 1.0 % | 1.7 % | 2.2 % |
| Total | 1.8 % | 1.9 % | 2.4 % | 2.8 % |

## TRIDENT2

***Table 58:***

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* | *sdk-6.2.9* |
|---|---|---|---|---|
| golden | 0.6 % | 1.3 % | 3.2 % | 6.5 % |
| warmboot | 4.7 % | 5.0 % | 12.3 % | 11.3 % |
| bfd | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| bhh | 0.0 % | 0.0 % | 0.0 % | 0.0 % |

*Table 58:*

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* | *sdk-6.2.9* |
|---|---|---|---|---|
| cosq | 0.3 % | 1.4 % | 1.4 % | 3.1 % |
| dvapi | 1.4 % | 1.5 % | 3.0 % | 2.7 % |
| fcoe | 0.0 % | 5.0 % | 10.5 % | DNE |
| field | 0.7 % | 0.9 % | 1.0 % | 1.1 % |
| higigproxy | 0.8 % | 0.8 % | 0.8 % | DNE |
| l2 | 1.3 % | 0.9 % | 0.9 % | 0.0 % |
| l3 | 1.4 % | 0.5 % | 0.5 % | 0.5 % |
| l3.alpm.combined | 0.0 % | 8.2 % | DNE | DNE |
| l3.alpm.combined.64 | 0.0 % | 10.2 % | DNE | DNE |
| l3.alpm.parallel | 0.0 % | 19.7 % | DNE | DNE |
| l3.alpm.parallel.64 | 0.0 % | 14.3 % | DNE | DNE |
| mpls | 2.5 % | 2.5 % | 1.2 % | 1.3 % |
| ptp | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| ser | 7.7 % | 7.7 % | 0.0 % | DNE |
| stack | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| stat | 0.0 % | 0.0 % | 1.4 % | 3.1 % |
| trill | 5.0 % | 5.0 % | 27.5 % | 25.0 % |
| trunk | 1.7 % | 2.2 % | 2.2 % | 1.4 % |
| tunnel | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| subport | 0.0 % | 0.0 % | 50.0 % | 50.0 % |
| vlan | 0.5 % | 1.5 % | 1.5 % | 1.1 % |
| vxlan | 0.0 % | 11.9 % | 22.0 % | 24.4 % |
| Total | 1.0 % | 1.9 % | 2.2 % | 2.5 % |

## TRIUMPH3

*Table 59:*

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* | *sdk-6.2.9* |
|---|---|---|---|---|
| golden | 0.6 % | 0.6 % | 3.2 % | 7.8 % |
| warmboot | 1.4 % | 4.5 % | N/A | 13.8 % |
| bfd | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| bhh | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| cosq | 0.0 % | 0.7 % | 1.0 % | 2.8 % |
| dvapi | 1.9 % | 2.4 % | 3.0 % | 3.4 % |
| fcoe | 0.0 % | 0.0 % | 0.0 % | N/A |
| field | 8.0 % | 8.1 % | 8.1 % | 8.4 % |
| higigproxy | 0.8 % | 0.8 % | 2.4 % | N/A |
| l2 | 3.1 % | 2.7 % | 2.7 % | 1.4 % |
| l3 | 2.3 % | 2.3 % | 6.6 % | 6.6 % |
| mpls | 1.2 % | 0.0 % | 0.0 % | 1.3 % |
| ptp | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| ser | 0.0 % | 0.0 % | 0.0 % | N/A |
| stack | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| stat | 0.0 % | 0.0 % | 1.4 % | 16.9 % |
| trill | 7.5 % | 7.5 % | 17.5 % | 27.8 % |
| trunk | 1.2 % | 0.7 % | 0.7 % | 0.7 % |
| tunnel | 0.0 % | 0.0 % | 0.0 % | 0.0 % |

***Table 59:***

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* | *sdk-6.2.9* |
|---|---|---|---|---|
| subport | 0.0 % | 8.3 % | 41.7 % | 41.7 % |
| vlan | 2.0 % | 3.0 % | 4.5 % | 2.2 % |
| vxlan | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| Total | 2.6 % | 2.9 % | 3.7 % | 4.6 % |

## HURRICANE2

***Table 60:***

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* |
|---|---|---|---|
| | | | |
| golden | 3.9 % | 2.6 % | 3.9 % |
| warmboot | 4.0 % | 5.8 % | N/A |
| bfd | 0.0 % | 0.0 % | 0.0 % |
| bhh | 0.0 % | 0.0 % | 0.0 % |
| cosq | 0.7 % | 1.0 % | 0.7 % |
| dvapi | 1.4 % | 1.9 % | 1.8 % |
| fcoe | 0.0 % | 0.0 % | 0.0 % |
| field | 1.8 % | 2.0 % | 2.3 % |
| higigproxy | 0.0 % | 0.0 % | 0.0 % |
| l2 | 1.7 % | 1.3 % | 2.7 % |
| l3 | 1.8 % | 0.9 % | 0.9 % |
| mpls | 1.2 % | 1.2 % | 0.0 % |
| ptp | 0.0 % | 0.0 % | 0.0 % |
| ser | 0.0 % | 0.0 % | 0.0 % |
| stack | 0.0 % | 0.0 % | 0.0 % |
| stat | 0.0 % | 0.0 % | 0.0 % |
| trill | 0.0 % | 0.0 % | 0.0 % |
| trunk | 1.2 % | 1.4 % | 1.4 % |
| tunnel | 0.0 % | 0.0 % | 0.0 % |
| subport | 0.0 % | 0.0 % | 0.0 % |
| vlan | 2.5 % | 2.5 % | 2.5 % |
| vxlan | 0.0 % | 0.0 % | 0.0 % |
| Total | 1.3 % | 1.4 % | 1.5 % |

## HELIX4

***Table 61:***

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* |
|---|---|---|---|
| | | | |
| golden | 1.3 % | 1.9 % | 3.2 % |
| warmboot | 4.0 % | DNE | DNE |
| | | | |
| bfd | 0.0 % | 0.0 % | 0.0 % |
| bhh | 0.0 % | 0.0 % | 0.0 % |
| cosq | 0.0 % | 0.7 % | 1.0 % |

*Table 61:*

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* |
|---|---|---|---|
| dvapi | 1.9 % | 2.6 % | 2.6 % |
| fcoe | 0.0 % | 0.0 % | 0.0 % |
| field | 1.4 % | 1.3 % | 1.8 % |
| higigproxy | 0.8 % | 0.8 % | 4.1 % |
| l2 | 3.9 % | 3.6 % | 4.0 % |
| l3 | 2.7 % | 2.8 % | 2.8 % |
| mpls | 1.2 % | 1.2 % | 0.0 % |
| ptp | 0.0 % | 0.0 % | 0.0 % |
| ser | 0.0 % | 0.0 % | 0.0 % |
| stack | 0.0 % | 0.0 % | 0.0 % |
| stat | 1.0 % | 1.0 % | 1.4 % |
| trill | 5.0 % | 5.0 % | 5.0 % |
| trunk | 0.6 % | 0.0 % | 0.0 % |
| tunnel | 0.0 % | 0.0 % | 0.0 % |
| subport | 0.0 % | 41.7 % | 41.7 % |
| vlan | 2.0 % | 3.5 % | 4.0 % |
| vxlan | 0.0 % | 0.0 % | 0.0 % |
| Total | 1.4 % | 1.8 % | 2.2 % |

## KATANA2

*Table 62:*

| | *sdk-6.3.4* | *sdk-6.3.3* | *sdk-6.3.2* |
|---|---|---|---|
| | | | |
| golden | 2.6 % | 2.6 % | 3.2 % |
| warmboot | 4.9 % | 8.3 % | N/A |
| | | | |
| bfd | 0.0 % | 0.0 % | 0.0 % |
| bhh | 0.0 % | 0.0 % | 0.0 % |
| cosq | 1.4 % | 2.8 % | 3.5 % |
| dvapi | 1.9 % | 1.8 % | 2.3 % |
| fcoe | 0.0 % | 0.0 % | 0.0 % |
| field | 1.7 % | 1.7 % | 1.6 % |
| higigproxy | 0.8 % | 0.8 % | 2.4 % |
| l2 | 3.9 % | 3.6 % | 2.7 % |
| l3 | 3.7 % | 3.3 % | 3.3 % |
| mpls | 2.5 % | 2.5 % | 1.2 % |
| ptp | 0.0% | 0.0 % | 0.0 % |
| ser | 0.0 % | 0.0 % | 0.0 % |
| stack | 0.0 % | 0.0 % | 8.2 % |
| stat | 0.0 % | 0.0 % | 0.0 % |
| trill | 0.0 % | 0.0 % | 0.0 % |
| trunk | 1.2 % | 0.0 % | 0.7 % |
| tunnel | 0.0 % | 0.0 % | 0.0 % |
| subport | 0.0 % | 8.3 % | 41.7 % |
| vlan | 2.5 % | 2.5 % | 2.5 % |
| vxlan | 0.0 % | 0.0 % | 0.0 % |
| Total | 1.7 % | 1.7 % | 2.1 % |

# STATIC CODE QUALITY ANALYSIS

Continued progress in whittling down static analysis defects per plan.

***Table 63:***

| | *Initial Reported Issues* | *Reported Issues SDK 6.3.3* | *Reported Issues SDK 6.3.4* |
|---|---|---|---|
| DNX | 664 | 688 | 628 |
| XGS | 271 | 292 | 327 |
| SBX | 600 | 421 | 323 |
| SerDes | 147 | 147 | 133 |
| Common | 2827 | 408 | 188 |

# Section 10: Device and Platform Support

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

# SWITCH DEVICES

*Table 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 64: 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 Queueing Engine with 49 SPI 4.2 subports |
| | QE-2000 A2 | |
| | QE-2000 A3 | |
| | QE-2000 A4 | |
| BCM88230 | BCM88230 A0 | XGS Core (XCore/SBX) Fabric Queueing Engine with Integrated Traffic Management with 4 HiGig2 ports, 50Gbps |

*Table 64: Switch Devices*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | BCM88230 B0 | |
| | BCM88235 A0 | XGS Core (XCore/SBX) Fabric Queueing 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 65: SER Supported Devices*

| *Family* | *Devices* |
|---|---|
| Trident | 56841, 56842, 56843, 56844, 56845, 56846, 56850 |
| Triumph | 56640, 56643, 56644, 56648, 56649, 56540, 56541, 56542, 56544, 56545 |
| Katana | All SKUs |
| Katana2 | 56450, 56455, 56456, 56248L, 55455 |
| Enduro2 | All SKUs |
| Hurricane2 | 56150, 56151, 53344, 53346, 53393, 53394 |
| Helix4 | 56340, 56040, 56344, 56042, 56342, 56041 |
| Firebolt4 | 56545, 56546 |

*Table 66: 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 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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+ |
| | 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 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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 |
| | 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 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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 | |
| | 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 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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 | |
| | 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 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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) |
| | 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) |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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 | |
| | BCM56841 A3 | |
| | BCM56841 A4 | |
| | BCM56841 B0 | |
| | BCM56841 B1 | |
| | BCM56843 A0 | 480 Gbps Ethernet Multilayer Switch |
| | BCM56843 A1 | |

*Table 66: Switch Devices that support Warm boot*

| *Family* | *Devices* | *Description* |
|---|---|---|
| | 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.

*Table 67: Switch Device Codenames*

| *Product Family* | *Architecture* | *Codename* |
|---|---|---|
| BCM5650 | StrataXGS | - |
| BCM5665 | StrataXGS | - |
| BCM5670 | StrataXGS | - |
| BCM5673 | StrataXGS | - |
| BCM5674 | StrataXGS II | - |
| BCM5675 | StrataXGS II | - |
| BCM5690 | StrataXGS | - |
| BCM5695 | StrataXGS II | - |
| BCM53310 | StrataXGS III | Hawkeye |

*Table 67: Switch Device Codenames*

| *Product Family* | *Architecture* | *Codename* |
|---|---|---|
| BCM53710 | StrataXGS III | Raptor |
| BCM53720 | StrataXGS III | Raven |
| BCM56010 | StrataXGS III | Raptor |
| BCM56020 | StrataXGS III | Tropicana |
| BCM56100 | StrataXGS III | Felix |
| BCM56110 | StrataXGS III | Felix+ |
| BCM56140 | StrataXGS IV | Hurricane |
| BCM56150 | StrataXGS IV | Hurricane2 |
| BCM56210 | StrataXGS III | Raptor |
| BCM56220 | StrataXGS III | Raven |
| BCM56300 | StrataXGS III | Helix |
| BCM56310 | StrataXGS III | Helix+ |
| BCM56320 | StrataXGS IV | Helix3 |
| BCM56340 | StrataXGS V | Helix4 |
| BCM56330 | StrataXGS IV | Enduro |
| BCM56130 | StrataXGS IV | Stardust |
| BCM56230 | StrataXGS IV | Dagger |
| BCM56440 | StrataXGS IV | Katana |
| BCM56445 | StrataXGS IV | Enduro2 |
| BCM56450 | StrataXGS IV | Katana2 |
| BCM56500 | StrataXGS III | Firebolt |
| BCM56510 | StrataXGS III | Firebolt2 |
| BCM56520 | StrataXGS IV | Apollo |
| BCM56530 | StrataXGS IV | Firebolt3 |
| BCM56540 | StrataXGS IV | Apollo2 |
| BCM56580 | StrataXGS III | Goldwing |
| BCM56600 | StrataXGS III | Easyrider |
| BCM56620 | StrataXGS IV | Triumph |
| BCM56629 | StrataXGS IV | Triumph |
| BCM56630 | StrataXGS IV | Triumph2 |
| BCM56640 | StrataXGS IV | Triumph3 |
| BCM56680 | StrataXGS IV | Valkyrie |
| BCM56685 | StrataXGS IV | Valkyrie2 |
| BCM56700 | StrataXGS III | Humv |
| BCM56720 | StrataXGS IV | HUMV+ |
| BCM56725 | StrataXGS IV | Conqueror |
| BCM56740 | StrataXGS IV | Titan |
| BCM56744 | StrataXGS IV | Titan+ |
| BCM56800 | StrataXGS IV | Bradley |
| BCM56820 | StrataXGS IV | Scorpion |
| BCM56825 | StrataXGS IV | Sco320G |
| BCM56840 | StrataXGS IV | Trident |
| BCM56840_PLUS | StrataXGS IV | Trident+ |
| BCM56850 | StrataXGS V | Trident2 |
| BCM88732 | StrataXGS IV | Shadow |
| BCM88020 | XGS Core | Caladan FE-2000 |
| BCM88025 | XGS Core | Caladan2 |
| BCM88030 | XGS Core | Caladan3 |
| BCM88130 | XGS Core | Polaris |
| BCM88230 | XGS Core | Sirius |
| BCM88235 | XGS Core | Sirius+ |

*Table 67: Switch Device Codenames*

| *Product Family* | *Architecture* | *Codename* |
|---|---|---|
| BCM88231 | XGS Core | Sirius TM |
| BCM88236 | XGS Core | Sirius+ TM |
| BCM56931 | XGS Core | Sportster |
| BCM56936 | XGS Core | Sportster+ |
| BCM53010 | ROBO | Northstar |
| BCM53018 | ROBO | Costar |
| BCM53020 | ROBO | Northstar+ |
| BCM53101 | ROBO | Lotus |
| BCM53115 | ROBO | Vulcan |
| BCM53118 | ROBO | Blackbird |
| BCM53125 | ROBO | Starfighter |
| BCM53128 | ROBO | Blackbird2 |
| BCM53242 | ROBO | Harrier |
| BCM53280 | ROBO | Thunderbolt |
| BCM53600 | ROBO | Voyager |
| BCM89500 | ROBO | Polar |
| BCM88X4X | SAND | Petra-B |
| BCM88650 | SAND | Arad |
| BCM88660 | SAND | Arad+ |
| BCM88750 | SAND | FE1600 |

# PHYS

*Table 68: 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 Preview) |
| BCM54292_A0 | 54280 | Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver (1588 feature is Preview) |
| BCM54294_A0 | 54280 | Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver (1588 feature is Preview) |
| 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 68: 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 |
| 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. |
| BCM8704 | 8703 | Serial 10-Gigabit Ethernet/Fibre Channel Transceiver with XAUI Interface |

*Table 68: PHYs*

| *Device* | *Driver Family* | *Description* |
|---|---|---|
| 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. Preview) |
| BCM8728_A0 | 8706 | Dual-Channel 10-GbE SFI-to-XAUI(TM) Transceiver with EDC. Firmware version 0511. (Preview) |
| 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 6 "(Preview) |
| BCM84328_A0 | 84328 | Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version D025 |
| BCM84328_B0 | 84328 | Dual 40 GbE/Octal 10 GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version D025 |
| BCM84333_B1 | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.67 (Preview) (Needs additional software component) |
| BCM84334_B1 | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.67 (Preview) (Needs additional software component) |
| BCM84336_B1 | 8481 | Dual 10GBASE-T Transceiver. Firmware version 1.67 (Preview) (Needs additional software component) |
| BCM84793_A0 | 84793 | 100GbE/OTN 4x25/28G VSR28 to 10x10/11G CAUI Gearbox PHY. Firmware version 0xD009 (Preview - 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 (Preview) |
| 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 preview) |
| BCM84834_B1 | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.67(Driver support for IEEE 1588 features are preview) |
| BCM84836_B1 | 8481 | Dual 10GBASE-T Transceiver. Firmware version 1.67(Driver support for IEEE 1588 features are preview) |
| BCM84844_A0 | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.06(Driver support is preview) |
| BCM84846_A0 | 8481 | Dual 10GBASE-T Transceiver. Firmware version 1.06(Driver support is preview) |

*Table 68: PHYs*

| *Device* | *Driver Family* | *Description* |
|---|---|---|
| BCM84848_A0 | 8481 | Quad 10GBASE-T Transceiver. Firmware version 1.06(Driver support is preview) |
| 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 preview) |
| BCM84729_A0 | 84729 | Dual-Channel SFI to XAUI with Macsec, 1588 (Firmware version 0x124. Driver support for IEEE 1588 features are preview) |
| 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 [Preview] |
| BCM84747_A0 | 84728 | Quad SFI to XAUI with 1588 (Firmware version 0x124. Preview) |
| BCM84748_A0 | 84728 | Quad SFI to XAUI with WAN/1588 (Firmware version 0x124. Preview) |
| BCM84749_A0 | 84749 | Quad SFI to XAUI with Macsec, 1588 (Firmware version 0x124. Driver support for IEEE 1588 features are preview) |
| BCM84752 A0 | 84740 | Dual-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version D105. (Preview) |
| 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) [Preview] |
| 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. (Preview) |
| BCM84780_A0 | 84740 | Octal-Channel 10 GbE SFI-to-XFI PHY with 1588. Firmware version 0x128 (Preview) |
| BCM84784_A0 | 84740 | Dual 40GbE/Octal 10GbE QSFP+ XLPPI-to-XLAUI PHY. Firmware version 0x125 (Preview) |
| BCM84764_A0 | 84728 | Quad SFI to RXAUI with 1588 (Firmware version 0x124. Preview) |
| 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. Preview) |

# 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 69: 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 70: 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 |

# CPU AND OPERATING SYSTEM COMBINATIONS

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

*Table 71: 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 | |

# REFERENCE DESIGNS

The following Switch Reference Designs are available from Broadcom and are supported in the SDK.

*Table 72: Reference Designs*

| *Platform* | *Description* |
|---|---|
| BCM953001R24M | 24-port FE + 2-port GE 53242 SW Ref. Design with BCM53001 Processor |
| BCM953115R5GM | 5-port GE + 1-port serdes 53115 Ref. Design |
| BCM953125RM | 5-port GE 53125 Ref. Design |
| BCM953242R24M | 24-port FE + 2-port GE 53242 SW Ref. Design |
| BCM953262R24M | 24-port FE + 4-port GE 53262 SW Ref. Design |
| BCM953284R | 24-port FE + 2-port GE 53284 SW Ref. Design |
| BCM953284MDU | 24-port FE 53284 SW Ref. Design with TK3715 EPON ONU MAC/Serdes |
| BCM953286R | 24-port FE + 4-port GE 53286 SW Ref. Design |
| BCM953300 | 24-port GE 53300 Switch Ref Design |
| BCM953302 | 48-port GE 53302 Switch Ref Design |
| BCM953314K | 24-port GE - 53314 System Verification Kit |
| BCM953314R24GS | 24-port GE - 53314 Switch Ref Design |
| BCM953604R | 24-port FE + 1-port 1/2G EPON ONU MAC/SerDes Reference Design |
| BCM989501R | 5-port BR + 1-port GE - 89501 Ref. Design |
| BCM989501RD | 5-port BR + 1-port GE - 89501 Ref. Design |
| BCM956018K48T | 48-port FE + 2-port GE + 2-port HGL(CAT 7) - 56018 SVK |
| BCM956024K24T | 24-port FE + 4-port HGL(CAT 7) - 56024 SVK |
| BCM956102R48XS | 48-port FE + 4 port GE 56102 SW Ref Design w/2-HiGig/10GE |
| BCM956112R48XS-02 | 48-port FE + 4 port GE 56112 SW Ref Design w/2-HiGig/10GE - PPC8245 |
| BCM956132K | 24-port FE 56132 SW SVK Design w/ two 10GE/HiGig2 and two 1G/ 2.5Gb Uplink Ports |
| BCM956214R26T | 26-port GE (2 TX/SX) + 2-port HGL(CAT 7) - 56214 Reference Design |
| BCM956219K50T | 50-port GE + 2-port HGL(CAT 7) - 56218 - PPC8245 SVK |
| BCM956218K50T | 50-port GE + 2-port HGL(CAT 7) - 56218 System Verification Kit |
| BCM956224K24T | 24-port GE + 4-port HGL(CAT 7) - 56224 SVK |
| BCM956224R24F | 24-port GE + 4-port GE SFP - BCM56224 Reference board. |
| BCM956300R24 | 24-port GE 56300 Switch Ref Design |
| BCM956304R24XS | 24-port GE (2 TX/SX) 56304 SW Ref Des w/2-HiGig + 2-10GE |
| BCM956314R24ST | 24-port GE + 4 HiGig/2.5GE(CAT 7) 56314 Ref Design |
| BCM956314R24XST | 24-port GE + 4 10GE/HiGig/2.5GE(CX4) - 56314 Ref Design |
| BCM956334K_02/BCM956334K_03 | 24xGE + 4x10G/13HG (iPass) with BCM56334 switch |
| BCM956500R24 | 24-port GE 56500 Switch Ref Design |
| BCM956504R24XS | 24-port GE (2 TX/SX) 56504 SW Ref Des w/2-HiGig + 2-10GE |
| BCM956504R48XSP | 48-port GE (12 w/POE) 56504 Switch Ref Design 4 - HiGig/10GE |
| BCM95650K24 | 24-port FE + 4 port GE Switch Development Kit |
| BCM95650R24 | 24-port FE + 4 port GE (TX or SFP) Reference Design |
| BCM956514R24XST | 24-port GE + 4 10GE/HiGig/2.5GE(CX4) - 56514 Ref Design |
| BCM956514R48XSP | 48-port GE (12 w/POE) 56514 Switch Ref Design 4 - HiGig/10GE |
| BCM956580K16TXS | 16-port 2.5G SFP Fibre + 4 HiGig/10GE 56580 SDK |
| BCM956601K12D | 12-port GE + 1-HiGig 56601 DDR SDRAM SDK |
| BCM956601K12N | 12-port GE + 1-HiGig 56601 Netlogic TCAM SDK |
| BCM956602KXSN | 1-HiGig + 1-10GE 56602 Netlogic TCAM SDK |
| BCM95665K48 | 48-port FE + 4 port GE TX/SX + 1HiGig Switch Development Kit |
| BCM956700K16S | 16-port HiGig CX4 56700 SDK |

*Table 72: Reference Designs*

| *Platform* | *Description* |
|---|---|
| BCM95670K8 | 8-port 5670 GE Switch Development Kit |
| BCM95673K2S | 2 x 5673 10-GE + HiGig Switch Development Kit |
| BCM95673R8 | 8-port 5673 10 GE XFP Switch Reference Design |
| BCM95673R8CX4 | 8-port 5673 10 GE CX4 Switch Reference Design |
| BCM95675K8 | 8-port 5675 GE Switch Development Kit |
| BCM95675K8U | 8-port 5675 GE Switch Development Kit - PPC8245 |
| BCM956800K20X | 20-port 10 GE CX4 56800 SDK |
| BCM95690K24S | 24-port 5690 GE Switch Development Kit w/2HiGig |
| BCM95690K24 | 24-port 5690 GE Switch Development Kit |
| BCM95690P24REF | 24-port 5690 GE + 5671 w/2HiGig Ports Reference Design |
| BCM95690R24 | 24-port 5690 GE Ports Reference Design |
| BCM95690R24S | 24-port 5690 GE + 5671 w/2HiGig Ports Reference Design |
| BCM95690R48S | 48-port 5690 GE + 5670 w/4HiGig Ports Reference Design |
| BCM95690R48X2S | 48-port 5690 GE + 5670 w/2-HiGig Ports + 2-10-GE Ports Ref. Design |
| BCM95691K12 | 12-port 5691 GE Switch Development Kit |
| BCM95695K24 | 24-port 5695 GE Switch Development Kit |
| BCM95695R24S | 24-port 5695 GE + 5671 w/2HiGig Ports Reference Design |
| BCM95695R24X2S | 24-port 5695 GE + 2-port 5675 HiGig + 2-port 5674 10GE CX4 |
| BCM95695R48X2S | 48-port 5695 GE + 5670 w/2-HiGig Ports + 2-10-GE Ports Ref. Design |
| BCM91125CFM16 | BCM956010CS Dual 5675 Fabric + 1125H CPU |
| BCM91125CFM8 | BCM956006CS Single 5675 Fabric + 1125H CPU |
| BCM956501LM | 12-port 10GE CX4 56501/5675 Line Module |
| BCM956504LM | 48-port GE 56504 Line Module |
| BCM956700CFM16 | 16-HiGig 56700 Fabric + BCM1125 CPU Module |
| BCM95674LM | 6-port 10GE CX4 5674/5675 Line Module |
| BCM956802LM | 12-port 10GE CX4 56802 Line Module |
| BCM95695LM | 48-port GE 5695/5675 Line Module |
| BCM956802CFM8 | BCM956006CS 56802 Fabric + 8 10GE + 1125H CPU |
| BCM956680K24TS_02/BCM956680K24TS_05 | 25 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/ HiGig2 Uplink ports SVK |
| BCM956624K49TS_02/ BCM956624K49TS_05 | 49 port 1-GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports and External Table Expansion SVK |
| BCM956624R49S_02 | 49 port 1-GbE Multilayer Ethernet Switch with 4 x 10-GbE SFP+ Uplink ports BCM56624 reference board |
| BCM956634K49S_02 | 49xGE + 4 x XAUI/HG (iPass) with BCM56634 switch |
| BCM956636K25S_02 | 24x1GE + 2x12HG + 4x16HG (iPass) with BCM56636 switch |
| BCM956638K8XS_02 | 4x12HG + 4x16HG (iPass) with BCM56638 switch |
| BCM956639K25S_02 | 24x1GE + 8x10G (iPass) with BCM56639 switch |
| BCM956526K29S_02 | 28x1GE + 6x12HG (iPass) with BCM56526 switch |
| BCM956685K24TS_02 | 24 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/ HiGig2 Uplink ports SVK |
| BCM956820K24XG_02/BCM956820K24XG_05 | 24 x 10-GbE + 4 x 1-GbE Multilayer Ethernet Switch SVK |
| BCM956820R24XG_02 | 24 x 10-GbE + 4 x 1-GbE BCM56820 Multilayer Ethernet Switch Reference board with SFP+ interface. |
| BCM956825K24XG_02 | 16 x 10-GbE + 8 x 20-Gbps HG2 + 1 x 1-GbE Multilayer Ethernet Switch Reference board. |
| BCM956720K16S_02/BCM956720K16S_05 | 16-Port, 256-Gbps Switch Fabric + 4 x 1-GbE SVK |
| BCM956725K16S_02/BCM956725K16S_05 | 8-Port (20Gbps) + 4-port (16Gbps) Switch Fabric + 4 x 1-GbE SVK |
| BCM988020QSK24X2 | Carrier Ethernet 24-port GE + 2-port 10GbE Reference Design (also known as Metrocore) |
| BCM988130FK24X2 | Carrier Ethernet 24-port GE + 2-port 10GbE Reference Design (also known as Polaris Line card) |

*Table 72: Reference Designs*

| *Platform* | *Description* |
|---|---|
| BCM988025QSK24X2 | Carrier Ethernet 24-port GE + 2-port 10GbE Reference Design (also known as C2 SVK) |
| BCM988130K_02 | BCM88130 SVK with 96 fabric serdes connections (24 iPass ports) |
| BCM988235K_02 | BCM88235 SVK with 4 HiGig2 ports (4 iPass), 2 flow control ports (2 iPass) |
| BCM953724R26WS | 26-Port, 26-Gbps Integrated Multilayer Switch and CPU |
| BCM956628K8TS | 8 port 10-GbE/HiGig2 Multilayer Ethernet Switch with External Table Expansion |
| BCM956620K24TS | 24 port 1-GbE Multilayer Ethernet Switch with 4 x 10-GbE/HiGig2 Uplink ports |
| BCM956684K24TS | 24 port 1-GbE/2.5GbE Multilayer Ethernet Switch with 4 x 10-GbE/ HiGig2 Uplink ports |
| BCM956725K16S | 8 Port, 20-Gbps + 4 Port, 16-Gbps HiGig2 Switch Fabric |
| BCM956626K8TS | 25 port 1-GbE Multilayer Ethernet Switch with 6 x 10-GbE/HiGig2 Uplink ports and External Table Expansion |
| BCM956629K24S | 25 port 1-GbE Multilayer Ethernet Switch with 8 x 10-GbE/HiGig2 Uplink ports and External Table Expansion |
| BCM956224R50T | 50-port GE + 2-port HGL(CAT 7) - 2 X BCM56224 |
| BCM956024R50T | 48-port FE + 2-port GE + 2-port HGL(CAT 7) - 2 X BCM56024 |
| BCM956524K24S_02 | 24xGE + 4 x XAUI/HG (iPass) with BCM56524 switch |
| BCM956521K_02 | 24-Port GbE Multilayer Switch with 10 GbE/HiGig2 Uplink Ports |
| BCM956740K_02 | 480/640 Gbps Switch fabric |
| BCM956743K_02 | 480/640 Gbps Switch fabric |
| BCM956840K_02 | 320/480/640 Gbps Ethernet Multilayer Switch |
| BCM956845K_02 | 320/480/640 Gbps Ethernet Multilayer Switch |
| BCM956846KQ | 320/480/640 Gbps Ethernet Multilayer Switch |
| BCM98727MC | 16 port Ipass to SFP+ Media Converter |
| BCM956534K24TS | 24xGE + 4 x XAUI/HG (iPass) with BCM56534 switch |
| BCM956538K49S | 48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports SVK |
| BCM956640K_02 | BCM56640 SVK |
| BCM956643K_02 | BCM56643 SVK |
| BCM956644K_02 | BCM56644 SVK |
| BCM9NEGEV | Two BCM988640TMM line cards (3x10Gb SFP+ phys, 6x20Gb QSFPs) + FE600 switch fabric. |
| BCM9NEGEVII | BCM988750FEM fabric card |
| BCM956850K | 1.2Gbps Ethernet Multilayer Switch |

Note: The flash sizes of some old BCM53XX platforms are 4 MBytes only. As the code size of SDK increases, the 4 MB flash is not enough for this release. Replace the flash to 8 MB or above for those reference designs.

# Section 11: 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 73: 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 141) |
| ED Editor | USENET comp.sources.misc Volume 9, Issue 36 | src/appl/diag/edline.c | See (ED Editor License terms and conditions) (page 143) |
| CINT | http://www.gnu.org/software/bison/ | src/appl/cint/cint_parser.[ch] | See (CINT parser license terms and conditions) (page 144) |
| 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 145) |
| 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 146) |
| APIMODE | http://www.gnu.org/software/bison/ | src/appl/diag/api/api_grammar.tab.[ch] | See (APIMODE parser license terms and conditions) (page 147) |
| VxWorks | Wind River Systems, Inc. | systems/vxworks | See (Wind River Systems license terms and conditions) (page 148) |

## 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>

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 and Telegraph Company or of the Regents of the University of California.

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    credits must appear in the documentation.
 3. Altered versions must be plainly marked as such, and must not be
    misrepresented as being the original software.  Since few users
    ever read sources, credits must appear in the documentation.
 4. This notice may not be removed or altered.
```

## ED EDITOR LICENSE TERMS AND CONDITIONS

```
 ed - standard editor
 ^^
   Authors: Brian Beattie, Kees Bot, and others

Copyright 1987 Brian Beattie Rights Reserved.
Permission to copy or distribute granted under the following conditions:
1). No charge may be made other than reasonable charges for reproduction.
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.

   This program is free software: you can redistribute it and/or modify
   it under the terms of the GNU General Public License as published by
   the Free Software Foundation, either version 3 of the License, or
   (at your option) any later version.

   This program is distributed in the hope that it will be useful,
   but WITHOUT ANY WARRANTY; without even the implied warranty of
   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
   License without this special exception.

   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.  */
```

# CIRCUIT EMULATION SERVICE (CES) DRIVER TERMS AND CONDITIONS

The Circuit Emulation Services (CES) driver code provided herewith is provided by BATM Advanced Communications Ltd (BATM) and is subject to licensing agreement between BATM and Broadcom Corporation.

# BIGDIGITS LICENSE TERMS AND CONDITIONS

Contains BIGDIGITS multiple-precision arithmetic code originally written by David Ireland, copyright (c) 2001-11 by D.I. Management Services Pty Limited <www.di-mgt.com.au>, and is used with permission.

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# APIMODE PARSER LICENSE TERMS AND CONDITIONS

The C code for the APIMODE parser was generated by using GNU Bison parser 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.

See (CINT parser license terms and conditions) (page 144) for the Bison licence.

# WIND RIVER SYSTEMS LICENSE TERMS AND CONDITIONS

See `WRS_LICENSE.pdf` contained in each systems/vxworks subdirectory.

# Section 12: Resolved Issues for 6.3.3

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

***Table 74:***

| *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.<br>File name: include/bcm/port.h<br>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<br>New MACRO: #define BCM_PORT_FLOOD_BLOCK_KNOWN_MCAST 0x40<br>USABILITY: This MACRO will be used by the client to program the KNOWN_MCAST_BLOCK_MASK table/register.<br>Functions where it used: bcm_esw_port_flood_block_set/ bcm_esw_port_flood_block_get _bcm_port_flood_block_op<br>Based on the flag set by the client the KNOWN_MCAST_BLOCK_MASK table/register will be programmed.<br>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_ENABLEf 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 74:*

| *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_ecmp |
| 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.<br>The API function performed the gport association from the relevant VSIs, but didn't delete the VSIs.<br>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 74:*

| *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.<br>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.<br>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'.<br>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 74:*

| *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.<br>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 | 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<br>THDI_PORT_LIMIT_STATES<br>THDI_POOL_DROP_STATE<br>THDI_GLOBAL_HDRM_COUNT_PIPEX<br>THDI_GLOBAL_HDRM_COUNT_PIPEY<br>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.<br>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.<br>An example of use see: cint_egress_acceptable_frame_type.c |

*Table 74:*

| *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.<br>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.<br>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. |

*Table 74:*

| *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 | Made 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.<br>Important note: Default behavior of VRRP in ARAD+ has changed.<br>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.<br>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 74:*

| *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).<br>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.<br>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 74:*

| *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_A2 56850_A0 | 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_A2 56850_A0 | 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<br>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 74:*

| *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.<br>For example: pbmp_subport=0x2222 num_subports=12<br>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 | 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-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. |
| SDK-50325 | | 56450_A0 | Accounted for SGMII ports, post 1xXAUI-->4xSGMII flexio operation, for 'priority mapping' and 'outer tpid' related initialization |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| SDK-50336 | 692831 | 88030_A0 | Fixed |
| SDK-50342 | | All | Added PCIe Gen2 compliance support. |
| 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_A1 56640_B0 | 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 in ARAD+ new event types and multiple events interrupt. |
| SDK-50483 SDK-51208 | | 56850_A0 56850_A1 56850_A2 | Added the supported for FCOE data any in UDF module |
| SDK-50510 | 696350 | 56640_A0 56643_A0 56640_A1 56643_A1 56640_B0 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_B0 88650_B1 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 88650_B0 88660_A0 | Fix a potential misconfiguration of mirroring destination that is a multicast group. |
| 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 |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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.<br>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.<br>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.<br>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(). |
| 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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| SDK-50608 | | 88660_A0 | EEDB formats are now aligned to bcm88660 device.<br>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)<br>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.<br>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: -<br>BCM_HASH_CONFIG_CRC16_0x8003 -<br>BCM_HASH_CONFIG_CRC16_0x8011 -<br>BCM_HASH_CONFIG_CRC16_0x8423 -<br>BCM_HASH_CONFIG_CRC16_0x8101 -<br>BCM_HASH_CONFIG_CRC16_0x84a1 -<br>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.<br>This would not call ay user callback as it would think that entry is still not in the range that user asked for.<br>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 |
| SDK-50695 | | 88650_A0 | The following Interrupts handling (corrective action) was modified<br>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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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).<br>When calling bcm_vlan_port_destroy with an Asymmetric LIF , API destroyed both sides while it should destroy only the appropriate Ingress/ Egress side.<br>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. |
| 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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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. |
| 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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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.<br>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).<br>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.<br>Important note: The following change the default behavior of Out-LIF creation using bcm_vlan_port_create<br>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.<br>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. |
| 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.<br>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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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_TCAM_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-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.<br>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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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.<br>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. |
| 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 | Phy speed issue has been fixed. |
| 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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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. |
| 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.<br>Issue resolved by eliminating the need of retrieving information of match criteria for a given valid LIF ID. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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.<br>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. |
| 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.<br>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.<br>Note that for accelerated DMMs in Arad+ only 1588 time stamping is enabled. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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).<br>Please see CINT example L2GRE changes in : $SDK/src/examples/cint_l2gre.c |
| 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.<br>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.<br>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.<br>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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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.<br>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-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.<br>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).<br>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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| 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. |
| SDK-51612 | | 88650_A0 | New SoC properties for ILKN retransmit: ilkn_retransmit_rx_reset_when_error_enable ilkn_retransmit_rx_reset_when_aligned_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-51699 | 714936 | 88030_A0 | Earlier SDK releases did not initialize the PPE property table with the parameters defined in the PPE configuration .lrp file. This has been fixed. |
| 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. |

*Table 74:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.3* |
|---|---|---|---|
| SDK-51757 | 711558 | 56820_A0 56820_B0 | Fixed an issue in bcm_mirror_egress_get() API which results in a number of mirror related diag shell commands and port encap command fails 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. |
| 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. |

# Section 13: Resolved Issues for 6.3.2

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

***Table 75:***

| *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.<br>Compressed-VID is introduced according to VLAN range compression procedure. Initial-VID is introduced according to Initial-VID procedure.<br>By default: ISEM classify untagged and priority tag packets to Initial-VID, otherwise according to Compressed-VID.<br>In order to eliminate the use of Compressed-VID per port, use a new soc property: vlan_translation_initial_vlan_enable.<port>=0<br>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).<br>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:<br>bcmSwitchSynchronousPortClockSourceBkupDivCtrl<br>bcmSwitchSynchronousPortClockSourceDivCtrl |

*Table 75:*

| *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 75:*

| *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.<br>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.<br>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.<br>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);<br>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 75:*

| *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 75:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.2* |
|---|---|---|---|
| SDK-47232 | 643531 | 56640_A0 56641_A0 56648_A0 | Fixed an issue that bcm_vlan_translate_action_add() API overwrites existing vlan translation entry created by other applications such as MPLS. |
| SDK-47241 | 644482 | 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 egress port cos metering accuracy issue(packet-mode) |
| SDK-47250 | 643637 | 56440_A0 56450_A0 56440_B0 | Excluded CES and CI blocks in soc dump and some test operations in Enduro2. |
| SDK-47320 | 642011 | 88650_A0 88650_B0 88650_B1 | TPID management: Fix ingress VLAN translation with only single inner TPID value. |
| 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 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, 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 |
| 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.<br>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 75:*

| *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.<br>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.<br>Bug: This strength is hard coded and cannot be configured. Should be taken from default_trap_strength soc property. |

*Table 75:*

| *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.<br>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 75:*

| *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.<br>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<br>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:<br><addr_expr> == *,<br>where <addr_expr> can be register expression, variable expression, header expression, ocm table expression, etc. |

*Table 75:*

| *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.<br>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.<br>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 75:*

| *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.<br>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.<br>*. 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]<br>* 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):<br>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:<br>- 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).<br>- egress_fabric_drop_threshold_multicast Drop multicast according to Delete-FIFO available resources (number of packet descriptors which can be added to Delete-FIFO).<br>- 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-48274 | 661389 | 88650_A0 88650_B0 88650_B1 | Diagnostics: Fixed error tag information from diag command "diag pp parsing info". |

*Table 75:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.2* |
|---|---|---|---|
| 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_A1 56850_A2 | 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.<br>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_B0 88650_B1 | 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 75:*

| *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 75:*

| *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:<br>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 75:*

| *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 75:*

| *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.<br>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);<br>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 75:*

| *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)<br>2. The policer 'yellow' was encoded as DP=2. It is DP=1 from now on.<br>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.<br>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 flagsinbcm_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. |

*Table 75:*

| *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.<br>The burstiness of credit watchdog configurations using a small range of queues was improved.<br>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.<br>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_COMMON_STATUS_MESSAGE);<br>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_COMMON_STATUS_MSG, &dt); /* set the period */ bcm_cosq_delay_tolerance_level_get (unit, BCM_COSQ_DELAY_TOLERANCE_SET_COMMON_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 75:*

| *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_ENTRIES=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_ENTRIES=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.<br>Workaround; Disable port shaping before disabling a port.<br>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 75:*

| *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_management 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.<br>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_B0 88650_B1 | 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_B0 88650_B1 | 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_A1 56850_A2 | 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 75:*

| *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<br>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-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:<br>bcmCosqGportNotGreenDroppedPkts<br>bcmCosqGportNotGreenDroppedBytes<br>bcmCosqGportNotGreenAcceptedPkts<br>bcmCosqGportNotGreenAcceptedBytes<br>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 75:*

| *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<br>When 'vlan' is set to BCM_VLAN_INVALID, the vlan, cfi and pri won't be configured to the device.<br>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 75:*

| *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.<br>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, int offset, int nbytes); The functions parameters match those of the corresponding BCM API functions. |

*Table 75:*

| *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 75:*

| *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 75:*

| *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 75:*

| *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.<br>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.<br>More details can be found in the user manual and in the CINT example cint_policer_metering_example.c |

*Table 75:*

| *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.<br>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-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. |
| 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 |

*Table 75:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.2* |
|---|---|---|---|
| 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 |

*Table 75:*

| *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-49818 | | 56640_A0 | 56640_A0: Added locks during counter accumulation.. |
| SDK-49856 | 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 75:*

| *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.<br>The 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.<br>With this fix, SDK will always look into the incoming flags and set/unset the L3 flags.<br>The 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 75:*

| *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)<br>This stopped working in release 6.2.2.<br>This was fixed to work again.<br>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<br>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 75:*

| *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 56450_A0 56340_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 56845_A2 56840_A0 56640_A0 56644_A0 56850_A0 56843_B0 56841_A3 56841_B0 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_B0 88650_B1 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_B0 88650_B1 | 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 56850_A0 56150_A0 56340_A0 56640_B0 | 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 56850_A0 56640_A1 56640_B0 | Unlock semaphore correctly in bcm_tr2_vlan_gport_add(). |
| SDK-51003 | | 56850_A0 | N/A |

***Table 75:***

| *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 | 716343 | 56850_A0 | Application can use BCM_PORT_PHY_CONTROL_TX_LANE_SQUELCH before enabling mac loopback to avoid noise on the link. |

# Section 14: Resolved Issues for 6.3.1

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

***Table 76:***

| *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 76:*

| *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.<br>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<br>bcmFieldActionColorIndependent<br>bcmFieldActionL3ChangeVlan<br>bcmFieldActionL3ChangeVlanCancel<br>bcmFieldActionL3ChangeMacDa<br>bcmFieldActionSrcMacNew<br>bcmFieldActionDstMacNew<br>bcmFieldActionL3ChangeMacDaCancel<br>bcmFieldActionL3Switch<br>bcmFieldActionL3SwitchCancel<br>bcmFieldActionAddClassTag<br>bcmFieldActionOuterVlanNew<br>bcmFieldActionRedirectVlan<br>bcmFieldActionRedirectMcast<br>bcmFieldActionRedirectIpmc<br>bcmFieldActionEgressPortsAdd<br>bcmFieldActionEgressMask<br>bcmFieldActionRedirectCancel<br>bcmFieldActionRedirect<br>bcmFieldActionRedirectTrunk<br>bcmFieldActionRedirectEgrNextHop<br>bcmFieldActionVnTagNew<br>bcmFieldActionVnTagDelete<br>bcmFieldActionRedirectPbmp<br>bcmFieldActionOffloadRedirect<br>bcmFieldActionRedirectBcastPbmp<br>bcmFieldActionFabricQueue<br>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 76:*

| *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 76:*

| *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.<br>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;<br>The recommended value of sample_rate_divisor is 0x10000 to match the hardware resolution. |

*Table 76:*

| *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 88650_A0 88640_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 56850_A0 56841_B0 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 88640_A0 88650_B0 | VLAN: Fixed a bug where bcm_vlan_translate_action_traverse did not traverse over the actual correct vlan_translate actions. |
| SDK-44674 | | 88750_A0 88650_A0 88640_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-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. |
| SDK-44750 | | 88650_A0 | memory overrun at warmboot: writes & read immediately after allocated memory. Fixed offset for memory write in template manager warmboot. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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.<br>Example: See cint_trill.c, trill_mc_transit_fecless_config. Configured port 40 is recycling port is also required for this example.<br>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.<br>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<br>Example cint_mact_bulk_operations.c |
| SDK-45009 | 608116 | All | Support the following Soft Reset modes: SOC_DPP_RESET_MODE_BLOCKS_AND_FABRIC_SOFT_RESET 0x100 SOC_DPP_RESET_MODE_BLOCKS_AND_FABRIC_SOFT_INGRESS_RESET 0x200 SOC_DPP_RESET_MODE_BLOCKS_AND_FABRIC_SOFT_EGRESS_RESET 0x400<br>Change Arad traffic disable sequance, mainly Fabric traffic stop (instead of packet discarding, trap packets) to avoid Fabric Irrecoverable states. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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:<br>bcm_mpls_tunnel_switch_create: Add flag BCM_MPLS_SWITCH_REPLACE Add flag BCM_MPLS_SWITCH_WITH_ID<br>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<br>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. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| SDK-45267 | 613345 | 88650_A0 88650_B0 88650_B1 | 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<br>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 56850_A0 56854_B0 | 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_B0 88650_B1 | 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 |
| 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.<br>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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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 |
| 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.<br>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 |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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. |
| 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.<br>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.<br>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<br>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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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.<br>Example error message:<br>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.<br>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 |
| SDK-45787 | | 56850_A0 56850_A1 | Action fields bcmFieldActionNewClassId, EgressClassSelect and HiGigClassSelect are supported in Ingress Stage for Trident2. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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.<br>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<br>Besides, the user cannot use bcm_field_stat_create[_id] and bcm_field_entry_stat_attach at egress.<br>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 76:*

| *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.<br>Soft reset: - graceful shutdown - reset it without changing configuration - un-graceful shutdown API: soc_init(unit)<br>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 76:*

| *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-46012 | 620324 | 88030_A0 | The issue has been resolved. |
| 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 76:*

| *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 76:*

| *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 76:*

| *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 76:*

| *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.<br>At egress stage, the TCAM DB profile of existing Field groups were not kept when duplicating PMF-Programs. The bug is fixed.<br>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 76:*

| *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-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 |
| 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); |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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<br>A bug in the parsing of the ITMH in this mode is fixed.<br>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. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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)<br>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.<br>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.<br>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. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| SDK-46773 | | 88650_A0 | Support IPv4 MC BIDIR protocol and APIs.<br>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.<br>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.<br>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. |
| 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 |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| SDK-46847 | 631611 | All | 88650, 88750: RX LOS application - register a callback<br>RX LOS application will notify when port is stable (i.e. the port status do not requires RX resetting)<br>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`<br>Registering a callback is supported per unit:<br>typedef void `(*rx_los_callback_t)` (int unit, `bcm_port_t` port, `rx_los_state_t` state);<br>`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:<br>`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<br>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 |
| 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.<br>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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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-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(). |
| 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(). |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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):<br>While the array types includes the following type and array count his matching value: bcmFabricLinkRxFifoLLFC Threshold range: [0, 0xff] |

*Table 76:*

| *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)<br>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]<br>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<br>Enable the mechanism using the following API bcm_cosq_control_set(unit, gport, 0, bcmCosqControlFlowSlowRate, enable)<br>To configure rate1 or rate2 of slow start mechanism:<br>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 76:*

| *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 76:*

| *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-47213 | | 56850_A1 56850_A0 | Added WAR per DE inputs. Pls refer attached PPT. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| SDK-47286 | | All | Ensure that Linux KNET module can be safely unloaded with active interrupts on SMP systems. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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. |
| 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.<br>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).<br>If (param1 == BCM_FABRIC_QUEUE_CUSTOMER) then it will set EH _TAG_TYPE=1<br>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 76:*

| *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<br>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 76:*

| *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.<br>RX LOS application API will return when the requested port is stable (i.e. the port status do not requires RX resetting)<br>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<br>int rx_los_port_stable(int unit, bcm_port_t port, int timeout_usec, rx_los_state_t *state);<br>timeout_usec defines the max time the API will wait for the port RX LOS state to change to stable.<br>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 76:*

| *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_B0 88650_B1 | Fixed: Driver initialization fail with SOC property fc_oob_type=1 due to register size mismatch. |
| SDK-47792 | | 56846_A0 56845_B0 56845_A2 56844_A0 56842_A0 56840_A0 56843_B0 56841_A3 56846_A1 56841_B0 | Added support for MMU_IPMC_GROUP_TBLs/ MMU_IPMC_VLAN_TBL mems SER correction. |
| SDK-47796 | 653773 | 88750_A0 88650_A0 88750_B0 88650_B0 88650_B1 | 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 88650_B0 88660_A0 | 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_A1 56850_A2 | only 6.2.7 release have this issue. |
| SDK-47856 | 653182 | 56850_A0 56850_A1 56850_A2 | Functionality for IFP NAT action 'bcmFieldActionNatEgressOverride' is added. Warmboot support for the actions bcmFieldActionNatCancel, bcmFieldActionNat and bcmFieldActionNatEgressOverride are also added. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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.<br>The vsi is now saved, and cleaned properly. |
| 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. |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| 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).<br>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.<br>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.<br>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. |
| 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 |

*Table 76:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.1* |
|---|---|---|---|
| SDK-48069 | 661399 | 88650_B1 | Background: bcm_oam_endpoint_action_set api allows changing the trap destination of OAM packets.<br>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 76:*

| *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()<br>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 76:*

| *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 |

*Table 76:*

| *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 | Fixed to retain the valid actions when unwanted action is removed |
| 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 15: Resolved Issues for 6.3.0

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

*Table 77:*

| *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 77:*

| *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).<br>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 77:*

| *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).<br>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_add 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_destroy or bcm_mirror_port_destination_destroy 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 77:*

| *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.<br>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.<br>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 77:*

| *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><br>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 77:*

| *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.<br>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 77:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.0* |
|---|---|---|---|
| SDK-44004 | | 56850_A0 56850_A1 56850_A2 | Failover feature on front panel lag is now enabled. |
| SDK-44010 | 597002 | All | fixed the bug in the port enable function for QSGMII core |
| SDK-44016 | | 88650_A0 88650_B0 88650_B1 | Outbound mirror functionality is now working correctly. |
| SDK-44021 | | 88650_A0 88640_A0 88650_B0 88650_B1 | VSQ discard set and color size set should not take into account VSQ Global - added type checking |
| SDK-44022 | | 88650_A0 88650_B0 88650_B1 | Set VSQs rate class default values for Tail Drop to be maximum as defined by hardware. |
| 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 88650_B1 | bcm_mpls_tunnel_switch_create() with the BCM_MPLS_SWITCH_ACTION_POP action now returns the tunnel_id created.<br>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 88650_B1 | 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. |
| 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 77:*

| *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 77:*

| *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_NEGATIVE 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 77:*

| *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 77:*

| *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.<br>Limitation: A bug was found on the microcode of the Ingress-Shaping parsing. This bug is fixed.<br>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.<br>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 77:*

| *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.<br>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 77:*

| *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.<br>Limitation: The port internal LB_PROFILE was not set to 0 when the header type was set to Ethernet for example, and not stacking.<br>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.<br>Limitation: If this bit is unset, the mirror profile should be 0. It was in practice dependent on packet's content. This is fixed<br>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 77:*

| *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_B0 88650_B1 | 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_B0 88650_B1 | Setting port_init_speed_<p>=-1 should disable port p. However this configuration influence other ports. This was fixed. |
| SDK-45179 | | 88650_A0 88650_B0 88650_B1 | 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_A1 56640_B0 | 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.<br>Issue: Databases without explicit pre-selectors were not selected because the implied pre-selector was not set correctly.<br>WA: None |
| SDK-45295 | 617162 | 88750_A0 | 88750: Software Reset should not isolate the chip. Fixed. |
| SDK-45331 | | 88650_A0 88650_B0 88650_B1 | 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 77:*

| *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.<br>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 77:*

| *Number* | *CSP #* | *Chips* | *Release Notes For 6.3.0* |
|---|---|---|---|
| SDK-45476 | | 88650_A0 | Restrict APIs from committing changes during traffic.<br>=== 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.<br>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 77:*

| *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.<br>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<br>Besides, the user cannot use bcm_field_stat_create[_id] and bcm_field_entry_stat_attach at egress.<br>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.<br>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.<br>Fix: Added a fix in the copy method of Egress programs. |

*Table 77:*

| *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-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.<br>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. |