

# **Section 1: About This Document**

These are the Release Notes for the Broadcom Network Switching Software Development Kit, Release 5.10.4

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*

<i>Document</i>	<i>Description</i>
56XX-PG624-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-PG812-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: New in this Release**

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

### **THINGS TO NOTE**

This section lists items that require special attention.

## **1. BCM8483X PHY Firmware**

Status of F/W version 1.50 released with SDK is preview. Check [support.broadcom.com](http://support.broadcom.com) for latest available validated firmware for the BCM8483X family devices. Consult F/W release notes for known issues.

## 2. 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.

### **3. Parity error detection on Katana**

Parity error detection mechanism for Katana family devices has been introduced in SDK5.10.4 release. However this is still work in progress and by default has been disabled for the Katana family. This will be made available in future release.



## 4. 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 2: Pre-Silicon Preview Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
BCM56240	BCM56240 A0	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
	BCM56449 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports
BCM56440	BCM55441 A0	24-Port GbE Multilayer Switch with Four 10-GbE/Hig2 Uplink ports

**Table 3: PHYs**

<b>Device</b>	<b>Driver Family</b>	<b>Description</b>
BCM54240_C0	54280	Quad 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54280_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54282_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54285_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54340_C0	54380	Quad 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)
BCM54382_C0	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)
BCM84780_A0	84740	Octal-Channel 10 GbE SFI-to-XFI PHY with 1588. Firmware version 0x11c (Preview)

## **5. Summary of BCM and BCMX 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-PG609-R]. (See section 2 earlier in this document for availability).

Unless otherwise mentioned, any newly defined or changed BCM API will have equivalent changes in the BCMX APIs.

## 6. BFD Tunnel Type

Support for BFD has been enhanced to support the following tunnel types

*Table 4: BFD Tunnel Type*

<i>Name</i>	<i>Description</i>
bcmBFDTunnelTypeGre4In4	enable BFD on a GRE 4 in 4 tunnel
bcmBFDTunnelTypeGre6In4	enable BFD on a GRE 6 in 4 tunnel
bcmBFDTunnelTypeGre4In6	enable BFD on a GRE 4 in 6 tunnel
bcmBFDTunnelTypeGre6In6	enable BFD on a GRE 6 in 6 tunnel

## 7. Packet

The `bcm_pkt_t` structure has been modified to include a new member `timestamp_offset` to indicate the offset to place the timestamp in the packet

## 8. Resolved Issues for 5.10.4

The following issues are resolved in version 5.10.4 of the SDK.

*Table 5:*

<i>Number</i>	<i>Release Notes For 5.10.4</i>
PHY-541	Upgraded the f/w to resolve a BCM8483X autonegotiation issue.
PHY-542	BCM8726 - New 1G AN initialization sequence implemented
PHY-576	The EEE related workarounds are now correctly applied at the right moment for BCM54680E/880E/682E/640E/52681E PHYs.
PHY-590	BCM8483X : PHY_LONG_XFI config variable support and PRBS diag support added
PHY-593	Corrected the sequence to enable jumbo frames for BCM8482x/BCM8483x.
PHY-595	Corrected the forced 10G speed_get logic in BCM848X driver.
PHY-599	Support added for boosting the MDC frequency during firmware download for Trident/BCM8483X .
PHY-602	WC: Clear PASSTHRU mode in driver when phy_pcs_repeater(config variable) is turned off
PHY-607 SDK-39600	BCM84740: system-side squelching support added
SDK-31874	bcm_trill_port_t.flags = BCM_TRILL_PORT_NETWORK to be used to create Unicast Trill port.
SDK-33144	Add Trill and Niv rx reason code for BCM5684x.
SDK-33189	The issue fixed the issue of recovering tpid during warmboot. Tpid reference count is incremented.
SDK-34394	Add full KNET filter support for all XGS3 and XGS4 devices.
SDK-34425	soc property "bcm_tunnel_term_compatible_mode" is added to enable tunnel termination for TR2 and later devices for bcmTunnelTypeIpAnyIn4 and bcmTunnelTypeIpAnyIn6. Set bcm_tunnel_term_compatible_mode=1
SDK-35502	Add NULL pointer check to shr_avl_traverse() function.
SDK-35754	Fixed "I3 multipath show" display bug.
SDK-35851	Fix checks for VLAN tag in KNET transmit function.
SDK-36439	Enabled cosq_gport_stat_set/get to use more enhanced stats types for per color per queue statistics.
SDK-36586	Added API support for Broadcom specific T16383/R16383 counters which states number of packets received with size ranging 9217 to 16383 bytes
SDK-37076	Free memory resources for vlan module reinitialization.
SDK-37590	This fix is to add Scheduler configurations for loopback ports.
SDK-37769	Add support for new NAPI in Linux KNET module (kernels 2.6.24 and newer).
SDK-37834	Fixed the issue of Higi trunk failover link status not being updated on BCM5684x.
SDK-37838	Return BCM_E_UNAVAIL on wlan ports for bcmPortControlRxEnable port control.
SDK-38008	TRILL unknown unicast Access to Network packet flow does not happen when dot1p Priority remapping filters are present. Add Scheduler configurations for loopback ports to resolve this.
SDK-38011	TRILL unknown unicast Network to Access packet flow does not work because of some specific IFP filters. Add Scheduler configurations for loopback ports to resolve this.
SDK-38023	Optimized KNET filter matching code.
SDK-38120	Implement workaround to take care of 5684x XMAC Rx PAUSE errata.
SDK-38255	Added missing case statements for missing destination fields

Table 5:

Number	Release Notes For 5.10.4
SDK-38281	bcm_cosq_gport_sched_get API is updated to return appropriate scheduler mode.
SDK-38312	Updated documentation for 'BCM_L3_SECONDARY' flag.
SDK-38331	Add horizontal/vertical margin commands for Sirius/Polaris phy devices accessible via diag shell: "phy margin [set clear value set value get max get] [marginval=<value>]"
SDK-38403	Fixed the issue that the action of slice 0 is not programmed properly due to the operational flag is overwritten on Voyager device.
SDK-38564	BCM API bcm_l3_egress_create() should now take the qos id created by bcm_qos_map_create()
SDK-38662	Fix PFC class to cosq mapping for diffserv queues on BCM5684x. The change allows to map a PFC class to a unicast queue and/or multicast queue independently.
SDK-38688	Mapping of Port to Next Hop Index(NHI), is programmed in EGR_PORT_NHI_MAPPING register for the local ports. The fix adds the port to NHI mapping only for local module id.
SDK-38736	Correct configuration loss in SOC profile table implementation which led to failures in some MPLS and QoS APIs.
SDK-38848	Updated EFP meter init and management routines to allocate/free all available flow meters in a slice for Triumph series devices.
SDK-38913	bcmFieldQualifyDstMplsGport and bcmFieldQualifyDstMimGport qualifiers and their corresponding qualifier SET/GET APIs listed below are supported on Trident device, Egress FP stage: bcm_field_qualify_DstMplsGport() bcm_field_qualify_DstMplsGport_get() bcm_field_qualify_DstMimGport() bcm_field_qualify_DstMimGport_get()
SDK-38919	added warmboot support for expanded EFP slices
SDK-39013	Fixed bcm_l3_egress_destroy API to delete the unused EGR_MAC_DA_PROFILE entry.
SDK-39030	Enhanced the bcm_vlan_queue_map_create() API description
SDK-39083 SDK-39896	Fixed Maximum UDF offsets on the device count, used by data qualifier recovery code for Trident and Triumph3 device.
SDK-39087	Fixed improper PLL initialization for some Katana Variants.
SDK-39116	QPORT_CNTMAXSIZE register is set for XQ port in ENDURO/HURRICANE.
SDK-39129	Fixed SMP race condition in Linux SAL semaphore implementation.
SDK-39203	SDK provides ability to set different MTU values for different egress l3 interfaces with the same VLAN.  Support for configuring different VRFs is already supported under the 'L3IngressInterfaceMapSet=1' mode. Fixed bcm_l3_intf_get() API to retrieve intf VRF when operating under the above 'switch control' for BCM5662x, BCM5663x, BCM5664x, BCM5654x, BCM5644x, BCM5684x device families.
SDK-39324	EXTQ_Q_NUM_COPIES needs to be incremented by 1 if ipmc based replication used from extended queue.
SDK-39325	Changed extended queue traversal based on only list1 pointer.
SDK-39337	Improve the mask error check in bcm_robo_field_qualify_InPorts
SDK-39358	Add/delete of Trill multicast-entry enabled for multicast-group's without L2/L3 replication bitmap.
SDK-39372	Support CCM over trunk for Enduro/Katana.
SDK-39417	When Trunk-ports are used for TRILL, prior to update of Trunk_group, member ports should be administratively disabled. (1) User creates a Trill-Virtual-Port (bcm_trill_port_add API) on trunk group N. (2) User changes trunk group N's membership. - Software clears Port-membership from ING_TRILL_ADJACENCY, EGR_PORT_TO_NHI_MAPPING (3) User updates Trill-Virtual-Port - bcm_trill_port_add API with REPLACE flag and with trunk group N.

**Table 5:**

<b>Number</b>	<b>Release Notes For 5.10.4</b>
SDK-39421	Trill multicast groups may contain incoming port within the group's L3_Bitmap. Fixed the configuration of Trill multicast group so that Network to Network Trill-domain multicast don't replicate packet to the incoming port.
SDK-39441	New shaper update sequence is incorporated for KT-A0.
SDK-39505	Fixed an issue that the ING_L3_NEXT_HOP memory entry is not properly replaced when calling bcm_l3_egress_create() API with flag BCM_L3_REPLACE
SDK-39569	The priority of Inner vlan tag should now use the same outer tag's priority when using egress VLAN translation to replace the outer tag and add an inner tag with default priority action on BCM56840 type switch devices.
SDK-39680	Added clearing of the key contents before setting up the key for lmp lookup
SDK-39698	If parameter num_labels is zero, API bcm_mpls_tunnel_initiator_set() will ignore parameter label_array and assign a dummy tunnel entry
SDK-39724	Fixed bcm_trill_multicast_source_traverse for VLAN pruned short entries.
SDK-39744	Fix compilation issue for partial build with INCLUDE_KNET but without BCM_ROBO_SUPPORT
SDK-39768	Fixed bcm_trill_multicast_add API, where L2__L2MC_PTRf was incorrectly programmed.
SDK-39792	Fixed incorrect LPM entry hit-bit read for BCM5684x and BCM5685x devices by adding explicit reads of x-pipe table entries.
SDK-39828	Fixed compilation errors in diags file seen with customers compile options.
SDK-39830	Fixed VFP bcm_field_entry_install() API call unexpectedly overwrites FP_GLOBAL_MASK_TCAM entries in Trident device.
SDK-39844	Clear CBL_ATTRIBUTEr reg during L2 module init.
SDK-39863	Fix soft lockup in Linux kernel after soft rebooting XGS-based system.
SDK-39882	Enabled software support for 16 Trill distribution trees.
SDK-39900	Corrected the values of max l0 and l1 nodes configured at the time of initialization for 55441 device.
SDK-39978	Fixed FPF1,FPF3 UDF offset combinations accounted for UDF2. These offsets are valid only for UDF1 on Trident series chips.
SDK-39994	BCM API bcm_l3_egress_create() should now return the correct error code when an invalid qos id is passed
SDK-40022	Wrong handling of config variable bcm5614x_config for 56142 devices is fixed.
SDK-40024	API bcm_l3_egress_create() should now honor the TTL value passed in the parameter egr.
SDK-40034	Fix bcm_port_contorl_get bcmPortControlPFCRefreshTime to avoid assertion failure on BCM5684x when port speed is lower than 10G.
SDK-40038	Added support for 55441 device in linux kernel bde.
SDK-40054	Added support for 55441 in test infrastructure.
SDK-40083	Fixed bcm_l2_addr_delete_by_port API for TRILL Gport type.
SDK-40107	Added missing irq_stat counters for fifo dma in irq handler.
SDK-40158	Fixed IFP group create fails when a mix of UDF32 and UDF128 based groups are created on Enduro and Trident devices.
SDK-40255	Fix typo in _bcm_trx_vlan_translate_egress_entry_assemble, use proper feature check for VLAN PORT gport.

## 9. Resolved Issues for 5.10.3

The following issues are resolved in version 5.10.3 of the SDK.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
PHY-500	Fixed enable/disable of recovery clock on BCM8747 PHY
PHY-513	Fix for new microcode to prevent BCM84740 family PHY reset during <code>interface_set()</code>
PHY-536	Support for downloading firmware in the broadcast mode for BCM8482X / BCM8483X PHYs.
PHY-538	Manufacturing test support on BCM8483X devices.
PHY-551	PHY slice number is now configurable via config variables in 54684, 54684E, 54685E and 54682E PHYs.
SDK-31005	Reserved 1 flow control state table entry for internal ports (i.e requeue ports). Thus ports under requeue interface will now be never flow controlled. Since this entry is currently always reserved the entry size is reduced by 1
SDK-31246	Added checks in <code>bcm_multicast_create</code> API to verify both IPMC and Multicast modules have been initialized.
SDK-31693	Decoupled QoS module from <code>INCLUDE_L3</code> .
SDK-31890	Fixed Egress DVP based MTU setting for L2-MPLS.
SDK-32116	Add switch control <code>bcmSwitchFcoeEtherType</code> to set FCOE ethertype and add FC standard configurations in <code>FC_HEADER_TYPE</code> table.
SDK-32338	Scorpion returns <code>BCM_E_UNAVAIL</code> for <code>bcm_port_learn_set/get</code> API.
SDK-33424	Fixed to forced HG ports adding to HG port list.
SDK-33644	Fix broken ICS bus support in Linux KNET module.
SDK-33706	Fixed crash of <code>bcm_ipmc_traverse</code> when <code>bcm_ipmc_remove</code> is invoked in callback.
SDK-33985	Hot swap is not necessary for Enduro.
SDK-34022	Adding an integer and a pointer (in that order) would result in an internal error in CINT.
SDK-34118	CINT callbacks would not always return to the caller, but instead return to the caller of an outer activation frame.
SDK-34447	Repaired <code>EGR_VLAN</code> table corruption during hash table entry balancing in BCM5662x, BCM5668x, and BCM5682x devices.
SDK-34515	Fixed <code>Egress_mask</code> configuration for L2-VPN traffic across HiGig.
SDK-34917	VLAN PRI mapping issue fixed for BCM56140 family switch products
SDK-34965	For L3-MPLS flows over HiGig, <code>HGHdrL3</code> bit should be enabled.
SDK-35121	Fixed the error in computing physical port from system port during L2 VPN port add.
SDK-35274	For MPLS L2 Tunnels, fixed the case for <code>trunk_id=0</code> .
SDK-36045	During <code>bcm_l3_intf_create</code> with ' <code>BCM_L3_ADD_TO_ARL</code> ' flag, perform cleanup of the L3 interface if add to <code>L2/MY_STATION_TCAM</code> table fails.
SDK-36047	Fixed <code>bcm_mpls_tunnel_switch_traverse</code> API for scenarios where MiM, MPLS, TRILL virtual-ports gets configured together. In such scenarios, the mentioned API checks the whether the entry belongs to MPLS or not.
SDK-36208	Fixed <code>_bcm_xgs3_nh_entry_parse()</code> to be able to parse <code>BCM_L3_KEEP_*</code> flags.
SDK-36226	Updated field <code>STAT_pool_index</code> validation checks executed during field STAT alloc and field Entry STAT attach API calls to account for paired slices.



**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-36597	Fill out the <code>bcm_pkt_t</code> fields for <code>src_gport</code> and <code>dst_gport</code> for all RX packets on XGS devices.
SDK-36659	If the module ID of a member of a fabric trunk group is specified as <code>BCM_MODID_INVALID</code> or zero, the <code>bcm_trunk_set</code> API will interpret the port number as a local HigiG port number.
SDK-36705	Fixed an issue that link does not come up after port is disabled/enabled in autoneg mode on the BCM56840 switch 40G port using Warpcore serdes
SDK-36720	Added Check for soc tunnel terminator initialization to dump tunnel terminator states.
SDK-36748	Fixed Level6 Node allocation to account for reserved values. Applicable for BCM88230.
SDK-36893	Added support for Trill payload TPID to be configured using <code>bcm_port_tpid_add/delete/set/get</code> APIs.
SDK-36894	Updated <code>BUFF_TYPE</code> field in the <code>RQE_PORT_CONFIG</code> .
SDK-36919	Decoupled buffer and qentry thresholds based on byte/packet flags. if anyone of the thresholds configured, then make sure that the dependent memory configured with default max profile.
SDK-36958	Fixed <code>bcmFieldActionAddClassTag</code> , <code>bcmFieldActionL3ChangeMacDa</code> and <code>bcmFieldActionL3ChangeMacDaCancel</code> IFP actions support for BCM5662x and BCM5682x devices.
SDK-36974	Using <code>bcm_mirror_port_set</code> on XGS devices will no longer return an error when extending a previous configuration.
SDK-36985	Burst size approximation is included to reduce the error margins at lower rates.
SDK-37005	<code>FP_GLOBAL_MASK_TCAM</code> valid field needs to be set in both indices of a paired entry.
SDK-37043	Module locks are added prior to (memory locks) port locks, for port APIs calling module functions which have taken module level locks. The fix resolves potential deadlock situations for the port module.
SDK-37044	The port table operations has to be executed with port table locks. Added missing port lock/unlock for <code>bcm_td_port_ing_pri_cng_set()</code> and <code>_bcm_tr2_port_priority_color_set</code> function.
SDK-37051	Protect TPID ref-count through lock mechanism within MPLS API module.
SDK-37094	Fixed the sync and warm boot recovery of the Virtual port Next hop to egress intf mapping. This fixes an issue in the deletion of the egress object.
SDK-37104	Exclude cpu port in <code>cosq_sched_set</code> and <code>cosq_port_sched_set</code> .
SDK-37123	Fixed invalid memory access in FP module warm boot recovery code for BCM5663x and BCM5652x devices.
SDK-37132	The workaround of dynamic update of scheduler mode is added for Enduro2 variant by using a new hierarchy of 8L2->16L1->1L0->port.
SDK-37199 SDK-33160	Added support for BCM56846 to have up to 256 members per trunk group.
SDK-37217 SDK-37218	Fixed LAG support for Trill ports.
SDK-37296 SDK-37543	Fixed <code>bcm_tunnel_switch_get</code> API
SDK-37297	Fixed the issue that some user added ARL entries might not be removed in the L2 table reset or fast aging process on ROBO devices. It's the timing issue of entry removal against the L2 SW/HW table synchronization for those newly user added entries.
SDK-37299	Fixed non-unicast trunk block mask configuration on BCM5662x and BCM5684x.
SDK-37300	Add full KNET filtering support for BCM5621x devices.
SDK-37307	SFI back pressure is now automatically enabled on channels 44, 45 to prevent SFI overflow issue on BCM88230 devices when SFI0 is disabled.
SDK-37312	Fixed egress mirroring for HiGig packets received on the CPU ingress pipeline on BCM5684x and BCM5674x devices.

Table 6:

Number	Release Notes For 5.10.3
SDK-37338	Fixed <code>bcm_l3_egress_get</code> API to return Next Hop flags that was configured with <code>BCM_L3_L2TOCPU</code> .
SDK-37341	Revise code to choose correct qualifier ID in <code>_field_qualify_data_elem</code> for Enduro.
SDK-37351	Added KNET feature to <code>Make.local.template</code> .
SDK-37356	Disable Rx PFC when draining cells on BCM5684x.
SDK-37358	Fixed configuration errors in certain fields of the next-hop entry during next-hop entry addition.
SDK-37359	Fixed <code>bcm_l3_intf_get()</code> to restore <code>BCM_L3_ADD_TO_ARL</code> flag by checking if the corresponding <code>L2_ENTRY</code> or <code>MY_STATION_TCAM</code> entry exists.
SDK-37366	Memory allocation no longer needs to be contiguous for port speed
SDK-37413	None
SDK-37414	Setting loopback for the first one of 4*1G flexport causes other 3 up port toggle between down and up on devices that use <code>hl65.c</code> serdes driver in independent lane mode
SDK-37463	The <code>egress_label</code> structure within <code>bcm_mpls_port_t</code> is specifically used for <code>LABEL_SWAP</code> operation within LSR. However this scheme requires an additional next-hop - not the recommended way. Within the scheme where <code>swap_label</code> is specified within <code>bcm_l3_egress_t</code> - A single <code>next_hop</code> is made use of (which is the recommended way). With this fix, <code>bcm_mpls_tunnel_switch_get</code> API returns the <code>egress_label</code> structure.
SDK-37466	Use RUCA packet counter to count on all good UC packets delivered to higher layer.
SDK-37467	Oversize threshold has to be updated in <code>QPORT_CNTMAXSIZE</code> for Enduro and Hurricane.
SDK-37472	Reject attempts to delete a mirror path which is not already configured.
SDK-37485	Updated <code>bcm_multicast_egress_set</code> API documentation. This API configures a new replication list for the given multicast group and deletes the multicast group's existing replication list, if any.
SDK-37500	Add missing lock/unlock for <code>bcm_l2_replace</code> update to avoid racing condition on BCM5662x and BCM5663x ESM.
SDK-37539	For <code>BCM_MIM_VPN_REPLACE</code> operation, remove old entries of VPN/ISID from mpls and egr xlate table.
SDK-37541	Reduced CPU usage for KNET interrupt activity.
SDK-37543 SDK-37296	<code>port=BCM_GPORT_BLACK_HOLE</code> is <code>BCM_E_PARAM</code> for <code>bcm_l3_egress_create</code> API. 1. <code>BLACK_HOLE_NEXT_HOP</code> is reserved within system as <code>NHI = 0</code> ; 2. When L3-Prefix, L3-DEFIP or MPLS ILM entries are created/updated with <code>port=BLACK_HOLE</code> , then <code>Next_hop</code> should be pointed to <code>BLACK_HOLE_next_hop</code> ( <code>NHI=0</code> ). 3. Suppose prefix-group with <code>NHI = 10</code> need to be <code>BLACK_HOLE'd</code> . In such a case, update <code>NHI = 10</code> with <code>flag=BCM_L3_DISCARD</code> . <code>l3_egress.flags = BCM_L3_DST_DISCARD   BCM_L3_WITH_ID   BCM_L3_REPLACE</code> ; <code>bcm_l3_egress_create(unit, BCM_L3_REPLACE   BCM_L3_WITH_ID, &amp;l3_egress, &amp;egr_obj)</code> ; 4. <code>port=BCM_GPORT_BLACK_HOLE</code> should be <code>BCM_E_PARAM</code> for <code>bcm_l3_egress_create</code> API.
SDK-37554	Updated <code>bcm_field_data_qualifier_xxx()</code> API implementation to support HW UDF1 qualifier offsets available in <code>FP_PORT_FIELD_SEL</code> table under FPF1.9 and FPF3.9 selectors codes for Trident device.
SDK-37576	Fixed the issue that existing range id ( <code>rid = 0</code> ) will be deleted if the creation of a CFP ranger for vlan translation fails on Thunderbolt and Voyager devices.
SDK-37589	The comparison between current counter value and previous value is not required for Katana.
SDK-37608	the algorithm for template setup via APIs and when nodes are added/removed need to be same.
SDK-37610	Fix possible incorrect IPv4 entry hit status reported by <code>bcm_l3_route</code> API on BCM5684x.
SDK-37621	BCM84728 Family : Added HIGIG support to PHY driver

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-37666	Increased the efficiency of profiled hardware table management in XGS devices by using bulk memory operations.
SDK-37676	Fixed incorrect number of free entries displayed for the 'I3 ip6route show' command when URPF is enabled.
SDK-37679	Decoupled HG PRBS enabling from setting polynomial on BCM88130 devices so that bcmPortControlPrbsTxEnable/bcmPortControlPrbsRxEnable controls PRBS enabling and bcmPortControlPrbsPolynomial selects polynomial. Previously enabling is a side effect of polynomial selection.
SDK-37740	IS-IS Mac address match flag has to be enabled to match on IS-IS Mac Address. The fix is to enable TRILL_ALL_IS_IS_RBRIDGES_MAC_ADDRESS_ENABLE for IS-IS mac address match.
SDK-37741	Added documentation for opcode_flags, bcm_oam_endpoint_info_t structure member variable for Katana and Triumph3 devices.
SDK-37770	Fix NAPI support in Linux KNET module.
SDK-37786	TPID reference count protection is added with tpid tab lock/unlock within _bcm_fb2_outer_tpid_entry_add function, to avoid tpid reference count issues, when called from difference modules.
SDK-37802	Weighted Round Robin scheduling on CPU cos queues behaves properly with this fix.
SDK-37813	Modified SOBMH header to carry absolute queue number instead of base queue number.
SDK-37817	Fixed an issue that could occur in a mixed QE-2000/BCM88230 system and could cause BCM88230-to-BCM88230 multicast traffic to drop half of packets when both QE-2000 and BCM88230 are present in the same multicast distribution set (ESET).
SDK-37818	Added support for VlanFormat qualifier for BCM5614x devices
SDK-37848	Fixed logic for BITMAP_HIF setting of ING_EN_EFILTER_BITMAP_64r for Virtual-port configuration.
SDK-37851	Added correct offset value range 0-63 in VLAN_COS_MAP .
SDK-37852	Enabled port control bcmPortControlCustomerQueuing to modify COS_MODE field in ING_COS_MODE .
SDK-37853	Introduced mechanism to reset trill non_unicast group to default value.
SDK-37859	Fixed typo in script.
SDK-37867	Updated the programming sequence for enabling 1588 in BCM54880E/BCM52681E.
SDK-37869 SDK-36351	Fixed transient packet drop when an IPMC entry's IPMC index is being replaced.
SDK-37870	Fixed UDF_TCAM and UDF_OFFSET table entry values are not cleared when entries are moved during entry insert operation on Chariot and Trident devices.
SDK-37878	For BCM_AUTH_BLOCK_IN mode, set spanning tree to forward state.
SDK-37883	stat_set/get API is modified to accept physical port to be backward compatible with Enduro.
SDK-37903	Fixed an issue that could potentially cause one COS queue to be always selected when multiple COS level VOQs were in fact congested on BCM88230 devices.
SDK-37910	Timesync API "bcm_port_timesync_config_set()" is used to set and reset 1588 parsing control.
SDK-37912	Added proper indexing for STORM_CONTROL_METER_MAPPING .
SDK-37916	Add configuration settings to the register values preserved during flex port speed changes on Triumph2 device.
SDK-37931	Calling bcm_bfd_endpoint_create() with an invalid authentication index on BCM56440 devices could result in a segmentation fault.
SDK-37932	autoFailover event could cause fatal tx_errors on BCM88230 devices running in Hybrid mode.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-37942	Fixed <code>bcm_mpls_port_add</code> API for VPWS VPN with <code>flags=BCM_MPLS_PORT_WITH_ID</code> .
SDK-37947	Resolved misconfiguration of MPLS port flexible statistics mapping.
SDK-37954	Support added for 667MHz DDR memory
SDK-37955	Fixed following OAM macros expansions to correctly dereference pointer to structure type inputs: <code>BCM_OAM_EVENT_TYPE_SET</code> <code>BCM_OAM_EVENT_TYPE_GET</code> <code>BCM_OAM_EVENT_TYPE_CLEAR_ALL</code> <code>BCM_OAM_EVENT_TYPE_SET_ALL</code> <code>BCM_OAM_EVENT_TYPE_CLEAR</code>
SDK-37959	Allow <code>bcm_rx_queue_channel_set</code> to use <code>channel_id = -1</code> as an input argument to indicate that the provided queue should be detached from all channels.
SDK-37965	Fixed an issue for <code>bcm_vlan_translate_action_range_traverse()</code> API when using <code>bcm_vlan_translate_action_range_add()</code> API for a trunk group.
SDK-37974 SDK-37460	Trill gport is validated for <code>trill_multicast_source_add/delete()</code> functions.
SDK-37977	Earlier in <code>bcm_port_probe()</code> function it was resetting all XPORT_XMAC and GPORT_UMAC blocks instead of only resetting the probe port's corresponding MAC block in the system. This has been fixed.
SDK-37994	global mmu settings for color packets have been updated for BCM5644x
SDK-37996	Added BCM diag shell command "policer set" for <code>bcm_policer_set()</code> API. Updated API implementation to return error if input Policer ID does not exist.
SDK-37997	Reset route entry flags in the route entry parse function for BCM5662x, BCM5663x, BCM5664x and BCM5644x devices to address wrong <code>defip_flags</code> use in <code>bcm_xgs3_defip_add()</code> .
SDK-38000	HG[40] connection with an external 84740 PHY(repeater mode) do not link up
SDK-38003	The CLI dump command (options mw, mh, mb, pkt) now support 64-bit addresses for 64-bit builds.
SDK-38004	Linux BDE now properly detects and rejects DMA memory allocated beyond 4 GB.
SDK-38024	Queue might be mapped to an incorrect egress port on QE-2000 under some configurations
SDK-38062	Fixed the counter index is incorrectly changed after calling <code>bcm_mpls_port_add()</code> API
SDK-38064	BFD only sent tagged frames.
SDK-38075	Allow BCM5664x devices to set a flexible statistic value correctly for all ports.
SDK-38085	Added BFD support for MPLS Tunnel encapsulation type <code>bcmBFD TunnelTypeMpls</code> , on IPv4 and IPv6 variants on BCM56440 devices.
SDK-38086	Added BFD support for MPLS-TP CC (Transport Profile) encapsulation type <code>bcmBFD TunnelTypeMplsTpCc</code> on BCM56440 devices.
SDK-38087	Added BFD support for MPLS-TP CC/CV (Transport Profile) encapsulation type <code>bcmBFD TunnelTypeMplsTpCcCv</code> on BCM56440 devices.
SDK-38088	Katana SOBMH fixed for LE.
SDK-38089	Added support for proper handling of rx time stamp value of OAM DM packets sent to CPU.
SDK-38106	Remove incorrect break statement in <code>bcm_td_cosq_port_sched_set</code> .
SDK-38107	Resolved BCM diag shell hangs when <code>bcm_field_qualify_RangeCheck_get()</code> API is executed issue.
SDK-38108	All entries from an EFP slice are now re-constructed during warm start for BCM5652x devices.
SDK-38111	Handles were not passed back to the application in some fabric processing <code>_create</code> APIs when "WITH_ID" flag was not used on BCM88230 devices.
SDK-38121	The fix resolves Missing UNLOCKS in init and cleanup routines.
SDK-38124	BFD sessions were failing to come up on BCM56440 devices when the data path was configured for untagged frames.
SDK-38145	WC: Rx peaking filter temperature compensation feature support added.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-38152	Disabled the unused queue entries within a list which packs 4 queues.
SDK-38158	Fixed SDK crash case when detaching a BCM88230 device.
SDK-38164	When TRILL port is modified to use a different L3 egress object with <code>BCM_TRILL_PORT_REPLACE</code> , associated reference counter is fixed for proper updates.
SDK-38168	Fixed the memory read/write width issue that causes memory overwrite for multi-table memory access on BCM53242 and BCM53262 devices.
SDK-38172	added support for field processor action "cosqnew"
SDK-38209	Fixed issue in setting the correct CNG action for service meters.
SDK-38210	Do not disable min/max shaper config before configuring shaper. This can avoid short period of line rate traffic when the shaper is disable.
SDK-38232	Modified BFD COSQ default to use the highest queue available for BCM56440 micro controller rather than using the fixed queue of 47.  CPU COS queues assignment can be done with the following configuration property: <code>num_queues_pci num_queues_uc0 num_queues_uc1</code> By default, all 48 COS queues are assigned to PCI (host CPU).  In addition, a specific queue can be assigned to BFD with the configuration property <code>bfd_cosq</code> .
SDK-38240	In BCM88230 devices, when creating unicast queues, there is some code that looks up the fabric <-> switch port mapping in preparation to write the queue information to the unicast (or CPU) qsel. If the SDK does not own the applicable qsel, it should not perform this lookup (since the lookup in that case is gratuitous and can fail under certain circumstances).
SDK-38247 SDK-38827	To facilitate efficient management of <code>SOURCE_TRUNK_MAP</code> table on BCM56840, user can call <code>bcm_stk_module_enable</code> API to specify the number of ports on a remote module. If a remote module's number of ports is not specified, the maximally supportable number of ports per module will be assumed for that module.
SDK-38276	Added check on all unsupported OAM end point flags.
SDK-38288	Linux BDE will now issue a warning about PCIe max payload size greater than 128 as this may require additional programming of PCIe bridges. The default max payload size of 256 can now be altered via new kernel module parameter <code>maxpayload</code> .
SDK-38291	added warmboot support for expanded double wide slices
SDK-38313	<code>bcmFieldQualifyOuterVlan</code> and <code>bcmFieldQualifyDstIP</code> qualifiers can be used to match on Outer VLAN and Destination IP address fields of a packet for the external stage on Triumph and Triumph2 devices.
SDK-38329	Supply missing semaphore releases in API QOS and Mirror modules.
SDK-38367	Fixed the issue of "Internal error" encountered during the allocation of meters in hurricane
SDK-38385	Previously, when module ID is changed on BCM5684x and BCM5664x devices, the local port attributes that are stored in the <code>SOURCE_TRUNK_MAP</code> table are cleared. The <code>bcm_stk_modid_set</code> API has been fixed to retain the values of these local port attributes.
SDK-38437	The default RCPu signature used by the Linux KNET module is now based on the device ID, e.g. the default RCPu signature for BCM56634 is 0xb630 (lower 4 bits are forced to zero).
SDK-38447	counter allocation issue for STATs that use a counter pair has been fixed for Katana
SDK-38451	Added argument protection on <code>COMPILER_64_INIT</code> macro.
SDK-38456	Added missing mutex releases for API Mirror module.
SDK-38463	set <code>FP_GLOBAL_MASK_TCAM.valid</code> field for ingress stage only
SDK-38485	Enabled warmboot support for extended queue replication.
SDK-38508	Resolved counter allocation issue for STATs that use a counter pair on Triumph/Triumph2/Valkyrie and Trident devices.
SDK-38513	<code>bcm_vlan_translate_egress_action_add()</code> API can now set the hardware allowed maximum port class ID.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-38555	Fixed limit check error observed with MPLS parameters during Egress object operations.
SDK-38560	API calls that change frame encapsulation format on BCM88230 family of devices, such as <code>bcm_port_encap_set()</code> and <code>bcm_port_control_set()</code> of <code>bcmPortControlFabricHeaderFormat</code> , could fail under some circumstances if invoked while the device is already running.
SDK-38598	Potential crash during cable diag run due to an uninitialized state variable.
SDK-38599	Support for BFD over PW encapsulations for: - <code>bcmBFD TunnelTypePweControlWord</code> Control Word (CC-1) - <code>bcmBFD TunnelTypePweRouterAlert</code> Router Alert (CC-2) - <code>bcmBFD TunnelTypePweTtl</code> TTL=1 (CC-3).
SDK-38602	Application modified to work properly
SDK-38607	Add lock protection of DV in <code>soc_dma_dv_reset</code> . Applies to Linux KNET and SMP environments.
SDK-38608	<code>atp_tx()</code> would fail if used with <code>CPUTRANS_CRC_REGEN</code> .
SDK-38633	Fixed warm boot recovery of fabric trunk membership information for BCM5663x.
SDK-38634	<code>bcm_detach()</code> was failing on BCM88230 under some circumstances if the physical unit was removed/disconnected before <code>bcm_detach()</code> was executed.
SDK-38641	<code>bcmFieldQualifyDstMplsGport</code> and <code>bcmFieldQualifyDstMimGport</code> qualifiers and their corresponding qualifier SET/GET APIs listed below are supported on Trident device, Egress FP stage: <code>bcm_field_qualify_DstMplsGport()</code> <code>bcm_field_qualify_DstMplsGport_get()</code> <code>bcm_field_qualify_DstMimGport()</code> <code>bcm_field_qualify_DstMimGport_get()</code>
SDK-38685	This fix enables <code>TRILL_ALL_ESADI_RBRIDGES_MAC_ADDRESS_ENABLEf</code> field to have "End System Address Distribution Information(ESADI)" protocol packets forwarded to CPU.
SDK-38688	Mapping of Port to Next Hop Index(NHI), is programmed in <code>EGR_PORT_NHI_MAPPING</code> register for the local ports. The fix adds the port to NHI mapping only for local module id.
SDK-38714	<code>ing_pri_cng_map</code> table initialization is fixed for bcm5614x devices
SDK-38716	Warpcore: Lane 0 10G-SFI port encap change to HiGig2 cause link-down on Lane 1.
SDK-38721	Optimized legacy call support + corrected tcl test case issue
SDK-38777	Change default MTU for KNET Linux network interfaces to 1500 in order to match default MTU for GE front panel ports.
SDK-38779 SDK-39426	Enhanced Trill implementation so that TRILL multicast distribution tree to be managed by customer application. API Documentation provides the usage scenario of <code>bcm_trill_multicast_add</code> API.
SDK-38796 SDK-35806	Support for BFD over IP-in-IP encapsulations: - <code>bcmBFD TunnelTypeIp4in4</code> /* BFD over IPv4-in-IPv4 tunnel. */ - <code>bcmBFD TunnelTypeIp6in4</code> /* BFD over IPv6-in-IPv4 tunnel. */ - <code>bcmBFD TunnelTypeIp4in6</code> /* BFD over IPv4-in-IPv6 tunnel. */ - <code>bcmBFD TunnelTypeIp6in6</code> /* BFD over IPv6-in-IPv6 tunnel. */
SDK-38816	When TRILL port is modified to use a L3 egress object from an L3 Multipath object, fixed the reference counter update mechanism.
SDK-38834	Fixed the FP SrcModPortGport action for BCM5644x devices
SDK-38844	Correct assertion due to invalid device register field access in <code>bcm_port_rate_egress_set/get</code> on BCM56320 and BCM5633x devices.
SDK-38873	Trill Adjacency is set and reset for local modid and ports.
SDK-38908	support for switch controls <code>bcmSwitchHashIP4TcpUdpField0/1</code> and <code>bcmSwitchHashIP6TcpUdpField0/1</code> for BCM5644x devices
SDK-38917	Ensuring that <code>SLICEx_S_TYPE_SEL=2</code> when SrcModPortGport qualifier is used for IFP.
SDK-38924	Hypercore: DSC dump support added.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-38958	TR test fixed. Execution example follows. TR 50 mem=EXT_DDR TR 51 mem=QUEUE_MAP TR 52 mem=QUEUE_MAP
SDK-38981	Fixed the larger execution delay encountered with <code>bcm_mpls_vpn_id_destroy</code> API
SDK-38994	Add support for Linux kernels with module symbol versions enabled.
SDK-39026	Support for BFD over GRE tunnel encapsulations types: 1) BFD over GRE IPv4-in-IPv4: <code>bcmBFDTunnelTypeGre4In4</code> , <code>bcmBFDTunnelTypeGRE</code> 2) BFD over GRE IPv6-in-IPv4: <code>bcmBFDTunnelTypeGre6In4</code> 3) BFD over GRE IPv4-in-IPv6: <code>bcmBFDTunnelTypeGre4In6</code> 4) BFD over GRE IPv6-in-IPv6: <code>bcmBFDTunnelTypeGre6In6</code>
SDK-39027	<code>bcm_vlan_queue_map_set/get()</code> APIs should now compute the correct index to access the <code>PHB2_COS_MAP</code> table for BCM56840 onward switch devices
SDK-39035	No issues observed with Trill Broadcast Network to Network, Access traffic flow. Added regression test case to educate customers on API usage scenario.
SDK-39094	BFD initialization will display an error message indicating that there is no available COS queue if it fails to find an queue in the uC where the BFD application is loaded.
SDK-39158	The replace flag is checked and replacing of next hop index is allowed.
SDK-39217	During creation of an L3 interface using <code>bcm_l3_intf_create(...)</code> API, if interface creation fails, mark the interface as unused by clearing the bit in the interface usage bitmap.
SDK-39243	Fixed <code>bcm_trill_port_add</code> API to return <code>BCM_E_EXISTS</code> when the same RBridge name is reused within a node.
SDK-39279	Properly initialized <code>bcm_trill_port_t</code> structure members during <code>bcm_trill_port_get_all</code> API.
SDK-39296	Fix <code>bcm_l2_replace</code> for matching VFI, it was incorrectly programmed to match with VFI 0 instead of the specified VFI number.
SDK-39303	The Linux KNET module now disables interrupts before registering the interrupt handle, as this is required for certain warmboot environments.
SDK-39323	Invalid use case reported
SDK-39341	Fix locking error in the unlikely event that a KNET command from user to kernel space times out.
SDK-39351	<code>bcm_trill_port_get_all</code> API returns <code>BCM_E_PARAM</code> when <code>bcm_trill_port_t *port_array</code> , and <code>int *port_count</code> are passed as NULL parameters.
SDK-39352	Fixed <code>bcm_trill_port_add</code> API assert, for out-of-bound <code>multicast_hopcount</code> parameter.
SDK-39353	Fixed <code>bcmFieldQualifyInPort/Inports</code> IFP qualifier warm boot recovery code for Trident device.
SDK-39359 SDK-39662	Implemented <code>bcm_trill_multicast_traverse</code> API
SDK-39366	An Rbridge which is configured as Unicast RB may be updated as Multicast Root. This means that Transit Trill Unicast Forwarding entry should initially drop multicast frames. Only when <code>bcm_trill_multicast_add</code> API associates Root RB to multicast group, Transit forwarding entry should be enabled for Multicast. This fix handles the management of <code>TRILL_MCAST_DST_DISCARD</code> in such scenario.
SDK-39367	Implemented <code>bcm_trill_multicast_source_traverse</code> API
SDK-39368	Fixed <code>bcm_trill_multicast_source_traverse_cb</code> API parameter definition error.
SDK-39417	When Trunk-ports are used for TRILL, prior to update of <code>Trunk_group</code> , member ports should be administratively disabled. (1) User creates a Trill-Virtual-Port ( <code>bcm_trill_port_add</code> API) on trunk group N. (2) User changes trunk group N's membership. - Software clears Port-membership from <code>ING_TRILL_ADJACENCY</code> , <code>EGR_PORT_TO_NHI_MAPPING</code> (3) User updates Trill-Virtual-Port - <code>bcm_trill_port_add</code> API with <code>REPLACE</code> flag and with trunk group N.

**Table 6:**

<b>Number</b>	<b>Release Notes For 5.10.3</b>
SDK-39424	Propagate fix made within SDK-6.0 to SDK-5.9.5 to resolve the condition that - All Trill DVPs reachable through a particular port, should be through the same NHI
SDK-39443	Size for phy addr is defined as 8 instead of 16 and affects 'phy info' output.
SDK-39445	phy_id defined as bit8 data type instead of bit16 for reset routines of the drivers 54640, 54680, 54682 and 54880.
SDK-39516 SDK-38893	Fixed bcm_l3_egress_create() API to free the allocated next hop resource if any of the intermediate calls return an error code.
SDK-39577	Fix occasional dead receiver in KNET module on certain platforms.
SDK-39603	Fix bcm_rx_cosq_mapping_reasons_get() to return missing BFD reasons for Katana BCM56440.
SDK-39621	Avoid redundant rebuilds of kernel modules in Linux user mode.
SDK-39622	Fixed bcm_td_trill_port_delete to release reserved resources.
SDK-39627	Add proper locking in SAL thread module for UNIX (Linux user mode).
SDK-39691	Fixed the failure for the following API usage: 1. delete Gport using bcm_mpls_port_delete(mpls_gport) 2. delete learned MAC using bcm_l2_addr_delete_by_port (mpls_gport) used to fail for SDK-5.10 and later releases. Fixed L2 entry deletion for already deleted gport.
SDK-39692	Fixed bcm_trill_multicast_source_traverse API to return TRUNK Gports.



## 10. Resolved Issues for 5.10.2

The following issues are resolved in version 5.10.2 of the SDK.

*Table 7:*

<i>Number</i>	<i>Release Notes For 5.10.2</i>
SDK-24527	SDK Support exists for UNI to NNI Broadcast and loopback port configurations. API to copy PBB DLF/BC to CPU for learning is implemented as in SDK-36434
SDK-30659	Allow override of <code>sal_vprintf</code> and <code>sal_readline</code> through <code>SDK_CONFIG_SAL_VPRINTF</code> and <code>SDK_CONFIG_SAL_READLINE</code> .
SDK-30692	Fixed <code>bcm_stk_modport_get_all()</code> API to return port count when max ports is 0.
SDK-31288	Fixed <code>bcm_trunk_init</code> API to not clear non-trunk related fields in <code>SOURCE_TRUNK_MAP</code> table.
SDK-31801	Trill integration issues reported during control plane integration were integrated to SDK.
SDK-32837	For <code>BCM_MIM_PORT_REPLACE</code> operation for Access and Network port, Store and Restore <code>VINTF_CTR_INDEXf</code> in the <code>EGR_L3_NEXT_HOP</code> for mim port Next hop add. This resolves an issue where the <code>BCM_MIM_PORT_REPLACE</code> operation was causing removal of virtual interface counter binding.
SDK-33642	<code>bcm_field_entry_install()/reinstall</code> APIs now support hitless update of entry action parameter for following port related actions: <code>bcmFieldActionEgressMask</code> <code>bcmFieldActionRedirectBcastPbmp</code> <code>bcmFieldActionRedirectPbmp</code> <code>bcmFieldActionEgressPortsAdd</code>
SDK-33871	Corrected the calculations of <code>snmpIfInUnicast</code> MIB in xgs4 devices to include frame length mismatch packets that are forwarded to the switching logic.
SDK-34240	Added automatic retry for <code>sal_sem_take/sal_mutex_take</code> when interrupted by signal in Linux kernel mode.
SDK-34250 SDK-37209	Fixed <code>bcm_mpls_port_add</code> API to return <code>bcm_mpls_port_t.encap_id</code> for both VPLS and VPWS VPNs.
SDK-34279	Add HYBRID mode in BCM proxy API.
SDK-34398	Added support for egress mirroring of unicast frames on BCM88230 devices.
SDK-34686	New port control " <code>bcmPortContolStatOversizeIsError</code> " is added, to enable/disable inclusion of "packet size greater than XE/FE <code>PORT_CNFSIZE</code> ", to <code>snmpIfInErrors</code> and, by default the oversize packet are treated as <code>snmpIfInErrors</code> . The macro <code>COUNT_OVR_ERRORS</code> is modified to include the <code>bcmPortContolStatOversizeIsError</code> control check, which previously had oversize packet size check.  Also, Over-sized packets will be always be counted as part of XE/FE Overflow counters. The " <code>snmpEtherStatsOversizePkts</code> ", " <code>snmpEtherRxOversizePkts</code> ", " <code>snmpEtherTxOversizePkts</code> " stats will return the oversize packet count and will not depend on the previously defined <code>COUNT_OVER_ERRORS</code> .
SDK-34727	Ignore sub-system errors during device detach.
SDK-34729	Compilation errors when <code>RLINK_TRAV_THREADED_SERVER</code> is set to 0.
SDK-34818	The <code>PORT_BRIDGE_MIRROR_BMAP</code> entry is configured if <code>bcmPortControlBridge</code> is enabled for a HiGig port.
SDK-34840	Fixed an issue in the BCM diagnostic shell command <code>vlan translate egress show</code>
SDK-34879	Corrected <code>bcm_port_subsidiary_ports_get()</code> API return value on BCM5684x family Switch devices
SDK-34891	Use monotonic clock for <code>sal_time_usecs</code> if available.

**Table 7:**

<b>Number</b>	<b>Release Notes For 5.10.2</b>
SDK-34936	Fixed error within <code>bcm_mpls_port_get</code> API, so that the retrieved <code>mpls_port_info</code> may be used for <code>BCM_MPLS_PORT_REPLACE</code> operation.
SDK-35093	Tuned SERDES settings for better stability in BCM88130+BCM88230 systems
SDK-35117	Prevent multiple traversal of the l3iif usage bitmap in <code>bcm_l3_*</code> API calls.
SDK-35214 SDK-36940	Fixed <code>bcm_l2_traverse</code> API to be agnostic of VPN deletion.
SDK-35275 SDK-36207	Fixed the problem of traffic stops while modifying an egress next hop referenced by a transit tunnel.
SDK-35322	Fixed Stat move across hardware slices for Stats attached to entries in a double wide group. Entries are moved across physical slices in this group by <code>bcm_field_entry_prio_set()</code> API operation.
SDK-35338	FP entry actions, policers and STATs information are recovered from hardware during warm boot recovery process. This is applicable to both Level 1 and Level 2 recovery modes. So, to reconstruct the software state that matches the state prior to recovery. All created FP entries must be installed in hardware.
SDK-35340	Added input check to make sure <code>dynamic_size</code> is non-zero when fabric trunk dynamic load balancing is enabled.
SDK-35437	Changed SKU Id 56449 to 56249
SDK-35447	fix for sending SOBMH on correct queue number on hg ports
SDK-35503	Let chunk 0 [126, 127, 0, 1] with length = 4 can be used by SDK command "fp data".
SDK-35536	Added configuration properties "port_diag_mode" and "port_diag_header" for BCM88230 family of devices. Added support for diagnostic mode to egress actions by adding a DIAG action that removes the 8 byte frame header injected by RB on ingress for interfaces in diagnostic mode. Also direct all traffic on any interface in diagnostic mode to the DIAG parser. Please contact your Broadcom FAE if you feel you need to use this diagnostic mode.
SDK-35553	Fix counter collection calculation when counter rollover.
SDK-35555	System requiring reentrant callback support for remote traverse must use a non-threaded traverse server configuration.
SDK-35558	Add code to handle non-atomic TCAM update on BCM5684x.
SDK-35685 PHY-495 SDK-34618	Added support for PRBS testing between BCM88025 and BCM88230 devices.
SDK-35714	Added fixes to GMT configuration on multiple nodes on BCM88230 devices.
SDK-35739	Register access to the correct address has been restored to resolve Half-Duplex Collision Lock-up.
SDK-35776	Fix error in checking the available UDF ID in <code>bcm_field_data</code> qualifier APIs.
SDK-35796	Supply missing lock release in FP mirror logic.
SDK-35797	Warpcore's eye margin calculation routine updated to use 'double' data type instead of 'float' data type.
SDK-35804	Process <code>START_BY_START_ERR</code> interrupt.
SDK-35852	<code>bcm_cosq_gport_bandwidth_set()</code> could fail on QE-2000 devices under some circumstances because QE-2000 ingress shaping mode was not validated against the respective configuration property.
SDK-35864	Modified code to use mem insert instead of mem write and the old entry is deleted from the current bank after a successful move to the other bank to resolve Dual Hash Reordering Causing Incorrect VLAN/VFI MAC Limit Counters.
SDK-35875	Explicit checks for invalid l2mc index in <code>bcm_l2_addr_t</code> have been added.
SDK-35877 PHY-495 SDK-34618	Additional PRBS polynomial value settings were added for BCM88230 and BCM88020 based systems. Added HiGig port support for PRBS.

**Table 7:**

<b>Number</b>	<b>Release Notes For 5.10.2</b>
SDK-35883	Added support for <code>bcm_bfd_detach()</code> on BCM56440 devices.
SDK-35896	5.10.0
SDK-35921	Removed unnecessary devices specific checks while removing <code>my_station_tcam</code> entry in <code>bcm_l2_cache_delete_all()</code> and <code>bcm_l2_cache_delete()</code> calls. Both mentioned routines supposed to call <code>bcm_td_l2cache_myStation_delete()</code> directly which handles tcam entry deletion properly.
SDK-35964	Updated <code>bcm_field_data_format_ether_type_add()</code> API to support slow protocol PDU Ether type 0x8809.
SDK-35967	added code to support download of led code and to do port order remap in katana.
SDK-35991	Enabled <code>bcmFieldActionAddClassTag</code> action support for Trident device and added warm boot recovery code to recover this action config.
SDK-36001	When multiple <code>next_hop</code> entries share the same VC-label entry, deletion of one <code>next_hop</code> causes unstable behavior. This is because the SDK-state for the specific VC entry gets deleted. This problem is now fixed through unification of the VC entry deletion through a common function.
SDK-36002	Check <code>KEY_TYPE</code> when deleting L2 address using <code>bcm_l2_replace</code> API.
SDK-36036	Fixed <code>bcm_oam_event_register/unregister</code> API support for Triumph2 and Apollo device.
SDK-36048	Set up the index of existing route table entry for 'replace' operation. This resolves an issue where deleting one of the multiple ECMP routes for the same subnet in legacy mode could over-write the first entry in <code>L3_DEFIP/L3_DEFIP_128</code> table.
SDK-36055	Applicable for BCM88235 only. Added TDM table support for additional configurations - 4x11G Xports + 11G RQ0 + 25G RQ1, 4x11G Xports + 2x18G RQ ports.
SDK-36069	Add code to flush packets when remote fault is detected on BCM5684x.
SDK-36080	Recover reference count for <code>EGR_MAC_DA_PROFILE</code> table during mpls module reinit. Fixed mpls warmboot recovery logic.
SDK-36090 SDK-36204	Added <code>bcmSwitchServiceTpidReplace</code> switch case to control tpid replace in SD-TAG (*) Prototype ===== <code>bcm_switch_control_get(unit, bcmSwitchServiceTpidReplace, &amp;val);bcm_switch_control_set(unit, bcmSwitchServiceTpidReplace, TRUE/FALSE);</code>
SDK-36100	Fixed memory leaks in trunk, IPMC, and multicast modules when <code>rc</code> is repeatedly called.
SDK-36151	Fixed a potential link flap issue on xe port (speed>=10G) with warpcore serdes connected to an external phy.
SDK-36160	Per port dscp pointer is updated with appropriate profile pointer.
SDK-36180	Fixed memory corruption issue in counter module. Benign as long as <code>BROADCOM_DEBUG</code> was enabled and detected only when unloading linux-bcm-diag-full kernel module.
SDK-36206	PTP compilation was by mistake made as chip specific (i.e. katana + chips) causing compilation error for non-katana partial builds.
SDK-36212	Deleting queues may cause unrelated queues from being served due to an incorrect update to BCM88130's portset list.
SDK-36221	Validation of portsets in virtual mode in BM9600/BCM88130 device was in error during easy reload. Updated the easy reload checks to match the expected state.

**Table 7:**

<b>Number</b>	<b>Release Notes For 5.10.2</b>
SDK-36225 SDK-34355 SDK-39581	Fixed an off-by-one error in 'route table add' operation [ <code>bcm_l3_route_add()</code> API] for ipv6 routes with 65-128 bit prefixes.
SDK-36231	Fixed memory leak in OAM Tx diag shell command.
SDK-36239	On BCM88130 and BCM88230 devices the default settings for drive strength and equalization are now set correctly to the expected default values. The user can update these settings through the <code>bcm_port_control_set()</code> API for drive strength and equalization.
SDK-36253	Add missing <code>soc_mem_unlock</code> when moving the learned entry to ESM fails.
SDK-36277	Improved performance of BFD on BCM56440 devices.
SDK-36286	The oversize threshold size has to be updated in <code>FRM_LENGTH</code> register for unimac to receive oversized packet lengths.
SDK-36290	Fix <code>bcm_cosq_stat_set</code> API with <code>bcmCosqStatDroppedPackets</code> or <code>bcmCosqStatDroppedBytes</code> for CPU port on BCM5684x.
SDK-36297	Changed cosq mapping to accept physical port gport. Hence, CLI works fine for "cos port" commands.
SDK-36301	Enabled <code>BCM_L3_HOST_AS_ROUTE</code> support for ipv6 entries.
SDK-36306	Fix <code>bcm_cosq_config_set</code> API to avoid stale setting when the API is called multiple times on BCM5684x.
SDK-36308	Correct MMU total cells programming for BCM56620.
SDK-36312	Added switch control <code>bcmSwitchFabricTrunkAutoIncludeDisable</code> , which, if set to TRUE, disables automatic inclusion of all members of a Hlg trunk group when one of its members is specified as the steering destination for a remote module.
SDK-36353	Added <code>UcastCosQNew</code> and <code>McastCosQNew</code> to "fp action add" diag shell command.
SDK-36387	<code>bcm_bfd_endpoint_stat_get()</code> was returning incorrect values on BCM56440 devices.
SDK-36422	Add static FC Header standard Configurations on BCM5684X family devices
SDK-36433	Added support for <code>bcm_bfd_detach()</code> on BCM56440 devices.
SDK-36435	Added support for <code>bcm_bfd_endpoint_destroy()</code> and <code>bcm_bfd_endpoint_destroy_all()</code> on BCM56440 devices.
SDK-36436	Added support for <code>bcm_bfd_endpoint_poll()</code> on BCM56440 devices.
SDK-36454	Add missing parenthesis for argument in BFD macros: <code>BCM_BFD_EVENT_TYPE_SET()</code> <code>BCM_BFD_EVENT_TYPE_GET()</code> <code>BCM_BFD_EVENT_TYPE_CLEAR()</code> <code>BCM_BFD_EVENT_TYPE_SET_ALL()</code> <code>BCM_BFD_EVENT_TYPE_CLEAR_ALL()</code>
SDK-36458	When <code>bcm_l3_egress_create</code> API gets invoked after BCM L3 had been detached and re-initialized causes <code>bcm_l3_egress_create</code> API to return <code>BCM_E_INIT</code> . Issue is dependent on coupling of MPLS and L3 modules. This fix handles the case where MPLS module is not initialized.
SDK-36513 SDK-38538	Use HW PPA to delete L2 table by virtual port on BCM5663x_B0 and BCM56334.
SDK-36523	Changed default KNET Linux kernel module license from GPL to Proprietary. The GPL version of the module should be built from the GPL source files (released separately).
SDK-36532	Allow <code>bcm_field_action_add()</code> API for port based actions (RedirectPbmp, EgressMask, EgressPortAdd) on devices which support max of 32 ports - Firebolt series devices.
SDK-36562	On BCM5684x, the <code>MY_MODID</code> field in <code>XLPORT_CONFIG</code> register is updated when the module ID is set.
SDK-36587	Added <code>bcmSwitchAlternateStoreForward</code> support for BCM5674x.

**Table 7:**

<b>Number</b>	<b>Release Notes For 5.10.2</b>
SDK-36635	Fixed various possible uninitialized variables reported by Coverity.
SDK-36636	Added missing <code>va_end()</code> statements to <code>gmodule.c</code> .
SDK-36637	Fixed unlikely resource leaks in <code>sh_rccache()</code> and <code>mpool_create()</code> .
SDK-36665	Prevented array index from exceeding array bounds by allocating larger array for the hash key while computing ecmp hash on XGS devices.
SDK-36668	Allow entry priority set call even when priority has not changed after entry create operation. A lower priority entry (prio=0) could be allocated a higher priority TCAM index during entry create due to availability of that TCAM index. This entry needs to be moved to a lower priority index during entry priority set API call.
SDK-36676	<code>bfd_rx_cosq_mapping_set()</code> with <code>bcmRxReasonBfd</code> reason code was not configuring <code>CPU_COSQ_MAP</code> correctly on BCM56440 devices.
SDK-36708	Added URPF related configuration for BCM5663x ECMP group creation.
SDK-36710	Add code to clear the error status for packet start error on BCM5684x.
SDK-36712	Trigger Warm Boot autosync after <code>bcm_port_enable_set</code> to record the new port configuration in Warm Boot Level 2.
SDK-36745	Code was assuming mirrored port as ModPort (when port is not part of trunk) This assumption was wrong as we can use local port also for mirroring. Now code checks gport type i.s.o. assuming ModPort.
SDK-36794	For the 56441 device port 1 was omitted from the port bit map. The following fix includes port 1 in the port bit map when the CES feature is included.
SDK-36803	Updated DDR ZQ calibration sequence for BCM88230 devices
SDK-36809	<code>bcm_cosq_gport_enable_set</code> will now enable or disable the entire queue group associated with the gport when passing the value of -1 into the cosq parameter on BCM88230 devices.
SDK-36818 SDK-37510	Updated <code>bcm_l2_flags_str[]</code> array to match the L2 flags definition.
SDK-36819	Fixed the init value of the mpls label in BCM shell command handlers.
SDK-36845	Flow Control configuration for E2ECC and HCFC in 8 fifo mode compatibility issues resolved on BCM88230.
SDK-36904	executing <code>print printf;</code> or <code>printf();</code> (no arguments) in CINT would dereference a NULL pointer.
SDK-36909	In certain qsets, IFP qualifier dstport were failing for BCM56440 device and that has been fixed now.
SDK-36957	Fixed incorrect CINT definition for BFD member " <code>bcm_bfd_auth_type_t</code> auth" in struct " <code>bcm_bfd_endpoint_info_t</code> ".
SDK-36963	Internal routine checking HG when check should be for GX for bcm88230. This check has been changed.
SDK-36980	Logical not '!' operator would return an error when used with a pointer argument in CINT. Ternary operator '?' would always evaluate as TRUE when used with a pointer argument
SDK-36987	Changed <code>bcm_cosq_gport_sched_set</code> API to accept physical port number.
SDK-36999	Removed Katana specific check which was preventing setting of LFM loopback in katana. .
SDK-37004	Added check to support switch control <code>bcmSwitchLayeredQoSResolution</code> for Enduro-2/Katana
SDK-37005	<code>FP_GLOBAL_MASK_TCAM</code> valid field needs to be set in both indices of a paired entry.
SDK-37018	Add Warpcore inrush current workaround for BCM5684x.

**Table 7:**

<b>Number</b>	<b>Release Notes For 5.10.2</b>
SDK-37032	Fix TDM slot spacing when multiple Warpcores are configured with less than maximum bandwidth on BCM5684x.
SDK-37061	Fixed Enduro cosq function with cpu port.
SDK-37077	Updated bcm56440 and bcm56445 device chips file for bcmFieldActionRedirectEgrNextHop action.
SDK-37085	The ingress rate shaper were failing for some rates on the Katana devices which has been now fixed by adjusting the exponent value to 13.
SDK-37127	Fix occasional incorrect "show temperature" result on BCM5684x.
SDK-37276	Fix for crash in configuration of <code>bcm_field_data_qualifier_packet_format_add</code> for UDF qualifier
SDK-37277	Support for two stage initialization of 848X PHYs to reduce initialization time.
SDK-37309	<code>bcm_fabric_port_create</code> will now return the child or egress child gport associated with a <code>physical_port/offset</code> pair that already exists.
SDK-37321	When setting fabric port speed, a minimum value of 1000 is necessary to allocate memory. This will be adjusted within the <code>bcm_port_speed_set</code> appropriately on BCM88230 devices.
SDK-37324	When dynamically creating requeue ports, soc property <code>if_subports.port34</code> and <code>if_subports.port35</code> should be used to assign the number of subports created per requeue port on BCM88230 devices under TME mode.
SDK-37337	SOT policing must be enabled on BCM88130 devices when running backplane links at 6.25G. Starting with this SDK version, this is now configured automatically during <code>soc_init()</code> .
SDK-37382	Fix data not available. No longer reproducible
SDK-37391	Fixed Class Type value for <code>bcmFieldQualifySrcClassField</code> qualifier in qualifiers init routine (IFP and External FP Stages) for Triumph and Chariot device.
SDK-37400 SDK-36981	During Egress Object Replace, MAC-DA of Egress-Object with Entry-Type=1 requires to be updated. This issue is fixed.
SDK-37429	Added support for <code>bcmCosqControlBandwidthBurstMin</code> in cosq control API on triumph3.
SDK-37430	Added support for <code>bcmCosqControlBandwidthBurstMin</code> in cosq control for trident
SDK-37441	Fixed <code>bcm_port_egress_set/get</code> APIs to map module ID and port number from 32-port space to 64-port space on devices with multiple module IDs.
SDK-37460 SDK-37974	Trill Network to Access Multicast flow got broken for SDK-6 release. This is a patch to fix the RPF entry addition for TRILL multicast.
SDK-37466	Use RUCA packet counter to count on all good UC packets delivered to higher layer.
SDK-37489	Corrected COSq queue setting of port-directed CPU injected packets for BCM5644x devices on Little Endian hosts.

## 11. Resolved Issues for 5.10.1

The following issues are resolved in version 5.10.1 of the SDK.

**Table 8:**

<b>Number</b>	<b>Release Notes For 5.10.1</b>
SDK-24850	For entries in Lookup stage with counters attached to it, <code>BCM_FIELD_COUNTER_MODE_DEFAULT</code> counter mode must be used for <code>bcmFieldActionUpdateCounter</code> action.  <code>bcm_field_entry_install()</code> API will return <code>BCM_E_CONFIG</code> error when entries with invalid hardware counter mode is detected. It is recommended to use <code>bcm_field_stat_xxx()</code> APIs instead of counter APIs, as for all newer devices only STATs APIs are supported.
SDK-32055	Fixed <code>bcm_field_group_status_get</code> API for policer and statistics status.
SDK-32065	The "intr" diag command was giving an error. This issue has been fixed.
SDK-32132	Fix <code>bcm_l2_learn_port_class_set/get</code> API on BCM5684x.
SDK-33252	Fix MODID assignment on BCM5684x.
SDK-33384	Added proper error check when calling mmap from Linux user mode BDE.
SDK-33417	Update Linux module bcm-net to support Linux kernel 2.6.27 and newer.
SDK-33748	Repaired <code>bcm_cosq_gport_discard_set/get</code> functions in BCM56820-only compilation.
SDK-33963	Fixed error in trunk destination handling in <code>bcm_mirror_port_get</code> .
SDK-34013	<code>bcm_cosq_gport_statistic_multi_get()</code> was failing for certain types of logical ports on BCM88230 devices.
SDK-34018	The GE PHY <code>master_get()</code> routines now obtain the master / slave status from the GE status register (reg. 0xa) instead of the GE control register (0x9).
SDK-34097	Fix an assertion due to out of range VLAN class id.
SDK-34120	Enable CR4 mode (for DFE) support between 56843 & 84740
SDK-34121	<code>bcm_port_fault_get()</code> now supports HG and XE ports on BCM88230 devices.
SDK-34167	Added additional link status tests for removable PHY devices to ensure that the proper link status is reported when a PHY is removed.
SDK-34177	API <code>bcm_vlan_translate_action_range_traverse</code> should now work correctly for BCM5684x Switches
SDK-34185	Fixed L3 egress object retrieval for <code>bcm_tunnel_switch_get</code> API.
SDK-34254	Fixed invalid memory access in VPWS Software-based Failover/protection mechanism.
SDK-34265	QE2000 easy reload bugfix for memory access on initialization.
SDK-34337 SDK-35385 SDK-35378	Update <code>bcm_tunnel_terminator_add</code> to act on <code>BCM_TUNNEL_TERM_DSCP_TRUST</code> flag on the following devices 56218_a0, 56224_a0, 56224_b0, 53314_a0, 53324_a0, 56800_a0, 56820_a0 and 56725_a0.
SDK-34350	<code>bcm_mpls_tunnel_initiator_create</code> API may be used to create <code>Explicit_NULL</code> label. User may create multiple of these labels with the same EXP and TTL values and different L3 Interfaces. In such a scenario, each L3 Interface should point to the same MPLS-Tunnel entry.

**Table 8:**

<b>Number</b>	<b>Release Notes For 5.10.1</b>
SDK-34352	For L3-VPN egress into MPLS-Tunnel, <code>EGR_L3_NEXT_HOP.ENTRY_TYPE</code> =1. When <code>ENTRY_TYPE</code> is modified to 1, then Entry-0 index gets assigned to <code>EGR_L3_NEXT_HOP.VC_AND_SWAP_INDEX</code> . Entry-0 of <code>EGR_MPLS_VC_AND_SWAP_LABEL_TABLE</code> is reserved for default-entry with <code>LABEL_ACTIONf = RESERVED</code> . This is to ensure that Entry-0 is not re-assigned with Valid <code>Label_action</code> .
SDK-34421	Fixed MIIM C45 functions to properly use CMICm.
SDK-34427	Support the <code>bcm_field_stat_create_id()</code> function for ROBO chips.
SDK-34452	Added BFD support for UDP/IP encapsulation on BCM56440 devices.
SDK-34466	Add the support to configure the untagged packets mapping of the functions, <code>bcm_port_vlan_priority_map_set/get()</code> , for ROBO chips.
SDK-34483	Fixed occasional Linux kernel <code>skb_over_panic</code> when KNET kernel module is used in default receive mode ( <code>use_rx_skb=0</code> ).
SDK-34492	Internal priority set limit for 4 bits.
SDK-34524	Improved parameter validation in <code>bcm_cosq_gport_attach_get()</code> on BCM88230 devices.
SDK-34525	<code>bcm_cosq_gport_delete()</code> might cause an existing shaper on other queues to not function properly on BCM88230 devices
SDK-34532	Program the correct value in RPE field for Vlan Translation Table in <code>bcm_vlan_translate_add</code> API call.
SDK-34537	For scenarios where MPLS label is same but EXP and TTL are different, index to <code>EGR_VC_AND_SWAP_LABEL_TABLE</code> must be different. This issue is fixed.
SDK-34539	Only during request for physical statistics will the call getting a physical interface number be accessed on BCM88230 devices.
SDK-34541	Fix diag shell show counter output display names for unicast queue drop counter and multicast queue drop counter on BCM5684x.
SDK-34547	Remove unsupported <code>bcm_robo_stat_custom_get/set</code> APIs for ROBO chips.
SDK-34564	CINT functions would could not access global variables if called from an enclosing block scope in the interpreter.
SDK-34596	Eliminated warnings when compiling CINT with GCC 4.6.0
SDK-34600	Fix <code>bcm_rate_set</code> API when applying different limit setting for different types of traffic on the same port in packet mode.
SDK-34615	<code>EP_DEST_PORT_MAP</code> is no longer configured by SDK on BCM88230 devices when the configuration property " <code>fabric_egress_setup</code> " is set to 0.
SDK-34624	Add support for newer Linux kernels (up to 2.6.37).
SDK-34627	Removed unwanted condition check from loop that builds the 'other' paths for higg 'raw' replication on BCM88230 devices, preventing it automatically trying to rebuild the one provided by the caller.
SDK-34633	Allow <code>bcm_cosq_gport_add()</code> to not allocate sysport on BCM88230 devices.
SDK-34637	The common C idiom to 'loop forever', " <code>for(;;)</code> ", executed no statements in body.
SDK-34659	Fix the incorrect IGMP configuration between trap and snoop modes on bcm53242 and bcm5348.
SDK-34661	Memory leak was happening for LP ports while creating a trunk. This was fixed by properly releasing the memory allocated for LP ports in <code>pkt_addr_resolve()</code> API of <code>sdk/src/bcmx/tx.c</code>
SDK-34677	Copy the 'priority' and 'class id' onto the route structure while setting defip route info.
SDK-34678 SDK-35099 SDK-35364	Fixed improper initialization of <code>bcm_l3_egress_t</code> structure.



**Table 8:**

<b>Number</b>	<b>Release Notes For 5.10.1</b>
SDK-34694 SDK-35279	bcm_field_qualify_data() parameters were being serialized over RPC as expected.
SDK-34695	CES related DPCs are cleaned up via the bcm_esw_ces_detach() method is called via the diag command "ces off". The cleanup call has been added to the rc.soc file.
SDK-34724	Correct invalid data access in subport module on BCM56820/BCM56720 devices.
SDK-34728	HiGig ports on BCM88230 devices now support auto equalization through "phy" Diag shell commands. For example "phy control hgl retune"
SDK-34741	enable soc_feature_field_action_redirect_nexthop for bcm56334.
SDK-34763	Use syntonized time instead of synchronized time when calculating toggle time to get rid of previous offset value.
SDK-34764	Unified internal_qos configuration for MPLS Port and Tunnel-Switch entries.
SDK-34770	Fixed bcm_vlan_control_port_set for MPLS Gport
SDK-34792	Clear the Warm Boot stable cache bookkeeping records when attaching a new device to the driver.
SDK-34793	Added proper help support for dynamic CLI commands.
SDK-34813	Adjusted handling of the configuration property "demand_scale" to reduce the need to modify the property from within the SDK code. This property should ideally not be used by customers without consulting with Broadcom AE first. The defect is usage of SOC property is fixed (in case some application is still using it)
SDK-34819	The default VLAN should now switch packets properly for BCM5684x
SDK-34820 SDK-35233	Fixed issue with reuse of of EGR_MPLS_VC_AND_SWAP_LABEL_TABLE entry.
SDK-34833	Exposed per-interface default queue setting on BCM88230 devices as new port control, bcmPortControlDefaultQueue.
SDK-34834	Show counters now also checks for XE ports on BCM88230 devices.
SDK-34860	Improved internal boundary checks in bcm_multicast_egress_add() on BCM88230 devices in order to limit the encapsID chain to 256. However the defined limit was a s/w constraint. There is no need to impose a s/w constraint. Thus this s/w constraint is now removed.
SDK-34865	Fixed the index to the ECMP table used by the ECMP groups on BCM5684x, BCM5663x and BCM5682x family of devices.
SDK-34885	Add missing return code check to field module BCM56820 egress stage configuration.
SDK-34893 SDK-34887	Eliminated magic number in Linux user mode BDE interface.
SDK-34898	Bcm_trill_* APIs were incorrectly resolving gport to modid, port bindings.
SDK-34905	Fixed system halt when loading linux-bcm-core.ko kernel module on Keystone CPU platforms.
SDK-34911	Fixed Trunk ID validation check in bcm_field_qualify_SrcTrunk/DstTrunk qualifier APIs for Trident device. Trident device can support up to 1024 front panel trunk groups.
SDK-34936	Fixed error within bcm_mpls_port_get API, so that the retrieved mpls_port_info may be used for BCM_MPLS_PORT_REPLACE operation.
SDK-34978	Added support for VLAN OOB filter in BCM KNET API.
SDK-34997	fixed serdes and trunk issue with certain bringup API sequence on bm9600
SDK-35006	The link partner's EEE capability is checked before enabling EEE in the MAC for native mode EEE.
SDK-35014	Added diag shell command for WAN "stretch" mode.

**Table 8:**

<b>Number</b>	<b>Release Notes For 5.10.1</b>
SDK-35030	<ol style="list-style-type: none"> <li>1. Set T bit at appropriate bit position in SGLP field of L3_ENTRY_IPV4_UNICAST_LMEP</li> <li>2. Program OFFSET_VALID bit in ING_SERVICE_PRI_MAP.</li> <li>3. Set correct RX reason code to reflect OamLMDM.</li> </ol>
SDK-35054	Expanded parameter checks in bcm_l3_egress_create to prevent invalid register access.
SDK-35089	Adjust Warpcore serdes Tx clock PPM to address EMI failure issue.
SDK-35108	Fixed error in bcm_tr_mpls_match_key_recover during recover of MPLS match keys from appropriate MPLS_ENTRY entries.
SDK-35116	Corrected error in 'while' loop termination condition in L3_IIF allocation routine used by bcm_l3_* APIs to prevent clobbering of data that is subsequently used.
SDK-35126	Implemented an updated top level register access sequence for BCM54640E.
SDK-35127	Use Alternate Clock Source for Hypercore in 10/100 Mode.
SDK-35132	Support OAM Loss Measurement/Delay Measurement MEPs created on trunk.
SDK-35156	Enabled MSI interrupt in CMIC_CMC0_PCIE_MISCEL register.
SDK-35161	Clear MMU back pressure status when disabling PFC transmit. This is to ensure MMU to stop transmitting pause frame if it was in XOFF state before disabling PFC.
SDK-35165	Updated bcm_field_entry_prio_set() API to use slice size while determining the target slice index value. This fix is applicable to devices that have physical slices of different sizes i.e Trident and Scorpion device.
SDK-35168	Field qualifiers init routine for Scorpion device has been updated to select the source class ID value for bcmFieldQualifySrcClassL2 and bcmFieldQualifySrcClassL3 qualifiers.
SDK-35177	Enforced the use of value 1 used to indicate TRUE in the phy8481.c driver.
SDK-35205	Leverage the Linux SPI driver for user mode sdk on BCM5300X CPU with ROBO chips.
SDK-35213	bcm_cosq_gport_attach() was failing in some detach/attach sequence on some BCM88230-based designs.
SDK-35220	Added initialization of uKernel and cmicm applications during the startup of BCM56440 devices.
SDK-35222	Fix bcm_cosq_stat_get API with bcmCosqStatDroppedPackets or bcmCosqStatDroppedBytes for CPU port on BCM5684x.
SDK-35278	Corrected wrong enum comparison...
SDK-35288	Fixed bcm_field_stat_set() API internal implementation for Lookup stage.
SDK-35296	Change to allow bcm_rate_ API to configure higher packet rate [40Gbps].
SDK-35322	Fixed Stat move across hardware slices for Stats attached to entries in a double wide group. Entries are moved across physical slices in this group by bcm_field_entry_prio_set() API operation.
SDK-35328	Fixed the bcm_tx() with callback function in pkt->callback field would cause TX task hang on ROBO chips.
SDK-35339	Expanded parameter checks in bcm_mpls_tunnel_initiator_set to prevent invalid register access.
SDK-35347	Fixed SWAP_Label allocation mechanism during bcm_l3_egress_add(flags=BCM_L3_REPLACE).
SDK-35348 SDK-35719	Since SDK-5-10, IPMC on VLAN-1 was broken. The root cause is that the L3_IIF of VLAN_MPLS is not properly initialized. This used to work properly till SDK-5-9-2. This issue is fixed.

**Table 8:**

<b>Number</b>	<b>Release Notes For 5.10.1</b>
SDK-35368	Add support of BCM_PKT_STK_F_DO_NOT_LEARN, BCM_PKT_STK_F_DO_NOT_MODIFY, and BCM_PKT_STK_F_TRUNK_FAILOVER for Higi2 header PPD0 overlay.
SDK-35393	Array types that used a macro to specify the array size in CINT (such as bcm_vlan_vector_t) were treated as a scalar type.
SDK-35397	For BCM88230, when creating queues associated with egress resources on ingress nodes, the egress resources will not be configured if the API is targeting another device(node).
SDK-35400	During bcm_l3_egress_create API with flags=BCM_L3_REPLACE and same mpls_label, unused VC_AND_SWAP_label_index wasn't getting freed. This issue is resolved.
SDK-35406	Serdes ID0 register read incorrectly in the xgxs16G(Independent lane) serdes driver init routine
SDK-35447	fix for sending SOBMH on correct queue number on hg ports
SDK-35504	QE2000 scoreboard thread initialization has been moved from soc init to bcm init to prevent mutex lock issue.
SDK-35569	Change XMAC CRC generation logic to allow port block to selectively control CRC generation. Unconditional regeneration of CRC is disabled.
SDK-35684	Within BCM56634 device family and further devices, INT_PRI = VLAN-PRI of ingress L2VPN packets - only if SOURCE_VP.TRUST_OUTER_DOT1P = 1. This issue is fixed.
SDK-35734	BFD event notification would succeed, but the actual notification was not propagated properly during the callback on BCM56440 devices.
SDK-35780	Added missing GE counters on XE port to counter collection thread for BCM56634 family devices.
SDK-35795	Separate CCM defect and RDI errors when deleting remote MEP and clearing these errors.
SDK-35836	Enlarge the timeout value to accommodate the very slow SPI frequency with the BCM5300x CPU.
SDK-35865	Fixed bit offset for bcmFieldQualifySrcIp6 qualifier in external stage with _FP_EXT_ACL_L2_IPV6 Key type for Triumph and Chariot devices.
SDK-35895	Fix invalid SOURCE_VPm field access for BCM56440_A0 and newer devices.

## 12. Resolved Issues for 5.10.0

The following issues are resolved in version 5.10.0 of the SDK.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
BSP-162	Add the serial flash support for Micron N25Qxxx series and Spansion S25FL032P devices on BCM5300x CPU
PHY-420	20G DXGXS ethernet speed mode in BCM5684x Switch's dual-lane port should now work.
PHY-449	Fixed a potential MDIO register corruption issue when Switch port using BCM87x6/BCM87x7/BCM807x type of PHY device experiences rapid link transition cycles
PHY-457	Enable CL72 in forced 42G speed mode for Warpcore serdes device
PHY-459	Support BCM84740 PHY device reverse mode operation
PHY-474	PHY84740 system side remote loopback in 40G mode doesn't work
PHY-531	BCM84728 PHY 1G autoneg enabled mode issue has been fixed.
PHY-535	Fixed 1G/100M/10M SGMII mode issue with BCM84728 PHY
SDK-25142	Added support for out of band HCFC support for BCM88230 devices
SDK-25188	Added CINT function <code>cint_timer_get()</code> to get the current value of the CINT timer. Changed CINT functions <code>cint_timer_start()</code> and <code>cint_timer_stop()</code> to provide a more useful programming interface.
SDK-28627	For small memory configuration, allocate 1/4 of counter capacity to egress counters.
SDK-28797	Implemented performance optimization for LPM route operations.
SDK-28822	Program <code>CMIC_BS_CLK_TOOGLE_TIME</code> registers when enabling broadsync output or changing offset values.
SDK-29933	<code>bcm_stat_multi_get()</code> and <code>bcm_stat_multi_get32()</code> are now supported on appropriate XCORE devices.
SDK-30232	Added multipath shaper support for BCM88230 devices
SDK-30294 SDK-30328 SDK-32022	When VP is added to VPLS VPN, CML of VP is by default set to <code>FWD_MODE</code> (L2 hardware learning enabled). This will result in learning of entries that CPU cannot manage.  For this purpose SwitchControls are added - that configures default CPU managed Learn settings per Virtual Port. <code>bcmSwitchGportAnyDefaultL2Learn &lt;CML value&gt;</code> <code>bcmSwitchGportAnyDefaultL2Learn &lt;CML value&gt;</code>  Customer may use these Switchcontrols to configure default CML action for any Virtual Port application.
SDK-30562	Fixed parameter checking of <code>bcm_vlan_action_set_t</code> such that <code>ot_inner</code> and <code>it_outer</code> fields can take on the value <code>bcmVlanActionCopy</code> on devices that support this type of VLAN tag action. On devices that don't support <code>bcmVlanActionCopy</code> , <code>BCM_E_UNAVAIL</code> is returned.
SDK-30612	BCM 88025: Added support for PSC message transmission and reception in micro-code. Burst and slow-rate modes supported for TX. A hold-down timer is implemented on RX to silently drop all but the first received packet in a burst.
SDK-30698	Use hardware <code>L2_BULK</code> operation for matching mac or virtual port destination instead of software traverse on BCM5684x.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-30775	Customer may configure RETURN_VALUE during SwitchControl Set operation: <code>bcm_switch_control_set(0, bcmSwitchL3HostAsRouteReturnValue, customer_specified_RVAL);</code> 1. <code>bcm_l3_host_add</code> API return "customer_specified_RVAL" when HOST entry is added to ROUTE. 2. <code>bcm_l3_host_delete</code> API return "customer_specified_RVAL" when HOST entry is deleted from ROUTE. 3. <code>bcm_l3_host_add</code> API with flag=BCM_L3_REPLACE return "customer_specified_RVAL" when ROUTE entry gets migrated to HOST
SDK-30870	Add <code>bcm_cosq_gport_mapping_set/get</code> API for internal priority to cos queue mapping.
SDK-30894	The routine <code>soc_phyctrl_port_dump()</code> now shows the EEE capability of the PHY.
SDK-30935	Updated <code>bcm_field_data_packet_format_t</code> structure members variables <code>fibre_chan_outer</code> and <code>fibre_chan_inner</code> from <code>uint8</code> to <code>uint16</code> type. To fix compilation warning when these variables are assigned BCM_FIELD_DATA_FORMAT_FIBRE_CHAN_ANY (0xffff) value.
SDK-30975	Modified BCM5663x, BCM5652x, and BCM5684x flexible counter collection to only accumulate active counters.
SDK-31024	Added support for BCM_TRUNK_MEMBER_INGRESS_DISABLE and BCM_TRUNK_MEMBER_EGRESS_DISABLE flags on BCM5684x devices.
SDK-31175	Add packet buffer drop counter to <code>snmpIfInDiscards</code> statistics calculations for XGS3 devices.
SDK-31215	Admission Control Statistics support added on BCM88230 devices. These statistics are collected through a polling thread.
SDK-31219	Add MMU config variables for BCM5684x.
SDK-31253	Added configuration property <code>spn_QE_LAG_UC_REDIST</code> that can be used to operate BCM88230 devices in a mode where BCM88230 replicates unicast across aggregates and squelches locally, effectively overriding frame distribution on aggregates so LBID maps round-robin to member targets.
SDK-31427	Added <code>bcmPortControlPFCRefreshTime</code> for configuring and retrieving PFC refresh timer.
SDK-31453	A new configuration property, "qe_thresh_drop_limit", now controls initialization of the <code>eg_fd_fifo_thresh</code> table on BCM88230 devices. A value of 0-8 will automatically set the dynamic bit to 1 and the FIFO_THRESH field to the value of the soc property. A value of 9-0x7fff will leave the dynamic bit set to 0 and set the FIFO_THRESH to the value of the soc property. Any other value will result in the dynamic bit set to 0 and the FIFO_THRESH field set to 0x7fff.
SDK-31507	<code>BCM_COSQ_GPORT_ATTACH_ID_SYSPORT_SET(attach_id, sysport)</code> will now create an <code>attach_id</code> using a sysport on BCM88230 devices.
SDK-31707	Fix <code>bcm_cosq_discard_port_set</code> and <code>bcm_cosq_gport_discard_set</code> to let it work properly when disabling WRED on BCM5684x.
SDK-31727	Added new API to expose Flexible Service counters
SDK-31749	Added documentation for PortControl PFCRefreshTime.
SDK-31752	added PFC support for sirius C0 and B0
SDK-31819	<code>bcm_crossbar_connection_status_get()</code> now supports all ability types and returns the logical crossbars associated with the plane.
SDK-31916	Updated <code>bcm_field_data_qualifier_packet_format_add()</code> API to support BCM_FIELD_DATA_FORMAT_IP_ANY and BCM_FIELD_DATA_FORMAT_TUNNEL_ANY combination on Chariot class devices.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-32011	Fixed setting of used bit of the 2nd label within <code>bcm_tr_mpls_tunnel_initiator_set()</code> , when 2 labels are pushed.
SDK-32013	Added <code>cint_interpreter_initialize_register()</code> , <code>cint_interpreter_initialize_unregister()</code> to allow the addition of custom CINT initialization code.
SDK-32030	IPMC code no longer keeps L3 entry h/w index cached with it and instead keeps s/w copies of the key data along with getting hit bit info from the L3 interface as needed.
SDK-32053	Updated <code>_field_xx_action_params_check()</code> routine in SDK to return error when Invalid egress object ID parameter value is passed for <code>bcmFieldActionL3ChangeVlan</code> , <code>bcmFieldActionL3ChangeMacDa</code> and <code>bcmFieldActionL3Switch</code> actions.
SDK-32071	Release Notes
SDK-32085	Corrected several Typos in API guide and platforms guide
SDK-32100	Counter collection in XGS devices is accelerated by caching some memory decoding information during driver initialization to streamline the accumulation of flexible statistics and FP counters.
SDK-32103	<code>bcm_oam_endpoint_create()</code> API can now support CCM RX enabled endpoint creation over Trunks for Enduro and Chariot devices.
SDK-32150	Added an additional check to prevent improper MAC state transition during link flapping on 100Mb ports.
SDK-32187	L2 Multicast packets matching the OUI 01-00-5E was incorrectly marked as an Ipv4 packet. This is fixed now.
SDK-32215	Added support for <code>fabric_control_set/get</code> API to control number of ingress schedulers and ingress scheduler update intervals on each level for BCM88230 devices.
SDK-32300	Linkscan callbacks will use the new port link status <code>BCM_PORT_LINK_STATUS_REMOTE_FAULT</code> when appropriate. For other purposes, the port status is considered <code>BCM_PORT_LINK_STATUS_DOWN</code> .
SDK-32346	Added APIs to allow mpcp reporting thresholds
SDK-32353	Added support for VLAN tag priority and cfi fields actions in BCM56840.
SDK-32428 SDK-32203	Add <code>BCM_COSQ_DISCARD_DEVICE</code> and <code>BCM_COSQ_DISCARD_PORT</code> to allow configuring per device or per port WRED on BCM5684x.
SDK-32432	Fixed max learn limit for BCM5664x devices with esm.
SDK-32493	BCM88130 initialization code was adjusted to power up the relevant internal blocks if the device was configured to operate as a pure crossbar device.
SDK-32514	Fixed field Data qualifier API implementation to correctly parse the "BCM_FIELD_DATA_FORMAT_MPLS_ANY" MPLS packet format while allocating the hardware table index on XGS IV and XGS V series devices.
SDK-32564	Fixed secondary selector codes for <code>bcmFieldQualifySrcMplsGport</code> and <code>bcmFieldQualifySrcMimGport</code> qualifiers in IFP init routine for Trident and Hurricane devices. Updated <code>bcm_field_qualify_srcMplsGport/</code> <code>SrcMimGport</code> qualifier APIs.
SDK-32565	Enhanced <code>bcm_cosq_gport_attach_get()</code> to be able to retrieve data for egress schedulers on BCM88230 family of devices even when operating in 176 port mode
SDK-32665	Fixed Vlan protocol data configuration when a non-zero priority is set.
SDK-32669	Improved "ddrphytune" Diag Shell command for BCM88230 devices.
SDK-32679	Program <code>CMIC_BS_CLK_TOOGLE_TIME</code> registers when enabling broadsync output or changing offset values.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-32695	During BCM5663x, BCM5652x, and BCM5684x flexible counter accumulation, release the module lock between each of the four tables to allow other operations to proceed.
SDK-32700	New BCMX field qualifier APIs: bcmx_field_qualify_SrcVirtualPortValid() bcmx_field_qualify_SrcVirtualPortValid_get()
SDK-32701	Added new qualifier bcmFieldQualifySrcVirtualPortValid and related apis bcm_field_qualify_SrcVirtualPortValid() and bcm_field_qualify_SrcVirtualPortValid_get() for Trident device.
SDK-32703	Added support for new field qualifier API bcm_field_qualify_SrcVirtualPortValid() and bcm_field_qualify_SrcVirtualPortValid_get() for Trident device.
SDK-32705	Update tdsanity.soc script to skip tests not applicable for BCM5674x.
SDK-32712	Added new KNET APIs for data structure initialization.
SDK-32716 SDK-34124	Allow 21G portmap configuration on BCM5684x. This configuration applying to 21G HIGIG2 application only, allocates 20G bandwidth.
SDK-32748	When BCM88130 is used in crossbar-only mode, don't access tables that are not needed.
SDK-32757	QE-2000 egress shaper might be left in blocking state during shaper removal under certain conditions.
SDK-32781	Updated bcm_field_entry_stat_attach/detach() APIs to do an Hitless update of the entry configuration in the policy table.
SDK-32782	bcm_init() could fail on BCM88130 devices in some system designs due to time out in BCM88130 serdes MDIO write operations.
SDK-32828	The bcm_trunk_create API will return BCM_E_FULL when no more trunk IDs are available.
SDK-32843	Added bcm_st_current_db_get(void) and bcm_st_discovery_db_get(void) to return consistent copies of the stktask current and discovery CPU databases.
SDK-32849	With Per-Port MPLS-Label-scope, multiple next-hops with different out-vlan can have the same Tunnel-label. In such a scenario, multiple EGR_L3_INTF can point to the same EGR_MPLS_TUNNEL entry. Added reference count for Egress_Tunnel_Labels that have per-port MPLS label-scope. The tunnel_entry can be deleted only when it's reference_count = 0;
SDK-32857	EGRMETERINGCONFIG_64.cpu0 is being configured for rx pps rate and burst to permit enabling rate limiting on CPU port.
SDK-32869	Avoid calling soc_property_get within runtime or recursive l2 code.
SDK-32889 SDK-32184	There are two methods to configure XGS devices to forward packets destined for a remote module ID to a Higig trunk group. The legacy method is to call bcm_stk_modport_set API with the parameter "port" set to one of the Higig ports in the Higig trunk group. The second method, recently introduced, is to call bcm_stk_modport_set API with the parameter "port" set to the Higig trunk group GPORT ID. The legacy method was broken on BCM56840 and has been fixed.
SDK-32891	Add config variable mdio_output_delay to allow configuring delay between MDC signal and MDIO data on BCM5684x.
SDK-32896	Fixed bcm_vlan_control_vlan_get crash on BCM56740 device.
SDK-32901	Added bcmCosqControlFlowControlState in bcm_cosq_control_set() to allow application to set flow control state manually for BCM88230 family of devices
SDK-32903	Eliminated redundant declarations in SDK header files.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-32908	Fixed 'mpls expmap show' command.
SDK-32910	EGRMETERINGCONFIG_64.cpu0 is being configured for rx pps rate and burst in bcm_rx_burst_set API.
SDK-32948	Fixed packet drop issue for packets that are larger than timeslot burst size under BCM88230 TME/Inline TME/Hybrid-local queues mode.
SDK-32964	Fixed race condition between bcm_port and bcm_trunk APIs when modifying SOURCE_TRUNK_MAP_TABLE on XGS devices.
SDK-32983	Reduced the supported maximum weight of scheduler nodes to 0x3F to improve scheduling accuracy on BCM88230 devices.
SDK-32998	BCM88025 LU_RTC_SUB_NS_INC hardcoded for HPP 375 mhz operation.
SDK-33001	Display verbose message instead of error message when MEP is created.
SDK-33004 SDK-34628	bcm_port_link_get() for BCM88230 and BCM88130 devices: added the ability BCM_PORT_ABILITY_SFI_SCI, ignore odd channel time alignment if channel is in loopback.
SDK-33006	BCM 88025, The register, LU_RTC_SUB_NS_INC will be initialized based on HPP frequency. This fixes an issue with incorrect Delay Measure (DMR & IDM) calculations.
SDK-33012	Add the missing code "tmp = 0" inside the FOR loop in API bcm_esw_policer_set. Otherwise the IFP entry reinstall will not update the METER_PAIR_MODE properly when the policer it attached is shared.
SDK-33013	Keep OAM group defect status if it is being replaced.
SDK-33029	Add the support of force auto-mdix mode for BCM53101.
SDK-33030	Fixed DT_MEM corruption of fifo N/N+1 when fifo port using fifo N+2 and N+3 is created on BCM88230 running in the "2 fifo per port" mode.
SDK-33050	Added 'phy prbs' command support to CLI for QE2000 device. To use, enable PRBS at far end Polaris device via command 'phy prbs sfi set mode=hc' then at near end QE2000 'phy prbs sfi set' then use get command on both ends to check PRBS status.
SDK-33053	Fix bcm_l2_cache API on BCM5684x.
SDK-33068	bcm_bm9600_ability_matching_speed_set didn't properly derive node from port.
SDK-33073	Fixed bcm_port_match_add/delete APIs to support setting VLAN range match criteria on trunk groups.
SDK-33074	Fixed virtual port match criteria count update in bcm_port_match_add/delete APIs.
SDK-33085	Fix BCM5684x memory parity handling for memory in Y pipe.
SDK-33088	VLAN translate traverse does not handle max index of tables
SDK-33109	Removed bcmSwitchL3MtuFailToCpu switch control support for Raven device as this control is not supported by Hardware.
SDK-33116	Support multicast APIs with BCM_MULTICAST_TYPE_L2 type for all ROBO chips instead of bcm5328x devices only.
SDK-33124	Export all BCM/BCMx API symbols in Linux kernel module linux-bcm-diag-full.
SDK-33125	Missing break statement in switch {} block in phy_combo65_adv_local_set
SDK-33128	Adjusted requeue check in BCM88230 TDM table programming so that it would automatically adapt to whether the requeue path is actually in use, in any of the supported modes.
SDK-33153	Change to allow bcm_port_rate_egress_set to program rate even when burst size is set to 0. This has no actual effect on traffic. This is just to let it return the same rate value on get function.



**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-33163	Fixed <code>bcm_oam_endpoint_get()</code> API for Enduro and Triumph2 device.
SDK-33164	Add the support of phy54640 and phy54684 for ROBO devices.
SDK-33171	Fix LM counter issue for endpoints on the same port and vlan but belonging to different MAs.
SDK-33174	<code>EGRMETERINGCONFIG_64.cpu0</code> is being configured for rx pps rate and burst to permit enabling rate limiting on CPU port.
SDK-33185	Added null-pointer check to BCM API port translation macros.
SDK-33192	Some PHYs missing in 'version' command.
SDK-33195	Support added to <code>bcm_switch_control_set</code> API to set the field <code>PWACH_TOCPU</code> in the register <code>ING_MISC_CONFIG</code> . This setting is to trap the PW VCCV control packets to CPU.
SDK-33202	Avoid <code>in_irq()</code> and use <code>in_interrupt()</code> consistently in Linux kernel mode drivers.
SDK-33221 SDK-33391	<code>phy_54640_ability_remote_get()</code> now returns the correct remote ability for BCM54640/54640E.
SDK-33222	<code>bcm_multi_stat_get()</code> now returns correct error code or <code>BCM_E_NONE</code> on BCM88230 devices.
SDK-33223	Added cold boot and warm boot support for <code>bcmFieldActionInnerVlanCfiNew</code> and <code>bcmFieldActionOuterVlanCfiNew</code> VFP actions for Trident family of devices.
SDK-33231	Clear LB port bitmap at chip driver init when internal loopback is not defined and not supported on the chip.
SDK-33234	Fixed stuck transmitter in KNET Linux kernel module under heavy load.
SDK-33240	Fixed certain rate failure of <code>bcm_cosq_gport_bandwidth_set()</code> API on ingress shapers of BCM88230 devices.
SDK-33242	Fixed MPLS APIs for proper handling of <code>Explicit-NULL</code> label.
SDK-33263	Fixed cold and warm boot support for following FP actions on Raptor/Raven devices: <code>bcmFieldActionCopyToCpu</code> , <code>bcmFieldActionGpCopyToCpu</code> , <code>bcmFieldActionYpCopyToCpu</code> , <code>bcmFieldActionRpCopyToCpu</code> and <code>bcmFieldActionSwitchToCpuCancel</code>
SDK-33265	RC load for ROBO chips is now mandatory
SDK-33269	Reduced local burst size when less than 10 DDR memory devices are used with BCM88230 devices.
SDK-33289	Fixed <code>mpls_tunnel_switch_delete/_add</code> (modify) when the initial <code>mpls_entry's</code> action is <code>SWAP</code> and <code>egress_label.label=BCM_MPLS_LABEL_INVALID</code> .
SDK-33321 SDK-32115	Fixed mirroring to remote module issue on BCM56840.
SDK-33322	The configuration of non-local mirror tunnel destinations on BCM5684x was incorrect. The configuration is now fixed, and the mirror module documentation has been updated to describe the API behavior for BCM5684x-only vs. mixed device stacked systems.
SDK-33326	Within <code>L3IngressInterfaceMapSet</code> mode fixed <code>bcm_vlan_control_vlan_set/get</code> API to block the setting of <code>L3_IIF.VRF</code>
SDK-33335	Updated Triumph2 field module implementation to use the <code>DOUBLE_WIDE_KEY</code> support of <code>FP_GLOBAL_MASK_TCAM</code> table for IFP qualifiers.
SDK-33337	Correct the initialization value for updating the source module of a mirrored packet on devices which support only directed mirroring.
SDK-33338	Fixed implementation of <code>BCM_TRUNK_MEMBER_EGRESS_DISABLE</code> flag on XGS3 devices.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-33341	Added check to prevent Diag Shell Command CellDataTest crash on unsupported device.
SDK-33343	Updated <code>bcm_field_qualify_InPort/InPorts()</code> APIs to include loopback port in <code>IPBM_MASK</code> value of the FP entry. If the device supports <code>internal_loopback</code> feature and <code>InPort/InPorts</code> is qualified for the entry, to prevent false ingress port matches.
SDK-33346	Switch back <code>burst_quantum</code> to <code>min_quantum</code> as it changes the granularity and reduces the min bandwidth config resolution.
SDK-33355	Updated <code>bcm_field_entry_copy_id()</code> , <code>bcm_field_entry_prio_set()</code> and <code>bcm_field_group_compress()</code> APIs for Trident family of devices to handle double wide (paired) <code>IPBM_OVERLAY</code> entries during the entry move operation.
SDK-33375	Enabled Higig Trunk resolution and Trunk resolution for FP Redirect, Replace PBM or OR PBM action packets for Trident Device.
SDK-33382	Fixed implementation of <code>BCM_TRUNK_MEMBER_EGRESS_DISABLE</code> flag on XGS3 devices.
SDK-33388	Updated <code>bcm_field_qualify_RangeCheck()</code> API to setup <code>intf_class_sel</code> selector code value correctly for groups that share a slice for Triumph and Triumph2 family of devices.
SDK-33390	Fixed warm boot recovery of CPU port TDM index value in <code>ARP_TDM_TABLE</code> for Enduro and Triumph2/Apollo device.
SDK-33391 SDK-33221	Fixed the remote ability routines in <code>phy54682.c</code> and <code>phyfge.c</code> .
SDK-33395	Support added for all CPU port COS Queues present in the <code>bcm_cosq_port_mapping_set/get</code> , <code>bcm_cosq_port_bandwidth_set/get</code> , <code>bcm_cosq_gport_bandwidth_set/get</code> , <code>bcm_cosq_gport_sched_set/get</code> APIs.
SDK-33396	Fixed VPWS Failover port for <code>BCM_MPLS_PORT_REPLACE</code> functionality.
SDK-33403	Added support for " <code>sirius_ddr3_tread_enb</code> " configuration property override for 10K byte buffer mode of BCM88230 devices.
SDK-33406	Fixed <code>bcm_mpls_port_add</code> API for <code>flag=BCM_MPLS_PORT_MATCH_PORT_INNER_VLAN</code>
SDK-33411	Updated support matrix and field API documentation for new field control elements <code>bcmFieldControlRedirectNonUcastEtherTrunkResolve</code> and <code>bcmFieldControlRedirectNonUcastFabricTrunkResolve</code> in SDK.
SDK-33425	Prevent multicast group from being destroyed when an IPMC address entry referring to the multicast group could not be added due to IPMC table full.
SDK-33472	Added support for <code>BCM_TRUNK_MEMBER_UNICAST_EGRESS_DISABLE</code> flag on XGS3 devices.
SDK-33474	Added support for <code>BCM_TRUNK_MEMBER_UNICAST_EGRESS_DISABLE</code> flag on XGS3 devices.
SDK-33482	Implemented <code>bcm_esw_mpls_tunnel_initiator_clear_all</code> API, which used to return <code>BCM_E_UNAVAIL</code> .
SDK-33484	Fix <code>bcm_tx_cos_rate_set</code> when cosq is between 0 to 3 on BCM5684x.
SDK-33496	Fix Linux SLAB corruption when KNET module receives burst of packets larger than assigned Rx buffer size.
SDK-33512	<code>bcmx_l3_egress_t_init()</code> was not initializing <code>mpls_label</code> .
SDK-33518	Added a special solution in order to reduce latency for EF traffic on BCM88230 devices running in the "264 port" mode.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-33519	CPU port on BCM88230 devices was not sending traffic when the device was initialized in "fabric_egress_setup=0" configuration.
SDK-33525	Adjusted <code>bcm_tx/rx()</code> on BCM88230 CPU port to only support COS 0 as this is the only COS supported by hardware.
SDK-33547	Updated field STATS implementation for Ingress stage i.e <code>bcm_field_entry_stat_attach()</code> and <code>bcm_field_entry_install/reinstall()</code> API. To check and return BCM_E_CONFIG error, when user tries to share a STAT_ID created on primary slice with entries created on the expanded slice. Counters are per-slice resource for ingress stage.
SDK-33568	Fixed ECMP scalability issue for BCM5663x devices.
SDK-33569	During <code>bcm_l2_addr_freeze/thaw</code> operations, do not cache or restore the virtual port CML information if no virtual ports are presently configured on the device.
SDK-33583 SDK-33064 SDK-33064	Enabled software initialization (during Port module initialization) of <code>ING_PRI_CNG_MAP</code> table for Triumph device.
SDK-33587	Enable the MAC SA learning for the reserved multicast packets on ROBO devices.
SDK-33601	Fix deletion of <code>INITIAL_L3_ECMP</code> table entry during <code>ecmp_grp_delete</code> for BCM56840 device family.
SDK-33603	Fixed <code>bcm_xgs3_ecmp_group_del()</code> for devices without support for dynamic ecmp group size.
SDK-33605	Fix out of band RCPU receive thread startup failure on linux.
SDK-33614	Added ownership tracking for predicates in BCM88230 devices and adjusted SDK so it no longer overwrites resources it does not own (that have been taken over by the application).
SDK-33617	Update of backplane PHY preemphasis vi "phy control" Diag Shell command updated only lane 0 registers on XCore fabric devices. The read of the preemphasis was incorrect when the serdes speed was greater than 3.125G. The problem was fixed so that the preemphasis can be both read and written.
SDK-33618	The <code>bcm_port_tpid_*</code> APIs have been enhanced to configure outer TPID on a per (module, port) basis on BCM56840.
SDK-33623	Add out of band flow control (OOBFC) for BCM5684x.
SDK-33641	Correct MTP reference count logic for XGS directed mirroring.
SDK-33643	Fixed <code>bcm_cosq_gport_delete()</code> API failure when <code>bcmCosqControlFabricConnectMaxTime</code> and <code>bcmCosqControlFabricConnectMinUtilization</code> are both configured for BCM88230 devices.
SDK-33646	Ported TR2 ecmp scalability fixes to BCM5652x and BCM56685.
SDK-33647	Fixed 64-bit Robo support for compilers that do not support long long.
SDK-33649	Setting of <code>BCM_PORT_PHY_CONTROL_EEE_TRANSMIT_WAKE_TIME</code> will now not be done in the native mode for EEE capable PHYs.
SDK-33650	Allow to enable field processor bypass mode on BCM5684x.
SDK-33659	Fixed linkscan process to invoke software trunk failover on BCM5684x.
SDK-33679	Fix unicast queue index calculation for <code>bcmCosqStatDroppedPackets</code> of <code>bcm_cosq_stat_get</code> API.
SDK-33681	updated the regression suite so that we test the VLAN translate traverse handles max index of tables
SDK-33703	Fixed functionality of <code>bcm_l3_host_add</code> API with <code>flag=BCM_L3_L2TOCPU</code>

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-33713	Fixed the issue about the IMP port can't be added as multicast member port for BCM53101 and BCM53125.
SDK-33724	When returning egress multistat statistics using an egress group GPORT, the counter improperly neglected the cosq loop when returning the stats if all cosq counters are requested. This oversight has been fixed for BCM88230 devices.
SDK-33745	Fixed AUX_TAG per-slice selector code programming logic for Trident Device.
SDK-33769	Fixed programming error in configuring ECMP on BCM56840_B1 device family.
SDK-33780	Fixed the deletion of VC_LABEL entry during bcm_l3_egress_destroy API.
SDK-33799	Suppress PLL not lock warning message when ESM is not configured.
SDK-33819	Initialized MTU-Size for TRILL specific Next-hops
SDK-33843	Fixed switch control bcmSwitchUnknownVlanToCpu on BCM56634.
SDK-33845	Fixed the failure of DOS prevention for SYN packets with source port less than 1024 on BCM53115 and BCM53125.
SDK-33855	Fix issue with the port bitmap mask used for updating untagged vlan ports. The changes done in SDK-31422 were incorrectly setting the port bitmap to be the same as the ingress port bitmap for pre TD devices.
SDK-33860	Fixed bcm_vlan_dtag_range_add and bcm_vlan_dtag_range_traverse APIs.
SDK-33861 SDK-34653	On a stacked configuration through HiGig, VLAN_CHECK is disabled for VPWS, VPLS, MiM packets.
SDK-33885	Fixed wrong maximum bucket setting in bcm_rx_cos_burst_set API for Enduro.
SDK-33901	The default hold_ts on BCM88230 devices was incorrectly set to 1 instead of 7 for subscriber queue.
SDK-33912	Fix occasional bcm_l2_addr_add crash on BCM56624 with ESM.
SDK-33915	Fix API port translation and RPC stubs for bcm_fabric_qsel_entry_multi_set/get.
SDK-33921	Update auto inclusion of serdes/PHY driver support based on switch device selection. This resolves a partial chip support build issue with Hurricane family of devices.
SDK-33923	Prevent fake lnk-degradation event on QE-2000/BCM88230 interop system when BCM88230 is using more than 18 SERDES for crossbar.
SDK-33948	Fix BCM5684x PORT_GROUP4 and PORT_GROUP5 registers access problem when port 1 is not configured.
SDK-34019	Fixed LOOPBACK TYPE field value programming in FP_TCAM table for bcmFieldLoopbackTypeMirror Ingress qualifier for Apollo and Triumph2 device.
SDK-34033	Added the ability to support level 7 ingress shaper on BCM88230 devices.
SDK-34050	Do not receive RCPU packets until RX thread is started.
SDK-34059	Fixed potential buffer overrun in XGS Board End-to-end flow control (stacking application).
SDK-34093	Updated field counter move routine to correctly handle the STATS that are moved across physical slice boundary. This routine is called by bcm_field_entry_prio_set() API.
SDK-34117	Update unit validity checks in BCM API dispatch layer to avoid buffer overflow error flagged by static analysis tools.
SDK-34155	Prevent multicast group from being destroyed when an IPMC address entry referring to the multicast group could not be added due to IPMC table full.

**Table 9:**

<b>Number</b>	<b>Release Notes For 5.10.0</b>
SDK-34173	Eliminate spurious parity error reports during hash table management operations in BCM5663x and BCM5652x devices.
SDK-34176	Fixed L3 EgressObject create using BCM_GPORT_BLACK_HOLE .
SDK-34186	Added an integrity check while returning the value of BCM_PORT_PHY_CONTROL_PORT_OFFSET to avoid failure when a certain sequence is observed.
SDK-34270	Fixed bcmFieldQualifyMplsTerminated qualifier support for Apollo and Valkyrie2 devices in SDK.
SDK-34271	Fixed crash of bcm_vlan_port_add API on BCM56634 device when adding the internal loopback port to VLAN.
SDK-34292	Fixed BCM_E_RESOURCE situation during mpls_port_add with REPLACE flag.
SDK-34306	Ensure both pending and non-pending ARL/MARL entry will be removed properly through bcm_l2_addr_delete() API for BCM53280 devices.
SDK-34351	Fixed warm boot recovery code to correctly recover entries from an expanded Intrastice double-wide mode group from VFP and IFP stages. This fix is applicable to all Triumph and Chariot class devices.
SDK-34370	Fixed resource leak issue in warm boot recovery code for Firebolt and Triumph family of devices.
SDK-34375	Correct return value of bcm_l2_addr_add() for BCM53280 chips with BCM_L2_REPLACE_DYNAMIC flag asserted the condition when ARL table is full with all static entries.
SDK-34393	Fix partial builds with KNET feature enabled.
SDK-34422	Add notify driver for 53xxx internal serdes phy
SDK-34427	Support the bcm_field_stat_create_id() function for ROBO chips.
SDK-34452	Added BFD support for UDP/IP encapsulation on BCM56440 devices.
SDK-34486	Fixed the issue that the ARL software learning mode failed on ROBO GE chips.
SDK-34501	Updated bcm_field_entry_policer_attach() to return BCM_E_UNAVAIL error code when Level1 policers are attached to FP entries on Trident device. Trident device does not support hierarchical metering.
SDK-34502	Selector code recovery for TR2 EFP depends on EFP_SLICE_CONTROL register, and in some cases, KEY_MATCH_TYPE field in TCAM. If there are no entries for a slice, and thus no KEY_MATCH_TYPE can be recovered, a certain selector code will be assumed.
SDK-34506	STG 0 may not be destroyed in XGS devices.
SDK-34563	Improved parameter validation in bcm_cosq_gport_statistic_get/set() functions to avoid potential segmentation faults when an illegal variable configuration is used on BCM88230 devices.
SDK-34575	Fixed KNET API to properly support the full set of Rx reason codes in KNET filters on BCM5662x and BCM5663x devices.
SDK-34630	Enabled support for following actions in SDK: 1. bcmFieldActionRedirectVlan action for Apollo, Valkyrie, Valkyrie2 and Hurricane devices. 2. bcmFieldActionRedirectBcastPbmp action for Apollo device.

## **13. Device and Platform Support**

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

## 14. Switch Devices

*Table 10: Switch Devices*

<i>Family</i>	<i>Devices</i>	<i>Description</i>
BCM5324	BCM5324 A0	Single-Chip L2+ Managed Switch with 24 10/100 Ports + 2 GbE Ports
	BCM5324 A1	
	BCM5324 A2	
BCM5347	BCM5347 A0	Managed Switch with 24 10/100 Ports + Four GbE Ports
	BCM5347 A1	
BCM5348	BCM5348 A0	Single-Chip L2+ Managed Switch with 48 10/100 Ports + Four GbE Ports
	BCM5348 A1	
BCM5389	BCM5389 A0	8-Port GbE Switch with Integrated SerDes
	BCM5389 A1	
BCM5395	BCM5395 A0	Multiport Gigabit Ethernet Switch
BCM5396	BCM5396 A0	16-Port GbE Switch with Integrated SerDes
BCM5397	BCM5397 A0	6-Port GbE Switch With 5 Integrated PHYs and LoopDTech
BCM5398	BCM5398 A0	9-Port GbE Switch With 8 Integrated PHYs and LoopDTech
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	
	BCM53242 B1	
	BCM53262 A0	Managed Switch with 24 FE Ports + 4 GbE Interface
	BCM53262 B0	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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



**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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
	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
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	
BCM5650	BCM5650 A0	24-Port BCM5650 Integrated Multi-Layer Switch
	BCM5650 B0	
	BCM5650 C0	
	BCM5655 A0	48-Port BCM5655 Integrated Multi-Layer Switch
	BCM5655 B0	
BCM5665	BCM5665 A0	48-Port BCM5665 Integrated Multi-Layer Switch
	BCM5665 B0	
BCM5670	BCM5670 A0	BCM5670 8-Port, 160 Gbps Switch Fabric
	BCM5670 A1	
	BCM5671 A0	BCM5671 4-Port, 80-Gbps Switch Fabric
	BCM5671 A1	
	BCM5671 A2	
BCM5673	BCM5673 A0	10 Gigabit Ethernet/HiGig Multilayer Switch

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	BCM5673 A1	
	BCM5673 A2	
	BCM5674	
BCM5674	BCM5674 A0	Multilayer 2-Port 10 Gigabit Ethernet and HiGig+ Switch
BCM5675	BCM5675 A0	8-Port, 192-Gbps Switch Fabric
	BCM5675 A1	
	BCM5676 A0	
	BCM5676 A1	
BCM5690	BCM5690 A0	Scalable 12-Port Gigabit Ethernet MultiLayer Switch
	BCM5690 A1	
	BCM5690 A2	
	BCM5691 A0	
	BCM5691 A1	12-Port Gigabit Ethernet MultiLayer Switch
	BCM5691 A2	
	BCM5692 A0	
	BCM5692 A1	Scalable 12-Port Gigabit Ethernet Layer 2 Switch
	BCM5692 A2	
	BCM5693 A0	
	BCM5693 A1	12-Port Gigabit Ethernet Layer 2 Switch
	BCM5693 A2	
	BCM5695	
	BCM5695 A0	MultiLayer 12-Port Gigabit Ethernet Stackable Switch
	BCM5695 A1	
	BCM5695 B0	
	BCM5696 A0	Multilayer 12-Port Gigabit Ethernet Switch
	BCM5696 A1	
	BCM5696 B0	
	BCM5697 A0	12-Port Gigabit Ethernet Stackable Layer 2+ Switch
	BCM5697 A1	
	BCM5697 B0	
	BCM5698 A0	12-Port Gigabit Ethernet Layer 2+ Switch
	BCM5698 A1	
	BCM5698 B0	
BCM56010	BCM56014 A0	24-Port Integrated Multilayer Switch and CPU
	BCM56014 A1	
	BCM56014 A2	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
BCM56020	BCM56018 A0	48-Port Integrated Multilayer Switch and CPU
	BCM56018 A1	
	BCM56018 A2	
	BCM56018 A1	48-Port Integrated Multilayer Switch and CPU
	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	
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 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
BCM56130	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
	BCM56132 A0	24-Port Fast Ethernet Multilayer Switch with Two 10-GbE/HiGig2 and Two 1G/2.5Gb Uplink Ports
	BCM56132 B0	
	BCM56134 A0	24-Port Fast Ethernet Multilayer Switch with four 1G/2.5Gb Uplink Ports

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	BCM56134 B0	
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
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+

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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+
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	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
	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	
	BCM56321 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56321 B0	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
BCM56330	BCM56331 A0	24-Port GbE Multilayer Switch with Four 2.5GbE Uplink Ports
	BCM56331 B0	
	BCM56333 A0	16-Port GbE Multilayer Switch
	BCM56333 B0	
	BCM56334 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56334 B0	
	BCM56338 A0	8-Port GbE Multilayer Switch with two 10-GbE/HiGig2 Uplink Ports
	BCM56338 B0	
BCM56440	BCM56440 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink ports
	BCM56441 A0	8-Port GbE Multilayer Switch with Two 10-GbE/HiGig2 Uplink ports
	BCM56442 A0	16-Port GbE Multilayer Switch
	BCM56443 A0	8-Port 2.5GbE Multilayer Switch with Two 10-GbE/HiGig2 Uplink ports
	BCM56445 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink ports pin compatible with BCM56334
	BCM56446 A0	8-Port GbE Multilayer Switch with Two 10-GbE/HiGig2 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
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	

*Table 10: Switch Devices*

<i>Family</i>	<i>Devices</i>	<i>Description</i>
	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	
	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



**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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
BCM56580	BCM56580 A0	16 x 2.5 GbE + 4 x 10 GbE Ethernet Multilayer Switch
BCM56600	BCM56600 A0	12 x GbE High-Feature Ethernet Multilayer Switch
	BCM56600 B0	
	BCM56600 C0	
	BCM56601 A0	12 x GbE High-Feature Ethernet Multilayer Switch With HiGig+ Uplink
	BCM56601 B0	
	BCM56601 C0	
	BCM56602 A0	10-GbE High-Feature Ethernet Multilayer Switch With HiGig+ Uplink
	BCM56602 B0	
	BCM56602 C0	
	BCM56603 A0	HG+ High-Feature Ethernet Multilayer Proxy
	BCM56603 B0	
	BCM56603 C0	
	BCM56605 A0	12 x GbE High-Feature Ethernet Multilayer Switch
	BCM56605 B0	
	BCM56605 C0	
	BCM56606 A0	12 x GbE High-Feature Ethernet Multilayer Switch With HiGig+ Uplink
	BCM56606 B0	
	BCM56606 C0	
	BCM56607 A0	10-GbE High-Feature Ethernet Multilayer Switch With HiGig+ Uplink

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	BCM56607 B0	
	BCM56607 C0	
	BCM56608 A0	HG+ High-Feature Ethernet Multilayer Proxy
	BCM56608 B0	
	BCM56608 C0	
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	
	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	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
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 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
	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	
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	

**Table 10: Switch Devices**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
BCM88025	BCM88025 A0	XGS Core (XCore/SBX) Fully Programmable Carrier Packet Processor with 24 GbE Ports, 2 10GbE Ports and 2 SPI Interfaces
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
	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	

Warm boot Supported devices

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

**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
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 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
	BCM56134 A0	24-Port Fast Ethernet Multilayer Switch with four 1G/2.5Gb Uplink Ports
	BCM56134 B0	
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+
BCM56330	BCM56331 A0	24-Port GbE Multilayer Switch with Four 2.5GbE Uplink Ports
	BCM56331 B0	
	BCM56333 A0	16-Port GbE Multilayer Switch
	BCM56333 B0	
	BCM56334 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56334 B0	
	BCM56338 A0	8-Port GbE Multilayer Switch with two 10-GbE/HiGig2 Uplink Ports
	BCM56338 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

**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
	BCM56507 B2	



**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	

**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	BCM56626 A0	25 port 1-GbE Multilayer Ethernet Switch with 6 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56626 A1	
	BCM56626 B0	
	BCM56626 B1	
	BCM56626 B2	
	BCM56628 A0	8 port 10-GbE/HiGig2 Multilayer Ethernet Switch with External Table Expansion
	BCM56628 A1	
	BCM56628 B0	
	BCM56628 B1	
	BCM56628 B2	
	BCM56629 B0	25 port 1-GbE Multilayer Ethernet Switch with 8 x 10-GbE/HiGig2 Uplink ports and External Table Expansion
	BCM56629 B1	
BCM56630	BCM56630 A0	24-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56630 B0	
	BCM56634 A0	48-Port GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56634 B0	
	BCM56636 A0	24-Port GbE + 2-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56636 B0	
	BCM56638 A0	4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56638 B0	
	BCM56639 A0	24-Port GbE + 4-Port 10-GbE Multilayer Switch with Four 10-GbE/HiGig2 Uplink Ports
	BCM56639 B0	
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	

**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	
	BCM56843 A2	
	BCM56843 A3	
	BCM56843 A4	
	BCM56843 B0	
	BCM56843 B1	
	BCM56845 A0	640 Gbps Ethernet Multilayer Switch

**Table 11: Switch Devices that support Warm boot**

<b>Family</b>	<b>Devices</b>	<b>Description</b>
	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	

**Table 12: Switch Device Codenames**

<b>Product Family</b>	<b>Architecture</b>	<b>Codename</b>
BCM5650	StrataXGS	-
BCM5665	StrataXGS	-
BCM5670	StrataXGS	-
BCM5673	StrataXGS	-
BCM5674	StrataXGS II	-
BCM5675	StrataXGS II	-
BCM5690	StrataXGS	-
BCM5695	StrataXGS II	-
BCM53310	StrataXGS III	Hawkeye
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
BCM56210	StrataXGS III	Raptor
BCM56220	StrataXGS III	Raven
BCM56300	StrataXGS III	Helix
BCM56310	StrataXGS III	Helix+
BCM56320	StrataXGS IV	Helix3
BCM56330	StrataXGS IV	Enduro

**Table 12: Switch Device Codenames**

<b>Product Family</b>	<b>Architecture</b>	<b>Codename</b>
BCM56130	StrataXGS IV	Stardust
BCM56440	StrataXGS IV	Katana
BCM56500	StrataXGS III	Firebolt
BCM56510	StrataXGS III	Firebolt2
BCM56520	StrataXGS IV	Apollo
BCM56530	StrataXGS IV	Firebolt3
BCM56580	StrataXGS III	Goldwing
BCM56600	StrataXGS III	Easyrider
BCM56620	StrataXGS IV	Triumph
BCM56629	StrataXGS IV	Triumph
BCM56630	StrataXGS IV	Triumph2
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+
BCM88020	XGS Core	Caladan FE-2000
BCM88025	XGS Core	Caladan2
BCM88130	XGS Core	Polaris
BCM88230	XGS Core	Sirius
BCM88235	XGS Core	Sirius+
BCM88231	XGS Core	Sirius TM
BCM88236	XGS Core	Sirius+ TM
BCM56931	XGS Core	Sportster
BCM56936	XGS Core	Sportster+
BCM53101	ROBO	Lotus
BCM53115	ROBO	Vulcan
BCM53118	ROBO	Blackbird
BCM53125	ROBO	Starfighter
BCM53128	ROBO	Blackbird2
BCM53242	ROBO	Harrier
BCM53280	ROBO	Thunderbolt
BCM53600	ROBO	Voyager

## 15. PHYs

**Table 13: PHYs**

<b>Device</b>	<b>Driver Family</b>	<b>Description</b>
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
BCM54280_A0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
BCM54280_C0	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
BCM54285_C0	54280	Octal 1000/100/10BASE-T Gigabit Ethernet Transceiver
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 13: PHYs**

<b>Device</b>	<b>Driver Family</b>	<b>Description</b>
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)
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)
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)
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
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 13: PHYs**

<b>Device</b>	<b>Driver Family</b>	<b>Description</b>
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 0x11C. 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)
BCM84334_B1	8481	Quad 10GBASE-T Transceiver. Firmware version 1.50 (Needs additional software component)
BCM84336_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 1.50 (Needs additional software component)
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 1.50(Driver support for IEEE 1588 features are preview)
BCM84834_B1	8481	Quad 10GBASE-T Transceiver. Firmware version 1.50(Driver support for IEEE 1588 features are preview)
BCM84836_B1	8481	Dual 10GBASE-T Transceiver. Firmware version 1.50(Driver support for IEEE 1588 features are preview)
BCM84728 A0	84728	Dual-Channel 10 GbE SFI-to-XAUI LAN/WAN PHY with 1588. Firmware version 011C (Driver support for IEEE 1588 features are preview)
BCM84740 A0	84740	40 GbE PPI-to-XLAUI PHY with EDC. Firmware version D102.
BCM84747_A0	84728	Quad SFI to XAUI with 1588 (Firmware version 0x11C. Preview)
BCM84748_A0	84728	Quad SFI to XAUI with WAN/1588 (Firmware version 0x11C. Preview)
BCM84749_A0	84749	Quad SFI to XAUI with Macsec, 1588 (Firmware version 0x11C. Driver support for IEEE 1588 features are preview)



*Table 13: PHYs*

<i>Device</i>	<i>Driver Family</i>	<i>Description</i>
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 D102.
BCM84754 A0	84740	Quad-Channel 10 GbE SFI-to-XFI PHY with EDC. Firmware version D102.
BCM84756 A0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version D105. (Needs additional software component)
BCM84759 A0	84756	Quad SGMII/XFI to SGMII/SFI Transceiver Firmware version D105.
BCM84780_A0	84740	Octal-Channel 10 GbE SFI-to-XFI PHY with 1588. Firmware version 0x11c (Preview)
BCM84764_A0	84728	Quad SFI to RXAUI with 1588 (Firmware version 0x11C. Preview)
BCM84064 A0	84740	Quad 10G-KR-to-XFI or 40G-KR4-to-XLAUI Transceiver. Firmware version D00C.
BCM84074_A0	84728	Quad KR to XAUI (Firmware version 0x11C. Preview)

## 16. 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 14: Operating Systems*

<i>Operating System</i>
VxWorks 5.5
VxWorks 6.2
VxWorks 6.4
VxWorks 6.5
VxWorks 6.6
Linux 2.4.20 User Mode
Linux 2.4.20 Kernel Resident Mode
Linux 2.6.14 User Mode
Linux 2.6.14 Kernel Resident Mode
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
POSIX Compliant (SAL ONLY)

## 17. CPU Subsystems

*Table 15: CPU Subsystems*

<i>CPU Subsystem</i>	<i>Description</i>
BCM95836	CPCI 32-bit MIPS with BCM5836 Processor
BCM98245	CPCI 32-bit PPC with Motorola 8245 Processor
BCM91125	CPCI 32/64-bit MIPS with BCM1125 SiByte Processor
BCM98548XMC	XMC 32-bit PPC with Freescale 8548 Processor
BCM953003C	XMC 32-bit MIPS with BCM53003 Processor
BCM5621X	Integrated MIPS CPU on BCM5621X Switch Devices
BCM5622X	Integrated MIPS CPU on BCM5622X Switch Devices
BCM5331X	Integrated MIPS CPU on BCM5331X Switch Devices

## 18. CPU and Operating System Combinations

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

*Table 16: CPU and Operating System Combinations*

<i>CPU Subsystem</i>	<i>Operating System</i>	<i>Description</i>
BCM95836	VxWorks 5.5	BSP Provided
BCM95836	Linux 2.4.20	Available through MontaVista 3.1 Preview kit
BCM95836	Linux 2.6.14	Available through Windriver Linux 1.5
BCM95836	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM98245	VxWorks 5.5	BSP Provided
BCM98245	VxWorks 6.2	BSP Provided
BCM98245	Linux 2.4.20	Available through MontaVista 3.1 Preview kit
BCM98245	Linux 2.6.14	Available through WindRiver Linux 1.4/1.5
BCM98245	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM91125	VxWorks 5.5	BSP Provided
BCM91125	VxWorks 6.2	BSP Provided
BCM91125	VxWorks 6.4	BSP Provided
BCM91125	Linux 2.4.20	Available through MontaVista 3.1 Preview kit
BCM91125	Linux 2.6.10	Available through MontaVista 4.0 Professional
BCM91125	Linux 2.6.14	Available through WindRiver Linux 1.5
BCM91125	Linux 2.6.21	Available through WindRiver Linux 2.0
BCM5621X	VxWorks 5.5	BSP Provided
BCM5621X	VxWorks 6.4	BSP Provided
BCM5621X	Linux 2.6.14	Available through WindRiver Linux 1.5 bcm_ntswics
BCM5621X	Linux 2.6.21	Available through WindRiver Linux 2.0 bcm_ntswics
BCM5331X	VxWorks 5.5	BSP Provided
BCM5331X	VxWorks 6.4	BSP Provided
BCM5331X	Linux 2.6.14	Available through WindRiver Linux 1.5 bcm_ntswics
BCM5331X	Linux 2.6.21	Available through WindRiver Linux 2.0 bcm_ntswics
BCM98548XMC	VxWorks 6.4	BSP Provided
BCM98548XMC	VxWorks 6.5	BSP Provided
BCM98548XMC	Linux 2.6.21	Available through WindRiver Linux 2.0

**Table 16: CPU and Operating System Combinations**

<b>CPU Subsystem</b>	<b>Operating System</b>	<b>Description</b>
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 5.5	BSP Provided
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
BCM5360X	VxWorks 5.5	BSP Provided
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	

## 19. Reference Designs

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

**Table 17: Reference Designs**

<b>Platform</b>	<b>Description</b>
BCM95324R24GM	24-port FE + 2-port GE 5324 SW Ref. Design
BCM95347R24M	24-port FE + 4 GE 5347 - 5836 CPU Managed Switch Ref. Design
BCM95348R48M	48-port FE + 4 GE 5348 - 5836 CPU Managed Switch Ref. Design
BCM95395R5GM	5-port GE 5395 Switch Ref Design - Managed (BCM5836)
BCM95396R16GM	16-port GE + 1-port FE(SFP) 5396 Switch Ref Design - Managed (BCM5836)
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
BCM95324R24GM	24-port FE + 2-port GE 5324 SW 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
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

**Table 17: Reference Designs**

<b>Platform</b>	<b>Description</b>
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
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

**Table 17: Reference Designs**

<b>Platform</b>	<b>Description</b>
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)
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



**Table 17: Reference Designs**

<b>Platform</b>	<b>Description</b>
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

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.

## 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 18: EXTERNALLY LICENSED SOFTWARE COMPONENTS**

<b>Component</b>	<b>Origin</b>	<b>Location in source tree</b>	<b>License terms and conditions</b>
EDITLINE	/afs/athena.mit.edu/contrib/sipb/src/editline	src/sal/appl/editline	See (EDITLINE License terms and conditions) ( <a href="#">page 85</a> )
CINT	<a href="http://www.gnu.org/software/bison/">http://www.gnu.org/software/bison/</a>	src/appl/cint/cint_parser.[ch]	See (CINT parser license terms and conditions) ( <a href="#">page 88</a> )
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) ( <a href="#">page 89</a> )

## 20. 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: 1.3.102.3 \$

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.crbcal.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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## 21. ED Editor License terms and conditions

ed - standard editor  
^^

Authors: Brian Beattie, Kees Bot, and others

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-----  
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

## 22. CINT parser license terms and conditions

The C code for the parser CINT 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.
```

```

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MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
GNU General Public License for more details.
```

```

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

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

### **23. 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.







