BCM53112/BCM5315X/BCM5316X

Device Errata

B1 Errata Sheet

1 Introduction

1.1 Purpose and Audience

This document details all errata that represent the currently known differences between revisions of the BCM53112/BCM5315X/BCM5316X product(s) and the functionality specified in the BCM53112/BCM5315X/BCM5316X data sheet.

1.2 Silicon Revisions

A silicon revision number of the form "Xn" (where X is A, B, C…, n is 0, 1, 2…) is branded on all parts. Refer to the data sheet for information on reading the part branding. In documentation, Broadcom uses a shortened notation for the silicon revision number.

1.3 Scope

Each errata description includes:

- The severity level of the errata.
- The conditions under which the erroneous behavior occurs.
- The implication of the errata for typical applications.
- A definition of a workaround, when available.

1.4 Severity Categories

Errata in this document are divided into five categories of severity:

- **Category 1** – Behavior that is impossible to work around and prevents the chip from functioning.
- **Category 2** – Behavior that is impossible to work around and that limits the use of the BCM53112/BCM5315X/BCM5316X, rendering the affected feature unusable.
- **Category 3** – Behavior that may limit the use of the BCM53112/BCM5315X/BCM5316X, but does not make the affected feature unusable, and a workaround may be available.
- **Category 4** – Behavior that was not originally intended and should not cause any additional problems.
- **Category 5** – New features that are added, as opposed to errata.

1.5 Summary of Silicon Errata

Table 1 provides a summary of BCM53112/BCM5315X/BCM5316X errata for revisions and shows the applicable silicon revision of each erratum.

Table 1: Errata Summary

Errata No.	Errata Item	B1
AVR-ER-B1-01	The pin SFP[11:8]_MOD_DEF0 is not operational.	X
AVR-ER-B1-02	Port locked in cut-through mode.	X
AVR-ER-B1-03	Adding CB tag and parsing Egress Mirror TLV Header conflict for the same packet on IMP Port.	X
AVR-ER-B1-04	Pipeline Freeze with Invalid IPv4 packets.	X
AVR-ER-B1-05	TimeSync Block One Shot Event Timestamp Capture must apply the event trigger five times.	X

NOTE: X = The errata exists for the device.

2 BCM53112/BCM5315X/BCM5316X Errata

2.1 Errata ID: AVR-ER-B1-01: Pin SFP[11:8]_MOD_DEF0 is Not Operational

Description	The HW signal pin SFP[11:8]_MOD_DEF0 on the 19 mm x 19 mm package is not available due to an incorrect pin direction definition. The signal pin can be configured as an output and not as an input. It cannot receive the “module present” message of an SFP transceiver module through these pins.
Impact	An extra GPIO pin is required to implement this function.
Severity	3
Workaround	Use one GPIO pin in “input mode” to implement this function.
Status	This will not be fixed.

2.2 Errata ID: AVR-ER-B1-02: Port is Locked in Cut-Through Mode

Description	The BCM53112/BCM5315X/BCM5316X B1 chip has a lock-up issue when running in cut-through mode.
Impact	A software workaround is required.
Severity	3
Workaround	Configure the following two parameters for maximum transition: ■ MAX_TX_PACKETS=1 ■ MAX_TX_BYTES=0xFFFF
Status	This will not be fixed.

2.3 Errata ID: AVR-ER-B1-03: Adding CB Tag and Parsing Egress Mirror TLV Header Conflict for the Same Packet on IMP Port

Description	When the BCM53112/BCM5315X/BCM5316X egress mirror is occurring on the egress packet process (EPP), the packet is copied and added to the egress mirror TLV header on the packet inside the chip and the loopback to ingress packet process (IPP). The egress mirror TLV header contains the destination port where the packet should be, which is the mirror captured port. However, when the IMP port is configured as the egress mirror captured port, adding the CB tag and parsing the egress mirror TLV header is conflicted on the same packet and causes a packet transmission stall.
Impact	On the IMP port, to transmit packets with CB tag feature the egress mirror captured cannot be enabled at the same time
Severity	3
Workaround	Configure the IMP port without adding the CB tag feature if using the IMP port as the egress mirror capture port.
Status	This will not be fixed.

2.4 Errata ID: AVR-ER-B1-04: Pipeline Freezes with Invalid IPv4 Packets

Description The traffic pipeline is frozen when the ingress packet is an invalid IPb4 frame (ethertype = 0x0800 and protocol = none, when ipv4_en = 1 and tag_parse_en = 1). No packets can be forwarded and the system must be power cycled to recover.

Impact The invalid IPv4 packet cannot be parsed and forwarded.

Severity 3

Workaround Enable the following DoS features in `trap.c` to deny/drop the invalid IPv4 packet:

- IPV4_MAX_LENGTH
- IPV4_MIN_LENGTH
- IPV4_HDR_CHECKSUM
- IPV4_HDR_VERSION
- IPV4_HDR_LENGTH

Status This will not be fixed.

2.5 Errata ID: AVR-ER-B1-05: TimeSync Block One-Shot Event Timestamp Capture Must Apply Event Trigger Five Times

Description To enable the timestamp capture function of the Time Sync Block with one-shot mode, event triggers must be applied five times (pulse signal input of SYNC_IN). Two event triggers are for Reset deassert while the remaining three event triggers are for clock enabling. Without all five event triggers, the timestamp capture function is not enabled completely.

Impact The Timestamp capture function is not enabled by one time enabling event trigger.

Severity 3

Workaround Trigger the one shot pulse toggle event five times during System or Timesync block initialization to enable this function to operate correctly.

Status This will not be fixed.

Revision History

53112-5315X-5316X-ER301; April 12, 2019

Updated:

- Summary of Silicon Errata
- Errata ID: AVR-ER-B1-01: Pin SFP[11:8]_MOD_DEF0 is Not Operational
- Errata ID: AVR-ER-B1-02: Port is Locked in Cut-Through Mode

Added:

- Errata ID: AVR-ER-B1-03: Adding CB Tag and Parsing Egress Mirror TLV Header Conflict for the Same Packet on IMP Port
- Errata ID: AVR-ER-B1-04: Pipeline Freezes with Invalid IPv4 Packets
- Errata ID: AVR-ER-B1-05: TimeSync Block One-Shot Event Timestamp Capture Must Apply Event Trigger Five Times

53112-5315X-5316X-ER300; December 26, 2018

Initial release


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