

BTM C-bit Parity Errors

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Introduction

This error applies to the IGX Broadband Trunk Module (BTM) with a T3 backcard.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

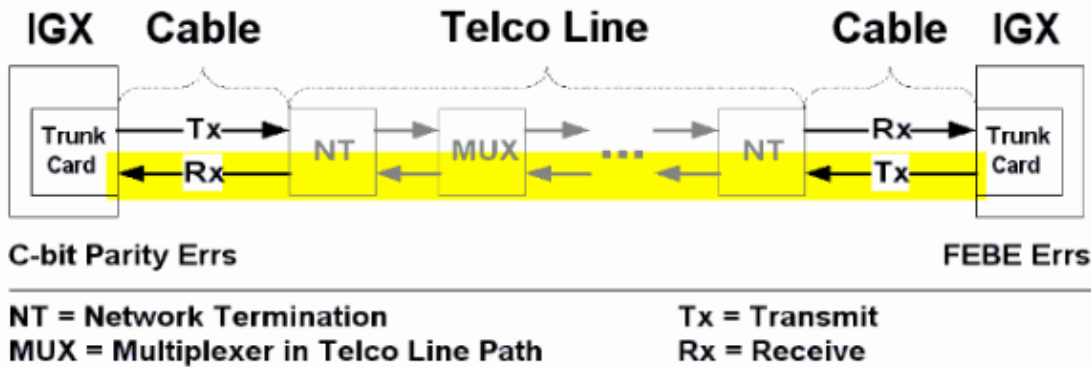
For more information on document conventions, see the Cisco Technical Tips Conventions.

Error Definition

The `C-bit Parity Errs` counter indicates that in-service, end-to-end bit errors are received during transmission. There are three C-bits (control bits) that control bit stuffing in each DS3 subframe. The BTM only supports the DS3 C-bit parity-frame format, which does not require the 21 C-bits for bit-stuffing control. The DS3-level C-bits are used for in-service, end-to-end path performance monitoring and in-band data links. The three C-bits in subframe 3 are called CP (C-bit Parity) bits and are used for DS3 path parity. At the DS3 transmitter, the CP-bits are set to the same value as the two P-bits and are not recomputed in the network. Because CP-bits are not changed by transmission equipment, they provide end-to-end path monitoring when evaluated at the receiver. DS3 C-bit parity frame-format offers significant advantages over the M13 frame format. M13 only supports P-bit parity for local segment error detection.

Error Example

The likely location of equipment errors is shown in yellow:



21.gif

Troubleshooting

The troubleshooting steps described in this section are intrusive. Perform the steps in a maintenance window only if user traffic is affected or if the **dsptrks** command indicates an error condition still persists, such as when the trunk is not in the **Clear-OK** state.

Both ends of the trunk must be active during troubleshooting.

1. Use the **dsptrks** command to verify that the trunk is active. If the trunk number is not displayed in the **dsptrks** command output, the trunk is not active. Use the **uptrk** command to activate a trunk.
2. Check the configuration of the BTM and the next device upstream.

The frame format for C-bit parity must be adhered to across the network for the DS3 trunk.

3. Check the cables between the BTM and the next device upstream. Typically, the next device upstream is the local network termination (NT). Leave the local cable connected to the BTM backcard but remove it from the NT.
 - a. Connect the transmit (Tx) to the receive (Rx) of the open cable to loop it back to the local BTM backcard. Alternatively, place the local NT into the metallic loop toward the local trunk module of the customer premises equipment (CPE). In this example, the CPE is the IGX BTM backcard. If the trunk status in the **dsptrks** command output changes to **Clear-OK** and the **dsptrkerrs** command output no longer shows incremental errors, the cable and the local trunk module are working properly.
 - b. Use the **dsptrkerrs** command to monitor the output for a few minutes, and then continue with Step 3. If the trunk status does not change to **Clear-OK** or if the **dsptrkerrs** command output no longer shows incremental errors, continue with Step 2.
4. Check the local hardware by placing a loopback cable onto the connectors at the backcard of the BTM.

If the trunk status in the **dsptrks** command output changes to **Clear-OK** and the **dsptrkerrs** command output does not show incremental errors, the BTM and backcard are working properly.

- a. Wait at least ten seconds longer than the timer setting configured in the **cnftrkparm** command to verify the trunk status change.
 - b. Replace the cables and verify whether the **dsptrkerrs** command output no longer shows incremental errors.
5. Check the cables between the remote trunk card and the next device downstream.

Typically, this is the remote NT. Leave the remote cable connected to the remote trunk card but remove it from the remote NT.

- a. Connect Tx to Rx of the open cable to loop it back to the trunk card. Alternatively, place the remote NT into the metallic loop toward the trunk module of the CPE. If the **dsptkerrs** command output on the remote trunk does not start to count errors, the cable and trunk module are working properly.
 - b. Use the **dsptkerrs** command to monitor the output for at least five minutes before you proceed.
6. Check the Telco line.
- a. Connect Tx and Rx of the remote NT to loop it back to the Telco line using an appropriate BNC cable. If no line-test equipment is available, check whether the **dsptkerrs** command output on the local trunk no longer shows incremental errors.
 - b. Use the **dsptkerrs** command to monitor the output for at least five minutes before you proceed. This scenario only provides a basic test and does not replace a complete line test by the Telco.
 - c. Reconnect the cable to the NT when the test is complete.
7. Ensure signal strength is sufficient and that the maximum cable length is not exceeded. For T3 trunks, you must configure the line build-out (LBO) from the `Line cable length` field of the **cnftrk** command. Delete the trunk to correct the `Line cable length` setting.
- Note:** If you delete the trunk, you could remove all connections routed across the trunk. Before you delete a trunk, verify whether an alternate route for the connections exists, or record all connections and parameters as needed to re-add the connections.
8. Ask the Telco to test the line.

If the problem persists after performing the troubleshooting steps, contact the Cisco Systems Technical Support at (800) 553-24HR, (408) 526-7209, the Cisco Technical Support Website, or send e-mail to tac@cisco.com.

Related Information

- [IGX 8400 BTM Trunk Error Troubleshooting and Definitions](#)
- [WAN Switching Network Synchronization Fundamentals](#)
- [International Telephony Union \(ITU\) Recommendation, G.704](#)
- [Cisco WAN Switching Solutions – Cisco Documentation](#)
- [Guide to New Names and Colors for WAN Switching Products](#)
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