



BERT/TDM Enhancements for Cisco AS5300 8PRI/4T Cards

Feature Overview

Cisco's bit-error-rate-testing (BERT) solution and time-division multiplexing (TDM) command enhancements have been implemented for the Cisco AS5300 in Cisco IOS Release 12.0(4)XH1. This enhancement has been applied for T1 and E1 facilities.

The BERT solution can be managed from remote command line interface (CLI) and SNMP management platforms for any Cisco AS5300 in the network.

Benefits

Bit Error Rate Testing

Bit-error-rate testing and loopbacks are used by carriers and ISPs to help resolve problems as well as test the quality of T1/E1 links. By early detection of poor quality links and quick problem isolation, you can improve your quality of service and increase your revenues.

Time Division Multiplexing Subsystem Troubleshooting

Cisco IOS TDM commands show the current status and settings of the TDM backplane, enable debug output for display when TDM programming occurs, and provide a set of test commands to test the functionality of the TDM path. The TDM subsystem troubleshooting commands are not used during normal system operation.

Supported Platform

This feature is supported on the Cisco AS5300.

Prerequisites

Ensure that the Cisco AS5300 has 64 MB DRAM before using the Octal PRI card. If you do not have at least this amount of memory installed on the unit, you will receive an “insufficient memory” message and will experience boot failures.

Supported MIBs and RFCs

No MIBs or RFCs are supported by this feature.

Configuration Tasks

Perform the following task to configure the Cisco AS5300 router for BERT:

- Configuring BERT

Configuring BERT

Step	Command	Purpose
1	5300> enable 5300><password> 5300#	Enter the privileged mode. Enter your password. You have entered the privileged mode when the prompt changes to 5300#.
2	5300# config	Enter the configuration mode.
3	Router(config)# bert profile	By using the extensions to this command, you can configure up to 15 BERT profiles—in addition to the default BERT profile 0.

Verifying BERT

To verify that BERT is running, enter the **show running EXEC** command:

```
5300>show running
!
bert profile 1 pattern 1s threshold 10^-4 error-injection none duration 3
bert profile 7 pattern 220-0.151QRSS threshold 10^-3 error-injection 10^-5 duration 120
```

Configuration Examples

This section provides the following configuration examples:

- BERT Profile Configuration
- E2-Clockrate

BERT Profile Configuration

The following example shows a configured BERT profile number 1 that has a 0s test pattern, with a 10^{-2} threshold, no error injection, and a duration of 125 minutes:

```
Router(config)# bert profile 1 pattern 0s threshold 10^-2 error-injection none duration 125
```

E2-Clockrate

The following example shows sample display output when the e2-clockrate is configured using the **e2-clockrate EXEC** command:

```
Router(config-if)# e2-clockrate
Interface Serial 0 is configured to support clockrates upto E2 (8Mbps)
Interfaces serial 1-3 will not be operational
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command references.

- **bert abort**
- **bert controller**
- **bert profile**
- **e2-clockrate**
- **show controller t1 bert**
- **show tdm backplane**
- **show tdm connections**
- **show tdm data**
- **show tdm detail**
- **show tdm information**
- **show tdm pool**

bert abort

To abort a bit-error-rate-testing session, enter the **bert abort** privileged EXEC command. There is no **no** form of this command.

bert abort

Syntax Description

There are no arguments or keywords used with this command.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

Use the **bert abort** command to cancel bit-error-rate testing on each port of the Cisco AS5300.

BERT enables you to test the quality of the connected PRI links by directly comparing a pseudorandom or a repetitive test pattern with an identical locally generated test pattern

Examples

The following samples show output for the **bert abort** EXEC command:

- When no bit-error-rate test is running:

```
Router# bert abort
Router#
17:53:33: There is no BERT Test running ....
```

- When a bit-error-rate test is running:

```
Router# bert abort
Do you really want to abort the current BERT [confirm]

17:56:56: %BERT-6-BERT_RESULTS: Controller T1 0 Profile default : The Test was
aborted by User
```

Related Commands

Command	Description
bert controller	Starts a bit-error-rate test for a particular port on a Cisco AS5300.
bert profile	Sets up various bit-error-rate testing profiles.
debug bert	Displays debugging information on BERT results.

bert controller

To start a bit-error-rate test for a particular port, enter the **bert controller** privileged EXEC command. There is no **no** form of this command.

bert controller *type controller* [*last-controller* | **profile** {*number* | **default**}]

Syntax Description

<i>type controller</i>	(Optional) Use either T1 or E1 depending on the type of facility.
<i>last-controller</i>	(Optional) Last controller number <0-7>.
profile	Sets the profile numbers for the bit-error-rate test.
<i>number</i>	(Optional) The numbers of the test profiles to use <0-15>.
default	(Optional) Starts the default bit-error-rate test (0).

Default

Profile “0” is the default profile used when no other number is entered.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

Use the **bert controller** command to start a bit-error-rate test for a particular port on a Cisco AS5300.

The bit-error-rate test (BERT) feature enables you to test the quality of the connected PRI links by comparing a pseudo-random or a repetitive test pattern with an identical locally generated test pattern.

Example

The following sample shows output for the **bert controller EXEC** command:

```
Router# bert controller T1 0 profile 0
Press <Return> to start the BERT [confirm]

17:55:34: %BERT-6-BERT_START: Starting BERT on Interface 0 with Profile default
Data in current interval (10 seconds elapsed):
  0 Line Code Violations, 0 Path Code Violations
  0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
  0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
```

Field Descriptions

Field	Description
Data in Current Interval	Shows the current accumulation period, which rolls into the 24-hour accumulation every 15 minutes. The accumulation period is from 1 to 900 seconds. The oldest 15-minute period falls off the back of the 24-hour accumulation buffer.
Line Code Violations	For AMI-coded signals, a line code violation is a bi-polar violation (BPV). Indicates the occurrence of either a BPV or excessive zeros (EXZ) error event.
Path Code Violations	When superframe (SF) (D4) framing is used, a path code violation is a framing error. When ESF framing is used, a path code violation is a CRC-6 error. Indicates a frame-synchronization bit-error in the D4 and E1-noCRC formats, or a CRC error in the ESF and E1-CRC formats.
Slip Secs	Indicates the replication or deletion of the payload bits of a DS1 frame. A slip may be indicated when there is a difference between the timing of a synchronous receiving terminal and the received signal.
Fr Loss Secs	Seconds during which the framing pattern has been lost. Indicates the number of seconds an out of frame (OOF) error is detected.
Line Err Secs	A line error second (LES) is a second in which one or more line code violation (LCV or CV-L) errors are detected.
Degraded Mins	A degraded minute is one in which the estimated error rate exceeds 1^{-6} but does not exceed 1^{-3} .
Errored Secs	In ESF and E1-CRC links, an errored second is a second in which one of the following problems are detected: one or more path code violations; one or more out of frame defects; one or more controlled slip events; a detected alarm indication signal defect. For D4 and E1-noCRC links, the presence of bipolar violations also triggers an errored second.
Bursty Err Secs	A second with fewer than 320 and more than 1 path coding violation error, no severely errored frame defects, and no detected incoming alarm indication signals (AIS) defects. Controlled slips are not included in this parameter.
Severely Err Secs	For ESF signals, a second with one of the following errors: 320 or more path code violation errors; one or more out of frame defects; a detected alarm indication signal defect. For E1-CRC signals, a second with one of the following errors: 832 or more path code violation errors; one or more out of frame defects. For E1-nonCRC signals, a second with 2048 line code violations or more. For D4 signals, a count of 1-second intervals with framing errors, or an out of frame defect, or 1544 line code violations.
Unavail Secs	A count for every second in which an unavailable signal state occurs. This term is used by new standards in place of failed seconds (FS).

Related Commands

Command	Description
bert abort	Aborts a bit-error-rate testing session.
bert profile	Sets up various bit-error-rate testing profiles.
debug bert	Displays debugging information on BERT results.

bert profile

To set up various bit-error-rate testing profiles, use the **bert profile** configuration mode of the privileged EXEC command. Use the **no** form of this command to disable the particular BERT profile indicated by the profile number.

bert profile *number pattern pattern threshold threshold error-injection err_inj duration duration*

no bert profile *number pattern pattern threshold threshold error-injection err_inj duration duration*

Syntax Description

profile	A set of parameters used by the BERT feature.
<i>number</i>	BERT profile number <1-15>. This is the number assigned to a particular set of parameters. If no such profile of the same number exists in the system, a new profile is created with that number; otherwise, an existing set of parameters with that profile number is overwritten by the new profile.
pattern	The pattern BERT will generate on the line.
<i>pattern</i>	0s—repetitive pattern, all zeroes 1_in_16— <i>n</i> repetitive pattern, 1 in 16 1s— <i>n</i> repetitive pattern, all ones 211-O.152— <i>n</i> pseudo-random pattern, 2 ¹¹ -1 O.152 215-O.15— <i>n</i> pseudo-random pattern, 2 ¹⁵ -1 O.151 220-O.151QRSS— <i>n</i> pseudo-random pattern, 2 ²⁰ -1 O.151 QRSS 220-O.153— <i>n</i> pseudo-random pattern, 2 ²⁰ -1 O.153 3_in_24— <i>n</i> repetitive pattern, 3 in 24
threshold	The test failure (error) threshold that determines if BERT passed on this line.
<i>threshold</i>	10 ⁻² —Bit error rate of 10 ⁻² 10 ⁻³ —Bit error rate of 10 ⁻³ 10 ⁻⁴ —Bit error rate of 10 ⁻⁴ 10 ⁻⁵ —Bit error rate of 10 ⁻⁵ 10 ⁻⁶ —Bit error rate of 10 ⁻⁶ 10 ⁻⁷ —Bit error rate of 10 ⁻⁷ 10 ⁻⁸ —Bit error rate of 10 ⁻⁸
error-injection	The error-injection rate for bit errors injected into the BERT pattern generated by the chip.
<i>err_inj</i>	10 ⁻¹ —Error injection of 10 ⁻¹ 10 ⁻² —Error injection of 10 ⁻² 10 ⁻³ —Error injection of 10 ⁻³ 10 ⁻⁴ —Error injection of 10 ⁻⁴ 10 ⁻⁵ —Error injection of 10 ⁻⁵ 10 ⁻⁶ —Error injection of 10 ⁻⁶ 10 ⁻⁷ —Error injection of 10 ⁻⁷ none—No error injection in the data pattern.

duration Duration in minutes for which BERT will run.

time Duration of BERT in minutes <1-1440>.

Default

The default profile created internally by the system has parameters that cannot be changed. This profile has been defined so that you can easily run BERT on a line without configuring a new profile. The default profile is presented when the running configuration is displayed and is not stored in NVRAM:

```
bert profile default pattern 220-0151QRSS threshold 10^-6 error-injection none duration 10
```

Command Mode

Configuration mode of privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

Use the **bert profile** command to set up bit-error-rate testing (BERT) profiles for the Cisco AS5300.

BERT enables you to test the quality of the connected PRI links by directly comparing a pseudorandom or a repetitive test pattern with an identical locally generated test pattern. A BERT profile is a set of parameters related to a BERT test and is stored as part of the configuration in the non-volatile random access memory (NVRAM). You can define up to 15 BERT profiles on the system. By setting up the BERT profiles in this way, you do not have to enter the parameters each time you want to run a BERT—just select the number of the BERT profile you want to run.

Example

The following sample shows a configured BERT profile number 1 to have a 0s test pattern, with a 10^{-2} threshold, no error injection, and a duration of 125 minutes:

```
Router(config)# bert ?
  profile Profile Number for this BERT configuration
Router(config)# bert profile ?
  <1-15> BERT Profile Number
Router(config)# bert profile 1 pattern 0s threshold 10^-2 error-injection none duration 125
```

Related Commands

Command	Description
bert abort	Aborts a bit-error-rate testing session.
bert controller	Starts a bit-error-rate test for a particular port on a Cisco AS5300.
debug bert	Displays debugging information on BERT results.

e2-clockrate

To configure the serial0 interface for E2 (8 Mhz full duplex) and to shut down the other three serial interfaces (1-3), use the **e2-clockrate** interface configuration privileged EXEC command. To disable the full duplex E2, use the **no** form of this command.

e2-clockrate

no e2-clockrate

Syntax Description

There are no arguments or keywords used with this command.

Default

No default behavior or values.

Command Mode

Interface configuration privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **e2-clockrate** EXEC command is an interface configuration command and is seen only with **interface serial0**. When this command is used, serial interface 0 supports speeds up to E2 (8 MHz full duplex) and the other three serial interfaces (1-3) are in “shutdown” state. Also, running this command displays the warning message, “Serial interface 0 is configured to support E2 rates and serial ports “1-3” are moved to shutdown state.”

Example

The following sample shows output for the **e2-clockrate** EXEC command:

```
Router(config-if)# e2-clockrate
Interface Serial 0 is configured to support clockrates upto E2 (8Mbps)
Interfaces serial 1-3 will not be operational
```

Related Commands

Command	Description
clock rate xxx	When serial ports are in DCE mode, configures the clockrate on the serial ports.

show controller t1 bert

To get the results of the BERT run on all ports, enter the **show controller t1 bert** privileged EXEC command. There is no **no** form of this command.

show controller {*type*} [*bert*] [*controller-number*] [*bert*]

Syntax Description

<i>type</i>	Specify either T1 or E1 facility.
<i>controller-number</i>	Select specific controller/port numbers <0-7>. If not selected, the display shows all ports.
<i>bert</i>	Enter bert to get a specific display for the BERT results. Otherwise, the display will include all other non-BERT information.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

Enter the **show controller** command to display the results of the BERT.

Example

The following example shows how the **show controller** command is used to display the BERT status for all ports:

```
Router# show controller t1 bert
Controller T1 0 Profile default : The Test was aborted by User
Controller T1 0 Profile 2 : Test Never Ran
Controller T1 1 Profile 3 : Test Never Ran
Controller T1 1 Profile 3 : Test Failed with a BER of 10^-2
Controller T1 2 Profile 3 : Current running, BER 0
Controller T1 2 Profile 2 : Passed with a BER of 0
Controller T1 3 Profile default : Test Never Ran
Controller T1 3 Profile 2 : Test Never Ran
```

show controller t1 bert

```
Controller T1 4 Profile default : Test Never Ran
Controller T1 4 Profile 2 : Test Never Ran
Controller T1 5 Profile default : Test Never Ran
Controller T1 5 Profile 2 : Test Never Ran
Controller T1 6 Profile default : Test Never Ran
Controller T1 6 Profile 2 : Test Never Ran
Controller T1 7 Profile default : Test Never Ran
Controller T1 7 Profile 2 : Test Never Ran
```

The following example shows how the output display is limited to only one T1 port—port 0.

```
Router# show controller t1 0 bert
Controller T1 0 Profile default : The Test was aborted by User
Controller T1 0 Profile 2 : Test Never Ran
```

Related Commands

Command	Description
show controller	Displays various parameters of the router operation, depending on the output modifiers used in conjunction with this command.

show tdm backplane

To display modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and to display channels on the PRI side of the TDM assignment, enter the **show tdm backplane** privileged EXEC command. There is no **no** form of this command.

```
show tdm backplane {stream stream-number}
```

Syntax Description

stream	Backplane stream range 0-7. There are 8 backplane “streams” on the TDM backplane for the Cisco AS5300. Each stream runs at 2Mhz and has 32 channels (running at 64Khz) on the Cisco AS5300’s backplane hardware.
<i>stream-number</i>	The actual number entered (either 0-7 or 0-15). An actual number must be entered.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm backplane** command shows the status of the TDM backplane, related data structure values, and TDM chip memory settings. These commands are generally used only by a Cisco technical support representative when troubleshooting data continuity problems.

Example

To display only a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the **debug tdm detail** command is used, more detail is shown.

The following example shows the general syntax used, and the output displayed for the **show tdm backplane** command.

```
5300# show tdm backplane
Show BackPlane Connections
TDM Backplane Connection for Stream 0
```

show tdm backplane

```

Modem (St/Ch)<->PRI (Unit/Ch)  xx/xx:Not Used ??/?:Unknown State
0  :  xx/xx<->xx/xx,  xx/xx<->xx/xx,  00/02<->00/30,  00/03<->03/10
4  :  00/04<->00/15,  00/05<->02/02,  00/06<->02/07,  00/07<->02/08
8  :  xx/xx<->xx/xx,  00/09<->03/11,  00/10<->02/09,  xx/xx<->xx/xx
12 :  00/12<->00/17,  00/13<->02/17,  00/14<->02/18,  00/15<->02/10
16 :  xx/xx<->xx/xx,  xx/xx<->xx/xx,  00/18<->00/19,  00/19<->02/19
20 :  00/20<->02/11,  xx/xx<->xx/xx,  xx/xx<->xx/xx,  00/23<->00/07
24 :  xx/xx<->xx/xx,  00/25<->00/01,  00/26<->00/20,  00/27<->02/20
28 :  xx/xx<->xx/xx,  00/29<->00/18,  xx/xx<->xx/xx,  xx/xx<->xx/xx
TDM Backplane Connection for Stream 1
Modem (St/Ch)<->PRI (Unit/Ch)  xx/xx:Not Used ??/?:Unknown State
0  :  xx/xx<->xx/xx,  xx/xx<->xx/xx,  xx/xx<->xx/xx,  01/03<->03/09
4  :  01/04<->00/03,  01/05<->02/13,  xx/xx<->xx/xx,  xx/xx<->xx/xx
8  :  xx/xx<->xx/xx,  xx/xx<->xx/xx,  01/10<->02/14,  01/11<->00/04
12 :  01/12<->00/21,  xx/xx<->xx/xx,  01/14<->00/05,  xx/xx<->xx/xx
16 :  xx/xx<->xx/xx,  xx/xx<->xx/xx,  xx/xx<->xx/xx,  01/08<->02/12
20 :  01/20<->00/06,  01/09<->00/02,  xx/xx<->xx/xx,  xx/xx<->xx/xx
24 :  01/24<->03/01,  xx/xx<->xx/xx,  01/26<->02/15,  xx/xx<->xx/xx
28 :  01/28<->03/05,  xx/xx<->xx/xx,  xx/xx<->xx/xx,  xx/xx<->xx/xx
--More--

```

Related Commands

Command	Description
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.
show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm information	Displays information about the specified TDM device.
show tdm pool	Displays TDM resources available for the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS 5300 access servers.

show tdm connections

To display information about the connection memory programmed on the Mitel TDM chip, enter the **show tdm connections** privileged EXEC command. There is no **no** form of this command.

```
show tdm connections {motherboard {stream stream-number} | slot slot-number} {device
device-number {stream stream-number}}
```

Syntax Description

motherboard	The motherboard on the Cisco AS5300 has the ethernet I/F's, serial I/F's, console port, and aux port. The motherboard has 1 TDM device (MT8980) for the 5300.
stream	Device stream range 0-7. There are 8 backplane “streams” on the TDM backplane for the Cisco AS5300. Each stream runs at 2Mhz and has 32 channels (running at 64Khz) on the Cisco AS5300 backplane hardware.
<i>stream-number</i>	The stream number (Range is 0-7 or 0-15).
slot	There are 3 slots on the Cisco AS5300. The range of the slots is 0-2. A card can be inserted into each slot (i.e., a modem card or a trunk PRI card). Each card in the slot will have one or two TDM devices (either MT8980 or MT90820) on them.
<i>slot-number</i>	Range 0-2.
device	TDM device on the motherboard, or slot cards. Range for the Cisco AS5300 is 0-1. Each card has at least one TDM device (MT8980 or MT80920), and some of the slot cards have two devices (i.e., the Octal PRI has two MT90820 TDM devices). Also referred to as “TSI Chip Number” in the online help.
<i>device-number</i>	Range 0-1.
stream	Device stream range 0-7. There are 8 backplane “streams” on the TDM backplane for the Cisco AS5300. Each stream runs at 2Mhz and has 32 channels (running at 64Khz) on the Cisco AS5300 backplane hardware.
<i>stream-number</i>	The stream number (Range is 0-7 or 0-15).

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm connections** command shows the status of the TDM chip memory settings. This command is generally used only by a Cisco technical support representative when troubleshooting data continuity problems.

Example

To display only a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the **debug tdm detail** command is used, more detail is shown than if it were not executed. The following example shows the general syntax used and the output for the **show tdm connections** command:

```
5300#show tdm connections slot 0
Slot 0 MT8980 TDM Device 0, Control Register = 0x1E, ODE Register = 0x01
Connection Memory for ST0:
Ch0: 0x00 0xE1, Ch1: 0x00 0xE2, Ch2: 0x01 0xDE, Ch3: 0x00 0x00
Ch4: 0x01 0xCF, Ch5: 0x00 0xE4, Ch6: 0x00 0xE5, Ch7: 0x00 0x00
Ch8: 0x00 0xEB, Ch9: 0x00 0xE6, Ch10: 0x00 0xE7, Ch11: 0x00 0x00
Ch12: 0x01 0xD1, Ch13: 0x00 0xE8, Ch14: 0x00 0x00, Ch15: 0x00 0xE9
Ch16: 0x00 0x00, Ch17: 0x00 0xD2, Ch18: 0x01 0xD3, Ch19: 0x00 0xEA
Ch20: 0x00 0xEB, Ch21: 0x00 0xC1, Ch22: 0x00 0xEC, Ch23: 0x01 0xC7
Ch24: 0x00 0xED, Ch25: 0x01 0xC1, Ch26: 0x01 0xD4, Ch27: 0x00 0xEE
Ch28: 0x00 0xE1, Ch29: 0x01 0xD2, Ch30: 0x00 0x00, Ch31: 0x00 0x00
Connection Memory for ST1:
Ch0: 0x00 0xEF, Ch1: 0x00 0xC2, Ch2: 0x00 0xED, Ch3: 0x00 0xF1
Ch4: 0x01 0xC3, Ch5: 0x00 0xF2, Ch6: 0x00 0xE2, Ch7: 0x00 0x00
Ch8: 0x00 0xF3, Ch9: 0x00 0xFF, Ch10: 0x00 0xF4, Ch11: 0x01 0xC4
Ch12: 0x01 0xD5, Ch13: 0x00 0xF5, Ch14: 0x01 0xC5, Ch15: 0x00 0xEE
Ch16: 0x00 0xF6, Ch17: 0x00 0xE3, Ch18: 0x00 0x00, Ch19: 0x00 0xF7
Ch20: 0x01 0xC6, Ch21: 0x01 0xC2, Ch22: 0x00 0xF8, Ch23: 0x00 0xE4
Ch24: 0x00 0xF9, Ch25: 0x00 0xC7, Ch26: 0x00 0x00, Ch27: 0x00 0xFA
Ch28: 0x00 0xFB, Ch29: 0x00 0xE5, Ch30: 0x00 0x00, Ch31: 0x00 0x00
--More--
```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.

show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm information	Displays information about the specified TDM device.
show tdm pool	Displays TDM resources available for the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS 5300 access servers.

show tdm data

To display data memory that is programmed on Mitel TDM chip, enter the **show tdm data** privileged EXEC command. There is no **no** form of this command.

```
show tdm data {motherboard {stream stream-number} | slot slot-number} {device
device-number {stream stream-number}}
```

Syntax Description

motherboard	The motherboard on the Cisco AS5300 has the ethernet I/F's, serial I/F's, console port, and aux port. The motherboard has one TDM device (MT8980) for the Cisco AS5300.
stream	Backplane stream range, 0-7. There are 8 backplane “streams” on the TDM backplane for the Cisco AS5300. Each stream runs at 2Mhz and has 32 channels (running at 64Khz) on the Cisco AS5300 backplane hardware.
<i>stream-number</i>	The stream number within the range of either 0-7 or 0-15.
slot	In addition to the Motherboard, there are 3 slots on the 5300. The range of the slots is 0-2. In each slot a card can be inserted (ie., a modem card or a trunk PRI card). Each card in the slot will have one or two TDM devices (either MT8980 or MT90820) on them.
<i>slot-number</i>	Range 0-2 for 5300.
device	TDM device on the motherboard, or slot cards. Range for 5300 is 0-1. Each card has at least one TDM device (MT8980 or MT80920), and some of the slot cards have two devices (ie. the Octal PRI has two MT90820 TDM devices). Also referred to as 'TSI Chip Number' in the help pages.
<i>device-number</i>	Range 0-1
stream	TDM device stream, range 0 to 15. There are up to 16 streams on a TDM device (Mitel 90820). The TDM device is also known as the “TSI chip”. The help on the command (by typing ?) indicates whether the stream is “Stream number within the TSI chip” or “Backplane Stream”.
<i>stream-number</i>	The stream number within the range of either 0-7 or 0-15.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm data** command shows the status of the TDM data structure values. This command is generally used only by a Cisco technical support representative when troubleshooting data continuity problems.

Example

To display a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the **debug tdm detail** command is used, more detail is shown. The following example shows the general syntax used, and the output displayed for the **show tdm data** command:

```
5300#show tdm data
Motherboard MT8980 TDM Device 0, Control Register = 0x1F, ODE Register = 0xE1
Data Memory for ST0:
Ch0: 0xFF, Ch1: 0xFF, Ch2: 0x98, Ch3: 0x61
Ch4: 0x0C, Ch5: 0xE1, Ch6: 0x8D, Ch7: 0x86
Ch8: 0xFF, Ch9: 0xF3, Ch10: 0xE4, Ch11: 0xFF
Ch12: 0x51, Ch13: 0x02, Ch14: 0x18, Ch15: 0x14
Ch16: 0xFF, Ch17: 0xFF, Ch18: 0x05, Ch19: 0xC7
Ch20: 0x00, Ch21: 0xFF, Ch22: 0xFF, Ch23: 0x98
Ch24: 0xFF, Ch25: 0x15, Ch26: 0x5C, Ch27: 0x15
Ch28: 0xFF, Ch29: 0x80, Ch30: 0xFF, Ch31: 0xFF
Data Memory for ST1:
Ch0: 0xFF, Ch1: 0xFF, Ch2: 0xFF, Ch3: 0x62
Ch4: 0x94, Ch5: 0x88, Ch6: 0xFF, Ch7: 0xFF
Ch8: 0xFF, Ch9: 0xFF, Ch10: 0xFB, Ch11: 0x91
Ch12: 0xF7, Ch13: 0xFF, Ch14: 0x96, Ch15: 0xFF
Ch16: 0xFF, Ch17: 0xFF, Ch18: 0xFF, Ch19: 0x94
Ch20: 0x8F, Ch21: 0x95, Ch22: 0xFF, Ch23: 0xFF
Ch24: 0xE2, Ch25: 0xFF, Ch26: 0xD3, Ch27: 0xFF
Ch28: 0x87, Ch29: 0xFF, Ch30: 0xFF, Ch31: 0xFF
Data Memory for ST2:
--More--
```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm information	Displays information about the specified TDM device.
show tdm pool	Displays TDM resources available for the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS5300 access servers.

show tdm detail

To see detail about a specific TDM channel programmed on the Mitel chip, enter the **show tdm detail** privileged EXEC command. This command indicates connection memory and map, data memory, and whether the channel is enabled or disabled. Specify the specific slot, TDM device, TDM stream, and TDM channel. There is no **no** form of this command.

```
show tdm detail slot-number|device-number source-stream-number|source-channel-number
```

Syntax Description

<i>slot-number</i>	Range 0-2. There are 3 slots on the Cisco AS5300. A card can be inserted in each slot (i.e., a modem card or a trunk PRI card). Each card will have one or two TDM devices (either MT8980 or MT90820) on it.
<i>device-number</i>	Range 0-1. TDM device on the motherboard, or slot cards. Each card has at least one TDM device (MT8980 or MT80920), and some of the slot cards have two devices (i.e., the Octal PRI has two MT90820 TDM devices). Also referred to a “TSI Chip Number” in the online help.
<i>source-stream-number</i>	The source stream number from the TDM device. Range (0-15)
<i>source-channel-number</i>	The source channel from the TDM device stream. Range (0-31)

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm detail** command shows the status of the TDM backplane, related data structure values, and TDM chip memory settings. This command is generally used only by a Cisco technical support representative during troubleshooting of data continuity problems.

Example

To display only a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the **debug tdm detail** command is used, more detail is shown. The following example shows the general syntax used, and the output displayed for the **show tdm detail** command:

```
5300#show tdm detail 0/0 1/2
Show Detail TDM device info: slot 0 unit 0
ODE Register: 0x0001
Connection Memory: 0x00ED, Output is Disable
Connection Map: STi7 CHi13 ----> STo1 CHo2
Data Memory: 0x00FF
#
```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.
show tdm information	Displays information about the specified TDM device.
show tdm pool	Displays TDM resources available for the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS5300 access servers.

show tdm information

To display information about a specified TDM device, enter the **show tdm information** privileged EXEC command. This command displays the register base address, device type, and capabilities on a per-slot basis. There is no **no** form of this command.

```
show tdm information {motherboard | slot slot-number {device device-number}}
```

Syntax Description

motherboard	The motherboard on the Cisco AS5300 has the ethernet I/F's, serial I/F's, console port, and aux port. The motherboard has one TDM device (MT8980) for the Cisco AS5300.
slot	There are 3 slots on the Cisco AS5300. The range of the slots is 0-2. A card can be inserted into each slot (i.e., a modem card or a trunk PRI card). Each card will have one or two TDM devices (either MT8980 or MT90820) on it.
<i>slot-number</i>	Range 0-2
device	TDM device on the motherboard or slot cards, range is 0-1. Each card has at least one TDM device (MT8980 or MT80920), and some of the slot cards have two devices (i.e., the Octal PRI has two MT90820 TDM devices). Also referred to as "TSI Chip Number" in the online help.
<i>device-number</i>	Range 0-1.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm information** command shows the status of the TDM backplane, related data structure values, and TDM chip memory settings. This command is generally used only by a Cisco technical support representative when troubleshooting data continuity problems.

Example

The following example shows the general syntax used and the output for the **show tdm information** command. To display only a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the command **debug tdm detail** is executed, more detail is shown. The following examples are run with the **debug tdm detail** executed:

```
5300#show tdm information
TDM Slot Info display for Motherboard:
  Slot Info ptr @0x610D39C0  Feature info ptr @0x60B737E8
  Feature board is MOTHERBOARD, NIM ID: 0x30
  TSI device is MT8980, 1 on this board.  Each TSI device supports 0 DS1s
  First TSI device is at offset: 0x100
  TSI device 0, register base 0x3E801100
    TDM Device Info ptr @0x611AA3EC for slot -1
    TSI device Info ptr @0x60FCC0BC  memory size = 0x100
    This device supports 8 streams with 32 channels per stream
TDM Information display for slot 0:
  Slot Info ptr @0x610D39E4  Feature info ptr @0x60B73818
  Feature board is E1 Quad PRI, NIM ID: 0x43
  TSI device is MT8980, 2 on this board.  Each TSI device supports 2 DS1s
  First TSI device is at offset: 0x100, Second TSI device is at Offset: 0x200
  HDLC Streams start at 4
  Framers Streams start at 6
  TSI device 0, register base 0x3C400100
    TDM Device Info ptr @0x61222054 for slot 0
    TSI device Info ptr @0x60FCC0BC  memory size = 0x100
    This device supports 8 streams with 32 channels per stream
  TSI device 1, register base 0x3C400200
    TDM Device Info ptr @0x61222098 for slot 0
    TSI device Info ptr @0x60FCC0BC  memory size = 0x100
    This device supports 8 streams with 32 channels per stream
TDM Information display for slot 1:
  Slot Info ptr @0x610D3A08  Feature info ptr @0x60B738A8
  Feature board is High Density Modems, NIM ID: 0x47
  TSI device is MT8980, 1 on this board.  Each TSI device supports 0 DS1s
  First TSI device is at offset: 0x100
  TSI device 0, register base 0x3C500100
    TDM Device Info ptr @0x612F1B80 for slot 1
    TSI device Info ptr @0x60FCC0BC  memory size = 0x100
    This device supports 8 streams with 32 channels per stream
TDM Information display for slot 2:
  Slot Info ptr @0x610D3A2C  Feature info ptr @0x60B738A8
  Feature board is High Density Modems, NIM ID: 0x47
  TSI device is MT8980, 1 on this board.  Each TSI device supports 0 DS1s
  First TSI device is at offset: 0x100
  TSI device 0, register base 0x3C600100
    TDM Device Info ptr @0x613A6F60 for slot 2
    TSI device Info ptr @0x60FCC0BC  memory size = 0x100
    This device supports 8 streams with 32 channels per stream
#
```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.
show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm pool	Displays TDM resources available for the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS5300 access servers.

show tdm pool

To display TDM resources available for the specified TDM device, enter the **show tdm pool** privileged EXEC command. This command displays TDM groups, where group 0 is streams 0-3 and group 1 is streams 4-7. It also displays register address and capabilities on a per-slot basis. There is no **no** form of this command.

show tdm pool {*slot slot-number*}

Syntax Description

slot	There are 3 slots on the Cisco AS5300 with a range of 0-2. A card can be inserted into each slot (i.e., a modem card or a trunk PRI card). Each card has one or two TDM devices (either MT8980 or MT90820) on it.
<i>slot-number</i>	Range 0-2 for 5300.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **show tdm pool** command shows the status of the TDM backplane, related data structure values, and TDM chip memory settings. This command is generally used only by a Cisco technical support representative when troubleshooting data continuity problems.

Example

The following example shows the general syntax used and the output for the **show tdm pool** command. To display only a subset of the data on most of the commands, further specify particular slots, streams, and devices. When the command **debug tdm detail** is executed, more detail is shown. The following example was run after the **debug tdm detail** command was used:

```
5300#show tdm pool
Dynamic Backplane Timeslot Pool:
  Grp ST  Ttl/Free Req(Cur/Ttl/Fail)   Queues (Free/Used)   Pool Ptr
  0 0-3  120 60   60 361       0                   0x61077E28 0x61077E28 0x61077E20
  1 4-7   0  0     0  0         0                   0x61077E38 0x61077E28 0x61077E24
```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.
show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm information	Displays information about the specified TDM device.
debug tdm	Displays time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS5300 access servers.

Debug Commands

This section documents new or modified debug commands. All other commands used with this feature are documented in the CISCO Release 12.0 Command References.

- **debug bert**
- **debug tdm**

debug bert

Use the **debug bert** EXEC command to display information on the bit-error-rate testing (BERT) feature. The **no** form of this command disables the debugging output.

To debug bert, use the **debug bert** command.

debug bert

no debug bert

Syntax Description

There are no arguments or keywords used with this command.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **debug bert** EXEC command output is to be used primarily by a Cisco technical support representative. The **debug bert** command enables display of debugging messages for specific areas of code which execute.

Example

```
Router# debug bert
Bit Error Rate Testing debugging is on

Router# no debug bert
Bit Error Rate Testing debugging is off
```

Related Commands

Command	Description
bert abort	Aborts a bit-error-rate testing session.

bert controller	Starts a bit-error-rate test for a particular port on a Cisco AS5300.
bert profile	Sets up various bit error rate testing profiles.

debug tdm

Use the **debug tdm** EXEC command to display time division multiplexer (TDM) bus connection information each time a connection is made on Cisco AS5300 access servers. Use the **no** form of this command to disable debugging output.

debug tdm [*api|detail|dynamic|pri|test|tsi|vdev*]

no debug tdm [*api|detail|dynamic|pri|test|tsi|vdev*]

Syntax Description

<i>api</i>	TDM subsystem API. Displays a debug message whenever the TDM subsystem API is invoked from another subsystem.
<i>detail</i>	TDM detail debugging. Displays detailed messages (i.e., trace messages) whenever the TDM software executes.
<i>dynamic</i>	TDM dynamic backplane timeslot allocation. Displays TDM debugging information whenever a backplane timeslot is allocated or deallocated.
<i>pri</i>	Routes modem back-to-back connections from the modem-to-PRI board to modem board. By default, the modem back-to-back connections route from modem board to motherboard to modem board.
<i>test</i>	TDM unit test option. Simulates the failure of allocating a TDM timeslot. Verifies that the software and TDM hardware recovers from the failure.
<i>tsi</i>	TSI Chip MT8980/MT90820 driver. Displays debugging information about the TSI Chip MT8980/MT90820 driver.
<i>vdev</i>	TDM per voice device debug <0-2> slot/port number (i.e., 0/1). Displays debug information whenever a modem board TDM connection is made.

Default

No default behavior or values.

Command Mode

Privileged EXEC

Command History

Release	Modification
12.0(2)XD	This command was first introduced.
12.0(3)T	Document revised and updated for the Cisco IOS 12.0(3)T release.
12.0(3)XH	Document updated for the Cisco IOS 12.0(3)XH release.
12.0(4)XH1	Document updated for the Cisco IOS 12.0(4)XH1 release.

Usage Guidelines

The **debug tdm EXEC** command output is used primarily by a Cisco technical support representative. The **debug tdm** command enables display of debugging messages for specific areas of code which run.

Examples

The following examples show when the debug option is turned on, a modem call is initiated, and the debug option is turned off:

```
5300# debug tdm api
TDM API debugging is on
5300#
23:16:04: TDM(vdev reg: 0x3C500100/PRI reg: 0x3C400100): two way connection requested.
23:16:04: TDM(reg: 0x3C500100): Close connection to ST08, channel 1
23:16:04: TDM(reg: 0x3C500100): Connect STi4, channel 1 to ST08, channel 1
23:16:04: TDM(reg: 0x3C500100): Close connection to ST04, channel 1
23:16:04: TDM(reg: 0x3C500100): Connect STi8, channel 1 to ST04, channel 1
23:16:04: TDM(reg: 0x3C400100): Close connection to ST012, channel 31
23:16:04: TDM(reg: 0x3C400100): Close connection to ST08, channel 31
23:16:04: TDM(reg: 0x3C400100): Connect STi12, channel 31 to ST04, channel 1
23:16:04: TDM(reg: 0x3C400100): Connect STi4, channel 1 to ST012, channel 31
23:18:22: TDM(reg: 0x3C500100): default RX connection requested.
23:18:22: TDM(reg: 0x3C500100): Close connection to ST08, channel 1
23:18:22: TDM(reg: 0x3C500100): default TX connection requested.
23:18:22: TDM(reg: 0x3C500100): Close connection to ST04, channel 1
23:18:22: TDM(reg: 0x3C500100): Close connection to ST08, channel 1
23:18:22: TDM(reg: 0x3C500100): Close connection to ST04, channel 1
23:18:22: TDM(reg: 0x3C400100): default RX connection requested.
23:18:22: TDM(reg: 0x3C400100): Close connection to ST04, channel 1
23:18:22: TDM(reg: 0x3C400100): Connect STi12, channel 31 to ST08, channel 31
23:18:22: TDM(reg: 0x3C400100): default TX connection requested.
23:18:22: TDM(reg: 0x3C400100): Close connection to ST012, channel 31
23:18:22: TDM(reg: 0x3C400100): Connect STi8, channel 31 to ST012, channel 31
5300# no debug tdm api
TDM API debugging is off

5300# debug tdm detail
TDM Detail Debug debugging is on
5300_2#show tdm pool
Dynamic Backplane Timeslot Pool:
  Grp ST Ttl/Free Req(Cur/Ttl/Fail)      Queues (Free/Used)      Pool Ptr
  0 0-3 128 128 0 0 0 0x60CB6B30 0x60CB6B30 0x60CB6B28
  1 4-7 128 128 0 3 0 0x60CB6B40 0x60CB6B40 0x60CB6B2C
5300#
5300# no debug tdm detail
TDM Detail Debug debugging is off
```

```

5300# debug tdm dynamic
TDM Dynamic BP Allocation debugging is on
5300#
23:30:16: tdm_allocate_bp_ts(), slot# 1, chan# 3
23:30:16: TDM(reg: 0x3C500100): Open Modem RX ST8, CH3 to BP ST4 CH3
23:30:16: TDM(reg: 0x3C500100): Open Modem TX ST8, CH3 to BP ST4 CH3
23:30:16: TDM Backplane Timeslot Dump @ 0x60E6D244, tdm_free_bptsCount[1] = 127
    vdev_slot : 0x01    bp_stream : 0x04
    vdev_channel : 0x03    bp_channel : 0x03    freeQueue : 0x60CB6B40
23:30:16: TDM(PRI:0x3C400100):Close PRI framer st12 ch31
23:30:16: TDM(PRI:0x3C400100):Close HDLC controller st8 ch31
23:30:43: tdm_deallocate_bp_ts(), slot# 1, chan# 3
23:30:43: TDM(reg: 0x3C500100):Close Modem RX ST8, CH3 to BP ST4 CH3
23:30:43: TDM(reg: 0x3C500100):Close Modem TX ST8, CH3 to BP ST4 CH3
23:30:43: TDM Backplane Timeslot Dump @ 0x60E6D244, tdm_free_bptsCount[1] = 128
    vdev_slot : 0x01    bp_stream : 0x04
    vdev_channel : 0x03    bp_channel : 0x03    freeQueue : 0x60CB6B40
5300#
5300# no debug tdm dynamic
TDM Dynamic BP Allocation debugging is off

5300# debug tdm pri
TDM connectvia PRI feature board debugging is on
5300# no debug tdm pri
TDM connectvia PRI feature board debugging is off

5300# debug tdm test
TDM Unit Test debugging is on
23:52:01: Bad tdm_allocate_bp_ts() call, simulating error condition for vdev in slot 1
port 5
5300# no debug tdm test
TDM Unit Test debugging is off

5300# debug tdm tsi
TDM TSI debugging is on
5300#
23:56:40: MT90820(reg: 0x3C500100): Close connection to STi8, channel 9
23:56:40: MT90820(reg: 0x3C500100): Connect STi4, channel 10 to STo8, channel 9
23:56:40: MT90820(reg: 0x3C500100): Close connection to STi4, channel 10
23:56:40: MT90820(reg: 0x3C500100): Connect STi8, channel 9 to STo4, channel 10
23:56:40: MT90820(reg: 0x3C400100): Close connection to STi12, channel 31
23:56:40: MT90820(reg: 0x3C400100): Close connection to STi8, channel 31
23:56:40: MT90820(reg: 0x3C400100): Connect STi12, channel 31 to STo4, channel 10
23:56:40: MT90820(reg: 0x3C400100): Connect STi4, channel 10 to STo12, channel 31
23:57:03: MT90820(reg: 0x3C500100): Close connection to STi8, channel 9
23:57:03: MT90820(reg: 0x3C500100): Close connection to STi4, channel 10
23:57:03: MT90820(reg: 0x3C500100): Close connection to STi8, channel 9
23:57:03: MT90820(reg: 0x3C500100): Close connection to STi4, channel 10
23:57:03: MT90820(reg: 0x3C400100): Close connection to STi4, channel 10
23:57:03: MT90820(reg: 0x3C400100): Connect STi12, channel 31 to STo8, channel 31
23:57:03: MT90820(reg: 0x3C400100): Close connection to STi12, channel 31
23:57:03: MT90820(reg: 0x3C400100): Connect STi8, channel 31 to STo12, channel 31
5300#
5300# no debug tdm tsi
TDM TSI debugging is off

5300# debug tdm vdev ?
<0-2> Slot/port number (i.e. 0/1)
5300# debug tdm vdev 1/8
Enabling TDM debug for voice device in slot 0 port 1
5300#

```

```

23:55:00: TDM(vdev reg: 0x3C500100/PRI reg: 0x3C400100): two way connection requested.
23:55:00: tdm_allocate_bp_ts(), slot# 1, chan# 8
23:55:00: TDM(reg: 0x3C500100): Open Modem RX ST8, CH8 to BP ST4 CH9
23:55:00: TDM(reg: 0x3C500100): Open Modem TX ST8, CH8 to BP ST4 CH9
23:55:00: TDM Backplane Timeslot Dump @ 0x60E6D2D4, tdm_free_bptsCount[1] = 127
    vdev_slot : 0x01    bp_stream : 0x04
    vdev_channel : 0x08    bp_channel : 0x09    freeQueue : 0x60CB6B40

23:55:00: TDM(PRI:0x3C400100):Close PRI framer st12 ch31
23:55:00: TDM(PRI:0x3C400100):Close HDLC controller st8 ch31
23:55:31: TDM(reg: 0x3C500100): default RX connection requested.
23:55:31: TDM(reg: 0x3C500100): default TX connection requested.
23:55:31: tdm_deallocate_bp_ts(), slot# 1, chan# 8
23:55:31: TDM(reg: 0x3C500100):Close Modem RX ST8, CH8 to BP ST4 CH9
23:55:31: TDM(reg: 0x3C500100):Close Modem TX ST8, CH8 to BP ST4 CH9
23:55:31: TDM Backplane Timeslot Dump @ 0x60E6D2D4, tdm_free_bptsCount[1] = 128
    vdev_slot : 0x01    bp_stream : 0x04
    vdev_channel : 0x08    bp_channel : 0x09    freeQueue : 0x60CB6B40
5300#
5300# no debug tdm vdev 1/8
Disabling TDM debug for voice device in slot 0 port 1
5300#

```

Related Commands

Command	Description
show tdm backplane	Displays modem and PRI channel assignments with streams and channels on the modem side as assigned to the unit and channels on the PRI side of the TDM assignment.
show tdm connections	Displays information about the connection memory programmed on the Mitel TDM chip.
show tdm data	Displays data memory which is programmed on Mitel TDM chip.
show tdm detail	Displays detail about a specific TDM channel programmed on the Mitel chip.
show tdm information	Displays information about the specified TDM device.
show tdm pool	Displays TDM resources available for the specified TDM device.

Glossary

BERT—Bit error rate testing.

E1—European equivalent of T1; 32 channels of 64 kbps each: 1 for framing and 1 for signaling.

ISDN—Integrated Services Digital Network.

PRI—Primary Rate Interface.

TDM—Time Division Multiplexing.

T1—North American Channelized TDM with 24 channels of 64 kbps each, plus an 8 kbps frame.

user profile—Set of parameters related to the BERT test and defined so that you do not have to repeatedly enter the same test parameters. User profiles are stored as part of the configuration in the non-volatile random-access memory (NVRAM). You can define a maximum of 15 profiles on the system.