

Channelized T3 Support for the Cisco AS5800

Feature Summary

The Channelized T3 (CT3) Interface Processor and Port Adapter are available on Cisco AS5800 access servers. This card provides for the aggregation of channelized interfaces into a single T3 facility. T3 support on the Cisco AS5800 allows support for 28 T1s (672 channels) per chassis.

Benefits

Channelized T3 allows for increased port density and lower cost per port, and supports a standard, widely-available, North American service. Channelized T3 (CT3) support will allow users to get the maximum benefit of double-density modem technology in the Cisco AS5800.

List of Terms

The following terms, in alphabetical order appear in this feature documentation:

DS1—The Digital Signal level for T1-class channels.

DS3—The Digital Signal level for T3-class channels.

T1—A North American standard T-Carrier, multiplexed system for channels.

T3—A North American standard T-Carrier, multiplexed system for channels.

Platforms

This feature is supported on the Cisco AS5800.

Supported MIBs and RFCs

None

Configuration Tasks

Table 1 lists commands to help you configure your CT3 card.

Note The “/” symbol is used in commands to specify a physical location. Thus 1/0/0 on a T3 port tells you where you can plug something into the Cisco AS5800. The “:” symbol is used in commands to specify a time-multiplexed division within a physical port.

Table 1 T3 Configuration Tasks

Step	Command ¹	Purpose
1	AS5800-1> enable Password: <i>password</i> AS5800-1#	Enter the enable command. Enter your password. You are in privileged EXEC mode when the prompt changes to AS5800-1#. (The host name AS5800-1 used in this example was assigned via the hostname command.)
2	AS5800-1# configure terminal Enter configuration commands, one per line. End with CNTL/Z. AS5800-1(config)#	Enter global configuration mode by entering the configure command. The example is using the terminal configuration option. You are in global configuration mode when the prompt changes to AS5800-1(config)#.
3	AS5800-1(config)# controller t3 shelf/slot/0	Enter controller configuration mode to configure your T3 controller in the specified shelf, slot, and port. 0 is the only legal port value.
4	AS5800-1(config-controller)# description ascii-string	Enter an optional text description for the T3 controller.
5	AS5800-1(config-controller)# cablelength 450	Enter the controller cablelength value between 0 and 450 (feet).
6	AS5800-1(config-controller)# framing {c-bit m23}	Enter the type of T3 framing used. C-bit specifies C-bit parity framing. M23 (default) specifies M23 multiplexer framing.
7	AS5800-1(config-controller)# t1 ds1 controller	Create a logical T1 controller from each of the specified T3 line timeslots. DS1 is a T1 timeslot within the T3 line with a value between 1 and 28 . (The T1 controller will be in shelf/slot/0:ds1.
8	AS5800-1(config-controller)# exit	Exit controller configuration mode and return to global configuration mode.
9	AS5800-1(config)# controller t1 shelf/slot/port:t1-num	Enter controller configuration mode to configure your T3 controller port. <i>t1-num</i> is a T1 timeslot within the T3 line with a value between 1 and 28 .
10	AS5800-1(config-controller)# exit	Exit controller configuration mode and return to global configuration mode.
11	AS5800-1(config)# dial-tdm-clock priority {1-50} {external trunk-slot 0-5} ds3-port 0 port {1-28}	Configure clock priority, which is a value between 1 and 50 . Select a clocking source by selecting the <i>external</i> reference clock or any port of a <i>trunk card</i> . If you are using the external reference clock, no other CLI is needed. If you are using a trunk card, select a dial shelf slot between 0 and 5 . Select the T3 port number, which has a value of 0 . Possible T1 port values are 1 to 28 .
12	AS5800-1(config)# CNTL/Z	Exit global configuration mode and return to EXEC mode.
13	AS5800-1# copy running-config startup-config	Save your changes when ready.

1. To deactivate a command functionality, type **no** before the command.

Verify

To verify your software configuration, you can input **show** commands for controller settings. To enter show commands, you must be logged in with privilege EXEC mode.

```
AS5800-1# show controller t3
T3 1/0/0 is up.
  Applique type is Channelized T3
  No alarms detected.
  FEAC code received: No code is being received
  Framing is M23, Line Code is B3ZS, Clock Source is Line.
  Data in current interval (751 seconds elapsed):
    0 Line Code Violations, 0 P-bit Coding Violation
    0 C-bit Coding Violation, 0 P-bit Err Secs
    0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
    0 Unavailable Secs, 0 Line Errored Secs
    0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
  Total Data (last 16 15 minute intervals):
    0 Line Code Violations, 0 P-bit Coding Violation,
    0 C-bit Coding Violation, 0 P-bit Err Secs,
    0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
    0 Unavailable Secs, 0 Line Errored Secs,
    0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
```

Note the following:

- To use the controller, it must report being up.
- No errors should be reported.

Configuration Examples

A typical T3 controller configuration in a running-configuration file appears as follows:

```
T3 controller configuration:
-----
controller T3 1/0/0
 framing m23
 clock source line
 cablelength 224
 t1 1 controller
 t1 2 controller
 t1 3 controller
 t1 4 controller
 t1 5 controller
 t1 6 controller
 t1 7 controller
 t1 8 controller
 t1 9 controller
 t1 10 controller
 t1 11 controller
 t1 12 controller
 t1 13 controller
 t1 14 controller
 t1 15 controller
 t1 16 controller
 t1 17 controller
 t1 18 controller
 t1 19 controller
 t1 20 controller
 t1 21 controller
 t1 22 controller
 t1 23 controller
 t1 24 controller
 t1 25 controller
 t1 26 controller
 t1 27 controller
 t1 28 controller
```

A typical T1 controller configuration appears as follows:

```
T1 controller configuration:
-----
controller T1 1/0/0:1
 framing esf
 pri-group timeslots 1-24
controller T1 1/0/0:2
 channel-group 0 timeslots 1-24
      .
      .
      .
controller T1 1/1/0:28
 cas-group 0 timeslots 1-24
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 11.3 command references.

- **clear interface serial**
- **controller t1**
- **controller t3**
- **show controller t1**
- **show controller t3**
- **show interface serial**
- **t1**

clear interface serial

To reset the statistical information specific to a serial interface, enter the **clear interface serial EXEC** command.

clear interface serial *dial-shelf/slot/t3-port:t1-num:chan-group*

Syntax Description

<i>dial-shelf/</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot/</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port:</i>	T3 port number. The only legal value is 0.
<i>t1-num:</i>	T1 timeslot in the T3 line. The value can be from 1 to 28.
<i>chan-group</i>	Channel group identifier.

Default

None.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 10.0.

The command **clear interface serial** clears the interface hardware. To reset the counters for an interface, use the **clear counters serial** command, and confirm at the prompt using the **show interface serial** command.

Example

The following example clears the interface hardware, disconnecting any active lines:

```
AS5800-1# clear interface serial 1/4/0:2:23
AS5800-1#
```

Related Commands

clear counters serial
show interface serial
show interfaces

controller t1

To configure a T1 controller, enter the **controller t1** global configuration command. Enter the **no** form of this command to delete the defined controller.

```
controller t1 dial-shelf/slot/t3-port:t1-num  
no controller t1 dial-shelf/slot/t3-port:t1-num
```

Syntax Description

<i>dial-shelf/</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot/</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port:</i>	T3 port number. The only legal value is 0.
<i>t1-num</i>	T1 timeslot in the T3 line. The value can be from 1 to 28.

Default

None.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(5)AA.

Example

The following example configures the T1 controller in shelf 1, slot 0, port 0:

```
AS5800-1(config)# controller T1 1/0/0  
AS5800-1(config-controller)#
```

Related Commands

show controller t1

controller t3

To configure a T3 line, enter the **controller t3** global configuration command. Enter the **no** form of this command to delete the defined controller.

```
controller t3 dial-shelf/slot/t3-port  
no controller t3 dial-shelf/slot/t3-port
```

Syntax Description

<i>dial-shelf/</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot/</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port</i>	T3 port number. The only legal value is 0.

Default

None.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1CA.

Example

The following example configures the T3 controller in shelf 1, slot 4, port 0:

```
AS5800-1(config)# controller T3 1/4/0  
AS5800-1(config-controller)#
```

Related Commands

show controller t3

show controller t1

To display the hardware and software driver information for the T1 controller, enter the **show controller t1** EXEC command.

show controller t1 *dial-shelf/slot/t3-port:t1-num*

Syntax Description

<i>dial-shelf/</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot/</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port:</i>	T3 port number. The only legal value is 0.
<i>t1-num</i>	T1 timeslot in the T3 line. The value can be from 1 to 28.

Default

None.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(5)AA.

Example

The following example shows the status of the T1 controllers connected to this Cisco AS5800:

```
AS5800-1# show controller T1
T1 1/0/0:1 is up.
  No alarms detected.
  Framing is ESF, Line Code is AMI, Clock Source is Line.
  Data in current interval (770 seconds elapsed):
    5 Line Code Violations, 8 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 7 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 7 Unavail Secs
  Total Data (last 81 15 minute intervals):
    7 Line Code Violations, 4 Path Code Violations,
    6 Slip Secs, 20 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 2 Unavail Secs
T1 1/0/1:5 is down.
  Transmitter is sending remote alarm.
  Receiver has loss of frame.
  Framing is SF, Line Code is AMI, Clock Source is Line.
  Data in current interval (770 seconds elapsed):
    50 Line Code Violations, 5 Path Code Violations
    0 Slip Secs, 7 Fr Loss Secs, 7 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 7 Unavail Secs
  Total Data (last 81 15 minute intervals):
    27 Line Code Violations, 22 Path Code Violations,
    0 Slip Secs, 13 Fr Loss Secs, 13 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 13 Unavail Secs
AS5800-1#
```

Related Commands

controller t1

show controller t3

To display the hardware and software driver information for a T3 controller, enter the **show controller t3** EXEC command.

```
show controller t3 dial-shelf/slot/t3-port
```

Syntax Description

<i>dial-shelf</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port</i>	T3 port number. The only legal value is 0.

Default

None.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1CA.

Example

The following example shows the summary status of the T3 controller located in shelf 1, slot 4, port 0:

```
AS5800-1# show controller t3
T3 1/4/0 is up.
  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

FEAC code received: Multiple DS1 LOS/HBER
Framing is C-BIT Parity, Line Code is B3ZS, Clock Source is Line.
Data in current interval (491 seconds elapsed):
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Total Data (last 80 15 minute intervals):
  3 Line Code Violations, 4 P-bit Coding Violation,
  2 C-bit Coding Violation, 0 P-bit Err Secs,
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
  2 Unavailable Secs, 0 Line Errored Secs,
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
AS5800-1#
```

The following example shows the detail status of the T3 controller connected to this Cisco AS5800 in shelf 1, slot 4, port 0. Notice that the detail information shows the last 86 fifteen minute time periods.

```

AS5800-1# show controller t3 1/4/0
T3 1/4/0 is up.
  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

FEAC code received: Multiple DS1 LOS/HBER
Framing is C-BIT Parity, Line Code is B3ZS, Clock Source is Line.
Data in current interval (91 seconds elapsed):
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Data in Interval 1:
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Data in Interval 2:
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Data in Interval 3:
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Data in Interval 4:
  0 Line Code Violations, 0 P-bit Coding Violation
  0 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  0 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
.
.
.
Data in Interval 86:
  3 Line Code Violations, 4 P-bit Coding Violation
  2 C-bit Coding Violation, 0 P-bit Err Secs
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
  2 Unavailable Secs, 0 Line Errored Secs
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
Total Data (last 86 15 minute intervals):
  3 Line Code Violations, 4 P-bit Coding Violation,
  2 C-bit Coding Violation, 0 P-bit Err Secs,
  0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
  2 Unavailable Secs, 0 Line Errored Secs,
  0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
AS5800-1#

```

Related Commands
controller t3

show interface serial

To display the statistical information specific to a serial interface, enter the **clear interface serial EXEC** command.

show interface serial *dial-shelf/slot/t3-port:t1-num:chan-group*

Syntax Description

<i>dial-shelf/</i>	Dial shelf chassis in the Cisco AS5800 system containing the CT3 interface card.
<i>slot/</i>	Location of the CT3 interface card in the dial shelf chassis.
<i>t3-port:</i>	T3 port number. The only legal value is 0.
<i>t1-num:</i>	T1 timeslot in the T3 line. The value can be from 1 to 28.
<i>chan-group</i>	Channel group identifier.

Default

None.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 10.0.

Example

The following example shows the activity that has occurred on the serial interface in shelf 1, slot 4, port 0 for timeslot 2 in group 23:

```
AS5800-1# show interface serial 1/4/0:2:23
Serial1/4/0:2:23 is up, line protocol is up (spoofing)
  Hardware is DS-T1
  MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation HDLC, loopback not set
  Last input 00:00:01, output 00:00:01, output hang never
  Last clearing of "show interface" counters 22:24:30
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    5274 packets input, 20122 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    5274 packets output, 30836 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 output buffer failures, 0 output buffers swapped out
    2 carrier transitions no alarm present
  Timeslot(s) Used:24, subrate: 64Kb/s, transmit delay is 0 flags
AS5800-1#
```

Related Commands

clear interface serial

t1

To create a logical T1 controller from each of the specified timeslots of the T3 line, enter the **t1** controller configuration command. Enter the **no** form of this command to delete the defined logical controller.

```
t1 ds1 controller  
no t1 ds1 controller
```

Syntax Description

ds1 A timeslot within the T3 line. The valid timeslot range is from 1 to 28.

Default

None.

Command Mode

Controller configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(5)AA.

The purpose of this command is to convert the collection of the 28 T1 controllers that comprise the T3 controller into individual T1 controllers that the system can use. In other words, the Cisco AS5800 cannot pass data until a T1 controller is configured (using the **controller t1** command), and you can't configure a T1 controller until it has been created using the **t1** command.

Example

The following example configures a logical T1 controller at T1 timeslot 1 for the T3 controller located in shelf 1, slot 4, port 0. Note that you have to issue the command from the controller configuration mode.

```
AS5800-1(config)# controller t3 1/4/0  
AS5800-1(config-controller)# t1 1 controller  
AS5800-1(config-controller)# end  
AS5800-1#
```

Related Commands

```
controller t1  
controller t3
```

What to Do Next

For more information on the CT3, refer to the *Channelized T3 Interface Processor (CT3IP) Installation and Configuration* publication and the *Channelized T3 Dual-Wide Port Adapter Installation and Configuration* publication.

