ASIC Driver Commands

This module describes the commands used to configure and monitor the application-specific integrated circuit (ASIC) driver on a router running Cisco IOS XR software.

clear controller pse statistics

To clear statistics maintained by the packet switching engine (PSE) on a specific node, use the **clear controller pse statistics** command in XR EXEC mode.

clear controller pse statistics summary instance *instance-number* **location** *node-id*

Syntax Description

location *node-id*	Identifies the location of the node whose PSE device statistics you want to clear. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Use the **show platform** command to see the location of all nodes installed in the router.
instance *instance-number*	Replace the *instance-number* argument with a device instance number. The range is from 0 to 16.

Command Default

No default behavior or values.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read, write
drivers	read

Examples

The following example shows how to clear all PSE statistics on a specific node (0/5/CPU0):

```
RP/0/RP0/CPU0:router# clear controller pse statistics summary instance 0 location 0/5/CPU0
```

Related Commands

Command	Description
show controllers pse eio links	Displays packet switching engine information for Elastic I/O links.
show controllers pse ipc	Displays packet switching engine device information for interprocess communication connections, or for a specific IPC controller.
show controllers pse mp	displays packet switching engine information for the maintenance processor on a specific controller or node.
show controllers pse statistics, on page 51	Displays packet switching engine statistics for a specific controller instance.
show controllers pse summary, on page 53	Displays a summary of packet switching engine information for a specific controller or node.

show controllers cpuctrl cdma channel

To display information about the CPU controller Control Direct-Memory-Access (CDMA) engine, use the **show controllers cpuctrl cdma channel** command in XR EXEC mode.

show controllers cpuctrl cdma channel {**0**| **3**} **queue** {*queue-id*| **all**} {**active**| **detail**} [**location** *node-id*]

Syntax Description

{**0** | **3**}	Displays CPU controller CDMA engine information for the specified channel. Enter **0** to display CDMA engine information for channel 0, or enter **1** to display CDMA engine information for channel 1.
queue {*queue-id* | **all**}	Displays CDMA information for a specific Direct-Memory-Access (DMA) queue, or for all DMA queues on the specified channel. • Enter the **queue all keywords** to display CDMA information for all DMA queues on the specified channel. • Enter the **queue**keyword and *queue-id argument* to display CDMA information for a specific queue. Replace the *queue-id* argument with a queue number. Range is from 1 through 7.
active	Displays descriptions for active DMA queues only.
detail	Displays descriptions for any DMA queues, regardless of whether they are active.
location *node-id*	(Optional) Identifies the location of the node whose CPU controller CDMA information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows partial output from the **show controllers cpuctrl cdma channel** command with the **active** keyword.

```
RP/0/RP0/CPU0:router# show controllers cpuctrl cdma channel all active

Mon Nov  9 23:13:08.235 PST
-------------------------------------------------------
DMA queue:
Channel: 0     queue: 0        state: Inactive

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 1        state: Active

       OS Interrupt Level =        108   Cpuctrl Int Level =         12
          OS Run Priority =         45       client handle =          1
              ISR context = 0x9c35c49c  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000002          Pollflags = 0x00000000
   Total DMA transactions =          3  Queue create count =          1
         DMA transactions =          3   Bytes transferred =      67584

     DMA Out of Desc errs =          0             DMA IWA =          0
     DMA transaction errs =          0

Descriptor list base addr = 0xe4037300    Physical address = 0x76037300
                list_size =         32  Active descriptors =          0
            current_index =          3    tx_enqueue_index =          3

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 2        state: Inactive

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 3        state: Active

       OS Interrupt Level =        107   Cpuctrl Int Level =         11
          OS Run Priority =         30       client handle =          0
              ISR context = 0x9c35cd84  Pakman/Bufman Inst = bufman/mipc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000005          Pollflags = 0x00000000
   Total DMA transactions =     115622  Queue create count =          1
         DMA transactions =     115622   Bytes transferred =   10213420

     DMA Out of Desc errs =          0             DMA IWA =          0
     DMA transaction errs =          0

Descriptor list base addr = 0xe4051100    Physical address = 0x76051100
                list_size =        256  Active descriptors =          0
            current_index =        166    tx_enqueue_index =        166

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 4        state: Active

       OS Interrupt Level =        113   Cpuctrl Int Level =         17
```

```
          OS Run Priority =          45       client handle =           5
              ISR context = 0x9c35c748  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000002           Pollflags = 0x00000000
   Total DMA transactions =        321  Queue create count =           1
         DMA transactions =        321   Bytes transferred =       42594

     DMA Out of Desc errs =          0             DMA IWA =           0
     DMA transaction errs =          0

Descriptor list base addr = 0xe40d2068    Physical address = 0x760d2068
                list_size =       1023  Active descriptors =           0
            current_index =        321    tx_enqueue_index =         321

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 5        state: Active

       OS Interrupt Level =        111   Cpuctrl Int Level =          15
          OS Run Priority =         45       client handle =           3
              ISR context = 0x9c35cad8  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000002           Pollflags = 0x00000000
   Total DMA transactions =        376  Queue create count =           1
         DMA transactions =        376   Bytes transferred =        7674

     DMA Out of Desc errs =          0             DMA IWA =           0
     DMA transaction errs =          0

Descriptor list base addr = 0xe4047110    Physical address = 0x76047110
                list_size =        128  Active descriptors =           0
            current_index =        120    tx_enqueue_index =         120

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 6        state: Active

       OS Interrupt Level =        112   Cpuctrl Int Level =          16
          OS Run Priority =         45       client handle =           6
              ISR context = 0x9c35c9f4  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000002           Pollflags = 0x00000000
   Total DMA transactions =        306  Queue create count =           1
         DMA transactions =        306   Bytes transferred =      394340

     DMA Out of Desc errs =          0             DMA IWA =           0
     DMA transaction errs =          0

Descriptor list base addr = 0xe40d7068    Physical address = 0x760d7068
                list_size =       1023  Active descriptors =           0
            current_index =        306    tx_enqueue_index =         306

-------------------------------------------------------
DMA queue:
Channel: 0     queue: 7        state: Active

       OS Interrupt Level =        110   Cpuctrl Int Level =          14
          OS Run Priority =         45       client handle =           4
              ISR context = 0x9c35c580  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4cad1130    cleanup function = 0x4cad058c
                  Pakmode = 0x00000002           Pollflags = 0x00000000
   Total DMA transactions =     140344  Queue create count =           1
         DMA transactions =     140344   Bytes transferred = 2344779856

     DMA Out of Desc errs =          0             DMA IWA =           0
     DMA transaction errs =          0

Descriptor list base addr = 0xe40cd068    Physical address = 0x760cd068
                list_size =       1023  Active descriptors =           0
            current_index =        193    tx_enqueue_index =         193

-------------------------------------------------------
DMA queue:
```

```
Channel: 1     queue: 0        state: Inactive

-------------------------------------------------------
DMA queue:
Channel: 1     queue: 1        state: Active

       OS Interrupt Level =        108   Cpuctrl Int Level =         12
          OS Run Priority =         45       client handle =          1
              ISR context = 0x9c35c49c  Pakman/Bufman Inst = bufman/misc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000002           Pollflags = 0x00000000
   Total DMA transactions =          3  Queue create count =          1
         DMA transactions =          3   Bytes transferred =      67584

     DMA Out of Desc errs =          0             DMA IWA =          0
     DMA transaction errs =          0

Descriptor list base addr = 0xe40370f0    Physical address = 0x760370f0
               list_size =         32  Active descriptors =          0
           current_index =          3    tx_enqueue_index =          3

-------------------------------------------------------
DMA queue:
Channel: 1     queue: 2        state: Inactive

-------------------------------------------------------
DMA queue:
Channel: 1     queue: 3        state: Active

       OS Interrupt Level =        106   Cpuctrl Int Level =         10
          OS Run Priority =         30       client handle =          0
              ISR context = 0x9c35ce68  Pakman/Bufman Inst = bufman/mipc
 client callback function = 0x4c60df28    cleanup function = 0x4c60ded8
                  Pakmode = 0x00000005           Pollflags = 0x00000000
   Total DMA transactions =     114238  Queue create count =          1
         DMA transactions =     114238   Bytes transferred =    8686924

     DMA Out of Desc errs =          0             DMA IWA =          0
     DMA transaction errs =          0

Descriptor list base addr = 0xe4052110    Physical address = 0x76052110
               list_size =        256  Active descriptors =          0
           current_index =         62    tx_enqueue_index =         62
--More--
```

This table describes the significant fields shown in the display.

Table 1: show controllers cpuctrl cdma channel Field Descriptions

Field	Description
DMA queue	Identifies the DMA[1] queue.
Channel	Identifies the channel whose DMA queue is displayed. 0 is the ingress channel, and 1 is the egress channel
queue	Identifies the queue.
state	Current state of the queue.
OS Interrupt Level	Current interrupt level for the queue.
Cpuctrl Interrupt Level	Current interrupt level for the CPU controller.

Field	Description
OS Run Priority	Run priority level for this queue.
client handle	Internal identifier for the Cisco client.
ISR context	Internal information about the location of the ISR2 pointer.
Pakman/Bufman Instance	Internal information about the location of the Pakman and Bufman Instance.
client callback function pointer	Internal information about the client callback function pointer.
cleanup function	Internal information about the client cleanup function pointer.
Queue Created 1 times	Number of times this queue was regenerated.
Pakmode	Information about internal data structures and parameters.
Pollflags	Specifies whether the CDMA queue uses a polling or interrupt-driven approach for detecting CDMA operation completion notification. **Note** Currently, CDMA queues use interrupt driven completion only. PDMA queues use interrupt-driven and polling completion.
Total DMA transactions	Number of DMA transactions in the queue.
Queue create count	Number of times this queue was regenerated.
DMA transactions	Number of DMA transactions in the queue.
Bytes transferred	Number of bytes that have been transferred by the Control Direct-Memory-Access engine.
DMA Out of Desc errs	Number of DMA errors in the queue.
CDMA transactions	Number of CDMA transactions in the queue.
DMA IWA	Number of IWA bytes that have been processed by the Direct-Memory-Access engine.
DMA transaction errs	Number of DMA transactions that had errors.
Descriptor list base addr	Internal information about the location of the descriptor list.

Field	Description
Physical address	Physical address of the CPU memory that holds the descriptors in the ring used by the CDMA queue hardware.
list_size	Total number of descriptors in the ring used by the CDMA queue hardware.
Active descriptors	Number of descriptors that have transactions that are not cleaned after being notified of their completion. Note that the hardware may not yet have completed these transactions.
current_index	Points to the next descriptor that the hardware is expected to complete.
tx_enqueue_index	Points to the descriptor that will be added to the next operation request.
Index	Location of the descriptor in the ring.
Shadow	Internal field that manages requests that have been split into multiple descriptors.
Hdr	Internal field that manages requests that have been split into multiple descriptors.
Flags	Internal field that manages requests that have been split into multiple descriptors.
Descriptor	Descriptor heading.
Width	Width of the data on the ASIC side in bits. The DMA stride is rounded up to the next power of two bytes that contains this number of bits.
Bufsize	Size of the buffer used for the transfer.
Xfersize	Number of bytes on the CPU memory that are occupied by the transfer.
Memaddr	36 bit physical address of the CPU memory in the transfer.
Squidaddr	40 bit address of the ASIC register or memory in the transfer.

[1] Direct Memory Access

Related Commands

Command	Description
show controllers cpuctrl clients, on page 11	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.

show controllers cpuctrl clients

To display information about all CPU controller clients on the router, or for specific CPU controller clients, use the **show controllers cpuctrl clients** command in XR EXEC mode.

show controllers cpuctrl clients {**all**| **cdma** *clients* {**active**| **detail**}| **pdma** *clients* {**active**| **detail**}| **device** *drivers*| **udma** *clients*} [**location** *node-id*]

Syntax Description

all	Displays a summary information for all clients on the router.
cdma *clients*	Displays information about Control Direct-Memory-Access (CDMA) clients only. Replace the *clients* argument with one of the following keywords: • **egressq—**Displays information for the egressq client. • **fabricq—**Displays information for the Fabricq ASIC client. • **fia—**Displays information for the Fabric Interface ASIC (FIA) client. • **ingressq—**Displays information for the ingressq ASIC client. • **jacketcard—**Displays information for the jacketcard client. • **mipc—**Displays information for the Metro Inter-Process-Communication (MIPC) client. • **npu—**Displays information for the NPU ASIC client. • **pla768—**Displays information for the ASIC client for OC-768. • **plaspa—**Displays information for the ASIC client for the SPA. • **plim—**Displays information for the PLIM client. • **plimasic—**Displays information for the PLIM ASIC client. • **pse—**Displays information for the PSE client.
device *drivers*	Displays device driver information. Replace *drivers* with one of these options: • **ccsq—**Displays information for the CCSQ ASIC driver. • **egressq—**Displays information for the Egressq ASIC driver. • **fabricq—**Displays information for the Fabricq ASIC driver. • **fia—**Displays information for the Fia ASIC driver. • **ingressq—**Displays information for the Ingressq ASIC driver. • **npu—**Displays information for the NPU ASIC driver. • **pla—**Displays information for the PLIM ASIC driver. • **pse—**Displays information for the Packet Switching Engine (PSE) ASIC driver.

pdma *clients*	Displays information for Packet Direct-Memory-Access (PDMA) clients only. Replace *clients* with one of the following keywords: • **bfd—**Displays information for the client bidirectional forwarding detection (BFD) PDMA packet. • **diag—**Displays information for the PDMA client called DIAG packet. • **fabio—**Displays information for the FABIO PDMA packet client. • **fia—**Displays information for the fabric interface ASIC packet PDMA client. • **frr—**Displays information for the fast reroute (FRR) packet PDMA client. • **gsp—**Displays information for the Group Services Packet (GSP) PDMA client. • **mipc—**Displays information for the MIPC packet PDMA client. • **mstats—**Displays information for the MSTATS packet PDMA client. • **netflow—**Displays information for the NetFlow packet PDMA client. • **spp—**Displays information for the SPP packet PDMA client.
udma *clients*	Displays information for Upload Direct Memory Access (UDMA) clients only. Replace *clients* with one of the following keywords: • **egressq—**Displays information for the Egressq ASIC client. • **fabricq—**Displays information for the Fabricq ASIC client. • **fia—**Displays information for the Fia ASIC client. • **ingressq—**Displays information for the Ingressq ASIC client. • **npu—**Displays information for the NPU ASIC client. • **pla—**Displays information for the PLIM ASIC client. • **psc—**Displays information for the Packet Switching Engine (PSE) ASIC client. • **statsrm—**Displays information for the stat resource manager client.
active	Displays descriptions for active queues only.
detail	Displays descriptions for any queues, regardless of whether or not they are active.
location *node-id*	(Optional) Identifies the location of the node whose CPU controller information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default No default behavior or values

Command Modes XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows how to display information about all the CPU controller clients:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl clients all

-----------------------------------------
Client Type: PDMA       Client Name: FabIO
 Client PID: 2143     Client Handle: 4
Queue Count: 8       PDMA ISR Count: 0


-----------------------------------------
Client Type: PDMA       Client Name: BFD
 Client PID: 2747     Client Handle: 7
Queue Count: 2       PDMA ISR Count: 2


-------------------------------------------------
   Client Type: UDMA           Client Name: NPU
    Client PID: 2203         Client Handle: 25
UDMA ISR Count: 1       UDMA Context Count: 1


-------------------------------------------------
   Client Type: UDMA           Client Name: STATSRM
    Client PID: 2712         Client Handle: 31
UDMA ISR Count: 1       UDMA Context Count: 1
-----------------------------------------
Client Type: PDMA       Client Name: FabIO
 Client PID: 2143     Client Handle: 4
Queue Count: 8       PDMA ISR Count: 0


-----------------------------------------
Client Type: PDMA       Client Name: BFD
 Client PID: 2747     Client Handle: 7
Queue Count: 2       PDMA ISR Count: 2


-------------------------------------------------
   Client Type: UDMA           Client Name: NPU
    Client PID: 2203         Client Handle: 25
UDMA ISR Count: 1       UDMA Context Count: 1
```

```
-------------------------------------------------
   Client Type: UDMA           Client Name: STATSRM
    Client PID: 2712         Client Handle: 31
UDMA ISR Count: 1       UDMA Context Count: 1


-----------------------------------------------
   Client Type: DEVICE         Client Name: NPU
    Client PID: 2203         Client Handle: 25
  Device Count: 2          Device ISR Count: 1
UDMA ISR Count: 0
```

This table describes the significant fields shown in the display.

Table 2: show controllers cpuctrl clients Field Descriptions

Field	Description
client_name	Name of the client.
client_handle	Internal client identifier.
isr_count	ISR[2] counters.
queue_count	Queue counters.
client_pid	Client PID[3].

2 Interrupt Service Routine
3 Process Identifier

Related Commands

Command	Description
show controllers cpuctrl cdma channel, on page 4	Displays information about the CPU controller CDMA engine.
show controllers cpuctrl summary, on page 28	Displays summarized information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node.

show controllers cpuctrl devices

To display information about the CPU controller devices on the router, use the **show controllers cpuctrl devices** command in XR EXEC mode.

show controllers cpuctrl devices *device-name* {**pdma queue** {*queue-number* **direction** {**all**| **tx**| **rx**}| **all**} {**active**| **detail**}| **pio**} [**location** *node-id*]

Syntax Description

device-name	Displays information about a specific CPU controller device. Replace the *device-name argument* with one of the following device names: • **fia instance 0—**Displays information about the Fabric Interface ASIC (FIA) instance 0. • **fia instance 1—**Displays information about the FIA instance 1. • **npu instance 0—**Displays information about the NPU ASIC instance 0. • **npu instance 1—**Displays information about the NPU ASIC instance 1. • **npu instance 2—**Displays information about the NPU ASIC instance 2. • **npu instance 3—**Displays information about the NPU ASIC instance 3. • **npu instance 4—**Displays information about the NPU ASIC instance 4.
pdma queue*queue-number*	Displays Packet Direct-Memory-Access (PDMA) information for the specified queue. Replace the *queue-number* argument with a queue number. The range is from 0 to 15.
pdma queueall	Displays PDMA information for all queues.
direction all	Displays transmit and receive PDMA information for all queues.
direction tx	Displays transmit PDMA information.
direction rx	Displays receive PDMA information.
active	Displays descriptions for active queues only.
detail	Displays detailed descriptions for any queues, regardless of whether they are active.
pio	Displays transmit and receive Polled I/O (PIO) information for the specified queue.
location *node-id*	(Optional) Identifies the location of the node whose CPU controller information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default No default behavior or values

Command Modes XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples The following example shows how to display transmit and receive PDMA information for all active queues on the egressq ASIC instance 0:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl devices egressq pdma queue all active location
 0/6/CPU0

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 7 (Egressq   )     queue: 0        state: Active

       OS Interrupt Level =        127   Cpuctrl Int Level =         31
          OS Run Priority =         10       client handle =          6
              ISR context = 0x7810c1c8  Pakman/Bufman Inst = pakman/server
 client callback function = 0x48200298    cleanup function = 0x482002bc
                  Pakmode = 0x00000001           Pollflags = 0x00000000
Total Packets transmitted =     660089  Queue create count =          1
      Packets transmitted =     660089   Bytes transmitted =   17166002

Tx Out of Descriptor errs =          0              Tx IWA =          0
         Tx oversize errs =          0  Tx EgressQ q0 errs =          0

Descriptor list base addr = 0xec348068    Physical address = 0x30348068
                list_size =       1024  Active descriptors =          0
            current_index =        633    tx_enqueue_index =        633

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 0 (Egressq   )     queue: 1        state: Inactive

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 0 (Egressq   )     queue: 2        state: Inactive
```

```
-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 0 (Egressq   )     queue: 3        state: Inactive

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 0 (Egressq   )     queue: 4        state: Inactive

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 0 (Egressq   )     queue: 5        state: Inactive

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 7 (Egressq   )     queue: 6        state: Active

       OS Interrupt Level =        118   Cpuctrl Int Level =         22
          OS Run Priority =         10       client handle =          2
              ISR context = 0x7810cf24  Pakman/Bufman Inst = bufman/ipc
 client callback function = 0xfc71d604    cleanup function = 0xfc71d6b8
                  Pakmode = 0x00000005           Pollflags = 0x00000000
Total Packets transmitted =          0  Queue create count =          1
      Packets transmitted =          0   Bytes transmitted =          0

Tx Out of Descriptor errs =          0              Tx IWA =          0
         Tx oversize errs =          0  Tx EgressQ q0 errs =          0

Descriptor list base addr = 0xec07a110    Physical address = 0x3007a110
                list_size =        256  Active descriptors =          0
            current_index =          0    tx_enqueue_index =          0

-------------------------------------------------------
TX PKT queue:
cpuctrl net Port: 7 (Egressq   )     queue: 7        state: Active

       OS Interrupt Level =        119   Cpuctrl Int Level =         23
          OS Run Priority =         40       client handle =          9
              ISR context = 0x7810d008  Pakman/Bufman Inst = pakman/sever
 client callback function = 0xfc71d604    cleanup function = 0xfc71d6b8
                  Pakmode = 0x00000001           Pollflags = 0x00000000
Total Packets transmitted =          0  Queue create count =          1
      Packets transmitted =          0   Bytes transmitted =          0

Tx Out of Descriptor errs =          0              Tx IWA =          0
         Tx oversize errs =          0  Tx EgressQ q0 errs =          0

Descriptor list base addr = 0xed63a068    Physical address = 0x3163a068
                list_size =       1024  Active descriptors =          0
            current_index =          0    tx_enqueue_index =          0

-------------------------------------------------------
RX PKT queue:
cpuctrl net Port: 7 (Egressq   )     queue: 0        state: Active

       OS Interrupt Level =        121   Cpuctrl Int Level =         25
          OS Run Priority =         10       client handle =          8
              ISR context = 0x7810d0ec  Pakman/Bufman Inst = bufman/misc
 client callback function = 0xfc71d550    cleanup function = 0xfc71d6b8
                  Pakmode = 0x00000001           Pollflags = 0x00000000
 Requested Rx Buffer Size =       1024  Packet switchcount =         20
    Actual Rx Buffer Size =       1648               Pool =          4
                      MTU =      12188     MTU Descriptors =          8
   Total Packets received =      71080  Queue create count =          1
         Packets received =      71080      Bytes received =  858219920

        Rx No Buffer errs =          0  NoBufferLimit errs =          0
 Rx No Packet Header errs =          0    Packet Form errs =          0
           Rx Packet errs =          0
       Rx Intr Stall errs =          0   Rx Intr Drop errs =          0

Descriptor list base addr = 0xec05c940    Physical address = 0x3005c940
                list_size =        128  Active descriptors =          0
```

```
            current_index =          64     tx_enqueue_index =          64
--More--
```

This table describes the significant fields shown in the display.

Table 3: show controllers cpuctrl devices Field Descriptions

Field	Description
PKT queue	Displays whether the packet queue is TX[4] or RX[5].
cpuctrl net Port	Identifies the CPU controller port.
queue	Identifies the queue whose CPU controller device information is displayed.
client handle	Internal Cisco client identifier.
queue state	Current state of the queue. The queue can be *Active* or *Inactive*.

4 transmit
5 receive

Related Commands

Command	Description
show controllers cpuctrl summary, on page 28	Displays summarized information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node.

show controllers cpuctrl error

To display the squid error information about the CPU controller, use the **show controllers cpuctrl error** command in XR EXEC mode.

show controllers cpuctrl error [detail] [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Identifies the location of the node whose internal CPU controller information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.
detail	(Optional) Displays detailed squid error information about the CPU controller.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows how to display squid error information about the CPU controller:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl error detail

Errors for node : 0/4/CPU1

    INTERNAL ERRORS:
    ================
                Error Interrupts =       2000
```

```
==============================================================================
RP/0/RP0/CPU0:router#show controllers cpuctrl error detail
Tue Jul 21 04:15:02.632 DST

Errors for node : 0/4/CPU1

    INTERNAL ERRORS:
    ================
                 Error Interrupts =       2000
        Spurious Error Interrupts =          0
                SN overflow count =          0
                PM overflow count =          0
               PCIX overflow count =         0
                ISN overflow count =         0
               Port overflow count =         0
                Log overflow count =         0

==============================================================================
```

show controllers cpuctrl internal

To display internal information about the CPU controller, use the **show controllers cpuctrl internal** command in XR EXEC mode.

show controllers cpuctrl internal [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Identifies the location of the node whose internal CPU controller information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows how to display internal information about the CPU controller:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl internal

Cpuctrl Internal Info for node 0/0/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0x8357ffff  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00223ee8
```

```
        cpuctrl version info: Squid FPGA v2.07 Fri Jan 23 16:21:01 2004 ykoren


Cpuctrl Internal Info for node 0/3/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0x8357ffff  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00223ee8
        cpuctrl version info: Squid FPGA v2.07 Fri Jan 23 16:21:01 2004 ykoren


Cpuctrl Internal Info for node 0/RP0/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0x803f007f  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00223ee8
        cpuctrl version info: Squid FPGA v2.07 Fri Feb 6 17:49:22 2004 ykoren

Cpuctrl Internal Info for node 0/RP1/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0x003f007f  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00223ee8
        cpuctrl version info: Squid FPGA v2.05 Wed Sep 3 17:37:47 2003 ykoren
```

This table describes the significant fields shown in the display.

Table 4: show controllers cpuctrl internal Field Descriptions

Field	Description
Error Interrupts	Total of error interrupts that have occurred on this node.
Spurious Error Interrupts	Current number interrupts that have occurred on this node due to spurious errors.
PCI Error Overflows	Number of times the PCI1 error buffer overflowed on the node.
PCI PM Error Overflows	Number of times PCI PM2 error buffer overflowed on this node.
PCIX Error Overflows	Number of times the PCI-X error buffer overflowed on this node.
Internal Access PCI Overflows	Number of times the Internal Access PCI buffer overflowed on this node.
Port Error Overflows	Number of times the port error buffer overflowed on this node.

Field	Description
Error Log Overflows	Number of times the error log buffer overflowed on this node.
cpuctrl Config Reg	CPU controller configuration register, expressed in hexadecimal format.
cpuctrl Physical Offset	CPU controller physical offset, expressed in hexadecimal format.
cpuctrl Window Size	CPU controller window size, expressed in hexadecimal format.
cpuctrl Port Window Size	CPU controller port window size, expressed in hexadecimal format.
cpuctrl SHMem Size	CPU controller shared memory size, expressed in hexadecimal format.
cpuctrl SHMem Used	CPU controller shared memory that has been used already, expressed in hexadecimal format.
cpuctrl version info	Provides version information for the CPU controller. The information displayed is: • Squid version • Date of the last version installation or upgrade

[6] [7]

Related Commands

Command	Description
show controllers cpuctrl summary, on page 28	Displays summarized information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node.

[6] 1. Peripheral Component Interconnect

[7] 2. port manager

show controllers cpuctrl ports

To display port information for the specified CPU controller ASIC, use the **show controllers cpuctrl ports** command in XR EXEC mode.

show controllers cpuctrl ports *asic_id* {**pdma queue** {*queue-id*| **all**} **direction** {**all**| **rx**| **tx**} {**active**| **detail**}| **pio**} [**location** *node-id*]

Syntax Description

asic_id	Identifies the CPU controller ASIC whose port information you want to display. Replace the *asic_id* argument with one of the following keywords: • **fia instance 0—**Displays port information for instance 0 of the fabric Interface ASIC (FIA). • **fia instance 1—**Displays port information for instance 1 of the FIA. • **npu instance 0—**Displays port information for instance 0 of the NPU. • **npu instance 1—**Displays port information for instance 1 of the NPU. • **npu instance 2—**Displays port information for instance 2 of the NPU. • **npu instance 3—**Displays port information for instance 3 of the NPU. • **npu instance 4—**Displays port information for instance 4 of the NPU.
pdma queue *queue-id*	Displays transmit and receive Packet Direct-Memory-Access (PDMA) information for the specified queue.
pdma queue all	Displays transmit and receive PDMA information for all queues. The information displayed pertains to the ASIC indicated in the **show controllers cpuctrl ports** command.
direction all	Displays transmit and receive Packet Direct-Memory-Access (PDMA) information for the specified queue. The information displayed pertains to the ASIC you specified for the *asic_id* argument.
direction rx	Displays receive PDMA information only for the specified queue. The information displayed pertains to the ASIC you specified for the *asic_id* argument.
direction tx	Displays transmit PDMA information only for the specified queue. The information displayed pertains to the ASIC you specified for the *asic_id* argument.
active	Displays descriptions for active queues only.
detail	Displays descriptions for any queues, regardless of whether they are active.
pio	Displays transmit and receive Polled I/O (PIO) information for the specified queue.

location *node-id*	(Optional) Identifies the location of the node whose CPU controller port information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows how to display port information for the transmit and receive PIO queues on the EPSE ASIC:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl ports epse pio

client name: PSE                device instance: 1
cpuctrl net port: 6             pci base: 0x98000000
map reg: 0x6076a12c             OS interrupt level: 102
Cpuctrl interrupt level: 6      OS Run priority: 6
config reg: 0x00000000          channels reg: 0x00000000
int_cause_asic_mask: 0x00000010 int_cause_error_mask: 0x00000020
int_cause_link_error_mask: 0x00000040
crc_errors: 0   sync_errors: 0  reframe_events: 0


client name: PSE                device instance: 1
cpuctrl net port: 6             pci base: 0x98000000
map reg: 0x6076a12c             OS interrupt level: 102
Cpuctrl interrupt level: 6      OS Run prority: 6
config reg: 0x00000000          channels reg: 0x00000000
int_cause_asic_mask: 0x00000010 int_cause_error_mask: 0x00000020
int_cause_link_error_mask: 0x00000040
crc_errors: 0   sync_errors: 0  reframe_events: 0
```

```
device PSE instance 1 is not detected on node 201/
```

This table describes the significant fields shown in the display.

Table 5: show controllers cpuctrl ports Field Descriptions

Field	Description
client name	Identifies the client whose port CPU controller information is displayed.
device instance	The client device instance for which the port CPU controller information is displayed.
cpuctrl net port	Identifies the CPU controller net port.
pci base	PCI[8] base.
map reg	Client map register.
OS interrupt level	Level of interrupt configured for the port. Interrupts are triggered by arrival of a packet that causes the CPU to postpone other tasks and handle the packet.
Cpuctrl interrupt level	Level of CPU controller interrupt configured for the port.
OS Run priority	Software priority.
config reg	Configuration register, expressed in hexadecimal format.
channels reg	Channel register, expressed in hexadecimal format.
int_cause_asic_mask	Internal ASIC masking information.
int_cause_error_mask	Internal error masking information.
int_cause_link_error_mask	Internal link error masking information.
crc_errors	Number of CRC[9] errors that have occurred on this port.
sync_errors	Number of synchronization errors that have occurred on this port.
reframe_events	Number of reframe events that have occurred on this port.

8 Peripheral Component Interconnect
9 cyclic redundancy check

Related Commands

Command	Description
show controllers cpuctrl summary, on page 28	Displays summarized information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node.

show controllers cpuctrl summary

To display summarized information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node, use the **show controllers cpuctrl summary** command in XR EXEC mode.

show controllers cpuctrl summary [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Identifies the location of the node whose CPU controller ASIC information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read
interface	read

Examples

The following example shows how to display summarized information about all the ASICs accessed through the CPU controller ASICs on a specific node:

```
RP/0/RP0/CPU0:router# show controllers cpuctrl summary location 0/5/CPU0

Cpuctrl discovered 2 device on node 0/5/CPU0

-------------------------------------------------
 Device Name: NPU     Device Instance: 16
Cpuctrl Port: 16     PCI Base Address: 0x1000000000
            :         PCI Window Size: 0x00000000
```

```
-----------------------------------------------------
 Device Name: NPU      Device Instance: 0
Cpuctrl Port: 216     PCI Base Address: 0xd800000000
             :         PCI Window Size: 0x00000000
```

This table describes the significant fields shown in the display.

Table 6: show controllers cpuctrl summary Field Descriptions

Field	Description
device_name	Identifies the device whose CPU controller information is displayed.
device instance	Identifies the CPU device whose information is displayed.
pci_base	PCI[10] base, in hexadecimal format.

10 Peripheral Component Interconnect

Related Commands

Command	Description
show controllers cpuctrl cdma channel, on page 4	Displays information about the CPU controller CDMA engine.
show controllers cpuctrl clients, on page 11	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices, on page 15	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal, on page 21	Displays internal information about the CPU controller.
show controllers cpuctrl ports, on page 24	Displays port information for the specified CPU controller ASIC.

show controllers cpuctrl trace

To display the trace information about all the ASICs accessed through the CPU controller ASICs on the router or on a specific node, use the **show controllers cpuctrl trace** command in XR EXEC mode.

show controllers cpuctrl trace [**all**| **client**| **internal**| **queue**| **server**][**bottomhalf**] [**errors**] [**file** *file-name*] **[hexdump]** [**last** *entries*] **[reverse] [stats] [tailf] [unique] [usec] [verbose] [wide] [wrapping]** [**location** {*node-id*| **all**}]

Syntax Description

all	Displays the trace information of all the devices.
client	Displays all the trace information of all the cdma, discovery, pio, udma or pdma clients.
internal	Displays all internal trace information.
queue	Displays all the trace information of all the ASIC queues.
server	Displays all the server trace information.
bottomhalf	(Optional) Displays bottom-half (ISR) trace entries.
errors	(Optional) Displays all error entries.
file	(Optional) Displays a specific file.
filename	Name of a specific file.
hexdump	(Optional) Displays traces in hexadecimal format.
inits	(Optional) Displays initialization entries
last	(Optional) Displays trace information for a specific number of entries
entries	Number of entries. Replace entries with the number of entries you want to display. For example, if you enter 5, the display shows the last 5 entries in the trace data. The range is from 1 to 65536.
reverse	(Optional) Displays the latest traces first.
stats	(Optional) Displays the statistics in the command output.

tailf	(Optional) Displays the new traces as they are added in the command output.
timing	(Optional) Displays timing entries.
tophalf	(Optional) Displays top-half driver entries.
usec	(Optional) Displays timestamp w/usec detail.
wide	(Optional) Do not display buffer name, node name, thread-id.
unique	(Optional) Displays the unique entries with counts in the command output.
verbose	(Optional) Displays the information for internal debugging in the command output.
wrapping	(Optional) Displays the wrapping entries in the command output.
location *node-id*	(Optional) Specifies a node. The *node-id* argument is entered in the *rack/slot/module* notation.
all	Specifies all locations.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
drivers	read

Task ID	Operations
interface	read

Examples

```
RP/0/RP0/CPU0:router# show controllers cpuctrl trace internal unique
4 unique entries (64 possible, 0 filtered)
Oct 31 11:34:10.889 cci/internal 0/RP0/CPU0 4# t11999 INI:CCCTX:001: Internal context
(4ca46800) inititalized.  Calling HAL
Oct 31 11:34:10.895 cci/internal 0/RP0/CPU0 94# t11999 ERR:CCCTX:0f0: Case 10: Client 1f
not found
Oct 31 11:34:10.895 cci/internal 0/RP0/CPU0 94# t11999 INI:CCCLA:000: Allocated a new context
 for the client, c_ctx c36250 c_hd c36340
Oct 31 11:34:10.903 cci/internal 0/RP0/CPU0 372# t11999 INI:CCCLA:001: Found a old context
 for this client c_hd c36340
```

show controllers egressq interface

To display information about interfaces associated with an egress queue, use the **show controllers egressq interface** command in XR EXEC mode.

show controllers egressq interface*type interface-path-id*{**children location**{*node-id* | *name*}| **location** | {*node-id* | *name*}}

Syntax Description

type interface-path-id	Identifies a physical interface or a virtual interface. **Note** Use the **show interfaces** command to see a list of all possible interfaces currently configured on the router.
location *node-id*	Indicates that you want to display egress queue information for all interfaces in the specified **location**.
location *name*	Identifies the location of the interface whose egress queue information you want to display. Replace the *name* argument with location name.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
cisco-support	read

Examples

The following example shows how to display egress queue information for all configured interfaces on the router:

```
RP/0/RP0/CPU0:router# show controllers egressq interface HundredGigE 0/5/0/1 location
0/5/CPU0

HundredGigE0/5/0/1 Interface
------------------------------
NPU                       : 0
L2 port                   : 0
Bandwidth                 : 100000000 kbps
Root Schedule ID          : 0x3fc00
```

This table describes the significant fields shown in the display.

Table 7: show controllers egressq interface Field Descriptions

Field	Description
Interface	Interface identifier, in the *<type>rack/slot/module/port* format.
Port	Port to which the specified interface belongs.
NPU	Network Precessing Unit.

Related Commands

Command	Description
show controllers egressq eio links	Displays Elastic I/O (EIO) information for the egress queueing ASIC.
show controllers egressq group	Displays information about egress queue groups.
show controllers egressq port	Displays egress queue information for a port, or for several ports.
show controllers egressq queue, on page 35	Displays information about a specific egress queue, or a range of egress queues.
show controllers egressq statistics	Displays egress queue manager statistics.

show controllers egressq queue

To display information about a specific egress queue, or a range of egress queues, use the **show controllers egressq queue** command in XR EXEC mode.

show controllers egressq queue *queue-id* **npu** *NPU-number* **location** *node-id*

Syntax Description

queue-id	Queue you want to see. Replace *queue-id* argument with a queue number. Range is from 0 through 15.
NPU-number	Replace *NPU-number* argument with a NPU number. Range is from 0 through 15.
location *node-id*	Identifies the location of the node whose egress queue information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
Cisco-support	read

Examples

The following example shows how to display information about egress queues 11 on the CPU node in slot 5:

```
RP/0/RP0/CPU0:router# show controllers egressq queue 11 npu 0 location 0/5/CPU0

Queue
-----
```

```
Queue ID                : 11
Interface               : Punt interface
Parent Schedule Entry ID : 0xb
Queue Mode              : Enabled
Queue Empty status      : Empty
```

show controllers egressq trace

To display the internal trace buffer information for Egressq on a specific controller or node, use the **show controllers egressq trace** command in XR EXEC mode.

show controllers egressq trace {**all**| **errors**| **external**| **internal**} [**file** *file-name*| **hexdump**| **last** *numer-of-entries*| **location** *node-id*| **reverse**| **stats**| **tailf**| **unique**| **usec**| **verbose**| **wide**| **wrapping**]

Syntax Description

all	Displays the trace information for all of the egressq errors and events.
errors	Displays the trace information for all of the egressq errors.
external	Displays the trace information for all of the egressq external errors and events.
internal	Displays the trace information for all of the egressq internal errors and events.
file*file-name*	(Optional) Displays traces of a specific file name.
hexdump	(Optional) Displays traces in hexadecimal.
last	(Optional) Displays the last *n* entries.
reverse	(Optional) Displays the latest traces first.
stats	(Optional) Displays statistics.
unique	(Optional) Displays new traces as added.
usec	(Optional) Displays timestamp w/usec detail.
verbose	(Optional) Displasy internal debugging information.
wide	(Optional) Do not display buffer name, node name, and tid.
wrapping	(Optional) Displays wrapping entries
location*node-id*	(Optional) Identifies the location of the node whose CPU controller trace information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
cisco-support	read
interface	read

Examples

The following example shows how to display the external trace information of Egressq for a specific controller instance:

```
RP/0/RP0/CPU0:router# show controllers egressq trace external location 0/5/CPU0
92 wrapping entries (10304 possible, 320 allocated, 0 filtered, 92 total)
Nov  7 06:29:38.728 bqs/ext 0/5/CPU0 t2701 EXT: Committed client's BQS context for npu id:
 0, ifh: 0x2800018
Nov  7 06:29:38.728 bqs/ext 0/5/CPU0 t2701 EXT: Called client's queue connect callback
function for ifh: 0x2800018, seid: 0x80000001, qid: 28
Nov  7 06:29:38.728 bqs/ext 0/5/CPU0 t2701 EXT: Called client's queue connect callback
function for ifh: 0x2800018, seid: 0x80000000, qid: 29
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Committing client's BQS context for npu id:
 0, ifh: 0x2800018, update mode: Make-Break
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: -1, min:
-1, is_cond_min: False, max: -1, exc: 100, qid: 28)
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule entry for npu id: 0, ifh:
0x2800018, seid: 0x80000001, Parent sid: 0xc0000000
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: 1, min:
-1, is_cond_min: False, max: -1, exc: -1, qid: 29)
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule entry for npu id: 0, ifh:
0x2800018, seid: 0x80000000, Parent sid: 0xc0000000
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule for npu id: 0, ifh: 0x2800018,
 sid: 0xc0000000, Parent seid: 0xc0000000, num schedule entries: 0
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: -1, min:
100000000, is_cond_min: True, max: -1, exc: 100, qid: -1)
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule entry for npu id: 0, ifh:
0x2800018, seid: 0xc0000000, Parent sid: 0xa0000000
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule for npu id: 0, ifh: 0x2800018,
 sid: 0xa0000000, Parent seid: 0xa0000000, num schedule entries: 0
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: -1, min:
100000000, is_cond_min: False, max: 100100000, exc: 100, qid: -1)
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule entry for npu id: 0, ifh:
0x2800018, seid: 0xa0000000, Parent sid: 0x1ffffff
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Adding root schedule for npu id: 0, ifh:
0x2800018, intf num: 1, l2 port: 1, bw: 100000000, sid: 0x1ffffff
Nov  7 06:29:38.727 bqs/ext 0/5/CPU0 t2701 EXT: Committed client's BQS context for npu id:
 0, ifh: 0x2800010
Nov  7 06:29:38.726 bqs/ext 0/5/CPU0 t2701 EXT: Called client's queue connect callback
function for ifh: 0x2800010, seid: 0x80000001, qid: 24
Nov  7 06:29:38.726 bqs/ext 0/5/CPU0 t2701 EXT: Called client's queue connect callback
function for ifh: 0x2800010, seid: 0x80000000, qid: 25
Nov  7 06:29:38.725 bqs/ext 0/5/CPU0 t2701 EXT: Committing client's BQS context for npu id:
```

```
 0, ifh: 0x2800010, update mode: Make-Break
Nov  7 06:29:38.725 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: -1, min:
-1, is_cond_min: False, max: -1, exc: 100, qid: 24)
Nov  7 06:29:38.725 bqs/ext 0/5/CPU0 t2701 EXT: Adding schedule entry for npu id: 0, ifh:
0x2800010, seid: 0x80000001, Parent sid: 0xc0000000
Nov  7 06:29:38.725 bqs/ext 0/5/CPU0 t2701 EXT: Schedule entry params (priority: 1, min:
-1, is_cond_min: False, max: -1, exc: -1, qid: 25)
 --More--
```

show controllers egressq resources

To display the Egressq resource usage on a specific controller or node, use the **show controllers egressq resources** command in XR EXEC mode.

show controllers egressq resources npu*NPU-number***location** *node-id*

Syntax Description

location *node-id*	Identifies the location of the egress queue whose statistics you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.
npu *NPU-number*	Identifies the NPU of the egress queue whose statistics you want to display. Replace the *NPU-number* argument with a NPU number. The range is from 0 to 15.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
cisco-support	read

Examples

The following example shows how to display the internal trace information of Egressq for a specific controller instance:

```
RP/0/RP0/CPU0:router# show controllers egressq resources npu 0 location 0/5/CPU0

Schedules
        Engine  Total   Used
        ------  -----   -------------
```

```
        Root    32      3     (  9 %)
        Hier2   512     9     (  2 %)
        Hier1   512     0     (  0 %)
        Leaf    1024    9     (  1 %)

Schedule Entries
        Engine  Total   Used
        ------  -----   -------------
        Root    512     9     (  2 %)
        Hier2   512     0     (  0 %)
        Hier1   1024    9     (  1 %)
        Leaf    2048    28    (  1 %)

Queues
        Total   Used
        -----   -------------
        2048    28    (  1 %)

Profiles
 --More--
```

show controllers plim asic ether queues

To display the ethernet PLIM asic information, use the **show controllers plim asic ether queues** command in XR EXEC mode.

show controllers plim asic ether queues {**interface** *type interface-instance*| **location** {*node-id*| *name*}}

Syntax Description

location [*node-id* | *name*]	Identifies the location of the ethernet. The *node-id* argument is expressed in the *rack/slot/module* notation.
interface *type*	Identifies a physical interface or a virtual interface. **Note** Use the **show interfaces** command to see a list of all possible interfaces currently configured on the router.
interface-instance	Identifies the interface instance. The *interface-instance* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
drivers	read
cisco-support	read

Examples

The following example shows how to display the internal trace information of Egressq for a specific controller instance:

```
RP/0/RP0/CPU0:router# show controllers plim asic ether queues interface HundredGigE 0/5/0/0

 Rx LP queue 2
  start 0, end 16383, size 16384, bpoff 8191, bpon 12285, taildrop 16339
  read0 0, read1 0 write_start 0 write_now 0 write_start_actual 0
  fill 0, status bpoff
 Rx HP queue 3
  start 0, end 16383, size 16384, bpoff 8191, bpon 12285, taildrop 16339
  read0 0, read1 0 write_start 0 write_now 0 write_start_actual 0
  fill 0, status bpoff
```

show controllers plim asic statistics

To display physical layer interface module (PLIM) ASIC statistics for a specific node or interface, use the **show controllers plim asic statistics** command in XR EXEC mode.

show controllers plim asic statistics {**interface** *type interface-path-id*| **summary**} [**location** *node-id*]

Syntax Description

type	Interface type. For more information, use the question mark (**?**) online help function.
interface-path-id	Physical interface or virtual interface. **Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (**?**) online help function.
summary	Displays a summarized information for PLIM ASICs on a specified node, or for all interfaces on the router.
location *node-id*	Identifies the location of the node whose PLIM ASIC information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Use the **show platform** command to see the location of all nodes installed in the router.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
root-system	read

Examples

The following example shows how to display PLIM ASIC statistics information for a POS interface:

```
RP/0/RP0/CPU0:router# show controllers plim asic statistics interface HundredGigE 0/5/0/0$
                              Node: 0/5/CPU0
------------------------------------------------------------------------------
HundredGigE0/5/0/0 Tx Statistics
------------------------------------------------
Total Packets            : 0                 Total Bytes              : 0
Total Good Packets       : 0                 Total Good Bytes         : 0
Unicast Packets          : 0                 Multicast Packets        : 0
Broadcast Packets        : 0                 64 Byte Packets          : 0
65to127  Byte Packets    : 0                 128to255 Byte Packets    : 0
256to511 Byte Packets    : 0                 512to1023 Byte Packets   : 0
1024to1518 Byte Packets  : 0                 1519to1522 Byte Packets  : 0
1523to1548 Byte Packets  : 0                 1549to2000 Byte Packets  : 0
2001to_MRU Byte Packets  : 0                 Non Pause BPDU Packets   : 0
Classic Pause Packets    : 0
Class Based Pause Pkts 0 : 0                 Class Based Pause Pkts 1 : 0
Class Based Pause Pkts 2 : 0                 Class Based Pause Pkts 3 : 0
Class Based Pause Pkts 4 : 0                 Class Based Pause Pkts 5 : 0
Class Based Pause Pkts 6 : 0                 Class Based Pause Pkts 7 : 0

Dropped Packets
===============
Drained Packets          : 0                 Abort                    : 0
Length Error             : 0                 Giant                    : 0
Tail Drop: HP Queue      : 0                 Tail Drop: LP Queue      : 0

HundredGigE0/5/0/0 Rx Statistics
------------------------------------------------
Total Packets            : 0                 Total Bytes              : 0
Total Good Packets       : 0                 Total Good Bytes         : 0
Unicast Packets          : 0                 Multicast Packets        : 0
Broadcast Packets        : 0                 64 Byte Packets          : 0
65to127  Byte Packets    : 0                 128to255 Byte Packets    : 0
256to511 Byte Packets    : 0                 512to1023 Byte Packets   : 0
1024to1518 Byte Packets  : 0                 1519to1522 Byte Packets  : 0
1523to1548 Byte Packets  : 0                 1549to2000 Byte Packets  : 0
2001to_MRU Byte Packets  : 0                 Non Pause BPDU Packets   : 0
Classic Pause Packets    : 0
Class Based Pause Pkts 0 : 0                 Class Based Pause Pkts 1 : 0
Class Based Pause Pkts 2 : 0                 Class Based Pause Pkts 3 : 0
Class Based Pause Pkts 4 : 0                 Class Based Pause Pkts 5 : 0
Class Based Pause Pkts 6 : 0                 Class Based Pause Pkts 7 : 0

Dropped Packets
===============
Runts                    : 0                 Fragments                : 0
Jumbo                    : 0                 Jabber                   : 0
CRC                      : 0                 Code Error               : 0
Code Violation           : 0                 Bad Preamble             : 0
IPG Violation            : 0
Packet HPQ QoS Ctl Drop  : 0                 Bytes HPQ QoS Ctl Drop   : 0
Packet HPQ QoS HP Drop   : 0                 Bytes HPQ QoS HP Drop    : 0
Packet HPQ Ctl Tail Drop : 0                 Bytes HPQ Ctl Tail Drop  : 0
Packet HPQ HP Tail Drop  : 0                 Bytes HPQ HP Tail Drop   : 0
Packet LPQ LP1 Tail Drop : 0                 Bytes LPQ LP1 Tail Drop  : 0
Packet LPQ LP2 Tail Drop : 0                 Bytes LPQ LP2 Tail Drop  : 0
Packet TCAM Miss         : 0                 Bytes TCAM Miss          : 0
Packet EOP Abort Drop    : 0                 Bytes EOP Abort Drop     : 0
Packet Policy Deny       : 0                 Bytes Policy Deny        : 0
 --More--
```

This table describes the significant fields shown in the display.

Table 8: show controllers plim asic statistics Field Descriptions

Field	Description
Total Packets	Number of total packets received or transmitted on the interface.
Unicast Packets	Number of unicast packets received or transmitted on the interface.
Multicast Packets	Number of Multicast packets received or transmitted on the interface.
Broadcast Packets	Number of good broadcast packets received or transmitted. Received packets were directed to the broadcast address.
65to127Bytes	Number of packets (including bad packets) received or transmitted that were between 65 and 127 bytes in length inclusive (excluding framing bits but including FCS bytes).
128to255Bytes	Number of packets (including bad packets) received or transmitted that were between 128 and 255 bytes in length inclusive (excluding framing bits but including FCS bytes).
256to511Bytes	Number of packets (including bad packets) received or transmitted that were between 256 and 511 bytes in length inclusive (excluding framing bits but including FCS bytes).
512to1023Bytes	Number of packets (including bad packets) received or transmitted that were between 512 and 1023 bytes in length inclusive (excluding framing bits but including FCS bytes).
1024to1518Bytes	Number of packets (including bad packets) received or transmitted that were between 1024 and 1518 bytes in length inclusive (excluding framing bits but including FCS bytes).
1519to1548Bytes	Number of packets (including bad packets) received or transmitted that were between 1519 and 1548 bytes in length inclusive (excluding framing bits but including FCS bytes).
1549to2000Bytes	Number of packets (including bad packets) received or transmitted that were between 1549 and 2000 bytes in length inclusive (excluding framing bits but including FCS bytes).

Field	Description
Abbort	Number of packets that were not retrieved quickly enough from shared memory to be transmitted or received.
Runt	Number of packets received or transmitted that were less than 64 bytes long (excluding framing bits, but including FCS bytes) and were otherwise well formed.
Jumbo	Number of packets received or transmitted that were longer than 1518 bytes (excluding framing bits, but including FCS bytes) and were otherwise well formed.
Jabbers	Number of packets received or transmitted that were longer than 1518 bytes (excluding framing bits but including FCS bytes) and had either a bad Frame Check Sequence (FCS) with an integral number of bytes (FCS error) or a bad FCS with a non-integral number of bytes (assigned error).

show controllers plim asic summary

To display summarized physical layer interface module (PLIM) ASIC information for a specific node or interface, use the **show controllers plim asic** command in XR EXEC mode.

show controllers plim asic summary [**location** *node-id*]

Syntax Description

location *node-id*	Identifies the location of the node whose PLIM ASIC information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Use the **show platform** command to see the location of all nodes installed in the router.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
drivers	read

Examples

The following example shows how to display summarized PLIM ASIC information for all locations:

```
RP/0/RP0/CPU0:router# show controllers plim asic summary

Node: 0/1/CPU0
--------------------------------------
Instance# 0    Summary info:
--------------------------------------
Name       : PLASPA    Version  : 2
```

```
Port 0
Jacket slot: 1         SPA type : SPA_NAME_UNKNOWN
Port 1
Jacket slot: 3         SPA type : SPA_NAME_UNKNOWN
Port 2
Jacket slot: 0         SPA type : 4xOC3 POS SPA

Instance# 1    Summary info:
---------------------------------------
Name       : PLASPA    Version  : 2

Port 0
Jacket slot: 2         SPA type : SPA_NAME_UNKNOWN
Port 1
Jacket slot: 4         SPA type : 4xOC48 POS/RPR HHSPA
Port 2
Jacket slot: 5         SPA type : 8xGE SPA


IFName     : POS0/1/0/0
Inst#      : 0         Port     : 2
RxLPORT    : 0x80      TxLPORT  : 0x48
Uidb       : 0x2       Key      : 0x80
Hkey       : 209       Hkey idx : 0

IFName     : POS0/1/0/1
Inst#      : 0         Port     : 2
RxLPORT    : 0x81      TxLPORT  : 0x49
Uidb       : 0x4       Key      : 0x81
Hkey       : 28        Hkey idx : 0

IFName     : POS0/1/0/2
Inst#      : 0         Port     : 2
RxLPORT    : 0x82      TxLPORT  : 0x4a
Uidb       : 0x6       Key      : 0x82
Hkey       : 183       Hkey idx : 0
```

This table describes the significant fields shown in the display.

Table 9: show controllers plim asic summary Field Descriptions

Field	Description
Node	Node whose information is displayed. Information is displayed for each node's SPA and its interfaces.
Instance	PLIM ASIC identifier. This is the PLIM ASIC associated with the specified location.

Field	Description
Summary info (for SPA)	Displays the following info for all SPAs installed in the router: • Name—Identifies the SPA.whose information is displayed. • Version—Version identifier for the PLIM ASIC. • Jacket slot—Identifies the slot containing the jacket card for the specified SPA. • SPA type —Describes the SPA whose information is displayed. • Port—Port associated with the PLIM ASIC. • Inst#—SPA ASIC instance Identifier.
Summary info (for interfaces)	Displays the following info for all interfaces associated with the specified SPA: • Intf name—Identifies the SPA.whose information is displayed. • Inst#—ASIC associated with this interface. • Port—Port associated with the PLIM ASIC. • RxLPORT—Receive port, in hexadecimal format. • TxLPORT—Transmit port, in hexadecimal format. • Uidb—UIDB assigned by the software, in hexadecimal format. • Key—AISC key, in hexadecimal format. • Hkey—ASIC registry key. • Hkey idx—ASIC registry key index.

show controllers pse statistics

To display packet switching engine (PSE) statistics for a specific controller instance, or for a specific node, use the **show controllers pse statistics**command in XR EXEC mode.

show controllers pse statistics summary instance *instance-number* **location** *node-id*

Syntax Description

instance *instance-number*	Replace the *instance-number* argument with a device instance number. The range is from 0 to 16.
location *node-id*	Identifies the location of the node whose PSE device information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or value

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
drivers	read

Examples

The following command shows how to display PSE statistics for specific instance:

```
RP/0/RP0/CPU0:router# show controllers pse statistics summary instance 0 location 0/5/CPU0
STATISTICS SUMMARY:

INGRESS
-------
From L2 [LSIM]:
  Packets: 0
```

```
  Bytes:   0
To Fabric:
  Packets: 0
  Bytes:   0

EGRESS
------
From Fabric:
  Packets: 0
  Bytes:   0
To TM:
  Packets: 0
To L2 [LSIM]:
  Packets: 0
  Bytes:   0

TO/FROM CPU
-----------
To CPU:
  Packets: 0
From CPU:
  Packets: 0
```

show controllers pse summary

To display a summary of packet switching engine (PSE) information for a specific controller or node, use the **show controllers pse summary** command in XR EXEC mode.

show controllers pse summary instance *instance-number* **location** *node-id*

Syntax Description

instance *instance-number*	Replace the *instance-number* argument with a device instance number. The range is from 0 to 16.
location *node-id*	Identifies the location of the node whose PSE device statistics you want to clear. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Use the **show platform** command to see the location of all nodes installed in the router.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
interface	read
drivers	read

Examples

The following command shows how to display a summary of PSE information for a specific controller instance:

```
RP/0/RP0/CPU0:router# show controllers pse summary instance 0 location 0/5/CPU0
SUMMARY:
Device Info
    Mfg ID                  : 23
    ASIC ID                 : 0x3A2
```

```
    Electronic Device Info (Data downloaded from efuse ROM)
    DIE ID (1st Set)        : 0x1C90
    DIE ID (2nd Set)        : 0x0
    DIE ID (3rd Set)        : 0xD1808050
    DIE ID (4th Set)        : 0x900E00D0
    Device Version          : 2

ASIC Info
    ASIC Blocks Enabled     : All Enabled

Driver Process Info
    Start Up Options        :
    PPEUcodeName            :
    Num of Power-On Resets  : 0
    Num of PPE Ucode Downlds: 0

Performance Info
    # of free PPE threads   : 671 (0.15% used)
    GPM Occupancy
       Free Segments        : 2029 (0.93% used)
       Pkt Handle Occupancy : 2047 (0.15% used)

MAC Lane & Fabric Status

    Fabric Link Status      : Aligned

    MAC Lane Status         :
    (RF = Remote Fault, LF = Local Fault, OF = Other Fault)
    Port      Subport   MAC Inst  MAC Lane  Status
    --------  --------  --------  --------  --------
           0         0         1         0  LF
           1         0         0         0  LF

Ingress
    Layer 2 receive count   : 0
    To Fabric count         : 0
Egress
    From Fabric count       : 0
    Layer 2 transmit count  : 0
Punt/Inject
    PDMA To Host count      : 0
    PDMA From Host count    : 0
```

Related Commands

Command	Description
show controllers pse eio links	Displays packet switching engine information for Elastic I/O links.
show controllers pse ipc	Displays packet switching engine device information for interprocess communication connections, or for a specific IPC controller.
show controllers pse mp	displays packet switching engine information for the maintenance processor on a specific controller or node.
show controllers pse statistics, on page 51	Displays packet switching engine statistics for a specific controller instance.

show packet-memory

To display information for packet memory, use the **show packet-memory** command in XR EXEC mode.

show packet-memory [**clients**| **corrupt**| **fsv**| **hssd**| **ifinput**| **ifoutput**| **internal**| **inuse**| **job**| **mutex**| **old**| **pakhandle**| **reserved**| **summary**| **trace**| **watch**] [**location** *node-id*]

Syntax Description

clients	(Optional) Displays the packet manager clients.
corrupt	(Optional) Displays the information about corrupted packets.
fsv	(Optional) Displays feature-specific variable information.
hssd	(Optional) Displays High Speed Small Data (HSSD).
ifinput	(Optional) Displays packets from a specific interface.
ifoutput	(Optional) Displays packets to a specific interface.
internal	(Optional) Displays the packet memory along with actual number of particles in free list.
inuse	(Optional) Displays the total number of packets in use
job	(Optional) Displays the number of packets owned by a specific process.
mutex	(Optional) Displays the pakman mutex monitoring configuration.
old	(Optional) Displays the total number of packets older than one minute.
pakhandle	(Optional) Displays the specific packet hd/dump information.
reserved	(Optional) Displays the reserved memory information.
summary	(Optional) Displays the packet memory usage summary information.
trace	(Optional) Displays the packet-memory traces.
watch	(Optional) Displays the pakman watch configuration.
location *node-id*	(Optional) Displays detailed packet memory information for the designated node. The *node-id* argument is entered in the *rack/slot/module* notation.

Command Default

Displays information about all packet memory.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show packet-memory** command can be used to display the total number of packet and particle headers, along with the packet memory that is currently allocated in the system.

Task ID

Task ID	Operations
basic-services	read
cisco-support	read

Examples

The following example shows how to display packet memory information:

```
RP/0/RP0/CPU0:router# show packet-memory

Packet memory statistics :
==========================
Packet headers
total: 32000, free: 32000, size: 448
Particle Pools(8)
Pool(0):total: 8000, free: 8000, size: 256
fallback: 0, region: 0
Pool(1):total: 4000, free: 3968, size: 512
fallback: 1, region: 0
Pool(2):total: 16, free: 16, size: 512
fallback: 2, region: 0
Pool(3):total: 8000, free: 7936, size: 768
fallback: 3, region: 0
Pool(4):total: 12800, free: 9172, size: 1648
fallback: 4, region: 0
Pool(5):total: 320, free: 320, size: 2560
fallback: 5, region: 0
Pool(6):total: 1600, free: 1088, size: 4608
fallback: 6, region: 0
Pool(7):total: 640, free: 640, size: 6240
fallback: 7, region: 0
Particle clone
total: 8000, free: 8000, size: 256
Packet Feature Specific Variable (FSV)
total: 16000, free: 16000, size: 88
Packet trace
total: 16384, free: 16384, size: 40
```

This table describes the significant fields shown in the display.

Table 10: show packet memory Field Descriptions

Field	Description
Packet headers	Data structure that defines and controls an aggregation of data structures, collectively known as a packet. Includes information about every packet in the system.
Particle Pools	Data structure that describes a particle and may be chained to other particles in a linked list. Includes information about the actual data of the packet and other particle headers in this packet if present in this packet.
Particle clone	Duplicate particle header that points to a previously allocated particle. Differs from a particle header in that a particle clone shares the particle with another particle header.
Packet Feature Specific Variable (FSV)	Scratch pad shared among the features in the packet path, listing hangs of the packet header.
Packet trace	Data associated with the packet header to help tracing a packet in the system.