GPON-PMs

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Performance counters on PON port

BCM68620 Data

Attribute	Value
rxFecCodewords	365871577
rxFecCodewordsUncorrected	0
rxBip8Bytes	85750810464
rxBip8Errors	0
rxGem	50899269
rxGemDropped	0
rxGemIdle	2555865
rxGemCorrected	0
rxGemIllegal	0
rxAllocationsValid	2555865
rxAllocationsInvalid	0
rxAllocationsDisabled	0
rxPloams	2399698
rxPloamsNonIdle	478
rxPloamsError	0
rxPloamsDropped	0
rxCpu	0
rxOmci	163
rxDroppedTooShort	0
rxDroppedTooLong	0

rxPloams	2399698
rxPloamsNonIdle	478
rxPloamsError	0
rxPloamsDropped	0
rxCpu	0
rxOmci	163
rxDroppedTooShort	0
rxDroppedTooLong	0
rxCrcErrors	0
rxKeyErrors	0
rxFragmentsErrors	0
rxPacketsDropped	0
txGem	56422045
txPloams	120
txCpu	0
txOmci	82
txDroppedIllegalLength	0
txDroppedTpidMiss	0
txDroppedVidMiss	0

Sync

- The counters will increment only if there is at least one connection created.
- The FE counters starts incrementing only when FEC is enabled on both ONT and PON port.

Performance counters on PON port

BCM68620 Data	
rxFecCodewords	Displays the count of FEC codewords received.
rxFecCodewordsUncorrected	Displays the count of uncorrected FEC codewords.
rxBip8Bytes	Displays the count of bytes protected by BIP-8 received.
rxBip8Errors	Displays the count of BIP-8 errors received.
rxGem	Displays the count of GEM frames received.
rxGemDropped	Displays the count of dropped GEM ID packets received.
rxGemIdle	Displays the count of idle GEM frames received.
rxGemCorrected	Displays the count of corrected GEM frames received.
rxGemIllegal	Displays the count of illegal GEM frames received.
rxAllocationsValid	Displays the count of valid allocations received.
rxAllocationsInvalid	Displays the count of invalid allocations received.

Performance counters on PON port

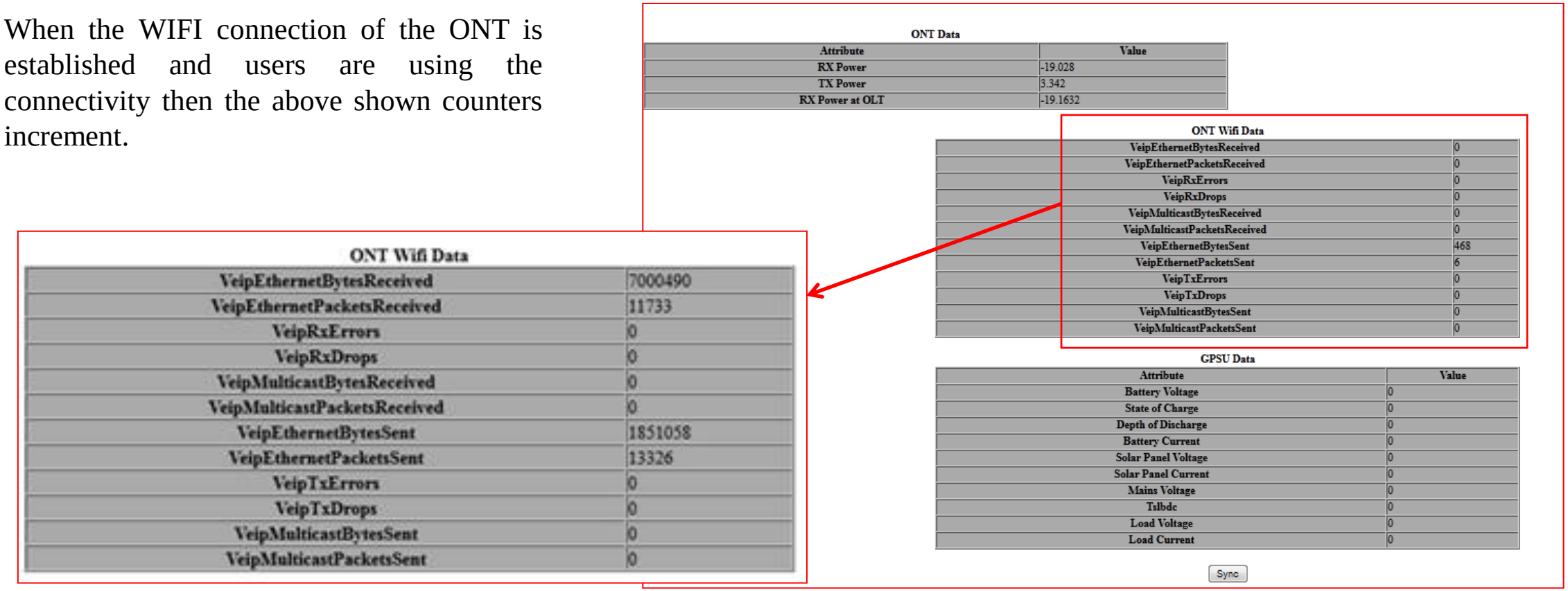
rxAllocationsDisabled	Displays the count of disabled allocations received.
rxPloams	Displays the count of Ploams received. PLOAM stands for Physical Layer Operations, Administration and Maintenance.
rxPloamsNonIdle	Displays the count of non idle Ploams received.
rxPloamsError	Displays the count of received error Ploams.
rxPloamsDropped	Displays the count of dropped Ploams received.
rxCpu	Displays the count of CPU packets received.
rxOmci	Displays the count of OMCI packets received. OMCI stands for Optical network termination Management and Control Interface.
rxDroppedTooShort	Displays the count of packets dropped due to length too short.
rxDroppedTooLong	Displays the count of packets dropped due to length too long.
rxCrcErrors	Displays the count of packets dropped due to CRC error.
rxKeyErrors	Displays the count of packets dropped due to key error.
rxFragmentsErrors	Displays the count of packets dropped due to fragmentation error.

Performance counters on PON port

rxPacketsDropped	Displays the count of global dropped packets.
txGem	Displays the count of GEM frames transmitted.
txPloams	Displays the count of Ploams transmitted.
txCpu	Displays the count of CPU packets transmitted.
txOmci	Displays the count of OMCI packets transmitted.
txDroppedIllegalLength	Displays the count of packets dropped due to illegal length.
txDroppedTpidMiss	Displays the count of packets dropped because of TPID miss.
txDroppedVidMiss	Displays the count of packets dropped because of VID miss.

ONTG performance parameters

- When the WIFI connection of the ONT is established and users are using the connectivity then the above shown counters increment.



ONT Data

Attribute	Value
RX Power	-19.028
TX Power	3.342
RX Power at OLT	-19.1632

ONT Wifi Data

VeipEthernetBytesReceived	0
VeipEthernetPacketsReceived	0
VeipRxErrors	0
VeipRxDrops	0
VeipMulticastBytesReceived	0
VeipMulticastPacketsReceived	0
VeipEthernetBytesSent	468
VeipEthernetPacketsSent	6
VeipTxErrors	0
VeipTxDrops	0
VeipMulticastBytesSent	0
VeipMulticastPacketsSent	0

GPSU Data

Attribute	Value
Battery Voltage	0
State of Charge	0
Depth of Discharge	0
Battery Current	0
Solar Panel Voltage	0
Solar Panel Current	0
Mains Voltage	0
Tslbdc	0
Load Voltage	0
Load Current	0

Sync

ONT Wifi Data

VeipEthernetBytesReceived	7000490
VeipEthernetPacketsReceived	11733
VeipRxErrors	0
VeipRxDrops	0
VeipMulticastBytesReceived	0
VeipMulticastPacketsReceived	0
VeipEthernetBytesSent	1851058
VeipEthernetPacketsSent	13326
VeipTxErrors	0
VeipTxDrops	0
VeipMulticastBytesSent	0
VeipMulticastPacketsSent	0

ONTG performance parameters

ONT Data	
RX Power	Displays the power in terms of dBm received at the ONT from the node.
TX Power	Displays the power in terms of dBm transmitted by the ONT.
RX Power at OLT	Displays the power in terms of dBm received on the PON port of the OLT node from the ONT connected to it.
ONT Wifi Data	
VeipEthernetBytesReceived	Displays the total number of bytes received on WAN port.
VeipEthernetPacketsReceived	Displays the total number of packets received on WAN port.
VeipRxErrors	Displays the total number of error in packets received on WAN port.
VeipRxDrops	Displays the total number of events in which packets were dropped due to lack of resources. This is not necessarily the number of packets dropped; it is the number of times this event was detected.
VeipMulticastBytesReceived	Displays the total number of multicast bytes received on WAN port.
VeipMulticastPacketsReceived	Displays the total number of multicast packets received on WAN port.

ONTG performance parameters

VeipEthernetBytesSent	Displays the total number of bytes sent by WAN port.
VeipEthernetPacketsSent	Displays the total number of packets sent by WAN port.
VeipTxErrors	Displays the total number of error in packets sent by WAN port.
VeipTxDrops	Displays the total number of events in which packets were dropped due to lack of resources. This is not necessarily the number of packets dropped; it is the number of times this event was detected.
VeipMulticastBytesSent	Displays the total number of multicast bytes sent by WAN port.
VeipMulticastPacketsSent	Displays the total number of multicast packets sent by WAN port.
GPSU Data: Include counters that collects performance monitoring data related to power supply.	
Battery Voltage	Displays the voltage of the battery. Value is expressed in terms of Volts (V).
State of Charge	Displays the battery charge percentage. Value is expressed in terms of percentage ranging from 0 to 100%.
Depth of Discharge	Displays the battery discharge percentage. Value is expressed in terms of percentage ranging from 0 to 100%.

ONTG performance parameters

Battery Current	Displays the current drawn by the battery, expressed in terms of Ampere (A).
Solar Panel Voltage	Displays the solar panel voltage, expressed in terms of Volt (V).
Solar Panel Current	Displays the solar panel current, expressed in terms of Ampere (A).
Mains Voltage	Displays the mains supply voltage, expressed in terms of Volt (V).
Tslbdc	Displays the time since Last Battery Discharge Cycle. The value is expressed in Days and range from 0 to 255.
Load Voltage	Displays the voltage at the input of the ONT device. Value is expressed in terms of Volts (V).
Load Current	Displays the current at the input of the ONT device. Value is expressed in terms of Ampere (A).

Note: Only VeipEthernetBytesRecieved, VeipEthernetPacketseipEthernetBytesSent and VeipEthernetPacketsSent counters are supprted in thid product

Performance counters on ONT uni ports

ONT Eth Data

Attribute	Value
Rx FCS	0
Excessive Collision	0
Late Collision	0
Frames Too Long	0
Buffer Overflow Receive	0
Buffer Overflow Transmit	0
Single Collision Frame	0
Multiple Collision Frame	0
SQE	0
Deffrd Transmit	0
Internal Mac Tx Error	0
Carrier Sns Error	0
Alignment Error	0
Internal Mac Rx Error	0
Ppoe Filtered Frame	0
Drop Event	0
Rx Octets	911085200
Rx Packets	7117882
Broadcast Packets	0
Undersize Packets	0
Multicast Packets	0
Tx Octets	882615900
Jabber	0
Packets 64 Octets	0
Packets 65 - 127 Octets	0
Packets 128 - 255 Octets	7117905
Packets 256 - 511 Octets	0
Packets 512 - 1023 Octets	0
Packets 1024 - 1518 Octets	0

- If any traffic is running on
- the Ethernet port then the following counters will increment.

Performance counters on ONT uni ports

Rx FCS	Displays the count of frames received on the interface that were an integral number of octets in length but failed the frame check sequence (FCS) check. The count is incremented when the MAC service returns the frameCheckError status to the link layer control (LLC) or other MAC user. Received frames for which multiple error conditions are obtained are counted according to the error status presented to the LLC.
Excessive Collision	Displays the count of frames whose transmission failed due to excessive collisions.
Late Collision	Displays the count of number of times a collision was detected later than 512 bit times into the transmission of a packet.
Frames Too Long	Displays the count of frames received that exceeded the maximum permitted frame size.
Buffer Overflow Receive	Displays the count of number of times the receive buffer overflowed.
Buffer Overflow Transmit	Displays the count of number of times the transmit buffer overflowed.
Single Collision Frame	Displays the count of frames successfully transmitted whose transmission was delayed by exactly one collision.
Multiple Collision Frame	Displays the count of frames successfully transmitted whose transmission was delayed by more than one collision.

Performance counters on ONT uni ports

SQE	Displays the count of number of times the SQE test error message was generated by the PLS sublayer.
Deffrd Transmit	Displays the count of frames whose first transmission attempt was delayed because the medium was busy. The count does not include frames involved in collisions.
Internal Mac Tx Error	Displays the count of frames whose transmission failed due to an internal MAC sublayer transmit error.
Carrier Sns Error	Displays the count of number of times that carrier sense was lost or never asserted when attempting to transmit a frame.
Alignment Error	Displays the count of received frames that were not an integral number of octets in length and did not pass the FCS check.
Internal Mac Rx Error	Displays the count of frames whose reception failed due to an internal MAC sublayer receive error.
Ppoe Filtered Frame	Displays the count the number of frames discarded due to PPPoE filtering.
Drop Event	Displays the count of events in which packets were dropped due to lack of resources. This is not necessarily the number of packets dropped; it is the number of times this event was detected.

Performance counters on ONT uni ports

Rx Octets	Displays the count of octets received from the CPE, including those in bad packets, excluding framing bits, but including FCS.
Rx Packets	Displays the count of packets received, including bad packets, broadcast packets and multicast packets.
Broadcast Packets	Displays the count of received good packets directed to the broadcast address. This does not include multicast packets.
Undersize Packets	Displays the count of packets received that were less than 64 octets long but were otherwise well formed (excluding framing bits, but including FCS octets).
Multicast Packets	Displays the count of received good packets directed to a multicast address. This does not include broadcast packets.
Tx Octets	Displays the total number of octets transmitted to the CPE, including those in bad packets, excluding framing bits, but including FCS.
Jabber	Displays the count of packets longer than 1518 octets received, excluding framing bits but including FCS octets, and had either a bad frame check sequence (FCS) with an integral number of octets (FCS error) or a bad FCS with a non-integral number of octets (alignment error).

Performance counters on ONT uni ports

Packets 64 Octets	Displays the count of 64 octets long packets received (including bad packets), excluding framing bits but including FCS.
Packets 65 - 127 Octets	Displays the count of 65-127 octets long packets received (including bad packets), excluding framing bits but including FCS.
Packets 128 - 255 Octets	Displays the count of 128-255 octets long packets received (including bad packets), excluding framing bits but including FCS.
Packets 256 - 511 Octets	Displays the count of 256-511 octets long packets received (including bad packets), excluding framing bits but including FCS.
Packets 512 - 1023 Octets	Displays the count of 512-1023 octets long packets received (including bad packets), excluding framing bits but including FCS.
Packets 1024 - 1518 Octets	Displays the count of 1024-1518 octets long packets received (including bad packets), excluding framing bits but including FCS.

Ethernet PMs

Ethernet PM Parameters…

➢**Frames Received :**

❖ It is count of the Total Number of packets received since the last counter reset.

➢ **FCS Error Frames :**

❖ It is count of the Total Number of packets received with an FCS error.

➢**Octets Transmitted :**

❖ It is a count of the Total Number of bytes transmitted since the last counter reset.

Ethernet PM Parameters…

➢ **Broad Cast Frames Transmitted :**

❖ It is count of the Total Number of broadcast packets transmitted since the last counter reset.

➢ **Multicast Frames Received :**

❖ It is count of the Total Number of multicast packets received since the last counter reset.

➢ **Broad Cast Frames Received :**

❖ It is count of the Total Number of broadcast packets received since the last counter reset.

Ethernet PM Parameters…

➢**Ethernet Interval Valid :**

❖ It gives the status of the particular Ethernet Interface over the complete 15 min (900 sec) interval .

❖ It could be 1 or 0.

❖ It will be 1 over the 15 min interval when the Particular Ethernet Interface is Admined up.

❖ It will be 0 over the 15 min interval when the Particular Ethernet Interface is Admined down or if the Node Element has gone for reboot.

➢**FCS Error Bytes :**

❖ **It will be Tested later.**

Ethernet PM Parameters…

- **Pause Frames Transmitted :**

  >It is a count of the Total Number of Transmitted IEEE 802.3z pause frames.

- **Pause Frames Received :**

  >It is a count of the Total Number of Received IEEE 802.3z pause frames.

- **Ethernet Interval Valid :**

  >It gives the status of the particular Ethernet Interface over the complete 15 min (900 sec) interval .

  > It could be 1 or 0.

  >It will be 1 over the 15 min interval when the Particular Ethernet Interface is Admin up.

  >It will be 0 over the 15 min interval when the Particular Ethernet Interface is Admin down or if the Node Element has gone for reboot.

Ethernet PM Parameters…

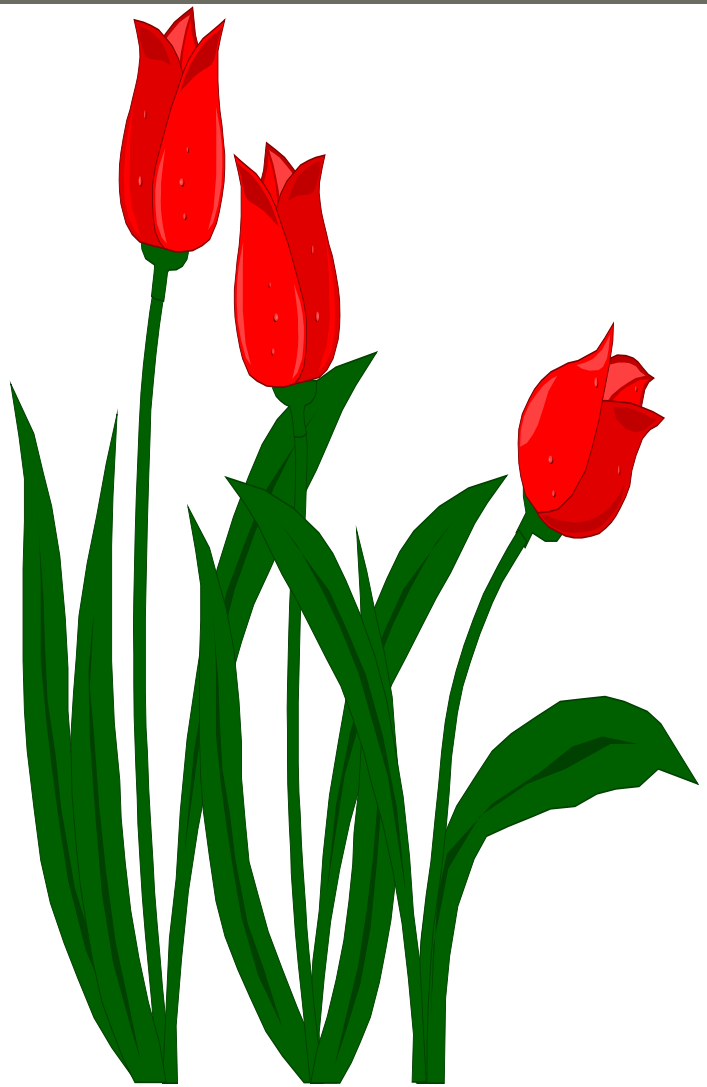
- **MTU Discards**
  - It is a count of frames which are discarded as they exceed the MTU size configured on the port.
- **MRU Discards**
  - It is the frames received which are discarded as they exceed MTU size.
- **Unacceptable Frame Type**
  - >It is a count of frames discarded due to AFT (Acceptable Frame Type) configured on the Interface.
- **Service Lookup Failures**
  - >It is a count of frames discarded as a matching service (FPCR) is not found.
- **Ingress Other Discards**
  - >It is count of frames which are discarded due to reasons like the following:
    - >Source MAC address in not proper (equal to MyMac, non-unicast addresses)
    - > MAC-in-MAC frame, which is not a BPDU, received on a ‘,1ah’ interface without C-TAG or S-TAG TPID.
- **>Discarded Rx Frames**
  - >It is count of Ingress frames which are discarded as the ingress interface is disabled.

Ethernet PM Parameters…

- **Discarded Tx Frames**
  - >It is a count of Tx Frames which are discarded due to egress interface being disabled.
- **Frame Jabber Rx**
  - >It is a count of frames received which are greater than 1518 but with a bad CRC.
- **Frame Jabber Tx**
  - >It is a count of frames transmitted which are greater than 1518 but with a bad CRC.
- **Frame Fragment Tx**
  - >It is a count of fragmented frames transmitted.
- **Frame Fragment Rx**
  - >It is a count of fragmented frames received.
- **Frame Fragment Tx**
  - >It is a count of fragmented frames transmitted.
- **Frame Fragment Rx**
  - > It is a count of fragmented frames received.
- **CoS Queue 1 Enqueue Discards**
  - > It is a count of discarded packets in CoS queue 1.

Ethernet PM Counters for Tx and Rx

- **64 Byte packets**
  - It is a count of number of 64 byte length packets.
- **65-127 byte packets**
  - It is a count of number of 65-127 byte length packets.
- **128-255 byte packets**
  - It is a count of number of 128-255 byte length packets.
- **256-511 byte packets**
  - Count of number of 256-511 byte length packets.
- **512-1023 byte packets**
  - Count of number of 512-1023 byte length packets.
- **1024-1518 byte packets**
  - Count of number of 1024-1518 byte length packets.
- **Jumbo packets**
  - Count of number of 1522-9600 byte length packets.



Thank You. . .