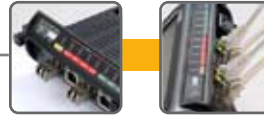


# Platform Interface Module

## GigE Triple Play PIM

### PIM 41S/D-GigE



March 2008



## Specification Sheet

### General

#### Operation Modes

BERT, IP QoS, RFC2544, Monitor, Service Tool and NIC for Triple Play Analysis Suite-IPTV, VoIP, Data

#### Physical Interfaces

Single or Dual 10/100/1000Base-T Electrical UTP (RJ-45) and 1000Base-X Optical (SFP) port

#### Standard Supported

IEEE 802.3 2005 Compliance

#### LED Indicators

Module: On or Off  
IF/LB: SFP (Optical), UTP (Copper) or loop back  
Link: Signal or Loss (SFP), Link Up or Down (UTP)  
Speed: 1G (SFP), 10M, 100M or 1000M (UTP)  
Sync: Pattern Sync/Loss (BER) or Error  
Laser: Laser On or Off

### Port Operation

Single Port A (Term./LB, Monitor)  
Single Port B (Term./LB, Monitor)  
Dual Port A and Port B (Term./LB, Mon, PassThrough)  
Port in Electrical or Optical

### Traffic Generation

#### Physical

Configurable Speed, Duplex, Flow Control (Auto/Manual), and Remote Loop back L1/L2/L3

#### IP Version

IP V4 or IP V6

#### Frame Formats

EtherType II (DIX v.2)  
IEEE 802.3-LLC1 and IEEE 802.3-SNAP  
Layer 1, MAC, MAC+IP, MAC+IP+UDP

#### Streams

Up to 256 multi-streams per port in Uniform Traffic Profile  
- Source/Destination MAC/IP and VLAN addresses with traffic load averaged  
Up to 4 multi-streams per port in Individual Traffic Profile  
- Addresses, Prioritization/IP header, Frame size, Payload, Traffic load

#### Addresses

Source/Destination MAC/IP and VLAN ID (Single/Stack Q-In-Q), ARP/DHCP supported

#### Prioritization

VLAN ID (802.1Q)/Priority (801.p), and IP TOS/Cisco DiffServ DSCP

#### IP Header

Prioritization, TTL, UDP/TCP/HOPOPT

#### Traffic Load

Up to full wire speed in Line Utilization %, Line Rate in Kbps, Frame Rate in FPS and Frame Gap

#### Frame Size

64~2040 Bytes, including Under/Oversize and Jumbo

#### Duration

Infinite, the Number of Frames, and Timed

#### Payload

PRBS, CJPAT, CRPAT, All-0s, All-1s, ALT1/0

#### Shaping

Constant, Ramp and Burst

#### Error Insertion

BE (BERT), CRC, IP Checksum and Alignment

### QoS Test

#### Operation

IP QoS test in asymmetric or symmetrical testing  
Remote Loop back with MAC/IP S/D addresses swapped automatically

#### QoS Index Inserted

Anacise QoS Test Payload with sequence no. and timing inserted for the validation of Triple Play service

#### Timing Resolution

40 ns for all timing parameter measurements

#### Payload

2<sup>15</sup>-1, 2<sup>20</sup>-1, 2<sup>23</sup>-1, and 2<sup>31</sup>-1, with pattern inverted option

#### QoS Measurements

Network Delay in ms (Current, Min, Max, and Avg)  
Inter-Arrival Time (Current, Min, Max, and Avg)  
Jitter Distribution Analysis Diagram  
Packet Loss (Count, Ratio)  
Out of Sequence (Count, Ratio)  
QoS result is classified per the standard of ITU-T Y.1541  
Network Performance Objectives for IP-Based Service

#### Traffic Statistics

Same as the traffic statistics-Physical and Frame layer in Monitor mode

### Multi-BERTs

#### Operation

Single BERT with Uniform multi-streams in P-t-P, P-t-LB  
Multi-BERTs with Individual multi-streams in P-t-P, P-t-LB and P-t-LB  
BER Testing in Asymmetrical or Symmetrical testing  
Loop back with MAC/IP source/destination addresses swapped automatically

#### Patterns

2<sup>15</sup>-1, 2<sup>20</sup>-1, 2<sup>23</sup>-1, and 2<sup>31</sup>-1, with pattern inverted option  
Long Continuous Random Test Pattern (CRPAT)  
Long Continuous Jitter Test Pattern (CJPAT)  
All-0s, All-1s, ALT1/0

#### BER Results

Individual Stream-based :  
BER count/BER %, Frame sync loss count/time,  
Pattern Sync Loss time, BER frames received,  
Utilization% and FPS  
Port-based :  
CRC error count/rate, IP checksum error count/rate,  
Packet loss, Sequence error, Alignment, Line-rate

#### Traffic Statistics

Same as the traffic statistics-Physical and Frame layer in Monitor mode

## RFC 2544

Full comply with IETF RFC 2544 Benchmarking Methodology for Network Interconnect Devices  
Throughput, Latency, Frame Loss and Burst (Back to back)  
Selectable benchmark performance Index in packet loss or BERT with up to 2 independent tests simultaneously  
Performing Throughput/Frame Loss/Latency tests simultaneously with skip test feature in error free  
Results presented in Tabular or Graphics

### Traffic Statistics

Same as the traffic statistics-Physical and Frame layer in Monitor mode

### Service Tool

Port Location in blinking, Detecting copper cable faults in Open, Short and Distant to fault

### Monitor

#### Applications

Independent 2 ports monitor or PassThrough between 2 ports (**PIM-41D-GigE**)

#### Traffic Statistics-Physical Layer

Remote physical layer configuration detection in advised/capable of Speed, Duplex, Pause, Clock and MDI/MDIX  
Current port connected in State, Speed, Link, Duplex, LOS, Optical Power (Depends on the SFP)

#### Traffic Statistics-Frame layer

##### - Tx/Rx Throughput

Line Rate in Mbps (Current, Min, Max, and Avg)  
Utilization in % (Current, Min, Max, and Avg)  
Frame Rate in KFPS (Current, Min, Max, and Avg)  
Data Rate in Mbps, Frame size distribution analysis  
Frame Type Statistics in Unicast, Multicasts, Broadcasts and total frames

##### - Rx Error Frames

Runts, Oversize, CRC, Alignment, IP Checksum and Pause

##### - Tx Error Frames

Runts, Oversize, Collision and Multi-collisions

## Ordering Information

### PIM-41S-GigE GigE Triple Play PIM (Single Port Version)

Single 10/100/1000Base-T Electrical UTP (RJ-45) and 1000Base-X Optical (SFP) port

### PIM-41D-GigE GigE Triple Play PIM (Dual Port Version)

Dual 10/100/1000Base-T Electrical UTP (RJ-45) and 1000Base-X Optical (SFP) port

### Hardware Options

PIM-41X-HSFPS SFP SX 850 nm, Multimode  
PIM-41X-HSFPL SFP LX 1310 nm, Single Mode  
PIM-41X-HSFPZ SFP ZX 1550 nm, Single Mode

### Standard Accessories

256MB MMC Card  
LAN Cat 6 (PIM-ACC-CAB-LAN)  
CSA platform/ PIM - User Guide (Preloaded on MMC)

## Bandwidth Billboard

### - Stream Traffic Statistics

Stream discoveries in Host Table per the selectable category of MAC, IP, VLAN  
Full wire speed traffic statistics with up to 10 streams analysis abilities simultaneously  
Up to 10 Top Talkers analysis with Traffic Rate in Mbps, Utilization %, Frame Per Second (FPS) and Frames

## Power Saving

### Hibernation

High efficiency of approx. 16 hours practicable time and quick start

## NIC

### Interface

10/100/1000Base-T Electrical UTP (RJ-45)  
1000Base-X Optical (SFP) port

### Operation Mode

#### - Termination

Works with the "Termination/Active Simulation" of CSA Triple Play Analysis Suite, Which Includes :

<b>PIM-41X-STPA-IPTV-STB</b>	<i>IPTV STB Simulation</i>
<b>PIM-41X-STPA-VOIP-SIP</b>	<i>VOIP SIP Phone Simulation</i>
<b>PIM-41X-STPA-IPTV-STREAM</b>	<i>IPTV Stream Player</i>
<b>PIM-41X-STPA-DATA</b>	<i>Ethernet IP Analysis</i>
<b>PIM-41X-STPA-DATA-IST/ILT</b>	<i>Internet Service and IP Layer Tests</i>

#### - PassThrough (PIM-41D-GigE)

Works with the "PassThrough/Passive Monitor" of CSA Triple Play Analysis Suite pre the Hardware Filters selected, Which Includes :

<b>PIM-41D-STPA-DATA</b>	<i>Ethernet IP Analysis</i>
<b>PIM-41D-STPA-IPTV</b>	<i>IPTV Expert Analysis</i>
<b>PIM-41D-STPA-VOIP</b>	<i>VOIP Expert Analysis</i>

### Software Options

PIM-41X-SQOS	Adds IP QoS Testing Ability
PIM-41X-S2544	Adds RFC 2544 Testing Ability
PIM-41X-SVCT	Adds Service Tool Testing Ability
PIM-41D-SBILLBOARD	Adds Bandwidth Billboard Feature Ability
PIM-41X-SMPLS	Adds MPLS Testing Ability
PIM-41X-SIPV6	Adds IPv6 Testing Ability
PIM-41D-STPA-DATA	Ethernet IP Analysis
PIM-41X-STPA-DATA-IST/ILT	Internet Service and IP Layer Tests
PIM-41D-STPA-IPTV	IPTV Expert Analysis
PIM-41X-STPA-IPTV-STB	IPTV STB Simulation
PIM-41X-STPA-IPTC-STREAM	IPTV Stream Player
PIM-41D-STPA-VOIP	VOIP Expert Analysis
PIM-41X-STPA-VOIP-SIP	VOIP SIP Phone Simulation



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