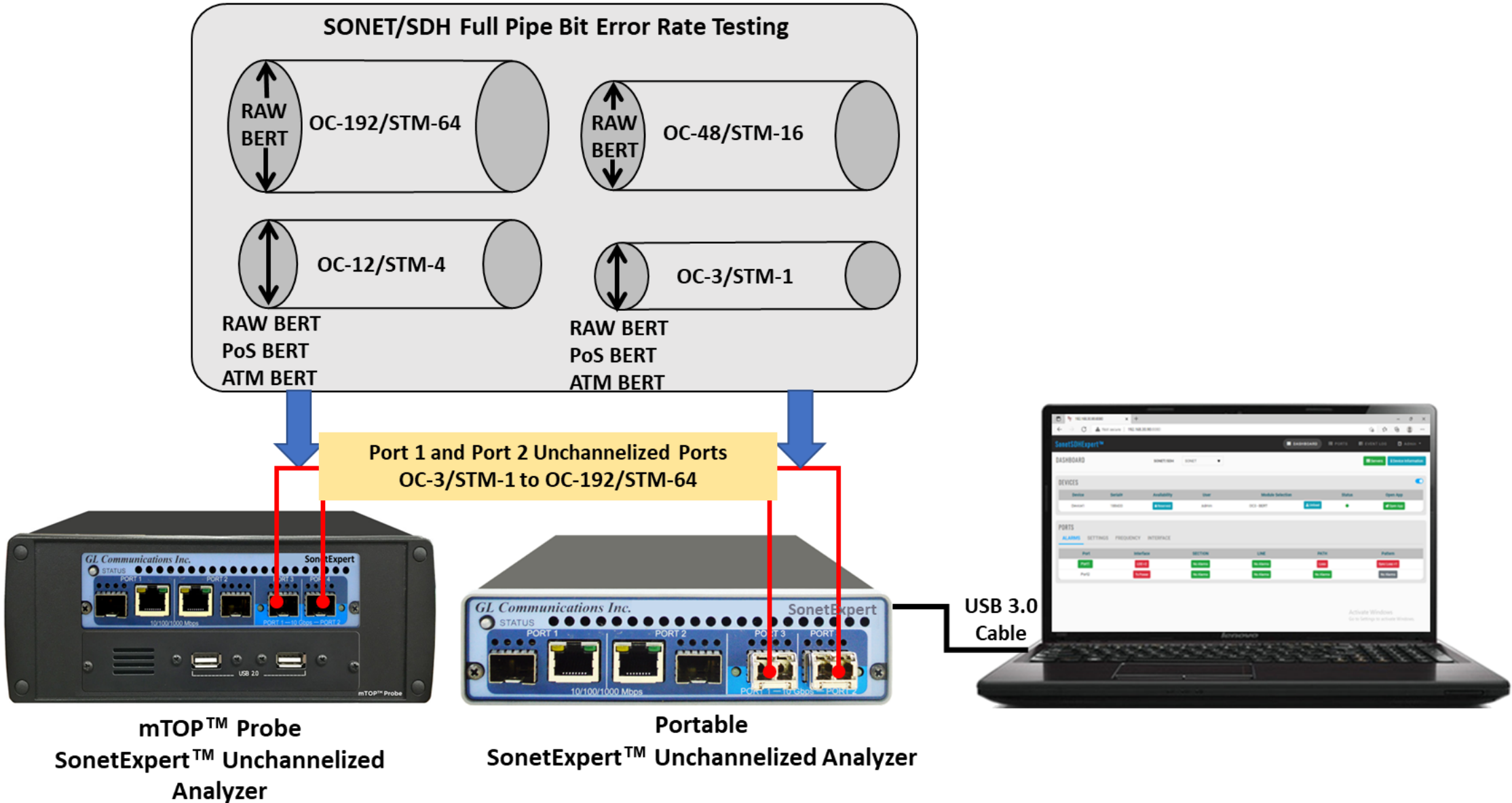

SonetExpert™ (SDH) Unchannelized Analyzer

OC-3/STM-1, OC-12/STM-4, OC-48/STM-1 and OC-192/STM-64

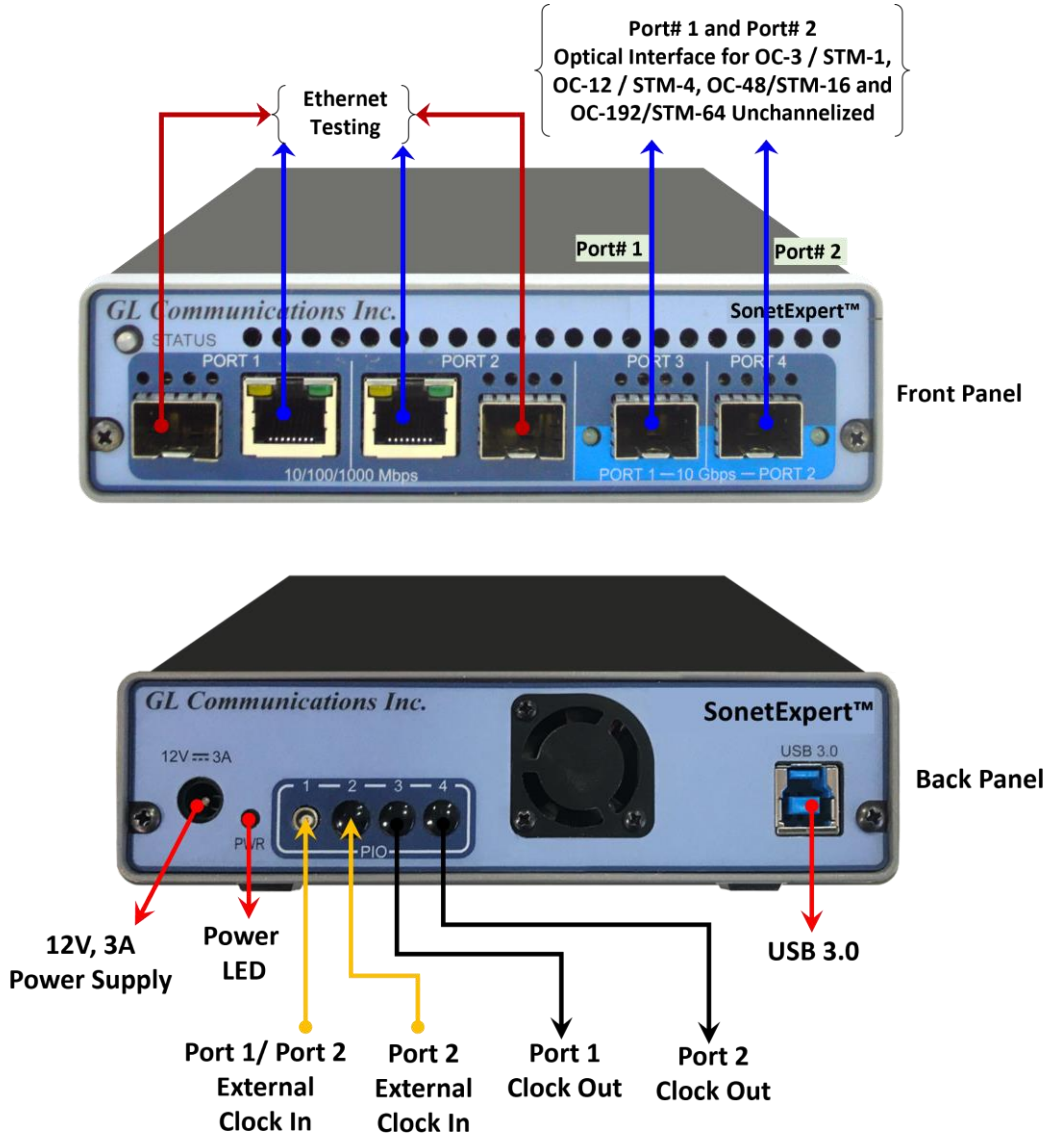


818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878
Phone: (301) 670-4784 Fax: (301) 670-9187 Email: info@gl.com
Website: <https://www.gl.com>

SonetExpert™ Unchannelized Analyzer



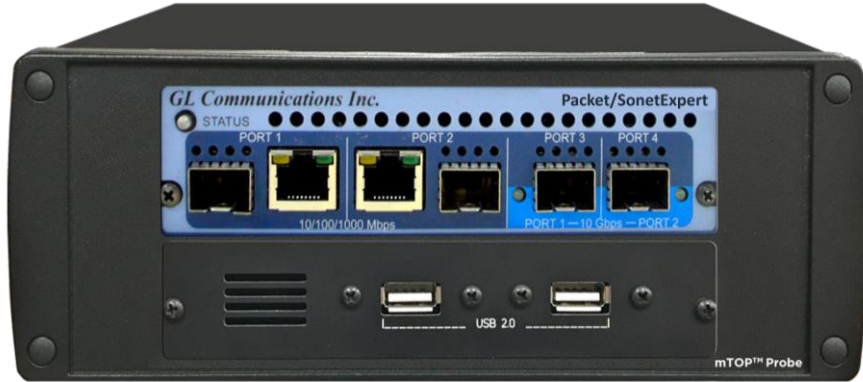
SonetExpert™ Portable Hardware Specification



Interfaces	<ul style="list-style-type: none"> • 2 x Unchannelized Ports (OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64) • Single Mode or Multi Mode Fiber SFP support with LC connector • USB 3.0 Port • External Clock: Input Port 1, Port 2 and Output Port 1, Port 2
T1/E1	<ul style="list-style-type: none"> • Sync Loss, HDB3 Violation, Carrier Loss, Frame Error, Remote, Distant MF, AIS, BPV Errors, CRC Errors, Frame Errors, Transmit Under Run, Receive Over Run
Dimensions	<ul style="list-style-type: none"> • Length: 8.45 in. (214.63 mm) • Width: 5.55 in. (140.97 mm) • Height: 1.60 in (40.64 mm)
External Power Supply	<ul style="list-style-type: none"> • +12 Volts (Medical Grade), 3 Amps

SonetExpert™ mTOP™ Probe Unit

- PacketExpert™ hardware is used for both PacketExpert /SonetExpert™



**SonetExpert™ mTOP™ Probe Solution
(Front Panel)**



**SonetExpert™ mTOP™ Probe Solution
(Back Panel)**

Physical Specifications	<ul style="list-style-type: none"> • Height: 3.0 Inches (76.2 mm) • Length: 10.4 Inches (264.16 mm) • Width: 8.4 Inches (213.36 mm)
SonetExpert™ interfaces	<ul style="list-style-type: none"> • 4x 1G Base-X Optical OR 10/100/1000 Base-T Electrical • 2x 10G Base-SR, -LR -ER Optical option • 2 x 100 Mbps Base-FX optical interface • Single Mode or Multi Mode Fiber SFP support with LC connector
External Power Supply	<ul style="list-style-type: none"> • +12 (Medical Grade), 3 Amps
SBC Specifications	<ul style="list-style-type: none"> • Intel Core i3 or optional i7 NUC Equivalent • Windows® 10 64-bit Pro Operating System • USB 2.0 or 3.0 Ports, ATX Power Supply • 256 GB Hard drive, 8G Memory (Min) • Two HDMI ports (Optional VGA to HDMI interface) • External USB based Wi-Fi adaptor

SonetExpert™ mTOP™ 1U Rack Solution



Port# 1 and Port# 2
Optical Interface for OC-3/192 - STM-1/64
Unchannelized

**SonetExpert™ mTOP™ 1U Rack Solution
(Front Panel)**



Power
(100-240 AC Supply)

On/Off
Switch

USB 3.0
Port

USB Type C
Ports

HDMI Port

Ethernet Port

USB 2.0 &
USB 3.0 Ports

Reset

**SonetExpert™ mTOP™ 1U Rack Solution
(Back Panel)**

Physical Specifications	<ul style="list-style-type: none"> • Height: 1U Rack • Length: 16 Inches • Width: 19 Inches
SonetExpert™ interfaces (1 unit)	<ul style="list-style-type: none"> • Two Unchannelized Ports (OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64) • Single Mode or Multi Mode Fiber SFP support with LC connector
SBC Specifications	<ul style="list-style-type: none"> • Embedded SBC, 1x SonetExpert™ • Intel Core i7, Windows® 11 64-bit Pro Operating System • USB 3.0 and 2.0 Ports, ATX Power Supply • USB Type C ports, Ethernet 2.5GigE port • 225GB Hard drive, 8G Memory

Optical Connectors and SFP Modules



LC Connectors



1310 or 1550 nm SFP Module

Introduction

- SONET = Synchronous optical networking. Used in North America
- SDH = Synchronous digital hierarchy. Used in the rest of the world
- SONET and SDH are optical transmission protocols for high-speed data, voice and video traffic
- Data rates
 - **SONET**: Optical Carrier (OC) - N
 - **SDH**: Synchronous Transport Module (STM) - N
- SONET/SDH can carry channelized and unchannelized data
 - Channelized = T1 E1.
 - OC-3/STM-1 supports 84 T1s or 63 E1s
 - OC-12/STM-4 supports 336 T1s or 252 E1s
 - OC-48/STM-16 supports
 - OC-192/STM-64 supports
 - Unchannelized = Packet over SONET (PoS), Asynchronous Transfer Mode (ATM) and RAW Analyzer

SONET or SDH Line Rates

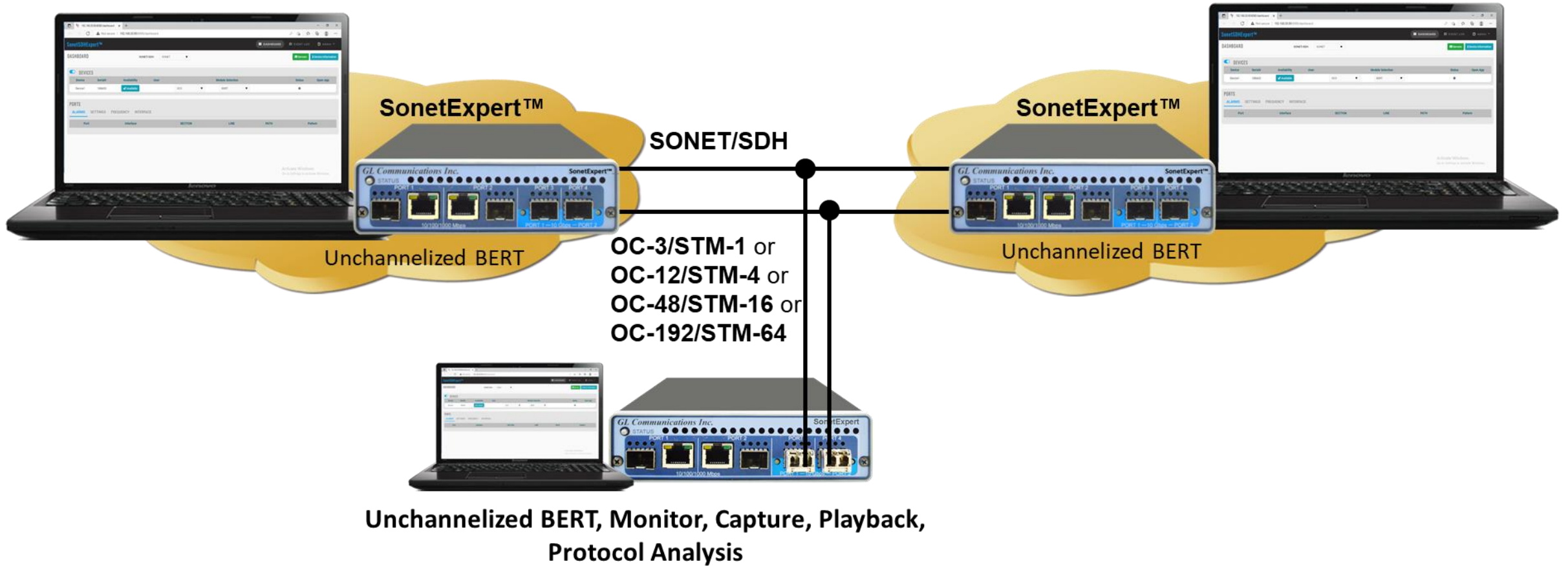
Electrical	Optical (SONET)	Line Rates	SDH Equivalent
STS-1	OC-1	51.84 Mbps	—
STS-3	OC-3	155.52 Mbps	STM-1
STS-9	OC-9	466.56 Mbps	—
STS-12	OC-12	622.08 Mbps	STM-4
STS-18	OC-18	933.12 Mbps	—
STS-24	OC-24	1.2 Gbps	—
STS-36	OC-36	1.9 Gbps	—
STS-48	OC-48	2.5 Gbps	STM-16
STS-96	OC-96	5 Gbps	—
STS-192	OC-192	10 Gbps	STM-64
STS-768	OC-768	40 Gbps	—
STS-3072	OC-3072	160 Gbps	—

Main Features

- Wirespeed processing of ATM, PoS or RAW data for Tx and Rx for both ports
- Supports BERT testing at rates from OC-3 to OC-192
- Ability to capture or playback to or from disk at full rate in both directions for all ports for detailed offline analysis
- Comprehensive transmit/receive testing capabilities; transmitting and verifying data with incrementing sequence numbers with each packet/cell
- Easy to use and flexible Bit Error Rate Test (BERT) application for ATM, POS and RAW Analyzers
- SCAN feature gives a complete overview of the incoming SONET/SDH traffic in an easy and intuitive graphical display and helps technicians to quickly identify the structure of unknown SONET/SDH traffic
- ATM (AAL2, AAL5) Protocol Analyzer, UMTS Protocol Analyzer, PPP (IP and higher layer protocols) Protocol Analyzer
- ATM
 - ATM Forum User Network Interface Specification
 - ATM physical layer for Broadband ISDN according to CCITT Recommendation I.432
- PPP over SONET (PoS)
 - Point-to-Point Protocol (PPP) over SONET/SDH specification according to RFC 2615 (1619) / 1662 of the PPP Working Group of the Internet Engineering Task Force (IETF)
- OC-3/OC-12/STM-1/STM-4 Transparent Payload
 - Analyzer processes SONET/SDH payload in transparent (RAW) mode without any transport protocols

SonetExpert™ SONET/SDH Unchannelized Analyzer

SonetExpert™ Unchannelized Setup



SonetExpert™ Rest Server

Sonet Expert Rest Server

File View Applications Help

No. of SonetExpert Devices	1
Server Version	24.3.6.0
Server Status	Started

Start/Stop Server

IP Address: 192.168.30.20 Port: 3100

Auto Start Show On Startup

Tue Mar 12 2024 02:29:31
Detected 1 device
Starting Rest Server...successful
Checking http/database servers status...
Http server not running, attempting to start...successful
Http Server running on 192.168.30.20:8080
Database Server running on 192.168.30.20:9899
Rest Server running on 192.168.30.20:3100

!!!!!!!!!!!!!! Server ready !!!!!!!!!!!!!!!
Click the "Open GUI" button above to open the GUI in a browser or
Open any browser and type the following url to start using SonetExpert

<http://192.168.30.20:8080>

SonetExpert™ Unchannelized Web Interface

Login Page

← → ↻ Not secure 192.168.1.156:8080/login

SonetSDHExpert™

Login

Username

Password

Login

Web Client

SonetSDHExpert™

Dashboard Event Log

Dashboard SONET/SDH SONET Servers Device Information

Devices

Device	Serial#	Availability	User	Module Selection	Status	Open App
Device1	188399	Reserved	Admin	OC3 OC12 OC48 OC192	BERT PoS BERT ATM BERT PoS DATAPIPE ATM DATAPIPE RAW DATAPIPE	Load

Ports

Alarms Settings Frequency Interface

Port Laser Interface SECTION LINE PATH Pattern

Clock Source and Operation Mode

SonetSDHExpert™ Dashboard Ports Event Log Admin

Dashboard SONET/SDH SONET Servers Device Information

Devices ON

Device	Serial#	Availability	User	Module Selection	Status	Open App
Device1	188544	Reserved	Admin	OC12 - ATM BERT	Unload	Open App

Ports Reset All All Ports Laser ON OFF

Alarms Settings Frequency Interface

Port	Clock Source	Frequency	Operation Mode	Scrambler
Port1	Internal		Tx/Rx	ON
Port2	Internal		Tx/Rx	ON

Internal
Recovered
Recovered (Opposite Port)
External Clock 1
External Clock 2

Tx/Rx
Loopback

Tx Rx Frequency

SonetSDHExpert™ Dashboard Ports Event Log Admin

Dashboard SONET/SDH SONET Servers Device Information

Devices ON

Device	Serial#	Availability	User	Module Selection	Status	Open App
Device1	188399	Reserved	Admin	OC12 - ATM BERT	Unload	Open App

Ports Reset All All Ports Laser ON OFF

Alarms Settings Frequency Interface

Port		Frequency (Hz)	Alarm	Freq Deviation (ppm)	Freq Max Deviation (ppm)	Tx Frequency
Port1	Tx	622,080,624	●	1	2	-1 +1
	Rx	622,080,436	●	0.7	0.7	
Port2	Tx	622,079,380	●	-1	-2	-1 +1
	Rx	622,080,434	●	0.7	0.7	

SFP Module Interfaces

SonetSDHExpert™ Dashboard Ports Event Log Admin

Dashboard SONET/SDH SONET Servers Device Information

Devices ON

Device	Serial#	Availability	User	Module Selection	Status	Open App
Device1	188399	Reserved	Admin	OC12 - ATM BERT	Unload	Open App

Ports Reset All All Ports Laser ON OFF

Alarms Settings Frequency Interface

Port	SFP Module Plugin Status	LOS	Rx Power	Tx Power	Rx Power Level(dBm)	Tx Power Level(dBm)	SFP Module Temperature (°C)
Port1	Plugged In	●	●	●	-11.84	-10.97	44.23
Port2	Plugged In	●	●	●	-10.17	-11.16	41.54

ATM BERT Configuration

SonetSDHExpert™ Dashboard Ports Event Log Admin

Laser ON Select Port Port1 (OC12 - ATM BERT) START Reset BERT Status IDLE

Alarms **BERT** Impairments Graph Sonet Interface System Monitor

Configuration Results Apply Default Cancel

ATM Header Fields Tx/Rx Coupled

Tx Configuration

User/Network Interface UNI NNI

Generic Flow Control 1 (0-15)

Virtual Path Identifier 2 (0-255)

Virtual Channel Identifier 3 (0-65535)

Payload Type 1 (0-7)

Cell Loss Priority 1 (0-1)

Rx Configuration

User/Network Interface UNI NNI

Generic Flow Control 1 Any (0-15)

Virtual Path Identifier 2 Any (0-255)

Virtual Channel Identifier 3 Any (0-65535)

Payload Type 1 Any (0-7)

Cell Loss Priority 1 Any (0-1)

Payload Configuration Tx/Rx Coupled

Tx Configuration

Pattern Type PRBS_2E9_1

Invert Pattern

Rx Configuration

Pattern Type PRBS_2E9_1

Invert Pattern

Traffic Rate Tx Configuration

Bandwidth Type %

Bandwidth Rate 100 (0.01-100)

BERT Results

SonetSDHExpert™ Dashboard | Ports | Event Log | Admin

Laser ON
 Select Port: Port1 (OC12 - ATM BERT) ▼
STOP ▼
Reset
BERT Status SYNC
!

Alarms | **BERT** | Impairments | Graph | Sonet | Mux/Demux | Interface | System Monitor

Configuration
Results

Alarms

Alarm	Status	Seconds	Count
Bit Error	●	0	0
Sync Loss	●	0	0

Bits Analysis

	Instantaneous	Total
Bit Error Rate	0.00e+0	0.00e+0
Bit Error Count	0	0
Bits Received	542,525,952	772,173,496,320

Time

	Total Seconds	Error Seconds	Error Free Seconds
	1,324	0	1,324

Status

Description	Tx	Rx
Status	Running	Running
Running Time	4537	4539
Start Time	Tue Mar 12 2024 02:32:20	Tue Mar 12 2024 02:32:19
End Time	-	-

Cell Statistics

Description	Tx	Rx
Total Cell Count	2,010,878,065	2,010,868,480
Traffic Cell Count	2,010,878,065	2,010,868,480
Idle Cell Count	0	0
HEC Error Count		0
Test Cell Count		2,010,868,480
Non Test Cell Count		0

All Alarms (SONET)

Alarms BERT Impairments Graph Sonet Interface System Monitor

Interface

Alarms	Status	Seconds
LOS	●	0
Rx Frequency	●	0
Rx Power	●	0
Invalid Rx Signal	●	0
Tx Frequency	●	0
Tx Power	●	0

BERT Alarms

Alarm	Status	Seconds	Count
Bit Error	●	0	0
Sync Loss	●	0	0

Frequency

Name	Freq (Hz)	Freq Deviation (ppm)	Alarm/Warning	Details	Freq Max Deviation (ppm)
Rx Frequency	155,519,996	0			0
Tx Frequency	155,519,996	0			0

SFP Real Time Diagnostics

Name	Value	Alarm/Warning	Details
Rx Power (dBm)	-2.27		
Tx Power (dBm)	0.01		

Section

Alarms	Status	Seconds	Count
Loss Of Frame	●	0	-
B1 BIP	●	0	0
Out Of Frame	●	0	-

Line

Alarms	Status	Seconds	Count
AIS-L	●	0	-
RDI-L	●	0	-
B2 BIP	●	0	0
REI-L	●	0	0

Path

Alarms	Status	Seconds	Count
AIS-P	●	0	-
LOP-P	●	0	-
RDI-P	●	0	-
UNEQ-P	●	0	-
B3 BIP	●	0	0
REI-P	●	0	0
PLM	●	0	-
All Ones	●	0	-
Pointer Adjustments	●	0	0
New Pointers	●	0	0

Alarms/Error Monitoring

- Monitors and reports all SONET/SDH alarms → Section, Line, Path alarms (SONET) or RSOH, MSOH, HP alarms (SDH)

➤ Section/RSOH Alarms

SONET (Section)	SDH (RSOH)
Loss of Frame	
B1 BIP	
Out of Frame alarm	

➤ Line/MSOH Alarms

SONET (Line)	SDH (MSOH)
AIS-L	MS-AIS
RDI-L	MS-RDI
B2 BIP	B2 BIP
REI-L	MS-REI

➤ Path/HP Alarms

SONET (Path)	SDH (HP)
AIS-P	AU-AIS
LOP-P	AU-LOP
RDI-P	HP-RDI
UNEQ-P	HP-UNEQ
B3 BIP	B3 BIP
REI-P	HP-REI
PLM	PLM
All Ones	All Ones
Pointer Adjustment	
New Pointer	

SONET or SDH Alarms

Section			
Alarms	Status	Seconds	Count
Loss Of Frame	●	0	-
B1 BIP	●	0	0
Out Of Frame	●	0	-

Line			
Alarms	Status	Seconds	Count
AIS-L	●	0	-
RDI-L	●	0	-
B2 BIP	●	0	0
REI-L	●	0	0

Path			
Alarms	Status	Seconds	Count
AIS-P	●	0	-
LOP-P	●	0	-
RDI-P	●	0	-
UNEQ-P	●	0	-
B3 BIP	●	0	0
REI-P	●	0	0
PLM	●	0	-
All Ones	●	0	-
Pointer Adjustments	●	0	0
New Pointers	●	0	0

RSOH			
Alarms	Status	Seconds	Count
Loss Of Frame	●	0	-
B1 BIP	●	0	0
Out Of Frame	●	0	-

MSOH			
Alarms	Status	Seconds	Count
MS-AIS	●	0	-
MS-RDI	●	0	-
B2 BIP	●	0	0
MS-REI	●	0	0

HP			
Alarms	Status	Seconds	Count
AU-AIS	●	0	-
AU-LOP	●	0	-
HP-RDI	●	0	-
HP-UNEQ	●	0	-
B3 BIP	●	0	0
HP-REI	●	0	0
PLM	●	0	-
All Ones	●	0	-
Pointer Adjustments	●	0	0
New Pointers	●	0	0

Impairments

SonetSDHExpert™ Dashboard Ports Event Log Admin

Laser ON Select Port Port1 (OC3 - BERT) STOP Reset BERT Status SYNC

Alarms BERT **Impairments** Graph Sonet Interface System Monitor

Alarm Generation

Loss Of Frame	<input type="checkbox"/>
AIS-L	<input type="checkbox"/>
RDI-L	<input type="checkbox"/>
AIS-P	<input type="checkbox"/>
LOP-P	<input type="checkbox"/>
RDI-P	<input type="checkbox"/>
UNEQ-P	<input type="checkbox"/>

Error Insertion

B1 BIP	Single	None ▼
B2 BIP	Single	None ▼
REI-L	Single	
B3 BIP	Single	None ▼
REI-P	Single	
Bit Error	Single	None ▼

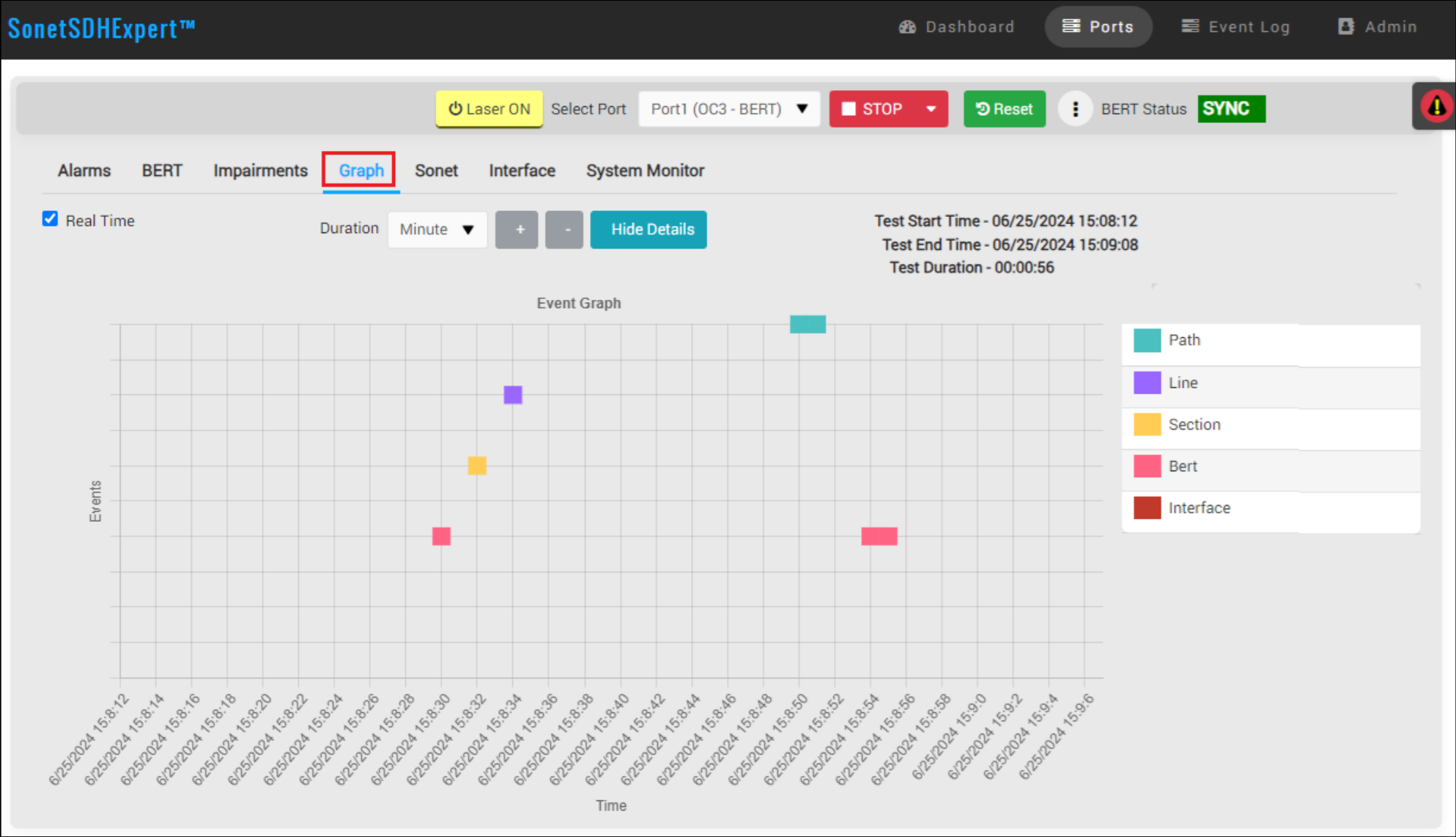
Sonet Pointer

H1/H2 Pointer 522 (0-782) Apply

Insert Justification

Type Positive ▼ Single

Graph



SONET Overhead - ATM

SonetSDHExpert™ Dashboard Ports Event Log Admin

Laser ON Select Port Port1 (OC12 - ATM BERT) STOP Reset BERT Status SYNC

Alarms BERT Impairments Graph **Sonet** Mux/Demux Interface System Monitor

Overhead Statistics

Tx Channel 1 Rx Channel 1 Default

TOH (Tx Rx)						POH			
A1 F6 F6	A1 F6 F6	A1 F6 F6	A2 28 28	A2 28 28	A2 28 28	J0 01 02	Z0 05 06	Z0 09 0A	J1 AC 6E
B1 D6 F5			E1 00 00			F1 00 00			B3 1F 89
D1 00 00			D2 00 00			D3 00 00			C2 13 13
H1 93 62	H1 93 93	H1 93 93	H2 FF 0A	H2 FF FF	H2 FF FF	H3 00 00	H3 00 00	H3 00 00	G1 A0 B0
B2 7A 5A	B2 0D 12	B2 BE 01	K1 00 00			K2 00 00			F2 DB C6
D4 00 00			D5 00 00			D6 00 00			H4 BC 9E
D7 00 00			D8 00 00			D9 00 00			Z3: BC 9E
D10 00 00			D11 00 00			D12 00 00			Z4: BC 9E
S1 00 00	Z1_0 00 00	Z1_1 00 00	Z2 00 00	Z2 00 00	Z2 00 00	E2 00 00			N1 00 00

SFP Interface

SonetSDHExpert™ Dashboard Ports Event Log Admin

Laser ON Select Port: Port1 (OC12 - ATM BERT) START Reset BERT Status: **IDLE**

Alarms BERT Impairments Graph Sonet **Interface** System Monitor

SFP Module **Plugged In**

Interface

Alarms	Status	Seconds
LOS	●	0
Rx Frequency	●	0
Rx Power	●	0
Invalid Rx Signal	●	0
Tx Frequency	●	0
Tx Power	●	0
SFP Fault	●	0

Frequency

Name	Frequency (Hz)	Freq Deviation (ppm)	Alarm/Warning	Details	Freq Max Deviation (ppm)
Rx Frequency	622,079,984	0			0
Tx Frequency	622,079,984	0			0

SFP Real Time Diagnostics

Name	Value	Alarm/Warning	Details
Rx Power (dBm)	-0.69		
Tx Power (dBm)	-0.02		
Temperature (°C)	37.66		

SFP Alarm and Warning Thresholds

Name	Low Alarm	Low Warning	High Warning	High Alarm
Rx Power (dBm)	-20	-18.01	2.01	3.01
Tx Power (dBm)	-8.99	-7.99	3.01	4.01
Temperature (°C)	-2560	-1280	75	80

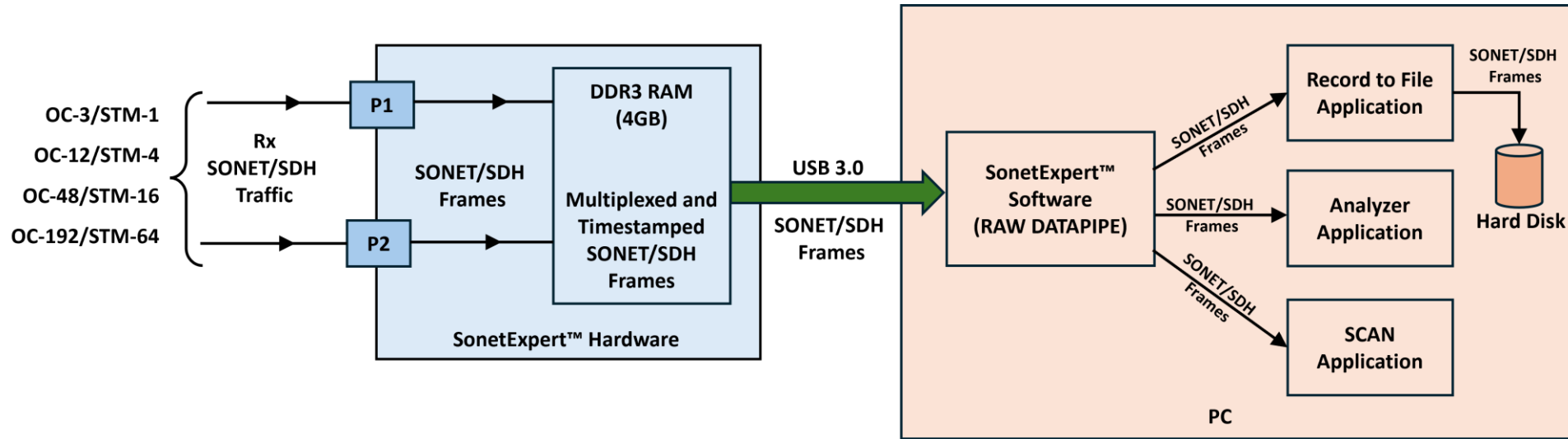
SFP Interface (Contd.)

SFP Info	
Name	Value
Wavelength	1310 nm
Module Identifier	SFP/SFP+
Connector Type	LC
Vendor Name	FINISAR CORP.
Vendor Part Number	FTLF1436P4BCV
Vendor Revision Number	A
Vendor Serial Number	P6PAM7N
Vendor Date Code	12/03/2021
SONET Compliance	Unspecified
10G Ethernet Compliance	10G Base-LR
Ethernet Compliance	Unspecified
Fibre Channel Link Length	Unspecified
Fibre Channel Technology	Unspecified
Fibre Channel Transmission Media	Unspecified
Fibre Channel Speed	Unspecified
Encoding	64B/66B
Nominal Bit Rate (Signaling Rate)	25750 Mbits/sec
Supported Single-Mode Link Length (Km)	10 Km
Supported Single-Mode Link Length (m)	10000 m
Supported Multi-Mode (50 micron, OM2) Link Length (m)	Unspecified
Supported Multi-Mode (62.5 micron, OM1) Link Length (m)	Unspecified
Supported Multi-Mode (50 micron, OM4) Link Length (m)	Unspecified
Supported Multi-Mode (50 micron, OM3) Link Length (m)	Unspecified

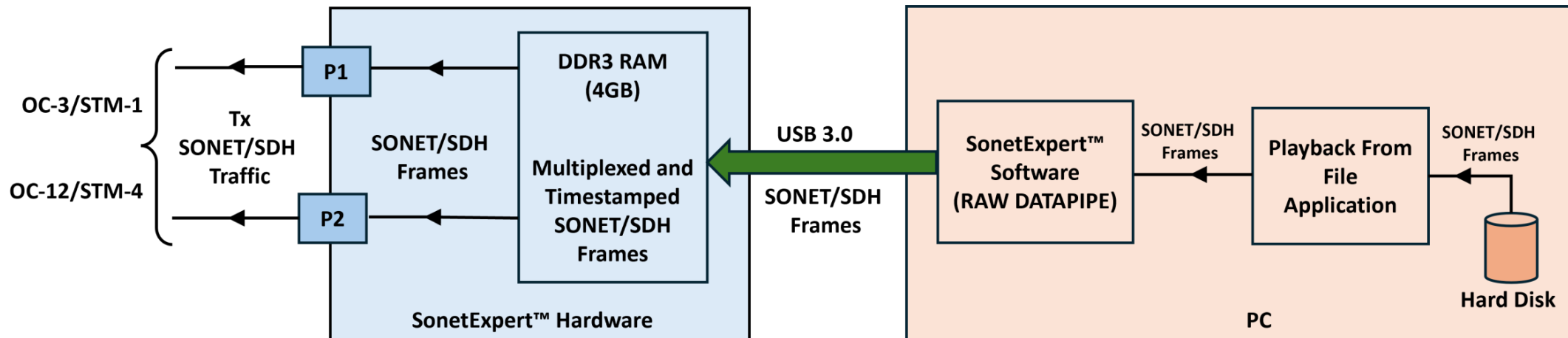
Datapipe Testing

ATM Datapipe

Rx Datapipe Architecture for ATM

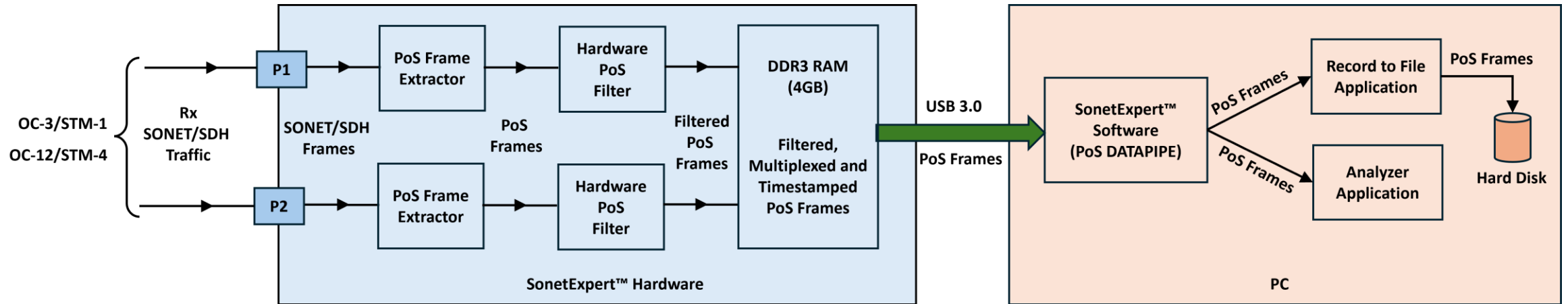


Tx Datapipe Architecture for ATM

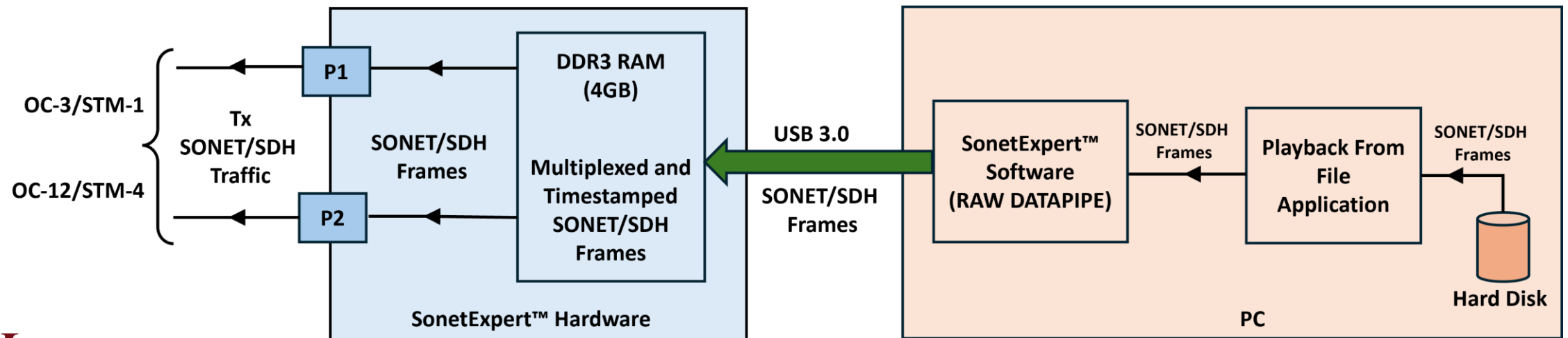


PoS Datapipe

Rx Datapipe Architecture for PoS

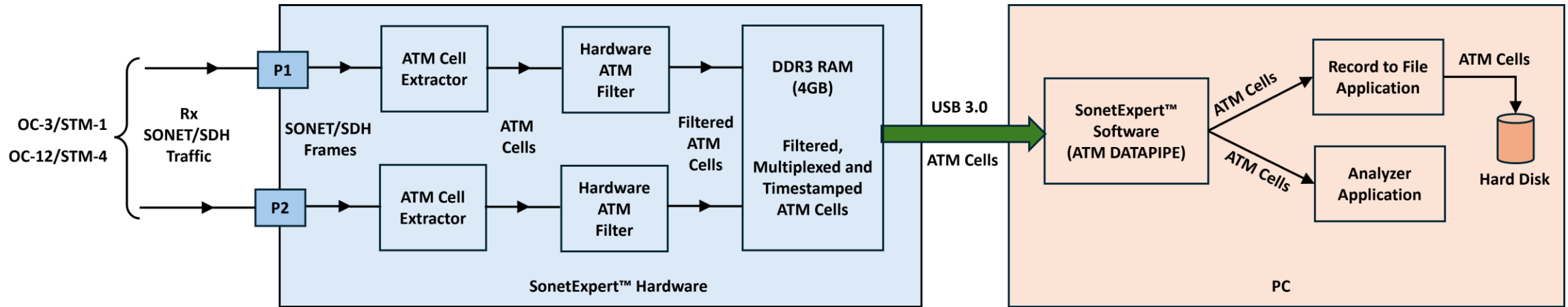


Tx Datapipe Architecture for PoS

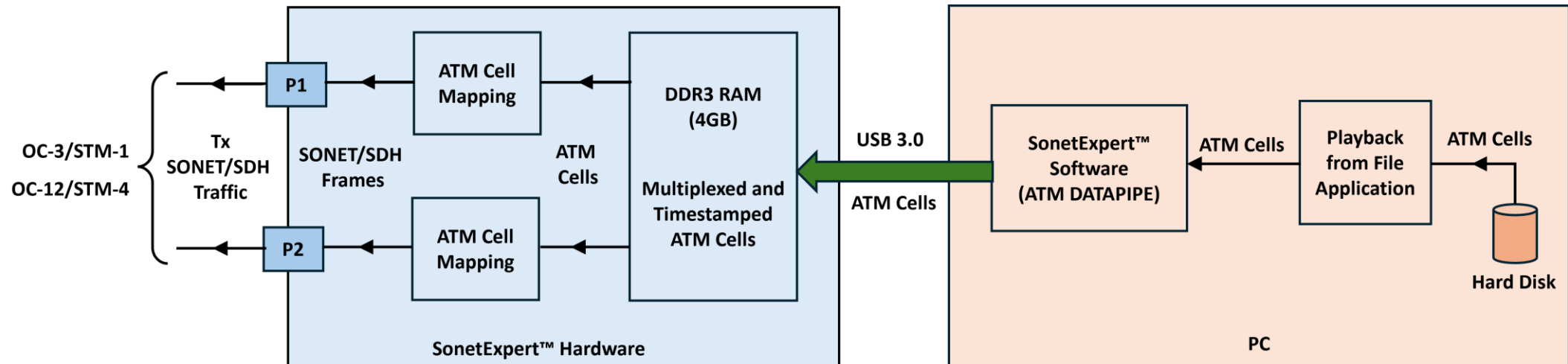


RAW Datapipe

Rx Datapipe Architecture for RAW



Tx Datapipe Architecture for RAW



Record to File Application

SonetSDHExpert™ Dashboard Ports Application Event Log Admin

Record To File

#	Tasks		
1	Recorder1 (Raw)		

Configuration Summary

Select Record Type: RAW DATAPIPE **STOP**

Select Ports

Port Name	Port ID	
<input checked="" type="checkbox"/> Port1	0	
<input type="checkbox"/> Port2	1	

Select File: Test.hdl

Capture Size: 2048 Size MBytes

Split Recording

Status

Name	Value
Status	Running
Running Time	00:00:01
Progress	34/2,048 MB (1.67%)
Failure Reason	

Statistics

Name	Value
Disk Write Bytes/Sec	19,603,122
Disk Write Buffer Utilization	0
Packets Received	14,748
File Bytes Written	36,088,356

Split Recording

The screenshot displays the SonetSDHExpert™ software interface. The top navigation bar includes Dashboard, Ports, Application, Event Log, and Admin. The main content area is titled "Record To File" and contains several configuration panels:

- Tasks:** A table with one task: "Recorder1 (Raw)".
- Configuration:** Includes a "Select Record Type" dropdown set to "RAW DATAPIPE" and a "STOP" button.
- Select Ports:** A table with two ports: "Port1" (ID 0) and "Port2" (ID 1), both with "Details" buttons.
- Select File:** A text input field containing "Test.hdl".
- Capture Size:** A text input field containing "00:05:00" and a "Time" dropdown.
- Split Recording:** A section highlighted with a red border, containing:
 - A "Split Recording" toggle switch that is turned on.
 - File Names:** Radio buttons for "Sequential" (selected) and "Date Time Formatted", with a dropdown menu set to "mm_dd_yy_hr_min_sec".
 - Split Limit:** Radio buttons for "Size MBytes" (selected), "Time", and "Frames", with a numeric input field set to "1024".
- Status:** A table showing recording progress:

Name	Value
Status	Running
Running Time	00:00:02
Progress	00:00:02/00:05:00 hh:mm:ss (0.67%)
Failure Reason	
- Statistics:** A table showing performance metrics:

Name	Value
Disk Write Bytes/Sec	77,823,441
Disk Write Buffer Utilization	0
Packets Received	20,865
File Bytes Written	203,162,505

On the left, a Windows File Explorer window is open, showing a directory of files. The "Size" column is highlighted with a red box, and a blue arrow points from this box to the "Split Limit" field in the software interface. The files listed are:

Name	Size
OC3_ATM_Port1_Port2_03_18_24_11_04_39.hdl	2,80,260 KB
OC3_ATM_Port1_Port2_03_18_24_11_04_18.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_03_57.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_03_35.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_03_15.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_02_53.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_02_33.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_02_12.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_01_51.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_01_30.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_01_08.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_00_48.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_00_27.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_11_00_05.hdl	10,00,001 KB
OC3_ATM_Port1_Port2_03_18_24_10_59_44.hdl	10,00,001 KB

Hardware Filtering for ATM

- Up to 16 Filters can be added

The screenshot displays the SonetSDHExpert™ web interface. At the top, there is a navigation bar with 'Dashboard', 'Ports', 'Application', 'Event Log', and 'Admin'. Below this, a control bar shows 'Laser ON', 'Select Port' (set to 'Port1 (OC12 - ATM DATAPIPE)'), and a 'Reset' button. The main content area is titled 'Configuration' and includes tabs for 'Alarms', 'Datapipe', 'Graph', 'Sonet', 'Interface', and 'System Monitor'. The 'Datapipe' tab is active, showing a 'Filter Configuration' button and an 'Enable Filtering' toggle switch. On the left, a table lists six filters (Filter1 to Filter6), each with a delete icon. On the right, a configuration panel allows setting parameters for the selected filter (Filter1):

Parameter	Value	Option
User/Network Interface	<input checked="" type="radio"/> UNI <input type="radio"/> NNI	
Generic Flow Control	1	<input type="checkbox"/> Any
Virtual Path Identifier	2	<input type="checkbox"/> Any
Virtual Channel Identifier	1	<input type="checkbox"/> Any
Payload Type	2	<input type="checkbox"/> Any
Cell Loss Priority	2	<input type="checkbox"/> Any

An 'Apply' button is located at the bottom right of the configuration panel.

Playback from File Application

SonetSDHExpert™ | Dashboard | Ports | Application | Event Log | Admin

Playback From File

Tasks

#	Tasks
1	Playback1 (Raw)

Configuration | Summary

Server1 | Select Playback Type: RAW DATAPIPE | STOP

Select File: Test.hdl | EOF | Continuous

Playback Ports

As Per File | File to Port Mapping

Frames will be transmitted as per the PortId recorded in each frame of the file.

Unmatched Port Handling : Action to take when PortId in file does not match any physical/configured port

Action: Drop Frame

Status

Name	Value
Status	Running
Running Time	00:00:01
Progress	1,956/864,312 (0.23)%
Failure Reason	

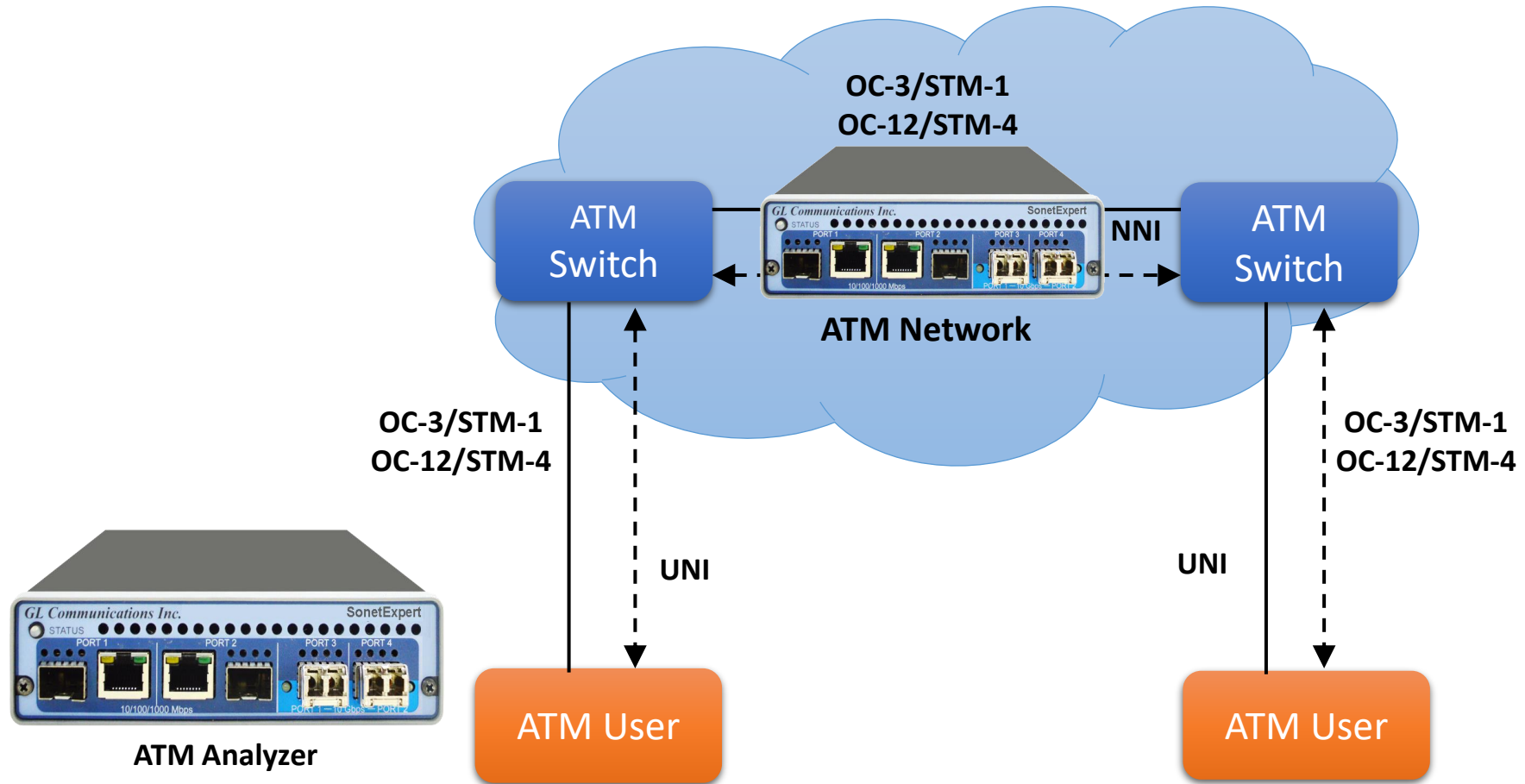
File Info

Name	Value
Frames In File	864,312
Ports In File	0

Statistics

Name	Value
Tx Frames	1,956

ATM Analyzer



ATM Analyzer (Contd.)

ATM Protocol Analysis AAL2,5(UNI3.1) 64-bit

File View Capture Statistics Database Call Detail Records Configure Help

0 GoTo

Dev	TScout	Frame#	TIME (Relative)	Len	Error	Frame Type ATM	VCI ATM	VPI ATM	PT ATM	PID Multi Protocol Encapsulation	Ether Type Multi Protocol Encapsulation
✓ 0	0	41207570	00:00:29.166894306	52		ATM-Cell	200	356	1		
✓ 0	0	41207571	00:00:29.166895026	52		ATM-Cell	200	356	1		
✓ 0	0	41207572	00:00:29.166895746	52		ATM-Cell	200	356	1		
✓ 0	0	41207573	00:00:29.166896364	52		ATM-Cell	200	356	1		
✓ 0	0	41207574	00:00:29.166897594	52		ATM-Cell	200	356	1		
✓ 0	0	41207575	00:00:29.166898320	52		ATM-Cell	200	356	1		
✓ 0	0	41207576	00:00:29.166898932	52		ATM-Cell	200	356	1		
✓ 0	0	41207577	00:00:29.166899652	52		ATM-Cell	200	356	1		
✓ 0	0	41207578	00:00:29.166900270	52		ATM-Cell	200	356	1		
✓ 0	0	41207579	00:00:29.166900990	52		ATM-Cell	200	356	1		

Device0 TScout=0 Frame=41207570 at 00:00:29.166894306 OK Len=52 *** Right click to SHOW/HIDE layer details or copy *

ATM Frame Data

```

===== ATM Layer =====
0000 VPI          = 356 (00010110 0100....)
0001 VCI          = 200 (...0000 00001100 1000....)
0003 PT           = ....001. (1)
0003 CLP          = .....1 (1)
0004 HEC          = 00000110 (6)
    
```

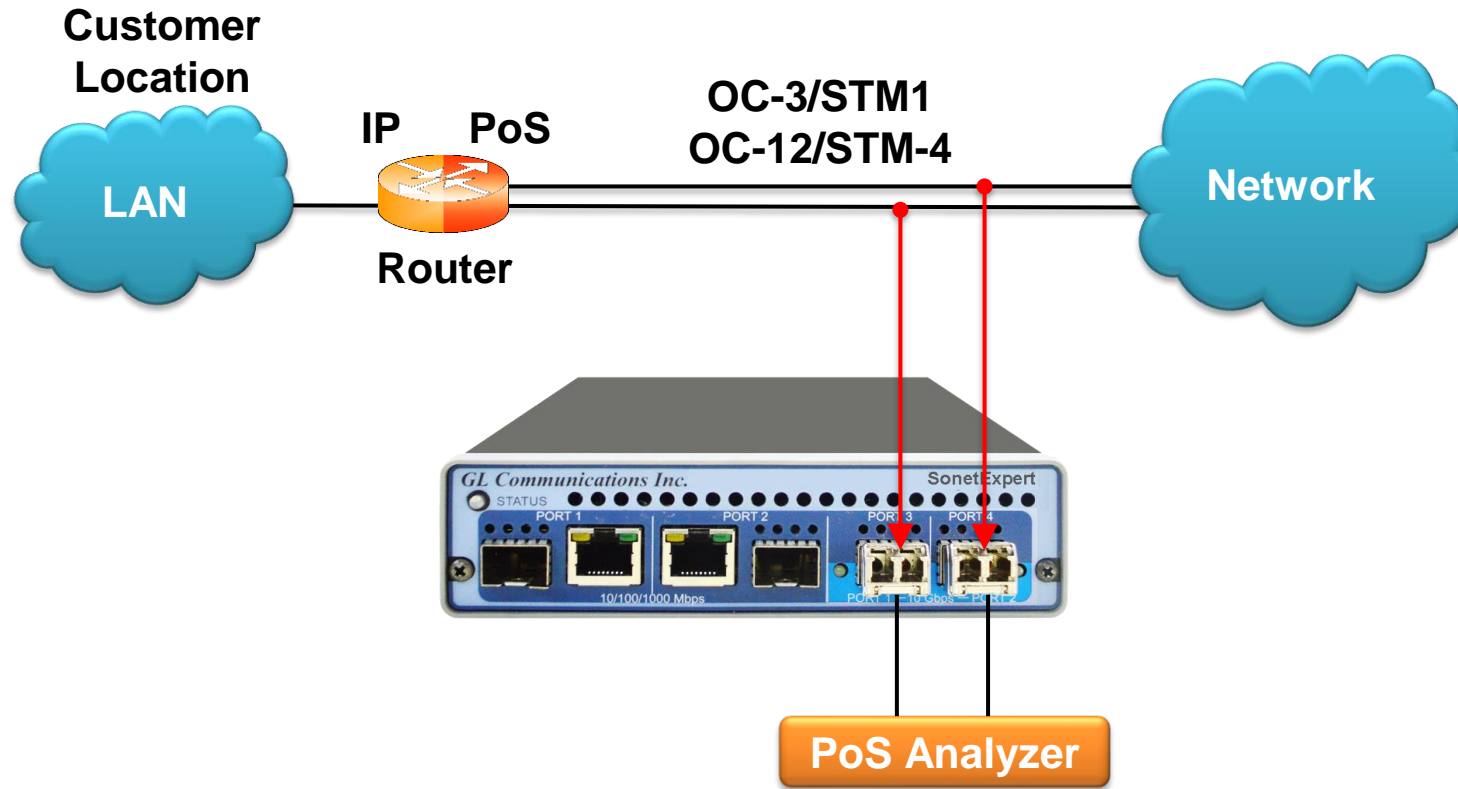
Hex Dump of the Frame Data

```

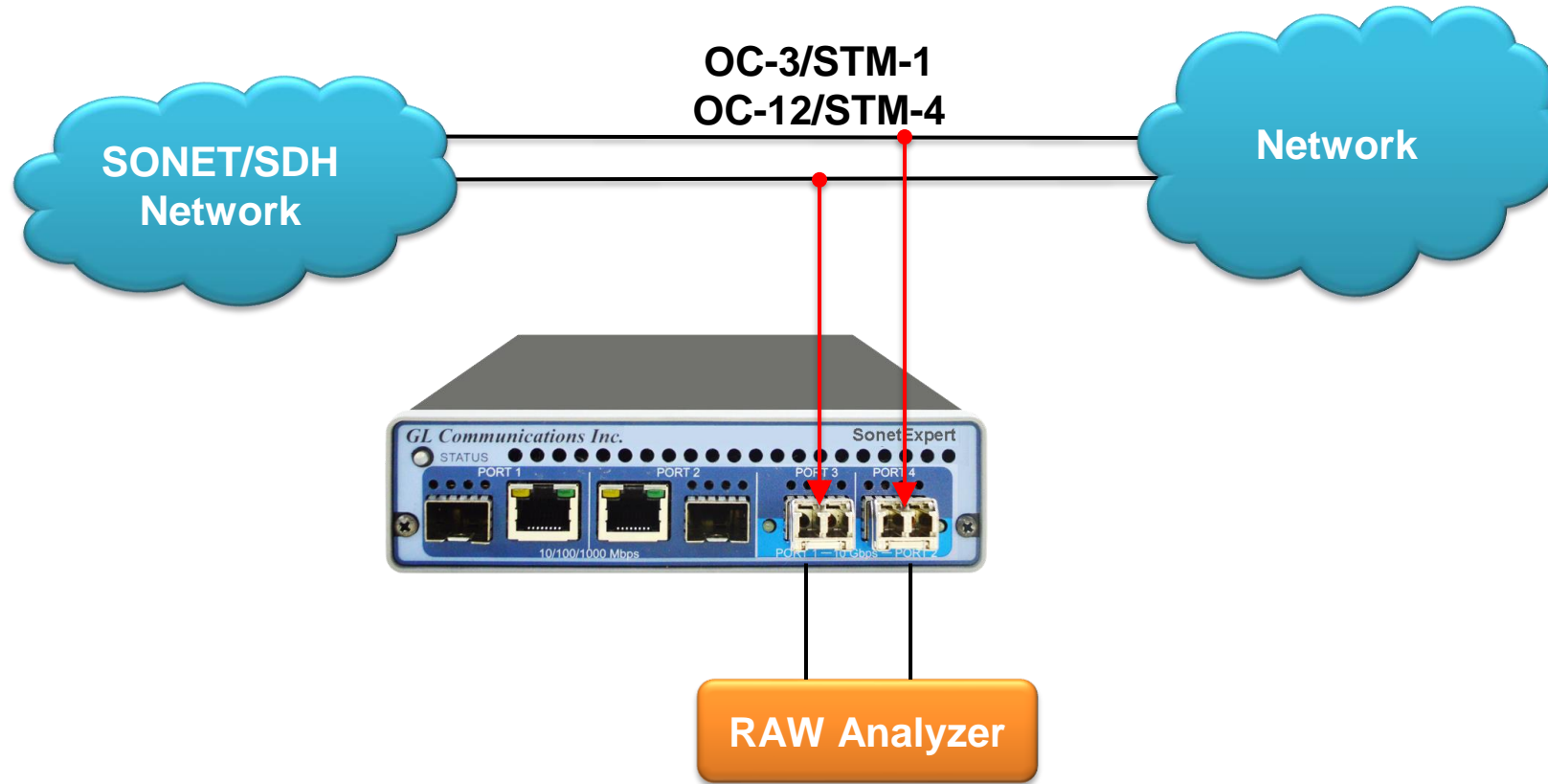
+-----+-----+-----+-----+-----+-----+
16 40 0C 83 06 F7 44 5B 9D 65 32 F1 13 66 B5 0C   @ | ÷D[e2ñ fµ
EF 59 C5 28 D4 D0 27 23 1B 5D C3 88 7C 98 40 68   iYÁ(ÔÐ'# ]Ã||@h
CF 4B 79 A2 95 DE 96 93 89 AB BB E0 76 13 36 38   İKy¢|p|lll<>àv 68
72 EA F0 08                                       rëë
    
```

Running. Utilization 0.00% C:\Program Files\GL Communications Inc\SonetEx Captured 43 136 796 frames

PoS Analyzer

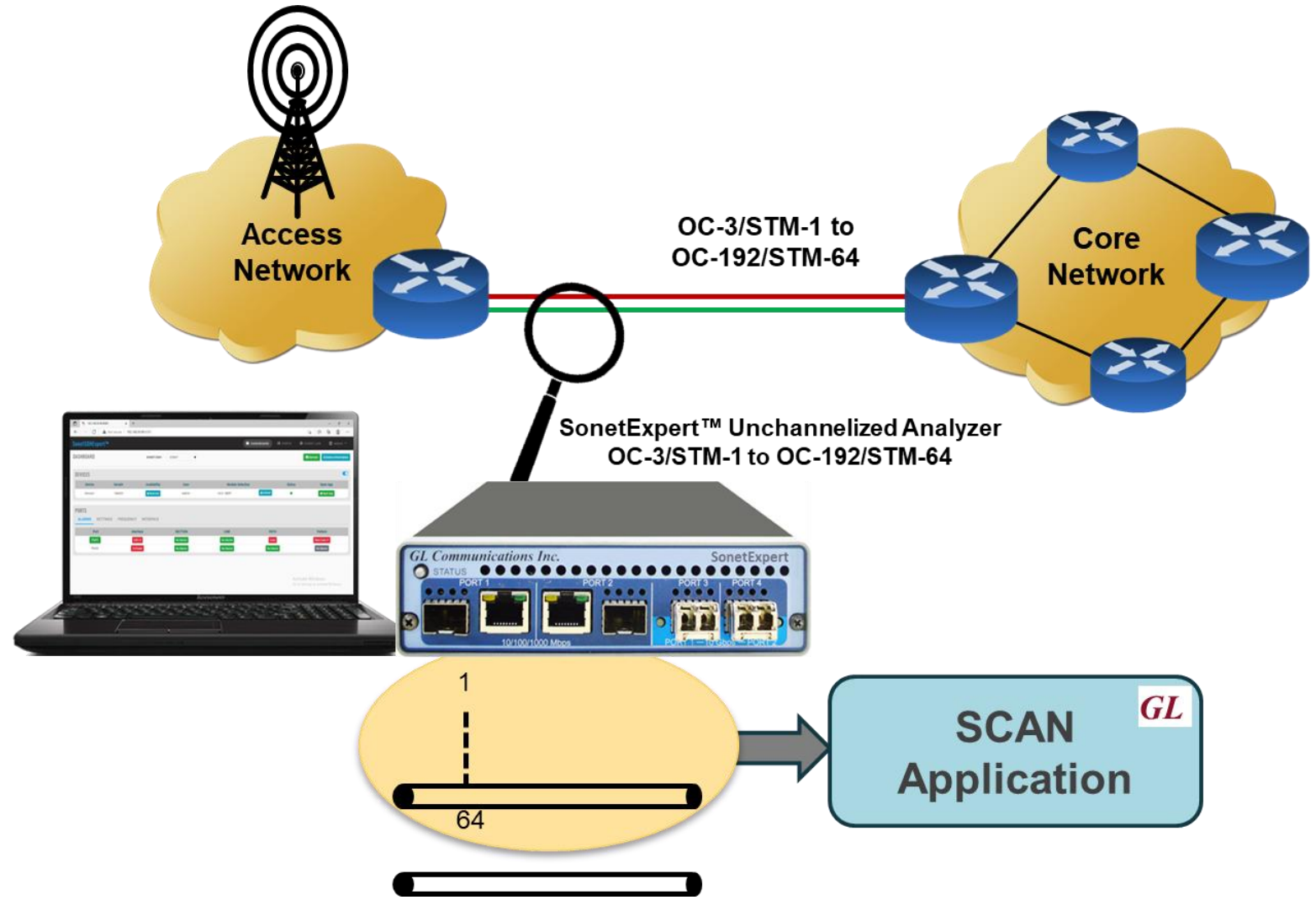


RAW Analyzer



SCAN Application

- Scans the incoming traffic on SONET/SDH interfaces, identifies and displays the traffic structure
- Supported on OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 and OC-192/STM-64 rates
- Traffic structure up to STS-3c is identified and displayed in the main display, with different colors clearly indicating equipped or unequipped channels
- Provides complete overview of the incoming SONET/SDH traffic in an easy and intuitive graphical display and helps technicians to quickly identify the structure of unknown SONET/SDH traffic
- User selectable **SONET** or **SDH** terminology supported on both the ports independently



SCAN Application – SONEC

OC-192 with Substructure

SonetSDHExpert™ Dashboard Ports Application Event Log Admin

OC192 #1

OC48 #1 OC48 #2 OC48 #3 OC48 #4

OC12 #1_1

OC3 #1_1_1	STS-1 #1	Unequipped
	STS-1 #2	Unequipped
	STS-1 #3	Unequipped
OC3 #1_1_2	STS-1 #4	Unequipped
	STS-1 #5	Unequipped
	STS-1 #6	Unequipped
OC3 #1_1_3	STS-1 #7	Unequipped
	STS-1 #8	Unequipped
	STS-1 #9	Unequipped
OC3 #1_1_4	STS-1 #10	OC3->STS-1->VT1.5 >>> FLOAT VT MODE
	STS-1 #11	Unequipped
	STS-1 #12	Unequipped

OC12 #1_2

OC3 #1_2_5	STS-1 #13	Unequipped
	STS-1 #14	Unequipped
	STS-1 #15	Unequipped
OC3 #1_2_6	STS-1 #16	Unequipped
	STS-1 #17	Unequipped
	STS-1 #18	Unequipped
OC3 #1_2_7	STS-1 #19	Unequipped
	STS-1 #20	Unequipped
	STS-1 #21	Unequipped
OC3 #1_2_8	STS-1 #22	Unequipped
	STS-1 #23	Unequipped
	STS-1 #24	Unequipped

OC12 #1_3

OC3 #1_3_9	STS-1 #25	Unequipped
	STS-1 #26	Unequipped
	STS-1 #27	Unequipped
OC3 #1_3_10	STS-1 #28	Unequipped
	STS-1 #29	Unequipped
	STS-1 #30	Unequipped
OC3 #1_3_11	STS-1 #31	Unequipped
	STS-1 #32	Unequipped
	STS-1 #33	Unequipped
OC3 #1_3_12	STS-1 #34	Unequipped
	STS-1 #35	Unequipped
	STS-1 #36	Unequipped

OC12 #1_4

OC3 #1_4_13	STS-1 #37	Unequipped
	STS-1 #38	Unequipped
	STS-1 #39	Unequipped
OC3 #1_4_14	STS-1 #40	Unequipped
	STS-1 #41	Unequipped
	STS-1 #42	Unequipped
OC3 #1_4_15	STS-1 #43	Unequipped
	STS-1 #44	Unequipped
	STS-1 #45	Unequipped
OC3 #1_4_16	STS-1 #46	Unequipped
	STS-1 #47	Unequipped
	STS-1 #48	Unequipped

Equipped

STS-1 #10

VT1_5 #10_1_1	VT1_5 #10_1_2	VT1_5 #10_1_3	VT1_5 #10_1_4
VT1_5 #10_2_1	VT1_5 #10_2_2	VT1_5 #10_2_3	VT1_5 #10_2_4
VT1_5 #10_3_1	VT1_5 #10_3_2	VT1_5 #10_3_3	VT1_5 #10_3_4
VT1_5 #10_4_1	VT1_5 #10_4_2	VT1_5 #10_4_3	VT1_5 #10_4_4
VT1_5 #10_5_1	VT1_5 #10_5_2	VT1_5 #10_5_3	VT1_5 #10_5_4
VT1_5 #10_6_1	VT1_5 #10_6_2	VT1_5 #10_6_3	VT1_5 #10_6_4
VT1_5 #10_7_1	VT1_5 #10_7_2	VT1_5 #10_7_3	VT1_5 #10_7_4

SCAN Application - SDH

STM-64 with Substructure

SonetSDHExpert™ Dashboard Ports Application Event Log Admin

STM64 #1

STM16 #1 **STM16 #2** STM16 #3 STM16 #4

STM4 #1_1 STM4 #1_2 STM4 #1_3 STM4 #1_4

VC3 #1	Unequipped	VC3 #13	Unequipped	VC3 #25	Unequipped	VC3 #37	Unequipped	
STM1 #1_1_1	VC3 #2	Unequipped	STM1 #1_2_5	VC3 #14	Unequipped	STM1 #1_4_13	VC3 #38	Unequipped
	VC3 #3	Unequipped		VC3 #15	Unequipped		VC3 #39	Unequipped
STM1 #1_1_2	VC3 #4	Unequipped		VC3 #16	Unequipped		VC3 #40	Unequipped
	VC3 #5	Unequipped	STM1 #1_2_6	VC3 #17	Unequipped	STM1 #1_4_14	VC3 #41	Unequipped
	VC3 #6	Unequipped		VC3 #18	Unequipped		VC3 #42	Unequipped
STM1 #1_1_3	VC3 #7	Unequipped		VC3 #19	Unequipped		VC3 #43	Unequipped
	VC3 #8	Unequipped	STM1 #1_2_7	VC3 #20	Unequipped	STM1 #1_4_15	VC3 #44	Unequipped
	VC3 #9	Unequipped		VC3 #21	Unequipped		VC3 #45	Unequipped
STM1 #1_1_4	VC3 #10	STM1->AUG1->AU3->VC3->TUG2->TU11 >>> FLOAT VT MODE		VC3 #22	Unequipped		VC3 #46	Unequipped
	VC3 #11	Unequipped	STM1 #1_2_8	VC3 #23	Unequipped	STM1 #1_3_12	VC3 #47	Unequipped
	VC3 #12	Unequipped		VC3 #24	Unequipped		VC3 #48	Unequipped

Equipped

VC3 #10

C11 #10_1_1	C11 #10_1_2	C11 #10_1_3	C11 #10_1_4
C11 #10_2_1	C11 #10_2_2	C11 #10_2_3	C11 #10_2_4
C11 #10_3_1	C11 #10_3_2	C11 #10_3_3	C11 #10_3_4
C11 #10_4_1	C11 #10_4_2	C11 #10_4_3	C11 #10_4_4
C11 #10_5_1	C11 #10_5_2	C11 #10_5_3	C11 #10_5_4
C11 #10_6_1	C11 #10_6_2	C11 #10_6_3	C11 #10_6_4
C11 #10_7_1	C11 #10_7_2	C11 #10_7_3	C11 #10_7_4

Multiuser Support

Users

User Name: Password: + Add User

Name	Role	Password	Delete
Admin	<input checked="" type="checkbox"/>	<input type="checkbox"/> Edit <input type="button" value="Delete"/>
User1	<input checked="" type="checkbox"/>	<input type="checkbox"/> Edit <input type="button" value="Delete"/>
User2	<input checked="" type="checkbox"/>	<input type="checkbox"/> Edit <input type="button" value="Delete"/>

Devices

Device	Serial#	Availability	User	Module Selection	Status	Open App
Device1	188399	<input type="button" value="Reserved"/>	User1	OC12 - ATM DATAPIPE <input type="button" value="Unload"/>	<input type="radio"/>	<input type="button" value="Open App"/>

Ports

All Ports Laser

Port	Laser	Interface	SECTION	LINE	PATH	Pattern
Port1	<input type="button" value="Laser ON"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>
Port2	<input type="button" value="Laser ON"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>	<input type="button" value="No Alarms"/>

Thank you