# LANTRONIX®

# ION Media
# Conversion Platform

## Integrate. Optimize. Navigate.

# The ION Platform

## Overview
The ION Media Conversion Platform offers first-rate solutions for integrating, optimizing and navigating networks. By cost-effectively integrating copper and fiber equipment with infrastructure, the ION Platform equips networks for the bandwidth, distance, and security demands of today, tomorrow, and every point in between. Designed for enterprise data centers and core network applications, the ION Platform provides the secure network management of fiber interface points required for both carrier-class and enterprise-class services.

Media conversion technology allows for the integration of fiber optic cabling into environments with copper-based equipment. Lantronix's ION media converters provide a quick, inexpensive method for connecting new or embedded fiber with copper-based networking devices that have RJ-45 ports. The ION Platform accommodates a variety of modules and interface devices supporting multiple protocols and networking environments, including Ethernet and TDM networks. With optimum flexibility built in, ION is equally suited for either single-unit network edge or high-density applications within enterprises or central offices. The ION Platform provides simple navigation of all the connected network interfaces, allowing various components to be easily configured, monitored and managed remotely while providing a high level of secure access to the management data. Lantronix's ION solutions allow users to easily integrate copper and fiber in order to extend networks within a building, between buildings, or throughout a campus.
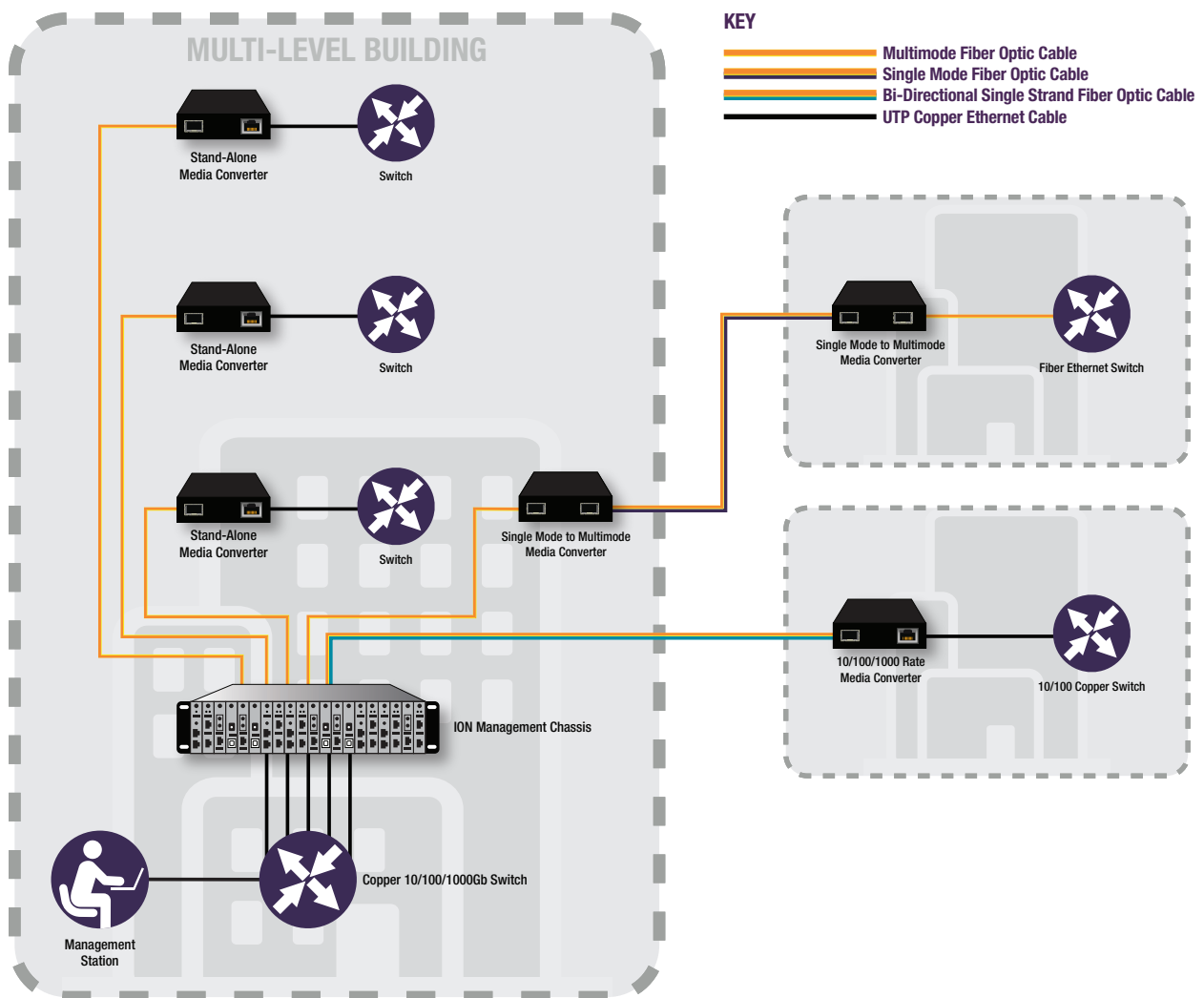
## Benefits
In summary, the ION Platform and its full line of feature-rich modular conversion solutions provide a cost-effective method for integrating the benefits of fiber optic cabling into embedded copper networks, optimizing existing equipment and infrastructure while simplifying the navigation of network management.

**Cost Savings**    Reduce capital expenditures by integrating affordable copper-based equipment within a fiber infrastructure.

**Flexibility**    All ION cards are modular and independent, supporting a mix of various communication protocols within the same chassis.

**Scalability**    The hot-swappable design allows for the installation of new cards on an as-needed basis, matching the need for fiber integration.

**Intelligence**    Efficiently navigate the system by monitoring the chassis, modules, and power supplies via SNMP with the optional ION Management Module.

**Reliability**    Created by the industry-leading supplier of fiber integration products, reliability is reinforced through redundant power supplies (AC or DC) and high CFM (cubic ft. per minute) variable speed cooling fans.

**Security**    Advanced security features allow controlled access to ensure only authorized personnel are able to navigate, view, and change the configuration of devices within the ION Platform.

**Future-Proof**    Copper-to-fiber integration optimizes existing infrastructure and accommodates cost-effective upgrades.

Network Extension and Secure Management within a Building or Campus
- Integrate fiber and overcome the distance limitations of UTP
- Optimize installed multimode fiber within buildings
- Capitalize on the distance advantages of single mode fiber between buildings
- Optimize installed fiber infrastructure with bi-directional single strand fiber
- Integrate variable data rates on one fiber optic cable
- Navigate system interfaces for secure network management

**MULTI-LEVEL BUILDING**

**KEY**
Multimode Fiber Optic Cable
Single Mode Fiber Optic Cable
Bi-Directional Single Strand Fiber Optic Cable
UTP Copper Ethernet Cable

Stand-Alone
Media Converter

Switch

Stand-Alone
Media Converter

Switch

Single Mode to Multimode
Media Converter

Fiber Ethernet Switch

Stand-Alone
Media Converter

Switch

Single Mode to Multimode
Media Converter

10/100/1000 Rate
Media Converter

10/100 Copper Switch

ION Management Chassis

Management
Station

Copper 10/100/1000Gb Switch

**Supported network environments: 100Base, 10/100, 1000Base, 10/100/1000 and 10 Gig Ethernet; DS1 - T1/E1/J1 and DS3 - T3/E3**

# The ION Advantage

Incorporating the industry's most comprehensive offering of full-featured products, the ION Platform is the best choice for IT managers or service providers needing to integrate, optimize and navigate their network. The ION Platform offers flexibility with modular or stand-alone units as well as 1-slot, 2-slot, 6-slot or 19-slot chassis options for low- or high-density applications. A variety of slide-in interface devices and converter modules support Layer 1 and Layer 2 Ethernet networks (100Base, 10/100, 1000Base, 10/100/1000 and 10 Gig Ethernet) and TDM networks (DS1 - T1/E1/J1 and DS3 - T3/E3). Because media converters typically have no IP or Mac address, they are generally transparent to the network, inexpensive, and easy to use. Lantronix's enhanced features make them even easier by providing visibility to network managers, enabling simple remote troubleshooting and quick service restoration.

## ION Platform Features
- Managed intelligent chassis (1U 6-slot chassis and 2U 19-slot chassis)
- Comprehensive offering of hot-swappable fiber integration modules accommodate most applications
- Desktop 1-slot and 2-slot ION chassis allows slide-in cards to be deployed as stand-alone units
- Optional ION Management Module provides access via CLI, Web or SNMP
- High speed management backplane separates management data from network traffic for added security
- Link Pass Through feature facilitates troubleshooting by notifying end devices of a loss link
- Remote Fault Detect feature allows remote monitoring of fiber link status
- Loopback feature allows local or remote diagnostics to simplify testing and troubleshooting
- Automatic Link Restoration re-establishes the link without user intervention after a failure is restored
- Last Gasp feature stores power to send an SNMP trap alert in the event of a power failure
- Single fiber solutions optimize fiber utilization to reduce capital expenditures
- Integrated LEDs for at-a-glance monitoring of power supplies and slide-in-modules
- Redundant instant failover rear loading power supplies
- Operating environment: 0˚C to 50˚C (32˚F to 122˚F)
- Supports 100−240 VAC and -48 VDC power environments
- Optional dry contact relay module for visual and audible alarms
- Variable speed fans for efficient cooling and reduced power consumption
- Exposed slot numbers to aid in identification and management of devices
- Supports backwards compatibility with Point System™ modules via adapter card

## The ION Management System
No two networks are managed in the same manner - different security levels and management interfaces are often required depending on the particular deployment within a network. With that in mind, the ION management system was designed to be one of the most versatile and secure management systems available in the market.

To take full advantage of all the features and functions available within the ION management system, an ION Management Module is required to be installed in either the 6-slot or the 19-slot ION Chassis. The ION Management Module connects to the chassis backplane and communicates with the individual cards installed in the ION chassis. Each slide-in module has specific features and functions that are controlled from the chassis via the ION Management Module. Only management traffic is sent across the ION chassis backplane to maintain security; therefore, no customer data traffic is shared on the backplane. A network administrator can configure, monitor and troubleshoot ION slide-in modules remotely via the ION Management Module. The ability to navigate the system through this remote management module helps to reduce operating expenses by eliminating unnecessary technician dispatches. Remote management also allows for faster Mean Time To Repair (MTTR) by proactively receiving traps and alerts on potential issues. With less down-time you can optimize productivity and focus on the revenue generating aspects of your business.

## ION Management Module Interface Methods

The ION management system allows users to select and configure features consistent with their network security requirements.

- Web Browser: Access the ION Management Module using any standard web browser
- Command Line Interface (CLI): CLI access can be done via telnet remotely or via the local console port on the ION Management Module.
- SNMP: Since the ION Platform is based on public Management Information Bases (MIBs) you can easily manage the ION Platform with a standard network management system (NMS) such as SNMPc, HP Overview (HPOV) or any other standard SNMP application.
- Web GUI: Lantronix provides a built-in SNMP graphical user interface (GUI) software for management purposes, which offers full read and read/write capabilities.



An alert is displayed if a link is lost or if there is a problem

LEDs display status

Specific cards with connectors are displayed

Immediate access to trap server/viewer, telnet, technical support, and upgrade agent

Trap Summaries

Displays the selected chassis information. Each converter is displayed with connectors, LEDs, and status (e.g. ALERT)

View other chassis and IP-based converters, Tree view includes IPs

Larger view of card when mouse is hovering

## Supported Methods for Secure Access

- Management access methods: telnet, web and SNMP
- Secure Sockets Layer (SSL)
- Secure Shell (SSH)
- SNMP v1, v2 & v3
- IPv4 and IPv6
- Management VLAN
- Based on Public MIBs

- 2 x 10/100 Ethernet network interfaces
- USB console port
- Syslog
- TFTP upgrade/backup of slide-in-modules
- Import/export configuration files in human readable/editable format
- Multiple community strings

# Backwards Compatibility

## Backwards Compatibility & Support for Point System™

The ION Platform offers backwards compatibility with some Lantronix legacy Point System media converters and network interface devices (NIDs). Through the use of an ION adapter (IONADP), Point System cards can be installed and managed in the ION chassis.

Management modules from both the ION Platform and the Point System allow users the ability to re-deploy and fully manage their Point System devices, optimizing their current equipment and easing their migration to the ION Platform. Full read/write management of Point System modules is also available in the ION chassis through the use of a Point System Management Module along with the ION adapter card.

ION Adapter Card

| Point System & The ION Platform | Point System | The ION Platform |
|---|---|---|
| Physical Hardware Configuration | | |
| 1-Slot Chassis | X | X |
| 2-Slot Chassis | X | X |
| 6-Slot Chassis | 8 | 6 |
| 19-Slot Chassis | X | X |
| Slot Numbers | X | X |
| Power Supplies | | |
| Primary AC | X | X |
| Primary DC | X | X |
| Redundant AC | X | X |
| Redundant DC | X | X |
| Power Supply Wattage (each) | 130 Watts | 275 Watts |
| Instant Failover | X | X |
| Management Module Port Info | | |
| Command Line Interface (CLI) | DB-9 Male | USB Type B / RS-232 |
| Ethernet Ports | (1) 10Mbps Half Duplex | (2) 10/100 Mbps Configurable |
| Management Module Features | | |
| SNMP v1 | X | X |
| SNMP v2 | | X |
| SNMP v3 | | X |
| IPv4 | X | X |
| IPv6 | | X |
| SNTP | | X |
| Command Line Communications | To MMU | To MMU and Cards |

| Management Security Features | Point System | The ION Platform |
|---|---|---|
| Management VLAN | | X |
| Telnet | X | X |
| Secure Socket Layer (SSL) | | X |
| Secure Shell (SSH) | | X |
| 802.1x RADIUS | | X |
| Public MIBs | Private | Public |
| Access Control Lists (ACL) | | |
| MAC ACL (Layer 2) | Filter MAC | X |
| IP ACL (Layer 3) | IP Firewall | X |
| TCP/UDP ACL (Layer 4) | | X |
| File Management | | |
| Remote Firmware Upgrade | X | X |
| Human Readable / Editable | | X |
| Back-up and Restore | | X |
| Slide-In-Modules Supported | | |
| Point System Cards | X | X (with IONADP) |
| ION Cards | | X |
| 10/100 and 10/100/1000 | X | X |
| 10G Fiber to Fiber | X | X |
| 10G Copper to Fiber | | X |
| 802.1ah | X | X |
| 802.1ag | | X |
| Y.1731 | | X |
| T1 | X | X |
| DS3 | X | X |

Gigabit Ethernet Media Converter Module

4 Port T1/E1 Plus Ethernet Media Converter Module

to Fiber SFP Stand-Alone Media Converter

# Ordering Information

## The ION Platform

| | |
|---|---|
| ION219-x | ION 19-Slot Chassis with AC or DC Power Supplies |
| ION106-x | ION 6-Slot Chassis with AC or DC Power Supplies |
| ION001-A | Desktop ION 1-Slot Chassis with AC Power Supply |
| ION002-AD | Desktop ION 2-Slot Chassis with options for either AC or DC Power Input |
| IONPS-x-R1 | Redundant ION AC or DC Power Supply for 19-Slot Chassis |
| IONPS6-x | Redundant ION AC or DC Power Supply for 6-Slot Chassis |
| IONDCR-R1 | ION Dry Contact Relay Module for ION 19-Slot Chassis DC Power Supply |
| IONMM Series | ION Management Module |
| IONADP | ION Adapter Card for Mounting Point System Cards into an ION Chassis |

## Slide-In-Modules

| | |
|---|---|
| C2110 Series | Fast Ethernet 100Base-TX to 100Base-FX |
| C2210 Series | Fast Ethernet 10/100Base-TX to 100Base-FX |
| C2220 Series | Fast Ethernet 10/100Mbps RJ-45 to 100Base-FX with 802.3ah |
| C3100-4040 | Fiber SFP to Fiber SFP for rates from 100Mbps up to 2.5Gbps |
| C3110 Series | Gigabit Ethernet 1000Base-T to 1000Base-SX/LX |
| C3210 Series | Gigabit Ethernet 10/100/1000Base-T to 1000Base-SX/LX |
| C3220 Series | Gigabit Ethernet 10/100/1000Mbps RJ-45 to 1000Base-SX/LX with 802.3ah |
| C3230 Series | Gigabit Ethernet 10/100/1000Mbps RJ-45 to 1000Base-SX/LX with 802.3ah and 802.1ag/Y.1731 |
| C4110-4848 | Fiber SFP+ to Fiber SFP+ for rates from 1Gbps up to 11.5Gbps |
| C4120-1048 | 10 Gigabit Ethernet 10GBase-T RJ45 to 10GBase-X open SFP+ slot |
| C4221-4848 | 10 Gigabit Ethernet (2) 10GBase-X SFP Slot + 10/100/1000Base-T RJ-45 Ports Remotely Managed |
| C6010 Series | T1/E1 Copper to Fiber |
| C6110-1040 | 4 x T1/E1 Copper to Fiber |
| C6120 Series | 4 x T1/E1 with 10/100Mbps Ethernet port over Fiber |
| C6210 Series | DS3 – T3/E3 Copper to Fiber |
| C6310  Series | POTS Twisted Pair (RJ-11) to open SFP slot |

## Stand-Alone Units

| | |
|---|---|
| E-100BTX-FX-06 Series | Fast Ethernet 100Base-TX to 100Base-FX |
| E-100BTX-FX-05(HT) Series | Hardened Fast Ethernet 100Base-TX to 100Base-FX |
| SBFTF Series | Fast Ethernet 10/100Base-TX to 100Base-FX |
| SPOEB Series | Fast Ethernet 10/100Base-TX PoE PSE to 100Base-FX |
| S2220 Series | Fast Ethernet 10/100Mbps RJ-45 to 100Base-FX with 802.3ah |
| S3100-4040 | Fiber SFP to Fiber SFP for rates from 100Mbps up to 2.5Gbps |
| SGETF Series | Gigabit Ethernet 1000Base-T to 1000Base-SX/LX |
| SGFEB Series | Gigabit Ethernet 10/100/1000Base-T to 1000Base-SX/L |
| SGPAT Series | Gigabit Ethernet 10/100/1000Base-T PoE+ PSE to 1000Base-X |
| S3220 Series | Gigabit Ethernet 10/100/1000Mbps RJ-45 to 1000Base-SX/LX with 802.3ah |
| S3230 Series | Gigabit Ethernet 10/100/1000Mbps RJ-45 to 1000Base-SX/LX with 802.3ah and 802.1ag/Y.1731 |
| S4110-4848 | Fiber SFP+ to Fiber SFP+ for rates from 1Gbps up to 11.5Gbps |
| S4120-1048 | 10 Gigabit Ethernet 10GBase-T RJ45 to 10GBase-X open SFP+ slot |
| S6010 Series | T1/E1 Copper to Fiber |
| S6110-1040 | 4 x T1/E1 Copper to Fiber |
| S6120 Series | 4 x T1/E1 with 10/100Mbps Ethernet port over Fiber |
| S6210 Series | DS3 –T3/E3 Copper to Fiber |
| S6310 Series | POTS Twisted Pair (RJ-11) to open SFP slot |

# Global Presence
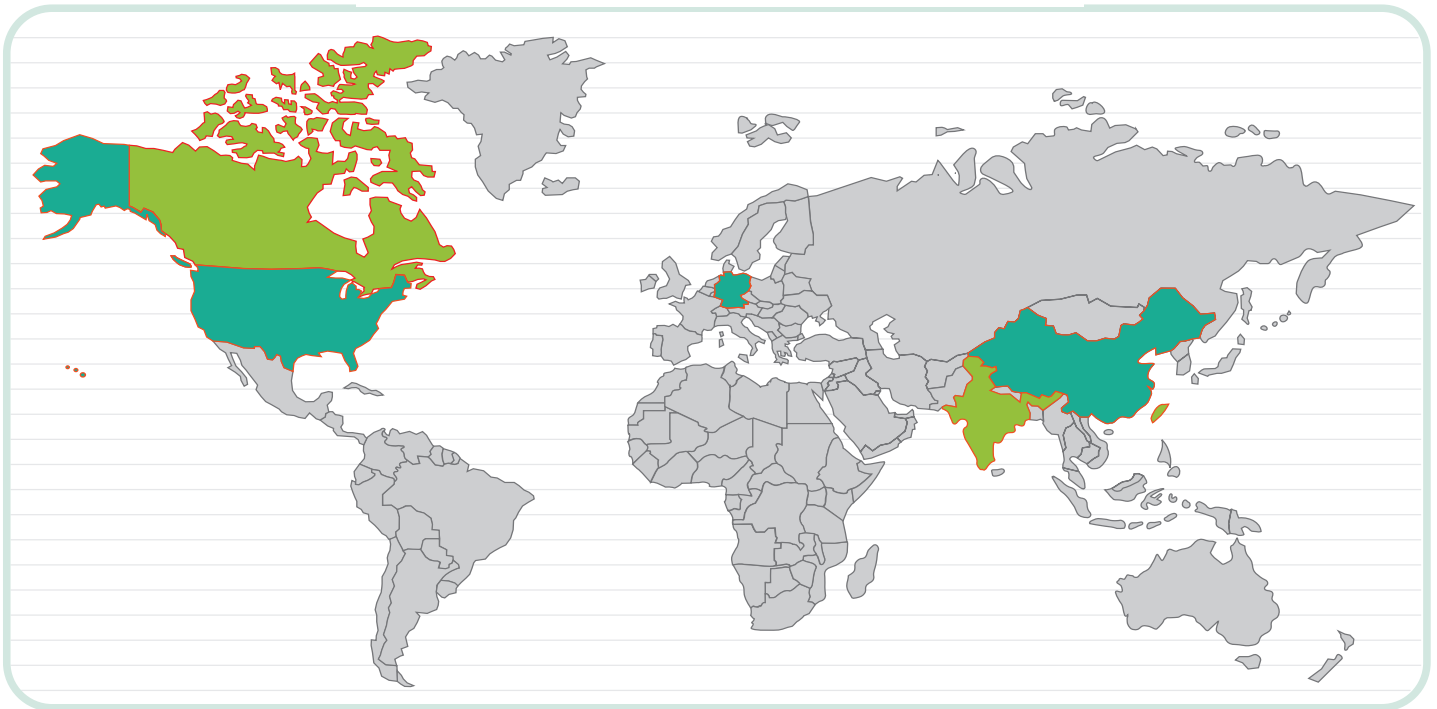
United States ● Canada ● China ● Hong Kong
India ● Germany ● Taiwan

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