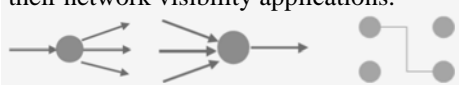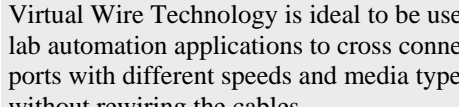# FlowDirector-640P

48x 1Gb/10Gb/25Gb SFP/SFP+/SFP28 and 6x 40Gb/100Gb QSFP+/QSFP28 Ports Fabric Visibility Appliance

FlowDirector Product Family Overview

InfiniCORE Networks FlowDirector product family is purposefully designed to help network administrators to build next generation fabric visibility networks. The FlowDirector makes it easy to tap, aggregate, replicate, tag, strip, filter and load balance traffic from multiple sources to feed visibility networks, empowering network administrators to deploy monitoring devices on the fly without the need for SPAN ports. The industry leading InfiniOS operating system, coupled with its innovative software defined flow domains provides an easy to use, single pane user interface for network administrators.

The FlowDirector-640P leverages state of the art silicon technology to provide 48 SFP/SFP+/SFP28 ports that are capable of operating at 1G, 10G and 25Gbps; Additionally, FlowDirector-640P provides six QSFP+/ QSFP28 ports that can be used to connect to high speed 40Gbps and 100Gbps links. The FlowDirector-640P provides line rate 3.6Tbps operation over all interfaces even for the smallest packet size.
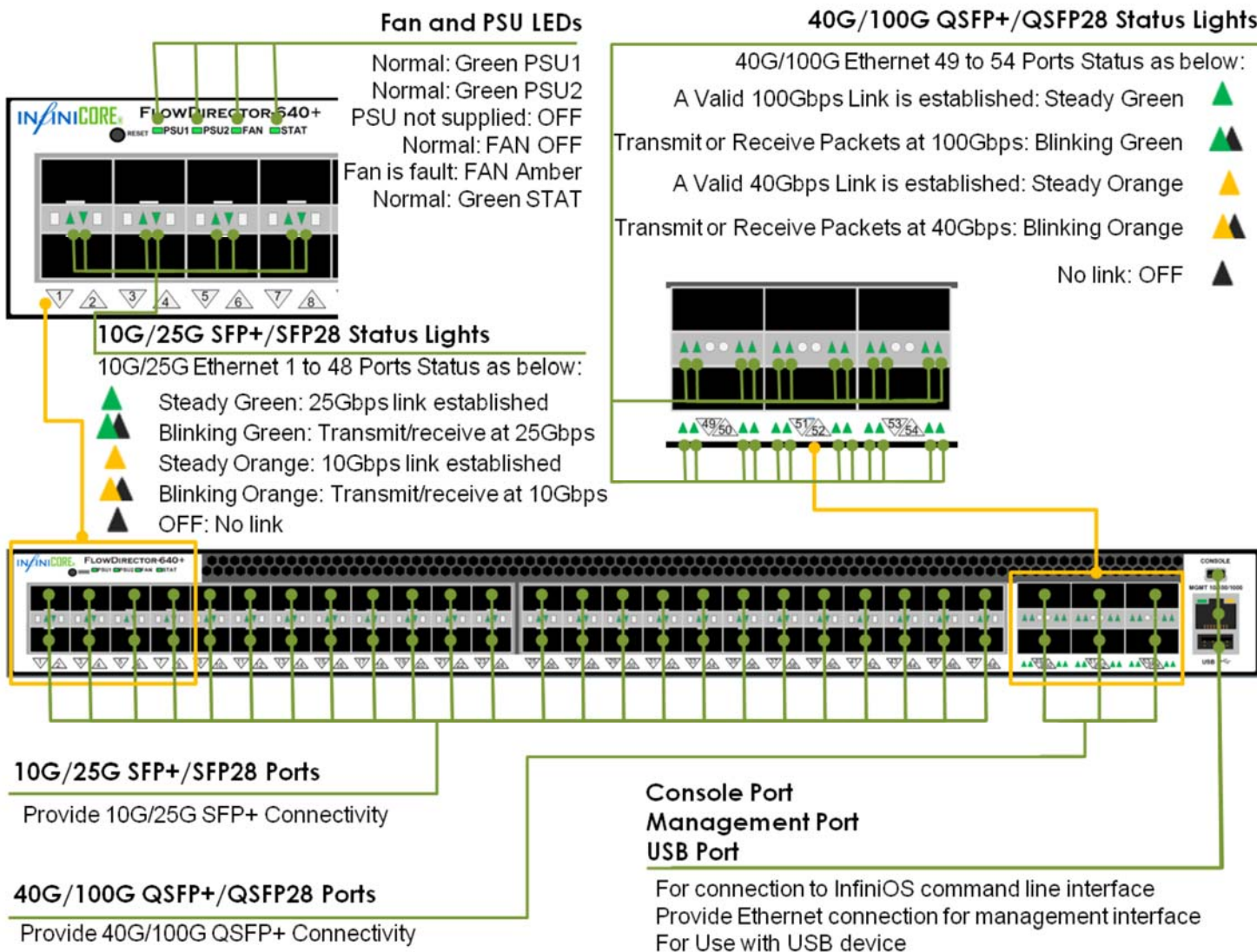
Main Features and Benefits

	Features	Benefits
Unprecedented Line Rate Packet Processing capability Over 54 Traffic Ports	Up to 3.6Tbps of hardware ensured line rate packet operation over 48 1G/10G/25G SFP/SFP+/SFP28 ports and 6 40Gbps/ 100Gbps QSFP+/QSFP28 ports.	Provides the best connectivity to wide variety of networks; Abundant network interfaces for future expansion; Worry free line rate operation.
High Performance Software Defined Flow Manipulation Domains	Innovative Flow Domains provides the best flow manipulation with functional isolation for inline and/or offline tap, traffic aggregation, traffic replication, filter, tag and load balance applications.	Ideal for enterprises and service providers to create application specific data paths suited for their network visibility applications.
Integrated Lossless Connection Matrix over 1Gb, 10Gb, 25Gb, 40Gb and 100Gb Interfaces	The FlowDirector provides an innovative Virtual Wire technology that can be used to cross connect from any port to any port with complete isolation and lossless traffic forwarding.	Virtual Wire Technology is ideal to be used in lab automation applications to cross connect ports with different speeds and media types without rewiring the cables.
Innovative, State of the Art Web Based Management Framework	The FlowDirector family has native state-of-the-art HTML 5 Web based user interface that can be accessed from any standard based web browser.	Access the management interface from anywhere with any device that is equipped with a modern browsers such as Chrome, Firefox, Safari and Internet Explorer.
High Reliability and Availability; Cost Effective and Green Operation	Leveraging the latest generation processor and switch technologies, the FlowDirector is power efficient and is equipped with redundant power supplies and hot serviceable fans.	• Reduce CAPEX and OPEX • High Availability by Design

FlowDirector-640P External Interfaces Specification

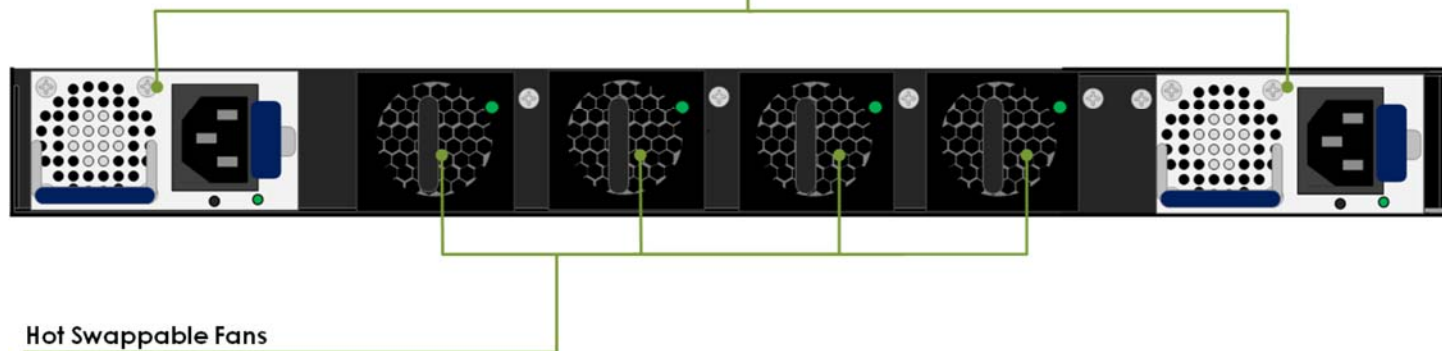| Function	Compliance	Type	Quantity
Tri-mode 1G/10Gb/25Gb Traffic Ports	IEEE 802.3by Optical fiber, twinax, backplane 25 Gigabit Ethernet IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM IEEE 802.3by 25 Gigabit Ethernet	25G SFP28 Fiber Optics 25G SFP28 passive DAC 10G SFP+ Fiber Optics 10G SFP+ Passive DAC Cable 1Gb SFP Fiber/Copper Interface Module	48
40Gb/100Gb Traffic Ports	SFF-8436, SFF-8635 QSFP+ 40Gb port; QSFP28 100Gb Ports	QSFP+/QSFP28 Fiber Optics or QSFP+/QSFP28 DAC Cable	6
40Gb/100Gb Traffic Ports Breakout Capabilities QSFP+ QSFP28 → 4x SFP+/SFP28 10Gb/25Gb	Each 40Gb/100G Traffic Port can be split into 4 ports to support 10Gb/25Gb Operation. IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM SFP+ MSA, Revision 4.1 Direct-attach Copper Support up to 3 meters	40G QSFP+ to 4x SFP+ splitter cable 100G QSFP28 to 4x SFP28 splitter cable	6 QSFP+/QSFP28 to 24 SFP+/SFP28
10Gb/25Gb Traffic Ports Gang Capabilities 4x SFP+ SFP28 → QSFP+ QSFP28	Each 4 adjacent 10Gb/25Gb Ports can be ganged into 1 QSFP+/QSP28 Port with QSFP+/QSP28 to SFP+/SFP28 Cable	40G QSFP+ to 4x SFP+ splitter cable 100G QSFP28 to 4x SFP28 splitter cable	48 SFP+/SFP28 to 12 QSFP+/QSFP28
LED For the System	Power Module 1 Status LED Power Module 2 Status LED FAN Status LED STAT Status LED	Green/Amber Green/Amber Green/Amber Green/Amber	1 1 1 1
LED For SFP+ Traffic Ports	Combo LED for Link and Activity	Green/Amber LED	1 Per Port
LED For QSFP+ Traffic Ports	Combo LED for Link and Activity	Green/Amber LED	1 Per Port
10/100/1000Mbps Management Port	10/100/1000BASE-T Category 5, Category 5e, Category 6 UTP	Copper RJ-45	1
Visible LED for RJ-45 Management Port	LED for Link LED for Activity	Green/Orange LED Green LED	2
Console Port	115200 Baud 8 Bit Data No Parity 1 Stop Bit	Mini USB Type B	1
USB Port	USB 2.0 High Speed 480Mpbs Port	USB Type A	1
Air Flow and Fans	PWM Controlled Long Endurance Fan	Front to Back Air Flow	4
Redundant Power Supply	Dual 550W High Efficiency 100-240V AC 50-60Hz Class I	1+1 Redundant Power Supply	2
Rack Mount Kit	19 Inch Rack Mountable	19 Inch Rack Mountable	1
Chassis Dimension	Height X Width X Depth (inches)	1.75 x 17.3 x 19	NA

FlowDirector-640P Front Panel Features

Fan and PSU LEDs

Normal: Green PSU1
Normal: Green PSU2
PSU not supplied: OFF
Normal: FAN OFF
Fan is fault: FAN Amber
Normal: Green STAT

40G/100G QSFP+/QSFP28 Status Lights

40G/100G Ethernet 49 to 54 Ports Status as below:

A Valid 100Gbps Link is established: Steady Green ▲

Transmit or Receive Packets at 100Gbps: Blinking Green ▲▲

A Valid 40Gbps Link is established: Steady Orange ▲

Transmit or Receive Packets at 40Gbps: Blinking Orange ▲▲

No link: OFF ▲

10G/25G SFP+/SFP28 Status Lights

10G/25G Ethernet 1 to 48 Ports Status as below:

▲ Steady Green: 25Gbps link established
▲▲ Blinking Green: Transmit/receive at 25Gbps
▲ Steady Orange: 10Gbps link established
▲▲ Blinking Orange: Transmit/receive at 10Gbps
▲ OFF: No link

10G/25G SFP+/SFP28 Ports

Provide 10G/25G SFP+ Connectivity

40G/100G QSFP+/QSFP28 Ports

Provide 40G/100G QSFP+ Connectivity

Console Port
Management Port
USB Port

For connection to InfiniOS command line interface
Provide Ethernet connection for management interface
For Use with USB device

FlowDirector-640P Rear Panel Features

AC Power Supply

AC power connection for use with the supplied power cords
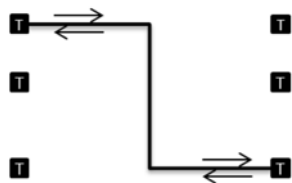
Hot Swappable Fans

FlowDirector-640P Flow Operation Domain

The data path of the FlowDirector can be configured through the concept of Virtual Flow Domain. The FlowDirector-640P supports up to 10,240 Virtual Flow Domains which are isolated from each other, each can have its own data path, filter configuration, and load balancing rules, etc. Once activated, the configuration will be mapped and pushed into hardware.

The FlowDirector-640P offers a variety of domains to support traffic tapping, inline processing, aggregation, replication, split & merge, tagging and load balancing.
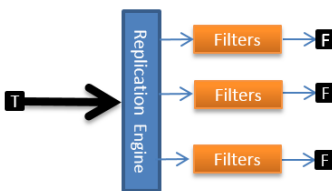
Typical Flow Domains Supported by FlowDirector Flow Domain Designer
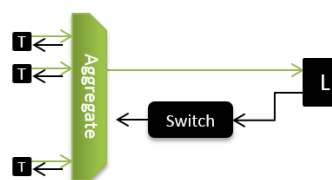
Dynamic Virtual Wire

- Zero loss cross connect from any port to any port
- Drag-and-drop
- Ideal for lab automation and remote operation

Inline Traffic Split and Merge

- Selectively redirect/ drop traffic at line rate
- Merge traffic at line rate
- Ideal for DDoS defense or on demand traffic processing

Traffic Replication with Filters

- Replicate traffic with filter support
- Lossless 1-to-N hardware based data path

Traffic Aggregation with Filters

- Aggregate traffic to save downstream device ports
- Line rate filtering

Traffic Aggregation with Reverse Switching

- Ideal for aggregating multiple switch links to go through a security or visibility point
- The reverse traffic will be switched based on MAC

Traffic Aggregation And Load Balancing
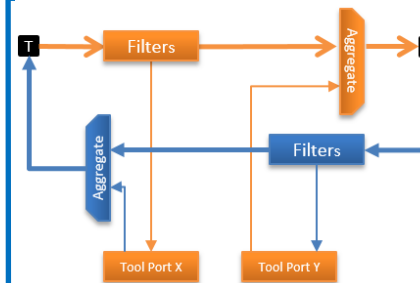
- Aggregate traffic and load balance to downstream devices
- Line rate filtering
- Option to slice packets

Traffic Aggregation with Replication

- Aggregate and replicate traffic
- Filter and slice traffic

L2/L3 Switch Mode

- Select sub set of ports and use as regular L2/L3 switch
- Line rate forwarding across all ports
- Jumbo frame support

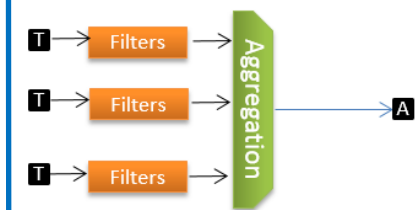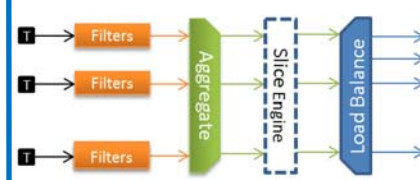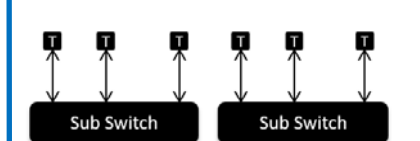## Wide Variety of Protocols Support

The FlowDirector-640P supports wide variety of protocols including the following:
TRILL, MPLS, VPWS, Q-in-Q, MAC-in-MAC, IPv4, IPv6, GRE, ECMP, TCP, UDP, IGMPv1, IGMPv2, IGMPv3, VEPA+

FlowDirector-640P Standard Peripherals

Part Name	Quantity
DB-9 to Mini-B USB Serial Console Cable	1
UTP Cat 6. Ethernet Cable	1
Rail Mounting Kit	1
CD (User Manual, software package)	0 or 1
USB System Recovery Thumb Drive	1 or Download

FlowDirector-640P Physical and Environmental Specification

Item	Description
Dimension (Width x Depth x Height)	19 x 17.3x 1.75 (inches) 483 x 440 x 44 (millimeters)
Net Weight	19.5 (pounds) / 8.8 (kilograms)
Environment	Operating Temperature: 0º ~ 40º C (32º ~ 104º F) Non Operating Temperature: -40º ~ 70º C (-40º ~ 158º F) Humidity: 20 ~ 90% (Non-condensing)

FlowDirector-640P Order Information

Please contact InfiniCORE regional distributors/resellers or InfiniCORE sales for further information.

Part Number	Traffic Ports	Port Specification	Software Package
FDS-640Plus-R2	48 SFP/SFP+/SFP28 + 6 QSFP+/QSFP28	48x 1G/10G/25G SFP/SFP+/SFP28 Ports with DAC Support; 6x 40G/100G QSFP+/QSFP28	Standard InfiniOS Software Package

Other Products In the FlowDirector Product Family

Part Number	Traffic Ports	Port Specification	Software Package
FDS-240G-R1 **FDS-240G-R2** **(2 Redundant PSUs)**	24 SFP/SFP+ + 0 QSFP+	24x 1G/10G SFP/SFP+ Ports with DAC Support	Standard InfiniOS Software Package
FDS-640-R2	48 SFP/SFP+ + 4 QSFP+	48x 1G/2.5G/10G SFP/SFP+ Ports with DAC Support; 4x 40G QSFP+ Ports	Standard InfiniOS Software Package
FDS-3200-R2	32 QSFP+/QSFP28	32x 40G/100G QSFP+/QSFP28 Ports	Standard InfiniOS Software Package

Accessories

Part Number	Port Specification
QSFP-3M-QSFP-QSFP-DAC	3 Meter 40Gb QSFP+ to QSFP+ DAC cable
QSFP-3M-QSFP-SFP-DAC	3 Meter 40Gb QSFP+ to SFP+ DAC cable