

FlowDirector-640



48x 1G/2.5G/10G SFP/SFP+ and 4x 40Gb QSFP+ Ports Network 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-640 leverages state of the art silicon technology to provide 48 SFP/SFP+ ports that are capable of operating at 1G, 2.5G and 10Gbps; In addition to SFP/SFP+ Ports, FlowDirector-640 also provides four 40Gbps QSFP+ ports that can be used to connect to high speed 40Gbps links. FlowDirector-640 provides line rate 1.28Tbps operation over all interfaces even for the smallest packet size.

Main Features and Benefits

	Features	Benefits
Unprecedented Line Rate Packet Processing Capability Over 52 Traffic Ports	Up to 1.28Tbps of hardware ensured line rate packet throughput over 48 1G/2.5G/10G SFP/SFP+ ports and four 40Gbps QSFP+ 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 provide 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. 
Unified Tap/SPAN and Inline Operation	In addition to TAP/SPAN functions, FlowDirector provides a powerful Virtual Wire based solution that can be used to process inline traffic easily.	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 standards based web browser.	Access the management interface from anywhere with any device that is equipped with a modern browser such as Chrome, Firefox, Safari and Internet Explorer. 
Green, Cost Effective, High Reliability and Availability	Leveraging the latest generation processor and switch technologies, the FlowDirector is power efficient and is equipped with redundant power supplies and hot serviceable fans.	<ul style="list-style-type: none"> • Reduce CAPEX and OPEX • High Availability by Design

FlowDirector-640 External Interfaces Specification

Function	Compliance	Type	Quantity
Tri-mode 1Gb/2.5Gb/10Gb Traffic Ports	IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM SFP+ MSA, Revision 4.1 Direct-Attach Copper Cable Support up to 3 Meters 10/100/1G SFP with SGMII and Auto Negotiation Support	10G SFP+ Fiber Optics 10G SFP+ Passive DAC Cable 1G SGMII Based SFP for Fiber Optics and RJ-45 Copper	48
40Gb Traffic Ports	SFF-8436, SFF-8635 QSFP+ 40Gb Support	QSFP+ Fiber Optics or QSFP+ DAC Cable	4
40Gb Traffic Ports Breakout Capabilities	Each 40Gb Traffic Port Can be Split into 4 Ports to Support 1G/2.5G/10G Ethernet Operation. IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM SFP+ MSA, Revision 4.1 Direct-Attach Copper Cable Support up to 3 Meters	40G QSFP+ to 4x SFP+ Splitter Cable	4 QSFP+ to 16 SFP+
1Gb/2.5Gb/10Gb Traffic Ports Gang Capabilities	Each 4 Adjacent 1Gb/2.5Gb/10Gb Ports Can be Ganged into 1 QSFP+ Port with a QSFP+ to SFP+ Cable	40G QSFP+ to 4x SFP+ Splitter Cable	48 SFP+ to 12 QSFP+
LED System Indicators	System Information LED Power Status LED	Orange Green	2
LED For SFP+ Traffic Ports	Combo LED for Link and Activity	Green LED	1 Per Port
LED For QSFP+ Traffic Ports	Combo LED for Link and Activity	Blue 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	Serial	1
USB Port	USB 2.0 High Speed 480Mbps Port	USB Type A	1
Air Flow and Fans	PWM Controlled Long Endurance Fan	Front to Back Air Flow	4
Redundant Power Supply	Dual 750W High Efficiency 90-230V 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 17.25 x 19	1

FlowDirector-640 Front Panel Features

40G QSFP+ Status Lights

40G Ethernet Port 49,50,51,51 Status as below:

- Blue: Normal 40G Network Link/Activity in this port
- Blue Blink: 40G Network Packets Activities in this port
- Off: No 40G Network Link

10G SFP+ Status Lights

10G Ethernet 1 to 48 Ports Status as below:

- Green: Normal Network Link/Activity
- Green Blink: Network Transmit or Receive Packets
- Off: No Network Link

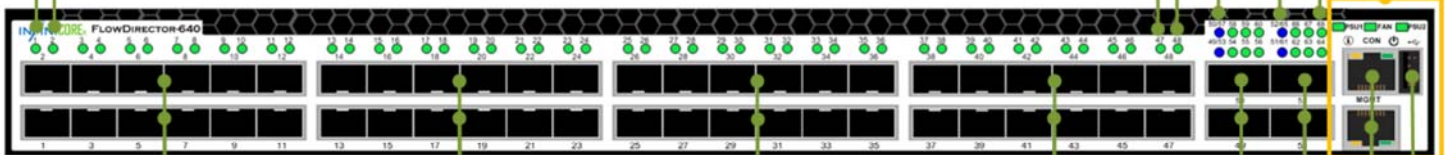
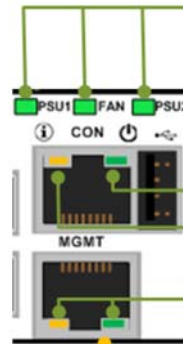
Fan and PSU Failure LEDs

Normal :Green
Fan or PSU failure :Red
PSU not inserted :Off

Power Status LED
System Information LED

Management LEDs

Link ACT



10G SFP+ Ports

Provide 10G SFP+ Connectivity

40G QSFP+ Ports

Provide 40G QSFP+ Connectivity

Console Port Management Port

For connection to InfiniOS command line interface
Provide Ethernet connection for management interface

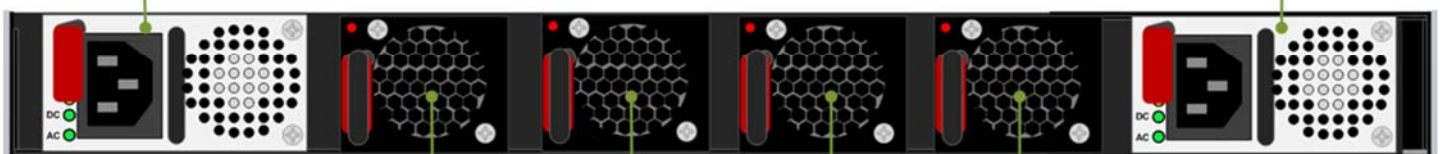
USB Port

For use with USB device

FlowDirector-640 Rear Panel Features

AC Power Supply

AC power connection for use with the supplied power cords



Hot Swappable Fans

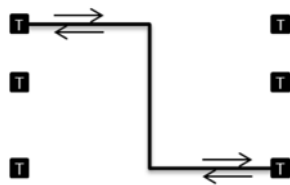
FlowDirector-640 Flow Operation Domains

The data paths through the FlowDirector can be configured through the concept of Virtual Flow Domains. The FlowDirector-640 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-640 offers a variety of domains to support traffic tapping, inline processing, aggregation, replication, split & merge, tagging and load balancing.

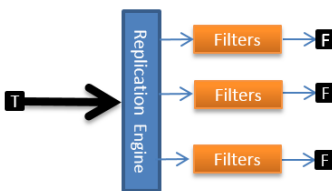
Typical Flow Domains Supported by FlowDirector Flow Domain Designer

Dynamic Virtual Wire



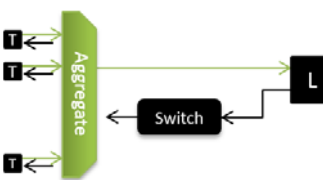
- Zero loss cross connect from any port to any port
- Drag-and-drop
- Ideal for lab automation and remote operation

Traffic Replication with Filters



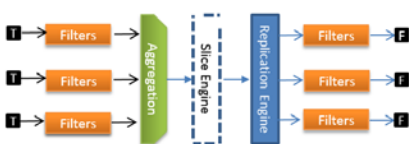
- Replicate traffic with filter support
- Lossless 1-to-N hardware based data path

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 with Replication

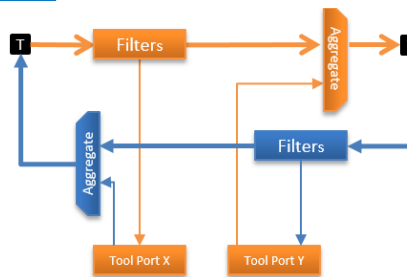


- Aggregate and replicate traffic
- Filter and slice traffic

Wide Variety of Protocols Support

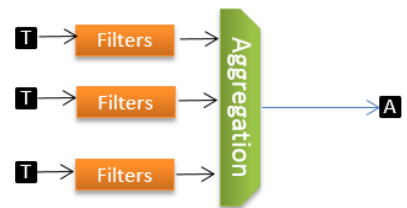
The FlowDirector-640 supports wide variety of protocols including the following: TRILL, MPLS, VPWS, Q-in-Q, MAC-in-MAC, IPv4, IPv6, GRE, ECMP, TCP, UDP, IGMPv1, IGMPv2, IGMPv3, VEPA+

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 Aggregation with Filters



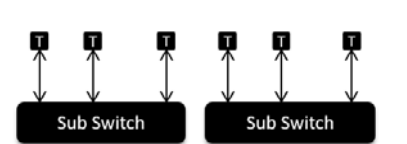
- Aggregate traffic to save downstream device ports
- Line rate filtering

Traffic Aggregation And Load Balancing



- Aggregate traffic and load balance to downstream devices
- Line rate filtering
- Option to slice packets

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

FlowDirector-640 Standard Peripherals

Part Name	Quantity
DB-9 to RJ-45 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	0 or 1

FlowDirector-640 Physical and Environmental Specifications

Item	Description
Dimension (Width x Depth x Height)	19 x 17.25 x 1.75 (inches) 483 x 438 x 44 (millimeters)
Net Weight	18.7 (pounds) / 8.5 (kilograms)
Environment	Operating Temperature: 0° ~ 40° C (32° ~ 104° F) Non Operating Temperature: -40° ~ 70° C (-40° ~ 158° F) Humidity: 20 ~ 90% (Non-condensing)

FlowDirector-640 Ordering Information

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

Product Category	Part Number	Traffic Ports	Port Specification	Software Package
FlowDirector-640	FDS-640-R2 • Fully Functional System	48 SFP/SFP+ + 4 QSFP+	48x 1G/2.5G/10G SFP/SFP+ Ports with DAC Support; 4x QSFP+	Standard InfiniOS Software Package
FlowDirector-640 Licensable Model	FDS-640-R2-24-1	24 SFP/SFP+ + 1 QSFP+	24x 1G/2.5G/10G SFP/SFP+ Ports with DAC Support; 1x QSFP+	Standard InfiniOS Software Package
	FDS-640-R2-8-1	8 SFP/SFP+ + 1 QSFP+	8x 1G/2.5G/10G SFP/SFP+ Ports with DAC Support; 1x QSFP+	

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-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
FDS-3200-R2	32 QSFP+/QSFP28	32x 40G/100G QSFP+/QSFP28 Ports	Standard InfiniOS Software Package