



# FlowDirector-640



48x 1G/2.5G/10G SFP+ and 4x 40Gb QSFP+ Ports Network Fabric Visibility Appliance

## FlowDirector Product Family Overview

InfiniCORE Network FlowDirector product family is purposefully designed to help network administrators to build next generation fabric visibility networks. FlowDirector product family makes it easy to tap, aggregate, replicate, tag, strip, filter and load balance traffic from the traffic feed to customers visibility networks. Flow-Magic product family empowers network administrators to deploy monitoring devices on the fly without the need for SPAN ports. FlowDirector's world leading operating system (InfiniOS) coupled with its innovative software defined flow domains provides an easy to use, single pane of operation to network administrators.

FlowDirector-640 leverages the state of the art silicon technology to provide 48 SFP+ ports that are capable of operate at 1G, 2.5G and 10Gbps; In addition to SFP+ Ports, FlowDirector-640 also provides 4 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
<b>Unprecedented Line Rate Packet Processing capability Over 52 Traffic Ports</b>	Up to 1.28Tbps of hardware ensured line rate packet operation over 48 1G/2.5G/10G SFP+ ports and 4 40Gbps QSFP+ ports.	Provides the best connectivity to wide variety of networks; Abundant network interfaces for future expansion; Worry free line rate operation.
<b>High Performance, Flexible, Software Defined Flow Domains</b>	Innovative Flow Domains provides best flow manipulation, function isolation, virtualization for tap, traffic aggregation, traffic replication, filter, tag and load balance applications.	Ideal for enterprise and service provider to create application specific data paths that suites their need and network environment the best. 
<b>Unified Tap/SPAN based Operation and Inline Operation</b>	In addition to comprehensive sit-aside TAP/SPAN based operation, FlowDirector provides a powerful Virtual Wire based solution that can be used to process inline traffic at ease.	Virtual Wire Technology can be used to implement on-demand DDoS traffic cleaning, source based deep packet inspection as well as Lab automation.
<b>Innovative, State of the Art, Web Based Management Framework</b>	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 any device that is equipped with a modern browsers such as Chrome, Firefox, Safari and Internet Explorer. 
<b>Green, Cost Effective and High Reliability and Availability</b>	Leveraging latest generation processor and switch technologies, FlowDirector is power efficient and equipped with redundant power supplies and hot serviceable fans.	Reduce customers' CAPEX and OPEX; High Availability by Design.

## FlowDirector-640 External Interfaces Specification

Function	Compliance	Type	Quantity
<b>Tri-mode 1Gb/2.5Gb/10Gb Traffic Ports</b>	IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM SFP+ MSA, Revision 4.1 Direct-attach Copper Support up to 10 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
<b>40Gb Traffic Ports</b>	SFF-8436, SFF=8635 QSFP+ 40Gb Support	QSFP+ Fiber Optics or QSFP+ DAC Cable	4
<b>40Gb Traffic Ports Breakout Capabilities</b>	Each 40Gb Traffic Port can be split into 4 ports to support 1Gb/2.5Gb/10Gb Operation. IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3aq 10GBASE-LRM SFP+ MSA, Revision 4.1 Direct-attach Copper Support up to 10 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	4 QSFP+ to 16 SFP+
<b>1Gb/2.5Gb/10Gb Traffic Ports Gang Capabilities</b>	Each 4 adjacent 1Gb/2.5Gb/10Gb Ports can be ganged into 1 QSFP+ Port with QSFP+ to SFP+ Cable	QSFP+ Fiber Optics or QSFP+ DAC Cable	48 SFP+ to 12 QSFP+
<b>Visible LED For SFP+ Traffic Ports</b>	LED for Link LED for Activity	Green LED	2 Per Port
<b>Visible LED For QSFP+ Traffic Ports</b>	Combo LED for Link and Activity	Green LED	1 Per Port
<b>10/100/1000 Mbps Management Port</b>	10/100/1000BASE-T Category 5, Category 5e, Category 6 UTP	Copper RJ-45	1
<b>Visible LED for RJ-45 Management Port</b>	LED for Link LED for Activity	Green LED Yellow LED	2 Per Port
<b>Console Port</b>	115200 Baud 8 Bit Data No Parity 1 Stop Bit	Serial	1
<b>USB Port</b>	USB 2.0 High Speed 480Mbps Port	Micro-USB Type B	1
<b>Air Flow and Fans</b>	PWM Controlled Long Endurance Fan	Front to Back Air Flow	6
<b>Redundant Power Supply</b>	Dual 460W High Efficiency 90-230V AC 50-60Hz Class I	1+1 Redundant Power Supply	2
<b>Rack Mount Kit</b>	19 Inch Rack Mountable	19 Inch Rack Mountable	1
<b>Chassis Dimension</b>	Height X Width X Depth (inches)	2.45 x 17.5 x 15.6	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 68 Ports Status as below:

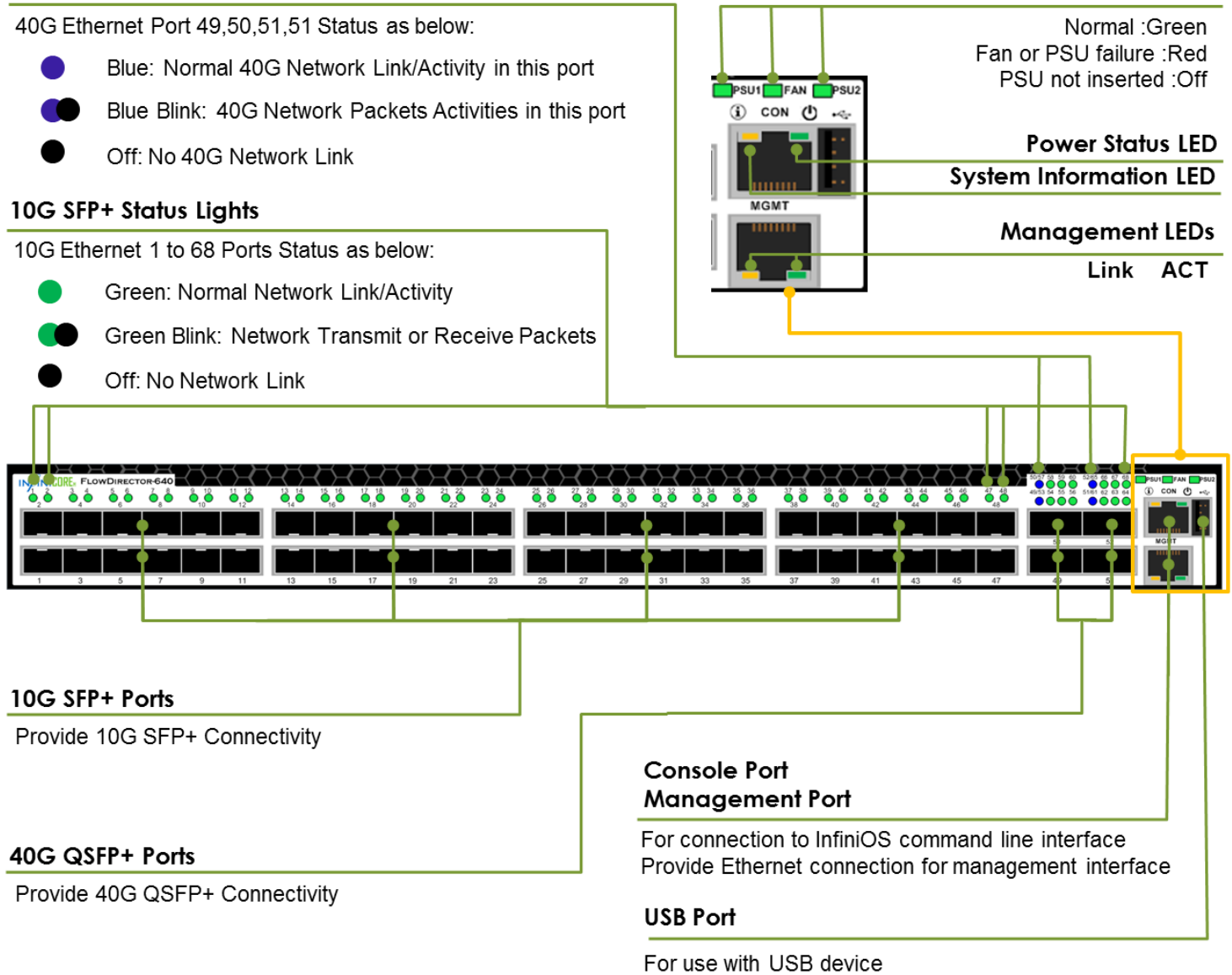
- Green: Normal Network Link/Activity
- Green Blink: Network Transmit or Receive Packets
- Off: No Network Link

### Fan and PSU Failure LEDs

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

Power Status LED  
System Information LED

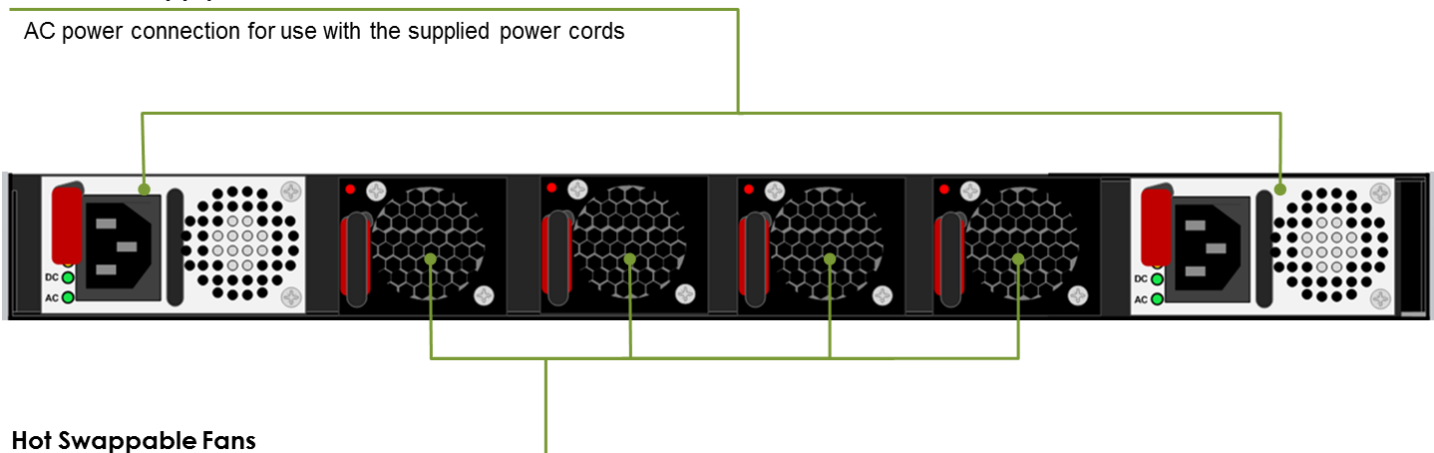
Management LEDs  
Link ACT



## FlowDirector-640 Rear Panel Features

### AC Power Supply

AC power connection for use with the supplied power cords



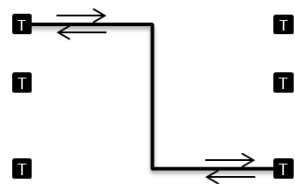
# FlowDirector-640 Flow Operation Domain

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

FlowDirector-640 supports a variety of domains to support traffic tapping, traffic inline processing, traffic aggregation, traffic replication, traffic split and merge, traffic tagging and load balancing.

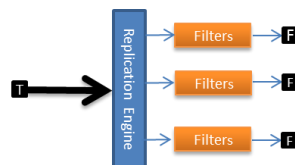
## Typical Flow Domains Supported by FlowDirector Flow Domain Designer

### Dynamic Virtual Wire



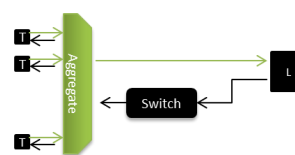
- Zero Loss Cross Connect from Any Port to Any Port
- Drag-And-Drop
- Ideal for Lab Automation and Remote Operation

### 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 address learning

### Traffic Aggregation with Replication

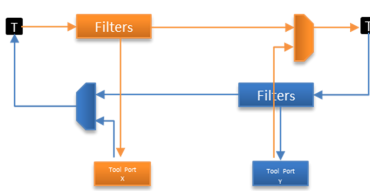


- Aggregate and Replicate Traffic
- Filter and Slice Traffic

## Wide Variety of Protocols Support

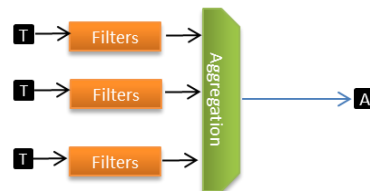
FlowDirector-640 supports wide variety of protocols including the following: TRILL, MPLS, VPWS, Q-in-Q, MAC-in-MAC, IPv4, IPv6, GRE, ECMP, TCP, UDP, IGMPv1, IGMPv2, IGMPv3, VEPA+

### Inline Traffic Split and Merge



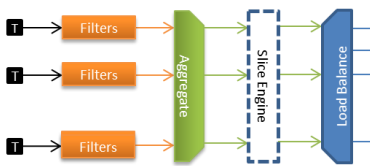
- Selectively Redirect/Drop Traffic at Line Rate
- Merge Traffic at Line Rate
- Ideal for DDoS Defense or On Demand Traffic Processing

### Traffic Aggregation with Filters



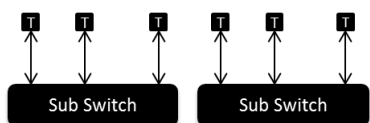
- Aggregate Traffic to Save Downstream Device Port
- Line Rate Filter Support

### Traffic Aggregation And Load Balancing



- Aggregate Traffic and Load Balance to Downstream Devices
- Line Rate Filter Support
- Option to 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

## FlowDirector-640 Standard Peripherals

Part Name	Quantity
UTP Cat 6. Ethernet Cable	1
Rail Mounting Kit	1
CD (User Manual, software package)	1
USB System Recovery Thumb Drive	1 or Download

## FlowDirector-640 Package and Environmental Specification

Item	Description
Dimension (Unit: mm)	396 x 444 x 110
Net Weight (Unit: Kilogram)	9.5
Environment	Operating Temperature: 10 ~ 35 Non Operating Temperature: -40 ~ 70 Humidity: 20 ~ 90% (Non-condensing)

## FlowDirector-640 Order Code

Please Contact InfiniCORE regional distributors/reseller or InfiniCORE sales for further information.

Part Number	Traffic Ports	Port Specification	Software Package
FlowDirector-640-R2	48 SFP/SFP+ + 4 QSFP+	48x 1G/10G SFP and SFP+ Com- patible with DAC Support 4x QSFP+	Standard InfiniOS Software Package

### Product Member In the FlowDirector Product Family

Part Number	Traffic Ports	Port Specification	Software Package
FlowDirector-80-R2	8 SFP/SFP+	8x 1G/10G SFP and SFP+ Com- patible with DAC Support	Standard InfiniOS Software Package
FlowDirector-240-R1 FlowDirector-240-R2 (2 Redundant PSU)	24 SFP/SFP+ + 0 QSFP+	24x 1G/10G SFP and SFP+ Com- patible with DAC Support	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