

# I5000M Series

## Infinique Networks Layer 3 Lite Access Switch 10G, SDN Managed and Stackable for Enterprise Campus Networks



### Overview

Infinique's 5000M Series Switches are a high performance gigabit Layer 3 Lite, Stackable Managed network switches that are stable, reliable and are designed for ease of use. These switches offer excellent high speed performance through line-rate forwarding on all ports, and have advance redundancy and reliability features that are implemented through the industry standard protocols like the Ethernet Ring Protection Switching Protocol (ERPS).

The 5000M series switches provide easy and efficient network management through Software Defined Networking (SDN) and also offer a comprehensive set of options for management of switches through protocols like SNMP and Cloud, providing easy configuration and setup of switches using Web or Command Line Interface. These switches provide higher bandwidth connections through 10 Gigabit SFP+ Uplink ports and help improve fault tolerance and reliability via Virtual Stacking Technology .

Built with security and advance features, the switches can act as access switches and meet the very comprehensive demands of enterprise campus networks and help build highly reliable and easy to expand networks.

### Product Highlights

- High performance Gigabit and 10G Ports for Fast Connections
- 10 Gigabit Uplink Ports for High Bandwidth Connections
- Physical Stacking of up to 16 Switches to create a Single Virtual Switch or Logical Device for fault tolerance and reliability
- Supports Standard Spanning Tree Protocols ensuring seamless connectivity and high availability
- Effectively access and manage network switches using Software Defined Networking or Cloud platforms reducing management costs
- Zero Touch Provisioning for easy and quick deployment
- Effectively manage network bandwidth by traffic prioritization and resource allocation using advanced QoS
- Control network access with a range of features that provide user and device authentication and ensure network security
- Robust Aluminum metal alloy enclosure with Fan or Fan-less design for excellent heat dissipation
- Supports Industry Standards such as IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3az, IEEE 802.3ah and more.

**I5000M Series**

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**Series Snapshot**

<b>Model/Max. Ports</b>		28	28	54	54
<b>Port Type</b>	RJ45 (1G)	24	24	48	48
	SFP (1G)	NA	NA	NA	NA
	SFP+ (10G)	4	4	6	4
<b>Ext Slot ( 2x 10G SFP+ Card)</b>		NA	NA	NA	1
<b>PoE+</b>			380W		760W
<b>Power (AC)</b>		Fixed Single	Fixed Single	Fixed Single	Fixed Single
<b>Switching Capacity (Gbps)</b>		128	128	216	216

Refer Ordering Section for Part Numbers

**Salient Features**

**Software Defined Networking**

The I5000M series of campus switches provide an excellent way to manage campus switches through the IN-LAN controller software, an integrated Software Defined Networking (SDN) platform. This SDN platform helps to deploy, manage and secure the network through a single platform. Thus simplifying network administration, reducing deployment times and increasing network efficiency, making it easy to troubleshoot and provide network maintenance and ultimately leading to an overall cost savings in managing the network.

**High Availability**

The I5000M series switches offer excellent feature of redundancy and reliability and cater to very diverse networking requirements. In addition to supporting traditional spanning tree protocols such as STP, RSTP, and MSTP, the switches also comply with the ITU-T G.8032 international standard, the Ethernet Ring Protection Switching (ERPS) protocol which enables rapid failover within Ethernet ring network topologies, ensuring seamless connectivity and minimal downtime.

**Stack together for Bandwidth and Management**

The I5000M series switches can be combined together to form a single virtual stack or logical unit. The stacking is achieved by connecting multiple switches together through the 10G SFP+ ports to form a single virtual switch that helps improve the switches link reliability, increase bandwidth and provide simple configuration and management, and ease of network expansion.

**Quality of Service ensuring Performance**

The Quality of Service (QoS) capabilities of switches guarantees the network traffic of various applications, such as streaming video, VoIP calls, and data transfer, is prioritized correctly and with the right resource allocation as per the requirements of the application. This is achieved with the advanced scheduling algorithms such as SP, WRR, WFQ, SP+WRR and SP+WFQ and diverse priority mapping techniques such as 802.1p and DSCP, that enable control over traffic classification and prioritization.

**Zero Touch Provisioning for Quick Setup**

Infinique's I5000M series provide advanced ZTP features for easy deployment. Using this feature the switches can discover and install necessary version files from a file server eliminating the need for manual setup during the initial setup. This helps reduce the configuration errors and accelerates the deployment process, while enhancing the overall network efficiency, making these switches an ideal choice for network administrators.

**Management Options for Easy Administration**

The I5000M series offer a comprehensive set of management features and options to provide an easy way to manage tasks. Available features include network management protocols like Cloud and SNMP, Configuration and Control options using Web and CLI, Monitoring and Diagnostics tools such as RMON and SYSLOG, help network administrators to monitor and maintain the network for optimum performance.

**Authentication and Secure Access**

These series of network switches offer a comprehensive suite of security features that provide both user and device authentication and protection. The features include user authentication, port security, Access Control Lists (ACL), Loopback Detection and 802.1x Authentication. Robust security functions such as IP Source Guard, DHCP Snooping, Dynamic ARP Inspection and PPPoE+ ensure excellent protection for network access. These network switches also support MAC binding, and counter measure against network storm, ARP snooping and protocol packet attacks making it an ideal access network switch.

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**NETWORK MANAGEMENT FEATURES**

**Ports and Interface**

Basic Port Configuration	Auto MDI/MDIX, Port Speed, Port Duplex, Port MTU( Jumbo Frame), Port Isolation
MAC Address Management	MAC Address Aging Time, MAC Address Learning ON/OFF, MAC Address Learning Limitation, Static MAC Address, MAC Address Filter
Storm Control	Storm, Flood Control and Shutdown Control for BUM
Logical	Loop-back, L2/L3 VLAN and L3 Ethernet interfaces

**Ring Protection**

Spanning Tree Protocols	STP/RSTP/MSTP, BPDU Guard, BPDU Filter, Flap Guard, Loop Guard, Root Guard, TC Guard, BPDU L2protocol Tunnel
Other Protocols	VIST/VIST+, G.8032 (Ethernet Ring Protection Switching) v1, v2

**Link Aggregation**

LACP Configuration	LACP Link Aggregation, LACP Port Priority, LACP Load Balance
--------------------	--

**VLAN**

VLAN Management	VLAN, VLAN PVID, VLAN Trunk, VLAN Hybrid, VLAN Interface, MAC VLAN, Protocol VLAN, IP Subnet VLAN, Voice VLAN, Private VLAN, GVRP, Basic QinQ, Selective QinQ, 802.1ad, VLAN Mapping
-----------------	--

**IP Services**

IP Protocol	ARP, DNS Client, SNTP Client, ICMP, IPv6, IPv6 ND/SLAAC
Routing Protocol	Static Routing v4/v6 for Management
DHCP Service	DHCP Relay/Client, DHCP Snooping, DHCP Snooping Option 82

**Multicast**

L2 Multicast Protocols	IGMP v1/v2/v3 Snooping, Fast Leave, IGMP Snooping Querier, IGMP Filter, Static Group, MLD Snooping, MVR
------------------------	---

**Quality of Service (QoS)**

Flow Classification	802.1P Priority, DSCP Priority, VLAN ID, MAC Prefix, IP Subnet, Protocol, IP Precedence, IPv6 Traffic Class, Ethernet Type
Traffic Control	Rate Limit and Port based Bandwidth, Traffic Shaping
Traffic Classification	Three Color Marker, Priority Remark, Traffic Redirect/Meter/Mirror
Scheduling	Port-based Priority, SP, WRR, WFQ, SP+WRR, SP+WDRR, SP+WFQ
Congestion Management	Tail-drop, RED, WRED

**Error Handling and Fault Detection**

Error-Disable Configuration	Error-Disable Based on BPDU-guard, Loopback-detect, Port Security; Error-Disable Recovery
Fault Detection	UDLD, Loop-back Detection, CFM, Monitor Link (MTLK)

**Security**

Port Security	Rule Based On IP/MAC/MAX/Sticky, Violation (Protect/Restrict/Shutdown), Recovery
Network Access Control	IP Source Guard (ISG), DHCP Snooping, ND Snooping, Host Guard
Access Control List	Standard IP ACL, Extended IP ACL, Standard MAC ACL, Extended MAC ACL, Standard Hybrid ACL, Extended Hybrid ACL, Standard IPv6 ACL, Extended IPv6 ACL, Time-based ACL
Threat Prevention	Dynamic ARP Inspection (DA), ARP Check, AARF ARP-Guard, ARP Speed Limit, ARP Source Suppression, PPPoE+
AAA	Local Authentication, Radius (Authentication, User Login Authorization, User Login Accounting), TACACS+ (Authentication, User Login Authorization, Command Authorization, User Login Accounting, Command Accounting)
802.1x	Port-based 802.1X, MAC-based 802.1X, MAC-Authentication, Guest-VLAN, VLAN Distribution (Auto-VLAN), ACL Distribution
Anti Attack	Anti-Attack Detect/Drop/Flood/Log, URPF, White List, Black List

**I5000M Series**

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**NETWORK MANAGEMENT FEATURES**

**Configuration and Management**

Monitoring and Diagnostics	SPAN, RSPAN, VLAN SPAN, sFlow, Telemetry
Device Management	SNMP v1/v2/v3, SNMP Trap, RMON, SYSLOG (Logging to Terminal/Logging to Server/CLI Operation to Server), LLDP, WEB(HTTP), Console, Telnet, SSH, Cloud, System Upgrade (TFTP/FTP/SFTP/WEB), Configuration Management (Backup/Restore), Factory Reset, Password Reset, ISSU, Hot Patch, Keep-Alive Gateway, Cloud Management
Zero Touch Provisioning	ZTP Through DHCP Server, USB and Flash Disk

**High Availability**

Device Virtualization	H-VST, M-VST
Detection Mechanism	MAD LACP, MAD BFD, MAD Fast-Hello, MAD LACP
Protocols	HA, ULFD, UDLD, G.8032, ULPP, Monitor Link, EEP, BFD with Static Route

**Network Virtualization**

Software Defined Networking	NETCONF/YANG
-----------------------------	--------------

**Stacking**

Physical Stacking	Yes
Max No. of Switches	16
Bandwidth	20~80Gbps

**Standards Compliance**

IEEE Standard	<p>802.1D Bridging and Spanning Tree Protocol</p> <p>802.1p Quality of Service and Class of Service Priority</p> <p>802.1Q Virtual LAN tagging</p> <p>802.1ad Double Tagging of Data</p> <p>802.1w Rapid Spanning Tree Protocol</p> <p>802.1s Multiple Spanning Tree Protocol</p> <p>802.1ag Connectivity Fault Management</p> <p>802.1x Port-Based Network Access Control</p> <p>802.1AB Link Layer Discovery Protocol</p> <p>802.3 10BASE-T</p> <p>802.3u 100BASE-T</p> <p>802.3z 1000BASE-X</p> <p>802.3ab 1000BASE-T</p> <p>802.3ae 10G BASE-X</p> <p>802.3ah Ethernet in the First Mile Operations, Administration, and Maintenance</p> <p>802.3ad Link Aggregation</p> <p>802.3x Flow Control</p>
	<p>RFC 2460 Internet Protocol, Version 6 (IPv6) Specification</p> <p>RFC 4861 Neighbor Discovery for IP Version 6 (IPv6)</p> <p>RFC 4862 IPv6 Stateless Address Auto configuration</p> <p>RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6)</p>

**I5000M Series**

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**TECHNICAL SPECIFICATIONS**

**Non-POE Models**

I5000M-24T-4X      I5000M-48T-6X

**General**

10/100/1000 Ports	24x RJ-45 Ports	48x RJ-45 Ports
SFP 1G Ports	NA	NA
SFP+ 10G Ports	4x 10G Fiber Ports	6x 10G Fiber Ports
Expansion Slot (2-Port SFP+ Card)	NA	NA
Console Ports	1x RJ-45, 1x USB	
Host Support	IPv4 / IPv6 ready	
LED Indicator Status	Power: Yellow, System: Yellow, Network: Link/Act Yellow, SFP: Link/Act Green, PoE: Green	
Fan	Single Fixed	
Factory Reset Button	Yes	

**Performance**

Switching Bandwidth	128Gbps	216Gbps
Transmission	Store and Forward	
Forwarding Rate	95.24mpps	130.95mpps
Buffer Memory	512MB	1GB
Jumbo Frame	12Kbytes	
MAC Addresses Table Size	16K	32K
VLAN Entries	4K	4K
IPv4 Host Table (ARP)	2K	8K
IPv6 Host Table (ND)	1.5K	8K
MTBF	300,000 hours	

**Power Management**

Power Supply Type	Single Fixed	Single Fixed
Power Input	AC 100~240V 50~60Hz	
Max Power Consumption	26W	55W

**Environment**

Temperature (Celsius)	Operating: -5 °C to +45 °C; Storage: -40 °C to +70 °C	
Humidity	Operating: 10% to 90% non-condensing; Storage: 5% to 95% non-condensing	
Heat Dissipation (BTU)	89	190

**Physical**

Dimensions (WxDxH) mm	442×220×44.2	442x320x44.2
Weight	3Kg	5Kg
Mounting Options		

**Standards and Compliance**

Safety	CE/LVD EN 62368-1 RoHS
EMC/EMI	EN 55032, EN 55035, EN 61000-3-2, EN 61000-3-3
Green Energy (EEE)	IEEE802.3az Energy Efficient Ethernet Task Force
Lighting Protection	6KV

**I5000M Series**

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**TECHNICAL SPECIFICATIONS**

**POE Models**

I5000M-24P-4X-380    I5000M-48P-4X-760

**General**

10/100/1000 Ports	24x RJ-45 Ports	48x RJ-45 Ports
SFP 1G Ports	NA	NA
SFP+ 10G Ports	4x 10G Fiber Ports	4x 10G Fiber Ports
Expansion Slot (2-Port SFP+ Card)	NA	1x
Console Ports	1x RJ-45, 1x USB	
Host Support	IPv4 / IPv6 ready	
LED Indicator Status	Power: Yellow, System: Yellow, Network: Link/Act Yellow, SFP: Link/Act Green, PoE: Green	
Fan	Single Fixed	
Factory Reset Button	Yes	

**Performance**

Switching Bandwidth	128Gbps	216Gbps
Transmission	Store and Forward	
Forwarding Rate	95.24mpps	130.95mpps
Buffer Memory	512MB	1GB
Jumbo Frame	12Kbytes	
MAC Addresses Table Size	16K	32K
MTBF	300,000 hours	
VLAN Entries	4K	4K
IPv4 Host Table (ARP)	2K	8K
IPv6 Host Table (ND)	1.5K	8K

**Power Management**

Power Supply Type	Single Fixed	
Power Input	AC 100~240V 50~60Hz	
Max Power Consumption	409W	808W
PoE Standard	IEEE802.3af/at	
PoE Ports	24	48
PoE Power Budget	360W	760W

**Environment**

Temperature (Celsius)	Operating: -5 °C to +45 °C;    Storage: -40 °C to +70 °C	
Humidity	Operating: 10% to 90% non-condensing;    Storage: 5% to 95% non-condensing	
Heat Dissipation (BTU)	99	245

**Physical**

Dimensions (WxDxH) mm	442×380×44.2	442×420×44.2
Weight	5.3Kg	7.8Kg
Mounting Options		

**Standards and Compliance**

Safety	CE/LVD EN 62368-1 RoHS
EMC/EMI	EN 55032, EN 55035, EN 61000-3-2, EN 61000-3-3
Green Energy (EEE)	IEEE802.3az Energy Efficient Ethernet Task Force
Lighting Protection	6KV

**I5000M Series**

**Infinique Networks Layer 3 Lite 10G Managed Access Campus Switches**

**Ordering Information**

<b>Part Number</b>	<b>Description</b>
Switches	
I5000M-24T-4X	Infinique I5000M Series 1G/10G L3 Lite Access Campus Switch, 24x 100/1000M Ethernet Ports, 4x 10G SFP+ Ports, 1x AC Power
I5000M-24P-4X-380	Infinique I5000M Series 1G/10G L3 Lite Access Campus Switch, 24x 100/1000M Ethernet Ports, 4x 10G SFP+ Ports, 380W PoE+, 1x AC Power
I5000M-48T-6X	Infinique I5000M Series 1G/10G L3 Lite Access Campus Switch, 48x 100/1000M Ethernet Ports, 6x 10G SFP+ Ports, 1x AC Power
I5000M-48P-4X-760	Infinique I5000M Series 1G/10G L3 Lite Access Campus Switch, 48x 100/1000M Ethernet Ports, 4x 10G SFP+ Ports, 1x Expansion Slot, 760W PoE+, 1x AC Power
Expansion Module	
I5000M-2X-EM	Infinique I5000M Series 1G/10G L3 Access Campus Switch, 2x 10G SFP+ Ports Expansion Module For Model I5000M-48P-4X-760 (Stacking Not Available)

**Customer Support, Service and Warranty**

Infinique network switches come with a standard one-year limited hardware warranty that covers repair or replacement of parts. Cloud and Software: 90 days, can be extended with support contract