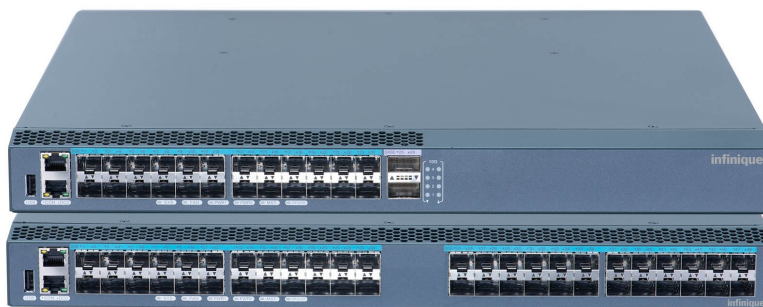# infinique™

# I2400M Series

# Infinique Networks Layer3 Aggregation Switch

## 10G, 25/40G Uplink, Managed Stackable for Enterprise Applications

## Overview

Infinique's 2400M Series Switches are a high performance 10G Layer-3 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.

The 2400M series switches 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 come with up to 10G SFP+ port connections and Uplink of 40G and 25G through QSFP+ and SFP28 uplink ports greatly increasing the bandwidth and throughput. With improved fault tolerance and reliability via the Virtual Stacking Technology these switches help network administrators simplify network management and expansion.

Built with security and advance features, the switches can act as aggregation switches and meet the very comprehensive demands of Enterprise, Small and Medium Business Ethernet network infrastructure requirements for branch offices of corporate and banks, hotels, hospitals, schools, college and university campus, restaurants and retail chain stores.

## Product Highlights

- High performance Gigabit and 10G Ports for Fast Connections
- 40 Gigabit and 25 Gigabit Uplink Ports for High Bandwidth Connections to support Servers and Storage
- Physical Stacking of up to 8 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
- Universal 10/100/1000 Mbps ports for legacy to latest Gigabit devices
- Effectively access and manage network switches from remote locations using Cloud 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.

# I2400M Series

## Infinique Networks Layer3 25/40G Uplink Managed Aggregation Switch

## Series Snapshot

| Model/Max. Ports | | 26 | 48 | 50 |
|---|---|---|---|---|
| Port Type | RJ45 | NA | NA | 24 |
| | SFP+ | 24 | 48 | 18 |
| | SFP28 (25G) | NA | NA | 8 |
| | QSFP+ (40G) | 2 | NA | NA |
| Power (AC) | | Dual Modular | Dual Modular | Dual Modular |
| FAN | | Dual Modular | Dual Modular | Dual Fixed |
| Switching Capacity (Gbps) | | 640 | 960 | 880 |

Refer Ordering Section for Part Numbers

## Salient Features

### 10G high density ports and up to 40G Uplink

As the application servers bandwidth moves upwards from 1G to 10G range, Infinique's I2400M series switches feature high density 10G ports with 40G or 25G uplinks to provide routing and extremely low latency making them suitable to be used as Aggregation Switches. The switches come in models with fixed configurations and high capacity port combinations of RJ45, SFP+, QSFP+ or SFP28 ports offering flexibility and providing an economical option catering to the requirements of Enterprise IT networks and applications.

### High Availability

The I2400M 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 I2400M 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 I2400M 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 I2400M 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.

### Industry Standards Compliance

The I2400M series switches are designed for industry standards and include various IEEE standards such as IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, and IEEE 802.3az. These standards make sure that your network operates with the latest technologies and is compatible with a wide range of networking equipment, providing interoperability and future-proofing your infrastructure investment.

## NETWORK MANAGEMENT FEATURES

### Ports and Interface

| | |
|---|---|
| Basic Port Configuration | Auto MDI/MDIX, Port Type UNI/NNI Port Speed, Port Duplex, Port MTU( Jumbo Frame), Port Isolation, Port Loopback, Port Energy Control |
| MAC Address Management | MAC Address Aging Time, MAC Address Learning ON\|OFF, MAC Address Learning Limitation, Static MAC Address, MAC Address Filter, MAC address VLAN Binding, MAC Debug |
| Storm Control | Storm, Flood Control and Shutdown Control for BUM |
| Logical | Loop-back, Tunnel, Null, 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, LACP Rate Monitor, LACP Debug |

### VLAN

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

### IP Services

| | |
|---|---|
| IP Protocol | ARP, DNS, NTP Server/Client, ICMP, ECMP, GRE, IPIP, IPv6 over IPv4, ISATAP, IPv4 over IPv6, IPv6 over IPv6 |
| Routing Protocol | Static Routing v4/v6, RIP/RIPng, OSPF v2/v3, BGP/BGP+, ISIS/ISIS v6, VRRP/VRRP v3, VBRP, PBR/PBR v6, IP-VRF |
| DHCP Service | DHCP v4/v6 Server, DHCP v4/v6 Client, DHCP v4/v6 Relay, DHCP Snooping, DHCP Option 51/82 |

### Multicast

| | |
|---|---|
| L2 Multicast Protocols | IGMP v1/v2/v3 Snooping, Fast Leave, IGMP Snooping Proxy, MLD Snooping, MVR, MVP |
| L3 Multicast Protocols | IGMPv1/v2/v3, PIM v4/v6-SM, PIM v4/v6-SSM, PIM-DM, PIM-SDM, |

### 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) |

### Multi Protocol Label Switching (MPLS)

| | |
|---|---|
| MPLS L3 VPN | LDP, MPLS BGP, MPLS Option-A & Option-B, Multi-VRF |
| MPLS OAM | MPLS Ping/Traceroute, MPLS QoS, MPLS TE |

### 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+ |

# I2400M Series

## Infinique Networks Layer3 25/40G Uplink Managed Aggregation Switch

## NETWORK MANAGEMENT FEATURES

| | |
|---|---|
| AAA | Local Authentication, Radius (Authentication, User Login Authorization and Accounting), TACACS+ (Authentication, User Login Authorization and Accounting, Command Authorization and 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 |

### Configuration and Management

| | |
|---|---|
| Monitoring and Diagnostics | 1:1 SPAN, N:1 SPAN, RSPAN, Flow-based Mirror, Ping, Tracert, DDM, VCT |
| 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, VRRP, VRRPv3, VBRP, EEP, BFD with Static/RIP/OSPF/BGP/ISIS |

### Network Virtualization

| | |
|---|---|
| VXLAN/EVPN | IPv4/IPv6 VXLAN Tunnel, VXLAN Distributed and Static Centralized Gateway, VXLAN QoS, BGP-EVPN |
| Data Center Interconnect | END-TO-END VXLAN, VLAN Hand-Off, Cross As Segment VXLAN |

### Stacking

| | |
|---|---|
| Physical Stacking | Yes, Max Distance 80Km |
| Max No. of Switches | 8 |
| Bandwidth | 160Gbps |

### Standards Compliance

| | |
|---|---|
| IEEE Standard | 802.1D Bridging and Spanning Tree Protocol |
| | 802.1p Quality of Service and Class of Service Priority |
| | 802.1Q Virtual LAN tagging |
| | 802.1ad Double Tagging of Data |
| | 802.1w Rapid Spanning Tree Protocol |
| | 802.1s Multiple Spanning Tree Protocol |
| | 802.1ag Connectivity Fault Management |
| | 802.1x Port-Based Network Access Control |
| | 802.1AB Link Layer Discovery Protocol |
| | 802.3 10BASE-T |
| | 802.3u 100BASE-T |
| | 802.3z 1000BASE-X |
| | 802.3ab 1000BASE-T |
| | 802.3ae 10G BASE-X |
| | 802.3by 25G BASE-X |
| | 802.3ba 40G BASE-X |
| | 802.3ah Ethernet in the First Mile Operations, Administration, and Maintenance |
| | 802.3ad Link Aggregation |
| | 802.3x Flow Control |
| | RFC 2460 Internet Protocol, Version 6 (IPv6) Specification |
| | RFC 4861 Neighbor Discovery for IP Version 6 (IPv6) |
| | RFC 4862 IPv6 Stateless Address Auto configuration |
| | RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) |

# I2400M Series

## Infinique Networks Layer3 25/40G Uplink Managed Aggregation Switch

## TECHNICAL SPECIFICATIONS

**Non-POE Models**

| | I2410M-24X-2Q | I2420M-48X | I2430M-24T-18X-8Y |
|---|---|---|---|
| **General** | | | |
| 10/100/1000 Ports | NA | NA | 24x RJ45 Ports |
| SFP+ 10G Ports | 24x 10G Fiber Ports | 48x 10G Fiber Ports | 18x 10G Fiber Ports |
| SFP28 25G Ports | NA | NA | 8x 25G Fiber Ports |
| QSFP+ 40G Ports | 2x 40G Fiber Ports | 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 | Dual Modular | Dual Modular | Dual Fixed |
| **Performance** | | | |
| Switching Bandwidth | 640Gbps | 960Gbps | 880Gbps |
| Transmission | Store and Forward | | |
| Forwarding Rate | 476.19mpps | 714.29mpps | 601.19mpps |
| Buffer Memory | 4.5M | 9M | 4.5M |
| Jumbo Frame | 12Kbytes | | |
| MAC Addresses Table Size | 384K | 384K | 384K |
| VLAN Entries | 4K | 4K | |
| IPv4 Host Table (ARP) | 62K | 62K | 62K |
| IPv4 Routing Entries | 632K | 632K | 632K |
| IPv6 Host Table (ND) | 19K | 19K | 19K |
| IPv6 Routing Entries | 383K | 383K | 383K |
| L3 Multicast Entries | 8K | 8K | 8K |
| MTBF | 300,000 hours | | |
| **Power Management** | | | |
| Power Supply Type | Dual Modular | Dual Modular | Dual Modular |
| Power Input | AC 100~240V 50~60Hz | | |
| Max Power Consumption | 94W | 100W | 83W |
| **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) | 321 | 553 | 283 |
| **Physical** | | | |
| Dimensions (WxDxH) mm | 442×420×44.2 | 442×420×44.2 | 442×420×44.2 |
| Weight | 5.5Kg | 5.36Kg | 6.0Kg |
| 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 | | |

# I2400M Series

## Infinique Networks Layer3 25/40G Uplink Managed Aggregation Switch

## Ordering Information

| Part Number | Description |
|---|---|
| Switches Models | |
| I2410M-24X-2Q | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, 24x 10G SFP+, 2x 40G QSFP+ Ports, Dual Fan Slots, Dual Power Slots |
| I2420M-48X | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, 48x 10G SFP+ Ports, Dual Fan Slots, Dual Power Slots |
| I2430M-24T-18X-8Y | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, 24x 100/1000M Ethernet, 18x 10G SFP+, 8x 25G SFP28 Ports, Dual Power Slots |
| Fan Module | |
| I2410M-FAN | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, Fan Module |
| I2420M-FAN | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, Fan Module |
| Power Module | |
| I2410M-AC-120-PWR | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, AC Input 100-240V, 120W, Output 12V/10A, Current Sharing, Hot Swappable Power Module |
| I2420M-AC-250-PWR | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, AC input 100-240V, 250W, Output 12V/10A, Current Sharing, Hot Swappable Power Module |
| I2430M-AC-120-PWR | Infinique I2400M Series Layer 3 10G Cloud Managed Aggregation Switch, AC input 100-240V, 250W, Output 12V/10A, Current Sharing, Hot Swappable Power Module |

## 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