IgniteNet FusionSwitch™ PoE

L2 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Product Overview

The IgniteNet FusionSwitch™ PoE is a Gigabit Ethernet access switch with 24 Gigabit PoE ports and four 10G uplink ports. The switch is an ideal Gigabit access switch for SMB, enterprise, and campus networks. The FusionSwitch™ PoE is packed with features that bring high availability, comprehensive security, robust multicast control, and advance QoS to the network edge, while maintaining simple management. The switch also supports the most advance IPv6 management, IPv6 security, and IPv6 multicast control in accordance with the growth of IPv6 deployment.

Key Features and Benefits

Performance and Scalability

The IgniteNet FusionSwitch™ PoE is a high-performance Gigabit Ethernet Layer 2+ managed switch with 128Gbps switching capacity. The switch delivers wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance Gigabit CPEs, PCs, 11n/ac Wi-Fi APs etc, significantly improving the responsiveness of applications and file transfer times.

The four built-in 10G SFP+ ports provide uplink flexibility, allowing the insertion of fiber or copper, Gigabit or 10G transceivers, to create up to 10 Gbps high-speed uplinks to servers or service provider, corporate, or campus networks, reducing bottlenecks and increasing the performance of the access network.

Continuous Availability

The IEEE 802.1w Rapid Spanning Tree Protocol provides a loop-free network and redundant links to the core network with rapid convergence, to ensure faster recovery from failed links, enhancing overall network stability and reliability.

The IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links up to 65 instances.

The FusionSwitch™ PoE supports IEEE 802.3ad Link Aggregation Control Protocol (LACP). It increases bandwidth by automatically aggregating several physical links together as a logical trunk and offers load balancing and fault tolerance for uplink connections.

The FusionSwitch™ PoE supports G.8032 Ethernet Ring Protection Switching with the ability for the network to detect and recover from incidents without impacting users, meeting the most demanding quality and availability requirements. Rapid recovery time when problems do occur is as low as 50ms.

PoE Features

The FusionSwitch™ PoE can provide up to 30 Watts of power to attached devices, such as VoIP phones, wireless access points, surveillance cameras, etc, all over existing Cat. 5 cables. This eliminates the need for individual power sources for devices in the network, saving on costs for power cables and avoiding power outlet availability issues. If the power demand exceeds the switch's maximum power budget, ports can be prioritized to receive power.

Reliability and Energy Efficiency

The design of the FusionSwitch™ PoE incorporates high energy efficiency in order to reduce the impact on the environment. The Green Ethernet power-saving features and faness design significantly reduce the power consumption.

Comprehensive QoS

The FusionSwitch™ PoE offers advanced QoS for marking, classification, and scheduling to deliver best-in-class performance for data, voice, and video traffic at wire speed. Eight egress queues per port enable differentiated management of up to eight traffic types through the switch.

Traffic is prioritized according to 802.1p and DSCP to provide optimal performance for real-time applications. Weighted Round Robin (WRR) and strict priority ensure differential prioritization of packet flows and avoid congestion of ingress and egress queues.

Asymmetric bidirectional rate-limiting, per port or per traffic class, preserves network bandwidth and allows maximum control of network resources.

The FusionSwitch™ PoE Series supports Three Color Marker and Policing Single rate: Committed Information Rate (CIR) Two rate: CIR + Peak Information Rate (PIR) Traffic Policing: The switch drops or remarks the priority tags of packets when they exceed the burst size.

IPv6 Support

The switch supports a number of IPv6 features, including IPv6 Management, DCHPv6 Snooping with Option 37, IPv6 Source Guide, and MVR6.

IgniteNet FusionSwitch™ PoE

L2 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Key Features and Benefits

Enhanced Security

Port security limits the total number of devices from using a switch port and protects against MAC flooding attacks.

IEEE 802.1X port-based or MAC-based access control ensures all users are authorized before being granted access to the network. When a user is authenticated, the VLAN, QoS and security policy are automatically applied the port where the user is connected, otherwise the port is grouped in a guest VLAN with limited access.

DHCP snooping allows a switch to protect a network from rogue DHCP servers that offer invalid IP addresses.
IP Source Guard prevents people from using IP addresses that were not assigned to them.

Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on source and destination MAC addresses, IP addresses, or TCP/UDP ports. ACLs are hardware supported, so switching performance is not compromised.

Private VLANs (traffic segmentation per port) isolate edge ports to ensure user privacy.

DAI (Dynamic ARP Inspection) is a security feature that validates Address Resolution Protocol (ARP) packets in a network. DAI allows a network administrator to intercept, log, and discard ARP packets with invalid MAC-to-IP address bindings.

Secure Shell (SSH) and Secure Sockets Layer (SSL/HTTPS) encrypt Telnet and web access to the switch, providing secure network management.
The FusionSwitch™ PoE also supports both RADIUS and TACACS+ authentication methods to secure your network.

Service Monitoring and Management

The FusionSwitch™ PoE supports IEEE 802.1ag and ITU-T Y.1731, allowing service providers to monitor end-to-end services, identify connectivity and performance issues, and isolate problems from a remote location without dispatching an engineer onsite.

The switch also provides the capability to monitor service availability, delay, jitter, and dropped packets for verifying SLA conformance (for billing purposes) and providing advance indication of performance degradation before a service outage occurs.

Virtual Private Networks

The FusionSwitch™ PoE supports Layer 2 VPNs by using Q-in-Q functions, where an 802.1Q tag from a customer VLAN (called CE-VLAN ID) is encapsulated in a second 802.1Q tag from a service-provider network (called an SP-VLAN ID). The switch supports rewriting the VLAN tag of egress traffic when the ingress traffic is tagged.

The switch also supports Layer 2 Protocol Tunneling for STP, CDP, VTP, PVST+, with Cisco-proprietary multicast address (01-00-0c-cd-cd-d0) replacement.

Robust Multicast Control

IGMP snooping prevents the flooding of multicast traffic by dynamically configuring switch ports so that multicast traffic is forwarded to only those ports associated with an IP multicast receiver. IGMP increases the performance of networks by reducing multicast traffic flooding.

IGMP groups allow you to create customer packages for IP-TV channels, making switch configuration easy. IGMP Filtering prevents subscribers seeing unsubscribed IP-TV channels. And, IGMP Throttling allows you to set how many IP-TV channels a subscriber can receive simultaneously.

Private VLANs and Multicast VLAN Registration
Multicast VLANs are shared in the network, while subscribers remain in separate VLANs. This increases network security and saves bandwidth on core links. Multicast streams do not have to be routed in core L3 switches, which saves CPU power.

Multicast VLAN Registration (MVR) is designed for applications such as Media-on-Demand that send multicast traffic across an Ethernet network.

Superior Management

The IgniteNet FusionSwitch™ Fiber can optionally be managed by the IgniteNet Cloud Controller making provisioning, monitoring, and management a breeze.

An industry-standard command-line interface (CLI), accessed through the console port or Telnet, provides a familiar user interface and command set for users to manage the switch.

An embedded user-friendly web interface helps users to quickly and simply configure switches.

The FusionSwitch™ PoE supports SNMPv1,2c,3 and four-group RMON. The switch provides a complete private MIB for the configuration of most functions via the SNMP protocol.

Administrators can backup and restore firmware and configuration files via TFTP or FTP. The switch also provides the configuration of auto-provision for ease of use in large deployments.

AAA (Authentication, Authorization and Accounting) via RADIUS, TACACS+, enables centralized control of the switch. You can also authorize access rights per user and account for all actions performed by administrators.

IgniteNet FusionSwitch™ PoE

L2 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Specification		
Port	100/1000 RJ-45 PoE Ports	24
	SFP+ 10 Gigabit Uplink Ports	4
	RJ-45 Console Port	1
Performance	Switching Capacity	128 Gpbs
	Forwarding Rate	95 Mpps
	Flash Memory	256 MB
	DRAM	512 MB
	MAC Address Table Size	16 K
	Jumbo Frames	9 KB
	Auto-negotiation, Auto-MDI/MDIX	√
Mechanical	Rack Space	19"
	Dimension (W x D x H) mm	440 x 220 x 44
	Weight	4.53 kg (10.0 lb)
PoE	PoE Support on all Gigabit ports based on IEEE 802.3af	√
	PoE+ based on IEEE 802.3at	√
	Auto disable after exceeding power budget	√
	Dynamic Power Allocation	√
	PoE Power Budget	370 W
Power Supply	100-240 VAC, 50-60 Hz	√
	Max System Power Consumption (Watts)	50 W
Environmental	Operating Temperature	0°C to 50°C (32°F to 122°F)
	Storage Temperature	-40°C to 70°C (-40°F to 158°F)
	Operating Humidity (non-condensing)	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%
	Environmental Regulation compliance: WEEE	√
	Environmental Regulation compliance: RoHS	√
Certification	FCC Class A	√
	CE	√
	Safety Compliance: CB	√
	Safety Compliance: UL	√

IgniteNet FusionSwitch™ PoE

L2 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Features

L2 FEATURES

- Tri-speed IEEE 802.3ab (10/100/1000BASE-T) copper interfaces
- Auto-negotiation for port speed and duplex mode
- Auto MDI/MDI-X
- Dual-speed (100Mbps and 1Gbps) SFP fiber interface
- Dual-speed (10G and 1000M) fiber interfaces
- SFP+ ports support:
  - IEEE 802.3ae changeable (10GBASE-SR/LR/ZR),
  - and IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers
- Digital Diagnostic Monitoring (DDM)
- Flow Control:
  - IEEE 802.3x for full duplex mode
  - Back-Pressure for half duplex mode
- Jumbo frames: 9KB
- Broadcast/Multicast/ Unknown Unicast Storm Control
- Spanning Tree Protocol:
  - IEEE 802.1D Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), 32 instances
  - BPDU Guard
  - BPDU filtering
  - Root Guard
  - BPDU transparent
  - Loopback detection
- ITU-T G.8032 Ethernet Ring Protection*
  - Sub 50 msec convergence*
  - Revertive operation mode*
  - Multiple-ring network*
- VLANs:
  - Supports 4K VLAN
  - Port-based VLAN
  - IEEE 802.1Q VLAN
  - GVRP
  - VLAN Trunking
  - IEEE 802.1v Protocol-based VLAN
  - IP Subnet-based VLAN
  - MAC-based VLAN
  - Traffic Segmentation
- L2 Virtual Private VLAN
  - Q-in-Q
  - VLAN Translation
  - L2 Protocol tunneling (xSTP, CDP, VTP & PVST+)*
  - CDP/PVST+ Filtering*
- Link Aggregation:
  - Static Trunk
  - IEEE 802.3ad Link Aggregation Control Protocol
  - Trunk groups: 26, up to 8 GE/ 4 10G ports per group
  - Load Balancing: SA+DA, SA, DA, SIP+DIP, SIP, DIP
- MVR (Multicast VLAN Registration)
  - Supports 5 multicast VLANs
- Port mirroring
- Remote port mirror (RSPAN)

L2 FEATURES (CONTINUED)

- IGMP Snooping:
  - IGMP v1/v2/v3 snooping
  - IGMP Proxy reporting
  - IGMP Filtering
  - IGMP Throttling
  - IGMP Immediate Leave
  - IGMP Querier
  - IGMP Authentication*

QoS FEATURES

- Priority Queues: 8 hardware queues per port
- Traffic classification:
  - IEEE 802.1p CoS
  - IP Precedence
  - DSCP
  - MAC Access control list (Source/Destination MAC, Ether type, Priority ID/ VLAN ID)
  - IP Standard access control list (Source IP)
  - IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)
- Traffic Scheduling:
  - Strict Priority
  - Weighted Round Robin
  - Strict + WRR traffic scheduling
- Single/ Two rate Three color marker
- Ingress policy map
- Egress policy map
- Rate Limiting (Ingress and Egress, per port base):
  - GE: Resolution 64Kbps ~ 1,000Mbps
  - 10G: Resolution 64Kbps ~ 10,000Mbps
- Auto Traffic Control

MANAGEMENT

- Switch Management:
  - CLI via console port or Telnet
  - WEB management
  - SNMP v1, v2c, v3
- Firmware & Configuration:
  - Firmware upgrade via TFTP/HTTP/FTP server
  - Multiple configuration files
  - Configuration file upload/download via TFTP/HTTP/FTP server
- RMON (groups 1, 2, 3 and 9)
- BOOTP, DHCP client for IP address assignment
- DHCP dynamic provision option 66,67*
- SNTP
- Event/Error Log
- Syslog
- SMTP
- Supports LLDP (802.1ab)
- UPnP
- IP clustering

IgniteNet FusionSwitch™ PoE

L2 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Features

SECURITY

- Port security
- IEEE 802.1X port based and MAC based authentication
- Dynamic VLAN Assignment, Auto QoS
- MAC authentication
- Web authentication
- Voice VLAN
- Guest VLAN
- L2/L3/L4 Access Control List:
  - MAC Access control list (Source/Destination MAC, Ether type, Priority ID/VLAN ID)
  - IP standard access control list (Source IP)
  - IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)
- IPv6 ACL
- DHCP Snooping
- DHCP Option 82
- DHCP Option 82 Relay*
- IP Source Guard
- PPPoE IA
- Dynamic ARP Inspection
- Denial of Service
- Login Security
- RADIUS authentication
- RADIUS accounting
- TACACS + authorization
- TACACS + accounting
- TACACS + authorization
- TACACS+ 3.0
- Management Interface Access Filtering (SNMP, WEB, Telnet)
- SSH (v1.5/v2.0) for security Telnet
- SSL for HTTPS
- SNMPv3

GREEN ETHERNET

- IEEE 802.3az Energy-Efficient Ethernet (EEE)

ROUTING

- IPv4 Static Route
- IPv6 Static Route

OAM

- IEEE 802.3ah Link*
- IEEE 802.1ag Connectivity Fault Management*:
  - Connectivity check*
  - Loopback*
  - Linktrace*
- ITU-T Y.1731 Performance and Throughput Management*:
  - Frame Delay*
  - Frame Delay variation*

IPV6 FEATURES

- IPv4/IPv6 Dual Protocol stack
- IPv6 Address Types Stack: Unicast
- IPv6 Neighbor Discovery
  - Duplicate address
  - Address resolution
  - Unreachable neighbor detection
- Stateless auto-configuration
- Manual configuration
- Remote IPv6 ping
- IPv6 Telnet support
- IPv6 DNS Resolver
- HTTP over IPv6
- SNMP over IPv6
- SSH over IPv6
- IPv6 Syslog support
- IPv6 SNTP support
- IPv6 TFTP support
- RA Guard
- IPv6 ND Snooping
- MLD Snooping v1/v2
- IPv6 source guard
- DHCPv6 snooping
- DHCPv6 option 37*
- MVR6*

SAFETY

- UL (CSA 22.2. NO 60950-1 & UL60950-1)
- CB (IEC60950-1)

ELECTROMAGNETIC COMPATIBILITY

- CE Mark
- FCC Class A
- CISPR Class A
- BSMI

ENVIRONMENTAL SPECIFICATIONS

- Temperature:
  - Operating: 0° C to 50° C (32° F to 122° F)
  - Storage: -40° C to 70° C (-40° F to 158° F)
- Humidity:
  - Operating: 5% to 95% (non-condensing)
  - Storage: 10% to 90% (Non-condensing)

POWER SUPPLY

- Power input:
  - 100-240 VAC, 50/60 Hz, 4.6-2.1 A

WARRANTY

- 2 Years warranty

*future release

Asia
No. 1 Creation Road III, Hsinchu Science Park,
30077, Taiwan, R.O.C.
sales@ignitenet.com

Worldwide
20 Mason
Irvine, CA 92618 USA
sales@ignitenet.com

ACN-DS-0116-01