



## ISCOM2128G | L2 Full Gigabit Ethernet Switch

### Product Overview

Raisecom ISCOM2128G as a L2 access switch is used to carry and aggregate various services in access layer. On one hand, ISCOM2128G with 4xGE combo ports at line side and 24x10/100/1000M Base-T interfaces at client side greatly strengthens the ability of access and aggregation so that it can meet customer demand for high bandwidth. On the other hand, the RPS power system guarantees network stability as well as extends the service life of the switch.

As a typical device of L2 access switch, ISCOM2128G can offer effective solutions for Triple-play FTTX and EPL/EVPL situations thanks to its compliance in standardized standards, including IEEE802.3ah, 802.1ag, ITU-T Y.1731 and ITU-T G.8032 (ERPS). Besides, it can coordinate with ISCOM2924 series to form a ring network in order to aggregate services efficiently. In addition, it also supports flexible and robust interoperations with ISCOM21XXEA-MA series to achieve flexible network infrastructure because of the consistent L2 function module.

### Highlights

- Support service end-to-end or end-to-core
- Stable and reliable network assurance with real-time monitoring and per-service visualized SLA parameters
- Low latency and low jitter for delivery of high performance services
- In compliance with 802.3ah, 802.1ag and Y.1731 standardized standards as well as ITU-T G.8032
- Insufficient GE downlinks interface
- RPS power protection

### Specifications

NNI: 4 x GE Combo Port  
UNI: 24 x 10/100/1000BASE-T  
SNMP interface: 1 x RJ45  
Console interface: 1 x RJ45  
Dimensions: 300(L), 440(W), 44(H) mm  
Operating temperature: -20 to 60°C  
Storage temperature: -25 to 70°C  
Humidity: 10 to 90%, non-condensing  
Lightning proof: 6kV/AC, 2kV/DC  
PSU: 100/240V AC, -36 to -72V DC  
Max power consumption: 45 W

#### International Headquarters

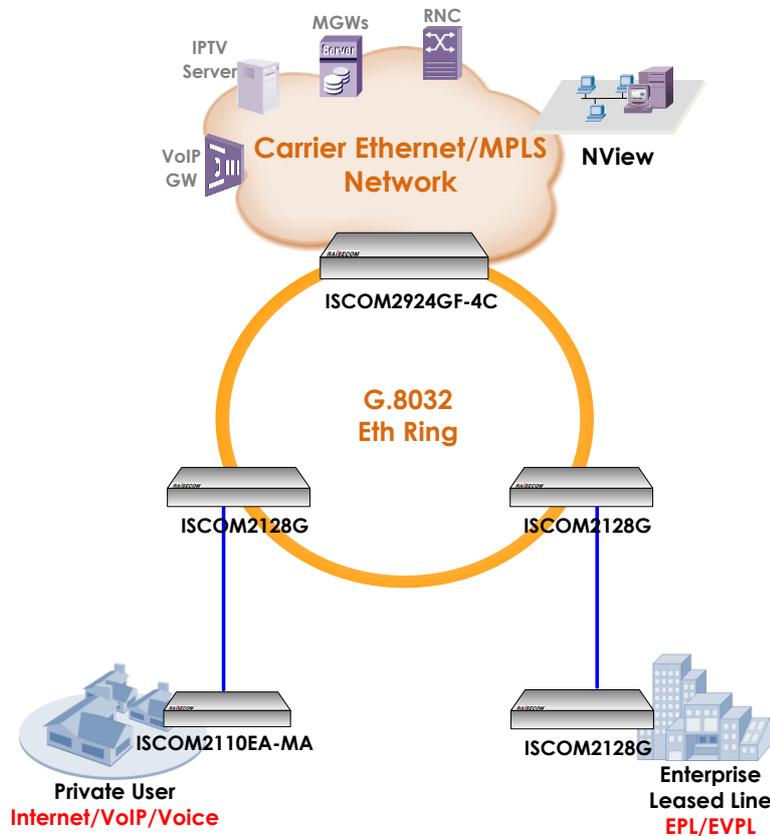
Building 2, No. 28 of the Shangdi 6th Street,  
Haidian District, Beijing, 100085, China  
Tel: +86 10 8288 3305  
Fax: +86 10 8288 3056  
www.raisecom.com

#### U.S.A. Headquarters

19337 US 19 North, Suite 306  
Clearwater, Florida, 33764, USA.  
Tel: +1 888 816 4808  
Fax: +1 727 547 9124  
Email: sales@raisecomusa.com

#### Raisecom Technology Co., Ltd.

Copyright@1999-2013  
All rights reserved  
Technical information is subjected to  
change without notice



Intelligent access solutions for Business service and Resident

### Access Capacity

- MTU: 12k byte (default 1526 byte)
- Switching buffer size: 16Mbit

### Ethernet

- Up to 32k MAC
- Support 4,094 VLANs (C-tag), stacked VLANs (QinQ, S-tag), VLAN mapping and 1:1 inner/outer VLAN translation
- Recommended 32 Ethernet virtual circuits (EVC) per network interface device (NID)<sup>2</sup>
- Layer 2 loopback on single and multiple flows
- Interface protection, port monitoring
- Layer 2 control protocol (L2CP) handling

### IP Services

- ARP
- DHCP client, snooping, option61/82<sup>3</sup>
- IPv4, IPv6
- Static routing

### Traffic Management

- Service classification per port/VLAN/CoS(DSCP)
- Support SP, WRR and SP+WRR scheduling modes, and up to 8 queues per port
- MEF-compliant 3-color policing with color-aware and color-blind mode
- Bandwidth throttling per port/VLAN/CoS(DSCP)
- Support hierarchical bandwidth profile in the ingress direction
- Traffic shaping for both UNI and NNI

#### International Headquarters

Building 2, No. 28 of the Shangdi 6th Street,  
Haidian District, Beijing, 100085, China  
Tel: +86 10 8288 3305  
Fax: +86 10 8288 3056  
www.raisecom.com

#### U.S.A. Headquarters

19337 US 19 North, Suite 306  
Clearwater, Florida, 33764, USA.  
Tel: +1 888 816 4808  
Fax: +1 727 547 9124  
Email: sales@raisecomusa.com

#### Raisecom Technology Co., Ltd.

Copyright@1999-2013  
All rights reserved  
Technical information is subjected to  
change without notice



### Security

- Secure MAC address
- ACL based on VLAN, CoS, MAC, EtherType, IPv4, IPv6, or user-define combinations
- RADIUS, TACACS+
- Storm control (broadcast, multicast, DLF)

### Reliability

- Link aggregation group (LAG) – up to 3 groups with 4 ports in each group, and six load balancing modes based on source/destination IP and/or MAC
- Interface backup
- ITU-T G.8031 Ethernet link protection switching (ELPS) and G.8032 Ethernet ring protection switching (ERPS) with the automatic protection switchover time less than 50ms
- Port/VLAN-based Ethernet local loop detection
- Fault propagation

### Ethernet OAM

- IEEE 802.3ah EFM-OAM link management
- IEEE 802.1ag connectivity fault management (CFM) with 3.3ms CCM resolution
- ITU-T Y.1731 performance monitoring (PM)
- Hardware-based frame delay (FD) measurement
- Hardware-based SLA KPIs per port or EVC, which include throughput, delay, jitter, packet loss and availability
- E-LMI (MEF 16)
- Dying gasp message in case of power failure

### Auto-Provisioning

- Auto-establishment of management tunnels across L2/L3 networks
- Recommended management and monitoring ratio up to 1:128 (extendable)
- IEEE 802.1x port authentication
- Easy generation and distribution of massive configuration files using GUI-based toolkit

### System Management

- Remote management via SNMP v1/v2/v3, Telnet and SSH v1/v2
- Local management via console interface
- MEF 36 compliant MIB
- KeepAlive, RMON, LLDP, Syslog
- Port/VLAN/Cos-based statistics
- Alarm management
- SFP digital diagnostic management (DDM)
- FAN, CPU monitoring
- Voltage and temperature monitoring
- Dual system

### Standard Compliance

- IEEE802.1Q (VLAN), 802.3ad (LAG), 802.1ad (QinQ), 802.1ag (CFM), 802.1D (STP), 802.1w (RSTP), 802.1s (MSTP), 802.1p (QoS/CoS Priority), 802.1x (Security), 802.3x Flow Control, 802.3ah OAM
- G.8031 (ELPS), G.8032 (ERPS), Y.1731
- IETF RFC 2865 (RADIUS), 2819 (RMON)
- MEF 6, 9, 10, 14, 16, 36 (CE1.0-certified, CE2.0-compliant)
- Safety CE certified, UL and RoHS compliant
- EMI Class A

### Ordering Information

Model	Description
ISCOM2128G-AC	24x10/100/1000BASE-T; 4XGE Combo Ports; AC single Power Supply
ISCOM2128G-DC	24x10/100/1000BASE-T; 4XGE Combo Ports; DC single Power Supply
RPA0401-220S12	External AC redundancy power, input: 100~240V, 1A, 50/60Hz
RPD0401-48S12	External DC redundancy power, input: -48V, 1.5A

#### International Headquarters

Building 2, No. 28 of the Shangdi 6th Street,  
Haidian District, Beijing, 100085, China  
Tel: +86 10 8288 3305  
Fax: +86 10 8288 3056  
www.raisecom.com

#### U.S.A. Headquarters

19337 US 19 North, Suite 306  
Clearwater, Florida, 33764, USA.  
Tel: +1 888 816 4808  
Fax: +1 727 547 9124  
Email: sales@raisecomusa.com

#### Raisecom Technology Co., Ltd.

Copyright©1999-2013  
All rights reserved  
Technical information is subjected to  
change without notice



**International Headquarters**

Building 2, No. 28 of the Shangdi 6th Street,  
Haidian District, Beijing. 100085, China

Tel: +86 10 8288 3305

Fax: +86 10 8288 3056

[www.raisecom.com](http://www.raisecom.com)

**U.S.A. Headquarters**

19337 US 19 North, Suite 306  
Clearwater, Florida. 33764. USA.

Tel: +1 888 816 4808

Fax: +1 727 547 9124

Email: [sales@raisecomusa.com](mailto:sales@raisecomusa.com)

**Raisecom Technology Co., Ltd.**

Copyright@1999-2013

All rights reserved

Technical information is subjected to  
change without notice





## Features

Switching Mode	Store and forward mode; Non-blocking switching
Packet Forwarding	MTU: 9,712byte (default); DLF control
Bandwidth Profile	Rate limit:1,048,576Kbps; Burst configuration (Max 130KB); Ingress rate limit per port; Rate limit per VLAN; Increments:64Kbps
VLAN	IEEE 802.1Q VLAN: 4K active VLANs; port-based VLAN; GVRP, 256 max dynamic VLAN
Storm Control	Broadcast/multicast/unicast/DLF storm control; Control mode: global, bps, burst; Default burst: 8KB
Multicast	1K multicast addresses; Static multicast group; IGMP Snooping V1/V2/V3; Multicast filtering & unknown multicast discarding; MVR
Mirror	Mirroring per port; Separate mirroring configurations for ingress & egress ports
Port Loopback Detection	Auto shutdown individual ports upon fault signals; Auto-detection interval can be set
MAC Address Table	16K MAC address; Add/remove MAC address; View MAC address statistic; Search MAC address; Aging time:10-1,000,000s; MAC table threshold per port; MAC table limit:1-255;
Q-in-Q	Port/flexible Q-in-Q; 682 flexible Q-in-Q configurable items; Egress-direction VLAN-mapping
Link Aggregation	Up to 6 groups and 8 ports per group; Group member max-port-number 26; Load balance based on MAC/MAC+IP; Standard LACP (static only)
Flow Control	IEEE 802.3x in full duplex mode; Back pressure in half duplex mode; Separate configurations for ingress & egress



STP	STP, RSTP & MSTP (64 instances); 256 STG
Digital Diagnostic	SFP digital diagnostic function
Port Backup	Support
Transparent Relay	BPDU; DOT1X; LACP; CDP; VTP;
<b>Advanced</b>	
OAM	IEEE802.3ah OAM including discovery, link performance, remote loopback, fault detection & performance stats per OAM standards; OAM Active/Passive mode; OAM MIB Variable Get function; OAM Event function; Extended OAM (configure on remote switches)
Cluster Management	RAISECOM Neighbor Discovery Protocol (RNDP); RAISECOM Topology Discovery Protocol (RTDP); RAISECOM Cluster Management Protocol (RCMP); RAISECOM Cluster Program
SLA	Layer-2/Layer-3 SLA (frame delay, jitter & packet loss)
System Management	CLI/Telnet/NMS/SNMP/Web management; 16 Layer 3 interfaces, super VLAN, max 4K VLANs; RMON1, 2, 3 & 9; Bridge MIB (RFC1493); RAISECOM NMS; System log; Hierarchical alarms; Link alarm per port; Keep-alive report; Fault pass through; Module information management
Maintenance	Debug information output; PING (packet internet groper); Telnet client; Port statistic; Port dynamic statistic
QoS	Global CoS/DSCP to queue mapping; Port priority override; Port TRUST mode: CoS/DSCP/port priority; Global queue scheduling with 8 queues per port; Scheduling mode: SP/WRR/SP+WRR; WRR weight range:1-255; Flow statistic;



	Flow-based mirror/rate-limit/ redirection/VLAN swapping/rewriting of 802.1p CoS, DSCP, IP priority
Ethernet Ring	Raisecom private ring protocol; Up to 8 rings; 124 devices on one ring; switching time ≤50ms
ACL	MAC/IP-based ACL; ACL map (L2~L4 byte)
Safety Features	Client classification and password protection; RADIUS; TACACS+; Binding of MAC address & port; Port protection; PPPoE agent; DOT1X; IP source guard; Dynamic ARP inspection (DAI)
CFM	IEEE802.1ag/ITU-T Y.1731 protocol: up to 256 MEP, 256 MA; Connectivity check (CC); Loopback (LB); Link trace (LT)
Password Recovery	Support
Filter	ACL hardware filter; Support MAC 1536 traffic streams
LLDP	Discovery remote base on link layer; Get remote basic information
Error Tolerance & Redundancy	System error report; Fast recovery during serious error
Scheduling	System task scheduling
MEF 9 & 14	Support
Time Management	Time zone; Time modification; Support SNTP & NTP
Software Upgrade	Xmodem/FTP upgrade in BOOTROM FTP/TFTP
Auto Configuration	Support
DHCP	DHCP Client/Snooping/Opt82/Relay
Lightning Proof	Up to 6KV (CM&DM) lightning proof ability on all power and communication interfaces.



## Specifications

Performance	Switching fabric: 5.6Gbps
Capacity	64MB DDR2; 8MB flash; 1.5MB switch buffer; 1K IGMP groups
Indicators	Power Supply (flashing); FE port: LINK/ACT; SFP port: LINK/ACT
Physical Interface	Management port: 1 console (RJ45); Client interfaces: 8 x 10/100 Base-TX RJ45 port; Network interfaces: 2 x COMBO (2x 100/1000Base-X SFP; 2x 10/100/1000M Base-T RJ45 ports);
Power Specs	AC: 90~264V, 47~63Hz; DC: -48V; Full load: ≤12.9W
User Conditions	Operating temp: 0~50 °C (32~122 °F); Storage temp: -25~70 °C (-13~158 °F); Humidity: 10~90% non-condensing
Dimensions	260(L) x 130(W) x 44(H) mm <sup>3</sup>
Weight	≤ 1.2Kg

## Compliances

Standards & protocols	IEEE 802.1Q VLAN IEEE 802.3ad Link Aggregation IEEE 802.1ad QinQ IEEE 802.1D Spanning Tree Protocol IEEE 802.1w RSTP IEEE 802.1s MSTP IEEE 802.1x Security IEEE 802.1p CoS Prioritization IEEE 802.3x Flow Control IEEE 802.3ah OAM IEEE 802.1ag Connectivity Fault Management ITU Y.1731 Services OAM Static Routing IGMP v1/v2/v3 RMON I and II standards SNMPv1/v2c/v3 MEF9 MEF14
-----------------------	---

## Ordering Information

ISCOM2110EA-MA-WP/S	8 x 10/100Base-T, 2 x COMBO (2 x 100/1000Base-X + 2 x 10/100/1000Base-T); Single WP power supply (compatible for both AC and DC power supply)
---------------------	--

## ISCOM2128EA-MA

### Enhanced L2 Carrier Ethernet Access Switch

ISCOM2128EA-MA is designed for Carrier Ethernet access portfolio, which provides cost-effective solutions for campus, enterprise, and residential access scenarios. The product has 24 x 10/100Base-T auto-sensing client interfaces and 4 x SFP combo GE network interfaces, which enables flexible network deployments such as dual ring or ring + chain. The ISCOM2128EA-MA also offers rich functionality that guarantees MEF-compliant E-Line, E-tree and E-LAN services together with full suite of management and protection mechanisms for FTTX triple-play applications.



ISCOM2128EA-MA

## Highlights

### Network Security

Upgraded security with port-isolation, advanced ACL, broadcast/multicast/DLF storm control, unique port loopback detection, and DHCP Client/Snooping/Option82 functionality

### Resiliency & Protection

Supports STP/RSTP/MSTP, redundant links and IEEE 802.3ad Link Aggregation

### Carrier Ethernet Service & Management

Supports IEEE 802.3ah Link OAM, IEEE 802.1ag end-to-end connectivity OAM and ITU-T Y.1731 end-to-end service and performance;

Advanced QoS technology allows stream-marking based on CoS, DSCP and port priority;

Scheduling modes including SP, WRR, SP+WRR;

Support flow-based mirroring/rate-limit/redirection/VLAN swapping and rewriting

### Multicast Functionality

Supports IGMP snooping/proxy, multicast filtering, multicast VLAN registration (MVR) to save bandwidth and optimize corresponding services such as IPTV

## Typical Application

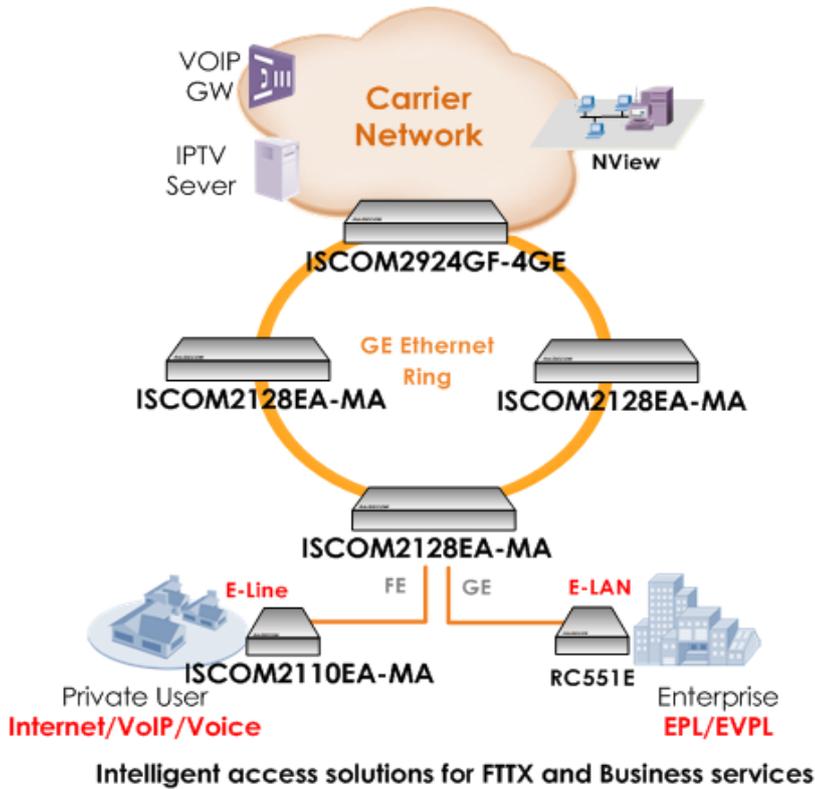
Raisecom Technology Co., Ltd.

[www.raisecom.com](http://www.raisecom.com)

International Headquarters  
Building 2, No. 28 of the Shangdi 6th Street,  
Haidian District, Beijing, 100085, China  
Tel: +86 10 8288 3305  
Fax: +86 10 8288 3056  
Email: [export@raisecom.com](mailto:export@raisecom.com)

U.S.A. Headquarters  
19337 US 19 North, Suite 306  
Clearwater, Florida, 33764, USA.  
Tel: +1 888 816 4808  
Fax: +1 727 547 9124  
Email: [sales@raisecomusa.com](mailto:sales@raisecomusa.com)

Copyright©1999-2011  
All rights reserved  
Technical information is subjected  
to change without notice



### Products involved

- GE aggregation switch:  
ISCOM2924GF-4GE
- L2 access switch:  
ISCOM2128EA-MA  
ISCOM2110EA-MA
- Ethernet demarcation device:  
RC551E series

## Features

Switching Mode	Store and forward mode; Non-blocking switching
Packet Forwarding	MTU: 9,712 byte (default); DLF control
Bandwidth Profile	Rate limiting:1,048,576Kbps; Burst configuration (Max 130KB); Ingress rate limit per port; Rate limit per VLAN; Increments:64Kbps (64K-1M)/1Mbps(1-100M)/10Mbps (100-1000M)
VLAN	IEEE 802.1Q VLAN: 4K active VLANs; port-based VLAN; GVRP, 256 max dynamic VLAN
Storm Control	Broadcast/multicast/unicast/DLF storm control; Control mode: global, bps, burst; Default burst: 8KB
Multicast	1K multicast addresses;



Static multicast group;  
IGMP Snooping V1/V2/V3;  
Multicast filtering & unknown multicast discarding;  
MVR

**Mirror** Mirroring per port;  
Separate mirroring configurations for ingress & egress ports

**Port Loopback Detection** Auto shutdown individual ports upon fault signals;  
Auto-detection interval can be set

**MAC Address Table** 16K MAC address;  
Add/remove MAC address;  
View MAC address statistic;  
Search MAC address;  
Aging time:10-1,000,000s;  
MAC table threshold per port;  
MAC table limit:1-255;

**Q-in-Q** Port/flexible Q-in-Q;  
682 flexible Q-in-Q configurable items;  
Egress-direction VLAN-mapping

**Link Aggregation** Up to 6 groups and 8 ports per group;  
Group member max-port-number 26;  
Load balance based on MAC/MAC+IP;  
Standard LACP (static only)

**Flow Control** IEEE 802.3x in full duplex mode;  
Back pressure in half duplex mode;  
Separate configurations for ingress & egress

**STP** STP, RSTP & MSTP (64 instances);  
256 STG

**Digital Diagnostic** SFP digital diagnostic function

**Port Backup** Supported

**Transparent Relay** BPDU; DOT1X; LACP; CDP; VTP; PVST

## Advanced

**OAM** IEEE802.3ah OAM including discovery, link performance, remote loopback,  
fault detection & performance stats per OAM standards;  
OAM Active/Passive mode;  
OAM MIB Variable Get function;  
OAM Event function;  
Extended OAM (configure on remote switches)



<b>Cluster Management</b>	Raisecom Neighbor Discovery Protocol (RNDP); Raisecom Topology Discovery Protocol (RTDP); Raisecom Cluster Management Protocol (RCMP); Raisecom Cluster Program
<b>SLA</b>	Layer-2/Layer-3 SLA (frame delay, jitter & packet loss)
<b>System Management</b>	CLI/Telnet/NMS/SNMP/Web management; 16 Layer 3 interfaces, super VLAN, max 4K VLANs; RMON1, 2, 3 & 9; Bridge MIB (RFC1493); Raisecom NMS; System log; Hierarchical alarms; Link alarm per port; Keep-alive report; Fault pass through; Module information management
<b>Maintenance</b>	Debug information output; PING (packet internet groper); Telnet client; Port statistics; Port dynamic statistics
<b>QoS</b>	Global CoS/DSCP to queue mapping; Port priority override; Port TRUST mode: CoS/DSCP/port priority; Global queue scheduling with 8 queues per port; Scheduling mode: SP/WRR/SP+WRR; WRR weight range:1-255; Flow statistic; Flow-based mirror/rate-limit/redirection/VLAN swapping/rewriting of 802.1p CoS, DSCP, port priority
<b>Ethernet Ring</b>	Raisecom private ring protocol; Up to 8 rings; 124 devices on one ring; switching time $\leq 50$ ms
<b>ACL</b>	MAC/IP-based ACL; ACL map (L2~L4 byte)
<b>Safety Features</b>	Client classification and password protection;



RADIUS;  
TACACS+;  
Binding of MAC address & port;  
Port protection;  
PPPoE agent;  
DOT1X;  
IP source guard;  
Dynamic ARP inspection (DAI)

<b>CFM</b>	IEEE802.1ag/ITU-T Y.1731 protocol: up to 256 MEP, 256 MA; Connectivity check (CC); Loopback (LB); Link trace (LT)
<b>Password Recovery</b>	Supported
<b>Filter</b>	ACL hardware filter; Support MAC 1536 traffic streams
<b>LLDP</b>	Discovery remote base on link layer; Get remote basic information
<b>Error Tolerance &amp; Redundancy</b>	System error report; Fast recovery during serious error
<b>Scheduling</b>	System task scheduling
<b>MEF 9 &amp; 14</b>	Supported
<b>Time Management</b>	Time zone; Time modification; Support SNTP & NTP
<b>Software Upgrade</b>	Xmodem/FTP upgrade in BOOTROM FTP/TFTP
<b>Auto Configuration</b>	Supported
<b>DHCP</b>	DHCP Client/Snooping/Opt82/Relay
<b>Lightning Proof</b>	Up to 6KV (CM&DM) lightning proof ability on all power and communication interfaces



## Specifications

Performance	Switching fabric: 12.8Gbps
Capacity	64MB DDR2; 8MB flash; 1.5MB switch buffer; 1K IGMP groups
Indicators	Power Supply (flashing); FE port: LINK/ACT; SFP port: LINK/ACT
Physical Interface	Management port: 1 console (RJ45); Client interfaces: 24 x 10/100 Base-TX RJ45 port; Network interfaces: 4 x COMBO (4x 100/1000Base-X SFP; 4x 10/100/1000M Base-T RJ45 ports);
Power Specs	AC: 90~264V, 47~63Hz; DC: -48V; Full load: ≤15.0W
User Conditions	Operating temp: 0~50 °C (32~122 °F); Storage temp: -25~70 °C (-13~158 °F); Humidity: 10~90% non-condensing
Dimensions	440(L) x 220(W) x 44(H) mm <sup>3</sup>
Weight	≤ 3.0Kg

## Compliances

Standards & protocols	IEEE 802.1Q VLAN IEEE 802.3ad Link Aggregation IEEE 802.1ad QinQ IEEE 802.1D Spanning Tree Protocol IEEE 802.1w RSTP IEEE 802.1s MSTP IEEE 802.1x Security IEEE 802.1p CoS Prioritization IEEE 802.3x Flow Control IEEE 802.3ah OAM IEEE 802.1ag Connectivity Fault Management ITU Y.1731 Services OAM Static Routing IGMP v1/v2/v3 RMON I and II standards SNMPv1/v2c/v3 MEF9 MEF14
-----------------------	---

## Ordering Information

ISCOM2128EA-MA-AC/S	24 x 10/100Base-T, 4 x COMBO (4 x 100/1000Base-X + 4 x 10/100/1000Base-T); Single AC power supply
ISCOM2128EA-MA-DC/S	24 x 10/100Base-T, 4 x COMBO (4 x 100/1000Base-X + 4 x 10/100/1000Base-T); Single DC power supply

## ISCOM2828F(D)

### Enhanced L2 Carrier Ethernet Access Switch

ISCOM2828F(D) is designed for Carrier Ethernet access portfolio, which provides cost-effective solutions for campus, enterprise, and residential access scenarios. The product has 24 x 100Base-x fiber client interfaces and 4 x SFP combo GE network interfaces, which enables flexible network deployments such as dual ring or ring + chain. The ISCOM2828F(D) also offers rich functionality that guarantees MEF-compliant E-Line, E-tree and E-LAN services together with full suite of management and protection mechanisms for FTTX triple-play applications.



ISCOM2828F (D)

## Highlights

### Network Security

Upgraded security with port-isolation, advanced ACL, broadcast/multicast/DLF storm control, unique port loopback detection, and DHCP Client/Snooping/Option82 functionality

### Resiliency & Protection

Supports STP/RSTP/MSTP, redundant links and IEEE 802.3ad Link Aggregation

### Carrier Ethernet Service & Management

Supports IEEE 802.3ah Link OAM, IEEE 802.1ag end-to-end connectivity OAM and ITU-T Y.1731 end-to-end service and performance;

Advanced QoS technology allows stream-marking based on CoS, DSCP and port priority;

Scheduling modes including SP, WRR, SP+WRR;

Support flow-based mirroring/rate-limit/redirection/VLAN swapping and rewriting

### Multicast Functionality

Supports IGMP snooping/proxy, multicast filtering, multicast VLAN registration (MVR) to save bandwidth and optimize corresponding services such as IPTV

## Features

<b>Switching Mode</b>	Store and forward mode; Non-blocking switching
<b>Packet Forwarding</b>	MTU: 9,712 byte (default); DLF control
<b>Bandwidth Profile</b>	Rate limiting:1,048,576Kbps; Burst configuration (Max 130KB); Ingress rate limit per port; Rate limit per VLAN; Increments:64Kbps (64K-1M)/1Mbps(1-100M)/10Mbps (100-1000M)
<b>VLAN</b>	IEEE 802.1Q VLAN: 4K active VLANs; port-based VLAN; GVRP, 256 max dynamic VLAN
<b>Storm Control</b>	Broadcast/multicast/unicast/DLF storm control; Control mode: global, bps, burst; Default burst: 8KB
<b>Multicast</b>	1K multicast addresses; Static multicast group; IGMP Snooping V1/V2/V3; Multicast filtering & unknown multicast discarding; MVR
<b>Mirror</b>	Mirroring per port; Separate mirroring configurations for ingress & egress ports
<b>Port Loopback Detection</b>	Auto shutdown individual ports upon fault signals; Auto-detection interval can be set
<b>MAC Address Table</b>	16K MAC address; Add/remove MAC address; View MAC address statistic; Search MAC address; Aging time:10-1,000,000s; MAC table threshold per port; MAC table limit:1-255;
<b>Q-in-Q</b>	Port/flexible Q-in-Q; 682 flexible Q-in-Q configurable items; Egress-direction VLAN-mapping
<b>Link Aggregation</b>	Up to 6 groups and 8 ports per group;



	Group member max-port-number 26; Load balance based on MAC/MAC+IP; Standard LACP (static only)
<b>Flow Control</b>	IEEE 802.3x in full duplex mode; Back pressure in half duplex mode; Separate configurations for ingress &egress
<b>STP</b>	STP, RSTP & MSTP (64 instances); 256 STG
<b>Digital Diagnostic</b>	SFP digital diagnostic function
<b>Port Backup</b>	Supported
<b>Transparent Relay</b>	BPDU; DOT1X; LACP; CDP; VTP; PVST
<b>Advanced</b>	
<b>OAM</b>	IEEE802.3ah OAM including discovery, link performance, remote loopback, fault detection & performance stats per OAM standards; OAM Active/Passive mode; OAM MIB Variable Get function; OAM Event function; Extended OAM (configure on remote switches)
<b>Cluster Management</b>	Raisecom Neighbor Discovery Protocol (RNDP); Raisecom Topology Discovery Protocol (RTDP); Raisecom Cluster Management Protocol (RCMP); Raisecom Cluster Program
<b>SLA</b>	Layer-2/Layer-3 SLA (frame delay, jitter & packet loss)
<b>System Management</b>	CLI/Telnet/NMS/SNMP/Web management; 16 Layer 3 interfaces, super VLAN, max 4K VLANs; RMON1, 2, 3 & 9; Bridge MIB (RFC1493); Raisecom NMS; System log; Hierarchical alarms; Link alarm per port; Keep-alive report; Fault pass through; Module information management
<b>Maintenance</b>	Debug information output; PING (packet internet groper); Telnet client;



	Port statistics;
	Port dynamic statistics
<b>QoS</b>	Global CoS/DSCP to queue mapping; Port priority override; Port TRUST mode: CoS/DSCP/port priority; Global queue scheduling with 8 queues per port; Scheduling mode: SP/WRR/SP+WRR; WRR weight range:1-255; Flow statistic; Flow-based mirror/rate-limit/redirection/VLAN swapping/rewriting of 802.1p CoS, DSCP, port priority
<b>Ethernet Ring</b>	Raisecom private ring protocol; Up to 8 rings; 124 devices on one ring; switching time $\leq 50$ ms
<b>ACL</b>	MAC/IP-based ACL; ACL map (L2~L4 byte)
<b>Safety Features</b>	Client classification and password protection; RADIUS; TACACS+; Binding of MAC address & port; Port protection; PPPoE agent; DOT1X; IP source guard; Dynamic ARP inspection (DAI)
<b>CFM</b>	IEEE802.1ag/ITU-T Y.1731 protocol: up to 256 MEP, 256 MA; Connectivity check (CC); Loopback (LB); Link trace (LT)
<b>Password Recovery</b>	Supported
<b>Filter</b>	ACL hardware filter; Support MAC 1536 traffic streams
<b>LLDP</b>	Discovery remote base on link layer; Get remote basic information
<b>Error Tolerance &amp; Redundancy</b>	System error report; Fast recovery during serious error
<b>Scheduling</b>	System task scheduling
<b>MEF 9 &amp; 14</b>	EPL, EVPL, ELAN

Time Management	Time zone; Time modification; Support SNTP & NTP
Software Upgrade	Xmodem/FTP upgrade in BOOTROM FTP/TFTP
Auto Configuration	Supported
DHCP	DHCP Client/Snooping/Opt82/Relay
Lightning Proof	Up to 6KV (CM&DM) lightning proof ability on all power and communication interfaces

## Specifications

Performance	Switching fabric: 12.8Gbps
Capacity	64MB DDR2; 16MB flash; 1.5MB switch buffer; 1K IGMP groups
Indicators	Power Supply (flashing); FE port: LINK/ACT; SFP port: LINK/ACT

## Compliances

Standards & protocols	IEEE 802.1Q VLAN IEEE 802.3ad Link Aggregation IEEE 802.1ad QinQ IEEE 802.1D Spanning Tree Protocol IEEE 802.1w RSTP IEEE 802.1s MSTP IEEE 802.1x Security IEEE 802.1p CoS Prioritization
-----------------------	--



<b>Physical Interface</b>	Management port: 1 console (RJ45); Client interfaces: 24 x 100BASE-X ports; Network interfaces: 4 x COMBO (4x 100/1000Base-X SFP; 4x 10/100/1000M Base-T RJ45 ports);	IEEE 802.3x Flow Control IEEE 802.3ah OAM IEEE 802.1ag Connectivity Fault Management ITU Y.1731 Services OAM Static Routing IGMP v1/v2/v3 RMON I and II standards SNMPv1/v2c/v3 MEF9 MEF14
<b>Power Specs</b>	AC: 90~264V, 47~63Hz; DC: -48V; Full load: ≤15.0W	
<b>User Conditions</b>	Operating temp: 0~55 °C (32~122 °F); Storage temp: -25~70 °C (-13~158 °F); Humidity: 10~90% non-condensing	
<b>Dimensions</b>	440(L) x 220(W) x 44(H) mm <sup>3</sup>	
<b>Weight</b>	≤ 3.0Kg	

## Ordering Information

ISCOM2828F-AC	24 x 100Base-X, 4 x COMBO (4 x 100/1000Base-X + 4 x 10/100/1000Base-T); Single AC power supply
ISCOM2828F-DC	24 x 100Base-X, 4 x COMBO (4 x 100/1000Base-X + 4 x 10/100/1000Base-T); Single DC power supply
RPA0401-220S12	External AC redundancy power, input: 100~240V, 1A, 50/60Hz
RPD0401-48S12	External DC redundancy power, input: -48V, 1.5A