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Technical White Paper

# Aruba 2930F Switch Series Technical Product Guide

Product deep dive



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## Introduction

This document is a Technical Product Guide (TPG) for the Aruba 2930F Switch Series. This Technical Product Guide describes the detailed technical characteristics of the product. The intended audience is HPE Aruba Solution Architects and HPE Aruba Technical Consultants.

## Product Overview

The Aruba 2930F Switch Series consists of eleven switches:

Each switch (aside for the 8 port model) has four SFP or SFP+ uplink ports, while the 8 port model has 2 SFP+ uplink ports.

Together with static, RIP and Access OSPF routing, robust security and management, enterprise-class features, free lifetime warranty and free software updates, the 2930F switch series is a cost-effective, scalable solution for customers who are building high-performance networks. These switches can be deployed at the enterprise edge and remote branch offices.



Figure 1. Aruba 2930F Switch Series

## Key Benefits

- High-performance Gigabit Ethernet access switch
- Four 10GbE (SFP+) ports Or four 1GbE (SFP) ports on 24/48 port models
- Two 10GbE (SFP+) ports on the 8 port model
- Layer 2 and Layer 3 plus static ,RIP and OSPF routing, PoE and PoE+ support
- Lifetime Warranty, sFlow, ACLs and rate limiting
- Support VxLAN

## What's New

- Up to 370W of PoE/PoE+ power (on 24/48 port models)
- Up to 125W of POE/POE+ power (on 8 port model)
- Energy Efficient Ethernet – IEEE802.3az
- Dual personality Micro USB console and RJ-45 console ports
- OpenFlow 1.3 support

### Product Positioning

The ARUBA 2930F Switch Series is part of the HP Aruba Networking mobile first architecture. This switch series is used in HP Aruba Campus for small to midsize enterprise, Aruba 2930F Switch Series is Basic Layer 3 switch series supporting 8, 24 or 48 Ports with and without PoE+, fixed 10GbE SFP+ or fixed 1GbE SFP Uplink ports, static, RIP Routing and Access OSPF routing, ACLs, IPv6 and Energy Efficient Ethernet.

The Aruba 2930F Switch Series is designed for customers creating digital workplaces that are optimized for mobile users with an integrated wired and wireless approach. These basic Layer 3 access switches are easy to deploy and manage with advanced security and network management tools like Aruba ClearPass Policy Manager, Aruba AirWave Activate and Central for Cloud Management. A powerful Aruba ArubaOS ASIC delivers performance and value with support of the latest SDN apps with future proof programmability for tomorrow's applications. The 2930F supports 10GbE uplinks, PoE+, robust QoS, RIP and access OSPF routing, and IPv6 with no software licensing required.

The Aruba 2930F Switch Series provides a convenient and cost-effective access switch solution that can be quickly set up with Zero Touch ArubaOSing and built-in 10GbE uplinks. The robust feature set includes a limited lifetime warranty

### Aruba mobile-first architecture

Aruba's mobile-first Infrastructure is an architectural blueprint for networks that are designed to support mission critical application and usage rather they are running on the wired or wireless infrastructure, it is designed to close the gap between the wired and wireless experience, to deliver high performance and high availability of the wireless network. It enables clients to be completely flexible when it comes to connectivity, they can enjoy the same experience and network privileges rather they connect to a wired port or via the office Wi-Fi.

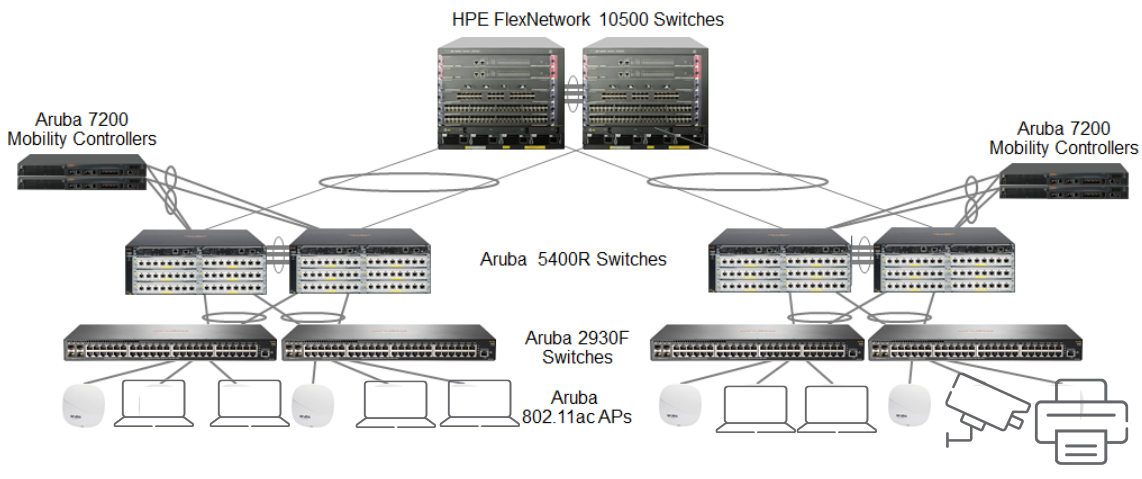


Figure 2. Mobile-first 3-tier campus reference design

### Aruba 2930F Switch Series Overview

The Aruba 2930F Series Switches consists of 11 switches with a number of accessories, including Power supply tray and cable guard (both for designed for the 8 port model). There are five 24 port products, five 48 port products and one 8 port product in the Aruba 2930F Series Switches.

#### Aruba 2930F 24G 4SFP Switch (JL259A)



Figure 3. 2930F 24G 4SFP Switch

##### Port configuration

- 24x 10/100/1000BASE-T ports
- 4x 1GbE SFP ports
- 1x RJ45 console port
- 1x USB micro-B console port

##### Other features

- Internal power supply

#### Aruba 2930F 24G 4SFP+ Switch (JL253A)



Figure 4. 2930F 24G 4SFP+ Switch

##### Port configuration

- 24x 10/100/1000BASE-T ports
- 4x 1/10GbE SFP+ ports
- 1x RJ45 console port
- 1x USB micro-B console port

##### Other features

- Internal power supply

#### Aruba 2930F 24G PoE+ 4SFP Switch (JL261A)



Figure 5. 2930F 24G PoE+ 4SFP Switch

##### Port configuration

- 24x 10/100/1000BASE-T PoE+ ports
- 4x 1GbE SFP ports
- 1x RJ45 console port
- 1x USB micro-B console port

##### Other features

- Internal power supply

Aruba 2930F 24G PoE+ 4SFP+ Switch (JL255A) / Aruba 2930F 24G PoE+ 4SFP+ TAA Switch (JL263A)



Figure 6. 2930F 24G PoE+ 4SFP+ Switch

**Port configuration**

- 24x 10/100/1000BASE-T PoE+ ports
- 4x 1/10GbE SFP+ ports
- 1x RJ45 console port
- 1x USB micro-B console port

**Other features**

- Internal power supply

Aruba 2930F 48G 4SFP Switch (JL260A)



Figure 7. 2930F 48G 4SFP Switch

**Port configuration**

- 48x 10/100/1000BASE-T ports
- 4x 1GbE SFP ports
- 1x RJ45 console port
- 1x USB micro-B console port

**Other features**

- Internal power supply

Aruba 2930F 48G 4SFP+ Switch (JL254A)



Figure 8. 2930F 48G 4SFP+ Switch

**Port configuration**

- 48x 10/100/1000BASE-T ports
- 4x 1/10GbE SFP+ ports
- 1x RJ45 console port
- 1x USB micro-B console port

**Other features**

- Internal power supply



### Aruba 2930F 48G PoE+ 4SFP Switch (JL262A)



Figure 9. 2930F 48G PoE+ 4SFP Switch

#### Port configuration

- 48x 10/100/1000BASE-T PoE+ ports
- 4x 1GbE SFP ports
- 1x RJ45 console port
- 1x USB micro-B console port

#### Other features

- Internal power supply

### Aruba 2930F 48G PoE+ 4SFP+ Switch (JL256A) / Aruba 2930F 48G PoE+ 4SFP+ TAA Switch (JL264A)



Figure 10. 2930F 48G PoE+ 4SFP+ Switch

#### Port configuration

- 48x 10/100/1000BASE-T PoE+ ports
- 4x 1/10GbE SFP+ ports
- 1x RJ45 console port
- 1x USB micro-B console port

#### Other features

- Internal power supply

#### Rack mounting kit for the 24 and 48 port models

**HPE X410 1U Universal 4-Post Rack Mounting Kit (J9583A):** The HP X410 1U Universal Rack Mounting Kit is for mounting the ARUBA 2930F Series Switches in 4-post racks and server cabinets. The Rack Mounting Kit has rails the mount on to the side of the switch and brackets that mount in the racks and server cabinets. Once installed, the switch just slides into the bracket.



Figure 11. X410 1U universal rack mounting Kit

### Aruba 2930F 8G PoE+ 2SFP+ Switch (JL258A)



Figure 12. 2930F 8G PoE+ 2SFP+ Switch

#### Port configuration

- 8x 10/100/1000BASE-T ports
- 2x 1/10GbE SFP+ ports
- 1x RJ45 console port
- 1x USB micro-B console port

#### Other features

- Fan less
- External power supply

Accessories for the 8-port model

**Aruba 2930F 8-port Cable Guard (JL311A):** Protects from unauthorized access to switch ports and connected cables

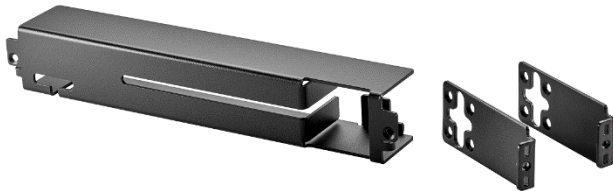


Figure 13. Cable guard

**Aruba 2930F 8-port Power Shelf (JL312A):** Connects to the back panel and secures the external power supply

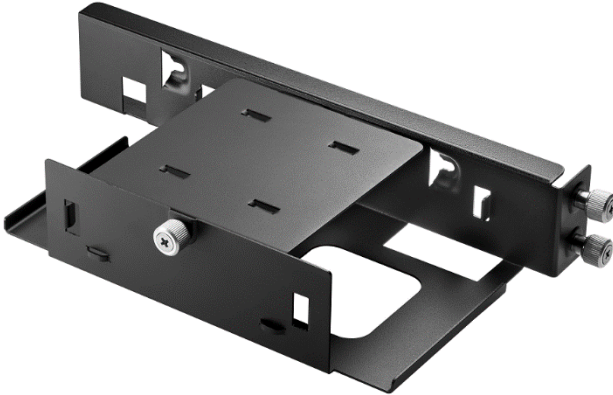


Figure 14. Power shelf

### Power system

All 24 and 48 port models come with an integrated power supply. The 8 port model comes with an external power supply

### PoE+ power budget

Table 1. Power budget

Product	PoE+ Power Budget	Number of devices supported		
		At 30W	At 15.4 W	At 7 W
Aruba 2930F 8G PoE+ 2SFP+ Switch	125W	4	8	8
Aruba 2930F 24G PoE+ 4SFP Switch Aruba 2930F 24G PoE+ 4SFP+ Switch	370 W	12	24	24
Aruba 2930F 48G PoE+ 4SFP Switch Aruba 2930F 48G PoE+ 4SFP+ Switch	370 W	12	24	48

### Supported transceivers and direct attach cables

#### SFP - 1Gbps

- HPE X121 1G SFP LC SX Transceiver (J4858C)
- HPE X121 1G SFP LC LX Transceiver (J4859C)
- HPE X121 1G SFP LC LH Transceiver (J4860C)
- HPE X121 1G SFP RJ45 T Transceiver (J8177C)

#### SFP – 100Mbps

- HPE X111 100M SFP LC FX Transceiver (J9054C)

#### SFP+ - 10Gbps

- HPE X132 10G SFP+ LC SR Transceiver (J9150A)
- HPE X132 10G SFP+ LC LR Transceiver (J9151A)
- HPE X132 10G SFP+ LC ER Transceiver (J9153A)

#### SFP+ DACs

- HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)
- HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)

#### Fiber cables

- HPE 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
- HPE 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
- HPE 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
- HPE 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
- HPE 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
- HPE 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
- HPE 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)

- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)

### Specifications

	<b>Aruba 2930F 8G PoE+ 2SFP+ Switch (JL258A)</b>
<b>Dimensions</b>	10(w) x 10(d) x 1.73(h) in 25.4 x 25.4 x 4.39 cm 1U height
<b>Weight</b>	4.41 lb. (2.0 kg)
<b>Operating Temperature Range</b>	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.
<b>Airflow</b>	n/a
<b>Memory and processor</b>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress</li> <li>• 4 GB eMMC</li> </ul>

	<b>Aruba 2930F 24G 4SFP Switch (JL259A)</b>	<b>Aruba 2930F 24G 4SFP+ Switch (JL253A)</b>
<b>Dimensions</b>	17.42(w) x 7.88(d) x 1.73(h) in 44.25 x 20.02 x 4.39 cm 1U height	17.42(w) x 7.88(d) x 1.73(h) in (44.25 x 20.02 x 4.39 cm) (1U height)
<b>Weight</b>	5.31 lb. (2.41 kg)	5.31 lb. (2.41 kg)
<b>Operating Temperature Range</b>	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.
<b>Airflow</b>	Side-to-side	Side-to-side
<b>Memory and processor</b>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>

	<b>Aruba 2930F 24G PoE+ 4SFP Switch (JL261A)</b>	<b>Aruba 2930F 24G PoE+ 4SFP+ Switch (JL255A)</b>
<b>Dimensions</b>	17.42(w) x 11.98(d) x 1.73(h) in 44.25 x 30.42 x 4.39 cm 1U height	17.42(w) x 11.98(d) x 1.73(h) in 44.25 x 30.42 x 4.39 cm 1U height
<b>Weight</b>	8.6 lb (3.9 kg)	8.6 lb. (3.9 kg)
<b>Operating Temperature Range</b>	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.
<b>Airflow</b>	Side-to-side	Side-to-side
<b>Memory and processor</b>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>

	<b>Aruba 2930F 48G 4SFP Switch (JL260A)</b>	<b>Aruba 2930F 48G 4SFP+ Switch (JL254A)</b>
<b>Dimensions</b>	17.42(w) x 9.7(d) x 1.73(h) in 44.25 x 24.63 x 4.39 cm 1U height	17.42(w) x 9.7(d) x 1.73(h) in 44.25 x 24.63 x 4.39 cm 1U height
<b>Weight</b>	6.83 lb. (3.10 kg)	6.83 lb. (3.10 kg)
<b>Operating Temperature Range</b>	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.
<b>Airflow</b>	Side-to-side	Side-to-side
<b>Memory and processor</b>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>

	<b>Aruba 2930F 48G PoE+ 4SFP Switch (JL262A)</b>	<b>Aruba 2930F 48G PoE+ 4SFP+ Switch (JL256A)</b>
<b>Dimensions</b>	17.42(w) x 11.98(d) x 1.73(h) in 44.25 x 30.42 x 4.39 cm 1U height	17.42(w) x 11.98(d) x 1.73(h) in 44.25 x 30.42 x 4.39 cm 1U height
<b>Weight</b>	9.83 lb. (4.46 kg)	9.83 lb. (4.46 kg)
<b>Operating Temperature Range</b>	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.	32°F to 113°F - 0°C to 45°C up to 5,000 ft. 32°F to 104°F - 0°C to 40°C up to 10,000 ft.
<b>Airflow</b>	Side-to-side	Side-to-side
<b>Memory and processor</b>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>	Dual Core ARM® Cortex A9 @ 1016 MHz 1 GB DDR3 SDRAM Packet buffer size: <ul style="list-style-type: none"> <li>• 12.38 MB 4.5MB Ingress/7.875MB Egress,</li> <li>• 4 GB eMMC</li> </ul>

## Architecture

### Front panel overview

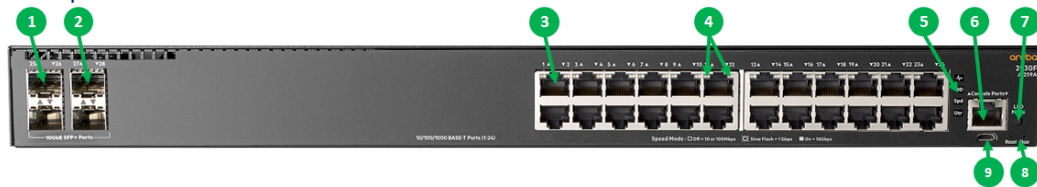


Figure 15. Interfaces

Label	Description
1	SFP/SFP+ ports
2	SFP/SFP+ port LEDs
3	10/100/1000Base-T RJ-45 ports
4	Switch port LEDs
5	Global Status, Unit Identification, Speed, PoE, Usr LEDs
6	RJ Serial Console
7	LED Mode button
8	Reset, Clear Buttons
9	Micro USB console

### Management Interfaces

There are two serial console port options on the switch, an RJ-45 or Micro USB. These ports are used to connect a console to the switch either by using the RJ-45 serial cable supplied with the switch, or a standard Micro USB cable (not supplied).

The Micro USB connector has precedence for input, so if both cables are plugged in, the console output is echoed to both the RJ and Micro-USB ports. But, the input is only accepted from the Micro-USB.

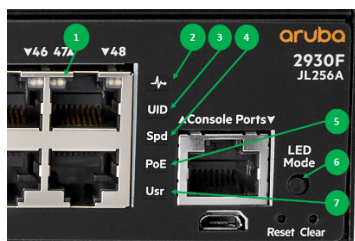


Figure 16. LED indicators

Label	Description
1	Switch port LEDs
2	Global status LED
3	Unit identification LED
4	Speed LED
5	PoE LED (only on PoE+ models)
6	LED mode button
7	Usr LED

### Rear panel overview



Figure 17. Rear panel

Label	Description
1	AC Power connector
2	Cable tie eyelet
3	DC power jack (JL258A)

#### Power connector

The 2930F 24-port and 48-port switches do not have a power switch; they are powered on when connected to an active AC power source. The switches automatically adjust to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz. There are no voltage range settings required.

The 2930F 8-port switch (JL258A) does not have a power switch, it is powered on when the external AC/DC power adapter is connected to the switch and to a power source. The external AC/DC power adapter supplies 12 volts DC or 54 volts DC (for PoE+ switches) to the switch and automatically adjusts to any AC voltage between 100-240 volts and either 50 or 60 Hz. No voltage range settings are required.

### Cooling and Air-flow

The ARUBA 2930F Series Switch provides for primary air flow which is side to side, from the left to right (when facing the front of the switch [LAN ports]).

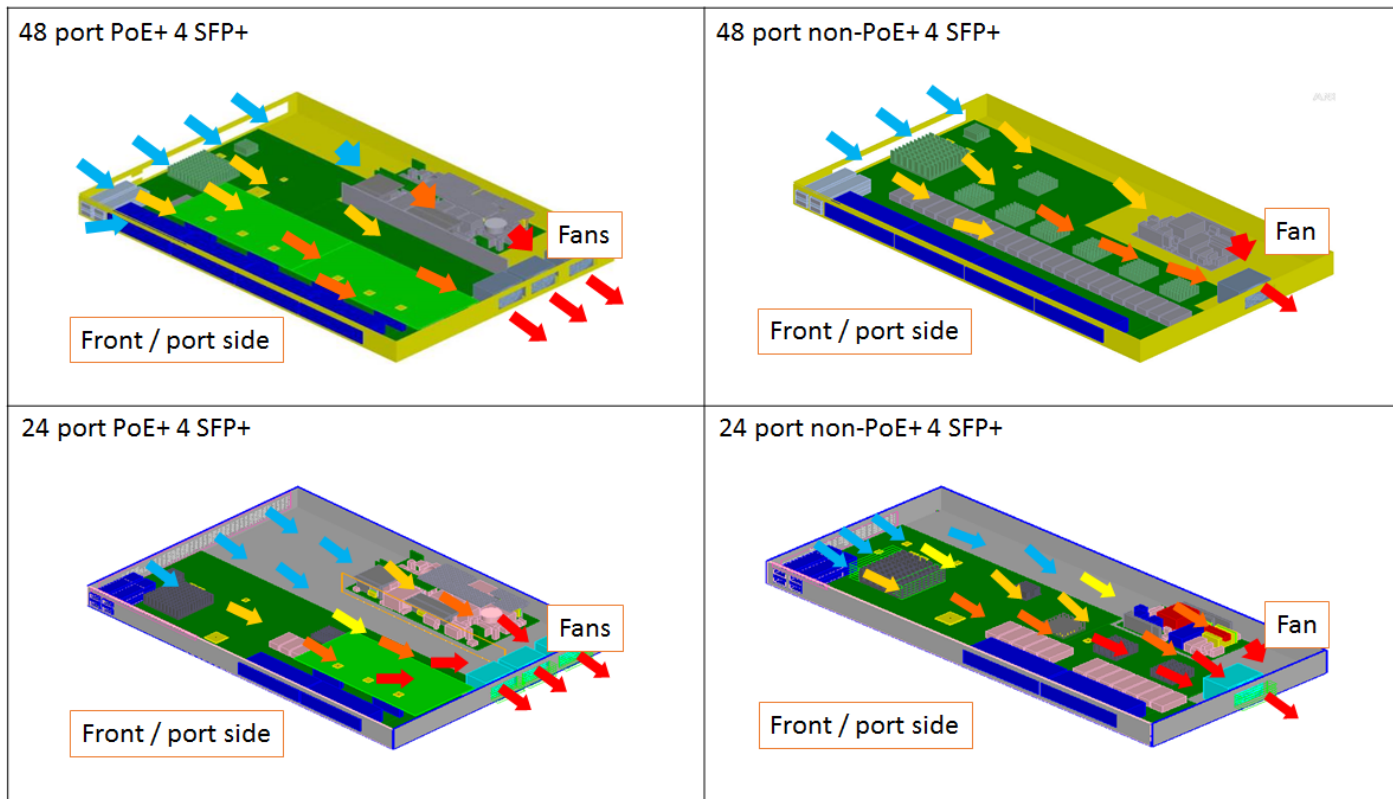


Figure 18. Airflow on the 48 port and 24 port SFP+ models



### Hardware architecture

2930F Switch family is designed with ArubaOS ASIC that provides 4x 10GE XFI and 48x1GE QSGMII ports in a single package. The ArubaOS Integrated ASIC is a single chip solution and does not need a Fabric Chip and supports front-plane stacking. All chassis PCAs does not required to share the same PCB to optimize on product cost. The non-PoE chassis consists of 2 PCAs; Mainboard and a LED board. The PoE chassis will have an additional PoE controller board. The main difference between the POE+ and the NON POE PCAs is the PoE controller, filter circuitry and the Power supply.

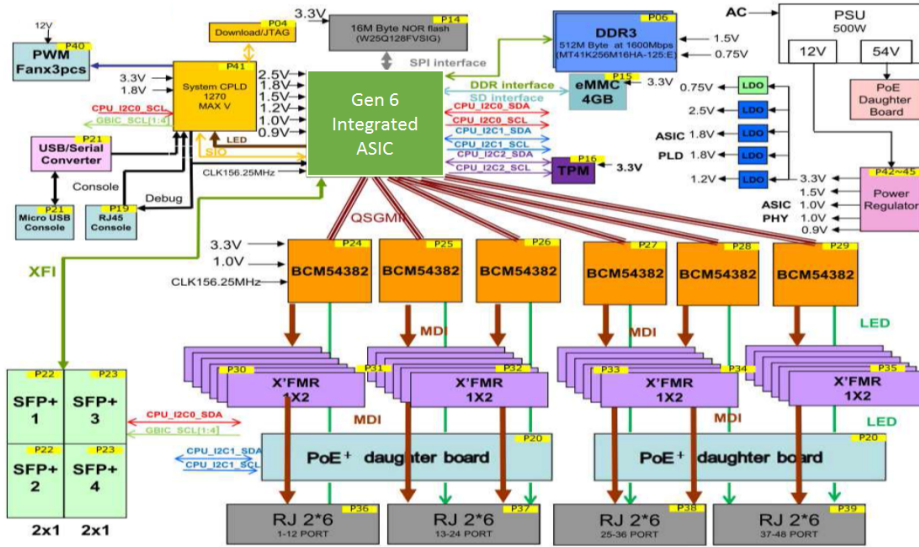


Figure 19. Block diagram of the 48 port PoE+ 4 SFP+ model

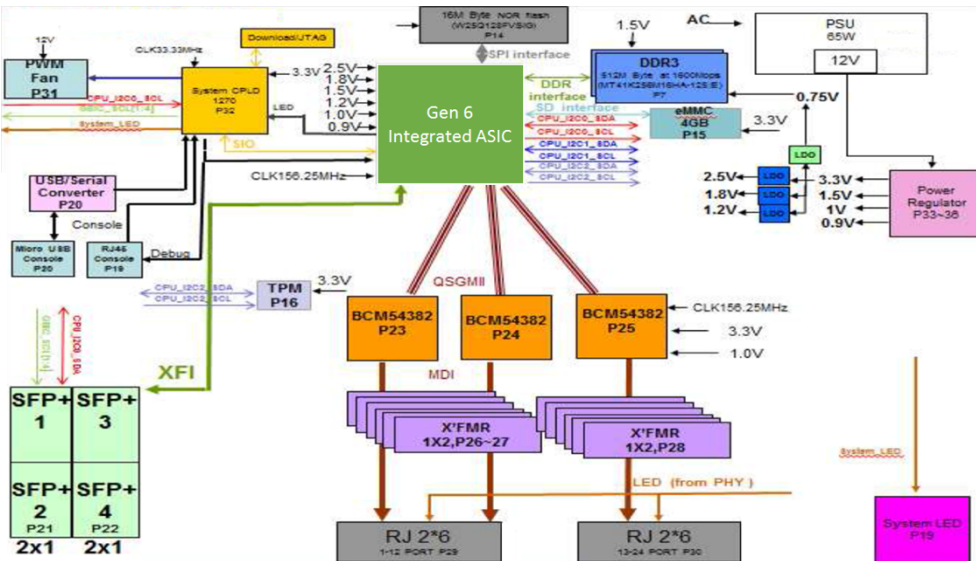


Figure 20. Block diagram of the 24 port non-PoE 4 SFP+ model

## Connectivity

Flexible 1 or 10 Gbps SFP+: up to four optional 1 or 10-Gigabit ports (SFP/SFP+)

Dual-speed uplinks: includes two 10/100/1000 ports or SFP/SFP+ slots for optional fiber connectivity such as Gigabit-SX, -LX, and -LH, or 100-FX (only supported on the 8 port model)

## Packet Buffer Memory Allocation

The ARUBA 2930F Series Switches have 12.375 MB of packet buffers, 7.785 MB of egress packet buffer and 4.5 MB of ingress packet buffer. Approximately 60 KB of ingress buffers is allocated for each 1Gig port and approximately 240 KB of ingress buffer is allocated for each 10Gig port.

This table displays the Packet Buffer allocations for the ARUBA 2930F Series Switches. Both the 24 and 48 port versions of the 2930F use the same ASIC with the same available buffers. In the case of the 24 port, some of the buffer will go unused. And any attempt to calculate the total buffer from the per-port numbers will result in mismatched numbers. This is due to internal ports that don't have connections outside the box and due to overhead.

Number of queues	Shared Dynamic Egress Memory* (per SKU)	Port speed	Dedicated memory per-port	Dynamic memory per-port
2	6,074 KB (24g+4x) 5,611 KB (48g+4x)	1 Gbps	5 KB	1100KB
		10 Gbps	24 KB	2200KB
4	5,755 KB (24g+4x) 5,343 KB (48g+4x)	1 Gbps	8 KB	1100KB
		10 Gbps	30 KB	2200KB
8	5,381 KB (24g+4x) 4,807 KB (48g+4x)	1 Gbps	15 KB	1100KB
		10 Gbps	44 KB	2200KB

The 2930F-24 switches have 24 1 Gigabit ports and up to 4 10 Gigabit ports with 6.5 MB of dynamically allocated packet buffer. The 24 port switches use a single ArubaOS Switching ASIC.

The 2930F-48 switches have 48 1 Gigabit ports and up to 4 10 Gigabit ports with 6.5 MB of dynamically allocated packet buffer. The 48 port switches use a single ArubaOS Switching ASIC.

Each port is statically allocated a certain amount of packet buffer. Depending on the number of queues (2, 4, or 8), the amount of statically allocated packet buffer per port changes, thus reducing the amount of shared dynamic packet buffer memory available.

For 2 queues, there is less packet buffer statically allocated per port, thus the 4.5 MB of shared packet buffer memory available, compared to the 4.0 MB for the 8 queue configuration.

For each of the different queue configurations, depending on the port type, each port is limited to a specific amount of the shared packet buffer memory it can utilize. For a 2 queue configuration, each 1 Gigabit port can only use up to 1 MB of the shared packet buffer memory.

The ARUBA 2930F is configured to support 8 queues by default.

## IEEE 802.3at Power over Ethernet (PoE+)

- Provides up to 30 W per port that allows support of the latest PoE+-capable devices such as IP phones, wireless access points, and security cameras, as well as any IEEE 802.3af-compliant end device; eliminates the cost for additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments Pre-standard PoE support
- Detects and provides power to pre-standard PoE devices

- PoE and PoE+ allocations: support multiple methods (automatic, IEEE 802.3at dynamic, LLDP-MED fine grain, IEEE 802.3af device class, or user specified) to allocate and manage PoE/PoE+ power for more efficient energy savings

**Energy efficiency**

The 2930F (24/48 port) PoE+ SKUs utilize **high-efficiency power supplies**: 80 PLUS Silver Certified power supply increases power savings.

There are energy efficiency features built into the ArubaOS ASICs used in the ARUBA 2930F Series Switches.

One such feature is **smart clock gating**. Clock gating is a method by which power is turned off to portions of a system’s logic when not in use. Traditionally, clock gating has been associated more with loss of performance rather than energy savings due to the fact that powered-down areas did not power up until network traffic reached them, resulting in processing delays. HP has overcome that challenge: with smart clock gating built into the ARUBA 2930F Switching ASIC, traffic through the semiconductor is coordinated and anticipated so specific resources can be “turned on” immediately before they are needed. This maximizes idle time and power savings without hindering throughput.

**Energy-efficient Ethernet (EEE)** support: reduces power consumption in accordance with IEEE 802.3az.

Energy Efficient Ethernet, the IEEE 802.3az standard, is focused on reducing energy consumption of networking components that are in an idle state.

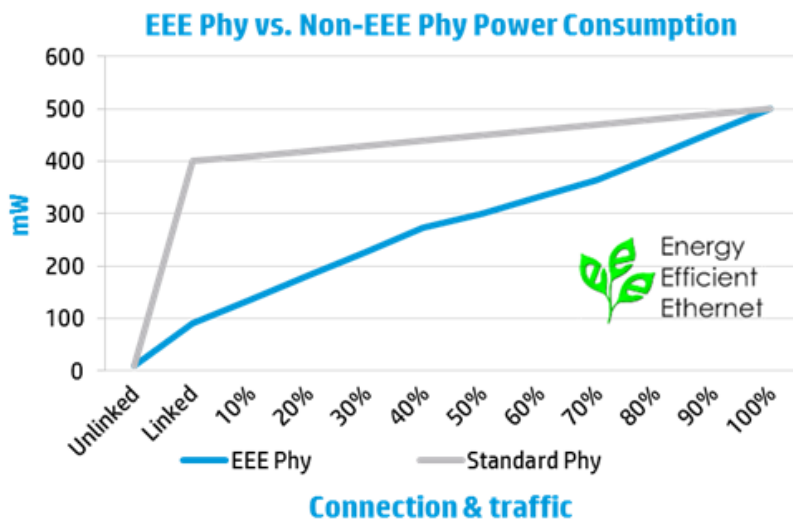


Figure 21. IEEE 802.3az power comparison

Among other energy savings strategies, 802.3az utilizes LLDP to communicate energy efficiency information between links without interrupting data flow. Ports use wake/sleep signals to communicate status between devices and to more efficiently transmit data. Transmit and receive circuits are deactivated during periods of inactivity to reduce energy consumption.

Power consumption is also reduced at the MAC level through Reconciliation Sublayer Enhancements.

Additional power savings on the physical level can be attained by decreasing the power consumption when components are idle between traffic bursts. This is called low power idle.

EEE is supported only on the Ethernet ports at 100Base-TX or 1000Base-T. It is not supported on the SFP, SFP+.

The software for the ARUBA 2930F Series switches provides the capability to turn on and off specific features to provide power savings.

The Energy Efficient Ethernet command, "**energy-efficient-ethernet**", allows the EEE option to be turned on or off for specified ports. EEE includes the LLDP transmissions and low power idle option.

- **savepower led**

Enabling "savepower led" will turn off most of the LEDs on the switch. The LEDs can be turned on by "no savepower led" or pressing the mode button will enable the LEDs. The LEDs will turn off 10 minutes after the mode button was last pressed.

- **savepower port-low-pwr**

If "savepower port-low-pwr" command is executed, all ports on the switch will have the "auto-low-power mode enabled" (assuming these are all the standard RJ45 based copper ports). What this means is that if such ports are not linked, they would go to a "low-power" state and would periodically monitor to see if the link got active. So, if an active LAN cable is connected to one of the ports, that particular port would come out of the "low power state" after ~2 seconds (the monitor period) and link up as normal. The other ports on the switch would continue to be in the low-power mode.

#### Fan monitoring

- **show system fans**

Displays the system fan status of each of the fans in the switch

#### Software Architecture

The 2930F shares the same code base as the 5400R, 3810, and 2920 switch series with an adjusted feature set to better fit its positioning.

#### ArubaOS-Switch operating system

All ARUBA 2930F Switch Series models all run the same software build. The initial release is **WC.16.02.0003**. The 8 port model (JL258A) uses WC.16.02.0012 or higher.

#### Key software features

- Routing – Static (IPv4/IPv6), RIP v1/v2 (IPv4) OSPF v2/v3
- Security – 802.1x, Mac Auth, Web Auth, SSL, SSH, SFTP, TACACS+, RADIUS, IP lockdown, ARP protection, Port-Filtering, ACLs
- QoS – src/dest IPv4/IPv6 address, TOS/DSCP/802.1p, TCP/UDP port & port range,
- MSTP (RSTP, STP), LACP
- VxLAN
- MAC Based VLANs (MBV), Rapid Per-VLAN Spanning Tree Plus (RPVST+) 128 instances
- OpenFlow
- ZTP (DHCP, Activate)
- Cloud management (Aruba Central)
- Tunneled node
- PoE priority
- Auto Vlan
- Rouge AP detection

- IPv4/IPv6 classifiers for mirroring and QoS
- User role

The software for the ARUBA 2930F Series Switches adds features which are new to the HP 2920 family. However, these features already exist on the HPE Aruba 3810, 5400R.

- MAC Based VLANs (MBV)
- Rapid Per-VLAN Spanning Tree Plus (RPVST+)

Support for VSF front plane stacking (up to 4 members) will be available in the near future via a software upgrade.

#### Jumbo packet support

- Supports up to 9220-byte frame size to improve the performance of large data transfers

#### VLAN support and tagging

- Supports IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously GARP VLAN Registration Protocol
- Allows automatic learning and dynamic assignment of VLANs
- IEEE 802.1v protocol VLANs: isolate select non-IPv4 protocols automatically into their own VLANs
- Supports QinQ
- Supports VXLAN

#### Multiple Spanning Tree (MSTP) and Rapid Per-VLAN Spanning Tree Plus (RPVST+)

MSTP provides high link availability in multiple VLAN environments by allowing multiple spanning trees;

RPVST+ is designed to use redundant links more efficiently than STP or RSTP. As you know, with STP or RSTP, some redundant links are blocked and remain idle. Depending on how much traffic is generated, active links can become congested while these links are idle.

RPVST+ allows you to configure a separate topology for each VLAN. Each topology can have a different root bridge, and a port's role is defined on a per VLAN basis. A redundant link might be active for one topology but blocked for another.

In the simple network shown here, for example, the link between Switch B and Switch C is blocked for VLAN 10 but in a forwarding state for VLAN 20. Likewise, the link between Switch A and Switch C is blocked for VLAN 20 but active for VLAN 10.

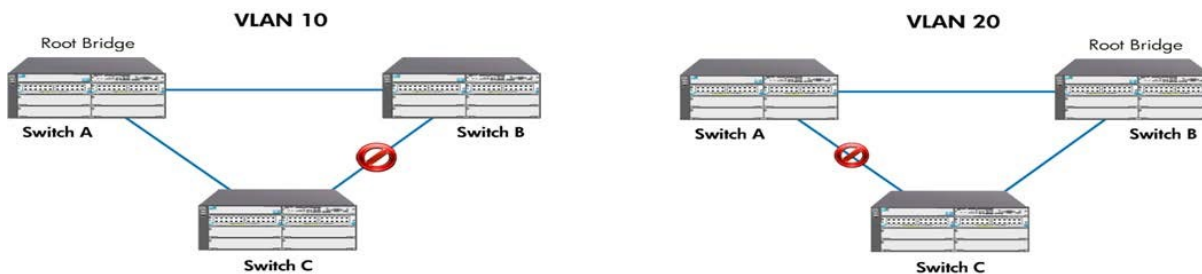


Figure 22. RPVST+

Because RPVST+ provides a per-VLAN implementation of RSTP, topology changes affect only the VLAN (or VLANs) on which the changes occur. This reduces the impact of RPVST+ changes on the network.

In addition, RPVST+ is VLAN aware. That is, an interface will participate in a VLAN's STP topology only if that VLAN is configured on the interface.

Further information on RPVST+ can be found in the Advanced Traffic Management Guide.

## IP multicast snooping and data-driven IGMP

Layer 2 multicast group management is achieved via multicast snooping. Additionally:

- Automatically prevent flooding of IP multicast traffic LLDP-MED (Media Endpoint Discovery)
- Is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- Is an automated device discovery protocol that provides easy mapping of network management applications

## IP routing

The Aruba 2930F switch series supports:

- IPv4 and IPv6 static routes
- RIP v1 and v2 and RIPng
- OSPF single area

## IPv6

- IPv6 host: allows the switches to be managed and deployed at the edge of IPv6 networks
- Dual stack (IPv4/IPv6): provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
- MLD snooping: forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network

## Device and network management

The Aruba 2930F Switch Series offers different management interfaces:

- Command-line interface (CLI): through console port (RJ45 and USB micro-B), Telnet and SSH
- Configuration menu: included in the CLI
- Web browser
- SNMP: SNMPv1, v2, and v3 provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption.
- FTP

Aruba offers several network management platforms that support the 2930F switch series:

- **AirWave** (Ver 8.2.1 or higher) is a powerful and easy-to-use network operations system that not only manages wired and wireless infrastructures from Aruba and a wide range of third-party manufacturers, but also provides granular visibility into devices, users and applications running on the network.
- **Aruba Central** (With ArubaOS-Switch 16.02.0010 or higher) is a cloud platform for managing Aruba Instant wireless LANs and ArubaOS switches (2920 and 2930F) that offer IT organizations a simple and effective way to manage and monitor their mobility networks, it also offer customizable application analytics. With Aruba Central, you can get anywhere anytime access to ensure your network is up and performing efficiently. No additional management application need to be installed.

Note: The HPE IMC network management platform also provides support for the 2930F switch series.

## Security

Multiple user authentication methods:

- IEEE 802.1X: is an industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
- Web-based authentication: is similar to IEEE 802.1X and provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant
- MAC-based authentication: authenticates the client with the RADIUS server based on the client's MAC address
- Support CoA

#### Authentication flexibility:

- Multiple IEEE 802.1X users per port: provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
- Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port: switch port will accept up to 32 sessions of IEEE 802.1X, Web, and MAC authentications

#### Access control lists (ACLs)

- provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number Source-port filtering
- allows only specified ports to communicate with each other RADIUS/TACACS+
- eases switch management security administration by using a password authentication server
- MAC ACLs

#### IEEE 802.1X, MAC or Web authentication

- provides concurrent network access control and Web authentication of up to 24 clients per port

SSH: encrypts all transmitted data for secure remote CLI access over IP networks

Secure Sockets Layer (SSL): encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

Port security: allows access only to specified MAC addresses, which can be learned or specified by the administrator

MAC address lockout: prevents particular configured MAC addresses from connecting to the network

Secure FTP: allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file

Switch management logon security: helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication

Custom banner: displays security policy when users log in to the switch

STP BPDU Protection: STP BPDU port protection blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

DHCP Snooping / ARP Protect / IP Lockdown: Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks

- Dynamic ARP protection: blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- Dynamic IP Lockdown, locks down traffic to the MAC IP binding, learned from DHCP Snooping or statically configured

#### STP Root Guard

- protects the root bridge from malicious attacks or configuration mistakes Identity-driven ACL
- enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user Per-port broadcast throttling
- selectively configures broadcast control on heavy traffic port uplinks

#### Loop protection

- Loop Protect, guards against loops when in the presence of non STP aware devices
- Support STP/RSTP/MSTP

#### QoS

Traffic can be classified based on layer 2, 3 and 4 header information. Traffic classes can be mapped to different egress queues to provide prioritization. Additionally, traffic can be marked with 802.1p Class of Service or DiffServ/ToS values for easier QoS handling in the new hop.

Rate limiting sets per-port ingress enforced maximums and per-port, per-queue minimums.

#### Troubleshooting

- Ingress and egress port monitoring enable network problem solving Uni-Directional Link Detection (UDLD)
- UDLD monitors a fiber link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices



### Software specifications

Feature	Specification
Max Vlan	2048
Max Vlan IPv4	512
Max Vlan IPv6	512
Max Vlan mixed IPv4 & IPV6(dual stack)	512
DHCP Server Vlans	512
DHCP Pool limit	128
Maximum DHCP Relay helper address for IPV4	16
Maximum DHCP Relay helper address for IPV6 and Mixed (IPV4 / IPV6)	Per Vlan 32
ACL / ACE IPv4	1024 ACL / 4096 ACE
ACL / ACE IPv6	1256 ACL / 4096 ACE
Mac ACL	1024 ACL / 4096 ACE
Dot1x	32 Clients per port
Port Based MAC Authentication	64000
Mac-auth	256 address per port
Web-auth	256 Clients per port
Port-security	64 address per port
PVST Instances	128
Static Route Interface based	256
OSPFv2 routes	200
OSPFv3 Area ID	1
RIP routes	10000
ARP table entries for IPv4 and IPv6	25000
VXLAN tunnel	64 (V3 only)
VXLAN VTEP	64 (V3 only)
Tunnel node	Based on switch ports
MAC address table entries	64,000

## Standard

### Device management

- RFC 1155 Structure and Management Information (SMIv1)
- RFC 1157 SNMPv1/v2c
- RFC 1591 DNS (client)
- RFC 1901 (Community based SNMPv2)
- RFC 1901-1907 SNMPv2c, SMIv2 and Revised MIB-II
- RFC 1908 (SNMPv1/v2 Coexistence)
- RFC 2576 (Coexistence between SNMPv1, v2, v3)
- RFC 2578-2580 SMIv2
- RFC 2579 (SMIv2 Text Conventions)
- RFC 2580 (SMIv2 Conformance)
- RFC 2819 (RMON groups Alarm, Event, History, and Statistics)
- RFC 3416 (SNMP Protocol Operations v2)
- RFC 3417 (SNMP Transport Mappings)
- HTML and Telnet management
- HTTP, SSHv1, and Telnet
- Multiple Configuration Files
- Multiple Software Images
- SNMPv3 and RMON RFC support
- SSHv1/SSHv2 Secure Shell
- TACACS/TACACS+
- Web UI

### General protocols

- IEEE 802.1AX-2008 Link Aggregation
- IEEE 802.1d MAC Bridges
- IEEE 802.1p Priority
- IEEE 802.1Q VLANs
- IEEE 802.1s Multiple Spanning Trees
- IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- IEEE 802.3af Power over Ethernet
- IEEE 802.3at PoE+
- IEEE 802.3az Energy Efficient Ethernet

- IEEE 802.3x Flow Control
- RFC 768 UDP
- RFC 783 TFTP Protocol (revision 2)
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 TELNET
- RFC 868 Time Protocol
- RFC 951 BOOTP
- RFC 1058 RIPv1
- RFC 1256 ICMP Router Discovery Protocol (IRDP)
- RFC 1350 TFTP Protocol (revision 2)
- IEEE 802.1v VLAN classification by Protocol and Port
- RFC 1519 CIDR IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- RFC 1542 BOOTP Extensions IEEE 802.3ab 1000BASE-T
- RFC 1918 Address Allocation for Private Internet
- RFC 2030 Simple Network Time Protocol (SNTP) v4
- RFC 2131 DHCP
- RFC 2236 IGMP Snooping
- RFC 2453 RIPv2
- RFC 2865 Remote Authentication Dial In User Service (RADIUS)
- RFC 2866 RADIUS Accounting
- RFC 3046 DHCP Relay Agent Information Option
- RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks
- RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- RFC 3413 Simple Network Management Protocol (SNMP) Applications
- RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
- RFC 3416 Protocol Operations for SNMP
- RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)
- RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
- RFC 3575 IANA Considerations for RADIUS
- RFC 3576 Ext to RADIUS (CoA only)

- RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
- RFC 4675 RADIUS VLAN & Priority
- RFC 4861 Neighbor Discovery for IP version 6 (IPv6)
- RFC 4862 IPv6 Stateless Address Autoconfiguration
- RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
- UDLD (Uni-directional Link Detection)

#### IP multicast

- RFC 1112 IGMP
- RFC 2236 IGMPv2
- RFC 2710 Multicast Listener Discovery (MLD) for IPv6
- RFC 3376 IGMPv3
- RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches

#### IPv6

- RFC 1981 IPv6 Path MTU Discovery
- RFC 2080 RIPng for IPv6
- Protocol Applicability Statement
- RFC 2082 RIP-2 MD5
- RFC 2460 IPv6 Specification
- RFC 2464 Transmission of IPv6 over Ethernet Networks
- RFC 2710 Multicast Listener Discovery (MLD) for IPv6
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
- RFC 2925 Remote Operations MIB (Ping only)
- RFC 3019 MLDv1 MIB
- RFC 3315 DHCPv6 (client and relay)
- RFC 3484 Default Address Selection for IPv6
- RFC 3513 IPv6 Addressing Architecture
- RFC 3596 DNS Extension for IPv6
- RFC 3810 MLDv2 for IPv6
- RFC 4022 MIB for TCP
- RFC 4113 MIB for UDP
- RFC 4251 SSHv6 Architecture
- RFC 4252 SSHv6 Authentication

- RFC 4253 SSHv6 Transport Layer
- RFC 4254 SSHv6 Connection
- RFC 4291 IP Version 6 Addressing Architecture
- RFC 4293 MIB for IP
- RFC 4419 Key Exchange for SSH
- RFC 4443 ICMPv6
- RFC 4541 IGMP & MLD Snooping Switch
- RFC 4861 IPv6 Neighbor Discovery
- RFC 4862 IPv6 Stateless Address Auto-configuration
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
- RFC 6620 FCFS SAVI
- draft-ietf-savi-mix

#### MIBs

- IEEE 802.1ap (MSTP and STP MIB's only)
- IEEE 8021-Bridge-MIB (2008)
- IEEE 8021-Q-Bridge-MIB (2008)
- RFC 1155 Structure & ID of Management Information for TCP/IP Internets
- RFC 1156 (TCP/IP MIB)
- RFC 1157 A Simple Network Management Protocol (SNMP)
- RFC 1213 MIB II
- RFC 1493 Bridge MIB
- RFC 1724 RIPv2 MIB
- RFC 2021 RMONv2 MIB
- RFC 2578 Structure of Management Information Version 2 (SMIv2)
- RFC 2579 Textual Conventions for SMIv2
- RFC 2580 Conformance Statements for SMIv2
- RFC 2613 SMON MIB
- RFC 2618 RADIUS Client MIB
- RFC 2620 RADIUS Accounting MIB
- RFC 2665 Ethernet-Like-MIB
- RFC 2668 802.3 MAU MIB
- RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
- RFC 2737 Entity MIB (version 2)

- RFC 2819 RMON MIB
- RFC 2863 The Interfaces Group MIB
- RFC 2925 Ping MIB
- RFC 2932 IP (Multicast Routing MIB)
- RFC 2933 IGMP MIB
- RFC 3414 SNMP-User based-SM MIB
- RFC 3415 SNMP-View based-ACM MIB
- RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks
- RFC 3418 MIB for SNMPv3
- RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)

#### Network management

- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- RFC 1155 Structure of Management Information
- RFC 1157 SNMPv1
- RFC 2021 Remote Network Monitoring Management Information Base version 2 using SMIv2
- RFC 2576 Coexistence between SNMP versions
- RFC 2578 Structure of Management Information Version 2 (SMIv2)
- RFC 2579 Textual Conventions for SMIv2
- RFC 2580 Conformance Statements for SMIv2
- RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events)
- RFC 2819 Remote Network Monitoring Management Information Base
- RFC 2856 Textual Conventions for Additional High Capacity Data Types
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup

#### Operation Applications

- RFC 3164 BSD syslog Protocol
- RFC 3176 sFlow
- RFC 3411 SNMP Management Frameworks
- RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- RFC 3413 Simple Network Management Protocol (SNMP) Applications
- RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
- RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
- RFC 5424 Syslog Protocol

- ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
- SNMPv1/v2c/v3 XRMON

#### QoS/CoS

- IEEE 802.1p (CoS)
- RFC 2474 DiffServ Precedence, including 8 queues/port
- RFC 2475 DiffServ Architecture
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2598 DiffServ Expedited Forwarding (EF)
- Ingress Rate Limiting

#### Security

- IEEE 802.1X Port Based Network Access Control
- RFC 1321 The MD5 Message-Digest Algorithm
- RFC 1334 PPP Authentication Protocols (PAP)
- RFC 1492 TACACS+
- RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
- RFC 2082 RIP-2 MD5 Authentication
- RFC 2104 Keyed-Hashing for Message Authentication
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Accounting
- RFC 2246 Transport Layer Security (TLS)
- RFC 2548 Microsoft® Vendor-specific RADIUS Attributes
- RFC 2618 RADIUS Authentication Client MIB
- RFC 2620 RADIUS Accounting Client MIB
- RFC 2716 PPP EAP TLS Authentication Protocol
- RFC 2818 HTTP Over TLS
- RFC 2865 RADIUS (client only)
- RFC 2865 RADIUS Authentication
- RFC 2866 RADIUS Accounting
- RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support
- RFC 2868 RADIUS Attributes for Tunnel Protocol Support
- RFC 2869 RADIUS Extensions
- RFC 2882 NAS Requirements: Extended RADIUS Practices
- RFC 3162 RADIUS and IPv6

- RFC 3576 Dynamic Authorization Extensions to RADIUS
- RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
- RFC 3580 IEEE 802.1X RADIUS
- RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines
- RFC 4576 RADIUS Attributes Access Control Lists (ACLs)
- draft-grant-tacacs-02 (TACACS)
- Guest VLAN for 802.1X
- MAC Authentication
- MAC Lockdown
- MAC Lockout
- Port Security
- RFC Secure Sockets Layer (SSL)
- SSHv2 Secure Shell

#### Limitations

##### Routing limitations:

When configuring OSPF on the switch one must remember that the switch will only support OSPF for a single area (no limitation on Area number), this limitation restrict the use of the switch as an edge switch and prevent the use of the switch as a ABR.

##### Stacking Limitations

Currently 2930F does not support stacking (as of Ver 16.02.0012) however stacking with the use of VSF is on the roadmap for end of year 2016 or early 2017. The limitation with VSF stacking will be the port capabilities and maximum support of up to 4 devices in a single stack.

##### Transceiver compatibility

The **Allow Unsupported Transceiver** feature allows the user to try a transceiver part (including DAC cables) without the switch attempting to authenticate it as a genuine HPE Aruba part. There is no guarantee that all third-party transceivers will work: typically the ones that work are industry-standard types as identified by the MSA standards body. Those parts that do not comply will most likely still not be enabled.

HPE fully backs only HPE Aruba supported transceivers (listed in the switch QuickSpecs under Accessories); support efforts will be honored.

Support efforts may require the customer to replace any non-HPE Aruba transceiver/DAC with an equivalent supported HPE Aruba branded transceiver/DAC.

##### Space, Power, and Environmental Data

Part of the energy efficiency message for the ARUBA 2930F Series Switches is the efficiency of the power supplies. The power supplies for the ARUBA 2930F PoE+ models have been previously approved for 80PLUS.org for certification of their efficiency.



### Specifications

Generic EN 55024:2010/CISPR 24

ESD IEC 61000-4-2

Radiated IEC 61000-4-3

EFT/Burst IEC 61000-4-4

Surge IEC 61000-4-5

Conducted IEC 61000-4-6

Power frequency magnetic field IEC 61000-4-8

Voltage dips and Interruptions IEC 61000-4-11

Harmonics IEC/EN 61000-3-2

Flicker IEC/EN 61000-3-3

### Warranty

This section describes the warranty terms of the product.

Lifetime warranty for as long as you own the product with advance replacement and next-business-day delivery (available in most countries).

Electronic and telephone support limited electronic and telephone support is available from HP; to reach our support centers, refer to [www.hp.com/networking/contact-support](http://www.hp.com/networking/contact-support); for details on the duration of support provided with your product purchase, refer to [www.hp.com/networking/warrantysummary](http://www.hp.com/networking/warrantysummary).

Software releases to find software for your product, refer to [www.hp.com/networking/support](http://www.hp.com/networking/support); for details on the software releases available with your product purchase, refer to [www.hp.com/networking/warrantysummary](http://www.hp.com/networking/warrantysummary).

### Comparison between 2930F and 2920 PoE+ Switches

	ARUBA 2930F-48G – PoE+ Switch (JL256A)	HP 2920-48G –PoE+ (J9729A)	ARUBA 2930F-24G– PoE+ Switch (J9729A)	HP 2920-24G–PoE+ Switch (J9726A)
<b>Rack Units</b>	1U	1U	1U	1U
<b>Gig RJ-45 ports</b>	48	44, 4 Dual personality	24	22, 4 Dual personality
<b>10Gig Ports</b>	4(SFP+)	4 using 2 port Modules	4(SFP+)	4 using 2 port modules
<b>10Gig Modules</b>	NA	2p SFP+ module 2p10GBaseT module	NA	2p SFP+ module 2p 10GBaseT module
<b>Stacking ports</b>	NA	2 port module (optional)	NA	2 port module (optional)
<b>Console Port</b>	RJ-45, USB micro-B	RJ-45, USB micro-B	RJ-45, USB micro-B	RJ-45, USB micro-B
<b>Auxiliary USB Port</b>	NA	Yes (front)	NA	Yes (front)
<b>Out-of-Band Mgmt Port</b>	NA	Yes	NA	Yes
<b>Removable Power Supply</b>	NA	Yes (Shipped with the switch)	NA	Yes (Shipped with the switch)
<b>RPS/EPS support</b>	NA	Yes	NA	Yes
<b>PoE/PoE+</b>	PoE/PoE+	PoE/PoE+	PoE/PoE+	PoE/PoE+
<b>PoE/PoE+ Power</b>	370W @ 100-127V 370W @ 200-240V	Up to 1440W	370W @ 100-127V 370W @ 200-240V	Up to 1440W

#### Key differences

- The 2920 provides for 2 optional 10Gig modules of either 2 port SFP+ module or 2 port 10GBase-T module. The 2930F provides for 4 optional 10Gig SFP+ or 1Gig SFP Ports.
- The 2920 provides for an optional 2 port high-performance stacking module. The 2930 does not supports stacking (VSF for front plane stacking will be added by end of 2016 or early 2017).
- The 2920 has front facing Auxiliary Port for transferring software images and switch configuration files. The 2930F does not have AUX port.
- The 2920 has a front facing Out-of-Band Management (OOBM) port for administration. The 2930F does not have an OOBM port.
- The 2920 has a removable Power Supply. The 2930F has a fixed Power Supply. In the unlikely event of a Power Supply failure, the Power Supply in the 2920 can be replaced on-site. Whereas, the entire 2930F switch would need to be replaced.

### Competitive comparison

Feature	Cisco Catalyst 2960-X LAN Base	Aruba 2930F	Aruba 2920
<b>IPv4 Routes</b>	2K	10K	2K
<b>Forwarding capacity</b>	108 Gbps	56Gbps –176Gbps	128-176 Gbps
<b>Throughput</b>	68.5–130.9 Mpps	41–112 Mpps	95.2-130.9 Mpps
<b>1GbE/10GbE Uplinks</b>	Fixed: 2 x 10GbE SFP+ or 4 x SFP	Fixed: 4 x 10GbE SFP+ or 4 x 1GbE SFP	Modular: up to 4 x 10GbE (SFP+ or 10GBASE-T)
<b>10GBASE-T</b>	No	No	Yes
<b>PoE/PoE+</b>	Fixed: power supply up to 740 W internal	Fixed: power supply up to 370 W internal	Modular: up to 740 internal; up to 1440W with EPS
<b>MAC Addresses</b>	16K	32K	32K
<b>Stacking</b>	Up to 8 switches/stack with 40 Gbps per link for 80 Gbps per module	No	Up to 4 Switches/stack with 40 Gbps per link, up to 80 Gbps per module
<b>SDN</b>	No	OpenFlow	OpenFlow
<b>Warranty</b>	Enhanced Lifetime	Limited Lifetime	Limited Lifetime

For more information

On the Aruba 2930F switch series visit the [Aruba 2930F Switch Series](#) web page.

On HPE networking products visit the [HPE Networking web page](#).

On Aruba mobility visit the [Aruba Networks](#) web page.



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