Overview

HPE Altoline 6941 Switch Series

Models

HPE Altoline 6941 32QSFP+ x86 ONIE AC Front-to-Back Switch	JL313A
HPE Altoline 6941 32QSFP+ x86 ONIE AC Back-to-Front Switch	JL314A

Key features

- High 40GbE port density and low latency for demanding applications
- Choice of network operating systems, including Cumulus Networks Linux NOS, and Pica8 NOS
- Open-networking and disaggregated solution for customer choice
- VXLAN L2 & L3 for efficient network virtualization overlay solutions
- Support for Big Switch Network's Big Cloud Fabric and Big Monitoring Fabric solutions

Product overview

The HPE Altoline 6941 Switch Series are top-of-rack (TOR) or spine switches for high-performance data centers. In a compact 1RU form factor, the switch provides line-rate L2 and L3 switching across up to 32 x QSFP ports, supporting 10GbE or 40GbE server connections as a ToR switch, or 10GbE or 40GbE spine interconnects as a spine switch.

The 32 fixed QSFP ports support up to 32 x 40GbE connections or 96 x 10GbE with 8 x 40GbE uplink connections.

The HPE Altoline 6941 Switch Series are bare-metal switches loaded with the Open Network Install Environment (ONIE), which supports the installation of compatible independent switch OS offerings.

Features and benefits

Data center optimized

- **Flexible high port density**
  the HPE Altoline 6941 Switch Series enables scaling of the server edge with 40GbE spine and ToR deployments to new heights with high-density 32-port solutions delivered in a 1RU design. Up to 24 40GbE QSFP+ ports can also be configured as four 10GbE ports by using a 40GbE-to-10GbE splitter cable providing up to 96 10GbE ports with eight 40GbE uplinks.

Overview

- **High-performance switching**
  cut-through and nonblocking architecture delivers low latency (600 - 720 nanosecond for 40GbE) for very demanding enterprise applications; the switch delivers high-performance switching capacity and wire-speed packet forwarding
- **Hot/cold aisle support**
  Models available with front-to-back (port-to-power) or back-to-front (power-to-port) airflow
- **Redundant fans and power supplies**
  1+1 internal redundant, hot-pluggable power supplies and a fanless design enhance reliability and availability
- **VXLAN hardware support**
  supports VXLAN L2 & L3 VTEP overlay technologies

Manageability

- **Out-of-band interface**
  isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane
- **ONIE bootloader**
  switch is loaded with Open Network Install Environment (ONIE) software installer
- **Intel x86 CPU**
  Provides high performance support of widely available, industry standard software and utilities.

Layer 2 switching

- **VLAN support**
  provides support for 4,096 VLAN IDs

Additional information

- **Low power consumption**
  typical operation uses just 267W of AC power

Warranty and support

- **1-year Warranty**
  see **http://www.hpe.com/networking/warrantysummary** for warranty and support information included with your product purchase.
- **Software releases**
  to find software for your product, refer to **http://www.hpe.com/networking/support** ; for details on the software releases available with your product purchase, refer to **http://www.hpe.com/networking/warrantysummary**

Configuration

Build To Order:

BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

Router Chassis

HPE Altoline 6941 32QSFP+ x86 ONIE AC Front-to-Back Switch — JL313A
See Configuration
NOTE: 1, 8, 9

- 32 QSFP+ 40GbE ports (min=0 \ max=32 QSFP+ Transceivers)

Each Switch:

- 2 Power Supplies Standard (min=2 \ max=2)
- 5 Front to Back Fan Trays Standard (min=5 \ max=5)
- 1U - Height

PDU Cable NA/MEX/TW/JP — JL313A#B2B

- C13 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — JL313A#B2C

- C13 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — JL313A#B2E

- HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A)

No Power Cord — JL313A#AC3

- No Localized Power Cord Selected

HPE Altoline 6941 32QSFP+ x86 ONIE AC Back-to-Front Switch — JL314A
See Configuration
NOTE: 1

- 32 QSFP+ 40GbE ports (min=0 \ max=32 QSFP+ Transceivers)

Each Switch:

- 2 Power Supplies Standard (min=2 \ max=2)
- 5 Back to Front Fan Trays Standard (min=5 \ max=5)
- 1U - Height

PDU Cable NA/MEX/TW/JP — JL314A#B2B

- C13 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — JL314A#B2C

- C13 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — JL314A#B2E

- HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A)

No Power Cord — JL314A#AC3

- No Localized Power Cord Selected

Configuration Rules:

Configuration

Note 1 Localization (Wall Power Cord) required on orders without #B2B, #B2C (PDU Power Cord) or #B2E. (See Localization Menu)

Note 8 **The following QSFP+ Transceivers install into this Switch:**

HPE X240 40G QSFP+ QSFP+ 3m DAC Cable	JG327A
HPE X240 QSFP+ 4x10G SFP+ 3m DAC Cable	JG330A
HPE X140 40G QSFP+ MPO SR4 XCVR	JG325B
HPE X140 40G QSFP+ LC BiDi 100m MM XCVR	JL251A

Note 8 **OCA Blue Note:**
This switch can support splitter DAC JG330A in 24 of the 32 40GbE QSFP+ ports.

Remarks:

OCA Only Model Selection Form
HPE Offering > DataCenter Networking > Altoline Switches - Access:
HPE Altoline 6900 Switch Series

Rack Level Integration CTO Models

CTO Switch Chassis

HPE Altoline 6941 32QSFP+ x86 ONIE AC Front-to-Back Switch — JL313A
See Configuration
NOTE: 1, 8, 9

- 32 QSFP+ 40GbE ports (min=0 \ max=32 QSFP+ Transceivers)

Each Switch:
- 2 Power Supplies Standard (min=2 \ max=2)
- 5 Front to Back Fan Trays Standard (min=5 \ max=5)
- 1U - Height

PDU Cable NA/MEX/TW/JP — JL313A#B2B
- C13 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — JL313A#B2C
- C13 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — JL313A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

No Power Cord — JL313A#AC3
- No Localized Power Cord Selected

HPE Altoline 6941 32QSFP+ x86 ONIE AC Back-to-Front Switch — JL314A
See Configuration
NOTE: 1

- 32 QSFP+ 40GbE ports (min=0 \ max=32 QSFP+ Transceivers)

Each Switch:
- 2 Power Supplies Standard (min=2 \ max=2)
- 5 Back to Front Fan Trays Standard (min=5 \ max=5)
- 1U - Height

Configuration

PDU Cable NA/MEX/TW/JP JL314A#B2B
- C13 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW JL314A#B2C
- C13 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord JL314A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

No Power Cord JL314A#AC3
- No Localized Power Cord Selected

Configuration Rules:

Note 1 Localization (Wall Power Cord) required on orders without #B2B, #B2C (PDU Power Cord) or #B2E. (See Localization Menu)

Note 8 **The following QSFP+ Transceivers install into this Switch:**

HPE X240 40G QSFP+ QSFP+ 3m DAC Cable	JG327A
HPE X240 QSFP+ 4x10G SFP+ 3m DAC Cable	JG330A
HPE X140 40G QSFP+ MPO SR4 XCVR	JG325B
HPE X140 40G QSFP+ LC BiDi 100m MM XCVR	JL251A

Note 9: **OCA Blue Note:**
This switch can support splitter DAC JG330A in 24 of the 32 40GbE QSFP+ ports.

Transceivers

SFP Transceivers

HPE X120 1G SFP RJ45 T Transceiver	JD089B
HPE X120 1G SFP LC SX Transceiver	JD118B
HPE X120 1G SFP LC LX Transceiver	JD119B
HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A

SFP+ Transceivers

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A

QSFP+ Transceivers

HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A

Configuration

HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A

QSFP28 Transceivers

HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A

Cables

HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
HPE X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A

Switch Enclosure Options

Rack Mount Kit

System (std 0 // max 1) User Selection (min 0 // max 1)

HPE Altoline Gen2 Rackmount Kit	JL198A See Configuration **NOTE:** 1, 3

Configuration Rules:

Note 1 This rack mount kit is only supported on the following switches:

HPE Altoline 6920 48XG 6QSFP+ x86 ONIE AC Front-to-Back Switch	JL167A
HPE Altoline 6920 48XG 6QSFP+ x86 ONIE AC Back-to-Front Switch	JL168A

Configuration

HPE Altoline 6921 48XGT 6QSFP+ x86 ONIE AC Front-to-Back Switch	JL315A
HPE Altoline 6921 48XGT 6QSFP+ x86 ONIE AC Back-to-Front Switch	JL316A
HPE Altoline 6921 48SFP+ 6QSFP+ x86 ONIE AC Front-to-Back Switch	JL317A
HPE Altoline 6921 48SFP+ 6QSFP+ x86 ONIE AC Back-to-Front Switch	JL318A
HPE Altoline 6940 32QSFP+ x86 ONIE AC Front-to-Back Switch	JL165A
HPE Altoline 6940 32QSFP+ x86 ONIE AC Back-to-Front Switch	JL166A
HPE Altoline 6941 32QSFP+ x86 ONIE AC Front-to-Back Switch	JL313A
HPE Altoline 6941 32QSFP+ x86 ONIE AC Back-to-Front Switch	JL314A
HPE Altoline 6960 32QSFP28 x86 ONIE AC Front-to-Back Switch	JL279A
HPE Altoline 6960 32QSFP28 x86 ONIE AC Back-to-Front Switch	JL280A

Note 3 If a switch ordered and factory racked, then this rackmount must be #0D1

Technical Specifications

HPE Altoline 6941 32QSFP+ x86 ONIE AC Front-to-Back Switch (JL313A)

I/O ports and slots	32 QSFP+ 40GbE ports	
Additional ports and slots	1 RJ-45 serial console port 1 RJ-45 out-of-band management port 1 USB 2.0	
Power supplies	2 power supply slots 1 minimum power supply required includes: 2 x PSUs ()	
Fan tray	5 fan tray slots Switch comes with five (5) fan trays (front-to-back airflow)	
Physical characteristics	**Dimensions**	17.26(w) x 20.28(d) x 1.71(h) in (43.84 x 51.51 x 4.34 cm)
	Weight	21.27 lb (9.65 kg)
Memory and processor	Intel Atom C2538 quad-core x86 processor @ 2.4 GHz, 8 GB DDR3 SDRAM; storage: mSATA SSD (Optional); Packet buffer size: 12 MB, 8 GB NAND flash	
Performance	**40 Gbps Latency**	> .6 µs
	Throughput	up to 1440 Bpps
	Routing/Switching capacity	2560 Gbps
	Routing table size	64000 entries (IPv4), 20000 entries (IPv6)
	MAC address table size	320000 entries
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	90 - 264 VAC, rated
	Maximum power rating	315 W
	Idle power	267 W
	Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PSU Efficiency: Up to 93% for AC PSUs
Safety	cUL Certified; EN 60950; EN 55022 Class A; VCCI Class A; ROHS Compliance; FCC Class A: Regulations for Radio Frequency Devices for Electromagnetic Compliance; UL	
Emissions	FCC part 15 Class A; EN 55022 Class A; VCCI	
Immunity	**ESD**	EN 60950
	EFT/Burst	IEC 68-2-14
Management	Command-line interface; Out-of-band management; SNMP manager; Telnet; FTP	

Technical Specifications

Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

HPE Altoline 6941 32QSFP+ x86 ONIE AC Back-to-Front Switch (JL314A)

I/O ports and slots	32 QSFP+ 40GbE ports	
Additional ports and slots	1 RJ-45 serial console port	
	1 RJ-45 out-of-band management port	
	1 USB 2.0	
Power supplies	2 power supply slots	
	1 minimum power supply required	
	includes: 2 x PSUs ()	
Fan tray	5 fan tray slots	
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	Throughput	up to 1440 Bpps
	Routing/Switching capacity	2560 Gbps
	Routing table size	64000 entries (IPv4), 20000 entries (IPv6)
	MAC address table size	320000 entries
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Airflow direction	Back-to-front
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	90 - 264 VAC, rated
	Maximum power rating	315 W
	Idle power	267 W
	Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PSU Efficiency: Up to 93% for AC PSUs
Safety	cUL Certified; EN 60950; EN 55022 Class A; VCCI Class A; ROHS Compliance; FCC Class A: Regulations for Radio Frequency Devices for Electromagnetic Compliance; UL	
Emissions	FCC part 15 Class A; EN 55022 Class A; VCCI	
Immunity	**ESD**	EN 60950

Technical Specifications

	EFT/Burst	IEC 68-2-14
Management	Command-line interface; Out-of-band management; SNMP manager; Telnet; FTP	
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

Summary of Changes

Date	Version History	Action	Description of Change:
04-Jun-2018	Version 6	Changed	Configuration section updated
07-May-2018	Version 5	Changed	Configuration section updated
05-Mar-2018	Version 4	Changed	Key features updated
05-Feb-2018	Version 3	Changed	Configuration section updated
18-Apr-2017	Version 2	Added	Transceivers added on the Configuration section: JL437A, JL439A
05-Sep-2016	Version 1	Creation	Document creation

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c05158730 - 15634 - Worldwide - V6 - 4-June-2018