x530 Series

Stackable Multi-Gigabit Layer 3 Switches

Allied Telesis x530 Series switches are a high-performing and feature rich choice for today's networks. They offer a versatile solution for enterprise applications, with Gigabit and Multi-Gigabit ports, along with 10 Gigabit uplinks. The power and flexibility of Virtual Chassis Stacking (VCStack™) enables the x530 Series to connect any size business.

Network automation

Vista Manager™ EX bundled with Allied Telesis Autonomous Management Framework™ Plus (AMF Plus) meets the increasing management requirements of modern networks. While AMF Plus allows an entire network to be securely and easily managed as a single virtual device, Vista Manager EX provides an intuitive and powerful graphical tool for monitoring and managing AMF Plus wired and Autonomous Wave Control (AWC) wireless devices.

Device and network management

The Device GUI enables graphical monitoring of key switch features to support easy management.

Integrated into the Device GUI, the wireless controller supports visibility and management of AMF Plus wired and AWC wireless network devices, making it ideal as a one-stop solution for small to medium-sized networks.

AWC is an intelligent, easy to use wireless controller that automatically maintains optimal performance, and includes floor and heat maps showing wireless coverage.

Resilient

Allied Telesis Ethernet Protection Switched Ring (EPSRingTM), the standards-based G.8032 Ethernet Ring Protection, and Media Redundancy Protocol (MRP), ensure that distributed network segments have high-speed, resilient access to online resources and applications.

x530 Series can form a VCStack of up to eight[1] units. In conjunction with link aggregation, VCStack provides an enhanced resiliency with no single point of failure to meet today's increasing demand for high-available networks with minimal downtime. Long Distance Stacking (VCStack LD) allows stacks to be created over fiber links, which is perfect for distributed environment.

Reliable

Dual built-in power supplies guarantees the delivery of essential services, and near-hitless online stack reconfiguration enables maintenance to be performed without affecting network uptime. The x530DP models feature dual hot-swappable power supplies to maximize uptime, and higher PoE power budgets.

Secure

The x530 Series offers powerful control over network traffic types, secure management options, loop guard to protect against cabling mistakes, and tri-authentication for comprehensive access control.

Power over Ethernet

Connect and power a variety of endpoints with PoE. The flexible x530 series has models supporting the 30 watts of PoE+, and the 60 or 90 watts of PoE++, to support high resolution PTZ cameras, enhanced lighting controllers, and more.

High-speed wireless

2.5 and 5 Gigabit connectivity supports high-speed wireless, and avoids the need to upgrade existing Cat5e/6 cables.

Key Features

- Autonomous Management Framework Plus (AMF Plus)
- AMF-Security compatile
- VCStack™ up to 8[1] units locally, or over long distance
- Multi-Gigabit 1/2.5/5G ports
- Up to 90W PoE++ power per port (10GHXm/18GHXm only)
- EPSR™ (master and transit)
- G.8032 ERPS for resilient rings
- Media Redundancy Protocol (MRP)
- OpenFlow for SDN
- Active Fiber Monitoring (AFM)
- Enhanced Transmission Selection (ETS)
- Bi-directional Forwarding Detection (BFD)
- VLAN Translation
- Multicast Source Discovery Protocol (MSDP)
- Link Monitoring
- VXLAN static tunnels
- The wireless controller enables:
  - Wired and wireless network visibility
  - AWC wireless network management
- FIPS 140-2 certified (except 28GSX)
- Ethernet Alliance PoE Class 6[2] and Class 8[3] certified
- Reverse airflow option for flexible deployment[4]
- NETCONF/RESTCONF with YANG data modelling
- IPFIX (IP Flow Information Export)
- Precision Time Protocol (PTP) Transparent Mode

[1] Up to 4 units supported if using 1Gbps ports for stacking
[2] For x530DP-28/52GHXm
[3] For x530-10/18GHXm
[4] Supported only on x530DP models

KEY FEATURES

Autonomous Management Framework Plus (AMF Plus)

AMF Plus is a sophisticated suite of management tools that provide a simplified approach to zero-touch network management.

Any x530 Series can operate as the AMF Plus network master, storing firmware and configuration backups for other network nodes. The AMF Plus master enables auto-provisioning and auto-upgrade by providing appropriate files to new network members. New network devices can be pre-provisioned, making installation easy because no onsite configuration is required.

An AMF Plus license provides all standard AMF network management and automation features, and also enables the AMF Plus intent-based networking features in Vista Manager EX (from version 3.10.1 onwards).

Wireless controller

Optimize wireless performance with the Autonomous Wave Controller (AWC) wireless controller, integrated into the Device GUI on the x530 Series. AWC analyzes traffic patterns and automatically reconfigures APs to meet demand.

AMF-Security

AMF-Sec enables internal LAN threat detection and automatic end-point isolation to protect the network. As part of an AMF-Sec solution, the x530 series can be used to block the threat at source by quarantining the infected end-point.

Virtual Chassis Stacking (VCStack™)

The x530 Series supports VCStack up to 8 units (or 4 units if using 1Gbps ports for stacking). VCStack, in conjunction with link aggregation, provides a high available system where network resources are spread out across stacked units, providing excellent resiliency.

Long-Distance Stacking (VCStack LD)

VCStack LD allows a VCStack to be created over longer distances, perfect for distributed network environments.

Precision Time Protocol (PTP)

PTP (IEEE 1588v2) synchronizes clocks throughout the network with micro-second accuracy, supporting industrial automation and control systems. PTP operates on standalone or stacked switches.

Quality of Service

Enhanced Transmission Selection (ETS) provides quality of service by allocating bandwidth to important traffic classes, with the flexibility to share remaining bandwidth to maximize traffic throughput and performance..

Ethernet Protection Switched Ring (EPSRing™)

EPSRing and 10 Gigabit Ethernet allow several x530 Series switches to form high-speed protected rings capable of recovery within as little as 50ms, perfect for high performance and high availability in enterprise networks.

The x530 Series switches can act as the ESPR Master, or be deployed as EPSR transit nodes, in a high-speed ring.

G.8032 Ethernet Ring Protection

G.8032 provides standards-based high-speed ring protection, that also interoperate with Allied Telesis EPSR.

Ethernet Connectivity Fault Monitoring (CFM) proactively monitors links and VLANs, and provides alerts when a fault is detected.

Multi-Gigabit Ethernet

IEEE 802.3bz supports speeds of 2.5 and 5Gbps on legacy Cat5e cables, allowing high-speed wireless APs to run at full capacity without re-cabling.

Power over Ethernet Plus (PoE+/PoE++)

With PoE, a separate power connection to media endpoints such as IP phones and wireless access points is not necessary. PoE reduces costs and provides flexibility, with the x530 Series supplying up to 30W per port (PoE+) to endpoints.

The x530DP models support PoE++ up to 60W per port, and the 10GHXm and 18GHXm models up to 90W per port, to connect high power devices such as high resolution PTZ cameras, enhanced infrared lighting and lighting controllers, remote Point of Sale (POS) kiosks, and more. The GHXm models also support 2.5/5Gbps on all ports to connect and power devices over Multi-Gigabit networks.

Active Fiber Monitoring (AFM)

AFM prevents eavesdropping on fiber links by monitoring received optical power. If an intrusion is detected, the link can be automatically shut down, or an operator alert can be sent.

Continuous PoE

Continuous PoE allows the switch to be restarted without affecting the supply of power to connected devices. Smart lighting, security cameras, and other PoE devices will continue to operate during a software upgrade on the switch.

Virtual Routing and Forwarding (VRF-Lite)

VRF-Lite provides Layer 3 network virtualization by dividing a single switch into multiple independent virtual routing domains. With independent routing domains, IP addresses can overlap without causing conflict, allowing multiple customers to have their own secure virtual network within the same physical infrastructure. VRF-Lite supports IPv4 and IPv6 unicast and multicast traffic.

The built-in DHCP Server on the x530 Series is VRF aware, enabling the supply of IP addresses to clients across multiple isolated networks.

High Reliability

The x530 Series feature front to back cooling and dual fixed internal PSUs. DP models feature dual hot-swap PSUs for maximum uptime.

sFlow

sFlow is an industry-standard technology for monitoring high-speed switched networks. It provides complete visibility into network use, enabling performance optimization, usage accounting/billing, and defense against security threats. Sampled packets sent to a collector (up to 5 collectors can be configured) ensure it always has a real-time view of network traffic.

IPFIX (IP Flow Information Export)

IPFIX enables exporting IP flow data in a network for analysis. This provides network administrators with information for accounting, billing, capacity planning, and performance optimization.

VLAN Mirroring (RSPAN)

VLAN mirroring allows traffic from a port on a remote switch to be analyzed locally. Traffic being transmitted or received on the port is duplicated and sent across the network on a special VLAN.

Upstream Forwarding Only (UFO)

UFO lets you manage which ports in a VLAN can communicate with each other, and which only have upstream access to services, for secure multi-user deployment.

Bidirection Forwarding Detection (BFD)

BFD enables fast detection of link failures, so recovery time is minimized. BFD works with static routes, and also alongside BGP and OSPF dynamic routing protocols supporting faster shutdown of neighbor connections if a peer session goes down. When using VRF-Lite, BFD is supported globally or within a domain.

VLAN Translation

Service Providers can provide customer traffic with a unique VLAN-ID for use within the SP's network. .

Enterprises can merge two networks together, without reconfiguring VLAN numbering.

Software Defined Networking (SDN)

OpenFlow enables SDN to build smart applications that unlock value and reduce cost.

Link Monitoring (Linkmon)

Linkmon health monitoring regularly sends probes over key links to gather metrics comprising latency, jitter, and probe loss. This supports pro-active management, and can be used with triggers to automate a change to network configuration in response to the declining health of a monitored link.

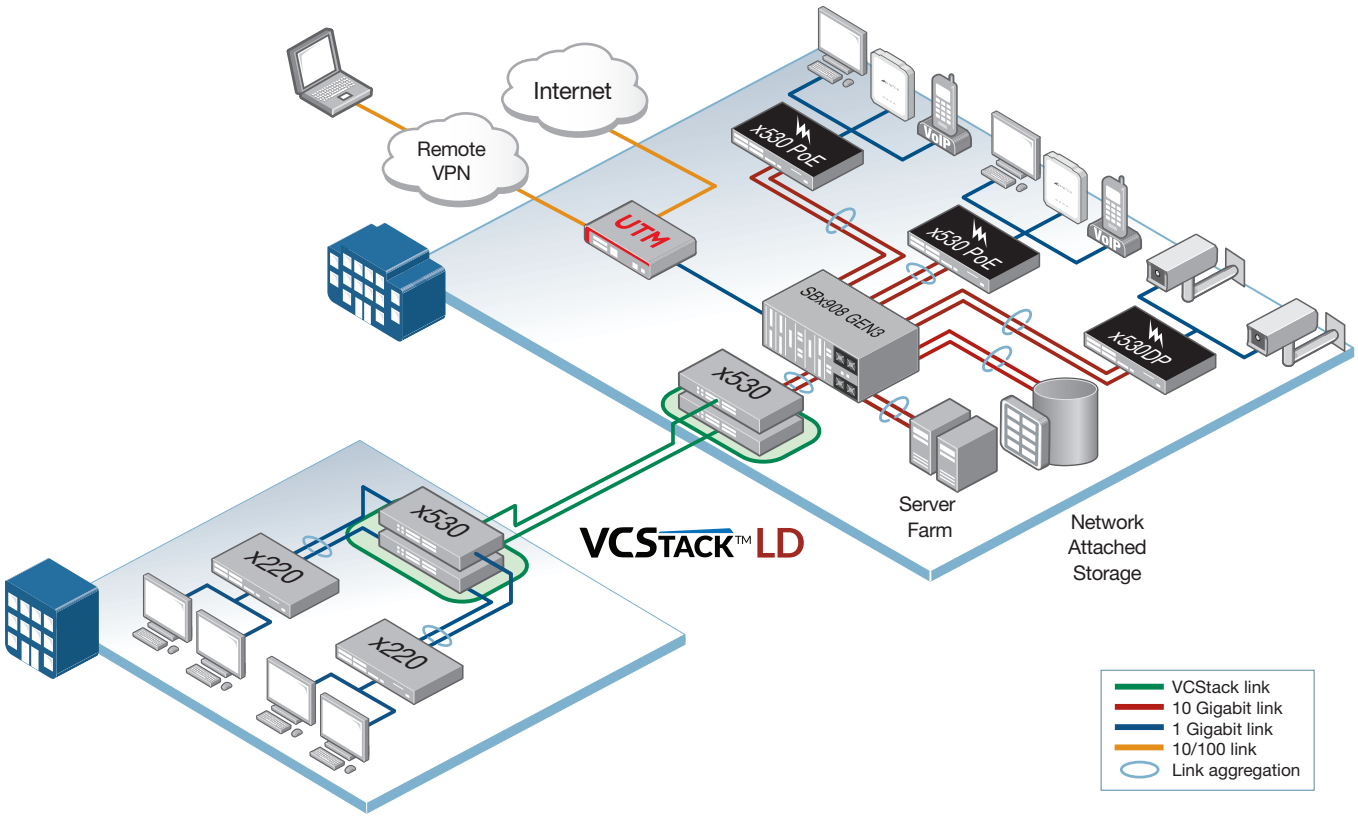
Virtual Extensible LAN (VXLAN) tunnels

VXLAN tunnels let you join two or more L2 networks over an L3 IP network to form a single L2 broadcast domain. VXLAN adds scalability to cloud computing environments. The x530 Series supports static VXLAN tunnels.

NETCONF/RESTCONF

NETCONF/RESTCONF with YANG data modeling provide a standardized way to represent data, and securely configure devices from modern management systems.

Distribution and Edge Connectivity



Resilient distributed switching

Allied Telesis x530 Series switches are ideal for distribution solutions, where resiliency and flexibility are required. In the above diagram, distribution switches utilize long distance VCStack LD to create a single virtual unit out of multiple devices. By using fiber stacking connectivity, units can be kilometers apart—perfect for a distributed environment.

When combined with link aggregation, VCStack provides a solution with no single point of failure that fully utilizes all network bandwidth.

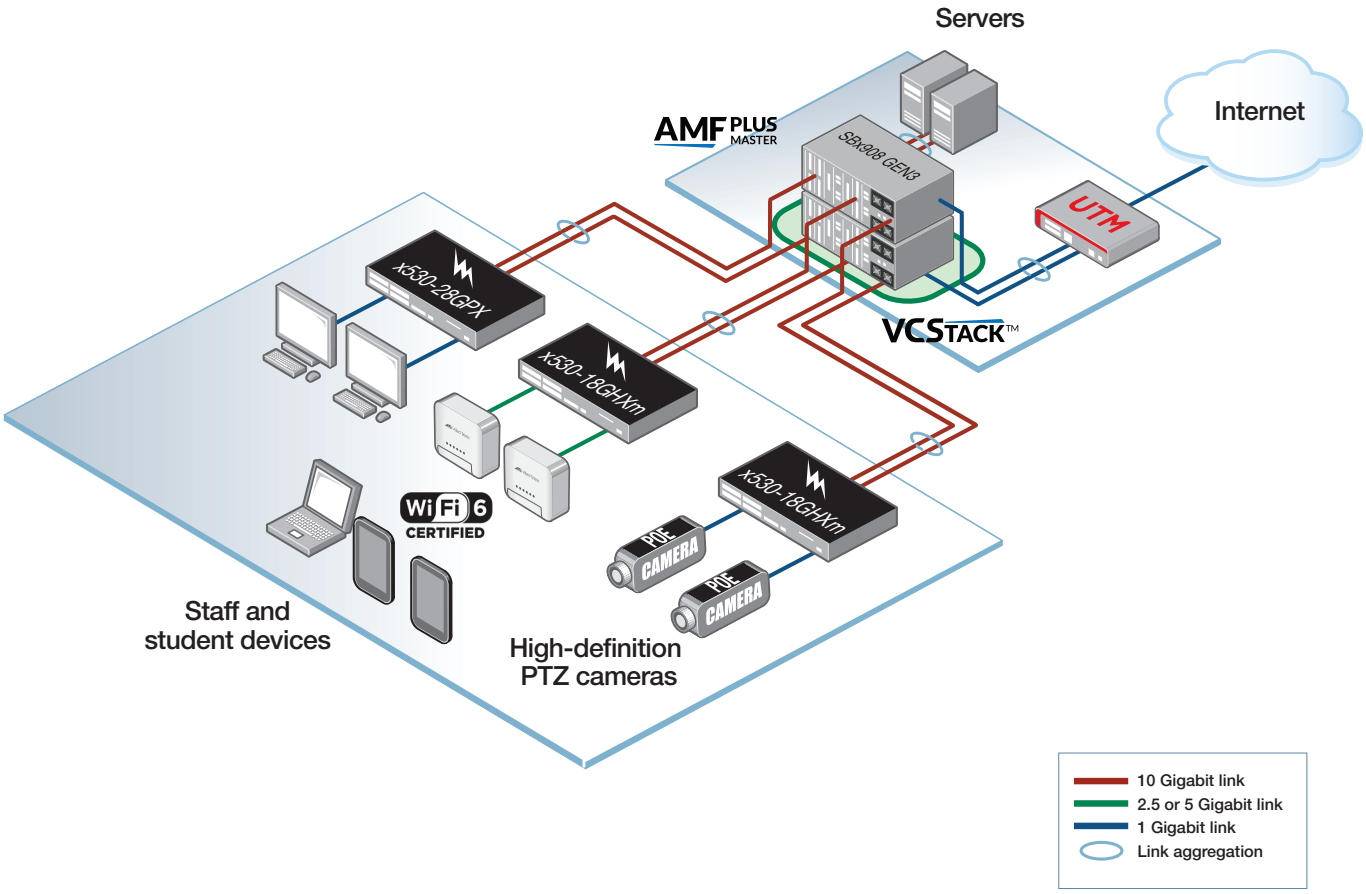
Allied Telesis x530 Series switches support Enterprises and their use of business-critical online resources and applications, with a resilient and reliable distributed solution.

Peace of mind at the network edge

Allied Telesis x530 Series switches are the ideal choice for the network edge where security, resiliency and flexibility are required. In the above diagram, security is enforced using Network Access Control (NAC) combined with tri-authentication to prevent unauthorized users and devices from connecting to the network. Link aggregation is used to provide resiliency back to the core chassis, and to increase available bandwidth over a single link.

The x530 Series can provide 30 Watts of PoE+, or the 60 or 90 Watts of PoE++ per port (depending on model) to connect and power a wide range range of devices.

Multi-Gigabit Connectivity



2.5/5G Multi-Gigabit connectivity

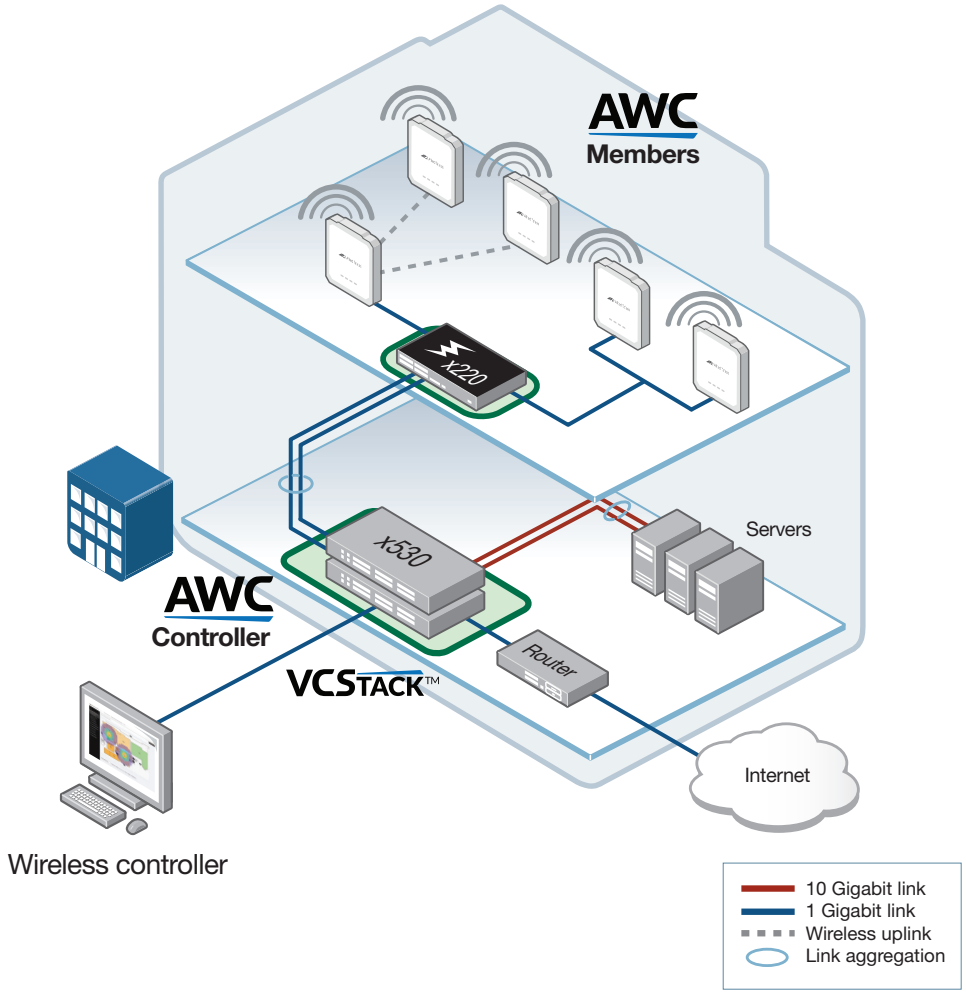
The x530 Series feature Multi-Gigabit ports which enable higher speed connectivity at 2.5 or 5Gbps.

This supports new applications, with the ability to connect and power Wi-Fi 6 APs at 2.5/5Gbps to remove bottlenecks and ensure maximum performance for many wireless user devices.

It also can support network backbone upgrades from 1 to 5 Gbps without the need to replace existing Cat5e and Cat6/6A building cables - enabling an easy high-value infrastructure and performance update.

The GHXm models supply up to 90W per port of Power over Ethernet (PoE++) to enable connecting and powering the latest high-definition Pan, Tilt, Zoom (PTZ) cameras with heaters and blowers.

Integrated wireless LAN management



Allied Telesis Autonomous Wave Controller Allied Telesis Autonomous Wave Controller (AWC) offers solutions for two of the most common problems with Wireless LANs: initial setup complexity and on-going performance degradation. Initial WLAN set-up usually requires a site survey to achieve the best coverage; and performance of WLANs can often change over time as external sources of radio interference reduce coverage and bandwidth. These issues can be time-consuming to identify and resolve.

AWC features an intelligent process that automatically re-calibrates the signal strength and radio channel of each Access Point (AP) for optimal WLAN performance.

The wireless controller is integrated into the Device GUI of the x530 Series and provides an ideal solution for modern enterprise networks, enabling management of both the wired (with AMF plus) and wireless (with AWC) networks to be automated. This reduces both the time and cost of network administration, as well as maximizing network performance for a superior user experience.

Up to 5 TQ Series wireless APs can be managed for free, and up to a further 40 APs (max 45) with feature licenses, available separately.

SPECIFICATIONS

	10/100/1000T (RJ-45) copper ports	100M/1/2.5/5 Gigabit ports	100M/1 Gigabit SFP ports	1/10 Gigabit SFP+ ports	PoE enabled ports	Switching Fabric	Forwarding Rate
x530-10GHXm	-	8	-	2	8	120Gbps	89Mpps
x530-18GHXm	-	16	-	2	16	200Gbps	149Mpps
x530-28GTXm	20	4	-	4	-	160Gbps	119Mpps
x530-28GPXm	20	4	-	4	24	160Gbps	119Mpps
x530-52GTXm	40	8	-	4	-	240Gbps	179Mpps
x530-52GPXm	40	8	-	4	48	240Gbps	179Mpps
x530DP-28GHXm	20	4	-	4	24	160Gbps	119Mpps
x530DP-52GHXm	40	8	-	4	48	240Gbps	179Mpps
x530-28GSX	-	-	24	4	-	128Gbps	95Mpps

Performance

- 40Gbps of stacking bandwidth when using front panel 10G SFP+ ports
- 10KB L2 and 9KB L3 Jumbo frames
- 4094 configurable VLANs
- Up to 16K MAC addresses
- Up to 128 Link Aggregation Groups (LAGS) - any combination of static and dynamic (LACP)
- 1GB DDR3 SDRAM, 256MB NAND flash memory
- Packet buffer memory:
  - 1.5MB (28-port models)
  - 3MB (10, 18, DP-28 models)
  - 4.5MB (52-port models)
  - 6MB (DP-52 model)

Reliability

- Modular AlliedWare Plus operating system
- Internal dual fixed PSUs, providing uninterrupted power and extra reliability. The x530DP models feature dual hot-swappable power supplies
- Full environmental monitoring of PSUs, fans, temperature and internal voltages. SNMP traps alert network managers in case of any failure

Expandability

- Stack up to eight[1] units in a VCStack
- Versatile licensing options for additional features

Flexibility and Compatibility

- SFP ports on the x530-28GSX support Allied Telesis 100Mbps and 1Gbps SFP modules
- 10G SFP+ ports will support any combination of Allied Telesis 1000Mbps SFP and 10GbE SFP+ modules and direct attach cables listed in this document under Ordering Information
- Port speed and duplex configuration can be set manually or by auto-negotiation
- Front-panel SFP+ stacking ports can be configured as 1G/10G Ethernet ports

Diagnostic Tools

- Connectivity Fault Management (CFM) - Continuity Check Protocol (CCP) for use with G.8032 ERPS
- Built-In Self Test (BIST)
- Ping polling and TraceRoute for IPv4 and IPv6

[1] Up to 4 units supported if using 1Gbps ports for stacking

- Optical Digital Diagnostic Monitoring (DDM)
- Find-me device locator
- Automatic link flap detection and port shutdown
- Cable fault locator (TDR)
- Uni-Directional Link Detection (UDLD)
- Active Fiber Monitoring detects tampering on optical links
- Port mirroring
- No limit on mirrored ports
- Up to 7 mirror (analyzer) ports
- VLAN mirroring (RSPAN)

IPv4 Features

- Equal Cost Multi Path (ECMP) routing
- Static unicast and multicast routing for IPv4
- UDP broadcast helper (IP helper)
- Directed broadcast forwarding
- Black hole routing
- DNS relay
- Policy-based routing
- Route redistribution (OSPF, RIP, and BGP)
- Virtual Routing and Forwarding Lite (VRF-Lite) up to 64 domains

IPv6 Features

- Device management over IPv6 networks with SNMPv6, Telnetv6 and SSHv6
- IPv4 and IPv6 dual stack
- IPv6 over IPv4 tunneling (manual configuration only)
- Log to IPv6 hosts with Syslog v6
- NTP client and server
- DNSv6 client, DNSv6 relay
- DHCPv6 server, relay, and client
- Static IPv6 unicast and multicast routing
- IPv6 aware storm protection and QoS
- IPv6 hardware ACLs
- IPv6 Ready certified

Management

- Industry-standard CLI with context-sensitive help
- Built-in text editor and powerful CLI scripting engine
- Comprehensive SNMP MIB support for standards-based device management
- Console management port on the front panel for ease of access
- Event-based triggers allow user-defined scripts to be executed upon selected system events
- Eco-friendly mode allows ports and LEDs to be disabled to save power
- USB interface allows software release files, configurations and other files to be stored for backup and distribution to other devices
- Front panel 7-segment LED provides at-a-glance status and fault information
- Autonomous Management Framework plus (AMF Plus) enables powerful centralized management and zero-touch device installation and recovery
- Try AMF Plus for free with the built-in Starter license (includes network management and automation features, but not Vista Manager AMF Plus features)
- Web-based Graphical User Interface (GUI)
- NETCONF/RESTCONF northbound interface with YANG data modelling

Quality of Service

- IP precedence and DiffServ marking based on Layer 2, 3 and 4 headers
- Queue scheduling options for strict priority, weighted round robin or mixed scheduling
- Taildrop for queue congestion control
- Extensive remarking capabilities
- Policy-based QoS based on VLAN, port, MAC and general packet classifiers
- Limit bandwidth per port or per traffic class down to 64kbps
- 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port
- Policy-based storm protection
- Wirespeed traffic classification with low latency essential for VoIP and real-time streaming media applications
- Enhanced Transmission Selection (ETS)

Resiliency Features

- EPSRing (Ethernet Protection Switched Rings) with SuperLoop Protection (SLP) and enhanced recovery
- EPSR Master or transit node deployment
- Media Redundancy Protocol (MRP)
- Bi-directional Forwarding Detection (BFD)
- STP root guard

- Loop protection: thrash limiting and loop detection
- Dynamic link failover (host attach)
- Control Plane Prioritization (CPP) ensures the CPU always has sufficient bandwidth to process network control traffic
- PVST+ compatibility mode
- VCStack fast failover minimizes network disruption
- SFP+ stacking ports can be configured as 10G Ethernet ports
- Long-Distance VCStack using fiber modules (VCStack-LD)
- BPDU forwarding

Security Features

- Federal Information Processing Standard Publication 140-2 (FIPS 140-2) certified
- MAC address filtering and MAC address lock-down
- Learn limits (intrusion detection) for single ports or LAGs
- Access Control Lists (ACLs) based on layer 3 and 4 headers
- Dynamic ACLs assigned via port authentication
- ACL Groups enable multiple hosts/ports to be included in a single ACL, reducing configuration
- Private VLANs provide security and port isolation for multiple customers using the same VLAN
- Secure Copy (SCP)
- BPDU protection
- Network Access and Control (NAC) features manage endpoint security
- Dynamic VLAN assignment
- DoS attack blocking and virus throttling
- Tri-authentication: MAC-based, web-based and IEEE 802.1x
- DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
- Strong password security and encryption
- Auth fail and guest VLANs
- Secure File Transfer Protocol (SFTP) client
- Simple Certificate Enrollment Protocol (SCEP) supports secure management
- Authentication, Authorisation and Accounting (AAA)
- Bootloader can be password protected for device security
- Configurable ACLs for management traffic
- RADIUS group selection per VLAN or port
- RADIUS Proxy

Environmental Specifications

- Operating temperature range:
  0°C to 50°C (32°F to 122°F)
  0°C to 65°C (32°F to 149°F) (x530DP models)
- Storage temperature range:
  -25°C to 70°C (-13°F to 158°F)
- Operating relative humidity range:
  5% to 90% non-condensing
- Storage relative humidity range:
  5% to 95% non-condensing
- Operating altitude:
  3,048 meters maximum (10,000 ft)

Software Defined Networking (SDN)

- OpenFlow v1.3 with support for encryption, connection interruption and inactivity probe

Electrical Approvals and Compliances

- EMC: EN55032 class A, FCC class A, VCCI class A, ICES-003 class A
- Immunity: EN55024, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only

Safety

- Standards: UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1
- Certification: UL, cUL, FIPS 140-2

Restrictions on Hazardous Substances (RoHS) Compliance

- EU RoHS compliant
- China RoHS compliant

Physical Specifications

	Width	Depth	Height	Mounting	Unpackaged Weight	Packaged Weight	Packaged dimensions
x530-10GHXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	6.6 kg (14.55 lb)	8.8 kg (19.40 lb)	575 x 555 x 155 mm (22.64 x 21.85 x 6.10 in)
x530-18GHXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	6.7 kg (14.78 lb)	8.9 kg (19.62 lb)	557 x 548 x 153 mm (21.93 x 21.57 x 6.02 in)
x530-28GTXm	441 mm (17.36 in)	323 mm (12.72 in)	44 mm (1.73 in)	Rack-mount	4.8 kg (10.58 lb)	6.8 kg (14.99 lb)	563 x 534 x 128 mm (22.16 x 21.02 x 5.04 in)
x530-28GPXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	6.3 kg (13.09 lb)	8.3 kg (18.29 lb)	563 x 534 x 128 mm (22.16 x 21.02 x 5.04 in)
x530-52GTXm	441 mm (17.36 in)	323 mm (12.72 in)	44 mm (1.73 in)	Rack-mount	5.3 kg (11.60 lb)	7.3 kg (16.00 lb)	563 x 534 x 128 mm (22.16 x 21.02 x 5.04 in)
x530-52GPXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	6.9 kg (15.02 lb)	8.9 kg (19.06 lb)	563 x 632 x 128 mm (22.16 x 24.88 x 5.04 in)
x530DP-28GHXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	5.4 kg (11.82 lb)	7.5 kg (16.49 lb)	557 x 548 x 153 mm (21.93 x 21.57 x 6.02 in)
x530DP-52GHXm	441 mm (17.36 in)	421 mm (16.57 in)	44 mm (1.73 in)	Rack-mount	5.6 kg (12.26 lb)	7.7 kg (17.02 lb)	557 x 548 x 153 mm (21.93 x 21.57 x 6.02 in)
x530-28GSX	441 mm (17.36 in)	323 mm (12.72 in)	44 mm (1.73 in)	Rack-mount	5.2 kg (11.46 lb)	7.2 kg (15.87 lb)	563 x 534 x 128 mm (22.16 x 21.02 x 5.04 in)-

Power and Noise Characteristics

	PSUs installed	No PoE Load			Full PoE+ Load			Max PoE Power (W)	PoE sourcing ports			
		Max Power Consumption (W)	Max Heat Dissipation (BTU/h)	Noise (dBA)	Max Power Consumption (W)	Max Heat Dissipation (BTU/h)	Noise (dBA)		PoE (15.4W)	PoE+ (30W)	PoE++ (60W)	PoE++ (90W)
x530-10GHXm	Internal	73	249	37	970	3309	37	720	8	8	8	8
x530-18GHXm	Internal	130	443	37	1400	4776	37	1000	16	16	16	11
x530-28GTXm	Internal	55	188	42	-	-	-	-	-	-	-	-
x530-28GPXm	Internal	77	264	44	900	614	44	740	24	24	-	-
x530-52GTXm	Internal	85	290	42	-	-	-	-	-	-	-	-
x530-52GPXm	Internal	88	300	42	970	661	42	740	48	24	-	-
x530DP-28GHXm	PWR150 x 1	77	263	51	-	-	-	-	-	-	-	-
	PWR150 x 2	97	331	54	-	-	-	-	-	-	-	-
	PWR250 v2 x 1*	70	240	54	-	-	-	-	-	-	-	-
	PWR250 v2 x 2*	87	300	56	-	-	-	-	-	-	-	-
	PWR250-80 x 1	82	280	51	-	-	-	-	-	-	-	-
	PWR250-80 x 2	110	375	54	-	-	-	-	-	-	-	-
	PWR800, PWR800 v2 x 1**	87	297	50	500	1706	50	370	24	12	6	
	PWR800, PWR800 v2 x 2**	120	409	52	980	3344	52	740	24	24	12	
	PWR1200, PWR1200 v2 x 1	99	338	60	980	3344	60	740	24	24	12	
	PWR1200, PWR1200 v2 x 2	140	478	63	1840	6279	63	1480	24	24	24	
x530DP-52GHXm	PWR150 x 1	110	375	51	-	-	-	-	-	-	-	-
	PWR150 x 2	130	444	54	-	-	-	-	-	-	-	-
	PWR250 v2 x 1*	110	350	54	-	-	-	-	-	-	-	-
	PWR250 v2 x 2*	120	410	56	-	-	-	-	-	-	-	-
	PWR250-80 x 1	120	409	51	-	-	-	-	-	-	-	-
	PWR250-80 x 2	140	478	54	-	-	-	-	-	-	-	-
	PWR800, PWR800 v2 x 1**	130	444	50	550	1877	50	370	24	12	6	
	PWR800, PWR800 v2 x 2**	160	546	52	1020	3481	52	740	48	24	12	
	PWR1200, PWR1200 v2 x 1	140	478	60	1010	3447	60	740	48	24	12	
	PWR1200, PWR1200 v2 x 2	170	580	63	1930	6586	63	1480	48	48	24	
x530-28GSX	Internal	62	212	36	-	-	-	-	-	-	-	-

* Available in APAC region only
** PWR800 and PWR800 v2 cannnot be used together in the same switch
Noise: tested to ISO7779; front bystander position

Latency (microsecoonds)

	Port Speed (µs)					
	10Mbps	100Mbps	1Gbps	2.5Gbps	5Gbps	10Gbps
x530-10GHXm	-	12.74	5.05	7.73	5.57	2.16
x530-18GHXm	-	11.61	5.29	7.61	5.61	2.05
x530-28GTXm	30.12	7.38	4.05	7.74	5.28	1.63
x530-28GPXm	30.12	7.38	4.05	7.74	5.28	1.63
x530-52GTXm	30.77	8.79	5.41	9.27	6.69	1.63
x530-52GPXm	30.77	8.79	5.41	9.27	6.69	1.63
x530DP-28GHXm	30.12	7.38	4.05	7.74	5.28	1.63
x530DP-52GHXm	30.77	8.79	5.41	9.27	6.69	1.63
x530-28GSX	-	12.20	4.02	-	-	3.11

STANDARDS & PROTOCOLS

AlliedWare Plus Operating System

Version 5.5.6

Authentication

RFC 1321 MD5 Message-Digest algorithm
RFC 1828 IP authentication using keyed MD5

Border Gateway Protocol (BGP)

BGP dynamic capability
BGP outbound route filtering
RFC 1772 Application of the Border Gateway Protocol (BGP) in the Internet
RFC 1997 BGP communities attribute
RFC 2385 Protection of BGP sessions via the TCP MD5 signature option
RFC 2439 BGP route flap damping
RFC 2545 Use of BGP-4 multiprotocol extensions for IPv6 inter-domain routing
RFC 2858 Multiprotocol extensions for BGP-4
RFC 2918 Route refresh capability for BGP-4
RFC 3392 Capabilities advertisement with BGP-4
RFC 3882 Configuring BGP to block Denial-of-Service (DoS) attacks
RFC 4271 Border Gateway Protocol 4 (BGP-4)
FC 4360 BGP extended communities
RFC 4456 BGP route reflection - an alternative to full mesh iBGP
RFC 4724 BGP graceful restart
RFC 4893 BGP support for four-octet AS number space
RFC 5065 Autonomous system confederations for BGP

Cryptographic Algorithms

FIPS Approved Algorithms
Encryption (Block Ciphers):
AES (ECB, CBC, CFB and OFB Modes)
3DES (ECB, CBC, CFB and OFB Modes)
Block Cipher Modes:
CCM
CMAC
GCM
XTS
Digital Signatures & Asymmetric Key Generation:
DSA
ECDSA
RSA
Secure Hashing:
SHA-1
SHA-2 (SHA-224, SHA-256, SHA-384. SHA-512)
Message Authentication:
HMAC (SHA-1, SHA-2(224, 256, 384, 512)
Random Number Generation:
DRBG (Hash, HMAC and Counter)

Non FIPS Approved Algorithms
RNG (AES128/192/256)
DES
MD5

Encryption (management traffic only)

FIPS 180-1 Secure Hash standard (SHA-1)
FIPS 186 Digital signature standard (RSA)
FIPS 46-3 Data Encryption Standard (DES and 3DES)

Ethernet Standards

IEEE 802.2 Logical Link Control (LLC)
IEEE 802.3 Ethernet
IEEE 802.3ab1000BASE-T
IEEE 802.3ae10 Gigabit Ethernet
IEEE 802.3af Power over Ethernet (PoE)
IEEE 802.3at Power over Ethernet up to 30W (PoE+)
IEEE 802.3azEnergy Efficient Ethernet (EEE)
IEEE 802.3bt Power over Ethernet up to 90W (PoE++)
IEEE 802.3bz2.5GBASE-T and 5GBASE-T ("multi-gigabit")
IEEE 802.3u 100BASE-X
IEEE 802.3x Flow control - full-duplex operation
IEEE 802.3z 1000BASE-X

Ethernet Alliance

Gen2 PoE Class 6 Certified[2]
Gen2 PoE Class 8 Certified[3]

IPv4 Features

RFC 768 User Datagram Protocol (UDP)
RFC 791 Internet Protocol (IP)
RFC 792 Internet Control Message Protocol (ICMP)
RFC 793 Transmission Control Protocol (TCP)
RFC 826 Address Resolution Protocol (ARP)
RFC 894 Standard for the transmission of IP datagrams over Ethernet networks
RFC 919 Broadcasting Internet datagrams
RFC 922 Broadcasting Internet datagrams in the presence of subnets
RFC 932 Subnetwork addressing scheme
RFC 950 Internet standard subnetting procedure
RFC 951 Bootstrap Protocol (BootP)
RFC 1027 Proxy ARP
RFC 1035 DNS client
RFC 1042 Standard for the transmission of IP datagrams over IEEE 802 networks
RFC 1071 Computing the Internet checksum
RFC 1122 Internet host requirements
RFC 1191 Path MTU discovery
RFC 1256 ICMP router discovery messages
RFC 1518 An architecture for IP address allocation with CIDR
RFC 1519 Classless Inter-Domain Routing (CIDR)
RFC 1542 Clarifications and extensions for BootP
RFC 1591 Domain Name System (DNS)
RFC 1812 Requirements for IPv4 routers
RFC 1918 IP addressing
RFC 2581 TCP congestion control

IPv6 Features

RFC 1981 Path MTU discovery for IPv6
RFC 2460 IPv6 specification
RFC 2464 Transmission of IPv6 packets over Ethernet networks
RFC 2711 IPv6 router alert option
RFC 3484 Default address selection for IPv6
RFC 3587 IPv6 global unicast address format
RFC 3596 DNS extensions to support IPv6
RFC 4007 IPv6 scoped address architecture
RFC 4193 Unique local IPv6 unicast addresses
RFC 4213 Transition mechanisms for IPv6 hosts and routers
RFC 4291 IPv6 addressing architecture
RFC 4443 Internet Control Message Protocol (ICMPv6)
RFC 4861 Neighbor discovery for IPv6
RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC)
RFC 5014 IPv6 socket API for source address selection
RFC 5095 Deprecation of type 0 routing headers in IPv6
RFC 5175 IPv6 Router Advertisement (RA) flags option
RFC 6105 IPv6 Router Advertisement (RA) guard

Management

AT Enterprise MIB including AMF Plus MIB and SNMP traps
Optical DDM MIB
SNMPv1, v2c and v3
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 1155 Structure and identification of management information for TCP/IP-based Internets
RFC 1157 Simple Network Management Protocol (SNMP)
RFC 1212 Concise MIB definitions
RFC 1213 MIB for network management of TCP/IP-based Internets: MIB-II
RFC 1215 Convention for defining traps for use with the SNMP
RFC 1227 SNMP MUX protocol and MIB
RFC 1239 Standard MIB
RFC 1724 RIPv2 MIB extension
RFC 2578 Structure of Management Information v2 (SMIv2)
RFC 2579 Textual conventions for SMIv2
RFC 2580 Conformance statements for SMIv2
RFC 2674 Definitions of managed objects for bridges with traffic classes, multicast filtering and VLAN extensions
RFC 2741 Agent extensibility (AgentX) protocol
RFC 2787 Definitions of managed objects for VRRP
RFC 2819 RMON MIB (groups 1,2,3 and 9)
RFC 2863 Interfaces group MIB
RFC 3176 sFlow: a method for monitoring traffic in switched and routed networks
RFC 3411 An architecture for describing SNMP management frameworks
RFC 3412 Message processing and dispatching for the SNMP
RFC 3413 SNMP applications
RFC 3414 User-based Security Model (USM) for SNMPv3
RFC 3415 View-based Access Control Model (VACM) for SNMP
RFC 3416 Version 2 of the protocol operations for the SNMP
RFC 3417 Transport mappings for the SNMP
RFC 3418 MIB for SNMP
RFC 3621 Power over Ethernet (PoE) MIB

[2] For x530DP-28/52GHXm
[3] For x530-10/18GHXm

RFC 3635 Definitions of managed objects for the Ethernet-like interface types
RFC 3636 IEEE 802.3 MAU MIB
RFC 4022 MIB for the Transmission Control Protocol TCP)
RFC 4113 MIB for the User Datagram Protocol (UDP)
RFC 4188 Definitions of managed objects for bridges
RFC 4292 IP forwarding table MIB
RFC 4293 MIB for the Internet Protocol (IP)
RFC 4318 Definitions of managed objects for bridges with RSTP
RFC 4502 RMON 2
RFC 4560 Definitions of managed objects for remote ping, traceroute and lookup operations
RFC 5424 The Syslog protocol
RFC 6527 Definitions of managed objects for VRRPv3
RFC 7011 IPFIX: a method of exporting IP flow data in a network for analysis

Multicast Support

Bootstrap Router (BSR) mechanism for PIM-SM
IGMP query solicitation
IGMP snooping (IGMPv1, v2 and v3)
IGMP snooping fast-leave
IGMP/MLD multicast forwarding (IGMP/MLD proxy)
MLD snooping (MLDv1 and v2)
PIM and PIM SSM for IPv6
RFC 1112 Host extensions for IP multicasting (IGMPv1)
RFC 2236 Internet Group Management Protocol v2 (IGMPv2)
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2715 Interoperability rules for multicast routing protocols
RFC 3306 Unicast-prefix-based IPv6 multicast addresses
RFC 3376 IGMPv3
RFC 3618 Multicast Source Discovery Protocol (MSDP)
RFC 3810 Multicast Listener Discovery v2 (MLDv2) for IPv6
RFC 3956 Embedding the Rendezvous Point (RP) address in an IPv6 multicast address
RFC 3973 PIM Dense Mode (DM)
RFC 4541 IGMP and MLD snooping switches
RFC 4601 Protocol Independent Multicast - Sparse Mode (PIM-SM): protocol specification (revised)
RFC 4604 Using IGMPv3 and MLDv2 for source-specific multicast
RFC 4607 Source-specific multicast for IP

Open Shortest Path First (OSPF)

OSPF link-local signaling
OSPF MD5 authentication
Out-of-band LSDB resync
RFC 1245 OSPF protocol analysis
RFC 1246 Experience with the OSPF protocol
RFC 1370 Applicability statement for OSPF
RFC 1765 OSPF database overflow
RFC 2328 OSPFv2
RFC 2370 OSPF opaque LSA option
RFC 2740 OSPFv3 for IPv6
RFC 3101 OSPF Not-So-Stubby Area (NSSA) option
RFC 3509 Alternative implementations of OSPF area border routers
RFC 3623 Graceful OSPF restart
RFC 3630 Traffic engineering extensions to OSPF
RFC 4552 Authentication/confidentiality for OSPFv3
RFC 5329 Traffic engineering extensions to OSPFv3
RFC 5340 OSPFv3 for IPv6 (partial support)

Quality of Service (QoS)

IEEE 802.1p Priority tagging
IEEE 802.1Qaz Enhanced Transmission Selection (ETS)
RFC 2211 Specification of the controlled-load network element service
RFC 2474 DiffServ precedence for eight queues/port
RFC 2475 DiffServ architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2697 A single-rate three-color marker
RFC 2698 A two-rate three-color marker
RFC 3246 DiffServ Expedited Forwarding (EF)

Resiliency Features

IEC61439-2 Media Redundancy Protocol (MRP)
ITU-T G.8032 / Y.1344 Ethernet Ring Protection Switching (ERPS)
IEEE 802.1ag CFM Continuity Check Protocol (CCP)
IEEE 802.1AX Link aggregation (static and LACP)
IEEE 802.1D MAC bridges
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
IEEE 802.3ad Static and dynamic link aggregation
RFC 5798 Virtual Router Redundancy Protocol version 3 (VRRPv3) for IPv4 and IPv6
RFC5880 Bidirectional Forwarding Detection (BFD)

Routing Information Protocol (RIP)

RFC 1058 Routing Information Protocol (RIP)
RFC 2080 RIPng for IPv6
RFC 2081 RIPng protocol applicability statement
RFC 2082 RIP-2 MD5 authentication
RFC 2453 RIPv2

Security Features

SSH remote login
SSLv2 and SSLv3
TACACS+ Accounting, Authentication and Authorisation (AAA)
IEEE 802.1X Authentication protocols (TLS, TTLS, PEAP and MD5)
IEEE 802.1X Multi-supplicant authentication
IEEE 802.1X Port-based network access control
RFC 2560 X.509 Online Certificate Status Protocol (OCSP)
RFC 2818 HTTP over TLS ("HTTPS")
RFC 2865 RADIUS authentication
RFC 2866 RADIUS accounting
RFC 2868 RADIUS attributes for tunnel protocol support
RFC 2986 PKCS #10: certification request syntax specification v1.7
RFC 3546 Transport Layer Security (TLS) extensions
RFC 3579 RADIUS support for Extensible Authentication Protocol (EAP)
RFC 3580 IEEE 802.1x RADIUS usage guidelines
RFC 3748 PPP Extensible Authentication Protocol (EAP)
RFC 4251 Secure Shell (SSHv2) protocol architecture
RFC 4252 Secure Shell (SSHv2) authentication protocol
RFC 4253 Secure Shell (SSHv2) transport layer protocol
RFC 4254 Secure Shell (SSHv2) connection protocol
RFC 5176 RADIUS CoA (Change of Authorization)
RFC 5280 X.509 certificate and Certificate Revocation List (CRL) profile
RFC 5425 Transport Layer Security (TLS) transport mapping for Syslog
RFC 5656 Elliptic curve algorithm integration for SSH
RFC 6125 Domain-based application service identity within PKI using X.509 certificates with TLS
RFC 6614 Transport Layer Security (TLS) encryption for RADIUS
RFC 6668 SHA-2 data integrity verification for SSH
RFC 8446 Transport Layer Security (TLS) v1.3
RFC 8894 Simple Certificate Enrollment Protocol (SCEP)

Services

RFC 854 Telnet protocol specification
RFC 855 Telnet option specifications
RFC 857 Telnet echo option
RFC 858 Telnet suppress go ahead option
RFC 1091 Telnet terminal-type option
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 1985 SMTP service extension
RFC 2049 MIME
RFC 2131 DHCPv4 (server, relay and client)
RFC 2132 DHCP options and BootP vendor extensions
RFC 2616 Hypertext Transfer Protocol - HTTP/1.1
RFC 2821 Simple Mail Transfer Protocol (SMTP)
RFC 2822 Internet message format
RFC 3046 DHCP relay agent information option (DHCP option 82)
RFC 3315 DHCPv6 (server, relay and client)
RFC 3633 IPv6 prefix options for DHCPv6
RFC 3646 DNS configuration options for DHCPv6
RFC 3993 Subscriber-ID suboption for DHCP relay agent option
RFC 4330 Simple Network Time Protocol (SNTP) version 4
RFC 5905 Network Time Protocol (NTP) version 4

VLAN Support

Generic VLAN Registration Protocol (GVRP)
IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q)
IEEE 802.1Q Virtual LAN (VLAN) bridges
IEEE 802.1v VLAN classification by protocol and port
IEEE 802.3ac VLAN tagging
Static VXLAN tunnels (part of RFC 7348)

Voice over IP (VoIP)

LLDP-MED ANSI/TIA-1057
Voice VLAN

Feature Licenses

	Description	Includes	Stack Licensing
AT-FL-x530-01	x530 Premium license	■ OSPFv2 (12,000 routes) ■ BGP4/4+ (5,000 routes) ■ PIMv4-SM, DM and SSM v4 ■ VLAN double tagging (Q-in-Q) ■ VLAN translation ■ RIPng (5,000 routes) ■ OSPFv3 (6,000 routes) ■ MLDv1/v2 ■ PIM-SMv6/SSMv6 ■ RADIUS-Full ■ VRF-Lite (64 domains) ■ UDLD ■ VXLAN ■ PTP Transparent Mode	■ One license per stack member
AT-SW-APM10-1YR[5,6]	Cumulative AMF Plus Master license	■ AMF Plus Master license for up to 10 nodes for 1 year	■ One license per stack
AT-SW-APM10-5YR[5,6]	Cumulative AMF Plus Master license	■ AMF Plus Master license for up to 10 nodes for 5 years	■ One license per stack
AT-FL-x530-8032	ITU-T G.8032 license	■ G.8032 ring protection ■ Ethernet CFM	■ One license per stack member
AT-FL-x530-CPOE	Continuous PoE license	■ Continuous PoE power for GPX/GHX models	■ One license per stack member
AT-FL-x530-MSTK	Mixed stacking license	■ Stack x530 with x530L switches	■ One license per stack member
AT-FL-x530-OF13-1YR	OpenFlow license	■ OpenFlow v1.3 for 1 year	■ Not supported on a stack
AT-FL-x530-OF13-5YR	OpenFlow license	■ OpenFlow v1.3 for 5 years	■ Not supported on a stack
AT-SW-AWC10-1YR[7]	Cumulative AWC license	■ Autonomous Wave Control (AWC) license for up to 10 access points for 1 year	■ One license per stack
AT-SW-AWC10-5YR[7]	Cumulative AWC license	■ Autonomous Wave Control (AWC) license for up to 10 access points for 5 years	■ One license per stack

[5] From AW+ version 5.5.2-2 onwards, AMF Plus licenses provide all standard AMF network management and automation features. They also enable the AMF Plus intent-based networking features in Vista Manager EX (from version 3.10.1 onwards)
[6] Purchase one license per 10 nodes (up to 40 nodes maximum)
[7] 5 APs can be managed for free. Purchase one license per 10 additional APs (up to 40 APs maximum)

ORDERING INFORMATION

19 inch rack-mount brackets included

AT-x530-10GHXm-xx[8, 9]	8-port 100M/1/2.5/5G PoE++ stackable switch with 2 SFP+ ports and 2 fixed power supplies
AT-x530-18GHXm-xx[8, 9]	16-port 100M/1/2.5/5G PoE++ stackable switch with 2 SFP+ ports and a 2 fixed power supplies
AT-x530-28GTXm-xx[8, 9]	20-port 10/100/1000T and 4-port 100M/1/2.5/5G stackable switch with 4 SFP+ ports and 2 fixed power supplies
AT-x530-28GPXm-xx[8, 9]	20-port 10/100/1000T and 4-port 100M/1/2.5/5G PoE+ stackable switch with 4 SFP+ ports and 2 fixed power supplies
AT-x530-52GTXm-xx[8, 9]	40-port 10/100/1000T and 8-port 100M/1/2.5/5G stackable switch with 4 SFP+ ports and 2 fixed power supplies
AT-x530-52GPXm-xx[8, 9]	40-port 10/100/1000T and 8-port 100M/1/2.5/5G PoE+ stackable switch with 4 SFP+ ports and 2 fixed power supplies
AT-x530DP-28GHXm[9]	20-port 10/100/1000T and 4-port 100M/1/2.5/5G PoE++ stackable switch with 4 SFP+ ports and dual hotswap PSU bays
AT-x530DP-52GHXm[9]	40-port 10/100/1000T and 8-port 100M/1/2.5/5G PoE++ stackable switch with 4 SFP+ ports and dual hotswap PSU bays
AT-x530-28GSX-xx[8, 9]	24-port 100/1000X SFP stackable switch with 4 SFP+ ports and 2 fixed power supplies
AT-RKMT-SL01	Slide Rack Mount Kit for AT-x530DP-28GHXm/52GHXm
AT-BRKT-J22	Wall-mount kit for x530-28GTXm and 52GTXm
AT-VT-Kit3	Management Cable (USB to Serial Console)
Power Supplies and Fans for x530DP models	
AT-PWR150-xx[9]	150W system power supply
AT-PWR150R-xx[9]	150 system power supply (reverse airflow)
AT-PWR250R-80[9]	250W DC system power supply
AT-PWR250 v2-xx[9,10]	250W system power supply
AT-PWR250R v2-xx[9,10]	250W system power supply (reverse airflow)
AT-PWR800-xx[9,11]	800W system and PoE power supply
AT-PWR800 v2-xx[9,11]	800W system and PoE power supply
AT-PWR1200-xx[9]	1200W system and PoE power supply
AT-PWR1200 v2-xx[9]	1200W system and PoE power supply
AT-FAN10	Spare hot-swappable fan module (normal airflow)
AT-FAN10R	Hot-swappable fan module (reverse airflow)

[8] Where xx = 10 for US power cord
30 for UK power cord
40 for AU power cord
50 for EU power cord

[9] Please contact your sales representative for availability of Trade Act Agreement (TAA) compliant models, and regarding other local certifications like TEC/BIS (India), and BSMI (Taiwan)

[10] Available in the APAC region only

[11] PWR800 and PWR800 v2 cannot be used together in the same switch

Accessories

10GbE SFP+ Modules Any 10G SFP+ module or cable can be used for stacking with the front panel 10G ports	
AT-SP10SR	10GSR 850 nm short-haul, 300 m with MMF
AT-SP10SR/I	10GSR 850 nm short-haul, 300 m with MMF industrial temperature (only on 10GHXm and 18GHXm)
AT-SP10ER40a/I	10GER 1310 nm long-haul, 40 km with SMF industrial temperature
AT-SP10ZR80/I	10GER 1550 nm long-haul, 80 km with SMF industrial temperature
AT-SP10TM/I	1G/2.5G/5G/10G, 100 m copper, industrial temperature, TAA[9]
AT-SP10BD10/I-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 10 km industrial temperature, TAA[9]
AT-SP10BD10/I-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 10 km industrial temperature, TAA[9]
AT-SP10BD20-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 20 km, TAA[9]
AT-SP10BD20-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 20 km, TAA[9]
AT-SP10BD40/I-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 40 km industrial temperature, TAA[9]
AT-SP10BD40/I-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 40 km industrial temperature, TAA[9]
AT-SP10LRa/I	10GLR 1310 nm medium-haul, 10 km with SMF industrial temperature
10GbE SFP+ Cables	
AT-SP10TW1	1 meter SFP+ direct attach cable
AT-SP10TW3	3 meter SFP+ direct attach cable
1000Mbps SFP Modules	
AT-SPTXc	100 m, 10/100/1000T SFP, RJ-45
AT-SPTX/I	100 m, 10/100/1000T SFP, RJ-45, Industrial temperature
AT-SPSX	1000SX GbE multi-mode 850 nm fiber up to 550 m
AT-SPEX	1000X GbE multi-mode 1310 nm fiber up to 2 km
AT-SPZX80	1000ZX GbE single-mode 1550 nm fiber up to 80 km
AT-SPZX120/I	1000ZX GbE single-mode 1550 nm fiber up to 120 km industrial temperature
AT-SPSX/I	1000SX GbE multi-mode 850 nm fiber up to 550 m industrial temperature
AT-SPLX10a	1000LX GbE single-mode 1310 nm fiber up to 10 km
AT-SPLX10a/I	1000LX GbE single-mode 1310 nm fiber up to 10 km industrial temperature
AT-SPBD10-13	1000LX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 10 km
AT-SPBD10-14	1000LX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 10 km
AT-SPBD20-13/I	1000BX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 20 km industrial temperature
AT-SPBD20-14/I	1000BX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 20 km industrial temperature
AT-SPBD40-13/I	1000LX GbE single-mode Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 40 km, industrial temperature
AT-SPBD40-14/I	1000LX GbE single-mode Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 40 km, industrial temperature
AT-SPLX40	1000LX GbE single-mode 1310 nm fiber up to 40 km
100Mbps SFP Modules Only supported on the x530-28SXG	
AT-SPFX/2	100FX multi-mode 1310 nm fiber up to 2 km
AT-SPFX/15	100FX single-mode 1310 nm fiber up to 15 km
AT-SPFX/30	100FX single-mode 1310 nm fiber up to 30 km
AT-SPFXBD-LC-13	100BX Bi-Di (1310 nm Tx, 1550 nm Rx) fiber up to 10 km
AT-SPFXBD-LC-15	100BX Bi-Di (1550 nm Tx, 1310 nm Rx) fiber up to 10 km

[9] Trade Act Agreement compliant (TAA)