

**intelbras**

# **Intelbras SC 7530 Series High-End Multiservice Routing Switch**



## Product overview

Intelbras SC 7530 series is a family of high-end multiservice routing switches intended for multiservice networks. It runs an operating system that boasts virtualization technologies such as Intelligent Resilient Framework 2 (IRF 2) and is fully compatible with 40G/100G Ethernet standards. It uses MPUs in redundancy and delivers a variety of high-availability features such as NSF, ISSU, graceful restart, and RRPP. Along with improved performance and efficiency, it maximizes the system uptime, significantly reducing the TCO for customers.

Intelbras SC 7530 series includes the SC 7530-10E, SC 7530-6E, SC 7530-3E, and SC 7530-3E-M models. These models can be used in various network environments such as metropolitan area networks and campus network core and aggregation layers, to deliver customers a wide range of solutions, including the security and switching integrated solution and wired and wireless unified solution.

The SC 7530 switch series contains the following models:

**Product Photograph**





## Features and benefits

### IRF 2

With the IRF 2 technology embedded in the operating system, Intelbras SC 7530 keeps pace with the

continually evolving data center technologies. IRF 2 virtualizes multiple physical devices at the same layer into one virtual fabric to provide data center class availability and scalability. IRF virtualization technology offers processing power, interaction, unified management, and uninterrupted maintenance of multiple devices.

IRF 2 has not only become the main technology to improve performance and enable virtualization for data center switching devices but also increases the profit margins of customers thanks to the high service availability and uninterrupted upgrade and scaling it brings to traditional network applications.

IRF2 can be implemented over a distance of 80 km (49.71 miles) by using ordinary 10-GE optical fibers.

### High IPv4/IPv6 Performance

Intelbras SC 7530 supports IPv4/IPv6 dual stack, multiple IPv6 transition tunneling technologies, and IPv4/IPv6 multicast technologies, and can provides users with complete IPv4/IPv6 solutions.

With a distributed architecture, Intelbras SC 7530 can achieve wire-speed non-blocking forwarding of IPv4/IPv6 services. Intelbras SC 7530 has passed the IPv6 network access certification and is a mature commercial IPv6 product.

### Wireless Integrated

Intelbras SC 7530 is integrated with a wireless control module to delivers rich services, including refined user control and management, complete RF management and security control, fast roaming, outstanding QoS capability, and IPv6. The module can collaborate with a security policy server to control endpoint access, which enhances entire network security.

Intelbras SC 7530 adopts a chip design that supports access controller functions, providing customers with more options for building wired and wireless integrated networks.

### EAD

With a great portal authentication capacity, Intelbras SC 7530 can be used as an EAD gateway to provide EAD security authentication on a LAN with thousands of users. It can also provide portal authentication for authentication and accounting in the dormitory area in a medium- to large-sized campus network while delivering aggregation and core device services simultaneously.

## BYOD Basic Network Architecture

Intelbras SC 7530 supports a variety of access authentication methods, and can be used as an authentication gateway to provide security authentication on a LAN with thousands of users. It provides basic network architecture for BYOD mobile office solution, convenient for you to expand BYOD applications such as mobile ERP, OA, and UC&C.

## Security Assurance on all the Three Planes

Intelbras SC 7530 provides security assurance on all the three planes: control, management, and forwarding planes.

- Control plane—The embedded protocol packet attack recognition module prevents attacks from Topology Change Notification (TCN), Address Resolution Protocol (ARP), and other protocol packets. Use of the MD5 algorithm for the OSPF/BGP/IS-IS routing protocols prevents network breakdown caused by illegitimate route update packets.
- Management plane—Use of SNMPv3, SSHv2, 802.1X and AAA/RADIUS user authentication, role-based user permission management ensures device access and management security.
- Forwarding plane—By binding IP address, VLAN ID, MAC address, port number, and any combinations of them and using uRPF that prevents illegitimate traffic from accessing the network and longest matching packet-by-packet forwarding, the forwarding plane can effectively defend against virus attacks.

## Enhanced ACL

The switch offers strong ACL power. It supports:

- Standard and extended ACLs.
- VLAN-based ACLs, which facilitates user configuration and saves ACL resources.
- ACLs in both the inbound and outbound directions, well-suited for industries such as finance that have strict access control requirements.

## Carrier-Grade High Availability

The design of Intelbras SC 7530 eliminates single point of failures.

- All critical parts, including the MPUs, power supplies, and fan trays, are used in redundancy.
- The passive backplane eliminates single point of failures in the chassis.
- All modules and power supplies are hot swappable.

Intelbras SC 7530 series can operate in extreme environment reliably for a long time, with a carrier-grade reliability of 99.999%.

## Reliable Multi-Service Operation

Intelbras SC 7530 provides the following features to enable multiple services to run reliably and simultaneously without stop:

- NSF and graceful restart, enabling millisecond-level service switching.
- ECMP load balancing to load balance and provide redundancy for services over equal cost routes.
- Rapid Ring Protection Protocol (RRPP) for Ethernet rings.
- Smart Link to ensure millisecond service switchover between dual uplinks.

## IRF 2-based HA

IRF 2 can virtualize multiple SC 7530 switches into one virtual fabric that can be used and configured as one device but offers the combined port quantity and switching capacity of the virtualized devices. The devices on the IRF fabric back up each other, which enhances the system availability and enables millisecond level link convergence.

IRF 2 simplifies the management process, reduces management costs, and allows smooth network scaling as needed. Employing rich hardware-based OAM fault detection features, it can detect link faults within milliseconds.

## Highly Available MLAG Architecture

Multi-chassis link aggregation (MLAG, originated from DRNI) virtualizes two physical devices into a logical device at the forwarding plane while keeping separation of the device control planes, taking the benefits of link aggregation from the card level to the device level.

## Hardware Specifications

Features	SC 7530-3E-M	SC 7530-3E		SC 7530-6E-P				SC 7530-10E-P
Forwarding Capacity*	2120Mpps	3000Mpps		6000Mpps				10000Mpps
Switching Capacity*	4.75Tbps	6.72Tbps		13.44Tbps				22.40Tbps
MPU* Slots	1~2	2		2				2
LPU Slots	1~2	3		6				10
MPU Name	LSCM2CTGS12 GPSC0 LSCM2CTGS12 GTSC0 LSCM2CGP24T SSC0 LSCM2CGT24T SSC0	LSCM2S UP03B0	LSCM3S UP03A0	LSCM2M PUS06AS0	LSCM3M PUS06A0	LSCM2SR P6C4Y06A0	LSCM3SR P6C4Y06A0	LSCM3MP US10B0
MPU Console Ports	1x RJ-45 1x mini USB console	1x RJ-45 1x mini USB console		1x RJ-45 1x mini USB console				1x RJ-45 1x mini USB console

Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P
MPU MGMT Ports	1x 10/100/1000M RJ-45	1x 10/100/1000M RJ-45 1x 1000M SFP	1x 10/100/1000M RJ-45 1x 1000M SFP	1x 10/100/1000M RJ-45 1x 1000M SFP



Operating Environment	Temperature: 0°C to 45°C (32°F to 113°F)			
	Humidity: 5% to 95% (non-condensing)			
Input Voltage	DC: - 48V to - 60V			
	AC: 100V to 240V			
Dimension (H x W x D)	175mm×436mm×420mm (6.89 × 17.17 × 16.54 in); (4U)	216mm×436mm×420mm (8.50 × 17.17 × 16.54 in); (5U)	575mm×436mm×420mm (22.64 × 17.17 × 16.54 in); (13U)	708mm×436mm×420mm (27.87 × 17.17 × 16.54 in); (16U)
Fully Loaded Weight (kg)	<28KG <61.73LB	<35KG <77.16LB	<75KG <165.34LB	<95KG <209.44LB
Availability	99.999%	99.999%	99.999%	99.999%
MTBF (yrs)	175.5	205.2	64.8	59.2
MTTR (hrs)	1	1	1	1

\* MPU: Main Processing Unit integrating switching fabric

## Software Specifications

Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P
Ethernet	IEEE 802.1p (CoS priority) IEEE 802.1Q (VLAN) IEEE 802.1D (STP)/802.1w (RSTP)/802.1s (MSTP)/BPDU guard IEEE 802.1ad (QinQ), selective QinQ, VLAN mapping IEEE 802.3x (full-duplex flow control) IEEE 802.3ad (link aggregation), cross-card link aggregation RRPP Cross-card port mirroring/flow mirroring			
Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P

	Broadcast/multicast/unknown unicast storm suppression on an interface			
	Jumbo frame			
Routing	Port-based VLAN, Protocol-based VLAN, IP subnet-based VLAN, MAC-based VLAN			
	Super VLAN			
	PVLAN			
	Voice VLAN			
	Single VLAN cross connect, dual VLAN cross connect			
	MVRP(IEEE802.1ak)			
	GVRP			
	LLDP			
	ARP proxy			
	ARP snooping			
	DHCP relay, DHCPv6 relay, DHCP snooping			
	DHCP server, DHCPv6 server, DHCPv6 snooping			
	Static routing			
	RIPv1/v2			
	OSPFv2			
	IS-IS			
BGPv4				
OSPF/IS-IS/BGP GR (Graceful Restart)				
ECMP load balancing				
Policy-based routing				
Routing policy				
ICMPv6				
ICMPv6 redirection				
ACLv6				
OSPFv3				
RIPng				
BGP4+				
IS-ISv6				
Manual tunneling				
GRE				
ISATAP				
6to4 tunneling				
<b>Features</b>	<b>SC 7530-3E-M</b>	<b>SC 7530-3E</b>	<b>SC 7530-6E-P</b>	<b>SC 7530-10E-P</b>

Multicast	Dual stack (IPv4 and IPv6)
	IGMPv1/v2/v3
	IGMPv1/v2/v3 snooping
	IGMP filter
	IGMP fast leave
	Multicast VLAN
	PIM-SM/PIM-DM/PIM-SSM
	PIM snooping, IPv6 PIM-snooping
	MSDP
	Anycast RP
MLDv2/MLDv2 snooping	
PIM-SMv6, PIM-DMv6, PIM-SSMv6	
ACL/QoS	Basic and advanced ACLs
	VLAN-based ACLs
	Ingress/Egress ACLs
	Ingress/Egress CAR, at a granularity of 8 Kbps
	CAR
	Traffic shaping
	802.1P/DSCP priority marking
	Hierarchical QoS (HQoS), three-level queue scheduling
Queue scheduling algorithms: SP, WRR, SP+WRR, WFQ	
Congestion avoidance techniques, including tail drop and WERD	
Mirroring	
OpenFlow	OpenFlow 1.3
	Multi-controller (EQUAL mode, active/passive mode)
	Multi-flow table pipeline
	Group table
	Two-level meter
VXLAN	VXLAN L2 switching
	VXLAN L3 routing
	VXLAN VTEP
	IS-IS+ENDP distributed control plane
	MP-BGP+EVPN distributed control plane

Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P
MPLS/VPLS	OpenFlow+Netconf centralized control plane			
	L3 MPLS VPN			
	L2 VPN: VLL (Martini, Kompella)			
	MCE			
	MPLS OAM			
	VPLS, VLL			
	Hierarchy VPLS, QinQ+VPLS			
	P/PE function			
Multiservice Convergence	LDP			
	Integrated with access controller functions without using a separate access controller module			
Security	Hierarchical user management and password protection			
	EAD			
	Portal authentication			
	MAC authentication			
	IEEE 802.1x and IEEE 802.1x SERVER			
	AAA/Radius			
	HWTACACS			
	SSHv1.5/SSHv2			
	Basic and advanced Access Control Lists for packet filtering			
	OSPF, RIPv2, BGPv4 plain text and MD5 authentication			
	IP address, VLAN ID, MAC address multiple binding combination			
	uRPF			
	Active/standby data backup			
System Management	CPU DoS Protection			
	ARP Attack Protection, ND attack defense			
	Macsec			
	Microsegmentation			
	INC network management system			
	Loading and upgrading through XModem/FTP/TFTP			
	SNMP v1/v2/v3			
sFlow, NetStream				
NQA (Network Quality Analysis)				
RMON and groups 1, 2, 3 and 9				

Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P
Programmability	<p>NTP, PTP (1588v2)</p> <p>Fault alarm and automatic fault recovery</p> <p>System logs</p> <p>Device status monitoring mechanism, including the CPU engine, backplane, chips and other key components</p> <p>Intelligent power management, 802.3az EEE</p> <p>Online monitoring of the device and key components, including the MPUs, backplane, chips, and storage components</p> <p>Telemetry</p> <p>INQA, using the packet coloring and counting mechanism to collect device-wide and network-side packet loss statistics</p> <p>Built-in intelligent management module, enabling one-key deployment of device configuration and commands and intelligent version upgrade from the GUI interface</p> <p>eMDI</p>			
	<p>Using Ansible for automated configuration management and bulk configuration deployment</p> <p>Using Python/NETCONF/Tcl for automated network orchestration and automated DevOps</p>			
	High availability	<p>1+1 redundancy for key components such as MPUs (MPU includes CPU + Switching Fabric)</p> <p>1+1 redundancy for power modules</p> <p>Passive backplane</p> <p>Hot swapping for all components</p> <p>Real-time data backup on active/standby MPUs</p> <p>CPU protection</p> <p>IP source guard</p> <p>VRRP</p> <p>Loop detection</p> <p>Hot patching</p> <p>NSR (Nonstop Routing)/GR (Graceful Restart) for OSPF/BGP/IS-IS/RSVP</p> <p>Port aggregation and multi-card link aggregation</p> <p>BFD for VRRP/BGP/IS-IS/OSPF/RSVP/static routing, with a failover detection time less than 50 milliseconds</p> <p>Ethernet OAM (802.1ag and 802.3ah)</p> <p>MAC Tracert</p> <p>Hardware BFD</p>		

Features	SC 7530-3E-M	SC 7530-3E	SC 7530-6E-P	SC 7530-10E-P
	RRPP/ERPS DLDP VCT Track Monitor Link Smart-Link ISSU (In-service Software Upgrade) M-LAG +/-8 KV lightning protection			
MAC table	576K Max			

## Ordering information

Product ID	Product Description
SC-7530-3E-M	INTELBRAS SC-7530-3E-M Ethernet Switch Chassis
SC-7530-3E	INTELBRAS SC-7530-3E Ethernet Switch Chassis
SC-7530-6E-P	INTELBRAS SC-7530-6E-P Ethernet Switch Chassis, PoE
SC-7530-10E-P	INTELBRAS SC-7530-10E-P Ethernet Switch Chassis, PoE
LSCM2CTGS12GPSC0	INTELBRAS SC-7530-3E-M Main Processing Unit with Switching and Routing, with 16*1000BASE Ethernet Optical Interfaces(SFP,LC)+ 12*10G Ethernet Optical Interfaces(SFP+,LC)(SC)
LSCM2CTGS12GTSC0	INTELBRAS SC-7530-3E-M Main Processing Unit with Switching and Routing, with 16*10/100/1000BASE-T Ethernet Copper Interfaces(RJ45)+ 12*10G Ethernet Optical Interfaces(SFP+,LC)(SC)
LSCM2CGP24TSSC0	INTELBRAS SC-7530-3E-M Main Processing Unit with Switching and Routing,with 24*1000BASE Ethernet Optical Interfaces(SFP,LC)+ 4*10G Ethernet Optical Interfaces(SFP+,LC)(SC)

LSCM2CGT24TSSC0	INTELBRAS SC-7530-3E-M Main Processing Unit with Switching and Routing, with 24*10/100/1000BASE-T Ethernet Copper Interfaces(RJ45)+ 4*10G Ethernet Optical Interfaces(SFP+,LC)(SC)
LSCM2SUP03B0	INTELBRAS SC-7530-3E Supervisor Engine Unit, Type B
LSCM3SUP03A0	INTELBRAS SC-7530-3E Supervisor Engine Unit,Type A
LSCM2MPUS06AS0	INTELBRAS SC-7530-6E Main Processing Unit with Switching, Type AS
LSCM3MPUS06A0	INTELBRAS SC-7530-6E Main Processing Unit with Switching, Type A
LSCM3MPUS10B0	INTELBRAS SC-7530-10E Main Processing Unit with Switching, Type B
LSCM3SRP6C4Y06A0	INTELBRAS SC-7530-6E Main Processing Unit with Switching and Routing, with 6-port 100GE(QSFP28) and 4-port 25GE(SFP28), Type A
LSCM2SRP6C4Y06A0	INTELBRAS SC-7530-6E Main Processing Unit with Switching and Routing, with 6-port 100GE(QSFP28) and 4-port 25GE(SFP28), Type A
LSCM2CGS8QS8SF0	INTELBRAS SC 7530 8-Port 40G Ethernet Optical Interface(QSFP+)+8-Port 100G Ethernet OpticalInterface Module (QSFP28)(SF)
LSCM3CGS8QS8SF0	INTELBRAS SC 7530 8-Port 100G Ethernet Optical Interface(QSFP28)+8-Port 40G Ethernet Optical Interface Module (QSFP+)(SF)
LSCM3QGS8CSSE0	INTELBRAS SC 7530 8-Port 40G Ethernet Optical Interface(QSFP+)+4-Port 100G Ethernet OpticalInterface Module(QSFP28)(SE)
LSCM2YGS32TS16SF0	INTELBRAS SC 7530 32-Port 25G Ethernet Optical Interface(SFP28)+16-Port 10G Ethernet OpticalInterface Module (SFP+,LC)(SF)
LSCM2YGS16TS8SF0	INTELBRAS SC 7530 16-Port 25G Ethernet Optical Interface(SFP28)+8-Port 10G Ethernet OpticalInterface Module (SFP+,LC)(SF)
LSCM3TGS48SE0	INTELBRAS SC 7530 48-Port 10G Ethernet Optical Interface Module(SFP+,LC)(SE)
LSCM2TGS48SF0	INTELBRAS SC 7530 48-Port 10G Ethernet Optical Interface Module (SFP+,LC)(SF)
LSCM3TGS48SF0	INTELBRAS SC 7530 48-Port 10G Ethernet Optical Interface Module (SFP+)(SF)
LSCM2GT24GPTSSD0	INTELBRAS SC 7530 24-Port 10/100/1000BASE-T Ethernet Copper Interface(RJ45)+20-Port 1000BASE Ethernet Optical Interface(SFP,LC)+4-Port 10G Ethernet Optical Interface Module (SFP+,LC)(SD)
LSCM2TGS16GP32SD0	INTELBRAS SC 7530 32-Port 1000BASE Ethernet Optical Interface(SFP,LC)+16-Port 10G Ethernet Optical Interface Module (SFP+,LC)(SD)
LSCM2TGS16GPSD0	INTELBRAS SC 7530 16-Port 10G Ethernet Optical Interface(SFP+,LC)+24-Port 1000BASE Ethernet Optical Interface Module (SFP,LC)(SD)
LSCM2GV48SD0	INTELBRAS SC 7530 48-Port 10/100/1000BASE-T Ethernet Copper Interface Module (RJ45)(SD),PoE Plus
LSCM2GP48SD0	INTELBRAS SC 7530 48-Port 1000BASE Ethernet Optical Interface Module (SFP, LC) (SD)

LSCM2GP24GTSD0	INTELBRAS SC 7530 24-Port 1000BASE Ethernet Optical Interface(SFP,LC)+8-Port 10/100/1000BASE-T Ethernet Copper Interface Module (RJ45)(SD)
LSCM2GT48SD0	INTELBRAS SC 7530 48-Port 10/100/1000BASE-T Ethernet Copper Interface Module (RJ45)(SD)
LSCM2GT24GPS0	INTELBRAS SC 7530 24-Port 10/100/1000BASE-T Ethernet Copper Interface(RJ45)+8-Port 1000BASE Ethernet Optical Interface Module (SFP,LC)(SD)
LSQM2AC300-GL	INTELBRAS 300W AC Power Supply Module
LSQM2AC650-GL	INTELBRAS 650W AC Power Supply Module
LSQM1DC650-GL	INTELBRAS 650W DC Power Supply Module
PSR2500-12AHD-GL	INTELBRAS 2500W AC Power Supply Module, HVDC Supported
PSR2500-12D-GL	INTELBRAS 2500W DC Power Supply Module
LSQM1AC2800-GL	INTELBRAS 2800W AC PoE Power Supply Module