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IStaX™ Software Package for Vitesse's Managed Ethernet Family of Switches

A comprehensive software development kit (SDK) for Industrial Ethernet network and switch applications.

The IStaX (VSC6815SDK) software development kit is a turnkey Industrial Ethernet switch solution designed to support Vitesse's Managed Ethernet switch devices.

The software uses the latest eCos operating system for optimal performance, cost effective implementation, and RedBoot bootloader for reliability. Management is performed using a Web GUI, Command Line Interface (CLI), Simple Network Management Protocol (SNMP), or Java Script Object Notation Remote Procedure Call (JSON-RPC), running on the internal MIPS24Kec CPU.

The VSC6815SDK is highly integrated with advanced L2 switch features such as QCLs and ACLs, and includes support for synchronization functions such as Synchronous Ethernet, IEEE 1588 and third-party servos, and protection functions including linear and ring protection.

Highlights

- Advanced L2 switching and L3 forwarding including VLANs, GVRP, IGMP, flow mirroring, and DHCP option 82
- SyncE and complete IEEE 1588 solution with PTP protocol, packet delay filtering (PDV), and hardware-accurate time stamping
- G.8031 link protection and G.8032 ring protection

Applications

- Industrial automation
- Smart grid
- Intelligent transportation systems

Bandwidth Profiles Configuration

Start from Policer ID with entries per page.

Policer ID	State	Policer Mode	CIR (kbps)	CBS (bytes)	EIR (kbps)	EBS (bytes)
1	Enabled	Aware	1000	4000	500	2000
2	Enabled	Aware	100000	5000	50000	4000
3	Enabled	Coupled	10000	4000	4000	2000
4	Enabled	Aware	50000	10000	4000	1000
5	Disabled	Aware	0	0	0	0
6	Disabled	Aware	0	0	0	0
7	Disabled	Aware	0	0	0	0
8	Disabled	Aware	0	0	0	0
9	Disabled	Aware	0	0	0	0
10	Disabled	Aware	0	0	0	0
11	Disabled	Aware	0	0	0	0
12	Disabled	Aware	0	0	0	0
13	Disabled	Aware	0	0	0	0
14	Disabled	Aware	0	0	0	0
15	Disabled	Aware	0	0	0	0
16	Disabled	Aware	0	0	0	0
17	Disabled	Aware	0	0	0	0
18	Disabled	Aware	0	0	0	0
19	Disabled	Aware	0	0	0	0
20	Disabled	Aware	0	0	0	0

Save Reset

Web GUI for Bandwidth Profiles Configuration

IStaX VSC6815SDK software release 3.60 includes the following features.

Feature	Details
Port Control	Port speed, duplex mode, and flow control Port frame size (jumbo frames) Port state (administrative status) Port status (link monitoring) Port statistics (MIB counters) Port VeriPHY™ (cable diagnostics) POE/POE+ POE/POE+ with LLDP Node processor interface (NPI) port Injection header Extraction header PCIe Inband management (VRAP) On-the-fly SFP detection Digital diagnostics monitoring interface (DDMI) Unidirectional Detection Link (UDLD)
QoS	Traffic classes (8 active priorities) Port default priority User priority Input priority mapping QoS control list (QCL mode) Storm control for UC, MC, and BC Storm control for UC, BC, and unknown Random early discard (RED) Policers: port, service, queue, and global/VCAP (ACL) Port and queue egress shapers DiffServ (RF 2474) remarking Tag remarking Scheduler mode
L2 Switching	IEEE 802.10ad Provider Bridge (native or translated VLAN) EVC Classification of Layer 3 flow (SIP, IP Prot, SProt, DProt)-CE Service enabled PB (JPS) E-LINE (EPL, EVPL) E-LAN (EP-LAN, EVP-LAN) L2CP Tunneling IEEE 802.1Q-2005 Multiple Spanning Tree MSTP, RSTP, STP Loop guard IEEE 802.3ad link aggregation, static, and LACP BPDU guard and restricted role BPDU transparency and forwarding (customer-specific) Error disable discovery Unidirectional Link Detection (UDLD) IGMPv2 and IGMPv3 snooping MLDv1 and MLDv2 snooping

Feature	Details
L2 Switching (continued)	IGMP filtering profile IPMC throttling, filtering, and leave proxy MVR MVR profile Voice VLAN DHCP snooping ARP inspection Port and flow mirroring
Protection	1+1 port protection 1:1 port protection 1:n port protection Port protection with services G.8032 Ring protection v.1 and v.2
L3 Switching	DHCP option 82 relay Universal Plug and Play (UPnP) IPv4 Unicast static routing IPv4 Unicast static routing (hardware accelerated) IPv6 Unicast static routing IPv6 Unicast static routing (hardware accelerated)
Security	Network Access Server (NAS) Port-based IEEE 802.1X Single and multiple IEEE 802.1X MAC-based authentication VLAN and QoS assignment Guest VLAN RADIUS accounting MAC address limit MAC freeze (customer specific) IP MAC binding IP MAC binding dynamic to static TACACS+ Accounting Web and CLI Authentication Authorization (15 user levels) ACLs for filtering, policing, and port copy IP source guard
Synchronization	Synchronous Ethernet with SSM Vitesse one-step transparent clock PHY solution 1588v2 PTP with two-step clock 1588v2 PTP with one-step clock Peer-to-peer and end-to-end-transparent clock Boundary clock Redundant masters and multiple timing domains ITU filtering PTP over IPv4 Unicast/multicast Combined SyncE and 1588 solution Third-party servo algorithm integration

Feature	Details
Synchronization (continued)	SNTP and client NTPv4 client
Power Savings	ActiPHY™ PerfectReach™ Ethernet Energy Efficient power management LED power management Thermal protection Adaptive fan control
Management	JSON-RPC Double VLAN tag management DHCP client and server DHCPv6 client DNS client and proxy HTTP server CLI – console port and Telnet Industry-standard CLI Industry-standard configuration Management access filtering HTTPS SSHv2 IPv6 Management IPv6 Ready Logo Phase 2 RFC4884 (ICMPv6) System Syslog Software upload through Web SNMP v1, v2c, v3 Agent RMON Group 1, 2, 3, and 9 RMON alarm and event (CLI, Web) SNMP multiple trap destinations IEEE 802.10AB-2005 Link Layer Discovery – LLDP TIA 1057 LLDP-MED Cisco Discovery filtering, CDP sFlow Configuration download and upload: industry-standard formats Loop detection restore to default Symbolic Register Access Daylight savings
MIBs	RFC 1213 MIB II RFC 1215 A Convention for Defining Traps for Use with the SNMP RFC 2613 SMON MIB: VLAN statistics and port copy RFC 2674 VLAN MIB RFC 2819 RMON (Group 1, 2, 3, and 9) RFC 2863 Interface Group MIB using SMI v2 RFC 3411 SNMP Management Frameworks RFC 3414 User-based Security Model for SNMPv3

Feature	Details
MIBs	RFC 3415 View-based Access Control Model for SNMP
(continued)	RFC 3621 LLDP-MED Power
	RFC 3635 Ethernet-like MIB
	RFC 3636 802.3 Medium Attachment Units (MAUs) MIB
	RFC 4133 Entity MIB v3
	RFC 4188 Bridge MIB
	RFC 4292 IP Forwarding Table MIB
	RFC 4293 Management Information Base for the Internet Protocol (IP)
	RFC 4668 RADIUS Authentication Client MIB
	RFC 4670 RADIUS Accounting MIB
	RFC 4678 Link OAM MIB
	RFC 5519 Multicast Group Membership Discovery MIB
	IEEE 802.1 MSTP MIB
	IEEE 802.1AB LLDP MIB (LLDP MIB included in clause of standard)
	IEEE 802.1X MIB (PAE MIB included in clause of standard)
	IEEE 802.1Q Bridge MIB 2008
	IEEE 802.3ad MIB (LACP MIB included in clause of standard)
	TIA 1057 LLDP MED (MIB is part of the standard)
	Phase 1 private MIB support

