PRODUCT BRIEF

VSC6810SDK and VSC6840MTP

CEServices Software Package for Carrier Ethernet Family of Switches

Most comprehensive software development kit (SDK) for Carrier Ethernet switches and MPLS-TP transport.

The CEServices (VSC6810SDK) software development kit is a turnkey Carrier Ethernet switch application designed to support Vitesse's Carrier 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 VSC6810SDK is highly integrated with Carrier features, such as service provision and policing for advanced Service Level Agreement (SLA), Synchronous Ethernet, as well as IEEE 1588 for Ethernet packet-based accuracy timing solution, Operations, Administration, and Maintenance (OAM), and Application Software Provider (ASP).

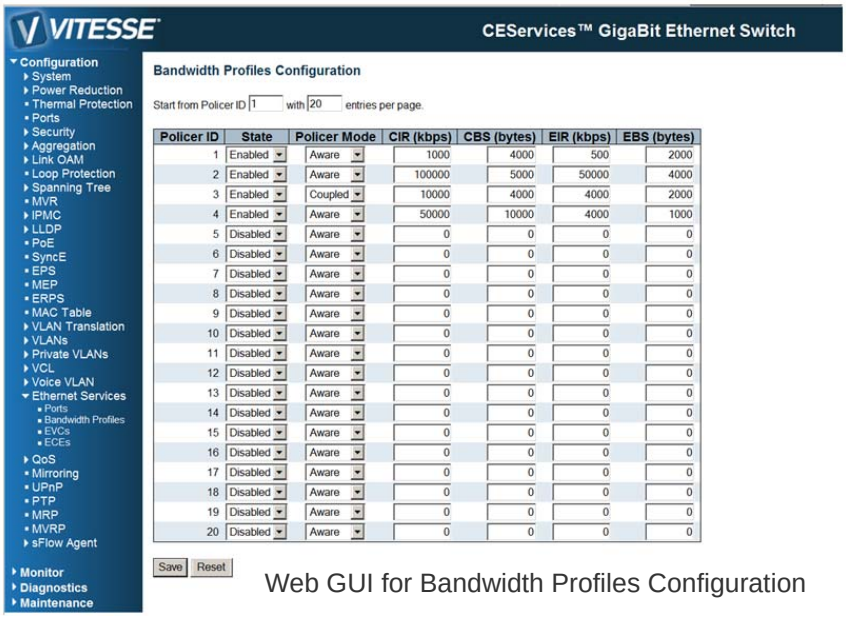
The VSC6810SDK also features an optional add-on module called VSC6840MTP that provides connection-orientated packet-switching with hard-QoS, enhanced protection/restoration and advanced OAM (Operations and Maintenance). Multi Protocol Label Switching – Transport Profile (MPLS-TP) is a leading packet transport networking technology that enables greater scale and stronger layering and protection compared to a Layer 2 network, yet is fully compatible with IP/MPLS-routed network cores without the cost and power limitations burdens of a Layer 3 network.

Highlights

- Rich L2 switch features with L3-aware packet processing
- Service classification and MEF-compliant policing for advanced SLA
- SyncE and complete IEEE 1588 solution with PTP protocol, packet delay filtering (PDV), and hardware-accurate time stamping
- Strong service concepts for advanced SLA
- MPLS-TP optional add-on

Applications

- Wireless mobile backhaul
- Packet transport network
- Industrial Ethernet with high availability



Web GUI for Bandwidth Profiles Configuration

CEServices VSC6810SDK Software Release 3.60 includes the following features, depending on the specific switch device used.

Features		VSC6810SDK Only	VSC6810SDK + VSC6840MTP
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	•	•
H-QoS	H-QoS scheduling per ASP and EVC queuing and scheduling (per service queuing)	•	•
	H-QoS scheduling for microwave backhaul	•	•
L2 Switching	IEEE 802.1D Bridge, auto MAC address learning/aging, and static MAC addresses	•	•
	IEEE 802.1Q VLAN, Virtual LAN and Multiple Spanning Tree MSTP, RSTP, STP	•	•
	VLAN translation	•	•
	Private static VLAN	•	•
	Port isolation (static)	•	•
	MAC-based, protocol-based, and IP subnet-based VLAN	•	•
	VLAN trunking	•	•
	GARP VLAN registration (GRVP)	•	•

Features		VSC6810SDK Only	VSC6810SDK + VSC6840MTP
L2 Switching *(continued)*	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)	•	•
	EoMPLS LER (PWE)		•
	Label Switching Router (LSR)		•
	MPLS-TP: E-Line (EPL, EVPL)		•
	MPLS-TP: E-LAN (H-VPLS, EP-LAN, EVP-LAN)		•
	MPLS-TP: LSR E-Line (EPL, EVPL)		•
	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	•	•
	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	•	•
	MPLS EVC: 1:1 E-Line protection		•
	MPLS-TP 1:1 LSP 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)	•	•

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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	•	•
	Transparent clock over microwave	•	•
	TC internal master/slave with PDV filtering; no modulation or latency feedback from modems	•	•
	TC internal master/slave with reduced PDV filtering; feedback from modem on modulation and latency	•	•
	Combined SyncE and 1588 solution	•	•
	Third-party servo algorithm integration	•	•
	SNTP and client	•	•
	NTPv4 client	•	•
OAM and Test	IEEE 802.30ah Link OAM—variable, request, response, discovery process, information, event notification, loopback	•	•
	Dying gasp SNMP trap	•	•
	Flow OAM, ingress/egress	•	•
	IEEE 802.1ag/Y.1731	•	•
	FM: Continuity check and remote defect indication (ETH-CC, ETH-RDI)	•	•
	FM: Loopback (ETH-LB)	•	•
	FM: Link trace (ETH-LT)	•	•

Features		VSC6810SDK Only	VSC6810SDK + VSC6840MTP
OAM and Test *(continued)*	Y.1731/Down-MEP	•	•
	FM: Alarm indication signal (ETH-AIS)	•	•
	FM: Locked signal (ETH-LCK)	•	•
	FM: Test signal (ETH-Test)	•	•
	FM: Automatic protection switching (ETH-APS, ETH-RAPS)	•	•
	PM: Dual-ended frame loss measurement, CCM-based (ETH-LM)	•	•
	PM: Single-ended frame loss measurement, LLM/LMR-based (ETH-LM)	•	•
	PM: Frame delay and delay variation measurement (ETH-DM)	•	•
	EPS/ERPS using ETH-CCM	•	•
	OAM Inject Engine support	•	•
	Y.1731/Up-MEP	•	•
	OAM Inject Engine support	•	•
	Nested MEPs	•	•
	Y.1731/MIP	•	•
	FM: Link trace PDU (LTM) response	•	•
	FM: Loopback PDU (LBM) response	•	•
	Subscriber MIP	•	•
	Syslog for Congestion Fault Management	•	•
	Vitesse OAM Y.1731 PHY Solution	•	•
	SAT: RFC 2544	•	•
	Advanced Service Activation Measurements (SAM) Y.1564	•	•
	SAM Y.1564 Reflector support	•	•
	Generic hardware loop back	•	•
	SMAC/DMAC swap	•	•
	Redirect back to the arrival port	•	•
	OAM hardware engine	•	•
	Performance Monitoring (MEF 35 Phase 1 and MEF Phase 2)	•	•
MPLS OAM	MPLS OAM: Y.1731 ETH OAM over LSP/PW		•
	MPLS OAM: PW OAM (VCCV, BFD using PW ACH)		•
	MPLS OAM: MPLS-TP OAM (using GAL and ACH)		•
	Pop/Push operation including “SWAP” of MPLS-label stack and link layer Ethernet		•
Robustness	Cold and cool start	•	•
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	•	•

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Management *(continued)*	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	•	•
	RFC 3415 View-based Access Control Model for SNMP	•	•
	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)	•	•

Features		VSC6810SDK Only	VSC6810SDK + VSC6840MTP
MIBs *(continued)*	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	•	•