# *VSC7396*

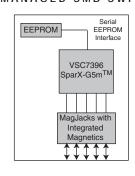


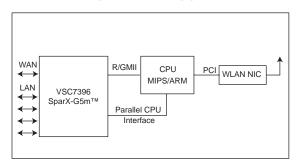
SparX-G5m<sup>™</sup> – Enhanced 5+1-Port Integrated Gigabit Ethernet Switch with Transceivers



## 5+1 PORT WEB-MANAGED/ UNMANAGED SMB SWITCH:

#### BROADBAND ROUTER:





FEATURES:	BENEFITS:
▶ 5+1 Gigabit Ethernet ports with nonblocking wire-speed performance	► Ensures maximum data throughput in highly loaded networks
▶ 5 tri-speed (10/100/1000 Mbps) copper transceivers (IEEE 802.3ab compliant) and 1 tri-speed (RGMII/GMII) interface	Reduces the need for any PHY components thereby significantly reducing overall systems cost
▶ 136 kilobytes on-chip frame buffer	Eliminates the need for external buffer memory while maintaining high peak load performance
<ul> <li>SNMP and Web-based management with either V-Core CPU (on-chip 8051 CPU with royalty-free, Web-managed software stack) or off-chip 8-bit CPU</li> </ul>	Enables advanced switch management, using run-time protocols, and low cost unmanaged/Web-managed operation
▶ DSCP remarking for both IPv4 and IPv6 frames	Enables LAN edge products to generate standard priority that can be used in the core network
Enhanced support for IPv4 and IPv6 multicast, including IGMP snooping and MLD snooping	Enables applications such as digital video distribution with efficient monitoring of IPv4 and IPv6 frames and multicast groups
▶ Jumbo frame support at all speeds (10/100/1000 Mbps)	Connects effortlessly to networks, hosts, and controllers that use up to 9.6-kilobyte frames
▶ Programmable multilayer classifier with 4 QoS classes	Optimizes network performance to support any digital stream, from internet browsing to VoIP and video
8 k MAC addresses and 4 k VLANs (IEEE 802.1Q), as well as 8 k IP multicast group support	<ul> <li>Stores a large amount of stations at wire-speed in the on-chip MAC Table, ensuring optimal network performance and scalability</li> </ul>
► Flexible link aggregation support based on Layer-2 through Layer-4 information (IEEE 802.3ad)	Provides high bandwidth uplinking abilities
► Full-duplex flow control (IEEE 802.3X) and half-duplex backpressure, symmetric and asymmetric	Ensures lossless data transmission while supporting existing legacy Ethernet equipment
▶ Multicast and broadcast storm control, as well as flooding control	Eliminates unwanted flooding of ports, and thereby increases overall network performance
▶ Multiple protocol support: IEEE 802.1D, IEEE 802.1w, IEEE 802.1s, and IEEE 802.1X	Supports complex network topologies with fast failure recovery and access control
▶ Wire-speed automatic learning and aging	Reduces CPU overhead and enables the CPU to allocate additional cycles for protocol processing
Vitesse VeriPHY <sup>™</sup> cable diagnostics and SimpliPHY <sup>™</sup> magnetics technology	▶ Enables real-time cable diagnostics and low cost magnetics

# VSC7396

# SparX-G5m<sup>™</sup> – 5+1-Port Integrated Gigabit Ethernet Switch with Transceivers

#### GENERAL DESCRIPTION:



VSC7396 SparX-G5m is the highly integrated, single-chip Gigabit Ethernet switch with 5+1 Integrated GbE Copper PHY ports. As part of the Vitesse SparX Family of Switches, SparX-G5m delivers high performance with easy migration paths, and comprehensive system solutions that enable ultra-short time-to-market and market-leading system cost.

#### A Vitesse Switch Family Member

SparX-G5m is a part of the Vitesse SparX<sup>TM</sup> Family Of Unmanaged or Web-managed Switches, taking the family into a new generation of integration. With its five integrated tri-speed Gigabit Ethernet copper transceivers, one tri-speed RGMII/GMII, and several integrated management interfaces, it is specifically targeted at SMB and SOHO unmanaged applications; with its V-Core CPU (on-chip 8051) and parallel CPU interface, it enables Web-managed and managed switch applications.

Being a member of the switch family provides a number of unique advantages when designing with the chip: there is nearly 100% software compatibility between the switch family members; software written for SparX-G5m can easily be used with other switch configurations in the family, and vice-versa; and with minimal effort and time, designs can be upgraded to higher port counts, or migrated to other configurations or future technology. Building a product family is easy when designing with Vitesse switches!

#### The Vitesse SparX<sup>™</sup> Family Of Switches

SparX-G5m shares the unique traits of the Vitesse SparX Family Of Switches. The highly integrated switch supports 136 kilobytes of on-chip frame buffer, and the integration of the copper PHY as well as an internal oscillator circuit simplifies PCB layout to reduce time and cost. Further trimming down system cost is the industry's lowest power, fully integrated, Switch-plus-Copper PHY technology.

wire-speed performance, which includes wire-speed MAC address learning. Designing both unmanaged and Web-managed solutions is straightforward. The chips offer an internal V-Core CPU (on-chip 8051) and serial and parallel CPU interfaces, and support a host of management protocols such as GxRP, SNMP, and three flavors of Spanning Tree: Standard STP, Multiple STP, and Rapid STP.

The switches provide for high performance designs with their nonblocking,

Controlling networks operated by the Vitesse switches is simple; advanced classification with IPv4 and IPv6 support, along with port DSCP remarking and 802.1X authentication support, provides flexible QoS operation. This is backed up by Layer 2-4 link aggregation and VLAN support, enabling managed switches to be deployed. The VSC7396 provides Multicast Listener Discovery (MLD) snooping for more efficient management of IPv6 frames.

With its unique low power dissipation, the VSC7396 enables fanless operation, thereby providing higher system reliability and lower noise, both to the benefit of the user.

Designing with Vitesse SparX Family Of Switches means designing with the complete Vitesse solution: Vitesse provides a comprehensive, Web-managed switch software system for the V-Core CPU (internal 8051). This is in addition to the unmanaged and smart managed software systems for 8051, which are also included. For homegrown software development, the Vitesse full platform and OS independent switch API is supplied. Accompanying the software systems are the Vitesse Switch reference systems. These are production-ready hardware designs that also serve as evaluation platforms. The Vitesse solution is supplied with a comprehensive collateral package, including software source code, full documentation, and an in-depth qualification report for easy pre-evaluation.

# APPLICATIONS:

- ▶ 5-port unmanaged Gigabit Ethernet SMB/SOHO switch
- ▶ 5-port Web-managed Gigabit Ethernet SMB/SOHO switch
- ▶ 5-port LAN switch and 1-port WAN broadband (DSL/WLAN) router

#### SPECIFICATIONS:

- ▶ 25-MHz LVTTL clock
- ▶ 1.2 V core power supply
- ▶ 3.3 V interface power supply

### Trademarks <sup>™</sup>

Vitesse, ASIC-Friendly, FibreTimer, TimeStream, Snoop Loop, Super FEC, FOCUSConnect, Meigs-II, Meigs-IIe, Lansing, Campbell-I, Barrington, PaceMaker, HOVCAT48, HOVCAT48e, HOVCAT192e, Micro PHY, FOCUS32, FOCUS16, IQ2200, NexSAS, VersaCAT, GigaStream, HawX, SparX, StaX, VstaX, SimpliPHY, VeriPHY, ActiPHY, XFP PRO, SFP PRO, Smart-LINK, OctalMAC, EQ Technology are trademarks in the United States and/or other jurisdictions of Vitesse Semiconductor Corporation. All other trademarks or registered trademarks mentioned herein are the property of their respective holders.

#### Copyright © 2006

Vitesse Semiconductor Corporation ("Vitesse") retains the right to make changes to its products or specifications to improve performance, reliability or manufacturability. All information in this document, including descriptions of features, functions, performance, technical specifications and availability, is subject to change without notice at any time. While the information furnished herein is held to be accurate and reliable, no responsibility will be assumed by Vitesse for its use. Furthermore, the information contained herein does not convey to the purchaser of microelectronic devices any license under the patent right of any manufacturer.

741 Calle Plano Camarillo, CA 93012, USA Tel: +1 805.388.3700 Fax: +1 805.987.5896 www.vitesse.com sales@vitesse.com