SCENIX News Release

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SCENIX ANNOUNCES NEW FCC-COMPLIANT EMBEDDED V.23 SOFTWARE MODEM REFERENCE DESIGN

Latest In Line Of Small, Inexpensive Solutions Provides Data Communication In Low-Speed Applications

Santa Clara, Calif. - Oct. 28, 1999 - Scenix Semiconductor, Inc. today announced the availability of a new modem reference design for low-speed data transmission applications, such as point-of-sale terminals, automatic teller machines, remote monitoring equipment, alarm systems and the back-channel function of set-top boxes. The V.23 modem is compliant with the CCITT V.23 standard, and also includes DTMF (dual-tone, multi-frequency) generation and detection, Caller-ID and Call-Progress functions. It has been tested in accordance with the FCC (Federal Communications Commission) standards, and allows designers to reduce parts counts and total system costs in a wide variety of embedded applications.

As with previous Scenix modem reference designs, the new V.23 modem replaces external hardware components with Virtual Peripheral™ software modules that are loaded into the on-chip flash/EEPROM program memory of a 50 MIPS (million instructions per second) Scenix SX28AC microcontroller (MCU). Executing one instruction every cycle, the SX28AC is able to perform both modem and system control functions.

V.23 Modem Software Modules
According to the V.23 specification, the originating (dialing) modem transmits data at a rate of 75 bps (bits per second), and receives data from the answering modem at a rate of 1200 bps. The Virtual Peripheral modules in the Scenix V.23 modem provide FSK (frequency-shift-keyed) data transmission at 75 bps (bits per second) using the specified 450 Hz and 390 Hz carrier frequencies, and reception at 1200 bps using the specified 2100 Hz and 1300 Hz carrier frequencies. An asynchronous transmitter for data rate conversion from 1200 bps to 75 bps is also provided in software. Other modem functions implemented as Virtual Peripheral software modules include D/A (digital-to-analog) conversion using PDM (Pulse Density Modulation), low-pass and high-pass digital filtering, DTMF generation and detection, Caller-ID and Call-Progress.

Lowest Cost Implementation
In addition to the 50 MHz SX28AC processor, the only hardware required to implement the V.23 modem is: an RS-232 jack and line interface circuit for data-side connection; a line driver (DAA) and RJ-11 jack for telephone-side connection; a crystal oscillator; an operational amplifier (op amp)/resistor-based adjustable hybrid circuit to accommodate various line impedances; and a few decoupling capacitors and resistors. A modem offering complete V.23-compliant capabilities can be configured to occupy an area 2 inches by 3 inches or smaller on a printed circuit board. The SX28AC MCU is priced at less than $3.00 in volume, and the total system cost is reduced by up to 40% compared to existing solutions.

"The SX Series-based V.23 modem reference design is the perfect data communications solution for a wide range of embedded applications that require relatively low speeds, such as point-of-sale terminals, and also addresses the needs of the rapidly growing Caller-ID market," said Stephan Thaler, vice president of marketing at Scenix. "It's in a small form factor that's ideal for embedded applications in which the modem is only one of many functions. It offers the features that are most needed in those applications, and can be implemented quickly and easily using Virtual Peripheral modules. In addition, it

can be reconfigured in the field to add new features or accommodate different standards."

A modem evaluation kit that includes additional components is available for $89 from the Scenix Web site, www.scenix.com. This kit provides a range of modem functions that allow designers to evaluate and develop applications for all the types of embedded software modems that are offered by Scenix. It includes the board, software and full documentation.

Scenix
Headquartered in Mountain View, California, Scenix provides communications software and controllers for embedded applications, with a market emphasis on embedding the Internet in everyday things. Scenix is the leading supplier of Virtual Peripheral™ software modules, which are functions that are conventionally implemented in hardware. The company's software system-on-a-chip approach reduces time to production and system cost, while providing greater flexibility, compared to traditional design approaches.

Recognition includes:

- "Best Products of 2000, Controllers," by ChipCenter (an on-line affiliate of *Electronic Engineering Times*) for the SX52BD100 communications controller
- "Investor's Choice" award, December 1999, as one of the top 10 privately held companies at the Technologic Partners "Technology Outlook Conference"
- "50 Hot Products of 1999" by *EDN Europe* for the SX-Stack TCP/IP network protocol stack
- "100 Hot Products of 1998" by *EDN* for the 100 MIPS SX Series communication controller
- "10 Top Processor List of 1998" by *Electronic News* for the 100 MIPS SX28AC communications controller

Additional information on Scenix and its products can be found on the Web at www.ubicom.com.

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