



ANCHORCHIPS

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Anchor Chips Announces Software-Configurable USB Chip Family for High-Speed Peripheral Equipment

*EZ-USB™ Product Family Significantly Reduces the Cost and Complexity of
Implementing USB Designs while Eliminating Design Risks*

San Diego, CA – February 17, 1998 – Anchor Chips Incorporated, a developer of bus interface chips, today introduced a Universal Serial Bus (USB) product family that significantly reduces the cost and complexity of developing high-speed USB peripheral equipment. Anchor Chips' new product family, called EZ-USB™, consists of highly integrated, single-chip solutions that incorporate an enhanced 8051 processor; 4, 8 or 16 Kbytes of RAM; an intelligent USB core; and high-performance I/Os. The high-performance feature set in the EZ-USB chip family provides for the first time an avenue for soft, downloadable configuration and decreases the number of components required to implement USB.

“USB designs are difficult to implement, especially in high-performance peripherals,” said Pete Fowler, Anchor Chips' Vice President of Worldwide Sales and Marketing. “As new products roll out there are numerous uncertainties associated with USB. Our goal was to reduce the complexity of implementing USB, while still providing the peripheral manufacturer with a design avenue that removes risks and product problems during the early phases of USB. Additionally, we wanted to take advantage of USB's significant increase in data bandwidth as well as apply a level of integration to USB that would result

EXHIBIT 2055

LG Elecs. v. Cypress Semiconductor
IPR2014-01386, U.S. Pat. 6,012,103

in the lowest system cost for customers. Our EZ-USB solution accomplishes these goals.”

EZ-USB chips provide engineers with significant performance advantages over existing USB solutions. By taking advantage of the double-buffer capability in the integrated 2 Kbyte FIFO, EZ-USB chips can support a 1024 isochronous packet within a single USB frame. EZ-USB chips can also support an effective data transfer rate through the data bus of over 2 Mbytes per second.

Anchor Chips’ EZ-USB chips are the first devices to have an enhanced 8051 core and an internal RAM architecture. The enhanced 8051 core provides performance that is five times faster than standard 8051 processors. This increase in performance is achieved by doubling the 8051’s clock rate from 12 MHz to 24 MHz while generally reducing the number of clocks per cycle from 12 to 4. The enhanced 8051 maintains software compatibility with the original 8051 so that engineers can use the same familiar 8051 development tools.

The EZ-USB chips’ integrated RAM allows the 8051 program and data memory to reside on-chip. This capability eliminates the need for external memory and makes it much easier and more flexible to implement USB designs. With EZ-USB chips, firmware code is downloaded from the PC’s hard drive. This function allows for quick design changes in the firmware and the driver code and enables peripheral designers to easily make updates and changes.

The EZ-USB architecture is a very cost-effective and efficient design solution. It performs low-level USB tasks in hardware not firmware. The intelligent USB core that is incorporated into EZ-USB chips off loads the enhanced 8051 core by as much as 90%. Therefore, only 10% of the 8051 processing power is dedicated to the USB protocol, leaving 90% of the 8051 to handle peripheral functions. Since the firmware code is more efficient, USB software development time is also reduced, allowing engineers to devote

more time to programming the peripheral firmware. EZ-USB chip architecture also decreases the amount of memory needed for firmware, which dramatically reduces board density and system costs.

EZ-USB chips support more endpoints and provide more endpoint buffer memory than any other USB device. These chips support up to 16-endpoint pairs. This large number of endpoints provides engineers with a significant amount of flexibility when implementing USB designs. The chips also support the USB maximum packet length for isochronous data (1024 bytes) in a single USB frame.

Anchor Chips' EZ-USB product family is specifically designed for high-speed peripherals that can use the full-rated bandwidth of 12 Mbps. The chips can be designed into a number of peripheral equipment applications such as POTS modems, digital still cameras, ISDN modems, cable modems, xDSL modems, digital video cameras, printers, security systems, biomedical equipment and scanners. Also, all EZ-USB family members use less than one square inch of board space. This makes them ideal solutions for very small peripheral equipment, such as hand scanners.

Product Pricing and Availability

The EZ-USB product family consists of eight chips. All of the chips incorporate the EZ-USB silicon architecture with varying amounts of RAM and other I/O features, which are shown in the following chart.

Part Number	Package Type	RAM Size	I/O Rate Bytes/Sec	# Prog I/Os	8-bit Databus	ISO Support	Price 10 K
AN2121SC	44 PQFP	4K	600K	16	NO	YES	\$5.46
AN2125SC	44 PQFP	4K	2M	8	YES	YES	\$5.96
AN2126SC	44 PQFP	4K	2M	8	YES	NO	\$5.57
AN2131SC	44 PQFP	8K	600K	16	NO	YES	\$6.47
AN2135SC	44 PQFP	8K	2M	8	YES	YES	\$7.31
AN2136SC	44 PQFP	8K	2M	8	YES	NO	\$6.58
AN2131QC	80 PQFP	8K	2M	24	YES+Addr	YES	\$7.71
AN2141QC	80 PQFP	16K	2M	24	YES+Addr	YES	\$8.83

All members of Anchor Chips' EZ-USB family are software compatible. Designers can upgrade or change an EZ-USB chip to support different RAM or I/O performance while still using the same board layout and software. For high-volume applications, the company offers software-compatible ROM versions of the chips. For pricing and availability on the ROM versions, please contact the factory.

EZ-USB Xcelerator™ Development Kit

Anchor Chips has a very comprehensive set of USB tools in its development kit for the EZ-USB product family. With advanced software utilities, the EZ-USB Xcelerator development kit supplies design tools that accelerate firmware and device driver development for EZ-USB chips. The kit contains a development board, Keil Software 8051 compiler, assembler, and debugger; a general-purpose USB Windows device driver; sample firmware/driver code; a technical reference manual; a USB Control Panel; and a EZ-USB 8051 firmware library and firmware frameworks. The USB Control Panel allows firmware developers to test their firmware without completing custom Windows drivers. Therefore, peripheral designers can develop firmware and drivers in parallel. With the EZ-USB firmware library, peripheral developers can link a series of function

calls to quickly develop their peripheral function. The Xcelerator development kit is available today and is priced at \$495.

Established in 1996, Anchor Chips designs and markets integrated, system-level semiconductor solutions that simplify interfacing to emerging bus standards. The company's innovative Peripheral Component Interconnect (PCI) bus and Universal Serial Bus (USB) chips virtually eliminate the complexities of today's modern bus interface designs. Based in San Diego, CA, Anchor Chips can be reached at 619-613-7900 or www.anchorchips.com.

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