Touchscreen Controller Serves Displays up to 17 inches

Atmel, a leader in microcontroller and touch technology solutions, announced the availability of its new maXTouch S Series family of touchscreen controllers, the next generation of the company's breakthrough unlimited touch technology. The new device family is ideal for the design of innovative and intuitive touchscreen interfaces of up to 17" diagonal for products including smartphones, tablets, digital cameras, e-readers and other applications.

System designers want to deliver a new breed of mobile products to consumers, and the right touchscreen controller can help turn their concepts into reality. Designers are envisioning products that offer an array of capabilities, including ultra-slim and light form factors, immersive responsiveness, large and high pixel-density displays, exceptionally long battery life, and multiple ways of capturing user input. With their rich features and intelligent algorithms, maXTouch S Series controllers are designed to meet these requirements, enabling designers to create the products they've always imagined.

New maXTouch S Series devices include:

- mXT224S: Building on the popularity of the mXT224 and mXT224E, a 224-node controller with all the benefits of the S Series architecture for smartphones, digital still cameras and other handheld products with touchscreens from 3.5" to 4.3".
- mXT336S: A 336-node controller that brings high-precision input to larger format superphones with screens between 4.3" and 5.5" diagonal.
- mXT1664S: A high node density, single-chip 32-bit solution targeted at tablet products with touchscreens of 10.1" and above, measured diagonally, and designed to meet the stringent requirements of Windows 8, as well as products based on other operating systems with touchscreens up to 17" diagonal.

Eliminating Impact of Display Noise with SlimSensor™ Technology

A key feature of the maXTouch S Series, SlimSensor Technology enables system designers to deliver mobile products that are thinner and lighter than was previously possible, without sacrificing immersive responsiveness, touch fidelity or battery life.

SlimSensor Technology is a breakthrough combination of hardware and firmware innovations that combats display noise up to 3.5V from any type of display, including ACVCOM LCDs and noisier high pixel density displays. Because SlimSensor

Technology features full hardware acceleration of noise-cancelling functions, it delivers this industry-leading noise immunity with a 2X improvement in responsiveness compared with the current, market-leading generation of maXTouch devices. Remarkably, the technology does not require additional listening channels, synchronization to display timing, or time-consuming tuning, which simplifies the design-in process. SlimSensor Technology's ground-breaking level of performance, and the simplicity with which it is delivered to the system designer, is unmatched by any other touchscreen controller.

With SlimSensor Technology, system designers can use leading-edge sensor technologies, including fully laminated, unshielded touch-on-lens sensors, display-integrated on-cell sensors and ultra-thin film sensors. These advanced touch sensor stacks are up to 58% slimmer than their conventional counterparts, enabling system designers to reduce end-product thickness by more than 1mm. They also have the added benefits of reducing product weight for a more enjoyable experience during prolonged periods of use as well as improving the optical clarity and the apparent brightness of the underlying display. With maXTouch S controllers featuring SlimSensor Technology, system designers can deliver mobile products that delight users with unprecedented slimness, vividness and responsiveness.

Delivering Touch Performance with maXCharger Technology

Another key maXTouch S Series feature, maXCharger Technology is a novel blend of analog circuitry and intelligent algorithms that enables flawless touch performance with battery chargers that output up to 240V of common-mode noise. The technology eliminates false touches while maintaining industry-leading responsiveness, linearity and low jitter performance.

maXCharger Technology utilizes high voltage and advanced algorithms to provide the equivalent of 14.4V touch sensor scanning on the mXT336S and the mXT224S, resulting in a full 4.5X improvement in signal-to-noise ratio (SNR) in noisy conditions. The mXT1664S provides the equivalent of 24V touch sensor scanning with a corresponding SNR increase, shattering previous industry records. System designers can choose to engage this high-voltage scanning only when the charger is plugged into the system, as it is not needed when the system is running off the battery.

In addition to high-voltage scanning, maXCharger Technology also utilizes spike suppression to remove severe noise spikes before they corrupt measurements and active noise avoidance to seek out quieter operating frequencies. These enhancements result in a 3X increase in responsiveness compared to previous generations of maXTouch devices in the presence of severe charger noise. With maXCharger Technology, system designers can be assured that their users will enjoy an immersive, transparent and frustration-free touch experience, even when they connect their mobile devices to the noisiest chargers on the market.

Supporting Active and Passive Stylus Solutions

maXTouch S Series controllers support Atmel's recently announced 1mm maXStylus™ active stylus with multiSense functionality, which enables high-precision, simultaneous touch and stylus input. Lower cost passive stylus with 2mm tip is also supported at over 120Hz report rate with a dramatic 2X improvement in linearity versus the previous generation of maXTouch controllers. For a natural user experience, both stylus technologies feature intelligent palm rejection. As the stylus implementation is common across all maXTouch S products for smartphones and tablets, a single stylus can be used on all the user's mobile products. With maXTouch S Series, system designers can transform mobile products into powerful tools for productivity and creativity on the go.

Going far beyond noise cancellation, maXTouch S Series controllers deliver additional breakthroughs for maximum touchscreen performance:

- Fully parallelized touch sensor scanning, enabling the industry's fastest report rates
- Sensor electrode pitch that is narrower than 4.5mm in common smartphone and tablet screen sizes, for higher touch sensing and stylus tracking resolution that matches increasing display pixel density
- Improved touch-processing algorithms, for better finger-tracking precision, improved accuracy and linearity, and more sophisticated rejection of unintended touches

With these enablers, maXTouch S Series controllers easily exceed the stringent requirements for touch performance mandated by Microsoft's Windows 8 and Windows Phone 8 operating systems. With stylus support, maXTouch S controllers also enable end-products to take advantage of the latest features of Google's Android 4.0 (Ice Cream Sandwich) operating system.

"The introduction of the maXTouch S Series represents a major milestone for Atmel and a fundamental redefinition of how touchscreen design can be accomplished. Designers of industry-leading touch interface products will no longer have to compromise on touchscreen performance and extreme functionality because of system noise," said Peter Jones, vice president of the microcontroller and touch business unit, Atmel Corporation. "Freed from previous constraints, design engineers now have a technology platform with which they can unleash their creativity and integrate touch interfaces into a new breed of mobile products that will delight consumers. 2012 will be a very exciting time for Atmel and for the industry as a whole."

Availability

maXTouch S Series devices are now sampling with lead customers. Production quantities will be available in Q1 2012.

More Information

To see the latest videos, visit the Atmel YouTube Channel at www.atmel.com/youtube [1] or follow Atmel on Twitter [2], LinkedIn [3] and Facebook [4] for more news.

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