

ATLab Inc.

The Professional Group of System LSI



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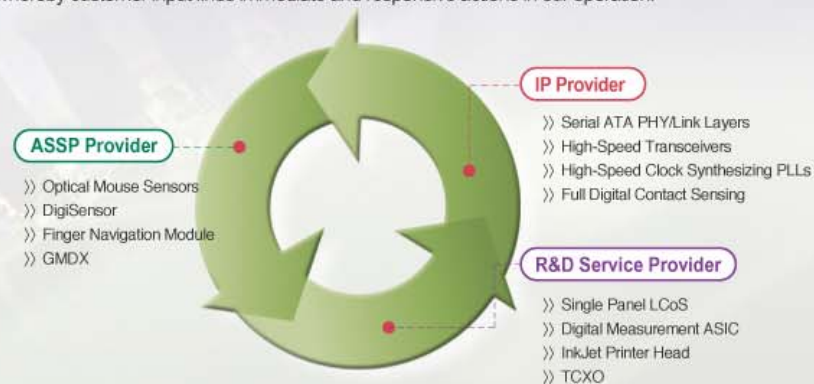
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Founded in July 2000, ATLab is a fabless semiconductor company specialized in mixed-signal System-on-Chip (SoC) fields. ATLab envisions a new approach with 3 business models. One of its business models is ASSP, which has HID field and high speed transmission/reception field. In HID field, there are optical pointing sensors and digital impedance sensors and the key products are Optical Mouse Sensor, DigiSensor and Finger Navigation Module. As for the high speed transmission/reception field, there is a product called GMDX(Gigabit Multimedia Data eXpress). In addition to ASSP business, ATLab has also Intellectual Property (IP) business and Shared R&D Services. ATLab is continuously striving to achieve higher standards in order to meet the most stringent customer requirements with emphasizing two critical components: Continuous adherence to internationally recognized quality standards and customer support system, whereby customer input finds immediate and responsive actions in our operation.



DigiSensor™

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DigiSensor technology is originated from DCC (Digital Contact Controller) that is an innovative touch sensor. It has been improved from an existing analog touch sensor by realizing a capacitance to digital converter using 100% digital technology. DCC is realized to DigiButton™ and DigiScroll™ that was applied to more than 150 models of electronics and is working on another 70 models. DCC has been also licensed to STMicroelectronics and MosArt as an IP format. ATLab is concentrating its resources to continue innovation beyond DCC to other applications. DigiTouch™ is an example of its plan to penetrate into the High Resolution Touch Screen market.



● DigiButton™ / DigiScroll™

DCC is suitable for navigation and access to contents in portable devices with mass storage capacity such as mobile phones, MP3 players, portable media players, and PDA s. It detects 12 sensor inputs of human finger contacts then transmits the result to MCU through serial interface at the speed of 500 ~ 5000 times per second with less than 10 μ A current consumption per sensor input. It is fast enough to conceal any environmental disturbances such as water drops. The fully differential-input architecture enables highly insensitive characteristics against RF coupling.



● DigiCap™

ATLab's proprietary technology that enables a wide variety of applications, including capacitive finger navigations, proximity sensors, pressure sensors, and MIC sensors, by converting the changes of capacitance into digital data with high resolution at a high speed.



● DigiTouch™

ATLab is under developing 2-dimensional solutions using transparent electrodes (ITO) modules that will be available to provide Electrostatic capacitance type Button ITO modules and X-Y Matrix Type modules which require high level of reliability amid changes in the UI of mobile products



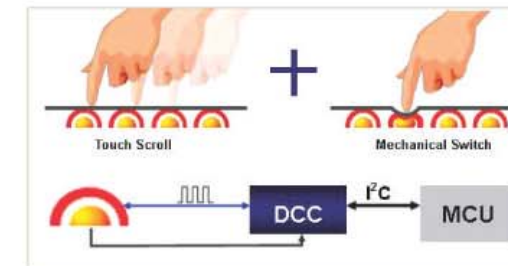
ATA2508 Feature (DigiButton™ / DigiScroll™) ●

- ›› A patented technology with fully digital architecture.
- ›› AIC™ (Automatic Impedance Calibration)
- ›› Converts the capacitance generated by touching to 8-bit digital data.
- ›› Sets up different sensitivity for each touch channel inputs
- ›› Low power consumption for operation (below 0.15mA), idle and sleep mode (lower than 1 μ A)
- ›› I²C interface
- ›› Little noise from adjacent patterns
APIS™ (Adjacent Pattern Interference Suppression)
- ›› Response speed range : 0.2mSec ~ 40mSec
- ›› Numbers of channels for touch input : 6, 9, or 12
- ›› Water proof using differential signal processing technology
- ›› High reliable ESD Protection HBM : 8KV (Touch Input)
- ›› Package Types : 40QFN, 32QFN, 24QFN, 30SSOP, 24SSOP, and 20SSOP



Applications of DigiSensor DCC ●

TPS (Touch Plus Switch)



- ›› Simultaneous use of both electronic touch and mechanical switch output on a single dome switch
- ›› Use only single DCC for 12 touch inputs and 12 dome switch outputs
- ›› Specific applications
 - Simultaneous use of touch scroll for volume control and mechanical buttons
 - Half shutter function for digital cameras

Finger Navigation Modules

Optical Mouse Module

Finger Navigation Module is ATLab's new human input device that is a pointing device realized mouse or joystick function into thumb disk type. Cursor can move smoothly by 360 degrees and it also can be applied in various applications with multi-step and can be realized in a single module with joystick mode and pointing mode with scroll and button functions.

Optical Finger Navigation Module

OFN Module is an input device operating in a way that it performs positioning by converting the movement of a finger into 2D navigation signal using an advanced optical and navigation technology. The Lens, LED and sensors are embodied in very thin housing, so that the module is robust against dust and moist. The optical noise filter also embodied inside allows for strong resistance against external optical noise. With a one channel touch sensor embodied inside, the LEDs are turned on only when there is a touch by the user, allowing efficient power consumption.



Capacitive Finger Navigation Module

CFN Module, an electrostatic capacitance type finger navigation using DigiCap, is a technology that converts the amount of capacitance generated between two conductive films into digital coordinate data. This is less than 1mm thick, allowing realization of joystick features and applications for, for example, mobile phones because it consumes only 100 μ A during operation and 50 μ A during standby.



Applications

- >> Portable devices, mobile phones, UMPC, MID, digital cameras, etc
- >> Game consoles
- >> Presentation mouse, remote control, etc

OFN versus CFN

	Optical Finger Navigation	Capacitive Finger Navigation
Operation Mode	Mouse Mode	Joystick Mode
Resolution	> 800 CPI	~ 64 CPI (1,024 CPI for 3Q 2008)
Thickness	5 mm now 3.5 mm in 3Q, 2008	very thin (~ 1 mm)
Power (include LED)	~ 12 mA at operation mode ~ 50 μ A at standby mode	~ 100 μ A at operation mode ~ 50 μ A at standby mode < 10 μ A in 2Q 2008

ATLab is the second company in the world ever to develop an optical mouse sensor with its own technology, which combines semiconductor and optical technologies. The newly developed optical mouse module features all the sensors, LEDs and lens integrated in a very small housing. The optical mouse module is compact enough to apply any design. It is also ideal for a multi-functional device that incorporates a mouse, an MP3 player and a presenter.

SM1D-I2C

- >> Embodies an optical mouse sensor, LED and lens in a single housing.
- >> Thin as 4.9mm
- >> Ideal for wireless applications with low power consumption of 3.3V
- >> Optimized power management with a single channel touch sensor embodied inside
- >> Support for data interface of I²C format and register setting possible for some features
- >> Input button click data from the mouse (3-button)
- >> High resolution of 800cpi
- >> Optional internal clock between 6MHz and 12MHz



MOM-TS46

- >> Embodies an optical mouse sensor, LED and lens in a single housing.
- >> Thin as 4.9mm
- >> Power supply of 5V
- >> Support for USB and PS2 interface (auto detection included)
- >> No extra MCU needed as a USB MCU is embodied (support only for a mouse)
- >> Input of button click data from the mouse (possible to choose between 3-button and 5-button)
- >> Optional selection either 400cpi and 800cpi
- >> Internal clock of 12 MHz



GMDX (Gigabit Multimedia Data eXpress)

IP & Design Service - Shared R&D

GMDX allows transmission and reception of multimedia data such as video, audio and digital control signal via a physical line (either optical fibers or shielded twist-cable). Since this transmits and receives non-compressed raw data, it has no risk of data loss to transmit high resolution audio/video and control signals. It can be used for a wide range of applications because it supports a Camera Link dimension for a vision system.

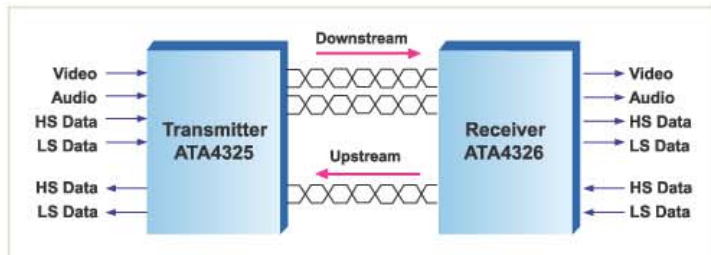
● ATA4315 (TX) / ATA4316 (RX)

- » Capable of transmitting VESA video signals from VGA to XGA (XGA is only supported in 18-bit mode)
- » Support for a single downstream link and upstream link each
- » Possible to choose between 24-bit (8bit for RGB) mode and 18-bit mode (6bit for RGB) for video signal transmission.
- » Possible to transmit four channel audio signal (digital format), one channel high speed data (50 Mbps/Ch) and five channel low speed (1 Mbps/Ch) data simultaneously with a video signal through Downstream
- » Possible to transmit one channel high speed data and five channel low speed data through Upstream
- » Power supply of 3.3V for I/O pins or 1.8V for internal logics



● ATA4315 (TX) / ATA4316 (RX)

- » Capable of transmitting VESA video signals from VGA to XGA (possible to choose between 24-bit and 18-bit modes. SXGA is only supported in 18-bit mode)
- » Support for two downstream links and one upstream link
- » Possible to transmit four channel audio signals (digital format), one channel high speed data (50 Mbps/ch) and five channel low speed (1 Mbps/ch) data simultaneously with a video signal through Downstream
- » Possible to transmit one channel high speed data and five channel low speed data through Upstream
- » Power supply of 3.3V or 1.8V



ATLab has a group of semiconductor specialists, who have a lot of experiences and expertise in every area of semiconductor, including product planning, development, manufacturing technology, marketing, and sales. ATLab provides a professional service to meet customers requirements in every process step from specification development, prototyping, and product production and maintenance as like as virtual team of the customer organization. We call this service Shared R&D.

IP and design service are the two cornerstones that support Shared R&D. IP business involves pre-design and test of part of the circuit to be integrated into a SoC chip. But under the current situation where changes in the process happen very frequently due to the fast development in semiconductor technology, the IP business that provide pre-tested IP might not be appropriated for a business in which time-to-market is the key. Therefore, ATLab strives to help its customers remain competitive even in a fast changing business environment by offering services that combine proven IP, process re-targeting, IP modification and others.

Proven Track Records of Design Service ●

