

TAIWAN IC DESIGN HOUSES BUSINESS MATCHING



HSINCHU SCIENCE PARK BUREAU

2018.3.8~3.14

Taiwan companies held the second largest fabless integrated circuit market share in the world at 18 percent in 2016, compared to 17 percent in 2010. Over the years, IC design companies have enjoyed consistent business growth, accounting for 30 percent of the world's overall IC sales in 2016, compared to only 18 percent 10 years earlier, according to the latest survey released by U.S.-based market research firm IC Insights.

While ranking second in international fabless IC sales, Taiwan remains the leader in IC production capacity. According to the Global Wafer Capacity 2017-2021 report published by IC Insights in February, the nation held 21.3 percent of the world's IC fabrication capacity in 2016, a slight decrease from 21.7 percent in 2015, when the country first took its leading position in the industry. Taiwan's top IC design houses, which do not have fabrication facilities of their own and the value chain of the IC industry is composed of three segments, namely IC design, manufacturing, and packaging and testing. In particular, most IC design houses, headquartered in northern Taiwan's Hsinchu City, Hsinchu Science Park, are known as a major supplier of complete solutions for ICT industry.

To facilitate the Europe business opportunity, Hsinchu Science Park Bureau lead 10 IC design houses to Netherlands, French and UK to connect the overseas market. The 10 IC design houses are Ambarella, ANDES Technology, DAVICOM Semiconductor, Eminent Electronic Technology, Etron Technology, Faraday Technology, Generalplus Technology, ProMOS Technologies, J-MEX and Novatek Microelectronics.

Hsinchu Science Park

In tandem with a global trend that rapidly gained momentum, Taiwan initiated its first science park—Hsinchu Science Park (HSP)—in 1980. Hopefully the success story of Silicon Valley could repeat itself in Taiwan.

The world's economic doldrums in 2016 posed daunting challenges to Taiwan, both internal and external. Even so, the HSP's tenant companies managed to generate revenues totaling NT\$1.040 trillion as their exports recovered in the second half of the year and set another new record. The year also saw the HSP usher in 30 new investment projects amounting to a combined NT\$5.32 billion. As of the end of 2016, tenant companies numbered 487, had paid-in capital of NT\$1.997 trillion, and employed 147,624 persons (excluding 3,029 persons employed by business service providers).

Looking to the future, the HSPB is ready to further promote international linkages and cooperation while expanding business opportunities by helping tenant companies with cross-border marketing.

Ambarella, Inc.

Introduction

Ambarella, Inc. (NASDAQ: AMBA) is a leading developer of low-power, highdefinition (HD) and Ultra HD video compression, image processing, and computer vision solutions. The company's products are used in a variety of IP security, sports, wearable, drone, and automotive video cameras.

Ambarella's solutions leverage over 20 years of pioneering research in computer vision to enable future generations of intelligent cameras, Advanced Driver Assistance Systems, and autonomous vehicles.

Product

- Security IP Cameras
- Sports, Wearable and Handheld Cameras
- Flying (Drone) Cameras
- Automotive Video Camera Solutions
- Broadcast Infrastructure Encoders

Awards

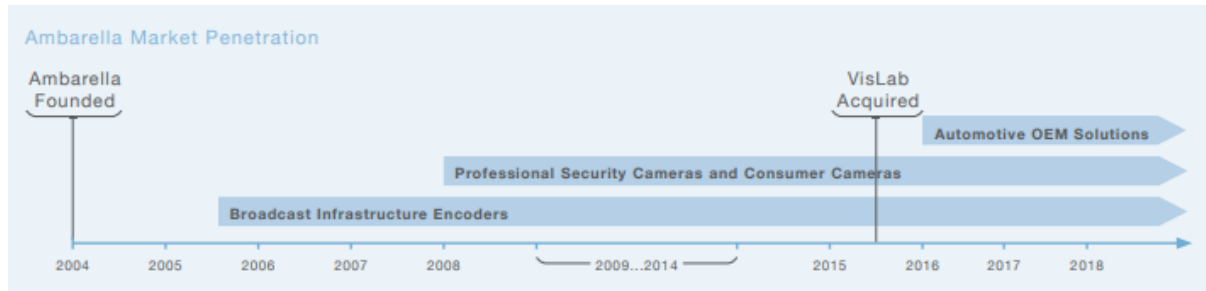
- 2008 GSA Outstanding Financial Performance
- 2009 GSA Start-Up to Watch
- 2010, 2011, 2012 GSA Most Respected Private Semiconductor Company
- 2013 GSA Analyst Favorite Semiconductor Company by Morgan Stanley
- 2014 GSA Most Respected Semiconductor Company (\$100 M to \$250 M Annual Sales)
- 2015 GSA Most Respected Public Semiconductor Company Award and GSA Best Financially Managed Semiconductor Company Award (Both \$100 M to \$500 M Annual Sales)

Leadership

Fermi Wang : Chief Executive Officer
 Les Kohn : Chief Technology Officer
 Didier LeGall : Executive Vice President
 George Laplante : Chief Financial Officer
 Chan Lee : VP of VLSI
 John Ju : VP of Systems and GM of Asia Design Centers
 Chris Day : VP of Marketing and Business Development
 Michael Chen : VP of Business Development
 Zemo Yang : VP of Operations
 Michael Morehead : General Counsel

Ambarella	
Address	Suite C1, No. 1, Li-Hsin Road 1, Science Park, Hsinchu
Phone/ Fax	+886-3-6668828
Website	https://www.ambarella.com/
Profile	Ambarella is a leading developer of low-power, high-definition (HD) and Ultra HD video compression, image processing, and computer vision solutions. Their products are used in a variety of IP security, sports, wearable, drone, and automotive video cameras.

Market Penetration



Milestones

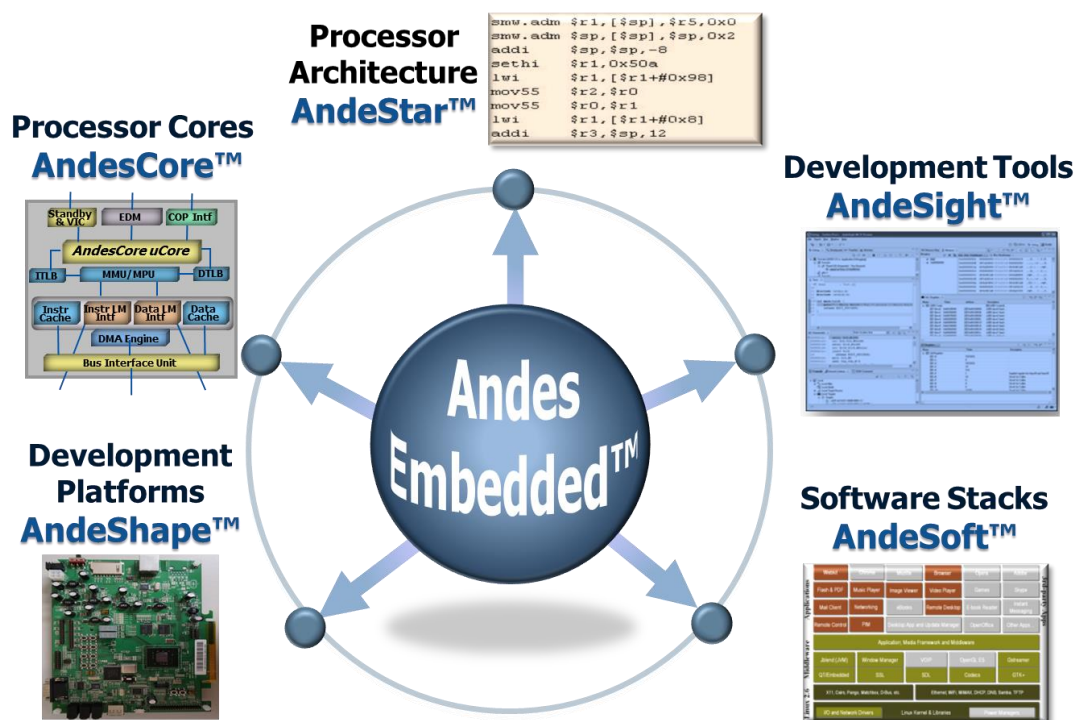
- 2004 Ambarella founded
- 2005 A1 introduced, a single-chip 1080i60 H.264 broadcast-class encoder
- 2007 A progression of advanced camera SoCs designed, developed and mass-produced for the consumer electronics, broadcast and IP camera markets
- 2015 Ambarella acquires VisLab, a European developer of computer vision and intelligent automotive control systems
- 2016 H2 introduced, a 14nm Ultra HD 4Kp120 H.264/AVC and 4Kp60 H.265/HEVC sports and flying camera SoC
S3L introduced, a 4K Ultra HD SoC family supporting H.265/HEVC and H.264/AVC encoding targeting IP security cameras
- 2017 A9AQ introduced, Ambarella's first automotive-qualified SoC targeting video recorders, surround view, and electronic mirror applications
S5L introduced, a 14nm 4K SoC for professional, consumer and battery-powered IP security cameras
- 2018 CV1 introduced, a 14nm 4K stereo and monocular vision processor with CVflow™ architecture for drone and automotive systems
CV22 introduced, a 10nm CNN/DNN-based 4K SoC with CVflow™ architecture for automotive, IP security, and consumer applications
SuperCam™ is introduced, an automotive 4K stereo camera platform with a perception range of more than 150 meters for generic obstacle detection

Memo

ANDES Technology

Introduction

After 12 years effort starting from scratch, Andes Technology Corporation is now a leading embedded processor intellectual property supplier in the world. We devote ourselves in developing high-performance/low-power 32/64 bit processors and their associated SoC platforms to serve the rapidly growing embedded system applications worldwide. With possession of technologies in the areas of processor, system architecture, operating system, software toolchains development, and SoC VLSI implementation, Andes can work closely with customers to shorten their time-to-market with quality design.



ANDES Technology	
Address	2F, No.1, Li-Hsin First Road, Hsinchu Science Park, Hsinchu
Phone/ Fax	+886-3-6668300 / +886-3-6668322
Website	https://www.andestech.com/
Profile	Andes develops 32/64 bit processors and SoC platform for embedded system.

Andes Solution

As the increasing demand for smart and power-efficient electronic devices drives the global embedded system market, Andes Technology Corporation stands as the leading embedded processor intellectual property (IP) supplier in the world and devotes itself in developing high-performance and low-power 32/64-bit processors and associated SoC platforms to serve the rapidly growing embedded system applications worldwide.

Starting from scratch, the Hsinchu, Taiwan-based Andes Technology offers configurable software/hardware IP and scalable platforms to meet customers' needs for quality products and faster time-to-market. With the innovative and patented AndeStar™ Instruction Set Architecture (ISA) and system architecture, Andes Technology has developed a series of processor related hardware/software technologies and products to help customers accelerate SoC software/hardware development and integration. Below is the product portfolio of Andes:

AndeStar™: Patented ISA

AndesCore™: CPU core families

AndeShape™: EVB + ACE + Platform IP

AndeSight™: Integrated development environment

AndeSoft™: Optimized target SW stack including Linux/RTOS, drivers, middleware and applications

Bolstered by proficient technical support engineers in Taiwan, China and the United States, Andes Technology proffers round-the-clock support as well as training courses to help its customers tackle their demanding SoC hardware and software development projects for applications such as AI, connectivity, IoT, multimedia, networking, sensor and storage. Backed by more than a hundred partners around the world, Andes Technology has built an ecosystem of its own. The total number of Andes-embedded SoCs shipped by Andes' customers has reached 2.4 billion and counting. With over thirteen years of experience, Andes Technology will continue to develop CPU IPs that have higher performance efficiency along with related services to provide customers with quality design and optimized services.

As a founding member of RISC-V Foundation and the first mainstream CPU IP vendor to adopt RISC-V instruction set architecture, Andes Technology also aims to enrich the ecosystem of RISC-V by collaborating with tool partners to provide advanced development tools for Andes' new V5 AndesCore™ N25 and NX25.

Memo

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DAVICOM Semiconductor, Inc.

Introduction

DAVICOM aims to manufacture the most professional technique of Communication and Network ICs. By way of mixing signal design and IC integration, we provide customers with the best solutions of SoC chipsets in Local Area Network (LAN), Wide Area Network (WAN), Personal Computing (PC), and internet areas.

ESL (Electronic Shelf Label) System

The world has been transformed by digitization for decades. With that, a brick-and-mortar retail store is being seriously impacted by the on-line e-commerce like Amazon in US and Alibaba in China. Along with IoT, Cloud and AI technologies booming, fortunately, the IoT technology is potential to transform the retailers' brick-and-mortar operations, in other words, it is replenishing the chasm happening due to O2O, Online-to-Offline or vice versa. The new term and ecosystem, Smart-Retail, is popping up. Of the IoT technology, the ESL System is an essential entity to transform the brick-and-mortar retail to a Smart Retail. With more than 20 years of professional deliverables in the ICT technology, product and business, Davicom is now dedicated to offering a state of the art total solution of the internet-capable ESL System, running with 2.4GHz wireless proprietary communication, which consists of 5 key elements:

- Tags (equipped with 2.4GHz RF and a power-saving E-Paper Display, not LCD),
- Gateway Server/Cloud,
- Handheld Scanner,
- Repeater,
- Mounting Rail.

DAVICOM Semiconductor	
Address	No. 6, Li-Hsin 6 th Rd., Science Park, Hsinchu, Taiwan
Phone/ Fax	+886-3-5798797 / +886-3-5646929
Website	http://www.davicom.com.tw/
Profile	DAVICOM produces communication and network IC, as well as the chipset in LAN, WAN, PC and internet. With over 20 digital & analog products and applied for Several IPs, DAVICOM has successfully become one of the leading IC design houses in Taiwan.



In functionality, the E-Paper driven Tag is a display of price information for the consumers while Gateway Server/Cloud and Handheld Scanner are a management tool to Tags for the retailers. The Repeater(s) can expand and extend the coverage of Tags in quantity and distance. Administering the database of Tags, the management tool is flexible for a customized template to the information-displayed design on Tag, in addition to Davicom-default template. In performance, a Gateway Server can update 6000 or more Tags within an encrypted networking domain in one hour typically. The Tag powered by one CR2450 coin battery can last 5 years at least upon two updates every day. The internet-capable ESL System can support the multi-branch model of stores in different locations through internet.

The ESL System will benefit the retailers with inventory control and supplier management in real-time manner. Furthermore, by data collection and data mining on the consumer behavior, the retailers can facilitate the marketing promotion strategy effectively and efficiently.

Memo

Eminent Electronic Technology

Introduction

Eminent is a leading technology company of optical sensors and 3D image sensors based in Hsinchu Science Park, Taiwan.

Our vision is to be a leading smart sensor technology provider to enhance human device interaction in mobile applications, and to enable IOT sensor networks.

Eminent Light and Proximity Sensor 3D Depth Image Sensor

Ambient Light-Proximity-Color-Gesture Sensor Module

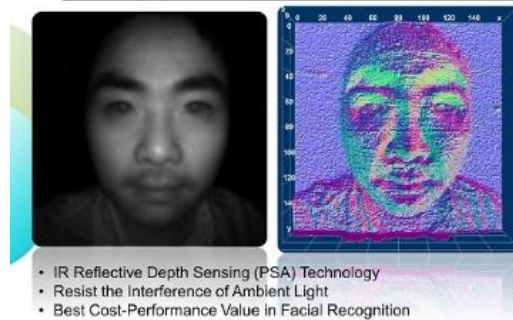
- 0.001 Lux low light sensing capability-- suitable to hide the sensor behind a dark cover glass
- User Presence Detector at 1 meter distance
- Hand gesture sensing at 15 cm operating distance
- Color temperature measurement within 1000K accuracy
- Applications: Smartphone, Tablet PC, NB, TV, LED Lighting, Electronic Kiosk

Eminent Electronic	
Address	6F., No.12, Chuangxin 1st Rd., Baoshan Township, Hsinchu County
Phone/ Fax	+886-3-5639986#6005
Website	http://www.eminent-tek.com/ +886-3-5639993
Profile	Eminent Electronic is a sensor technology provider in smart phones, tablet PC, notebook PC, TV, and smart homes. Their sensor technology enhance human device interaction in mobile applications, and to enable IOT sensor networks.

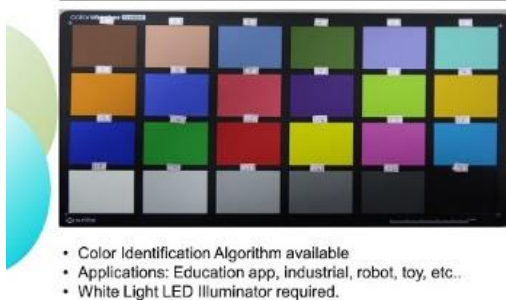
Applications

- Smartphone: ambient light sensor, color sensor, proximity sensor, hand gesture sensor
- AR/VR: proximity sensor, hand gesture sensor, face sensor
- Car smart rear mirror: ambient light sensor, hand gesture sensor
- Smart home devices: ambient light sensor, proximity sensor, hand gesture sensor, face sensor, color sensor
- Robot, drone, interactive display, SLAM: A3D IR image sensor, proximity sensor
- Toy, Education: color matching sensor, face sensor, hand gesture sensor

MN96100: Facial Recognition



MN79006: Color Identification



MN96100: Hand Gesture



Memo

Etron Technology, Inc.**Introduction**

Etron Technology, Inc. (Taiwan GTSM: 5351) is a world-class fabless IC design and product company founded in February 1991, specializing in buffer memory and system-on-chips. As a leading manufacturer of buffer memories, Etron offers cutting-edge Known-Good-Die-Memory (KGDM) and Consumer Electronic DRAM (CEDRAM). Etron's full line of Buffer DRAM chips - available in densities ranging from 8Mb to 1Gb - is designed to ensure high processing speeds and low-power consumption for Consumer, Communication, Computer, and Car (4C) applications. Moreover, Etron has developed many advanced system-on-chip (SOC) IC products, including USB3.0 host controller ICs, USB3.0 flash drive controller ICs, and 3D imaging and gesture-sensing integrated webcam controller ICs.

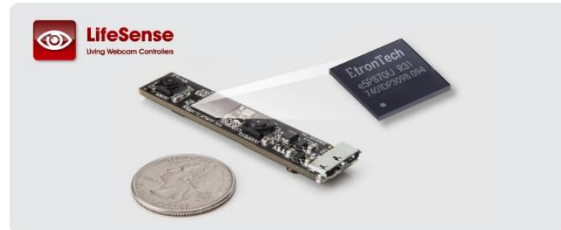
Product

Etron has kept the flexibility, agility and product focus of a fabless IC company by establishing strong partnerships with leading foundries and companies having complementary skills from different specialty segments. It also actively upholds the attentive customer services of a fabless operation. With a deep knowledge in silicon technology and manufacturing, as well as quality management, Etron has overcome the weakness of traditional fabless companies.

Memory IC

Etron Technology	
Address	No. 6, Technology Road 5, Hsinchu Science Park, Hsinchu
Phone/ Fax	+886-3-5782345 / +886-3-5779001
Website	http://www.etrone.com/
Profile	Etron offers cutting-edge Known-Good-Die-Memory (KGDM) and Consumer Electronic DRAM (CEDRAM).

System IC



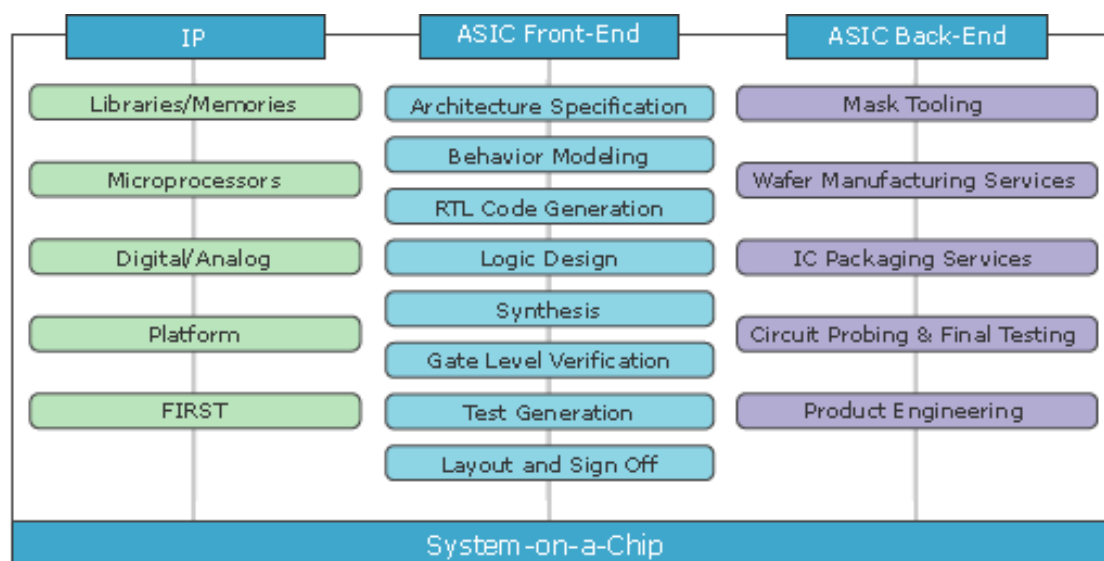
Etron has maintained the flexibility, agility and product focus of a fabless IC company by establishing strong partnerships with leading foundries and companies with complementary skills from different specialty segments. It also actively upholds the attentive customer services of a fabless operation. Etron Technology has created a highly competitive product line in terms of both niche buffer memory solutions and next generation webcam controllers. In particular, the combination of increasingly ubiquitous USB3.0 host and device controllers makes more innovative and creative advanced IC products possible, especially in the 3D IC sector, offering a powerful tool to drive any company's growth.

Memo

Faraday Technology Corporation

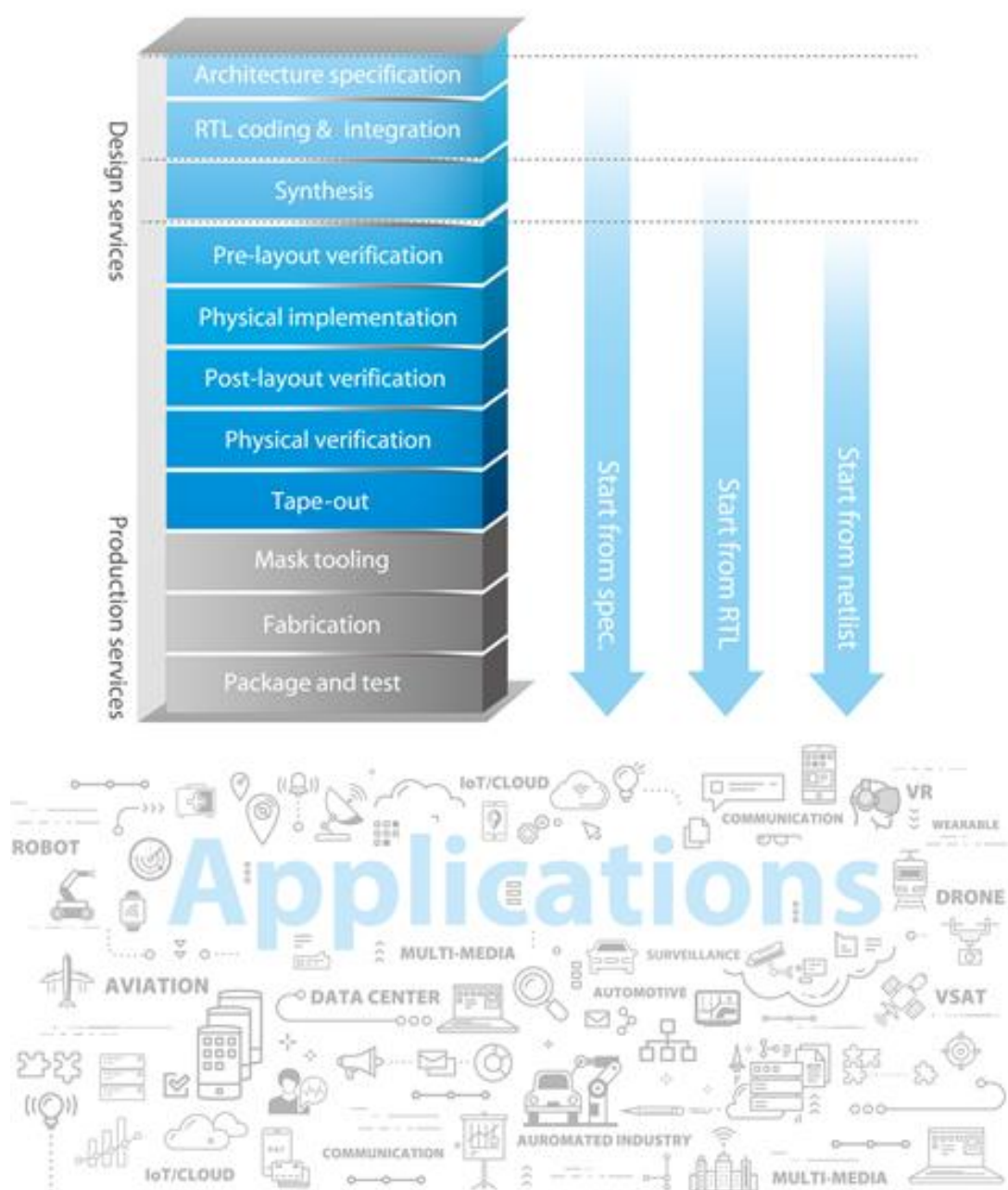
Introduction

Faraday Technology Corporation is a leading fabless ASIC / SoC and silicon IP (intellectual property) provider, ranking in top 50 fabless IC suppliers in the world and top 10 in Taiwan. Since establishment in 1993, Faraday has delivered more than 2,200 ASIC mass production projects. Capable to provide IP consulting or customization at ASIC level and SoC development tools to support the complex development process and accelerate ASIC/SoC time-to-market.



Faraday Technology	
Address	No.5, Li-Hsin Rd.III, Hsinchu Science Park, Hsinchu
Phone/ Fax	+886-3-5787888 / +886-3-5787889
Website	http://www.faraday-tech.com/index.jsp
Profile	Faraday Technology is a leading fabless ASIC / SoC and silicon IP (intellectual property) provider, ranking in top 50 fabless IC suppliers in the world and top 10 in Taiwan.

Extensive ASIC Model



Memo

Generalplus Technology

Introduction

Generalplus Technology is fabless IC design house in consumer application fields, including graphical multimedia, speech, smart educational toy, and industrial-controlled MCU. You may also discover lot of everyday stuff that are coming from us, such as communication device, remote controller, interactive toy, electronic-pet, wearable devices, dashboard camcorder, drone camcorder, boom box, MP3 player, Qi wireless charger, calculator, kids learning aid, touch-control appliance, e-bike, hover board and many others.

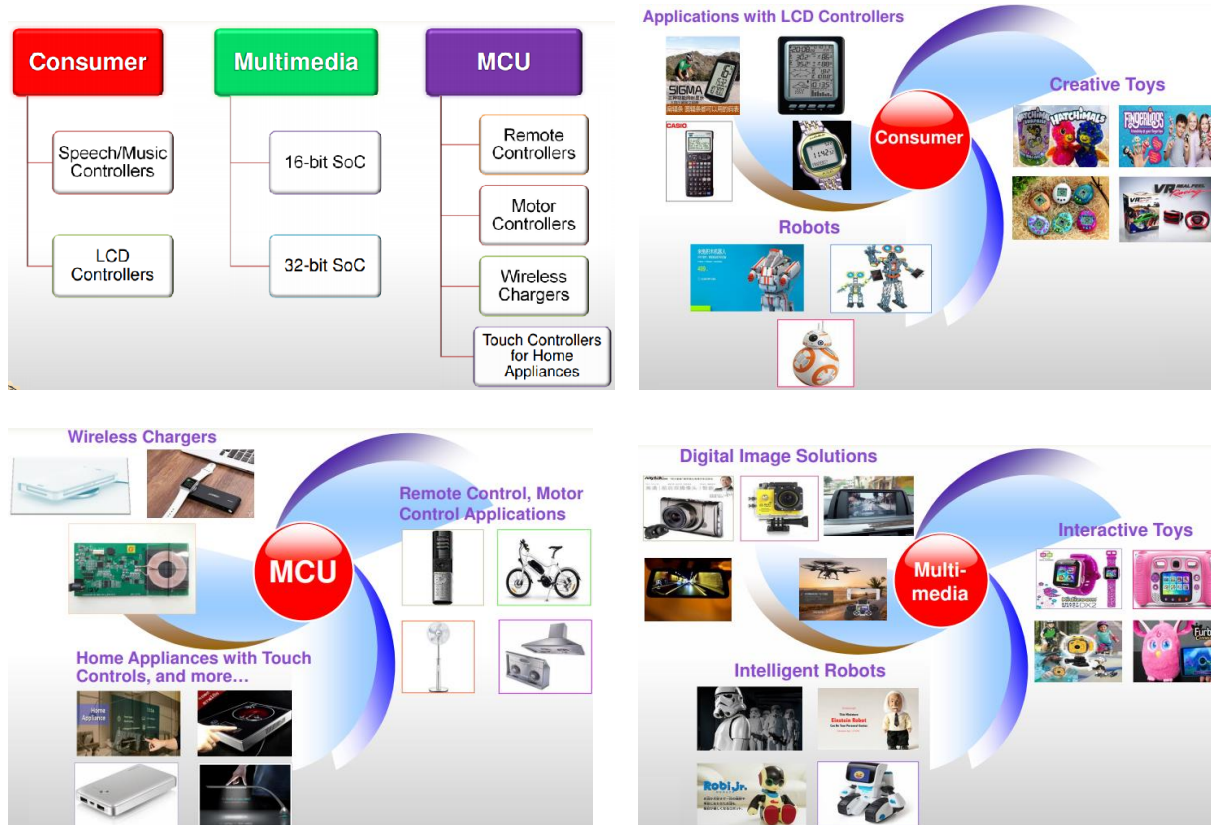
Integrated Development System

	Proprietary Assembly / C Language IDE
	Proprietary Quick Programming Language and Debugger
	User Friendly Visual Text / Graphic Editor
	Fully Functional Programming and Emulation Environment
	Software Tool & Documentation Management on Cloud
	Mobile Device Apps Software Development Kits (SDK)

Generalplus Technology	
Address	No.19, Industry E. Rd. IV, Hsinchu Science Park, Hsinchu
Phone/ Fax	+886 3-6662118 / +886 3-6662117
Website	http://www.generalplus.com/
Profile	Generalplus Technology is the major integrated circuit providers worldwide, specializing in voice IC and multi-media product solutions which covered graphical multimedia, speech, smart educational toy, and industrial-controlled MCU.

Product

Highly integrated SoC for cost effect / mass market consumer product, with Cortex M4F/M0/ARM9/ARM7 to 16/8/4bit, with lot of build-in periphery include voice /motor /touch /camera /video /LCD.



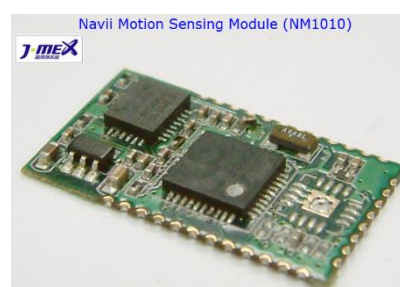
Generalplus Technology not just provide IC; and also provide related IP/Library and full SDK.

Memo

J-MEX Inc.

Introduction

J-MEX Inc., (formerly known as IMU Solutions, Inc.) established in January, 2006 at Hsinchu Science-based Industrial Park. With years of development not only in 3D sensing, data analysis and algorithm design, but with manufacturing and testing experiences as competitive advantages of EMS industry in Taiwan, J-MEX becomes one of the leading MEMS (Micro-Electro-Mechanical System) applications innovator in Taiwan, specializing in 3D motion tracking technology, motion sensing products and service. With advanced sensing technology, J-MEX offers complete solutions between the physical and the digital world in industrial control and measurement, consumer electronics to the market.



J-MEX	
Address	B2, 3F, No.1, Li-Hsin 1st Rd, Science Park, Hsinchu
Phone/ Fax	+886-3-6661036 ext.211 / +886-3-6661061
Website	https://jmex.com.tw
Profile	J-MEX focuses on developing patent sensing algorithms and related motion sensing technology.



MOTI CORE MOTI STRAP



SHADES OF GREY



MCLAREN FLASH



VICTORIA'S SECRET HOT



AURORA BOREALIS

Design & Specifications

Motion Sensor: Accelerometer, Gyroscope
 Key: Power Key and Function Key
 Function of Keys: Pedometer and Auto Recognition for Sport Mode
 Wear Location: Wrist, Arm, Ankle
 Wireless Communication: Bluetooth 4.0 (Bluetooth LE)
 Indicator: LED (Blue / Red) and Vibration Motor
 Ingress Protection: IPX4

Firmware Upgradeable by APP
 Automatic Data Upload to APP
 Dimension: (Diameter) 40.0mm x (H) 13.8mm Without Base
 Battery Capacity: 90mAh Li-ion (Micro USB)
 Charging Time: 1-2 hr
 APP Support: iOS / Android

APP Features

Training Log



Coach Lesson



Personal Highlight





J-MEX Inc. B2, 3F, No.1, Li Hsin 1st Rd, Science Park, Hsinchu, 30078, Taiwan, R.O.C
 Tel: +886 (3) 6661036 Fax: +886 (3) 6661091 / Email: service@jmex.com.tw / Website: www.moti-wearable.com

Memo

ProMOS Technologies

Introduction

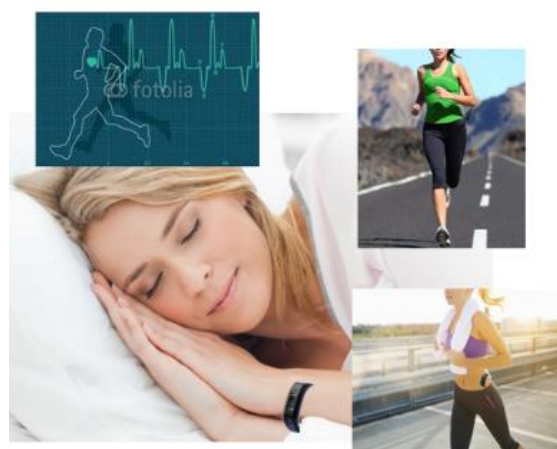
ProMOS Technologies Inc. manufactures and sells memory products. The company offers DDR3 SDRAM, DDR2 SDRAM, DDR SDRAM, SDRAM, mobile memory, and KGD products. It also provides design, assembly engineering, testing, and field application engineering services for memory products.



Product



Wearable Device BLE-Band



BLE-Band is a smartphone extension device equipped with Bluetooth technologies. In addition to monitoring your physical activity level, such as walking distance, steps counting, sleeping quality and heart rates, and so forth, for maintaining a healthier lifestyle, this device also serves as an excellent positioning and tracking device for locating designated objects/ persons' positions and locations inside buildings, for tracking delivery/ receiving records of patients, samples or prescriptions in medical/daycare/elder care institutes and for exchanging required information in factory operations.

Applications for a healthier lifestyle monitoring.

Key Functions

- Motion status monitoring
- Calculation of calories burned
- Sleep status analysis
- Heart rates detection
- Sedentary alert
- Smartphone function extensions

ProMOS Technologies	
Address	3A3, No.1, Lixing 1st Rd. ,East Dist., Hsinchu Science Park, Hsinchu
Phone/ Fax	+886-3-5798308 / +886-3-5798309
Website	http://www.promos.com.tw/
Profile	ProMOS has experience in high level Information System Integration, and is capable of Design / Management / Service total solutions. Their solutions include customized Memory Products, high quality Industry 4.0, IoT, and System Integration Services.



BLE + WiFi Bridge BLE-Care

BLE-Care is an ideal catchall monitoring solution for patient care. All information and alerts of patients' health conditions and of required treatments/actions will be instantly and bidirectionally transmitted through BLE-WiFi bridge mesh system.

Applications for medical institutes, elder care houses or sanatoriums and security management.



Key Functions

- Fall detection & alert
- Physiological anomaly detection & alert
- Indoor position tracking
- Apparatus locating
- Area guard and security management

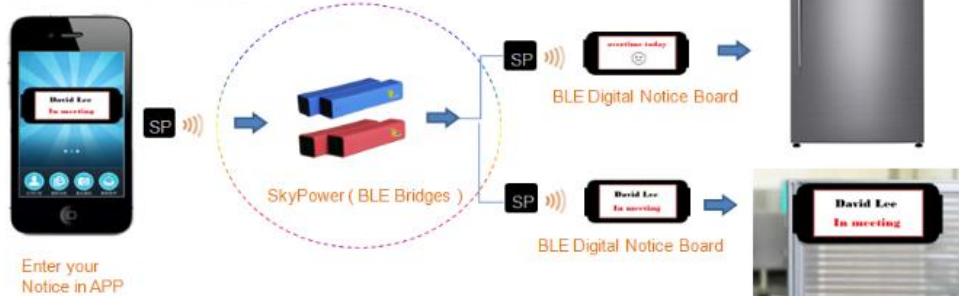


BLE Digital Notice Board

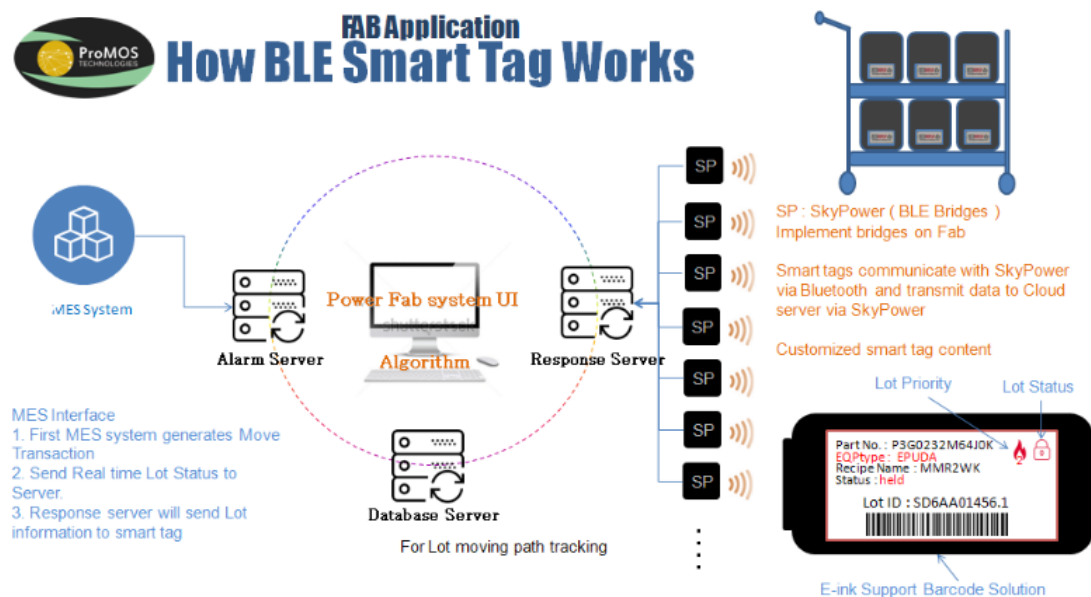
BLE-Digital Notice Board is an e-paper device using Bluetooth technologies. You will enjoy more convenient and pleasant experiences of communication and messages transmission when use our BLE-Digital Notice Board. You can send notices and/or reminders to any persons while you are in office. This device will also remind you whenever your BLE devices' battery is running out.

Key Functions

- Notice
- Reminder
- BLE Device Power Consumption
- Smart Band information
- BLE Devices information
- Ultra low power display using E-Paper



FAB Application How BLE Smart Tag Works



ATTENDEES

Name	Title	Government unit/Company
Andrea T. J. Hsu	Deputy Director-General	Hsinchu Science Park Bureau, Ministry of Science and Technology
Sui-Mei Lee	Senior Specialist	Hsinchu Science Park Bureau, Ministry of Science and Technology
Liu-Shan Wu	Associate Researcher	Hsinchu Science Park Bureau, Ministry of Science and Technology
Bo-Heng Lin	CEO	IAPS, National Chiao Tung University
Yung-Yuh Huang	Senior Advisor	IAPS, National Chiao Tung University
Tzu-Hsueh Wu	International Biz link Coordinator	IAPS, National Chiao Tung University
Kuo-Chi Lin	Vice President of Sales Division	ANDES Technology
Chihh-Sien Chen	Director, Marketing & Technical Service Division	ANDES Technology
Ting Hao	Chairman	DAVICOM Semiconductor
Nien-Tai Chen	General Manger	DAVICOM Semiconductor
Chih-Yu Lin	Sales Manager	Faraday Technology
Wan-Lee Sun	Sales Manager	Faraday Technology
Chan-Peng Lo	Director of development department	Eminent Electronic Technology
Chien-Fu Chen	Manager	ProMOS Technologies
Yao-Tsung Chang	Sales Manager	J-MEX
Chen-Yu Kai	Account Manager	Etron Technology
Dor-Pin Chen	Director	Ambarella
PAMELA Chen	Sales Specialist	Ambarella
Yun-Yin Chan	Marketing Manager	Generalplus Technology