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Manual of Study Tour & Match-making for SSL Industry Partnership

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**Representative Information**

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**Institute Profile**

ISCAS was founded in 1960, as the first comprehensive research institution of China in the semiconductor S&T field. During the years, the institute has developed into a comprehensive research institute with integrated research programs, ranging from semiconductor physics, materials and devices to their application. It now constitutes the following major research laboratories and centers, including National Laboratory for Semiconductor Superlattices and Microstructures, Solid State Lighting R&D Center of CAS, R & D Center for Semiconductor Material Sciences, Key Laboratory for Semiconductor Material Sciences, Optoelectronic R & D Center, Semiconductor Integration Technology and Engineering Center, National Engineering Research Center for Optoelectronic Devices, Laboratory for Semiconductor Neural Networks and High Speed Circuit, State Key Laboratory for Surface Sciences (ISS Division), Laboratory for Optoelectronic Integration, Laboratory for Nano-optoelectronics, Group of Photoelectron Application and Development of Systems Research and Library and Information Center. Among them, there are two national research centers, three state key laboratories, one research center and one key opening laboratory of Chinese Academy of Sciences. In addition, the institute holds 10 joint venture enterprises, including Compound Crystal Technology Co. Ltd. and High-tech Optoelectronics Co. Ltd.

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**Research Fields**

1. Information photoelectron
   - a) The photons integration of semiconductor
   - b) High-speed optical communication
   - c) Space solid state electron and photoelectron
   - d) Local area optical communication

2. Energy sources photoelectron
   - a) DPL
   - b) Solid-state lighting
   - c) Photovoltaic materials and device

3. Novel function materials
   - a) Diluted magnetic semiconductor
   - b) High-temperature and wide-gap semiconductor
   - c) Novel single-crystal materials and thin film preparation
   - d) Technique for large-mismatch hetero-structure substrate

4. Special type integrate circuit for CMOS/SOI

5. Design of special integrate circuit

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**International Cooperation**

- 4 Nobel Prize winners, and more than 700 overseas scholars have visited IOS.
- More than 300 scientists of IOS have been abroad for studying or training in the foreign R&D groups.
- 25 honorary & visiting professors
- Establish academic relationships with 18 European and American countries.
- Hold 16 international symposiums and conferences.

**Cooperative Agreement & MOU**

- Signing Cooperative Agreement with Tohoku University & Nagoya Institute of Technology
- Signing Cooperative Agreement with Design Bureau of Transport Machinery (R & M of Rosaviakosmos (RKA))
- Signing Cooperative Agreement with Nikolaev Institute of Inorganic Chemistry, Novosibirsk, Russian Academy of Sciences
- Signing Cooperative Agreement with Korean Optoelectronic Technology Institute (KOPTI)
- Signing MOU with Sandia National Lab, USA

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**Prof. Tsui C., 2005, 2008**

**Prof. Zhores, Alferov, 2005, 2008**

**Prof. Walter Kohn, 2005, 2008**

**Prof. Klaus V. Klitzing, 2004, 2008**
**Representative Information**

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**Lab Profile**

The laboratory covers an area of more than 50,000 square meters, with 100 plus researchers. The up-stream and mid-stream researches are undertaken by Institute of Semiconductors, Chinese Academy of Sciences and Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences. And the down-stream research are undertaken by TUDelft Beijing Research Center, Beijing Tsinghua Urban Planning & Design Institute, National Lighting Test Centre (Beijing) etc. And now we are open to experts home and abroad.

We have 6 departments: Basic Materials Technology, Key Components, General Application and System, Innovative Lighting Application, Intellectual Property Application & Strategy and Administration and management. The laboratory obtains 104 sets of equipment on wafer, chip, packaging test, application research and product testing, which enable us to make researches on basic material technology, key components, general application technology etc.

We aim to be leading in basic and edge-cutting technologies and back the industry development by solving key technologies. We will put the research achievements into market by self-use, authorization and technology spillover etc.

**Research Fields**

1. **Basic Materials Technology Center**
   - Mid and long-term fundamental research and new white-light technology research, focusing on GaN homoepitaxial growth, ultraviolet LED manufacturing technology, non-phosphor powder LED epitaxial technology etc.

2. **Key Components Center**
   - The innovation research on general technology integration, focusing on HP & HB large-scale (150lm/W) wafer, chip manufacturing technology, large-scale substrate manufacturing, power-type packaging and module technology etc.

3. **General Application & System Center**
   - Solve the technology barriers on light, electricity, heat, machinery, software, intelligent-control system etc. for lighting industry; develop low-cost, high-reliability system integration technique and standardized application products; make R & D intelligent illumination control system.

4. **Innovative Lighting Application Center**
   - Make innovative application research on the multi-disciplinary fields like lamp form, agriculture, disease treatment, light internetwork, aviation, aerospace etc.; start new and basic lighting theory research and set p standard system.

5. **Intellectual Property Application & Strategy Center**
   - Search and analyze the patent distribution and strategy formulation in SSL lighting domain; set up professional patent database specialized for SSL lighting; integrate domestic patent resources and talents to serve the SSL industry; build the mechanism for patent pool; explore patent and standard service system. Now SSL patent database has taken shape and the core patent analyses and the overall strategy formulation are in progress, with the purpose of cooperating with enterprises to accelerate the protection and application of intellectual properties in SSL industry.

**Projects Participation**

Currently the laboratory has started the first batch of projects such as drafting interface specifications, which aims to form technology specifications, testing methods, related patents and improve the interchangeability and compatibility of LED products. Accelerate the testing and analyses of LED products’ reliability, failure analyses and the setup of testing methods and standards. Make improvement on white-light LED encapsulation material and manufacturing engineering; make researches on heat, lumen depreciation, color shifting, the reliability of white-light LED and the concentration of packaging binning etc.

**Overseas cooperation experience**

Signed cooperation agreement with Delft University of Technology in Netherlands and IZM in Germany.

**We are looking for cooperation with you**

1. Project studies and technology partnership;
2. Talent-recruiting.
Company Profile

Advanced Photoelectronic Technology Limited registered and located in Hong Kong since February 2003. APT Electronics Ltd., the subsidiary company of Advanced Photoelectronic Technology Limited (APT), was founded and located in Nansha District, Guangzhou City since August of 2006. APT and APTE focus on development, manufacturing and marketing of high power, high brightness and high reliability GaN Light Emitting Diode (LED) chip, multi-chip module, and chip-level lighting source. The products are widely used in urban lighting, commercial lighting, special lighting, automobile lighting and various backlighting.

Our technology and operation team is composed of Ph.D.s and Masters. With patented technologies originated from HKUST and continuing development from our R&D team, APT now becomes a pioneering company in the LED industry. In 2011, 135lm/W products with proprietary intellectual property rights realized volume production, which filled the omission of China-made high-power high-efficiency LED chip in China. APT has already had more than 50 patents of invention in United State and China, and is progressing by applying more than 10 patents of invention per year. The flip-chip high-power LED chip technology, chip-level lighting source technology based on 8” Silicon IC technology, Au-wire-free chip-level high-power white LED lighting source technology, ultra-high power LED module technology, and white LED packaging technology are all leading in the world.

Capacity / Output Value: 23M USD (Year 2011)
Employee: 400

Projects

1. Technology development partnership with world’s leading company, like Epistar
2. Joint laboratory on Solid-State-Lighting research with the Hong Kong University of Science and Technology (No.1 in Asian University Rankings by QS)
3. Factory LED lighting project for TAL factory in Vietnam, over 8000pcs of LED light tube (power consumption of 18W) had been successfully utilized

Overseas cooperation experience

1. Overseas market expansion of Packaged LED and LED lighting fixtures;
2. Joint R & D in lighting products;
3. Customers and vendors.

We are looking for cooperation with you

Products

E series White LEDs are the latest products of APT Electronics Ltd.

E series LEDs consist of four sub-series:
--E-Star Series 1-3W
--E-Light Series 5-10W
--E-Flash Series for flash lights
--E-Shine Series >10W
### Representative Information

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### Company Profile

Cedar Electronics is a high-tech optoelectronic company established by CIOMP Chinese Academy of Sciences. It is a Hi-tech enterprise with different sectors such as scientific research, development, production, marketing, service and postgraduate program. Its products range from LED display products to LED lighting products. Founded in 1993, the company owns a complete industry chain from device packaging, control system research, modular design and manufacture to machinery installation and service etc.

With a 20 years effort, Cedar now becomes one of the leading domestic companies in LED display and lighting research and production. As one of the companies having the innovative R&D ability in LED display and LED lighting field, Cedar owns many proprietary intellectual property rights and key production technologies. The industrial chain of Cedar contains device packaging, R & D on product control system, design and manufacture of mould structure and complete machine installation and services. Through independent innovation, Cedar's key technology on LED large screen display products has reached world advanced standard and Cedar has many proprietary intellectual patents on this technology.

Cedar LED R&D base is located in Jilin optoelectronic industry incubation base, Jingkai district, Changchun. One production base is located in the Sino-Russia Park of Changchun high technology development zone and the other that is to be put into use in 2012 is located in Changchun Hi-tech development zone.

### Products

Cedar LED display products perform well in brightness, uniformity, definition, chroma and in screen size. And its products are widely used in outdoor, indoor, traffic signs and expressway etc. Indoor LED screen is used in a wide range of public places such as stadium, television broadcasting halls, public security departments, fire control departments, schools, hospitals, railway stations and airport waiting halls.

10 main series and more than 30 single product line was formed including LED fluorescent lamp, LED bulb, LED candle light, LED spotlight, LED tube light, LED flat light, LED roadway light and LED tunnel light etc. Cedar products have passed certifications like 3C, FCC, RoHS, GOST-R, CE and UL verifications. Cedar made "HD LED full-color 3-in-1 integrated screen" has been praised as the first batch of national independent innovation product and awarded the National Independent Innovation Product certificate by National Ministry of Science and Technology.

### Projects

#### Overseas cooperation experience

- Unique technologies or joint-research opportunities in LED components and Display/luminaire products with technology transfer possibilities;
- Distribution channels and vendors on LED display/LED luminaire, with extensive application projects or contracting access.

#### We are looking for cooperation with you

1. Unique technologies or joint-research opportunities in LED components and Display/luminaire products with technology transfer possibilities;
2. Distribution channels and vendors on LED display/LED luminaire, with extensive application projects or contracting access.

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**Capacity / Output Value:** 15.4 M USD (Year 2011)  
**Employee:** 400

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**Products**

**Projects**

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**Company Profile**

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**Representative Information**

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**Company Profile**
Representative Information

Title: President
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Company Profile

Chongqing Bangqiao Technology Co., Ltd, the active participant of world's semiconductor lighting industry, follows a low-carbon developing pattern and provides health, energy, human and eco-art lighting products, together with products on medical, commercial, residential, mining, municipal lighting.

The company mainly focuses on medical lighting products and its portable LED operating astral lamps are widely used, which saved many people's lives in earthquake-stricken Wenchuan in 2008.

Its products also cover a wide series of LED landscape lamps, LED mining lights, LED fluorescent lamps, LED street lamps, LED astral lamps and LED head lamps etc. Its high-quality products are selling well in America, Japan, Australia, South America and Middle East.

Capacity / Output Value: 7.7M USD
Employee: 70

Projects

Civil Using Integrated Lighting System
Medical Comprehensive Lighting System Project Cases
Multi-Color Sport Lamps

Overseas cooperation experience

1. Overseas vendors of medical lighting products;
2. Cooperative partners on medical lighting technology.

We are looking for cooperation with you

Banging Tech, together with ENFIS (a British listed company), builds a complete industrial chain of LED lighting form chip development, chip sealing and packing to light source application and has established European Research & Development Center of LED in Swansea, Britain, ensuring Bangqiao Tech's leading role in technical research & development of LED.
Representative Information

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Company Profile

Dalian Golden Sanwei Technology Co., Ltd. is a high-tech, self-innovation and Sino-American joint venture LED Lighting company, specialized in R&D, manufacture, sales and service of high power LED Lights and Heat Spreader.

Golden Sanwei currently has a fully operational 500,000 square feet manufacturing facility and offices in Dalian, China. The employees are more than 150 workers, including 19 engineers and lighting experts, a famous QC team, and full production management group. The certification of ISO9001:2008 was passed and all lighting products are UL, CE, CB, CQC, GS and RoHS approved.

Based on top-of-the-line Heat Spreader™ technology patent, Golden Sanwei has developed a series of high power LED lighting products, including indoor lighting application such as Tube Retrofit Kit, Module Light, Grille Light, Menu Light, Down Light and Industrial Light; and outdoor lighting application such as Street Light, Shoe Box Light, Versa Light, Billboard light, Footpath light, Bridge cable light, Tunnel Light, watertight Module Light and Explosion Proof Emergency Light. The Heat Spreader™ technology thoroughly solved the bottleneck of the application of high LEDs-heat dissipation problem, and it guarantees LED for long life. All lighting is specifically designed to replace HID and HPS market segments for home and abroad, utilizes modular design and are fully adjustable. Each module has quick disconnects and can be changed rapidly if failure occurs. Driver boxes are easily accessible for simple serviceability and installation.

Capacity / Output Value:
10M USD
Employee: 200

Products

- SW-TG100A
- SW-DL200J
- SW-MZ150Y
- SW-GK200YA
- SW-GS3*10

Projects

- The company commissioned The illumination project of Ambassador Bridge in Detroit
- CENTRA Office
  - 1. Parking Center in Ford sales agency
  - 2. Parking center in McDonalds

Overseas cooperation experience

- Our company commissioned illumination project of Parking Center in Detroit in 2009
- Our company successfully become the LED tube supplier of CENTRA in 2010
- LED tube has been used in offices, restaurants, expansions and advertisises since 2010
- Our company took part in Intel Innovation Competition and won the first place in Intel in 2007.
- Our company developed Tablet PC heat sink for Intel and won the first place of Innovation Competition again in Intel PCCG in 2010, this heat sink is really important for the future application of Intel chips on Table PC.
- Our company successfully become the LED supplier of BURGER KING in Aug 2011
- The BURGER KING plan to use our LED light in The U.S first, then use them in Canada, Mexico and South America.
- The company which undertook the War-Market's Cargo transfer terminal in The State of Tennessee, is in the same Group of our agent in U.S.
- Our agent promised that War-Market would have future cooperation.

We are looking for cooperation with you

1. Foreign Distributors of LED lighting products;
2. Cooperative partners of High Power illumination products;
3. Cooperation on luminaire design.
**Representative Information**

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**Company Profile**

Foshan Nationstar Optoelectronics Co. Ltd, specializing in manufacturing LED and LED applied products, is a key hi-tech enterprise of the National Torch Plan, and an excellent high-tech enterprise of Guangdong Province. It covers an area of 39,000 m², while workshops and offices occupy 66,000 m². Meanwhile, the new base covering 34,600 m² is being constructed and expected to be in use in 2012. Founded in 1969, with advantages on capital, distribution channels, R&D, and management, it has been ranked in the list of the famous LED brands. On 16th July, 2010, it launched its initial public offering and was listed in Shenzhen Stock Exchange.

Innovation promotes development, and technology leads to the future. The company is equipped with the post-doctoral science workstation, the enterprise technology center of Guangdong province, the optoelectronics research center of Guangdong province, and research office of Prof Su Qiang, academian of China Academy of Science. In recent years, the company has undertaken various R&D projects supported by the national and local government. In addition, the products of Nationstar have been granted with a lot of national and provincial honors.

The company is authorized by ISO9001 system certification, ISO14001 system certification, ISO/TS16949 system certification and OHSAS18001 system certification.

Brand, technology and quality sustain the company's rapid growth, and draft the company's magnificent blueprint. Nationstar does her best to push the development of the green lighting industry in China, and the world.

**Projects**

1. A case of street lighting in FOSHAN, CHINA
2. A case of building lighting in WEN ZHOU, CHINA
3. A case of landscape decoration in GUANG ZHOU, CHINA
4. A case of tunnel lighting in FOSHAN, CHINA
5. A case of landscape decoration in MACAO, CHINA

**Overseas cooperation experience**

1. Overseas contractor of landscape lighting.
2. Overseas cooperation plan given by EMC.
3. Overseas retailers, agents and importers.

**We are looking for cooperation with you**

1. LED TUBE T5-F
2. NS-MR16-G5-M
3. NS-BULB-G10-S
4. NS-TD6-D20-S
5. A case of hotel lighting in LAS VEGAS, USA
**Company Profile**

GRIREM is one of the earliest Institutes in R&D of Rare-earth phosphors in China. It owns the only national pilot lab on luminescent materials. Nowadays, GRIREM has the most complete, advanced equipments and instruments on R&D of luminescent materials in China. Research Institute since the 1970s began developing phosphor, the phosphor has become an important direction of research and development and industry. In the semiconductor lighting (white LED) field, we has applied Chinese invention patents 23 (authorized 12), for the United States, Germany and other foreign 13 invention patents (authorized 5), with aluminate, silicate and nitride series of yellow, green and red fluorescent powder, product performance in the leading position, is at home and abroad famous LED phosphor suppliers.

**Capacity / Output Value:** 46.2M USD

**Employee:** 1500

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**Representative Information**

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**Products**

- **Green-emitting phosphor for LED**
- **Yellow-emitting phosphor for LED**
- **Red-emitting phosphor for LED**
- **Fluorescent film for LED**

**We are looking for cooperation with you**

1. Overseas cooperative partners;
2. Overseas markets expansion;
3. Overseas application vendors.
**Company Profile**

Founded in 1999, Hebei Lede Electronics is proud of its glorious history: Lede was the contractor of more than ten national “863” Projects; joined in and completed the nightscape LED lighting technical research of the Water Cube and the Linglong Tower for 2008 Beijing Olympics and won the “Advanced Hi-tech Olympics Group” title. As the principal designer and supplier of LED lighting for “Harbin International Ice and Snow Sculpture Festival”, we have taken the responsibility of providing LED lighting products for the annual festival from 2009 to 2012. We have supplied products and constructed the LED lighting transformation for Beijing subway line 15 during 2010 to 2011, and we are regarded as the designated subway LED lighting R & D and production base.

**Capacity / Output Value:**
7.7 m U.S. Dollars

**Employee:** 135

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**Products**

- **SMD 3020,3528,5050 single crystal, dimorphic crystal, tricrystal packaging**
- **Multichip integrated packaging LED (MCP)**
- **Multichip integrated power packaging LED (MCP), power range 5-10W**

**Projects**

- **The Water Cube lighting design, manufacture supervision and inspection**
- **Beijing subway line 15 platform and lobby lighting designer, supplier and constructor.**
- **4 consecutive years of LED lighting system designer and supplier for “Harbin International Ice and Snow Sculpture Festival” since 2009, which gains a 90% energy saving, 100% recycling rate and less mercury contamination.**
- **Olympic TV tower lighting system design**

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**We are looking for cooperation with you**

1. Overseas market expansion;
2. Technology cooperation and transfer in LED components (SMD, Multi-chip packaging) with special technology features and core IP rights;
3. LED lighting projects access and market distributionship, etc;
Representative Information

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Company Profile

Hebei Zhaori Optoelectronics Technology is located in Bohai new district in Hebei province, covers an area of 100 mu (66.67 square meter) and is a compound combination of R&D, manufacture and distribution. The annual production capacity of LED lighting products is about 200,000. The company has more than 30 national patents, including 2 inventive patents. The products include LED street light, LED tunnel light, LED workshop light, LED bulbs, LED tube light, LED spot light and so on. The LED street light and LED tunnel light have reached the international leading level, tested by the state authorities and experts. Our LED cold room light has been tested under different temperature conditions and is applied to varieties of frozen food enterprises. And thus owns certain influence in the industry.

Capacity / Output Value:
Annual capacity of 200,000 functional lighting products, approximately 7.7 M USD
Employee: 80

Products

- LED Street Lighting
- LED Cold Room Lighting
- LED Workshop Lighting
- LED Tunnel Lighting
- Others

Projects

1. Oversea technology transfer;
2. Oversea partners;
3. Oversea market expansion;
4. Close attention to advanced technology research, manufacturing technique, production facility and leading products in LED industry.

We are looking for cooperation with you

- LED Street Lighting
- LED Cold Room Lighting
- Cold Room Bulb
- Cold Room Tube Light
- Cold Room Square Light
## Company Profile

As a national high and new technology enterprise, Wenrun has always committed to the field of LED encapsulation and semiconductor lighting with 20 years history since 1992, and is one of the highest level enterprises in production technique and large scale productivity of LED components. Wenrun has serviced some global top 500 enterprises so far. Its main products cover traditional LED lamp and LED display, newly SMD LED used as backlight, high power white LED used as lighting and LED lighting products, etc.

Adhering to the corporate spirit of being outstanding, high-efficient and trustworthy, Wenrun makes continuous efforts to create value and contribution for both customers and society.

### Capacity / Output Value:

- **52.3M USD/Year**

### Employee: 700

## Products

### Lamp LED

**Application:** traffic light, indoor and outdoor information signboard.

**Features:**
1. multi- sizes, colors and shapes;
2. multi-viewing angles for choose;
3. high luminance intensity, high reliability and long life.

### High Flux LED

**Application:** signal display, advertisement, decoration lighting, dash board.

**Features:**
1. high luminance intensity, multi- colors;
2. high current available.

### Chip LED

**Application:** backlight and indicator of mobile phone, LCD backlight

**Features:**
1. packaged in reel, suitable for automatic production;
2. small size, long life, multi- colors;
3. energy saving and environment friendly.

### TOP LED

**Application:** full-color display, lighting devices.

**Features:**
1. high luminance intensity, long life, multi-colors for choose;
2. single color or multicolor available;
3. energy saving and environment friendly.

### High Power LED

**Application:** lighting, display module.

**Features:**
1. good heat dissipation;
2. high reliability, small size, thin;
3. energy saving and environment friendly.

### Display LED

**Application:** display module, indicating screen, display

**Features:**
1. high reliability, low cost;
2. multi- colors;
3. energy saving and environment friendly.

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We are looking for cooperation with you

1. Products distributors and potential application projects in Netherlands or Europe;
2. Potential technology transfer in LED lighting and LED display technologies.
Representative Information

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Industrial Zone Profile

Wujin district was ranked the first place of "the Small and Medium-sized Cities with the Highest Investment Potential" and was ranked the 14th place of "2010 Best Commercial City in China Mainland" by Forbes. It also was honored as international garden city by UNEP. There are 92 enterprises, 176 patents, 221 patent licenses, 1 national testing institution, 5 accelerators and incubators and 14 science and technology service institutions in Wujin LED lighting industry base.

SSL industry base

SSL industry chain
Substrate (Up-stream): Ouyaa Lanbao, Sino Krystals, SUMITOMO ELECTRIC(Wujin), Jiangsu Xinhetai Machinery Group
Wafer/ chip (Up-stream): Epistar, Latticepower, Helios
Packaging (Mid-stream): Liteon, Waichi, Amicc Electronic
Application (Down-stream): Shinco, Honland Group, SoftRay, JiangSu GuoXing Electrical CO.,LTD,SUNSUN LIGHTING

National Inspection Center
- Jiangsu province industrial and general lighting Test Center
- National Lighting Test Centre
- With a total investment of 90 million RMB, with a total construction area of 6.6 square meters
- Equipped with photoelectric properties, safety, reliability, efficiency, environment, electromagnetic compatibility testing and material properties laboratories.
- Provided with the testing capability for the whole product chain after operation

R&D platform
- "State Key Laboratory (Changzhou) of Solid State Lighting" under construction
- Changzhou Institute of SSL Application Technology
- Shanghai Institute of Technical Physics of CAS(Changzhou Center)
- Changzhou Institute of Optoelectronic Technology
- "China Institute of TU Delft" Under construction

Investment environment

Favorable infrastructures

Mature trading market
The biggest manufacturing base of luminaires and lamps, with 10,000 enterprises within 200 kilometers
China Lamps Market—the biggest luminaires wholesales market in East of China, with an area of 450 thousand square meters and 1500 merchants

Great government support
In 5 consecutive years from 2011, Changzhou will allocate 900 million RMB annually to support the development of eight SSL zones

We are looking for cooperation with you
1. Absorb foreign investment;
2. talent-recruiting.
Representative Information

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E-mail: martin@ledman.cn

Company Profile

We are specialized in high quality LED components, LED displays and LED lighting products including research, development, production and marketing. Our workshop has a size of over 11000 square meters, with clean room environment and electrostatic control throughout the manufacturing process. Ledman has successfully passed SGS audit and became ISO9001:2008, ISO14001:2004, RoHS and ETL certified since 2005. In May 2009, Ledman was rewarded as "2008 China Excellent Company in LED Industry " by three top class national associations and media. In August 2009, Ledman was assigned as the only LED supplier for the super large display on the Tiananmen Square for the 60th anniversary of People’s Republic of China. In May, 2010, Ledman was titled the Most Promising LED Enterprise in China for the Year of 2009 and was granted the Excellence Award for LED Application in China for the Year of 2009 by China Electronics News, China Optics and Opto-electronics Manufactures Association (COEMA) and COEMA of LED Display Application.

Capacity / Output Value:
30M USD (in 2010)
Employee: 1500

Projects

1. Packaging technology and craft of high-end display device:
   2. Packaging technology and craft of high-end display device:
   3. Electromagnetic compatibility of High-end LED display screens.

Overseas cooperation experience

1. HBO logo on top of the office building at its headquarters, USA
Each character is about 5 meters high and 5 meters wide.

We are looking for cooperation with you

1. Packaging technology and craft of high-end display device:
   2. Packaging technology and craft of lighting LED:
   3. Electromagnetic compatibility of High-end LED display screens.

Products

LED Display > LED Modules > SMD LED Module
- P10 SMD(3-in-1) Outdoor Full-Color Module
LED Bulb Series > LM-E27BL

LED Tube Series > LM3528-T8
SMD LED > Outdoor Display LEDs > LS-DTEY-FENZ-02
**Representative Information**

Title: Operating Officer in Chongqing R&D Center  
Company: NVC Lighting Technology Corporation  
Website: www.nvc-lighting.com.cn  
Address: Building 23-26, International Financial Center, Nanbin Road, Nan'an District, Chongqing, China  
Telephone: +86-23-62637858  
Fax: +86-23-62637233  
E-mail: Xs-hong@163.com

**Company Profile**

NVC keeps high growth rate since the establishment in 1998. Through independent research and development system, NVC has carried out continuous innovation movement, providing high efficiency, energy saving and comfortable artificial lighting environment. The products apply to different fields such as business, construction, office, lighting appliances, indoor and electrotechnics.

In China, NVC owns production bases in Guangdong, Chongqing, Shanghai and Zhejiang, with two big R&D centers in Guangdong and Shanghai. Together with thirty-six inland operation centers and more than 2000 brand stores constitute a perfect customer service network. NVC has established business organizations in more than 30 countries and areas and developed an international marketing strategy.

As a professional lighting enterprise, NVC Lighting products and application solutions are widely used in many famous projects, including the 2008 Beijing Olympics, Shanghai World Expo, Tianjin subway, Wuhan-Guangzhou high-speed railway, Shanghai Hongqiao transportation hub, and many other famous projects. Also NVC has cooperated with well-known hotels like Hilton Hotel, Sheraton Hotel and Intercontinental Hotel; well-known car brands such as Bentley, BMW and Toyota and famous clothing brands. In 2010 NVC became the lighting products supplier for Guangzhou Asian games.

**Projects**

- NVC 2008 Beijing Olympics project – Central area, Olympic Park
- NVC 2008 Beijing Olympics project – China National Convention Center
- Beijing Olympics Badminton and Artistic Gymnastics Stadium – Beijing University of Technology Gymnasium
- Beijing Olympics Wrestling Stadium – China Agricultural University Gymnasium
- Beijing Olympics auxiliary project – Tianjin Railway Station

**Overseas cooperation experience**

NVC owns exclusive agencies in Great Britain, Australia, Hong Kong, Malaysia, the Philippines, Bahrain, Qatar, Vietnam, Thailand, the United Arab Emirates, Brazil, India, Mexico, Cambodia, Saudi Arabia, Russia and South Africa etc.

1. Luminaries vendors and distributors;  
2. LED core technology;  
3. Cooperation in heat dissipation and luminous intensity distribution.

**Products**

- Commercial lighting  
- Office lighting  

- Architectural lighting  
- Lighting appliances  
- 10W Multichip Module  
- 45mil Blue LED Chip  
- NVC Electrotechnics

**Projects**

- NVC 2008 Beijing Olympics project – Central area, Olympic Park
- NVC 2008 Beijing Olympics project – China National Convention Center
- Beijing Olympics Badminton and Artistic Gymnastics Stadium – Beijing University of Technology Gymnasium
- Beijing Olympics Wrestling Stadium – China Agricultural University Gymnasium
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**Overseas cooperation experience**

NVC owns exclusive agencies in Great Britain, Australia, Hong Kong, Malaysia, the Philippines, Bahrain, Qatar, Vietnam, Thailand, the United Arab Emirates, Brazil, India, Mexico, Cambodia, Saudi Arabia, Russia and South Africa etc.

1. Luminaries vendors and distributors;  
2. LED core technology;  
3. Cooperation in heat dissipation and luminous intensity distribution.
**Company Profile**

Sanan Optoelectronics Co., Ltd., as China’s earliest-established and largest industrialized production base of full-color ultra-high brightness LED wafers and chips with best quality, was awarded “the Leading Company of Semi-Conductor Illumination Project ” by the Ministry of Science and Technology of People’s Republic of China. Besides, we are also engaged in the R&D, production and marketing of compound solar cells, and high-power concentrating solar products.  

Our products have been widely used in indoor and outdoor lighting, backlighting, display, signal lights, electronics and aerospace, solar power and other fields, which wins good reputation from customers at home and aboard, including our governments.  

Dedicated to create a Chinese high-tech enterprise with independent intellectual property rights, and to lead the new trend in chip industry and dedicate new energy to society, Sanan Optoelectronics Co., Ltd., with its leading technology, solid technical force and advanced equipment, is reaching for a higher goal in a better position and at higher speed, and striving for the development of China’s optoelectronic industry, to become an international industrialized base of optoelectronics.

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**LED Spec (Red & Yellow)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Wave length (nm)</th>
<th>Chip Size (mil)</th>
<th>Brightness (mcd)</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlGaN/InP (AS Type)</td>
<td>Red (610-640)</td>
<td>06</td>
<td>20-170</td>
<td>&lt;2.2</td>
</tr>
<tr>
<td></td>
<td>Yellow (580-610)</td>
<td>07, 08</td>
<td>30-170</td>
<td>&lt;2.2</td>
</tr>
<tr>
<td></td>
<td>Yellow Green</td>
<td>09, 12</td>
<td>30-70</td>
<td>&lt;2.2</td>
</tr>
<tr>
<td>AlGaN (MB Type)</td>
<td>Red (620-630)</td>
<td>10, 14</td>
<td>220-340</td>
<td>&lt;2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>400-500</td>
<td>&lt;2.3</td>
</tr>
</tbody>
</table>

**LED Spec (Green & Blue)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Wave length (nm)</th>
<th>Chip Size (mil)</th>
<th>Brightness (mcd)</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>InGaN (Al2O3)</td>
<td>Green</td>
<td>12<em>08, 13</em>12</td>
<td>160-360</td>
<td>&lt;3.4</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>16<em>10, 23</em>10</td>
<td>40-130, 160-300</td>
<td>&lt;3.4</td>
</tr>
<tr>
<td>High Power Chip</td>
<td>White</td>
<td>50*50</td>
<td>260-360mW (95-120lm/W)</td>
<td>&lt;3.4</td>
</tr>
</tbody>
</table>

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**Products**

- **White light illumination/backlight LED chip**

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**Representative Information**

Title: General Manager  
Company: Sanan Optoelectronics Co., Ltd.  
Website: www.sanan-e.com  
Address: No. 1721, Iving Road, Xiamen, Fujian Province, China  
Telephone: +86-0592-5906659  
Fax: +86-0592-5906656  
E-mail: brandonguan@sanan-e.com  

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**Capacity / Output Value:** 308M USD  
**Employee:** 5352
Representative Information

Title: President
Company: Shenzhen Mason Technologies Co., Ltd.
Website: www.mason-led.com
Address: Building B, Yasheng technology park, Zhenmeigongchang Road, Guangming new district, Shenzhen, Guangdong Province, China
Telephone: +86-0755-33953399
Fax: +86-0755-33236389
E-mail: Leon.lee@masonled.com

Company Profile

Shenzhen Mason Technologies was founded in Dec. 2002. Mason is the leading research, design and sales center and supplier of medium/top level LED lighting packaging and LED lighting application products. Mason provides their customers with "integrated" solutions on LED lighting applications and also with high quality LED luminaries and application products. The LED luminaries include in-line LED and SMD LED while the application products include general lighting and landscape lighting products. With almost 10 years effort, Mason now owns leading advantages on LED packaging and lighting technologies, advantages in “customer-assigned” and “integrated” product service and advantages of owning a whole industry chain.

Capacity / Output Value: 85M USD
Employee: 1276

Products

MS-ST047150 / MS-ST062155
For roadway illumination

LED-BB-272011-PW
For office lighting, exhibition lighting, meeting room lighting, home lighting and hotel lighting

MS-TB2612-41C1E
For office lighting, exhibition lighting, meeting room lighting, commercial building lighting, hotel lighting and workshop lighting

Projects

1. In 2010, Mason found “integrated” solutions to “Mona Lisa” LED backlight oil painting wall in Shanghai World Expo.
2. LED decorative lighting along Zhujiang river during the Guangzhou Asian Games.
3. LED soft screen and virtual fireworks for World Games for University Students in Shenzhen.
4. LED roadway project in Songbai Road, Shenzhen.
5. LED lighting decoration project in Russian National Grand Theater.

Overseas cooperation experience

1. Oversea market exploiting;
2. Oversea partners;
3. Oversea technology transfer;
4. Potential luminaire manufacturers procuring packaged LED components;
5. LED lighting distributors/vendors for Netherlands and Europe market penetration, with preferences on lighting solution providers.

We are looking for cooperation with you

1. 3000 outdoor and indoor illumination products and tubes supplied to a gambling house in Armenia, 2009
2. 3000 outdoor and indoor illumination products and tubes supplied to Armenia Children’s Educational World, 2009
3. 5000 luminaire products supplied to Russian National Grand Theater for LED lighting and decoration, 2009
4. 8000 indoor illumination products supplied to a shopping center in India, 2010
5. 5000 tubes supplied to a supermarket chain in Germany, 2011
Representative Information

Title: President
Company: Shenzhen Unilumin Group Co., Ltd.
Website: www.unilumin.com
Address: Building A, No. 112, Yongfu Road, Fuyong Town, Baoan District, Shenzhen, Guangdong Province, China
Telephone: +86-0755-2991-8999
Fax: +86-0755-2991-2092
E-mail: tiger@unilumin.com

Company Profile

Shenzhen Unilumin Group was founded on Oct. 26th, 2004 with a registered capital of 77.72 million RMB. Products of Unilumin cover LED HD energy-saving full-color display screen and LED energy efficient luminaries.

In Aug. 2010, Unilumin established “Shenzhen LED Display Technique Research Center”. Unilumin owns a standard plant in Shenzhen which covers an area of more than 40,000 square meters. The plant is equipped with automatic assembly systems and it has more than 1000 professional staffs. Current monthly capacity is more than 5000 square meters, which makes Unilumin one of the best in research and production capacity in China.

The company products had successfully passed TUV-GS, CE, ETL, GOST, CCC, UL, CUL quality certification and related ROHS certification.

Luminaries include 7 main series: street light, floodlight, tunnel light, fluorescent lamp, tube light, bulb and spotlight.

Projects

- The sliding screen in World Horticultural Expo service building
- The LED display screen in the Sydney opera house park
- Switzerland airport lighting project
- The tunnel project in Yunnan province
- LED floodlight project in Bazhou exhibition hall, Guangzhou
- The digital urban management supervision and command center in Chengguan district, Lanzhou

Overseas cooperation experience

- The LED display screen in the Sydney opera house park
- Switzerland airport lighting project
- The tunnel screen in Fenerbahce, Turkey

We are looking for cooperation with you

1. Distribution channels and potential application projects in Netherlands or Europe at large;
2. Potential technology transfer in LED lighting and LED display technologies.
**Representative Information**

Title: Executive Vice-president  
Company: Sichuan Sunfor Light CO., Ltd.  
Website: www.sunfor.com.cn  
Address: No.2 Xinda Road, High-tech(west) Zone, Chengdu, Sichuan Province, China  
Telephone: +86-28-87827799  
Fax: +86-28-87826661  
E-mail: zhangli@sunfor.com.cn

**Company Profile**

Sunfor has applied and owned 260 items patents of photoluminescent material and led.

**Capacity / Output Value:**

- 32M USD (Year 2010)
- Employee: 680

**Founded on:** April 24, 2004  
**Capital Registered:** RMB 66 M  
**Sales Revenue:** RMB 210 M (2010)  
**Located in:** Chengdu High Tech Zone, Sunfor is a high tech enterprise integrated in R&D, manufacturing and marketing of photoluminescent material and led lighting products.

**Projects**

- **Chengdu Hongqi Chain Stores**  
- **LED Lighting**  
- There are more than 1000 stores to use LED Tubes  
The EMC Contract  
- Saving electric power 66 million kwh  
- Saving operating cost about RMB 85 million  
- Reducing the release of CO2 about 64 thousand tons  
- Saving standard coal about 27 thousand tons (in 5 years)

- **Shenzhen Metro No.1 Line Direction Signage System**  
The No.1 in the world to use photoluminescent material signages in Metro direction system

- **LED street light**  
- **LED Bulb**  
- **LED T8 Tube LED**

**Overseas cooperation experience**

Sunfor Products have been sold to Europe, Australia, United States, Brazil, Philippines and South America in the past few years.

- Overseas market expansion;
- Overseas lighting projects;
- Overseas agents.
Representative Information

Title : President
Company : Zhejiang Sheng Hui LED CO., Ltd.
Website : www.sengled.com
Address : Shenghui Road, Xiuzhou industrial park, Jiaxing, Zhejiang Province, China
Telephone : +86-0573-83963008
Fax : +86-0573-83963001
E-mail : johnson@sengled.com

Company Profile

Zhejiang Sheng Hui LED is specialized in indoor and outdoor LED lighting luminaries and solutions. Founded in Jul. 2004 with a total investment of 350million RMB, now Sheng Hui covers an area of 85 mu(56,666 square meters) possessing centers for packaging, SMT and application assembling as well as its own R&D center, test center and over 100 R&D technicians. In 2008, Sheng Hui passed through ISO9000 quality management system certification while in 2010 it passed ISO14001 environmental management system certification.

The company mainly focuses on the research and manufacture of 5 series in LED roadway/ tunnel lighting, landscape lighting, LED lamps, commercial lighting and indoor lighting, which covers 2000 different products. The producs passed certifications like 3C, CE, UL, TUV, RoHS and so on. Sheng Hui has applied for 75 domestic and 3 international patents, 42 of which are authorized (including 4 inventive patents and 3 U.S. patents). The yearly capacity of the company is to produce 20 million sets of LED luminaries and solutions.

Capacity / Output Value:
100M USD
Employee: 2000

Overseas cooperation experience

2011 MOST technology assistance to other developing countries project “Application and Technical Cooperation and Promotion of HP LED Products”

2012 MOST technology assistance to other developing countries project “Application and Technical Cooperation and Promotion of General Lighting LED Products”

We are looking for cooperation with you

1. Partnership with overseas famous lighting manufacturers and large marketplaces;
2. International market expansion with unique technologies in LED luminaires/modules and lighting system;
3. Potential LED luminaire distributors or potential OEM/ODM contracting.

Projects

CSUS LED indoor lighting project
General Office of the Central Committee LED indoor lighting project: illumination should reach 200lx, LPD standard value is 13, desired value is 11.

Jiaxing city river LED landscape lighting project: marked by MOHURD as “2010 Science and Technology Demonstration Project”

Urumchi Weixing Road LED roadway lighting project

Zhenxizha scenic spot LED landscape lighting demonstration project in Wuzhen, Zhejiang
International Solid State Lighting Alliance (ISA)

ISA is an international alliance of regional alliances and associations, renowned universities and institutions and leading companies in the SSL field. As a not-for-profit NGO and an independent legal entity, ISA dedicated itself to enhance public-private partnership and intensify global cooperation to accelerate and foster the sustainable global SSL development.

With the mission to promote international cooperation using global initiatives, effort and resources to, ISA has been engaging in various programs and activities to accelerate and foster the development of the global SSL industry and applications, and ultimately to enhance people’s lives to create a green and sustainable society.

Current working groups (WG) include: WG1 - Strategic Research Agenda & Global SSL Industrial Roadmap; WG2 – Global Showcase Projects; WG3 – Strengthening Global Eco-system (Training); WG4 – Global Dialogue and Cooperation on Standardization & Testing; WG5 - PR and promotion.

China Solid State Lighting Alliance (CSA)

China Solid State Lighting Alliance (CSA) was founded in October, 2004 jointly by leading enterprises, universities and research institutes engaged in solid state lighting industry on the principles of win-win cooperation. With 293 members, including institutions from China’s Mainland, Hong Kong and Taiwan and foreign institutions registered in China, CSA has the general assembly, the council and the standing council. CSA owns a professional team of nearly a hundred people that provides services in solid state lighting technology, industry and policy research, and project management and consultation.

The Mission of CSA is to improve technological innovation capabilities and international competitiveness, establish an international public platform based on industrial cooperation, risk sharing and mutual benefits for solid state lighting technology research and development, and create a platform for global solid state lighting exhibition, trading, designing and services.