

# Manufacturing & Assembly



## Europlacer launches dual head iineo-II VLB for growing LED assembly market

Europlacer's new iineo-II VLB is designed for the growing LED assembly segment. Many LED commercial lighting applications require long PCBs that exceed 48" in length. iineo-II VLB can process these PCBs under "one roof" at speeds often exceeding 20,000 cph. The iineo design optimizes productivity in high-mix environments, while remaining competitively affordable. The assembler can accommodate PCBs as large as 24"W x 63"L, making it ideally suited for handling LED PCB form factors, particularly industrial fluorescent lighting. Keeping with the Europlacer tradition of protecting its customers' investment, the VLB transport system can be quickly/easily converted from single stage handling to four-stage handling of large, typical sized PCBs (up to 18" x 20"). This capability is unparalleled in the assembly market and will help to differentiate Europlacer technology along with its superior, overall flexibility. [www.europlacer.com](http://www.europlacer.com)



## Nordson ASYMTEK Spectrum jetting system improves side-view LED manufacturing process

Nordson ASYMTEK's new jet dispensing system for manufacturing side-view LEDs is capable of jetting 0.1 to 0.2 mm dots through windows as small as 0.4 mm into LED cavities. The Spectrum™ S-920N jetting system automatically maintains a consistent shot weight, thanks to software-managed dispense parameters. Closed-loop dispensing eliminates the need for time-consuming operator adjustment. Unlike multi-headed needle dispensing systems, the Spectrum™ is easier to set up and maintain in production, keeping your process under machine control. The system uses a jet for non-contact dispensing. Unlike a needle, the jet retracts much less for silicone break off and therefore shoots multiple shots faster, increasing

speed and throughput. The jet's small, controlled drops of fluid reach tight cavities consistently and reliably, unlike needles, which have orifices larger than the cavity windows of side-view LEDs. [www.nordsonasymtek.com](http://www.nordsonasymtek.com)

## Count On Tools expands their LED nozzle series



The range of new and potential applications for LEDs in electronics is practically endless. Count On Tools has realized this trend and worked to develop a line of nozzle designs that will allow customers to accurately and consistently place LEDs with its existing SMT pick-and-place equipment. Through cooperation with its customers, Count On Tools has expanded its current offering of custom LED nozzles for American Opto, CREE, Edison Opto, Lumiled (Philips), Luminus (PhlatLight), Luxion (Rebel), Nichia, Osram Opto, Sharp, Seoul Semiconductor (P4) and Vishay. This line of custom LED nozzles allows us to help customers achieve better placement with odd-form components in their machines while saving them money. Count On Tools' LED nozzle series is available for all types of SMT pick-and-place equipment and tooling. All nozzles are guaranteed to function properly with the original equipment. [www.cotinc.com](http://www.cotinc.com)

## Juki debuts JX-200LED high-speed placement system for LED applications

Juki Corporation's JX-200LED is targeted specifically for the LED assembly market. The placement system features new algorithms created for the placement of side-and top-view LEDs, rectangular ferrite chip-type and PLCC-type LEDs, making it the ideal low-cost placement solution for LED chips in fast growing markets, such as laptop computers, LCD backlights and various lighting equipment. The JX-200LED



features a new upward looking camera for QFP/QFN lead inspection and BGA ball inspection, as well as 1200 mm board capability with multi-indexing. Additionally, the placement system was designed to be able to support a 31.5" x 14" board size when indexed twice in the machine, and a 47.2" board when indexed three times. With speed in mind, the JX-200LED can place 15,300 chips per hour at IPC 9850 and supports the placement of parts from 01005 to 33.5 mm<sup>2</sup>. The JX-100LED also features an optional tri-colored vision centering system that can be used for placing fine-pitch QFPs, BGAs and QFNs for added flexibility and accuracy. All Juki placement machines come standard with a three-year parts and one-year labor warranty. [www.jukiamericas.com](http://www.jukiamericas.com)

#### Two new solder pastes for LED applications

Christopher Associates Inc. introduced two new solder pastes formulated for use in LED manufacturing. The Koki TB48-M741 low melting point lead-free solder paste allows the use of a lower reflow profile and helps reduce CO<sub>2</sub> emissions. Properties include excellent wetting and low voiding characteristics. The Koki SO1X7C48—M500C high-reliability, low Ag lead-free solder paste features a patented formulation that offers highly improved solder joint reliability compared to conventional low Ag solder pastes. Additional advantages include reduced head-in-pillow defects, high solder joint strength, excellent thermal cycling reliability and low voiding. By reducing silver content, materials costs also are reduced. [www.christopherweb.com](http://www.christopherweb.com)



#### Essemtec builds 180 x 50 cm printer for LED lamps, offers turnkey production line

Essemtec has set out to develop an automatic production line for LED lamps. The line consists of a large-format printing system, multiple pick-and-place machines, and a curing or reflow system. The line can produce all lengths of LED tube lamps up to 180 cm, thanks to the new inline screen/stencil printer invented by Essemtec, which has a printable area of 180 x 50 cm that allows a panel for multiple 180 cm tubes to be printed in one run. The machine loads and prints PCBs automatically and forwards them to the pick-and-place system. The inline conveyor system is designed to transport heavy aluminium-based PCBs commonly used for LED products. One or more pick-and-place machines are installed inline to mount LEDs and other electronic components onto the PCB. The MIS software, a development of Essemtec, automatically balances the workload over multiple machines to achieve maximum line output. MIS (Management Information System) has other functions, too, such as quality assurance, consumption, and stock management, as well as the storage of production data for traceability. For curing and soldering of the components onto the PCB, a high-performance reflow or curing system is installed inline. The oven is optimized for the unique needs of large and heavy boards and provides constant process conditions at every position. [www.essemled.com](http://www.essemled.com)



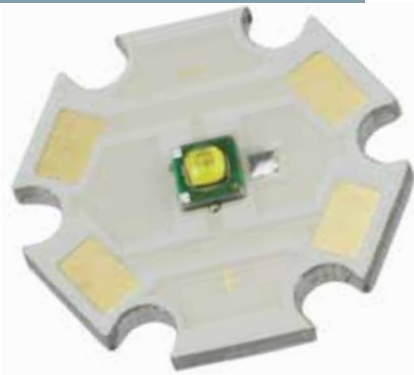
#### Manncorp pick-and-place assembles 4-ft. long LED light panels

Manncorp's MC-392LED is ideally suited for populating extra-long LED panel assemblies in a single pass. Through the use of the low-cost optional CT-150 Conveyor Extension Unit, the machine becomes capable of two-stage assembly of oversized LED boards of up to 1.2 m (47.25") long. With its dual-head placement rate of 6,400 cph and long record of reliability in SMD placement, the 392 will meet or exceed production goals. Other features include ball screw X-Y drive and closed-loop servo control with linear encoding for placement accuracy of 30 µm, 3 Sigma. The MC392LED, at \$60,000, joins the larger MC-388LED, another Manncorp LED-enabled placer with 192 tape feeder

capacity, which enables it to assemble LED panels of up to 1.2m (47.25") in a single pass without the need for a conveyor extension. The MC-388LED is priced at \$85,000. [www.manncorp.com](http://www.manncorp.com)

#### EV Group addresses fast-growing HB-LED market with new mask alignment system

EV Group's (EVG) latest addition to its portfolio of products was created to optimize the manufacture of high-brightness light-emitting diodes (HB-LEDs), compound semiconductors and power electronics. The new EVG620HBL fully automated mask alignment system builds on EVG's field-proven mask aligner platform, adding a high-intensity ultraviolet (UV) light source and five cassette stations—significantly more than competitive offerings—to enable continuous fabrication of devices. As a result, the EVG620HBL delivers unparalleled throughput of up to 165 six-inch wafers per hour (up to 220 wafers per hour in first print mode) with the industry's highest alignment accuracy and yield. The EVG620HBL is available for purchase immediately. [www.evgroup.com](http://www.evgroup.com)



### Digi-Key offers PCB LED dev kits compatible with Cree Technology

Electronic components distributor Digi-Key Corporation now stocks Cree-based printed circuit board (PCB) LED development kits, often referred to as “star boards.” These kits are designed to simplify LED ease-of-use. When combined with thermal heat sinks, PCB development kits can shorten time-to-market by forming the foundation for LED designs. PCB configurations are available for Cree XLamp XR-E, XR-C, XP-G, XP-E, XP-C, MX-6, and MC-E LEDs. To search for these PCB development kits on Digi-Key’s website, enter the search term “digi-key cree” into Digi-Key’s part search bar and click on “LEDs—High Brightness Power Modules” under the “Optoelectronics” heading in the search results. From there, a filtered search may be performed for the particular PCB development kits needed. [www.digikey.com](http://www.digikey.com)

### New thermally conductive epoxy for thermal management in LED applications



Creative Materials’ latest thermally conductive low-stress epoxy, 109-12, is formulated specifically for use in the manufacture of computer components and LEDs. The rapidly expanding industry of light emitting diodes (LEDs) provides a good example the requirement for effective heat management. The heat generated by LEDs must be removed to ensure optimal performance. Creative Materials’ 109-12 thermally conductive, low-stress epoxy acts as a highly effective thermal adhesive to interface between a heat-producing component and a heat sink. A one-component product,

109-12 is easy to use. It exhibits minimal shrinkage during curing and also features exceptional resistance to thermal-cycling. [www.creativematerials.com](http://www.creativematerials.com)

### Thermal simulation software solves component cooling problems

Future Facilities Incorporated’s new CFD software for electronics cooling design, 6SigmaET, solves the problem of how to shrink electronics devices that generate heat. Electronics design engineers face complex tradeoffs when they design small high-power-consuming lighting devices like LEDs. The market wants smaller, brighter and more reliable lighting devices. But those features cost more. Can designing the new generation of LEDs using simulation reduce their cost and improve their performance? The answer is yes—thermal simulation can solve electronic device design problems. 6SigmaET is capable of analyzing all kinds of issues and features within the electronics cooling field including non-rectangular shapes, like those found in LED light fixtures. A comprehensive standalone tool, 6SigmaET doesn’t need additional MCAD software for data entry, which means it is especially straightforward to use. [www.futurefacilities.com](http://www.futurefacilities.com)

### Nextreme introduces thermoelectric coolers for photonics cooling applications

Nextreme Thermal Solutions has introduced a new thin-film thermoelectric cooler (TEC) for temperature controlling and cooling optoelectronic units such as LEDs, photodetectors, surface-emitting lasers, laser diodes, and semiconductor optical amplifiers. The OptoCooler HV37 module is designed to resolve photonics cooling applications that require large heat pumping. This TEC module, measuring 0.6 mm in length, is capable of pumping 4.5 W at a temperature of 85 °C. It can generate a maximum differential of 60 °C between the cold and hot sides. The HV37 module can operate at a voltage of up to 7.7 V, making it compatible to common board-level voltages and currents. The device can generate a maximum  $\Delta T$  of 50 °C at 25 °C. [www.nextreme.com](http://www.nextreme.com)

### Free expert resource kit for better thermal management of LED lighting

Advanced Thermal Solutions has bundled a range of expert technical resources for superior thermal management of LED lighting into a single, comprehensive

package. Called the Expert Resource Kit for Better Thermal Management of LED Lighting, the kit was developed specifically for thermal management professionals in the LED lighting industry, and for engineers who are responsible for ensuring the proper performance of LED designs. The free Resource Kit provides in depth technical information across the entire spectrum of LED thermal management design. To get your copy, visit <http://fs10.formsite.com/joday-qats/form3/index.html>.

### LED placements in short to medium run SMT assembly

APS Novastar’s LS60V-LED automated SMT pick and place machine addresses customers’ requirements for longer LED panel lengths, LED package nozzle dimensions and material selection, and utilizes APS Novastar’s proprietary touchless centering system, providing placement rates of up to 4800 cph. The new LS60V-LED handles panels up to 800 mm in length and is available with an array of nozzles designed for the most common LED packages from CREE, Nichia, and Philips Lumileds and Luxeon. Custom manufactured nozzles are available to address a customer’s specific application needs. The LS60V-LED is capable of placing 0201s, SOICs, 15-mil pitch QFPs and CSPs, BGAs, and microBGAs. [www.apsgold.com](http://www.apsgold.com)

### STMicroelectronics boosts bipolar power transistor current capability by 50 percent

Earlier this week, STMicroelectronics introduced the first member in a new family of high-performance bipolar power transistors ideal for use in LED drives, motor and relay drives and DC-DC converters. The new line offers an outstanding combination of high current capability, collector-emitter blocking voltage and ultra-low collector-emitter saturation voltage. The first member of the new family, the 3STR1630 NPN transistor, is manufactured using a new low-voltage planar technology that incorporates a double-metal process that allows the cell density to be almost doubled without requiring the use of sophisticated photolithography equipment. The power transistor is now in full production and is available at \$0.24 in quantities of 1000. [www.st.com](http://www.st.com)

### New direct diode system for OLED FRIT welding, plastic welding and soldering

Coherent Inc.’s HighLight FAP 60/810



system is a fiber-delivered, turnkey diode laser system that provides 60 Watts of output power at 810 nm. The HighLight FAP 60/810 is engineered to deliver exceptional reliability, convenience and superior process uniformity for demanding, high throughput industrial applications such as FRIT welding of OLED displays and other thermal processing tasks. In particular, the system offers excellent output characteristics, such as high power stability (power variations  $< \pm 1\%$ ) and a fast, jitter-free risetime ( $< 50$  microsec). In addition, an optional four-lens imager enables variable magnification and a perfect, top hat irradiance profile at the work surface.

[www.Coherent.com](http://www.Coherent.com)

### PECVD system for manufacturing high-performance OLED displays

The new Applied AKT-20K PX PECVD system from Applied Materials Inc. is designed for manufacturing high performance active matrix OLED and TFT-LCD displays used in the most advanced smart phone and tablet PC applications. Using critical low temperature polysilicon (LTPS) technology, the system deposits highly-uniform films on 1.95 m<sup>2</sup> glass sheets that are three times larger than the previous standard size. This capability enables manufacturers to significantly increase production and drive down cost—helping to accelerate the transition to larger, high resolution screen sizes for mobile consumer products.

[www.appliedmaterials.com/display](http://www.appliedmaterials.com/display)

### Krayden introduces new heat sink compound for LED applications

Krayden, Inc., a distributor of engineered materials, introduces Dow Corning's 340 heat sink compound, featuring a high thermal conductivity and providing low bleed benefits. Dow Corning 340 is composed of a grease-like silicone-based fluid. The fluid is thickened with a heat conductive metal oxide filler that gives the compound its high thermal conductivity, low bleed benefits and high temperature stability. The compound can resist consistency changes at temperatures up to 350°F (177°C), resulting in a positive seal of the heat sink. This enables the compound to provide increased efficiency by improving the heat transport from the electronic device. Dow Corning's 340 compound is available in multiple packaging sizes from small tubes for individual use to drums for large scale operations and production lines.

[www.krayden.com](http://www.krayden.com)

### Hanmi Semiconductor introduces new LED die bonder system

Hanmi Semiconductor's new LED DIE BONDER is suitable for high volume production with up to 21000 devices per hour, depending on material and process parameters. The system features a unique die bonding head with theta-compensation and automatic height checking and adjustment function. The full modular concept for inline bonding will ensure low cost of ownership and quick and easy conversion. The 8-inch wafer size system will cover the needs of four each slotted magazine input and output. The system specification highlights a  $\pm 25$   $\mu\text{m}$  X/Y-placement accuracy at 3 sigma and  $\pm 1^\circ$  die rotation accuracy at 3 sigma. The minimum applicable die size shall be 0.2 x 0.2 mm, at a frame size of 20 to 75 mm in width and 120 to 270 mm in length. The Hanmi advanced vision system is working with three cameras, detecting the wafer for die pick up, dispensing area for the epoxy writing and the bonding stage area for aligning the substrate.

[www.hanmiseni.com](http://www.hanmiseni.com)

### Keithley introduces System SourceMeter® instrument for HB LEDs



Keithley Instruments' Model 2651A high power System SourceMeter® instrument is specifically designed for characterizing high power electronics and provides the widest current range available in the industry. This range is critical for a variety of R&D, reliability, and production test applications, such as testing high brightness LEDs (HBLEDs), power semiconductors, DC-DC converters, batteries, and other high power materials, components, modules, and subassemblies. TSP Express, Keithley's LXI-based I-V test software utility, is embedded in the instrument, so there's no need for software installation or programming. From basic to advanced tests, TSP Express delivers device data

in three easy steps: connect, configure, and collect. It also simplifies connecting instruments to allow higher pulsing levels. Results can be viewed in either graphical or tabular format and then exported to a .csv file for use with spreadsheet applications.

[www.keithley.com](http://www.keithley.com)

### LEB series board-to-board and wire-to-board connectors for low profile LED light bar applications

The new LEB Series wire-to-board, board-to-board, crimp style disconnectable connectors recently introduced by JST Corporation, offer subminiature size and reliable contact construction for low current, low voltage conditions such as LED light bars. A super compact, low profile connector, the LEB has a 4.0 mm (.157") pitch. With a mated side entry height of only 2.65 mm (.104"), it's designed to not interfere with the luminescence angle of PCB-mounted LEDs. The side entry SMT connectors are polarized and incorporate a friction-locking feature preventing accidental disconnection. Molded in a RoHS compliant 94V0 9T Nylon (SMT headers) resin, the LEB Series is available in 1 and 2 circuits.

[www.jst.com](http://www.jst.com)

### Intertronics launches new high-intensity LED spot-curing system and compatible adhesives

Intertronics recently launched the new BlueWave® LED prime UVA high-intensity spot-curing system and a new line of compatible adhesives from technology partners DYMAX. The unit offers many advantages over conventional spot-curing systems, including no consumable bulbs to change, no warm-up, cool cures and constant intensity up to 50,000 hours. The BlueWave LED Prime UVA generates curing energy using high-intensity LEDs (Light Emitting Diodes) and is believed to produce the highest power of any LED spot-curing lamp on the market today. Specially formulated LED-curable adhesives have been developed for use with the new BlueWave LED Prime UVA. These adhesives range from ultra-fast (less than 2 seconds) to fast cure to accommodate industrial and medical device bonding, potting and coating assembly needs. They bond in seconds to a wide variety of substrates including glass, metal, ABS, PC, PVC and many others.

[www.intertronics.co.uk](http://www.intertronics.co.uk)