

## Virtue-Oriented, Being Moderate

Design Comes True. Dreams Come True

Quality, Innovation, Environment friendly, Service



Use DCT equipment, materialize your design, takes the road of independent innovation

Share DCT technology, realize dreams, keeps the tree of ideal and aspiration evergreen.





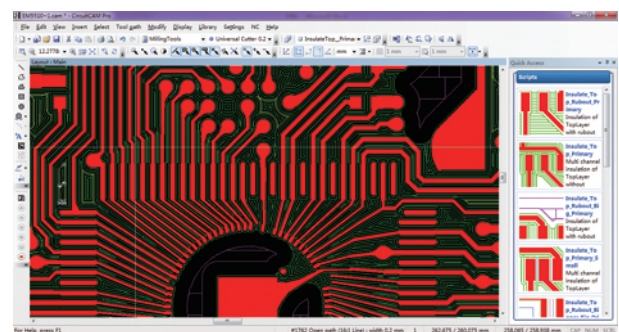
DCT is engaged in developing and producing Laser material micromachining equipment, and complete set of rapid PCBs processing equipment **based on Direct Processing Technology**.

Based on hardware, software and application experience, and comprehensive optimizing them harmoniously for problem solutions, DCT takes a way of persistent and balanced development. With the feature “program know-how into software, integrate accumulating experience into products”, and with advantages on quality, economy, environment, flexibility, multifunction and automated turnkey systems, DCT continuously meets the increasing demand on material precision processing and micro-processing in high-end manufacturing industry and cutting-edge R&D activities, and starts a new mode of production by direct processing to replace mediately processing.

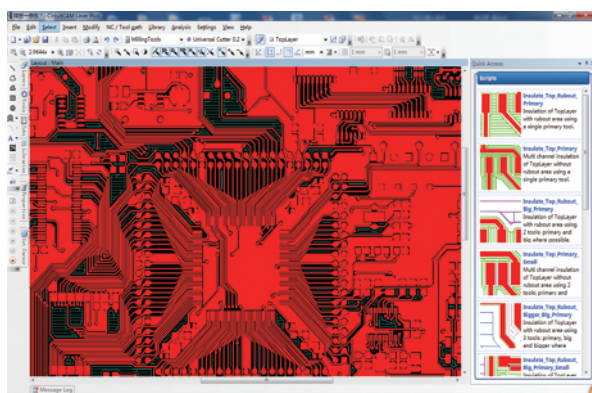
With no longer needs on tooling, intermediate material and intermediate procedures, DCT equipment, process electronic components and PCBs with direct mechanical and laser method instead of traditional methods, such as chemical etching, mask-making and printing, tool-making and punching. It is essential solution for quality and precision improving, as well as for cost reduction. It is also the inevitable choice for environment friendly, flexibility and easy production. Hereinto, the technology on DLC (Direct Laser Circuit) and DLS (Direct Laser Solderability) are predicted with wide industrialization prospect.

DCT team, came together due to the reason of our untiring pursuit, is also a fate of god given union. At beginning of the second decade of this century, members of the founding team of LPKF China, returned to DCT one after another, and began market activities with independent brands. In 2012, an agreement of EURO 150K ended the 30years long dependency between LKSoftWare GmbH and LPKF. The team of CircuitCAM started independent business once again from then on.

In 2014, LKSoftWare GmbH, a German company with 30 years history, joined in DCT. In 2016, DCT has restructured into a shareholding company, which provides an even more concrete platform for Direct Processing Technology.







### LKSoftWare – the pioneer of previous ECAD, the leading company of CAM nowadays

LKSoftWare GmbH locates in the nice old city, Fulda, which is in central of Germany. The very earliest/first PC based electronic CAD software, ColorCAM, as well as the very earliest/first software for direct mechanical and Laser processing of circuit board and SMT stencil- CircuitCAM, are born here. They are both developed by Mr. Lothar Klein, the founder of LKSoftWare GmbH.

It was in 1983, still an age of enlightenment for personal computer, At the peaceful riverside of Fulda, PCBs designing software ColorCAM, successfully transferred the computer aided design function from mysterious and noble mainframe or workstation to PC, based on Motorola 6809 CPU, which is the most powerful microprocessor at that time. From then on, thousands of electronic design engineers, got chances of using CAD system starting to realize their novel concept.



In this way, from Motorola 6809 to IBM X86, from Aachen, Mainz of Germany to all around of the world, including Tianjin, a complete set of CAD and manufacturing system, taking ColorCAM as core, together with a small circuit board drilling and milling instrument, became popular from end of 80s to beginning of 90s of last century with thousands of sales in quantity. From beginning of 1990s, being absorbed by enormous potential to improving and enhancing equipment's function with/by CAM software, Mr. Lothar Klein began /started devoting himself to the development of ColorCAM post processing section into more professional fabrication software, the CircuitCAM, the hidden champion in the electronics industry used for dry processing and direct processing.



During the recent 20 years, there are frequent innovations on CircuitCAM in generation and optimization of processing path. Its value-amplifier function for equipment is more obvious as realizing "Direct Laser Circuit (DLC)", "Direct Laser Solderability(DLS)" in the new version. As an important part of PCB drilling & milling equipment, laser drilling equipment, direct laser circuit processing equipment, direct laser solderability equipment and laser SMT stencil cutting equipment, CircuitCAM is a software carrier for technology and know-how. It opens up new applications for replacement of chemical etching and direct data driving processing once and again. Now CircuitCAM has developed into 4th generation, it is version CircuitCAM7. Its copyright, including the source code, belongs to DCT. In this way, DCT integrates concordantly source of software with experience of hardware and application accumulation, gives user a better operation experience.

## DCT, development motivated by interest; growth on basis of accumulation

At the riverside of Haihe, at Bohai coastal city Tianjin, pioneers of DCT began to contact with Mr. Lothar Klein to discuss technology of CAD and making PCB by direct processing-milling in 1986. In 1988, those circuit board industry engineers set up the very first laboratory for PCBs design, manufacture and assembly at the bank of ShuiShang Park, which is affiliated with AFZ (Chinesisch-Deutsches Aus- und Fortbildungszentrum / Chinese-German Vocational Training Centre).

It is them, who launched the earliest training course on CAD operation, PCBs drilling & milling machine operation, PCBs manufacture, and SMT technology towards military, research center and enterprises in china. They accomplished many PCBs design tasks with high difficulty as well as tasks on PCBs direct drilling and milling by using of ColorCAM. They successfully developed the photo-sensitive dry film laminating machine and exposure machine for PCB manufacture in 1991. They set up a company named ZhongDe in Chinese (Chinesisch-Deutsch auf Deutsch and Chinese-German in English) in 1994, which is engaged in business on software of PCBs design and equipment for PCBs processing, on distribution for several German companies. It was them, who designed through-hole plating machine and multilayer pressing machine for labs, and made double-side and multi-layer PCBs manufacture in the lab is possible.



## Company Milestone

- 1998 Main staff of ZhongDe, set up DCT company in Tianjin High Tech Industry Garden, original name was TEG(Technische Entwicklungs Gesellschaft).
- 2000 With a basis of DCT team, several German invested companies were set up in Tianjin, including LPKF China. DCT team continually accumulated experience in PCBs drilling and milling, began to explore the new field of UV laser processing PCBs.
- 2003 DCT launched Chinese version of through-hole plating and electroplate system for electronics lab.
- 2007 Mechanical PCBs drilling and milling equipment was successful developed by DCT team, and in the next year, a customized super large PCBs drilling and milling machine was successfully delivered to an institute of Chinese Academy of Science.
- 2009 Capital was increased , DCT started equipment sales under own brand and name. Afterwards, DCT launched complete set of equipment for rapid PCBs prototyping and small batch, various kind of PCBs production.
- 2011 Set up Shenzhen branch company, and launched the PCBs processing method by laser ablation of electrophoretic coating for etching resistant pattern, the English name changed from TEG to DCT.
- 2013 DCT got orders for pico-laser system, industry laser system and direct laser system one after another.
- 2014 With the joining of LKSoftWare, DCT became a Sino-German joint venture, got the copyright of CircuitCAM, started the sales in Japan.
- 2015 DCT restructured into a shareholding company
- 2016 Listed on the New Third Board, established more suitable platform for technology promotion on direct laser circuit and direct laser solderability.
- 2018 Established Evosys Laser System SuZhou, China together with Evosys Laser GmbH in Erlangen Germany.



During decades of work regarding software, hardware and application on high-end dedicated equipment, DCT team accumulates plenty of first-hand experience for laser circuit processing, especially for direct laser circuits and direct laser solder ability; for multifunctional, complete set and dedicated equipment of rapid PCBs processing; also for SMD stencil design, manufacture and tests. DCT is always at the leading edge of technological development. Interest is perpetual strength for development; accumulation is reliable base for growth. To change the situation of “easy for design, hard to turn design into reality”, based on direct processing, DCT provides high-end products and technology, programmed technics and know-how into software, into products. DCT will work hard endlessly to make design come true, to make dreams come true, to realize direct processing for taking place of indirect/mediately processing.!



### Company culture - Virtue-oriented, Being moderate

Make clear how you'd like to be and which direction you'd like to go first, then can you be aware of what to do and how to do.

With background of study or work in Germany, or German companies, the Chinese backbone of DCT concentrate on the interest, naturally formed the concept of “according to duty, to rules and steadfastly developing” in the long-term activities. The German and European colleagues, on the other hand, are low-key, confident and deliberate, with tradition of strictness and seriousness, devote themselves to program technology and know-how into software.



With combination of the two styles, the spirit of DCT team comes into being: do everything with great care, keep on improving, quality first. Thousands of miles are not a long distance for bosom friends. Today's DCT team, cherish our own brand and intellectual property rights particularly. By making the best use of decades of accumulation on technical expertise, we will, as always, integrate the accumulated application experience into our products, provide the best products and best service for the development of direct processing technology.

The meanings of company name “DCT” could be interpreted into two levels. The literal meaning: it is a Sino-German joint venture. DCT is the capital letter for German words “Deutsch-Chinesische Technik” and for English words “Direct Constructing Technology”; The deeper symbolic meaning is to tell the principle and aim of DCT, that is: “Virtue-oriented, Being moderate” and “Design Comes True, Dreams Comes True”.

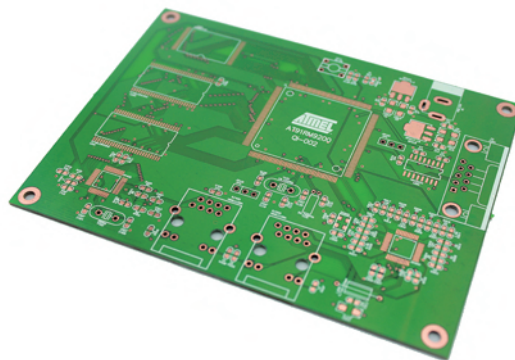


In the specific case of daily operation, Virtue-oriented tells us never breaking the bottom line by doing business but to focus on the long-term value for customers instead of short-term value for ourselves; being moderate tells us to choose the all-win way for the society, customers and our company DCT. In virtue of the name DCT, we sincerely hope that virtue and responsibility can be on a cycle of growth in business activities!

For the logo of DCT: the square, symbolizes our intrinsic characteristics, that is, pursuing quality first, having bottom line, uncompromising attitude towards principle the circle, symbolizes our outward appearance: flexible open and keep on improving, and multi-win. Dynamic ellipse, symbolizes our continuous improvement, upgrade and progress. And the company standard color blue, symbolizes technology and dream. “德中”, the two Chinese characters are written with changing regular script, The word "DeZhong" is written in regular script which obtains its rich but implicit restraint tradition, and also shows the modern flexible character. DCT, the three letters mean that our product is based on Direct Construction Technology, which makes the Design Comes True, the Dreams Come True.



## Competitiveness—programming technics and know-how into software, integrate experience and knowledge into products



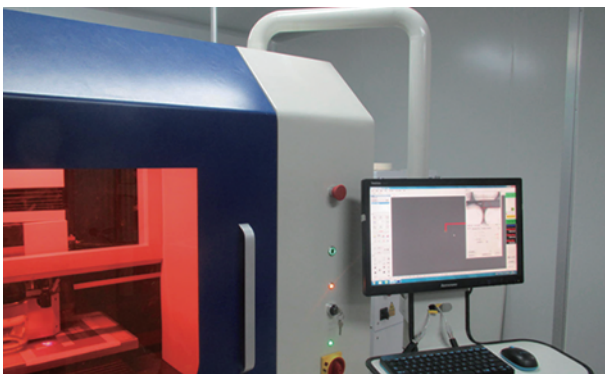
Treasuring application, software and hardware; integrating experience, technology and material, is the golden rule that DCT follows to develop new equipment, with pursuit on accuracy, stability and efficiency, as well as easy and smooth operation. We firmly believe that the key to accomplish our goal is:

- Accumulate experience steadily; pay great attention on application details, and set improvement plan for imperfect.
- adopt advanced technique, balance comprehensively from kinds of good methods, select the best solution after careful deliberation.
- choose the best material and components, be stable and scrupulous even for minor details, be conscientious for long-term project.

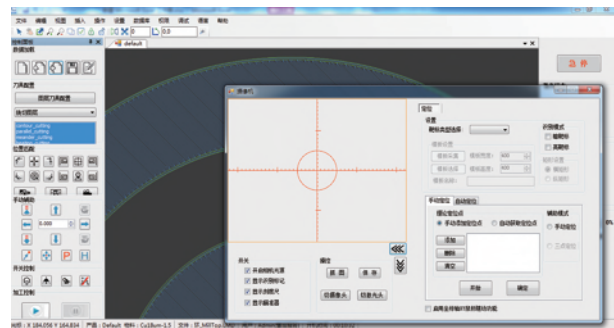
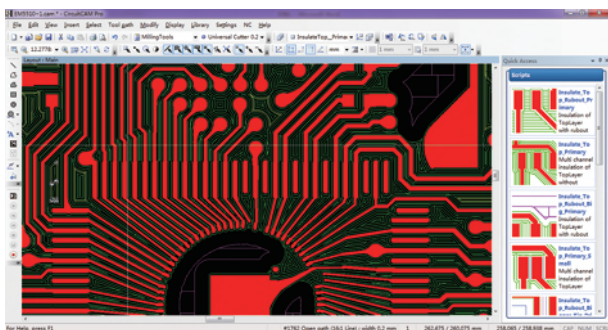
The hardware of DCT equipment, involving laser and optical, motion and control technology, is seriously designed, strictly selected worldwide, carefully manufactured without compromise, and thus, constitute the sturdy basis for precisely and steadily running of equipment.



Nevertheless, DCT's equipment is not satisfied by its excellent features by first class of hardware, since we are confident that software is the important carrier for improving equipment's performance. is amplifier of hardware performance. For special high-end equipment software is very critical, it is not icing on cake, but fuel in snowy weather. It is software that constitutes the competitiveness of DCT. DCT has been invested a lot in software development for years and got independent intellectual property rights for several software, become one of the industry leaders.



— Data processing software CircuitCAM7, used for conventional PCB manufacturing technology, such as design rules checking, generating patterns for galvanic plating and multilayer pressing process, data preparation for photo-plotter; supporting mechanical PCB rapid prototyping technology, such as generating tool path for insulation milling, and contour routing; used to design SMD solder paste stencils, and generating tool path for laser cutting; used for direct laser processing of circuit board and other electronic products, such as data preparation for laser drilling, cutting and stripping of copper foil.

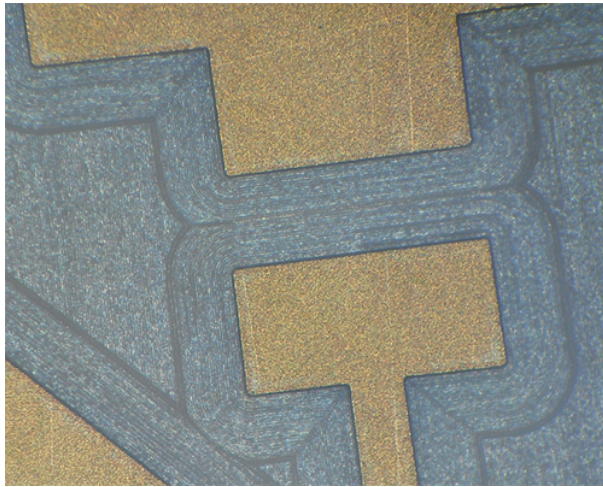


— Machine driving software DreamCreator, provides human-machine interface for computer numerical control equipment, is used for operating mechanical PCB rapid prototyping equipment, and for operating precision laser cutting, drilling, marking, ablation and stripping equipment.

Thanks to the software, make DCT equipment become a concordant integrated system, of which the different part can not only work separately, but also cooperate with one another orderly, accomplish processing with higher efficiency and better quality.

In DCT's opinion, hardware and software are body of equipment, while application is the soul of the equipment. Application experience makes up big data, it is the source of innovation. It is application experience that gives the equipment as well particular character, this is just the essence of the equipment.

The prominent feature of DCT equipment, is the integration of years of experience accumulation on laser material processing and PCBs technology into product. DCT cherishes the experience because it is gotten from decades of practice, it is result of continuous accumulation in work and study. Though it is inconspicuous, it plays an irreplaceable decisive role to ensure the easy, smooth operation of software, the practical and professional design of hardware, as well as good user experience and exploring the essence of technology.



Especially in the field of circuit board fabrication, DCT people are always striving to promoting the use of dry processing, direct processing to replace the conventional wet processing, indirect processing technology. Through in-depth exploration of the nature of the interaction between laser and materials exploring the intrinsic relationship between various manufacturing processes and laser processing, and then, writing technology and know-how into software, integrating experience and knowledge into products. Some technologies have improved qualitatively from the accumulation of quantities, and have made breakthroughs in traditional indirect technologies in terms of quality, efficiency and cost, including:

- Direct Laser Circuit/DLC technology is a process that uses laser to divide the copper into pieces and then peel them off. Firstly, along the outline of tracks and pads, ablating the copper layer by focusing beam, and separating the copper foil to be removed into small adiabatic pieces, i.e. Striping. Then, the laser parameters are changed, the small pieces are sequentially heated and separated from the substrate, which utilizes the thermal expansion property of the material, i.e. Stripping. Striping & Stripping process is referred to as S&S, which replaces chemical etching and produces circuit patterns.

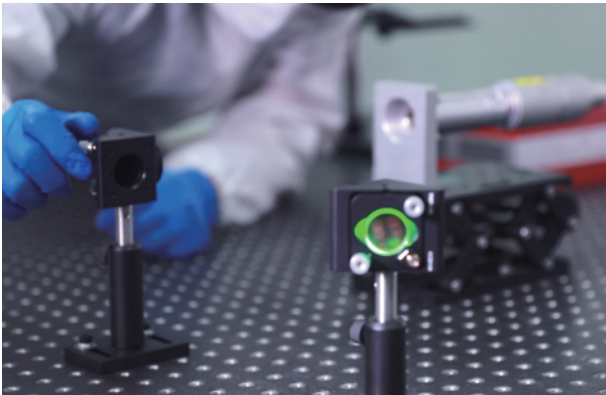
- Direct Laser Solderability / DLS technology is a process that create solderable surfaces while removing solder mask material. First step is coating all the surface of the board with a solder resist material; and the second step will be done just before component mounting, ablating the solder resist on the pad to get solder resist pattern and clean, solderable surface structure; immediately after that, doing the same as ordinary technology, applying the solder paste, placing component and soldering. Replacing of conventional technology, it is an overall optimization of series of processing processes from the bare board manufacturing to circuit assembly activities as a whole.

### Rapid PCB processing system, prototyping and small-batch production, getting through the last mile of dreams and reality

PCBs prototyping and production, is the key to turn design into reality and enter the new product to market, but the conventional chemical methods are the bottleneck of electronic product development: lot of equipment and big investment; complicated operation and professional skills requirements; long production cycle, multiple intermediate processes, materials and molds; environmental unfriendly with waste water, exhaust gas and waste material output.







With mechanic, electronic, laser and chemical background, especially in PCBs design, manufacture and assembly; with work experience in domestic and foreign research center and industry companies, DCT team, develops rapid PCBs prototyping and small batch production equipment, stand alone and complete set, by starting from material and technology, gathering best industry technology from domestic and abroad, and refining, concentrating, innovation by sublation, improvement and re-innovating. Featured with:

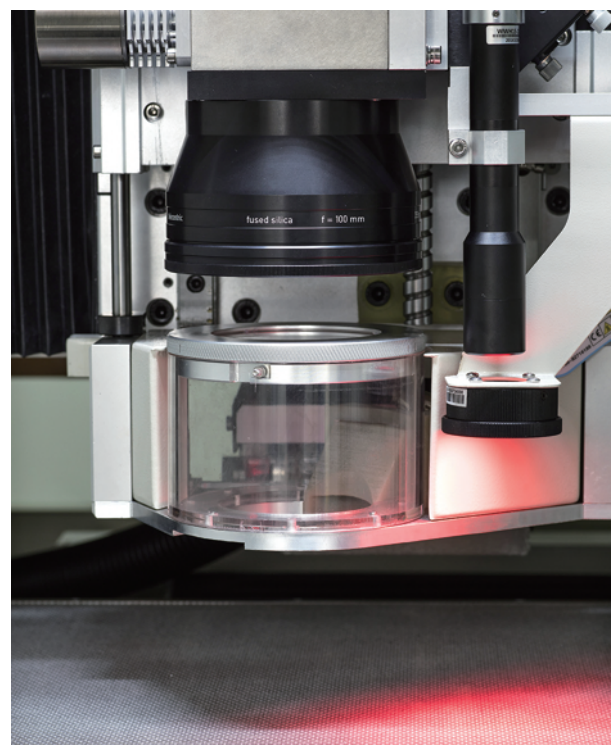
— **Condense and simplify, combine and integrate:**

by means of direct processing technology and data driven, the traditional, heavy, individual machines with single function, are simplified and integrated into smaller, compact, multifunctional mechanical and laser processing center; variety of material is replaced by several finished material; long processing procedure is shortened into several steps of production by using new material and technology. PCBs processing is no longer need professional skills. It greatly reduces the threshold of investment, space and technology for PCBs industry.

— **Comprehensively balanced, stand alone and turn-key complete set:** to meet the essential requirement of circuit board, each single machine of the whole set, is reliable and durable in details and functions, easy for operation and maintenance, with reasonable price, embodying professional standard and sense of

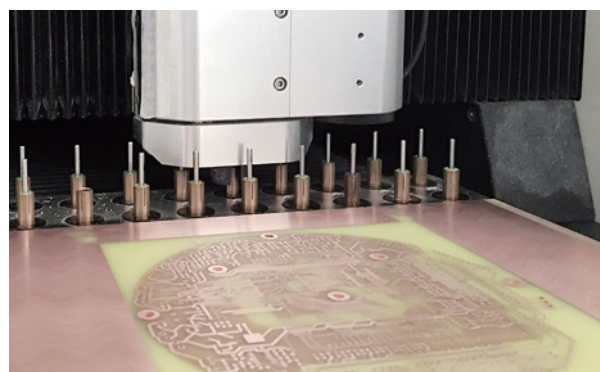
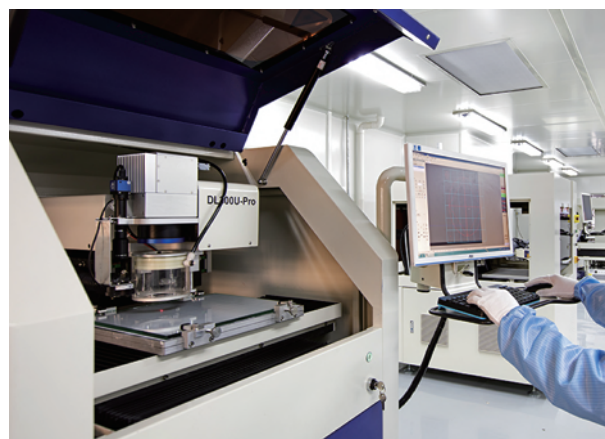
responsibility in design and manufacture; the whole set is the best combination of single machine and each function, is a turn-key solution including material and technology transfer. The whole processing procedure is minimized and processing speed is maximized. Design, manufacturing, technology and service come from one hand and this ensures its steady running for long term.

— Easy, fast, flexible, simple, light, clean, quiet and precise: the data driving Direct Constructing /Processing Technology, with laser and mechanical tools, replace traditional method with direct laser processing, no need of molds and tooling film, without intermediate process and material, without production preparation. The production is lighter, more quiet, cleaner and the products is more accurate. Balancing and making full usage of the advantages of laser, machining and chemical technology, the system is more applicable, resulting the production process easier, faster, more flexible and simpler.



At present, DCT provides both PCB rapid prototyping, and full-process, small batch production system globally, including: machines, software, technology; triathlon in terms of accuracy, stability, ease of use, ranking in the forefront of the world, is one of the most value-added tool sets in the electronic industry. Such kind of tools enables making circuit boards on demand in house, easy, quick, independent and confidential as printing. Equipped with DCT system means completely getting rid of the problem" easy in design, difficult in design comes true" in product development, iterative upgrading, in house production activities, for different needs, solutions include:

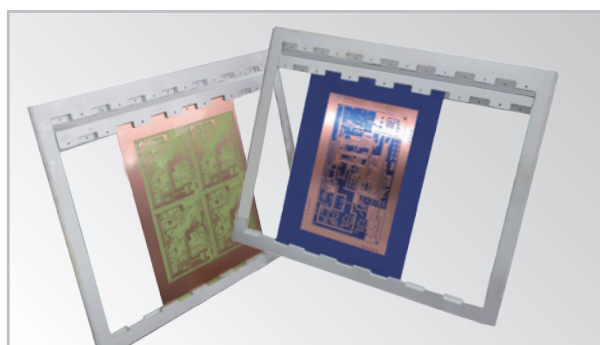
- Direct mechanical machining equipment-DirectMaker series, a kind of computer numerical control processing center, featured with depth control milling, drilling and routing function, removing the unneeded copper foil through depth-controlled milling.



- Compact multilayer press and compact through hole plating equipment for making double side and multilayer PCB in laboratory, the plating machine is used for coating conductive material to the side wall of hole to connect the conductive layer on different side of insulating substrate, the press machine is used for laminating conductive, insulative material together.



- Miniature/compact board brushing, dry film laminating, LED UV exposing, DES-developing/etching/stripping, electroplating, cleaning and water treatment equipment, as stand-alone equipment or in sets matching the equipment above used for small batch and multi-variety production of circuit boards.





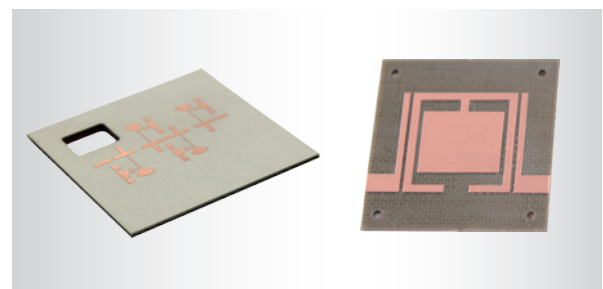
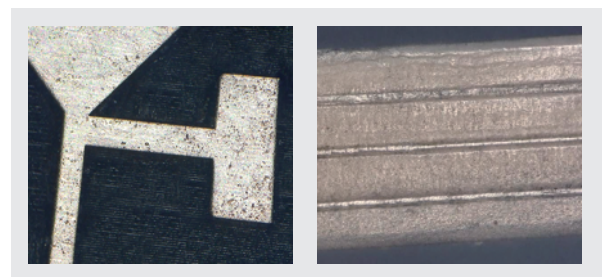
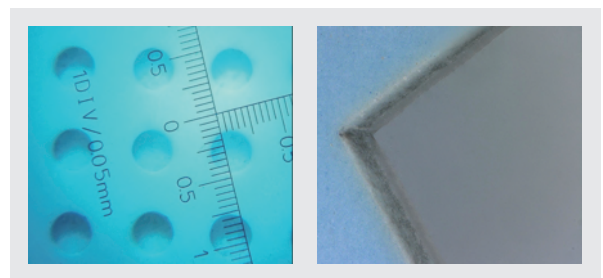
## Advance laser equipment - combination of efficiency and precision, unity of easy operation and functionality

The history of human civilization tells us that good tools can not only improve quality and efficiency, but also change the mode of production. Because of suffering the limitations of chemical and mechanical means personally, we are firmly believing that laser platform will become the infrastructure of Intelligent manufacturing in the future. Based on this judgment, designers of DCT have developed platforms with different structures to match different application scenarios, to equip lasers with different pulse width, color and technical type, and so as to synchronize the ever-changing technology.

- Ultra-fast laser, featured with picosecond and femtosecond pulse duration, the time of interaction with material is so short and power is so high, that evaporates the material instantaneously, so fast that there is no damage around the processing point. It realizes high precision non-destructive processing of "cold removal, clean removal, no modification removal, quantity and depth control removal".

- UV, Green and IR lasers with different pulse widths, lasers with different wavelength, focusing spot diameter, coupling characteristics with materials and different interacting time, meet different processing requirement, such as different materials for good quality, high efficiency and low cost.

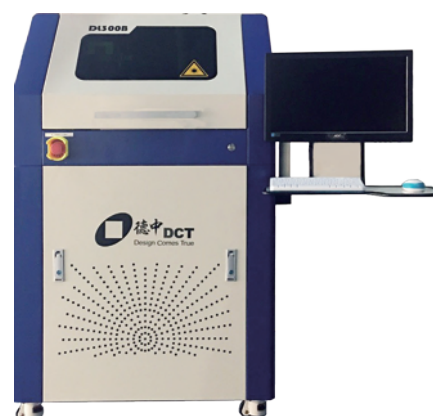
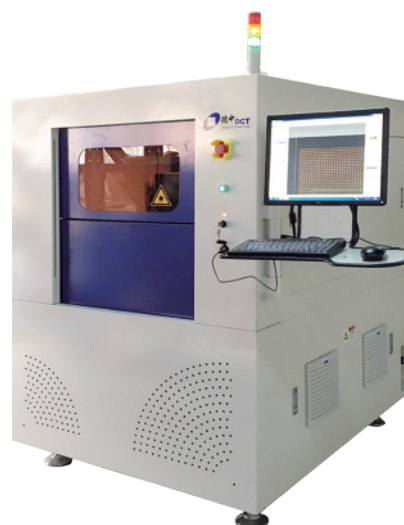
- Fiber, disc, slab and rod lasers, together with a variety of machine structures, different loading and unloading configuration, meet the requirements of various applications on flexible, multi-functional, automatic and customizing processing.





With more than ten years of practice in laser equipment, DCT knows well that, in order to supply best equipment, we should focus on making full use of most advanced and cut edge technology, and exploit the potential from supreme details and fundamentals of application. On this basis, DCT introduced series of laser precision equipment for material micro-processing, including:

- DirectLaserU, a Universal Laser used as multi-functional laser tool, based on function of material ablation, cutting and stripping, it is suitable for making patterns, shapes, cutting and depth-controlled cutting, through holes, blind holes and micro via drilling, etc.
  
- DirectLaserC, a Circuit Laser specially used for PCB prototyping and small batch production, the conductive pattern made by DirectLaserC are featured with high geometric dimensional accuracy, so the machine is especially suitable for producing RF, microwave and high precision products.

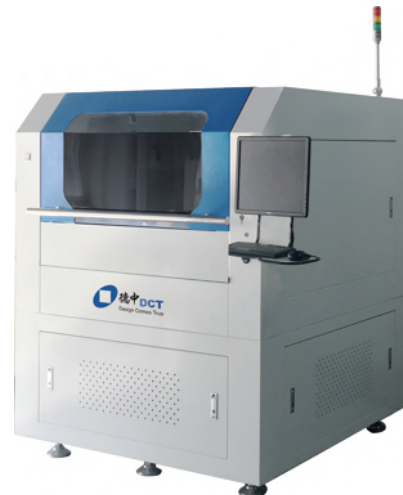




— DirectLaserS, a kind of composite material Separation Laser, the cutting and depth-controlled cutting functions makes DirectLaserS suitable for processing composite material, such as PCB, Rigid-Flexible PCB, for depaneling of circuit board after SMT assembly, for open soldering windows on cover-lay and for contour cutting of FPC.



— DirectLaserM, a Metal Laser cutting machine with auxiliary gas. The machine open holes with different shapes on metal foil through cutting with closed path, it can as well make holes through laser beam punching. Metal Laser is used to produce high precision SMT solder paste printing stencils, and also to process precise metal and ceramic parts.



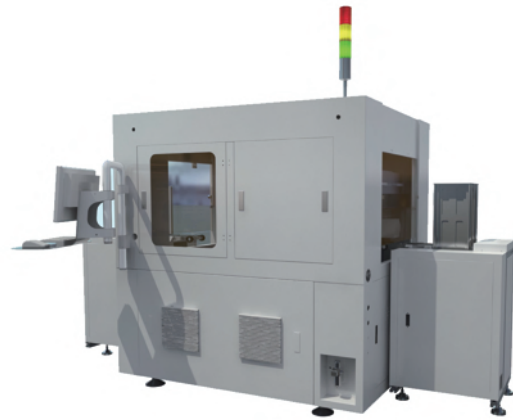
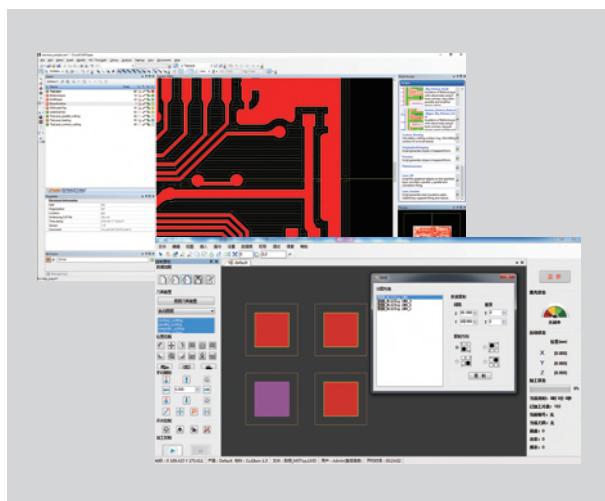
— DirectLaserP, a pattern laser featured with function of selectively and rapidly removing or modifying the material in layer. It can be used for pattern processing or surface treatment of elementary materials or composite materials, such as produce solder mask patterns while making solderability treatment simultaneously on circuit boards.

— DirectLaserD, a professional Drilling Laser with function of drilling micro-through and blind holes/via with high quality and high speed, is used for drilling process to manufacture high density interconnected flexible and rigid circuit boards.



In addition, there is Repairing Laser in the portfolio of DCT used for repairing shortcut between tracks, removing technical assistant tracks and making local high density patterns in large-scale production of electronic products; There is a Glass Laser for processing thin, brittle, hard and transparent materials such as ceramics, silicon wafers, glass, crystal, etc.; There is also a High Laser used for thermal sensitive materials such as valuable special metals and polymers, and for processing of various soft, sensitive, viscose and toughness elementary and composite materials. At the same time, DCT also provide testing and experimental processing services.

DCT products, with optional automatic up/un-loading, also possible with/of roll to roll system, together with data processing software CircuitCAM7, operation software DreamCreaTor, are value-added complete set system. Moreover, DCT also provides extending background training, transfer application experience and know-how to customers, which helps users to overcome barriers to the industry. With professional training and service, DCT team are trying to generate independent value for customers, make the equipment adding value continuously.



**Company pursuit - replace indirect processing by direct processing, adding value for customers, always be the first**

So far, the philosophy of DCT is widely accepted. From single machine to complete set system, more and more products were installed. Well understood and suited for micro-processing procedure, each single machine can work separately, establish new standards in high performance and low price; each system is best combination of single machine and technology, not only meet the application needs of customer, but also take into account their long-term interests.

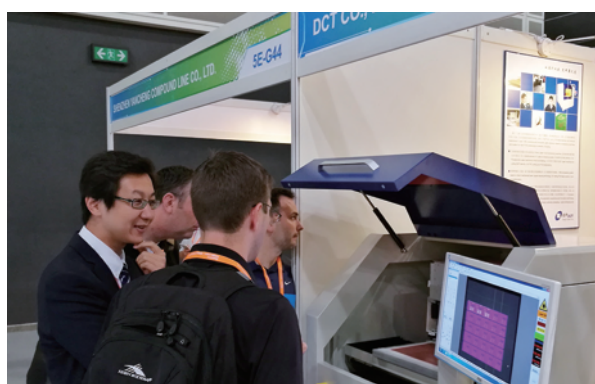
All along, we have been striving to pursue our dreams. Our dreams are to make more designs come true and more dreams come true. Thanks for our customers from domestic and abroad. Your choice brings us responsibility and sets up the mission for DCT to dedicate ourselves to accomplish:

— **High quality and reliable service, make our products adding value for customers!** Customer value oriented, all work revolves around the interests of our customers. DCT transfer our advanced technology into the competitive advantage of customers by means of product and service. We respect our customer instead of making use of them. We try to benefit to our customers beyond their satisfaction.

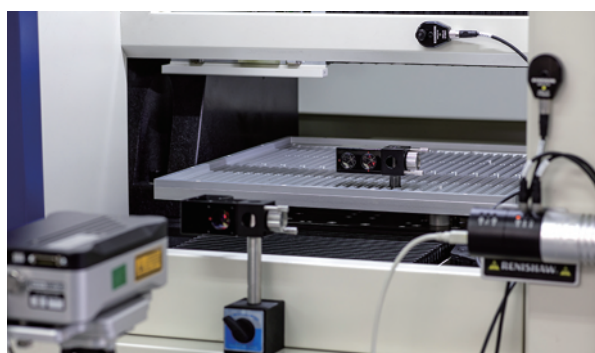
— **Satisfy the society with simplified process and reduced consumption!** Our baseline is to contribute on environment. As a company, we'd undertake more social responsibility by developing high-tech environmental friendly products. DCT practices the philosophy of direct processing instead of indirect processing, energy conservation and environmental protection in daily operation.



— **Faithfully abide by commercial morality, pursue common interest!** Cooperates with others on basis of partnership. It is the right way to enhance company value and motivate further development. To benefit relevant parties constantly, can keep ourselves in good financial status, cope with changes and innovate essentially.



— **Continuous improvement and innovation, being the first in technology!** Discovers new applications and new markets, achieves higher cost performance with lower cost, keeps competitive advantages forever. Subvert the market pattern dominated by philosophy of "interest oriented and sales first" with products. Only in this way can we create value for customers and the whole society, which is the basis to satisfy our customers, cooperators, staff, shareholder and partners.



For over 20 years, our automated digital processing systems and innovative technologies have launched thousands new products into the market. DCT knows well that, technology is developing and needs is changing. We should keep on improving, innovating and going beyond ourselves in application, software and hardware, to supply more precise, easier and smooth operation, and stable equipment, which can enable customer dreams come true, meanwhile, make our dreams come true.







- software development-Fulda,Germany
- software development-Kaunas, Lithuania
- Agent, Sales and Service-Tokyo, Japan
- R & D + production + sales + service + application center-Tianjin headquarters
- R & D + sales + service + application center-Suzhou company
- R & D + sales + service + application center-Shenzhen company
- Sales-Xian office
- Sales-Chengdu office
- Sales-Wuhan office



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