



## ***PCB Assembly***

Shax Engineering and Systems offer quick-turn prototypes, small production, new product introduction (NPI), burn-in and test as well as demo-board assembly. Our assembly technologies include through-hole to fine pitch surface mount and Ball Grid Array (BGA). Assembly projects will be handled by consignment or turnkey method. Assembly consignment, turnkey material and components are systematically managed for an uninterrupted flow of components.

Our main objective is to provide cost effective assembly process as fully integrated with removal, placement and rework of various component packages. Additionally PCB functional testing and repair are integral parts of our service. These complemented offerings are intended to reduce the time of manufacturing, cost increase and delivery efficiency.

While we offer these services, Shax will maintain its quality through standard policy in place to provide you with reliable service. Industry standard and recommendation is also adopted throughout the process. All products manufactured by Shax Engineering and Systems will be warranted against manufacturing, workmanship failure and defects.

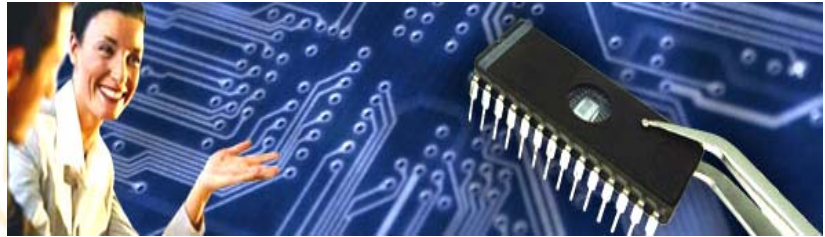
## ***Assembly Technology***

Up-to-date automated cell assembly equipment for fine pitch, mixed, single-double sided, lead and lead free assemblies. These machines are capable of handling passive packages up to 0201 with expansion capabilities up to 01005 package sizes. Active component packages will include BGA, uBGA, CSP and MCM.

Shax Engineering handles assembly tasks in two distinct processes. On consignment assignments, components and materials shall be procured by our clients and delivered to us as a kit. However, when turnkey orders are awarded to Shax, our material department will procure the components per your bill of material (BOM). In both processes, components will be verified by our material technicians and compared with your BOM before the order is processed.

## ***Material Management***

On-time procured material will reduce production costs, improve delivery time and increase overall efficiency of the production line. Our inventory control is the process intended to secure flow of material supplies effectively, coordinate internal activities as well as communicates with the customers. Throughout the years, Shax Engineering and Systems has established effective working relationships with the material and components suppliers. Such relationships provide us



the ability to obtain component and materials as needed. Our internal procurement personnel are consistently in communication with our clients to ensure the availability of material to fulfill their order.

### ***Rework***

Surface mount and BGA rework can be tricky, tedious and in some cases costly when the shop is not prepared to perform rework assignments. Various techniques and methods are used for SMT and BGA removals, replacement, BGA re-balling, trace repair and wire additions. There are a variety of IPC techniques along with tricks of the trade our technicians have performed over the years. These skills enable us to accomplish high quality rework that only trained hands can perform. These dedicated technicians are capable of reworking precision complex components such as uBGA's ultra fine pitch, QFP's, and FLIP Chip. They understand various ECO processes and the requirements for each individual components thermal profile.

### ***Test and Repair***

Shax Engineering and Systems test and repair service has two components: a) We can provide test and calibration to the new product. b) Repair and calibrate faulty or outdated equipment.

Test and Repair services are performed and conducted by a specialized technical staff trained for using various electronics test instruments required to calibrate, digital, analog and RF boards. Shax Engineering and Systems has the expertise, equipment and knowledge to repair both current and out dated technologies. They also have the technical capabilities to locate diagnose and repair the problems. We can conduct preventive as well as corrective maintenance while we act as a repair shop for OEM clients. Our Technicians are experienced with various test tools and assembly fixtures. Also, they do have the capabilities to design and build fixtures for specific boards or hardware.

Shax Engineering and Systems test capabilities include:

- In-circuit test
- Boundary scan
- SMT and BGA Rework
- X-Ray Inspection