



Preparing for Expansion

“GenRad is an important contributor to our growing business, by giving us the expertise in test technology and the support that enables us to build fully integrated manufacturing services.”

Lee Lok Fui, President, Jurong Hi-Tech

Jurong Hi-Tech is part of the Jurong Technologies Industrial Corporation, a S\$90 million contract manufacturing operation with low and high volume printed circuit board assembly (PCBA) and box build services.

The company's origins lie in the development of automation for the shipping industry which began in 1986 and the company still manufactures these products from its original base at the Jurong shipping yard, Singapore. The increasing demand for PCB assembly led the company to establish independent operations in 1988 and shortly thereafter won a contract with Western Digital to manufacture hard disk drive PCB's. Since then Jurong Hi-Tech has gone from strength to strength, building a core of high quality clients such as Maxtor for hard disks, and Creative Technologies, Mitsumi and Kenwood for audio and video products. 80% of the company's production is hard disk units although growth in video and audio products is increasing. New, high speed facilities for SMT and BGA assembly were introduced recently and the company is fully accredited to the ISO9002 standard.

The company's Singapore plant occupies 18,000 square feet and runs seven lines, six of which are

SMT facilities. A further twelve lines are installed in 32,000 square feet at Cemerlang, Johor in Malaysia. Altogether the company employs 800 people with a production capacity of 50,000 boards per day. With this kind of throughput per day, quality control is vital to maintaining high yields and the backbone of the company's test strategy is eight GenRad 228x ATE systems. The 228X series is GenRad's high performance family of production test solutions. Ideal for complex, high productivity applications with mixed signal, digital, analogue and functional test requirements, the high pin count and fault coverage make it the very best on the market. Test program generation is also flexible due to the adoption of Windows NT as the operating system and GenRad's unique range of design to production programme development and debugging tools.

The man in charge of engineering is Lok Kum Fook. “Our customers typically introduce a new product every quarter with a lifespan of no more than six months, so it is crucial that we are able to get new products into production quickly. We aim to bring new products into full production within two weeks and this can only be achieved by having a strong, well equipped test development team in-house.”

The team has established facilities for design of full ICT test programming, including vectorless tests for ASIC's, and fixture development and this is one of the areas where GenRad provides valuable support. Often, customers' functional test requirements are also developed in-house using IEEE instrumentation.

“With the very long term relationships we have with our customers, our manufacturing facility becomes an extension of their operation. Customers want to know more about the process, cost structure, yields and so on. We particularly

Jurong 高技术公司是 Jurong 技术实业集团 (Jurong Technologies Industrial Corporation) 的一员，按合同生产的低、高容量印制电路板组装 (PCBA) 和制箱作业高达 9 千万新加坡元。本公司奉行不断改善生产过程的目的；员工致力于每月开发一个新项目。这个新项目可能是工作自动化系统、改善工作流程或管理或评审生产战略。新项目的重点总是力求为用户服务增添价值。





work together in the design cycle, assisting them with component selection and reviewing artwork and layouts to gain maximum benefits from our assembly and test facilities. Obviously we have an intimate knowledge of our customers' products, so we can adapt very quickly to new designs," says Lok Kum Fook.

The company operates a policy of continuous process improvement - committing the workforce to one new development project per month. This might be a factory automation system, improvement in workflow or management practice or review of production strategy. Always, the focus is on adding value to the customer service offering.

Growth has been so rapid (averaging 50% per annum for the last three years) that the company

Business Milestones

- 1988 Initial plant set up in Jurong, Singapore
- 1991 Rapid Expansion following manufacturing contract with Western Digital
- 1992 Established 6000 sq ft factory in Jahor Jaya
- 1994 Moved to 23,000 sq ft factory in Cemerlang and awarded ISO9002 certification for Singapore
- 1995 Established a further plant in Selangor
- 1996 ISO9002 accreditation for Johor plant, Malaysia
- 1998 Introduced new high speed technologies and awarded Outstanding Supplier by Maxtor
- 1999 BGA volume production commenced and awarded Strategic Contract Manufacturer status by Creative Technologies
- 2000 Listed on Singapore Stock Exchange in April 2000

is now preparing itself for an Initial Public Offering (IPO) on the Singapore Stock Exchange. Company President, Lee Lok Fui explains the rationale behind the move to go public.

"We cannot stand still at this time and in order to fulfil demands from new and existing customers we have chosen to adopt an aggressive expansion programme. The IPO will allow us to expand facilities in Asia to offer more integrated services, as well as forming alliances in Europe."

GenRad's contribution to the business is far greater than just the supply of ATE equipment and fixturing services. Training and after sales services are important to fully maintain and gain the best from the 228X series systems. GenRad also assists with continuous improvement projects - advising on test and repair issues, failure analysis and program development.

"GenRad's process knowledge has been invaluable in helping us develop new opportunities in the wireless and cellular communications industry," comments Lee Lok Fui, "GenRad is an important contributor to our growing business, by giving us the expertise in test technology and the support that enables us to build fully integrated manufacturing services. In our business, communication between plants is becoming more and more important. GenRad are one of the few suppliers who are able to provide consistent, high quality training and support across the Asia Pacific region. As we develop our Eastern European alliances, that relationship will become even more apparent."



Awards received from Maxtor (Outstanding Supplier Award 1998), Western Digital (Excellent Supplier Award 1994) and Creative Technologies (Strategic Contract Manufacturer Status 1999)

