

NEWS AUTUMN WINTER 2003/04

- Environmental Recognition – ISO14001
- Low Cost Organic Millimeter-wave MMIC Packages
- New Sales Representatives in Europe & USA
- Strategic Alliance – Pioneer Circuits Inc
- COSMO Space Programme
- RF Machining Services Launched
- Advanced PCB Capability Highlighted
- MIC Assembly Update
- Munich 2003 – European Microwave Show
- PhD Programme Sponsored by Labtech
- Technology & DFM Workshop



Labtech Receives Environmental Recognition – ISO14001

It was celebration time at Labtech's state-of-the-art Presteigne headquarters when the company recently secured a prestigious ISO14001 environmental award from BSI.

The success is just reward for the company's dedicated Health and Safety/Environmental Team, which has been working closely with BSI.

ISO14000 is a series of standards covering environmental management and it especially considers activities with a direct or indirect impact on the environment and in-house systems.

With many blue chip customers now requiring their suppliers to be environmentally aware, Labtech has successfully addressed a number of issues by

working towards and securing ISO14001. By actively reducing waste and energy loss, the company is cutting costs and good environmental performance ensures that it is operating legally.

Carefully balancing ongoing capital expenditure with the environmental needs, Labtech ensures that water usage and effluent treatment are considered when specifying new equipment. To underline this commitment, the company plans to invest £60K in environmental impact equipment this year.



Labtech now offering Low Cost Organic Millimeter-wave MMIC Packages

MMIC custom packaging solutions utilising organic substrates and millimeter-wave PCB techniques have been developed by Labtech as a low cost alternative to existing technologies.

Offering low cost NRE and tooling, the solutions are targeted at Ka/Ku band applications and the Optical components market. Catering for small or large quantities, Labtech is typically handling lots of 1K.

New electroplating techniques to thicken the ground metal plate for high power packaging versions have also been developed by Labtech.

Key Advantages

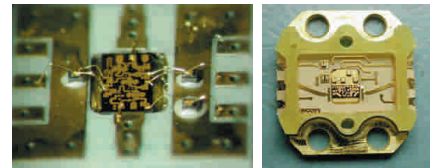
- Low cost solution – low cost tooling
- Performing well at Ka and Ku band
- Packaging solutions for small quantities
- Flexible footprint changes at low cost impact
- Heat dissipation >4W and 10W for SMD formats
- Available as SMD, Flip Chip, BGA, drop in and flange configurations

Multi-Chip Modules

The company continues to develop interesting motherboard solutions for MMIC integration, wave guide launches by utilising mixed dielectric and metal core/backing techniques:

MIC Assembly – Turnkey Approach

Labtech's MIC assembly facility, housed in a Class 10,000 ESD protected clean room, uses chip and wire bond techniques. The company is able to bond directly to PTFE laminates using Gold, Ribbon and Aluminium wires.



Scandinavian Sales Representative Network Expands

Labtech has expanded its Scandinavian network of sales representatives with key appointments in Norway and Denmark.

The appointment of Sangus Richardson, a manufacturer's representative company with offices in Norway and Denmark, expands Labtech's coverage of Scandinavia. Sangus also represents Labtech in Finland and the Baltics.

"Labtech's key market has traditionally been in Scandinavia where Sangus is an established representative company specialising in high frequency and microwave technology," says Labtech's Sales and Marketing Director, Bob Lowther. "We at Labtech are very happy to be associated with Sangus Richardson."

New Representative in Northern California

K-Tech Sales, a Bay Area-based independent sales representative firm, has been appointed to represent Labtech in the hi-tech Northern California and Nevada electronics market.

A company involved with leading manufacturers of semiconductors, wireless communications and networking, K-Tech Sales offer a range of products including RF Interconnect Solutions and components up to 50GHz.

"The appointment of K-Tech is a great boost for Labtech in being able to offer its low cost MMIC packaging solutions to one of the world's leading hi-tech regions," says Bob Lowther, Labtech's Sales and Marketing Director. "Labtech continues to be successful in the USA market and believes there is a strong demand for our high-end microwave PCB and packaging technologies."

LABTECH AND PIONEER FORM STRATEGIC MARKETING ALLIANCE

A strategic marketing alliance has been formed by Labtech and USA-based Pioneer Circuits Inc, a manufacturer of rigid, flexible and rigid-flex printed circuit boards.

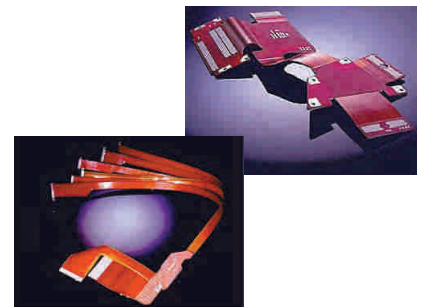
The new alliance, a non-competitive agreement, allows both companies to promote each other in specific territories by utilising existing sales channels. Pioneer will promote Labtech's core capabilities to the North American Space and Defence markets and Labtech will reciprocate by promoting Pioneer in the European market.

The alliance is seen by both companies as a means to promote each other's core capabilities and services to established and prospective customers, thus adding further value and access to new geographical markets.

Bob Lowther, Labtech's Sales and Marketing Director, says: "The tie-up with Pioneer will allow Labtech to access the lucrative US Space and Defence markets and support our ongoing development in these sectors.

"Pioneer is a leading supplier of Space and Defence-qualified flexible and flex-rigid printed circuit boards and, being based in Southern California, is at the heart of the USA Space industry."

Ken Lee, Director of Sales and Marketing for Pioneer, adds: "The opportunity to access the European market through Labtech's established sales channels should prove to be successful. Labtech is Europe's leading dedicated microwave PCB supplier and the alliance will allow Pioneer to showcase its wide range of flex-rigid printed circuit board capabilities to the European Space and Defence community."



Pioneer - www.pioneer-circuits.com is a leading US based supplier of rigid, flexible and rigid-flex printed circuit boards; single sided flex circuits; complex rigid-flex printed circuit boards including "bookbinder" technology. Pioneer also undertakes specialist assembly, hand soldering of connectors and non-active components. Pioneer is based in Santa Ana, California, USA.

New Dimension To PCB Capability

Labtech has expanded its range of advanced printed circuit board capabilities to add extra value to customer service.

The company's core microwave PCB capabilities are further enhanced by the addition of advanced materials and constructions.

"Our existing capabilities and knowledge, such as handling exotic PTFE materials and complex PCB constructions, can also be applied to a range of alternative materials and applications," explains Bob Lowther, Labtech's Sales and Marketing Director. "We are keen to continue to expand the value Labtech brings as a supplier to our customers."

Labtech will be offering a range of additional capabilities, which will include CIC, high tg and low CTE multilayers. Processing of materials including Polyimide, Thermount, BT, Cynate Ester, Gigaver and Duraver is also on offer, further supplementing Labtech's experience of processing PTFE laminates.

MIC Assembly Expertise



Labtech's hi-tech Class 10,000 clean room houses a highly skilled and dedicated chip and wire assembly service. Labtech's real expertise is in the chip and wire assembly of MMIC to "soft" substrates, such as PTFE laminates.

The in-house assembly utilises silver epoxy transfer print and dispense using a range of standard bond wires to the standard 25µm gold; gold 12.7-76µm; aluminium 20-76µm and gold ribbon 25-250µm.

A wide range of in-house finishes such as pure soft gold and nickel/palladium/gold gives Labtech extensive knowledge of wire bondable finishes.

KEY ROLE IN MEDITERRANEAN SATELLITE PROJECT

Labtech is playing a key role in a satellite project to monitor the Mediterranean area to prevent natural disasters.

Microwave printed circuit boards manufactured by the company are being used in the radar component of the COSMO-SkyMed Satellite project, a French-Italian Earth Observation system being built by Alenia Spazio in Italy.

The satellites will be equipped with synthetic aperture radar that provides very high resolution images. Labtech has been selected by Alenia Spazio to supply the project for the next three years.

"The commitment to Labtech by Alenia Spazio is very welcome as Labtech continues to pursue high end Space and Defence qualified work," says Labtech's Sales and

Marketing Director, Bob Lowther.

The COSMO (Constellation of Satellites for Environmental Observation) - SkyMed is a system being built by Alenia Spazio, a Finmeccanica company, on behalf of the Italian Space Agency. The system will monitor the Mediterranean region and provide information for a variety of applications including the prevention of natural disasters as well as coastal and agricultural monitoring.



RF MACHINING SERVICE LAUNCHED

A new RF Machining Service designed to add value to its expanding global customer base has been launched by Labtech.

The company has significant CNC Milling capability and capacity to precisely machine components for the RF microwave and high frequency markets. Labtech's key goal is to satisfy the demand for complex microwave aluminium housings with feed-through installation for military and commercial microwave applications.



KEY FACTS

- CNC Milling** x14 machining centres – Fadal, Schmolz, Lenz and Yang. (7,500 – 60,000 rpm)
- De-burring** Hand de-burring and automated finishing
- CAM** x3 Camtek stations handling most types of data
- Plating** In-house plating including aluminium pre-treatment
- Inspection** x1 CNC CMM
x1 semi auto CMM
- Assembly** Feed-throughs, helicoils, connectors, termination pins, threaded inserts, spacers, PCB to housing and solder assembly

PhD Programme Sponsored by Labtech

Cardiff University has linked up with Labtech to provide scientific support for the development, marketing and sales of flexible MMIC packaging technology developed and manufactured at the company's Presteigne headquarters.

The three-year research project aims to develop an understanding of the packaging technology, explore its capabilities and apply it to the packaging of RF and Microwave circuits.

Labtech will supply the university with a set of manufactured packages in order to obtain the

basic performance of the new technology. The results will then be made available to Labtech's growing customer base.

A deeper understanding of the performance trade-offs of the technology will also be undertaken, such as coupling between lines, bond wires and the use of different substrates, sealing methods and mounting techniques.

"The project with Cardiff University further confirms Labtech's continued development of our highly flexible MMIC packaging technology launched during 2002," says John

Priday, Labtech's Engineering and Quality Executive. "We have seen tremendous interest from the market place and hope the scientific support from Cardiff University helps Labtech consolidate the opportunities currently ongoing."



Technology & DFM Workshop for Customers

Labtech has relaunched its highly successful Technical Workshop, which gives customers an insight into the company's world of microwave printed circuit board manufacture.

Often held on a customer's premises over half a working day, the workshop is designed to provide technical support and covers a wide range of topics including:

- Design guidelines including DFM advice
- Specific product areas: MMIC packaging; mixed dielectric multilayers; metal backed and precision softboard PCB's
- Microwave materials
- Labtech technology roadmap

The workshop, targeted at Microwave and PCB engineers, can also be tailored to discuss specific customer-related topics within an agreed timescale.

John Priday, Labtech's Engineering and Quality Executive, says: "Labtech has always placed great emphasis on offering technical support to our customers at the early stages of new projects and the workshop is a successful element of this approach."



MUNICH 2003 European Microwave Show OCTOBER 7 – 9

Be sure to visit the Labtech team in booth H70 at the 2003 European Microwave Show in Munich, Germany, from October 7th – 9th.

Represented at the event by Bob Lowther, Sales and Marketing Director and Ian Reeves, Business Development Manager, the company will be exhibiting its wide range of single chip and MCM MMIC packages and traditional core capabilities, including metal backed PTFE, multilayer and precision microwave PCBs.

"This major European microwave show provides an ideal opportunity to demonstrate our wide range of PCB and MMIC packaging solutions," says Bob Lowther, Labtech's Sales and Marketing Director. "We have experienced increased interest in our wide range of microwave PCB capabilities of late.

"We will also be promoting our new strategic alliance with Pioneer Circuits of the USA and the addition of advanced material processing, such as Polyimide, CIC and CMC multilayer PCBs."



Visit our web site at www.labtechcircuits.com

Labtech Limited Broadaxe Business Park Presteigne Powys UK LD8 2UH Email: ptfe@labtech.ltd.uk