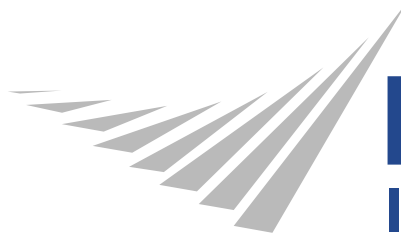


2001



LABTECH
leading the way...

NEWS

- **MMIC assembly facility opens**
- **Labtech wins Queen's award**

RAPID GROWTH SET TO CONTINUE WITH MAJOR FACTORY EXPANSION



Due to rapid growth Labtech, one of the world's leading manufacturers of high frequency printed circuit boards for the global microwave market, is planning to double the size of its flagship headquarters. The project is anticipated to be completed within the next 12 months. The company is working with the Welsh Development Agency who will construct the building and lease it to Labtech.

Established in the Welsh border town of Presteigne 16 years ago, the company has boomed in the last two years as it has ridden the crest of the global telecommunications wave.

The workforce now stands at more than 160 and there are plans to almost double the size of its 32,000 sq. ft (3000m²) base with a substantial factory expansion, creating up to 60 new jobs.

The new state-of-the-art facility, at the rear of the existing factories, will allow the company to improve manufacturing and take on more business with the potential to increase turnover greater than £20m (\$30m) within two years.

The UK's first independent PTFE circuit fabricator, Labtech is involved in many microwave programmes, from defence, space and commercial telecommunications to the emerging automotive sector.

The expectations of a blue chip customer base has developed Labtech into a highly responsive supplier. Particular emphasis is placed on comprehensive technical support and the company has a dedicated centre of excellence for special projects and consultation.

Visit our web site at www.labtechcircuits.com
Microwave PCB and MMIC Packaging Solutions

YOUR KEY CONTACTS IN THE OPERATIONS TEAM

Labtech continues to actively improve its levels of service from the initial technical enquiry to the quotation and after sales support. Every customer is made aware of their account team and who the key personnel are.

Your account team contacts are:

Karen Brassington
(k.brassington@labtech.ltd.uk)

David Dixon
(d.dixon@labtech.ltd.uk)

Ray Jervis
(r.jervis@labtech.ltd.uk)

Wendy Nicholas
(w.nicholas@labtech.ltd.uk)

Your technical sales team contacts are:

Gary Dibbins
(g.dibbins@labtech.ltd.uk)

Gareth Greig
(g.greig@labtech.ltd.uk)

Paul Nicholas
(p.nicholas@labtech.ltd.uk)

Audie Richardson-Noyes
(a.richardson.noyes@labtech.ltd.uk)

Nick Vyas
(n.vyas@labtech.ltd.uk)

For worldwide contacts and territory representatives please check our web site at www.labtechcircuits.com.

CUSTOMER SERVICE THE KEY TO SUCCESS

Supplying blue chip customers with goods and services that continually exceed their expectations has been a key to Labtech's outstanding success story.

The company, which has always made customer service a top priority, has been rewarded for its vision, planning and investment by reporting greater than 50% market growth in the last financial year.

Labtech is one of the UK's most innovative and fastest growing companies.

The success story mirrors the growth of major customers, such as Ericsson and Alcatel, with whom the company is proud to work closely on a wide range of leading edge projects.

Sales and Marketing Director Bob Lowther says: "Our success is built on having a solid, long term relationship with leading blue chip customers and the ongoing investment that we are making in people, plant and equipment.

"Labtech is experiencing a major growth in demand for microwave circuits, arising from sustained, strong growth in the wireless communications market.

"The emergence of wireless broadband data access networks and third generation cellular telephony will drive demand for our advanced microwave circuits to even higher levels in the next three years.

"This investment programme will enable Labtech to meet current and future customer requirements."



Labtech takes up SMACKS challenge

The European Commission has called in Labtech to work with five other partners on a SMACKS (Surface Mount Assembly of Components for Ka band Systems) project.

The mission that Labtech has chosen to accept, in partnership with Thales, Alcatel, Sorep, TNO and UMS, is to devise a low cost packaging solution that enables SMT techniques to be used for the complete assembly of Ka band receivers.

Labtech has been asked to provide a low cost SMT package employing an organic substrate for the power amplifier and the PTFE motherboard for the complete receiver. The motherboard must incorporate filter elements that on current designs are often separate ceramic-based components.

The challenge facing Labtech and its partners is to ensure that the optimum integrated solutions are achieved.



Pallamerse SMT-2000 Autocatalytic Electroless Palladium Finish



Labtech has successfully introduced the Pallamerse SMT-2000 Autocatalytic Electroless Palladium finish from Shipley Ronal - a finish incorporating a layer of palladium between the gold and nickel.

Pallamerse SMT-2000 is commonly referred to as a "Universal" finish because it is suitable for "chip-on-board" technology as well as more conventional high volume surface mount and through-hole soldering techniques.

The finish complements an existing,

but more costly, electrolytic, pure gold finish, which is suitable for wire-bonding but gives poorer solderability for other interconnection techniques.

Successful in-house trials carried out by Labtech, utilising the newly opened MMIC assembly facility and fully automatic, high volume electroless nickel, palladium and gold plating line, have clearly demonstrated the benefits. In fact, improved bond strengths have been experienced when increased thickness of palladium are used.

Investing in the future

Investment in plant and equipment totalling in excess of £2.6 million (\$3.9m) over the past three years has placed Labtech in a strong position to continue its rapid growth.

The current financial year will see the ambitious company invest a further £1.5m (\$2.25m) to expand capacity and improve technology to meet the growth in Broadband wireless and 3 G telecommunication markets.

The company's plating capacity has trebled following the installation of a new electrolytic nickel - hard and soft gold line, a new fully automatic electroless nickel gold line and a new hot air solder levelling process. A resist-strip and chemical etch line has also been renewed to a higher specification.

The extra production capacity follows hot on the heels of an electrolytic plating line from PAL and a new oxide coating line that have been in use since the end of September, 2000.

This investment, totalling £750,000 (\$1.125m), in the chemical processing area provides a higher technical tolerance capability with automated SPC production.

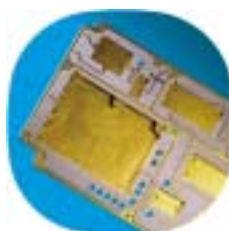
Tremendous productivity and capacity improvements resulted in the photomech department following the

installation of a cut sheet laminator at a cost of £125,000 (\$188,000) December 2000.

The new financial year kicks off with the introduction of an additional automatic electroless nickel gold line at a cost of £125,000 (\$188,000) and the official opening of a new MMIC facility costing £150,000 (\$225,000).

The arrival of three new Lenz precision machining centres, representing an investment in excess of £300,000 (\$450,000), gives Labtech high quality "Z" axis machining accuracy and profile machined tolerances consistently achieving +/- 0.002" / 50 microns.

Other items on the company's shopping list in the next financial year include an extra Plasma desmear unit costing £100,000 (\$150,000), a new Automatic Optical Inspection system costing £150,000 (\$225,000), a 12000 dpi photo plotter and a fully automatic vacuum multilayer press.



Visit us on line!



For the latest news and information about Labtech please visit our regularly updated web sites.

The www.labtechnical.com site is a 'one stop shop' technical resource for microwave PCB engineers. Labtech's technical team monitors the forum and contributes useful insights as applicable. Customers with large teams of designers, particularly those working from several design centres, are given password protected areas of the General Forum where they can exchange ideas about shared design projects.

The www.labtechcircuits.com site is a must for all data sheets and improvements in capabilities.

Labtech invests in its people

Labtech's commitment towards staff training and development has been rewarded with the presentation of the prestigious Investors in People award.

Welsh Liberal Democrats leader Richard Livsey, MP for Brecon and Radnor, presented the award at the company's flagship headquarters.

Investors in People is a national standard which sets a level of good practice for training and development of people to achieve business goals. This results in higher levels of productivity and profitability combined with improved customer satisfaction.

Mr Livsey says: "Labtech has long been a flagship business and I am delighted that it continues to lead the way in innovation and development.

A key to Labtech's rapid growth has been the focus on training and staff development. The company committed to IIP two years ago and is delighted to gain recognition.

"Investors in People has led to 80 per cent of our formal training procedures," explains operations manager Brian Popsys, who co-ordinated the IIP project. "IIP has put important procedures



From Left: Richard Livsey, Brian Popsys and Brian Mazonas

in place which allow growth and prosperity and that is important to a niche company like Labtech."



FOCUS CORNER

Post bonded metal backed PTFE circuits

Could your company benefit from Labtech's expertise at producing high volume microwave post bonded metal backed printed circuit boards?

Why rely on subcontractors or doing it yourself when Labtech can supply a complete, flexible, cost-effective solution that adds value to you and your product?

We have stolen a march by increasing our capacity to undertake the complete manufacturing process in house thanks to our fully equipped machine shop, extensive multilayer bonding capability and state-of-the art plating facility.

Many Labtech customers are already benefiting from cost savings by using post bonded metal backed circuits by producing a separate soft PTFE circuit and backing plate then assembling them together using conductive adhesive. Labtech fabricated circuits often have tapped holes for mounting

components, thus providing excellent heat sink characteristics for high power components. Tx/Rx circuit isolation is also easily achieved using metal backed circuits.

Engineering excellence and expertise

Technical support and advice is available from a team of highly skilled technicians who help develop and introduce new designs. Labtech has two manufacturing centres of excellence, including the Special Projects Division which is a dedicated fabrication plant manned by a team trained in bringing customers ideas into working cost effective solutions.

The smooth introduction of the metal backed design into the main production plant, assisted by the Special Projects Division, helps Labtech to meet volume and commercial demands quickly without a steep learning curve that can result in expensive delays.

If you need more information about how Labtech can help YOU, please talk to us or e-mail your comments to:

metalback@labtechcircuits.com

Capabilities

Materials

Types of metal backing for PTFE: Aluminium, Brass, Copper and Aluminium Silicon .

Labtech uses materials supplied by Arlon, Metclad, Rogers and Taconic or your preferred supplier.

Conductive Adhesives: Silver loaded epoxy from various suppliers.

Machining

Extensive in house machine shop achieving advanced capabilities and tolerances.



INTELEK MAKES CHANGES TO HI-TECH STABLE

Labtech's parent company Intelek plc has made key changes to its stable of hi-tech companies with the aim of bringing more focus to the business.

Intelek plc, which took over Labtech in 1990, has paid £18.3 million (\$27.45m) for Paradise Datacom Ltd and sold aerospace tooling manufacturer A.C.E. Tooling Inc, based in Muskegon, Michigan, in a deal worth £610,000 (\$915,000) before tax.

Paradise Datacom Ltd designs, manufactures and sells modems and microwave amplifiers for the satellite communications market.

Intelek says the changes form part of the company's plan to focus attention on its core activities in electronics and communications.

"The acquisition of Paradise Datacom lifts Intelek's profile in the European and US microwave communications markets at a time when wireless communications network operators are investing heavily in infrastructure to service the ever-increasing demand for global communication," says Intelek chairman Roger Fletcher.

"We plan to use the proceeds from the disposal of A.C.E. Tooling to support Intelek's plans for growth within the US market and, in particular, the US activities which will become part of the group through the acquisition of Paradise Datacom."

Paradise Datacom is now one of four companies owned by Intelek, which supplies leading edge technologies to the world's electronics and aerospace markets and is listed on the London Stock Exchange's new techMARK index.

Labtech's Managing Director Dr Brian Mazonas welcomes the acquisition of Paradise Datacom.

"We are delighted to be associated with another successful company, which can only benefit Labtech," he says. "It will certainly help to raise our profile and develop the United States market."

MMIC Assembly Facility opens

Labtech has opened a new MMIC (Monolithic Microwave Integrated Circuits) facility. The 500 sq. ft facility is used to assemble multi-chip modules for radio links used in cellular phone networks and LMDS (Local Multipoint Distribution Services) systems.

Housed in an ESD (electro-static discharge) protected, temperature and humidity controlled Class 10,000 clean room, it is equipped with semi-automatic wedge bonders and manual die bonders for attaching microwave die to Labtech's specialist metal-backed PTFE circuits.

Test equipment includes a pull tester for checking bond strength and microscopes fitted with a digital camera system for visual inspection at up to 460 times magnification.

The facility began commercial production in March after successfully completing a comprehensive approvals programme with a major

telecommunications customer, which reviewed processes and appraised the quality and performance of pilot batches.

"We are experiencing a major growth in demand for circuits incorporating MMIC devices," says Mr Bob Lowther, Labtech's Sales and Marketing Director. "It is ideal for applications operating at 18 GHz and above and it enables our customers to achieve very high levels of integration and offer small, less power hungry equipment to their end users.

"The successful commissioning of the new facility is an important element of Labtech's MMIC packaging programme which enables the company to offer a wide range of microwave processing capabilities to their customers."

"Labtech is one of a very small number of companies in Europe with the specialist knowledge required to manufacture this type of circuit.



Labtech Gains Queen's Award for Enterprise

Labtech are proud to announce that they have won the Queen's Award for Enterprise, the highest honour that can be bestowed on a UK company.

To qualify for the award, companies must meet rigorous assessment criteria to prove that they have obtained 'Outstanding achievement in international trade, resulting in substantial growth in overseas earnings and in commercial success, sustained over not less than three years.' In Labtech's case, exports have more than doubled over the last three years.

Labtech's strong export growth has been generated through sales of microwave electronic circuit boards

and MMIC Packaging Solutions for major telecommunications, military and space customers world-wide.

Dr. Brian Mazonas, Labtech's Managing Director, comments, "We are all delighted and very proud to have won this prestigious award which is so well recognised throughout the world. This is a real team effort achieved through sustained dedication and commitment of our staff and partners. It recognises the ability of our skilled engineering team to develop innovative microwave interconnect solutions which are in high demand in North America and Europe and of the sustained commitment throughout the company to the highest possible quality standards."



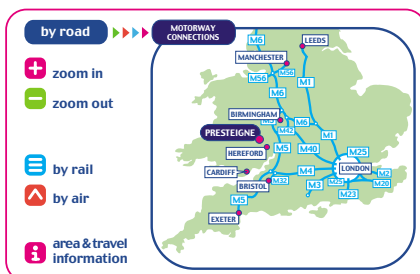
Labtech's management team celebrate the Queen's Award for Enterprise. Front (from left) sales director Bob Lowther, managing director Brian Mazonas, financial director David Marshall; (back, from left) quality manager Mark Davey, operations manager Brian Popsys, technical manager Terry Bateman and special projects manager John Friday.



LABTECH LAUNCHES NEW 'VISITOR CENTRE' ON THEIR WEB SITE

Labtech have added a new section to their web site aimed at visitors to their Presteigne premises. These pages include not only detailed maps of the area showing all major road links, but also cover routes travelled by rail and air.

In addition there is a section of local information which includes details of favourite restaurants and hotels around the Welsh Marches, and links to useful sites.



No. FM 09457
BS EN ISO 9002:1994



JUST IN CASE YOU FORGET!

Labtech's key in house capabilities are:

- Metal backed pre and post bonded PTFE circuits
- MMIC interconnection and packaging
- MMIC assembly
- Multilayer microwave circuits
- Single sided and double sided soft PTFE circuits

Latest brochure and design guidelines

For all the latest information about our manufacturing capabilities, services and design guidelines, be sure to contact us on tel: +44 (0) 1544 260093 or visit our web site at www.labtechcircuits.com
Labtech Limited Broadaxe Business Park Presteigne Powys UK LD8 2UH Email: ptfe@labtech.ltd.uk