ICL'S WORLD FIRST

DRS 6000 — FIRST SPARC/RISC SERVER WITH SYSTEM V R4

The DRS 6000, the world's first SPARC/RISC system to run UNIX System V Release 4.0, was given an international launch in London and Birmingham in January with customers and press from the UK, Europe, USA, Canada, Australasia and India.

The new system quickly met with universal acclaim from customers, the press and industry watchers.

The DRS 6000 is a landmark system in more ways than one. Andy Roberts, then Director of Office Systems, said at the launch, "Today marks the debut not only of the DRS 6000 but also of a new more aggressive ICL."

Time to Market Halved

The whole programme was achieved in just under two years. The project, known during development as project UNICORN, was based at Bracknell 03 under the direction of Advanced Servers Product Centre Manager, Ed Parton. For the full story on ASPC's achievement, see page 9.

Because of the dedication of the ASPC team in bringing the evolutionary new system to market in record time, ICL has a leading edge with its competitors — the first UNIX server to incorporate SPARC/RISC architecture, and UNIX System V Release 4.0, the latest and only truly open UNIX operating system. This achievement allows ICL to take the world lead in mid-range UNIX servers.

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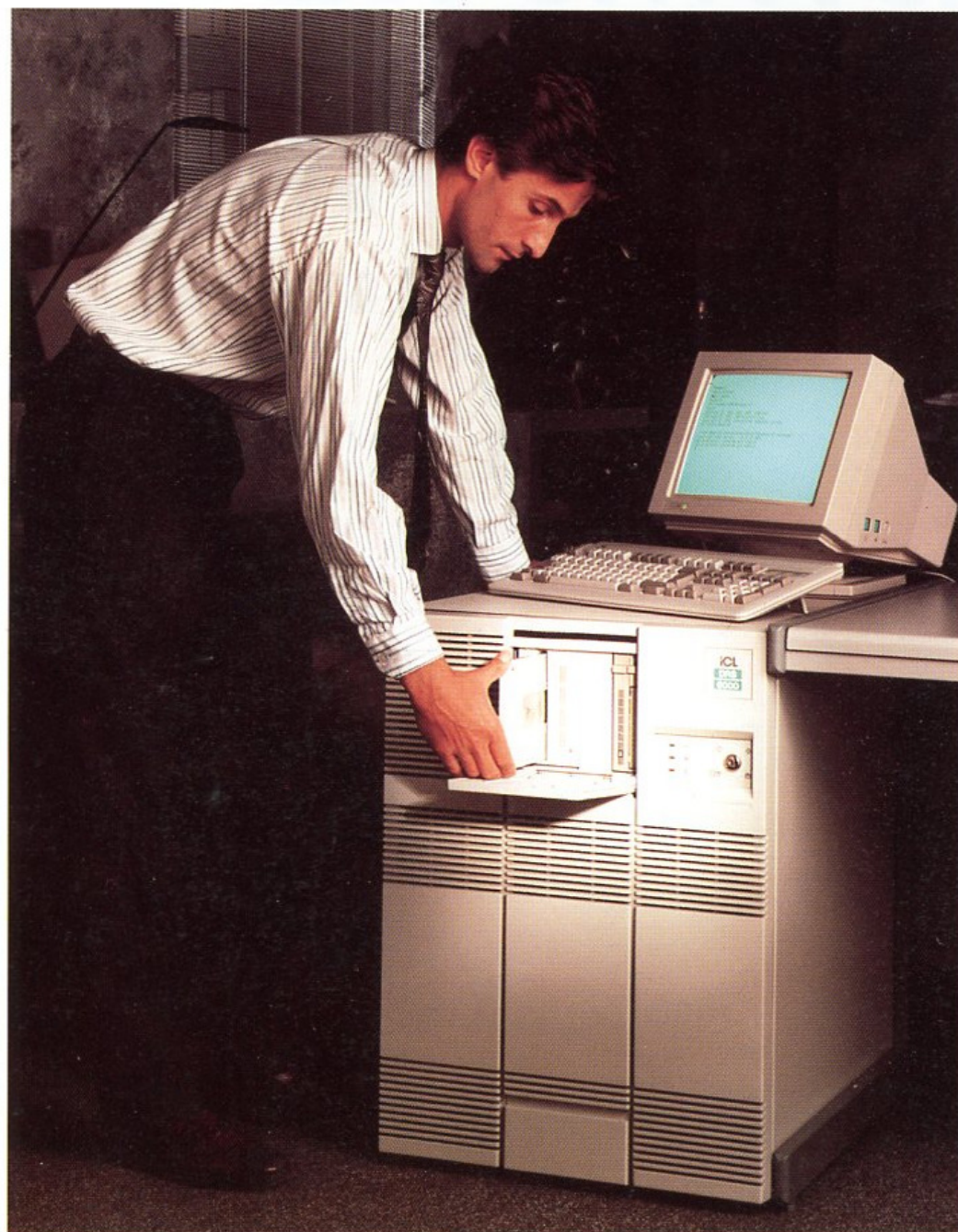
Picture shows a 5¼" optical disc being loaded into a DRS 6000 UNIX server. An associated DRS Model 5 workstation is also shown.

Dual Bus Architecture

A crucial element of the design of UNICORN is its powerful dual bus architecture — separating the input/output traffic from the faster CPU/memory traffic, giving DRS 6000 speed and power. DRS 6000's High Speed Bus is unique to ICL and was designed by the DRS 6000 architect, Geoff Poskitt (see story on page 9). In fact there are many 'industry firsts' in the DRS 6000 story and several ICL patents are awaiting filing.

First Orders

The first order for DRS 6000 was announced by ICL Chairman, Peter Bonfield at the end of the international press conference. It comes from the Commission of the European Communities (CEC) in Brussels.

Since then orders have flooded in from around the world, and it looks like UNICORN is set to become and all-time winner.

Performance

Its low cost per user, the sheer power and speed offered by the single-processor versions, and the impressive benchmarking results from top industry authorities like Drhystones and AIM II, have put the competition on its guard.

COMMENT

Andy Roberts Looks at the Development of DRS 6000

In the short time since the launch of the DRS 6000 Series the reaction in terms of comments from the press and industry watchers and in terms of orders placed worldwide have more than borne out Product Operations expectations and hopes for DRS 6000.
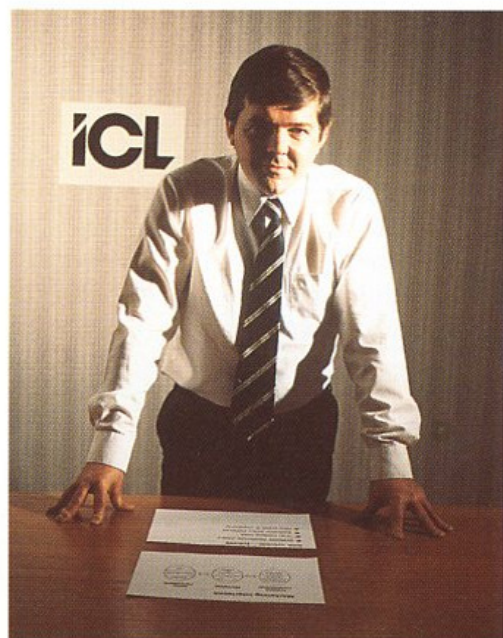
In this 'Comment' article, Andy Roberts, then Director of Office Systems, looks at the UNIX scene, and tells the story of UNICORN's development and launch.

Setting the Standard

Our new UNIX server range not only sets the standard for the 1990s, it also sets a standard for the new "up-front" ICL. The launch of the DRS 6000 Series is the culmination of years of heavy involvement in the UNIX arena, working for Open Systems and for a single, credible UNIX operating system.

UNIX's Rapid Rise

The rapid rise of UNIX in the mid-range market is a significant and growing trend and one which analysts are watching keenly. Here in the UK, Inteco forecasts that by 1994 over half the £15,000 to £35,000 segment will be UNIX systems, and that UNIX will account for 25% of the £35,000 to £200,000 segment. Other analysts forecast even higher growth rates.

UNIX was designed from the outset to be multi-user and multi-tasking, available on a range of hardware platforms, and this, together with its qualities of openness and portability, have contributed to its success in the market.
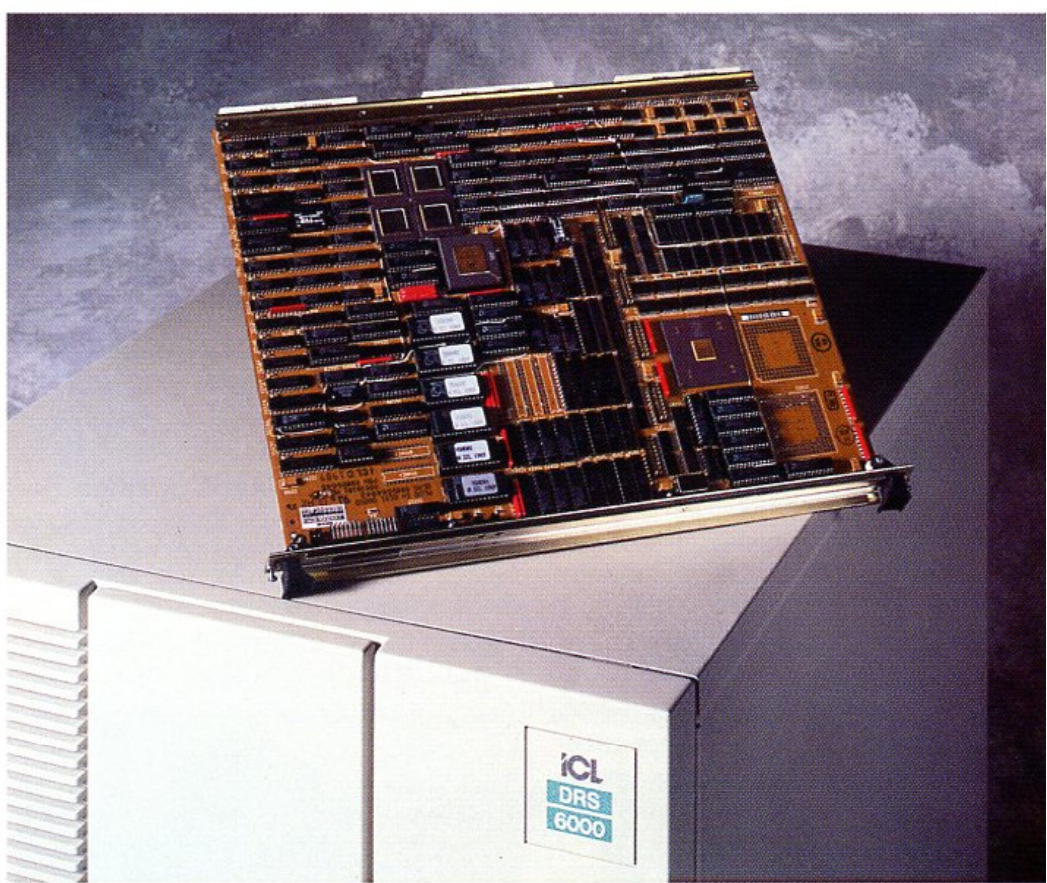
It is a stable and reliable system and its openness has made it attractive to software houses, resulting in the 15,000 plus user applications which have already been developed for it.

ICL has sound expertise in UNIX and we recognise UNIX's strategic importance. Its openness and portability tie in well with our own corporate Open Systems approach.

We were among the first to announce commitment to UNIX System V Release 4.0, and now we're the first to offer Release 4 on a high performance server. ICL was also the first to commit to SPARC/RISC technology for the 1990's, with a declared strategy to secure a standard computer platform to ensure our customers' growth and investment protection for the next decade. With our new UNIX server, we are the first Company to implement UNIX System V Release 4.0 on a SPARC/RISC system.

Quality

We are already well known for our quality programmes and UNIX is no exception. We have subjected all UNIX System V source code to rigorous validation. The quality of our implementation is borne out by the fact that our new UNIX operating system is the reference port for UNIX System V Release 4.0 for SPARC/RISC systems.

ICL has 2,000 staff working worldwide on UNIX developments, an installed UNIX customer base worth well over £500 million, and more than 100,000 users of OFFICEPOWER worldwide.

Furthermore, we were the driving force behind the formation of both X/Open and UNIX International. In 1984 we led the way in forming X/Open, and ICL staff wrote the first documentation concerned with the adoption and refining of existing standards to define a Common Applications Environment (CAE).

When UNIX International was formed early in 1989, ICL again took a leading role — UI's Chairman and first European Marketing Director were both ICL employees on secondment. UI collectively represents over 70 per cent of the UNIX market and its main objective is controlling the development of UNIX System V, the dominant variant of UNIX in the market.

DRS 6000 Design Goals

In developing the DRS 6000, our design goals were clear cut. The new system had to have a long life cycle, and it had to span a wide range of size and configuration requirements, with a common operating system. And it had to be based on Open Systems principles. It had to be scaleable and highly flexible with good connectivity levels.

Of course, it had to be an Open System and it had to provide the optimum cost/performance whilst offering low service costs. The design of the new server had to provide a future-proof architecture which we could exploit to incorporate future micro-processor developments and which would not restrain us to one microprocessor pattern however good that technology might be at this point in time. But most important of all it had to offer top performance at a competitive price.

The result is the DRS 6000 Series.

First with UNIX SVR4

We had decided at the outset that the DRS 6000 should run the UNIX System V Release 4.0 operating system, which we believe is winning widespread acceptance in the insustry and establishing itself as the leading Open UNIX standard, marking UNIX as a mature operating system suited for commercial applications.

DRS/NX Version 4.0 is ICL's implementation of UNIX System V Release 4.0, the latest System V release and the first to result from the work of UNIX International. The ICL DRS 6000 Series is the first commercially available system to run UNIX System V Release 4.0.

Converges four Variants

UNIX System V Release 4.0 converges the four dominant variants of UNIX in the market place: UNIX System V, Xenix, Berkeley BSD, and SunOS, which together represent over 80 per cent of the worldwide UNIX installed base, and the 12,000 plus applications which run on these UNIX variants.

Applications Binary Interfaces (ABIs) are being defined for UNIX System V Release 4.0 for the most popular microprocessors on the market. These enable object code compatibility between computer systems with the same underlying microprocessor technology. The only UNIX System V Release 4.0 ABI which is now defined for RISC microprocessors is the SPARC ABI. Because DRS 6000 conforms to the SPARC ABI, and is, indeed, the Reference Standard, it can intercept applications written for other SPARC and UNIX System V Release 4.0 based systems.

Unique Architecture

To fully appreciate just what we have achieved with the DRS 6000, it is necessary to understand its unique architectural design.

Two fundamental principles have underpinned the design of the DRS 6000 — performance and future proofing. One basic decision taken at the outset was to incorporate a dual-bus architecture, thus avoiding the bottlenecks of single-bus systems.

Dual-bus architecture separates the input/output traffic from the faster CPU/Memory traffic. Additionally, the DRS 6000 architecture is designed inherently to support symmetric multi-processing, that is multiple CPUs executing one UNIX image, achieved by using advanced cache coherency logic which manages the cache memory in each CPU, a piece of technology which is ICL designed and patented.

The High Speed bus, for which patent is also pending, was designed by DRS 6000 Architect, Geoff Poskitt. It is used only for CPU/Memory communication and has a throughput of up to 133M bytes per second. It comprises up to nine slots, supporting up to four CPUs, up to four memory modules and the central services module.

We had decided at the outset that the new system should incorporate SPARC RISC. SPARC is the leading OPEN RISC processor offering performance comparable to the best available. Because it's made by a number of leading semiconductor man-

ufacturers, ICL has choice from a range of reliable suppliers.

Competition among SPARC suppliers coupled with SPARC International's activities ensure SPARC's premier position through future development. DRS 6000 will take advantage of this to secure its position as the performance leader, incorporating future developments to maintain its leading edge.

ICL Implementation is the Reference

Our credentials in the UNIX world are further enhanced by the fact that as a development partner with AT&T, it is the ICL implementation of UNIX System V Release 4.0 on DRS 6000 that is the

Reference Source Code for SPARC microprocessors. This underlines the quality of the ICL implementation.

The VME bus is a 32-bit industry-standard I/O bus which on DRS 6000 can have up to 33 slots for up to 31 I/O controllers. Each of the DRS 6000's I/O controllers has its own microprocessor to control input/output and to maximise system performance.

The DRS 6000 offers a very high level of connectivity, with a wide range of possibilities in how the controllers are configured, up to a maximum of 31 controllers.

And because there is this inherent flexibility coupled with high connectivity, the DRS 6000 can be configured to cover a very wide range of system sizes, giving users easy growth potential. Up to 912 users can be directly connected to the DRS 6000, although over 2,000 can be connected using a variety of methods. We envisage, however, that the DRS 6000 will generally be sold in environments requiring between 32 and 200 active users.

Totally Open — Key Differentiator

DRS 6000 is one of, if not the most Open multi-user computer systems available. It has been designed from inception to be Open, not just the hardware and software but also the networking: Open SPARC RISC and Open UNIX System V Release 4.0 provides open hardware and software, whilst the incorporation of OSI and defacto standards gives open networking.

And we wanted an Open system — this is the key differentiator which gives DRS 6000 a leading edge over its competitors and again is entirely consistent with our corporate strategy of Open Systems.

Available now are the first two single-processor models in the DRS Series 6000, the Level 40, with a 25Mhz, 17.5 MIPS rating, and the Level 50, a 23 MIPS system, with a clock speed of 33Mhz. And we are working right now on software developments at our Irvine, California development centre which will give us powerful multi-processor versions with ratings in excess of 60 MIPS.

The DRS 6000 is a good example of the new ICL. The DRS 6000 programme has been achieved within a remarkably short space of time. Using the ICL Quality process, we have designed, developed and manufactured a totally new product and dramatically cut the all-important time to market. The complete DRS 6000 project has taken only 24 months from inception to launch.

Quality has become an integral part of the ICL culture over the last five years. Our quality procedures are rigorously enforced throughout the design, development and manufacturing processes.

The DRS 6000 Series is being made at our Ashton plant which was recently voted by "Management Today" magazine one of the top five manufacturing plants in the country. We have made significant investment in advanced manufacturing facilities giving us additional competitive cost advantages and leveraging our inherent mainframe manufacturing engineering capability — the principal boards in DRS 6000 utilise seven-layer technology.

To recap, we have achieved the design goals we set ourselves. The two paramount requirements were that the DRS 6000 should have a highly superior performance and a 'future-proof' architecture, one which we can exploit and which can absorb both hardware and software developments over the next ten years or so. And these facts have

been readily appreciated by the ICL community and the industry. Already there is considerable enthusiasm being shown amongst OEMs to enter agreements concerning DRS 6000, and our VARs worldwide have reacted very positively, and an order book of £10 million speaks for itself.

Lead in UNIX

We are now busy carrying out an ambitious worldwide marketing plan. DRS 6000 is being launched in eighteen countries over the next two months. All the literature, a portfolio of eleven brochures and data sheets, has been prepared in nine

languages in just six months, an example of the enthusiasm and commitment to DRS 6000 amongst our people.

To sum up, we in Product Operations are all tremendously excited by DRS 6000. It represents a great achievement by a dedicated team, and it also represents a new, aggressive and highly determined ICL, poised to take full advantage of the competitive edge which DRS 6000 offers us. The DRS 6000 Series is giving ICL a very exciting start to a new decade, a decade in which we are determined to consolidate our lead in UNIX.
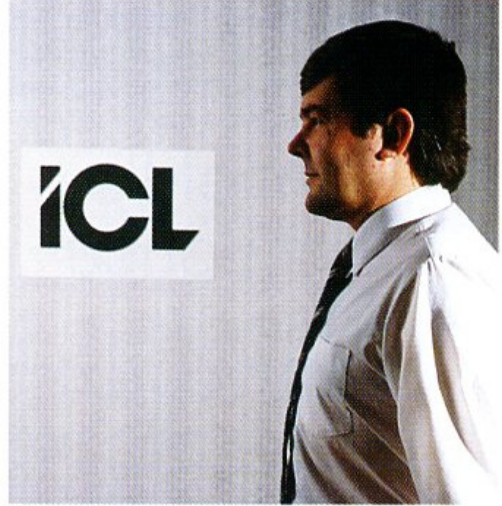
Quality Obsesses DRS 6000 Makers

The DRS 6000 is the latest fruit of ICL's corporate philosophy, "the right product at the right time and at the right cost". It answers the need for fast, affordable UNIX-based open systems. Not only is it the first SPARC/RISC system running UNIX System V Release 4.0, but it also costs as little as £750 per terminal for a 200-user configuration.

Ashton's Excellence

The "right time" and "right cost" elements of the DRS 6000 success story are due largely to the excellence of manufacturing at ICL's factory at Ashton-under-Lyne, near Manchester, England. For many years Ashton has been refining and automating its production methods. It boosted operator productivity by a staggering 450 per cent between 1985 and 1988, while also improving quality. Ashton's continually growing productivity meets current market needs for faster product introduction and shorter lifecycles, greater product variety and fluctuating demand patterns.

To achieve this, ICL has invested substantial sums at Ashton in factory automation, flexible manufacturing techniques, staff

The DRS 6000 servers are manufactured in ICL's plant at Ashton-under-Lyne which was chosen as one of the 'Five Best British' factories in 1989. In this picture, an automated guided vehicle is lifting a completed DRS 6000 server from the end of the computer-controlled assembly line.

training and in a "right first time", zero defects quality philosophy. Staff all voluntarily participate in Japanese-style quality circles.

One of Best British Factories

ICL's pride in Ashton was justified when it was voted one of the five "Best British Factories in 1989" by the leading British management journal, Management Today, in association with management consultancy A T Kearney.

Ashton won the nomination by demonstrating high levels of product quality, economy and customer satisfaction.

For users of the DRS 6000, Ashton's obsession with quality means very high reliability and low cost of ownership of leading-edge UNIX-based open systems.

Bonfield's Confidence

Setting the scene at the international press conference prior to Andy Roberts' presentation of the new systems, Chairman Peter Bonfield gave journalists the chance to update themselves on ICL's profile with some impressive statistics.

He reminded them that the STC Group spends around £240 million each year on Research and Development — a staggering £1 million every working day.

And he told them that ICL has a stronger financial base than almost every other European IT company. Between 1985 and 1988 operating profit more than doubled to £128 million, with latest figures, for the first half of 1989, showing excellent growth in order take and a continuing rise in turnover and profit.

PC Market

He spoke about the tremendous strides we have made in the PC market, and how in the two years since we introduced our range of industry-standard single-user PCs, we are now selling 50,000 a year and have established a joint venture to assem-

Peter Bonfield
Chairman and Managing Director, ICL
Deputy Chief Executive, STC PLC

ble them in Russia. All of this is business which we have achieved against the strongest possible international competition.

UNIX Growth

He went on to talk about the mid-range servers market where the biggest growth is expected and where we aim to make ICL the leading supplier of UNIX systems in our chosen industry segments.

Talking about his confidence in our achieving this aim, Peter Bonfield cited our success in the retail market — ICL is now the third largest supplier of retail in-store systems in the world — we're No. 1 in retail

systems in the UK, No. 1 in French hypermarkets, No. 1 in Italian departmental stores and No. 1 in DIY systems in Australia, UK and the USA. Quite an impressive list of firsts.

Government Orders

He told the journalists about our success with OFFICEPOWER and about our impact in Europe where we now supply some 6 per cent of UNIX systems against less than 1 per cent in 1987, with major orders from government departments in Portugal, Spain, the Netherlands and the UK contributing to this success.

Commitment

He concluded by saying that ICL had made the highest possible commitment to Open Systems, and with DRS 6000 we have a sound UNIX platform which will benefit users throughout the 1990s.

He told them that it was our deep involvement in the standard-making process, and in particular in the development of UNIX System V Release 4.0, that has given ICL the know-how, the experience and the right products to become the major force in mid-range systems in our industry sectors both in our European home markets and in many other parts of the world.

35 Tonnes of Unicorn Messages!

One area of activity which is of vital importance in the launching of any new product is the marketing communications function. Not only must the marketing messages be accurate and succinct, they must also be presented in the most effective manner.

With a new product which is breaking new ground like DRS 6000 with its unique new architecture, totally Open approach, and the first implementation of a new operating system, the marketing messages take on even greater importance.

The Marketing Communications team. Seated left to right: Elaine Hunter, Ron Berry and Mike Wade. Standing left to right: Justin Clarke, Martin Greer, Judy Cornwall and Joy Rouse.

Complex Task

Mike Wade, then Office Systems' Marketing Communications Manager, was responsible for the overall promotion of the DRS 6000 Series. His task was a complex one, including responsibility for the sales messages contained in the National Exhibition Centre presentation, the content of the various videos, films, audio visuals and sales presentations, and for the technical content of the press conference presentation.

In addition, Mike Wade and his team set themselves the task of producing the videos, sales presentations and the portfolio of eleven brochures and datasheets in nine languages and with 16 international variants to meet the needs of the worldwide territories who were launching UNICORN.

Beginning in August, timing was crucial, but the result was some 450,000 brochures weighing a staggering 35 tonnes being available, in all the various languages, alongside the other sales collateral right at the beginning of the DRS 6000 launch in January.

Work Through Christmas

At an early stage it had been decided that individual members of the team would take responsibility for specific areas of the project. Ron Berry was responsible for managing the translation and distribution processes, liaising closely with colleagues in ICL Europe and ICL International, as well as producing a 'launch kit' for overseas launch events. Justin Clarke looked after the innovative brochure artwork and printing activity. Judy Coxwell wrote much of the new DRS 6000 material including the all-important Sales Guide for the ICL sales force.

Other members of the Marketing Communications team included Industrial Trainee Gabriele Albarosa who become an expert in desk-top publishing during the project, Elaine Hunter who wrote the accompanying material on software tools and OFFICEPOWER, and Joy Boyce who liaised with the Press Office and ICL (UK) in organising the press conference. The team's material was used to make up over 1,000 press packs in nine languages for the international press conference.

During November translation of the material was arranged into nine European languages through an international translation agency based in Amsterdam. The team arranged validation of the translations with ICL marketing personnel in the various countries, and then typeset much of the material themselves at BRA 01 using ICL PUBLISHER-PLUS, all within a very tight time-frame.

New Technology

In fact it was only by using new tehnology and being ready to try new ways of getting the work done as quickly as possible that the vast amount of documentation was completed on time. Once the validation was completed all the brochure layouts were finalised using ICL PUBLISHER-PLUS and then electronically transmitted to typesetters for the production of the final artwork.

Said Justin Clarke, "We are convinced that it was only by making this commitment to using the latest technology and being ready to try new methods that we managed to meet the very tight schedule and achieved all our deadlines."

Despite the inevitable delays and setbacks, the printing went ahead during December completely on time. Working over the Christmas holiday, printing was completed by 7 January and the the shipping schedule swung into action.

Printing and Translation — The European Connection

At the outset of the project, Ron Berry took the decision that economies of scale made it advantageous to use one specialist Amsterdam-based printer who was highly experienced in colour printing in a wide range of foreign languages.

Ron explained, "We examined a range of quotes from a number of companies throughout the UK and mainland Europe. It was a commercial decision to choose a Dutch printer, based on printing costs and the Netherlands being a convenient distribution hub for road transport throughout Europe and for worldwide air freight."

Attention to Detail

Although the black and white data sheets were printed in the UK, all the colour brochure printing was done in Amsterdam,

as well as the master-minding of the translation activity into nine major European languages. The team also used an Amsterdam-based shipping agency.

The translation was carried out in the local country offices of the Amsterdam-based international agency to ensure total authenticity. As a further check, the translated text was then validated by the local ICL marketing personnel to ensure that the finished product met with their approval and included any local marketing messages. This level of attention to detail gave the team many scheduling headaches, particularly as time-scales got tighter, but they are all adamant that this approach has paid off. "We have produced a totally comprehensive and cohesive range of product literature in nine languages for the DRS 6000 launch, and all the hard work has been well worth it", says manager, Mike Wade.

Ron Berry and Justin Clarke stayed close to the project in Amstedam and supervised the translation, printing, and the finishing of the brochures as well as the shipping arrangements.

"The sheer volume of a stack of 450,000 brochures is quite mind blowing", says Justin Clarke, "and the logistics of packing large numbers of different variants are not simple. We needed to oversee the project closely, recognising the titles of say LEADERSHIP IN UNIX in Finnish, Swedish, and Dutch quickly needs a cool head."

Taking a quality approach, they even designed new labels to ensure ease of recognition when dealing with a large number of different variants and material, and a new method of palleting to ensure that material was properly packed and would arrive at its destination in good condition, as befits first-class material for a brand new top class product!

The last word goes to Mike Wade. He said, "This project shows just what can be achieved by a small, tight team working closely together using new technology and co-operating well with our colleagues in the Sales Operations."
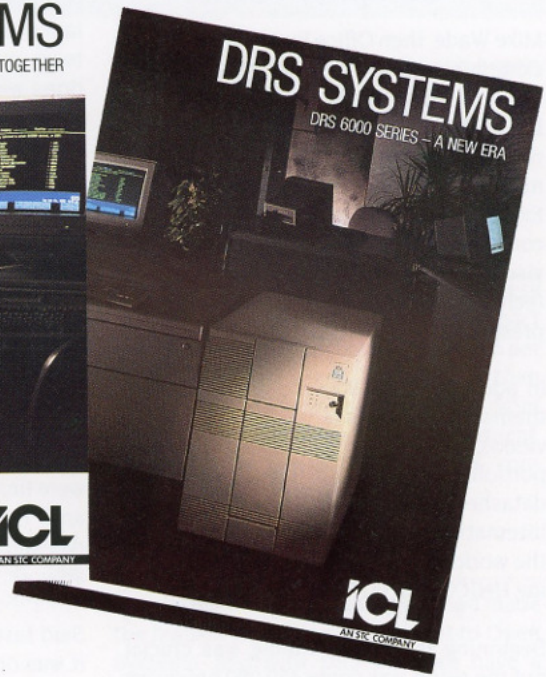
DRS 6000 Posters

Staging Kit Travels the World

One of the prime objectives of the DRS 6000 launch was to ensure that overseas territories could give detailed presentation to customers and prospects very soon after the main launch event in the UK.

To meet this objective Ron Berry produced a specialised launch package which could be sent around the world easily and enable local marketing and sales staff to mount a professional presentation on DRS 6000 and ICL.

Working with an international manufacturer of staging and presentation kit, he designed a special lightweight module which was compact and easy to erect with the help of a few simple diagrams and instructions. The staging unit was complete with DRS 6000 and UNIX messages displayed in the same style as those on show at the international press launch in London.
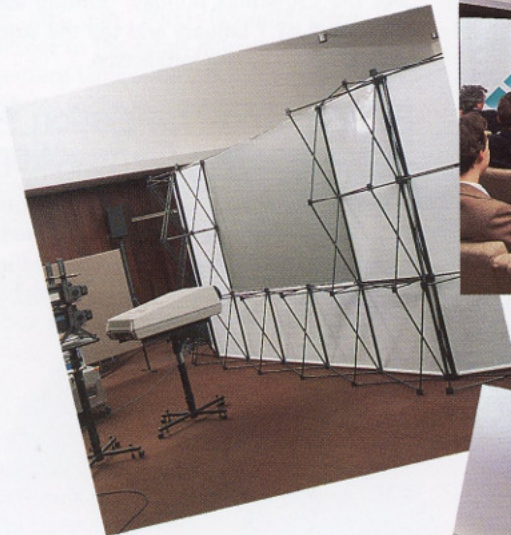
UNICORN HEROES

How a world-class team took up the challenge and won

The entire staff of the Advanced Servers Product Centre, with Manager, Ed Parton seated in the centre of the front row, gathered together in the Bracknell Lecture Theatre to celebrate the success of the DRS 6000.

The real heroes of the UNICORN project are the seventy or so people who work for Ed Parton in the aptly-named Advanced Servers Product Centre at Bracknell 03 in what is fondly known at "the warehouse", an enormous open-plan office area and a suite of laboratories in a small two-storey building just down the road from the tower block of Bracknell 01.

It was here that UNICORN was conceived, took shape, was planned, tested and validated, and finally came to life.

Ed Parton talked to SYSTEMS NEWS about the teams of people who were responsible for the hardware, software, planning and marketing of UNICORN, and looked back over the sheer hard work of the last two years.

Software's World-Class Performance

"The two software teams in the project were responsible for the port of System V Release 4.0 to SPARC/RISC. This was not only a world first, it was a world exclusive. We formed a joint development team with AT&T and were responsible for porting System V Release 4.0 to SPARC/RISC to produce the new UNICORN operating system, DRS/NX 6000 Version 4.0. From start to finish the whole project was achieved in just 18 months. That's from concept to release of the operating system, and it's pretty good going for a small team.

"Not only is DRS 6000 the first SPARC/RISC V.4 system on the market, it's also the first

Advanced Servers Product Centre Manager, Ed Parton, seated centre together with his direct reports. Seated left, Paul Walton, and seated right, Ron Morgan. Standing, left to right, are Keith Winter, Derek Wickens, Geoff Poskitt, UNICORN's architect, and Dave Wilson.

Paul Walton's Hardware Development team in the Bracknell labs. In the foreground is Paul Walton, to the right seated is Ray Malkin. Standing left to right are Dick Cave, Roger Pullen, Dave Crane and Jack Aldous.

of the project, with the first shipments, to independent software vendors who were anxious to port their products to UNICORN, being made at the same time. In both hardware and software terms, every major milestone from start to finish was achieved on time, a fact in which we all take pride.

"The reason we managed to achieve all our milestones is quite simply the excellent team-work that was a hallmark of this project. This was not only within the teams, amongst the individuals who were responsible for specific areas of the work, but there was also a high level of co-operation between the various teams, all working closely together.

implementation of UNIX System V Release 4.0 to come to market. From a team of around 30 people, this is a world class achievement." Ed Parton

Unique Architecture

Going on to talk about the work of the hardware teams, Ed explained that the concepts created for UNICORN are unique. "To build a land-mark system like UNICORN, we first had to understand how to create an architecture which would fully exploit the SPARC architecture. The result is a very sophisticated system.

"The UNICORN design is unique in that it provides us with a platform for growth for four or five years. The first products were achieved just twelve months after the start

Manager Dave Wilson and the UNICORN Project Management team. Seated left to right, Ron Arnold and Dave Wilson. Standing left to right, Simon Dalley, Janice Thomas, Rob Dick and Phil Hammett.

Marketing Messages

"With a totally new product like UNICORN the marketing activity had particular importance. What we were building needed to be defined, not just in terms of the technical wizardry but as a response to and interpretation of market demands. Dave Bird's marketing team made sure from the start that UNICORN satisfied the market place and that the all-important sales messages were defined. Again every major milestone was achieved.

Project Management

"Dave Wilson played a vital role in managing the total project and validating each stage. It was such an enormous project that a vital element in its success was the

Keith Winter's Software Integration team. At the front left to right, Angela Ralston-Good, Sue Kimber, Keith Winter and Steve Hanson. Standing on the stairs left to right, Hugh Collins, Paul Francis and Malcolm Mladenovic.

Manager Jack Aldous with his Core Technical Development team, pictured with the DRS 6000 boards they developed. Left to right, John Ruxton, Trevor Blake, Dave Roake, Chris Havell, Jack Aldous and Karl Henson.

although in some ways it seems a lot longer than that — it must be all the late nights and early mornings we've worked through!

System 25 And DRS 300 Developers

"My first task was to get together a team of developers. A large proportion of the team I formed was from the ex-System 25 development team and the ex-DRS 300 team. Yes, UNICORN is from the same stable as those two other outstanding ICL success stories. In addition we recruited from outside the company, including some world-class UNIX specialists. By May 88 we were up to strength.

existence of a creditable and manageable plan. Without Dave's excellent planning, it is difficult to imagine that we would have achieved our total goal.

"Ron Morgan, our Programmes Manager, did a marvellous job in steering through the logistics of the early output programme, and in making sure everything was in order for each Phase Review.

"Ed went on to talk about the project's progress, and the excitement of beating the rest of the world in getting the first SPARC/RISC V.4 UNIX server to market in record time.

"It is only just over two years ago that we got the go-ahead to start work on the UNICORN programme, in December 1987,

Manager Roger Pullen, standing centre front, with the Product Integration team. Seated left is Derek Bowles, and seated right is Simon Browne. Standing behind them left to right, Charles Griffiths, Alan Walker, Derek Swinfield, Mike Sargent, Dave Neville, Andy Slater, Graham White.

"The first element was the defining and designing of the high level architecture. This was done by Geoff Poskitt, the System Architect in conjunction with the development teams. Geoff was the ideas man who worked together with the teams to ensure that his vision could be put into practice and to iron out the problems. After that it was a question of working very closely together over long periods, involving very long hours to make the design a reality.

Excitement

"When we first looked at the overall concept that was to become UNICORN there was great excitement, we were sure we had a winner. Then came the slog of defining the design with detailed specifications and

Ray Malkin, left, Manager, Product Exploitation, with his team. The rest of the group, left to right, are Bharat Thakrar, Russell Beaton, Keith Brown, Peter Hornby and Stephen Gold.

Manager, Dick Cave, on the left of the picture, with his Product Enhancements team. They are, left to right, Richard Bowring, Dave Humphries, Peter Trott and John Smith.

creating a network plan of how all the elements fitted together."

So detailed were these networked diagrams that at one stage they literally papered the walls of Ed Parton's office. Ed explained, "We used a well-known software planning tool for this work, and we soon outgrew one version and had to implement a larger system.

Challenge

"We all saw the project as a great challenge. ICL was not that well known in the UNIX industry, and we saw this as our opportunity to put ourselves on the map, and beat the rest of the industry in getting a System

Dave Bird's DRS 6000 Marketing team. Seated centre, David Bird. Standing left to right, Jean-Francois Ramon, Penny Felstone, Sue Langton, Shanker Trivedi, Wojciech Kierstan.

Manager Derek Wickens, pictured centre of second row, with his Software Development Team. Front row, left to right, Honey Schrecker, Mike Hau, Ling Webb, Adrian Frost. Second Row, left to right, Jeremy Farrell, Derek Wickens, Linda Jackson, Phil Gibson. Third row, left to right, Andy Logue, Andy McPhee, Anne Hole. Fourth row, left to right, Paul Richardson, Dave Robinson, Ian Brown. At the top of the stairs holding the bannister, Terry Cole.

V Release 4.0 implementation to market first. I had a bet with some of my managers that we would get there before the competition and we have done it on both the hardware and the software.

'The challenge was to get there ahead of the market place with an advanced server that is future-proof and which we can exploit for the next ten years or so. Now we are recognised world-wide as a key player in the UNIX field. Because it was such a great opportunity to achieve a world-first, all the teams rose to the challenge. And in succeeding we have achieved a new level of influence with AT&T, SUN, SPARC International and UNIX International."

Multiprocessor Project Underway at Irvine

From the outset DRS6000 was designed to be capable of supporting multiple processors within a single system, in order to meet the demands of ICL's customers for flexibility of configuration and growth.

If customers want to add more users or if workloads increase, additional processors can be simply slotted in to accommodate the extra workload without requiring any other changes to the system.

The second major challenge in delivering multi-processor capability comes from the fact that the DRS 6000 Operating System (UNIX System V Release 4.0) as supplied by AT&T does not support multiprocessing.

So we had two options — either wait for AT&T to build multiprocessing into UNIX or bite the bullet and make the necessary changes ourselves. Fortunately, the acquisition of CCI in January 1989 made the decision easy. CCI, who supplied ICL with the DRS 500 (which CCI marketed as the Power 6/32) had developed a master/slave and a fully symmetric dual processor version of the 6/32 which was sold to Unisys and to CCI's customers in the US legal market.

Fully Symmetrical

Master/slave implementations use one processor for system work, and the other for user work. Fully symmetrical versions can use any processor for any type of work, and, as a result, are far more flexible and give better throughput for mixed workloads. DRS 6000 was designed to be fully symmetrical. This meant that the software design team at CCI had already had the experience of this type of implementation which could easily be transferred to the DRS 6000.

Demonstrated at NEC

The initial implementation was demonstrated at the DRS 6000 launch at the NEC in Birmingham, allowing ICL's customers to see the capabilities "for real". The release is currently undergoing further tests before handover to Bracknell for integration and system testing. Once this is completed we will start to ship the product.

So not only will DRS 6000 customers have the benefit of ICL's most powerful UNIX system ever, but they will also have the flexibility to grow that system through multiprocessing to meet even the most exacting requirements.

ICL Plays Leading Role in UNIX Launch

For an update on the introduction of UNIX System V Release 4, Office Systems News interviewed Morris Schwartz, Marketing Director of UNIX International Europe, then on assignment from ICL Product Operations. Schwartz is now sales and marketing director of AT&T's UNIX Software Operation (USO).

UI worldwide is a consortium of users, hardware and software vendors and systems integrators concerned with establishing the requirements and specifications of UNIX System V systems as they evolve. The development, testing, manufacturing, distribution and licensing of the software is the responsibility of USO. ICL is a most active member in UI and is represented at all levels of the organisation, including the Executive and Steering Committees, and the working groups.

S News: "How is the launch of UNIX System V Release 4 proceeding?"

Morris Schwartz: "Both technical and promotional programmes are going according to plan. In March 1989, AT&T UNIX Software Operation (USO) sent early ports of the system to 30 leading manufacturer members of UI including ICL."

"This was followed on 1 November by the general release of UNIX System V Release 4.0. Over the next six months USO distributed source code in 3B2 form for Intel, Motorola, MIPS and SPARC architecture.

"ICL has already done a SPARC reference port on behalf of AT&T. This means that ICL is amongst the first to release a system for SPARC in 1990.

"The worldwide promotional program started on 1 November last year in New York, when 20 manufacturers demonstra-

ted the system on hardware ranging from a Toshiba laptop to an ICL departmental server and a Fujitsu mainframe.

"In Europe fourteen countries participated in the launch of UNIX System V Release 4.0. These are the United Kingdom, France, West Germany, Belgium, Sweden, Denmark, Norway, Finland, The Netherlands, Switzerland, Austria, Spain, Portugal and Italy.

"The national promotions are being carried out by a panel of 25 UI members. On average, 10 of these are involved in each national programme.

"ICL (UK) hosted the UK launch on 27-8 November at Bracknell, and 280 people attended, representing customers, systems integrators and software houses.

"Four sessions focussed on government, software houses, consultants and customers. X/Open also made a presentation on the likely future technical directions of UNIX System V.

"X/Open is highly important. UNIX System V Release 4.0 is the first commercially available product to comply with X/Open's Common Application Environment definition, the latest version of which is published in the X/Open Portability Guide edition 3 (XPG3). XPG3 is a vital set of standards promoting portability and inter-operability of applications across differing hardware ranges.

S News: "What will be the likely impact of UNIX System V Release 4.0 on the marketplace?"

Morris Schwartz: "Unix System V Release 4.0 converges the technology of the three leading UNIX systems: UNIX System V, Berkeley BSD and XENIX. These three systems account for about 80 per cent of the European user base of about 1.5 million licences, representing about 10 million end-users.

"Therefore about 8 million end-users will see UNIX System V Release 4.0 as a logical upgrade. Based on the extra momentum that a single system will produce, I expect the UNIX market to double within 18 months.

S News: "What effect is UNIX System V Release 4.0 having on the UNIX system offered by UI's rival, the Open Software Foundation (OSF)?"

Morris Schwartz: "It is having a very strong effect indeed. I expect a number of OSF members will start shipping UNIX System V Release 4.0 this year. This will happen for commercial reasons: UNIX System V Release 4.0 is available now, while OSF's offering, OSF1, is still on paper. OSF has recently abandoned IBM's AIX route, and has turned to Carnegie-Mellon's Mach technology for kernel implementation. This leaves OSF1 about 18 months behind UNIX System V Release 4.0.

"For both users and suppliers, UNIX System V is a better choice than the OSF alternative because they are represented in the membership and in the decision making process at UI, which is based on a democratic voting procedure. In this way, their concerns are integrated into UNIX System V specifications."

Andy Roberts, now Director of Product Operations' Systems Integration Division added:

"ICL has been a strong advocate of UNIX System V technology for the last four years. UNIX System V Release 4.0 represents the culmination of the most popular UNIX technology and is the natural choice for ICL to protect its users' investment in applications.

"ICL's prime requirement in UNIX is a fully functional product which is as Open as possible. With this in mind, we have played a key role within UI, readily assigning staff to it, including Morris Schwartz and Peter Cunningham UI's President and CEO.

"A key feature of UNIX System V Release 4.0 is its Application Binary Interfaces (ABI), which provide object-code compatibility across machine ranges based on a given microprocessor. ICL's version of UNIX System V Release 4.0 for SPARC is the first to contain this feature.

"The fruits of ICL's strong adherence to the UI program are clear: we are the world's first supplier with a SPARC product, which will reach the marketplace on time and fully implemented."

£2 Million Pound Order from British Telecom

One of the most positive customer endorsements that ICL had 'got it right' with DRS 6000 came very swiftly after the launch from British Telecom with a £2 million order for the new system.

The contract, based on ICL's Exchange Hire Scheme, is for the installation of twelve DRS 6000 Level 50 systems in British Telecom's Network Administration Centres throughout the UK. The UNICORNs will support BT's Itemised Billing Programme.

Discerning Users

With the first two orders for DRS 6000 coming from two of Europe's most discerning computer users, BT and the European Commission, industry watchers are convinced that ICL has another winner on its hands.

District Data Collectors

The DRS 6000s will act as District Data Collectors in BT's Itemised Billing Programme. They will store and pass data from digital exchanges to the billing and other computer systems for processing.

Commenting on the decision to buy DRS 6000s, Richard Newman, BT's DDC Project Manager in its Network Operations Support Section, said, "ICL's super-fast DRS 6000 systems offer us the most efficient means of handling the increasing throughput of data at our Network Administration Centres. They will ensure that we continue to provide a top class service to our customers."

UK Traders go for DRS 6000

UK-based Third Party Traders are very favourably disposed to DRS 6000. They profit from the higher profile they get by offering their solutions on the first machine available under UNIX System V Release 4 (SVR4) from a major vendor. Their customers are happy with SVR4's software base, which takes in the 80% of existing UNIX applications which have been developed under UNIX System V Release 3, XENIX System V and Berkeley BSD 4.2. The per-terminal cost of a DRS 6000-based system can be extremely attractive, because the machine's fast SPARC/RISC technology supports up to 200 end-users without loss of perceived performance.

Here's what UK-based Traders say:

Information Systems

Peter Seldon, managing director of Information Systems (ISL) of Chipstead, Kent: "We are porting our entire software range to DRS 6000 under SVR4. This includes telesales support, distribution and sales order processing packages, and also specialist OFFICEPOWER add-ons.

"For the first time, the speed of the DRS 6000 lets relatively large numbers of end-users simultaneously access pooled data from transaction-based programs, or perform word processing which is another power hungry application. The DRS 6000 therefore opens up accounting, distribution and secretarial functions in large companies to UNIX.

An ISL client based in London, one of the world's largest commercial property agencies, is a major OFFICEPOWER user. Three DRS 400s and four DRS 500s serve more than 180 end users at three sites on an ICL OSLAN network. OFFICEPOWER confers a competitive edge in this strongly traditional business. For example, with an ISL user defined application under OFFICEPOWER, surveyors' time can be allocated to clients and automatically billed on a monthly basis.

The client's IT department is piloting the use of DRS 6000. Initially a single machine will manage communications between the OSLAN network, ICL mainframes and other corporate systems, including an INGRES property valuation application which is hosted by a third party machine.

ISL estimates that by the end of 1991 700 end-users will be on the OSLAN, and the existing DRS 400s and DRS 500s will have been replaced by a few DRS 6000s.

Added ISL sales manager Paul Pitman, "The DRS 6000 perfectly intercepts the typical growth curve of our current DRS users."

Nord Education

Leeds-based Nord Education's managing director John Wood says: "The DRS 6000 is more like a small mainframe than a super-mini. There's a lot more potential for ICL in the education market now that the DRS 400, DRS 500 and DRS 6000 are all available under SVR4."

ICL has sold Berkshire County Council nine DRS 6000s for use in Colleges of Further Education (CFE), in the face of opposition from DEC. For this application, Berkshire is piloting Nord's FECAS II, an Ingres-based administration system developed on DRS 400 specifically for CFEs by Nord in collaboration with Oxfordshire County Council. Oxfordshire has now purchased three DRS 6000s to run FECAS II in major CFEs at Banbury, Henley and Oxford.

Manufacturing Management

MML is a Bristol, UK-based third party systems house specialising in manufacturing systems. ICL and MML have formed a new joint venture company, Manufacturing Control Systems to develop and market MML's UNIX-based manufacturing and distribution system, MAX.

MAX is an on-line, integrated manufacturing business administration package which includes a relational database system. Customers in the UK, Europe and in the Middle East include batch and continuous process manufacturers in industries ranging from plastics moulding to confectionery.

MAX was developed in-house on Sun hardware and ported to SVR4 for DRS 400, DRS 500, and DRS 6000, in one-and-a-half working days at ICL's Software Industry Development Centre.

Said MML's Andy Webb, "The DRS 6000 is the first machine which can comfortably support over 100 users on a single MAX system. DRS 6000's low cost per workstation in such large configurations moves MAX from the high end of its market segment to the middle in price terms."

Phoenix

Phoenix' London office has sold a DRS 6000 to the London Borough of Hammersmith and Fulham for use in schools administration. The machine is a Model 50 with 3 disc drives and 32 Mbytes of RAM. The contract includes 30 DRS Model 5 Teminal Workstations and 20 DRS Model 40 Intelligent Workstations. Phoenix has drawn up an implementation and configuration plan under which mainframe access is planned. Meanwhile, Hammersmith and Fulham's IT department is using the system to evaluate third party educational software.

QCL

Derek Hutchinson, local government accounts manager with Ramsbottom, Lancashire-based QCL, says: "With the DRS 6000 and SVR4, the ICL departmental server range is covered by the same flavour of UNIX. ICL has the strongest UNIX-based range of any manufacturer. Practically all my customers are considering DRS 6000. It's a powerful, future-proof workhorse. DRS 6000 will support the top end of my clients' IT expansion profiles for a good while to come.

McGuffie Brunton (Northern)

Paul Murray, managing director of McGuffie Brunton (Northern), headquartered in Manchester: "The DRS 6000 and SVR4 take ICL to the top of the mid-range UNIX league, and scotch any doubts about ICL's commitment to UNIX."

Amongst McGuffie Brunton (Northern)'s DRS 6000 clients is Macclesfield-based M6 Papers. M6 is a busy paper distributor with turnover of around £25 millions annually. A DRS 20 user for a number of years, the company uses software developed in-house for stock control, job costing, and sales and purchase order processing. In addition it uses third party software for sales, nominal and purchase ledgers, and payroll.

ICL (UK)'s Northern Competitive Area will supply a DRS 6000, while McGuffie Brunton (Northern) will provide the application software in collaboration with M6's IT consultant John Ray.

The Trader will convert stock control, job costing and sales and purchase order processing modules from CIS-COBOL to Micro Focus COBOL/2 and will port it to the DRS 6000. Sales, nominal and purchase ledgers will be replaced on DRS 6000 by the equivalent modules in Impact, McGuffie Brunton (Northern)'s manufacturing and distribution administration package. Impact's sales analysis module will be added to the system. The existing payroll function will be replaced by the Bewlay-Carlaw payroll system, and comprehensive interfacing will integrate the various modules under SVR4.

M6 Papers plans to open new sales offices in Macclesfield, Bromley and Leicester; These are all potential sites for DRS 6000.

Said John Ray "As a rapidly developing company, M6 Papers needs a flexible, future-proof system. This requirement, together with the ease of conversion and porting of the DRS 20-based software to the DRS 6000 under SVR4, convinced me to recommend the ICL/McGuffie Brunton (Northern) solution."

CEC Decides on Open UNIX Policy

Just before the international press conference was held in London to launch the DRS 6000, ICL Europe secured the very first order for a DRS 6000.

ICL wasted no time in making the news public — Chairman Peter Bonfield wound up the conference by announcing to the 150 journalists from around the world that the first order for DRS 6000 had come from the Commission of the European Communities (CEC) in Brussels.

ICL First to meet Standards

CEC had recently decided to base all its future information technology operations on UNIX systems which comply with X/Open and POSIX Open systems standards, and ICL is the first company to meet these requirements with a SPARC/RISC system running the industry-standard UNIX System V Release 4.0 operating system.

One Million ECU Order

The result is an order valued at over 1 million ECU (£700,000) as a first step in implementing CEC's policy, with technical and management consultancy also being provided by ICL as part of this contract.

The new DRS 6000 servers will be installed soon in the CEC's Luxembourg computer centre where they will be used for both applications development and as database servers for commission staff located in Brussels and Luxembourg.

ICL recently achieved "Approved Supplier" status with the European Commission, opening up a large potential market for UNIX systems in the European institutions for ICL. A DRS 400 Level 75 has already undergone European Commission benchmarks, see Office Systems News November 89 issue.

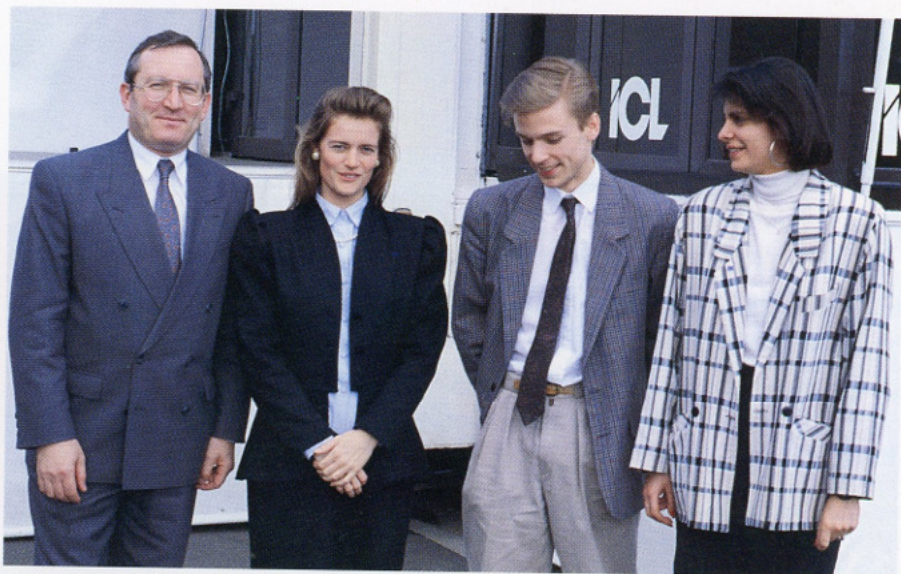# Road Show takes UNICORN to 12 French Cities

Take a nine-tonne truck, 400 customers and prospects spread throughout France, a DRS 6000, an assortment of DRS Intelligent Workstations, some bottles of champagne, two keen-as-Dijon-mustard French Channel marketeers based in Bracknell, one English marketeer based in ICL France, put them all together and what have you got? The DRS 6000 French Road Show — a highly successful way of demonstrating the DRS 6000's abilities to the maximum number of people in the shortest time frame.

Left to right, Luc van Geel, Chantal Masquelier, Jonathan Travers, and Virginia Passaret.

Virginie Passaret and Chantal Masquelier, both members of Garry Scarborough's European Channel Marketing team in Bracknell, are native French speakers and so it made sense, whilst the rest of the team were busy with skills transfer events throughout Europe, for the girls to link up with Jonathan Travers of ICL France to stage the ICL France Road Show.

The weekend before the event the girls worked with the ICL France marketing team, Alain Charron, Dominique Thomelin, Jean Emmanuel Derny, Claude Bruot, Jean Baptiste Dezard, Yael Soussan and Michel Healy, to devise the presentation script. Then it was off on a 3000 kilometres tour of France with stops at Lille, Amiens, Nancy, Strasbourg, Lyon, Marseilles, Toulouse, Bordeaux, Nantes, Rennes, Tours and Paris.

The truck was adapted with narrow full-length smoked glass windows down one side, fitted with venetian blinds to provide a cool and sophisticated demonstration area for the team and the DRS 6000, DRS 400E, DRS 300 and the range of DRS Intelligent Workstations which were installed on board.

Said Virginie, "It was a great experience, meeting ICL's customers and having the opportunity to tell them about the DRS 6000 and the rest of the DRS range and to hear about their computing plans and future needs."

The Road Show worked with the local ICL office in each location, who had invited ICL users and prospects, as well as ICL staff, to see the show. Says Chantal, "In Bordeaux more than 40 people attended, many of them prospects. And in Toulouse the truck with its distinctive ICL logo was parked adjacent to the DEC and Hewlett Packard offices!"

Together with Jonathan Travers, Chantal and Virginie staged 23 sessions, morning and afternoon, travelled 3,000 kilometres by car, train and plane, stayed in 10 hotels, ate in 20 different restaurants, met more than 400 customers whom they helped

Inside the Road Show.

The Road Show truck.

consume 100 bottles of champagne and more petite-fours and canapes than they care to remember.

They took it in turns to make the presentations and give the demonstration. In the last week of the three-week tour they were joined by Luc van Geel, a senior member of Garry's team, who was pleased with what the trio had achieved so far.

It was all well worth it, ICL France quickly sold five DRS 6000s an achievement which is due in part to the efforts of Chantal, Virginie and Jonathan.

THE HOT CAMPAIGN

The advertisements shown here are part of an ICL UK advertising campaign currently running in quality nationals like the Financial Times and the British computer press. With the slogan, "Europe's Hottest IT Solutions", the campaign capitalises on the phenomenal success of the DRS 6000 launch.

DRS 6000 Order Round up Worldwide order take Tops £10 Million

In the first month after the launch of DRS 6000, the order take passed the £10 million mark, with shipment of systems underway from the Ashton-under-Lyne automated assembly plant.

Commenting on the achievement, Andy Roberts, Director of Product Operations' Systems Integration Division, said, "To have reached this position within one month of the announcement of the DRS 6000 is a considerable achievement, particularly as we have introduced both a new operating system and a new architecture. The high level of initial orders reflects the very positive reaction to DRS 6000 from both customers and the software industry worldwide."

First orders have already been taken in the UK, Australia, Austria, Belgium, France, Finland, Hong Kong, Malaysia, The Netherlands, Singapore and Sweden.

First UK Local Authority

In the UK, the London Borough of Enfield is the first British local authority to order the new system, with other orders coming from the Northern Ireland Housing Executive and Kainos Software Ltd of Belfast.

The Northern Ireland Housing Executive will use its DRS 6000 to develop an INGRES based housing administration system.

DRS 6000 Beats Unisys in Hong Kong

Two Australian local authorities have placed orders, both of which replace competitors equipment. Bega Valley Shire Council has ordered a DRS 6000 to replace an NCR system, and Nambucca Shire Council's DRS 6000 knocks out a Bull system. In Hong Kong, the DRS 6000's excellent cost/performance profile has

DRS 6000

wiped out competition from Unisys and secured a contract from Hong Kong systems house CL Computers (HK) Ltd.

And in Kuala Lumpur, a new private higher education establishment has selected DRS 6000 Level 40 for administration and for use in student course work.

SILMM Orders First in France

In France, third party distributors have been quick off the mark to show their approval with orders for the DRS 6000. The first French Trader order came from SILMM, the French software house which specialises in systems for the French medical and retail pharmaceutical market. This order was signed by the president of SILMM during the DRS 6000 presentation given by ICL to customers at the National Exhibition Centre in Birmingham.

VAX K.O'd in Sweden

The first Swedish DRS 6000 order comes from software house Unistar AB. They have selected DRS 6000 as their future development machine for Ingres-based commercial applications. DRS 6000 was selected in preference to VAX systems which the software house has used up till now for this work.

In the Netherlands electronic components wholesaler Nedis BV of Hedel has placed the first DRS 6000 order. An existing ICL UNIX systems user, Nedis BV wanted additional processing capacity to cope with its growing business.

Replaces MAI in Austria

Austria's biggest General Motors trader and importer, OEFAG, has signed the country's first DRS 6000 order worth AS 3.5 million (£171,000) for a system which also includes 33 DRS Model 15s and two DRS Model 40s. Previously a MAI user, OEFAG will use its existing order processing, stock control and finance programs after compilation with the BBX compiler financed by the ICL Europe Software Investment Programme.

The system will communicate with General Motors by means of a special EDICS protocol. The order was won against stiff competition from Unisys, Nixdorf and MAI. OEFAG's Managing Director, Dr Gustav Schweiger, said that ICL's competence, and the impressive performance of the DRS 6000 together with the use of Open standards and UNIX System V Release 4.0 caused him to decide on the new ICL system.

ICL's Biggest Press Launch

Answering questions from the world's press — left to right Andy Roberts, Peter Bonfield and Bernard Hulme. Simultaneous translation was carried out in five languages throughout the conference.

Andy Roberts addressing the international press conference.

Peter Bonfield, Chairman of ICL, making a presentation to journalists at the DRS 6000 press conference.

The press launch of the DRS 6000, one of the largest ever staged by ICL, was held at the Cavendish Centre in the West End of London.

An overwhelming success, more than 150 journalists attended from all over Europe, and from as far away as Australia, India and New Zealand.

Simultaneous translation was carried out in five languages — French, German, Italian, Spanish and English and press packs were available at the conference in nine European languages — a first for ICL and, it's claimed, a first for the computer industry.

Pictured after the conference, left to right, Andy Roberts, Peter Bonfield and Bernard Hulme.

Press from around the world listening to Andy Roberts' presentation.

Journalists made use of comprehensive simultaneous translation facilities throughout the conference, particularly during the question and answer session.