This
PDF
was produced
at the
Bitsandbytes
Repository
from images scanned
by:- Vince Celano

From his private
collection, for use
by his fellow
Pensioners.
in 2012

ICL news
April 1985

12-PAGE SPECIAL on ICL's mainframes strategy for the 1990s

'Innovation is the key'

by PETER BONFIELD
Managing Director

ICL'S COMMITMENT to innovation and excellence has reached new heights with the announcements on mainframes covered in this special issue of *ICL News*.

The revolutionary new designs are part of a total strategy aimed at protection of customer investment which is a major marketing strength of ICL.

It has always been a major concern of customers that money they spend today on hardware and software will not be wasted when they need to upgrade their systems.

Our commitment to the VME operating system gives them this forward compatability—and our commitment to open standards gives them a far greater choice of peripherals and software.

Added to that, we have again shown our truly innovative capabilities . . . with the new CMOS and ECL chips which give far greater power in less space, with the MACROLAN local area network which is a world first in the use of fibre optic technology, and with OSLAN which sets new standards of interconnection.

There has been innovation, too, in the Level 30 range of cabinets which are a totally new use of plastic foam, and also in a whole range of quality safeguards which have been built into the systems and the manufacturing processes.

It is a new era for mainframes—but the key words are innovation in the designs but evolution, not revolution, for our customers. That is why our existing and new customers, at all levels, can upgrade their systems to suit their needs and take advantage of the breakthroughs we have made.

These breakthroughs are a tribute to the many research, design and development teams in ICL who have worked so hard to make today's announcements possible—more than 1,000 employees in all.

This commitment to design and service innovation, I believe, has given ICL a significant lead on the competition.

Our job now is to put that message across to the world loud and clear.

Our message to the world as new mainframe products are unveiled

PLAN YOUR FUTURE WITH ICL

David Dace, Director of Mainframes Systems Division with the new Series 39 Level 80 mainframe—the most powerful ever designed and produced by ICL.

ICL HAS UNVEILED the mainframe products and strategies to serve the world into the 1990s.

Together they give more power, faster access to information, more storage capacity and far greater flexibility than ever before.

It is the most comprehensive and important announcement from ICL on mainframes since the 2900 Series was launched more than a decade ago.

HIGHLIGHTS ARE:

- **A new generation of mainframes called Series 39.** It includes two entirely new machines which bear the first fruits of our collaboration with Fujitsu. They are:
- **The Level 80 mainframe,** previously code-named Estriel, which can execute up to 13 million calculations a **second.** It is the most powerful machine ever developed and produced by ICL.
- **The Level 30 mainframe,** code-named DM1, a powerful mainframe designed to be used in an ordinary office environment. It is the first ICL mainframe you don't have to keep in an air-cooled computer room. It takes ICL way ahead of the competition in taking computer power out of the computer room.
- **A new local area network, MACROLAN**—this uses a cable only 5mm in diameter to transmit information at the speed of light—up to 1,250 A4 pages of data a **second.** It is a world first in the use of fibre optic technology and links the mainframes to high speed peripherals such as disc drives at distances of up to 1,500 metres. It also links mainframe to mainframe in larger systems.
- **A new range of disc drive units** able to store up to 2,500 Megabytes of information in one cabinet—over a million A4 pages of data.
- **Other new peripherals** including a printer able to print 2,000 lines a minute and new Tape Decks.

But they are only part of the story.

Continued on back page

INSIDE

THE NEW MAINFRAMES —more power in less space	*VME—at the heart of ICL's strategy*	*HOW IT ALL FITS TOGETHER —an ICL News special graphics presentation*	*MACROLAN —a world first in fibre optic technology* *OSLAN —taking information to the desk top*	*THE NEW PERIPHERALS —meeting user demands* *YOU DID IT! and the Fujitsu factor* *SUPPORT FOR THE CUSTOMERS*	*TELLING THE WORLD*
PAGES 2-3	PAGES 4-5	PAGES 6-7	PAGES 8-9	PAGES 10-11	PAGE 12

More power in less space with Series 39 mainframes

WORLD BEATING ARCHITECTURE ALLOWS SYSTEMS TO GROW AND GROW

INSIDE the Level 80 . . . the most powerful computer ever designed and developed by ICL. Tom Hinchliffe, Director of Hardware Development, MSD, with one of the design managers, Graham Abraham.

The power supplies are at the bottom and the air filter has been removed to show the ECL multi-chip carriers in the cube. In his left hand Tom is holding the ribbon connectors which go into the Input/Output controllers and the main store.

Most powerful computer ever designed and developed by ICL

IE LEVEL 80 is the super computer with the power to run the information ocessing needs of the world's largest organisations.

t is extremely fast and compact—allowing the installation of greatly increased a processing power within existing computer rooms.

The high performance is achieved by the use of state-of-the-art Emitter Coupled Logic CL) chips and very ad- ced functional design. e design has been carried entirely by ICL and itsu are manufacturing chips from data supplied ICL.

n addition, in those parts the system where per- mance is not critical, the el 80 also has some of the e CMOS chips which are d in the Level 30.

Level 80 has 16Mb or Mb of main store per node disc storage capacity e to go more than TEN es above the 30,000 Mb st users will ever need.

o put this in perspective, ry word in the Bible from nesis to Revelations could held on just 2Mb of disc rage.

n addition, the Series 39 dular design allows for lti-nodal systems almost imited growth potential. Housed in a single, high cabinet the Level 80 has Order Code Processor CP); two or three Input/ tput Controllers (IOCs); Main Memory; and a de Support Computer ch maintains high system ilability by using impor- t new advances in tele- vice (see Page 11).

The combination of faster p technology and very anced functional design ans that the Level 80 has performance four times er than the highly successful 2966 and yet occupies only half the floor space.

The Input/Output Controllers are independent units linking the node to the Local Area Networks—each has couplers for two MACROLANs and one OSLAN (see Pages 8 and 9).

Speed of data transmission between nodes and high speed peripherals such as disc drives is more than double that of existing 2900 systems.

AT A GLANCE

The Level 80

- Most powerful processor ever from ICL.
- Uses VME operating system and incorporates powerful new chips designed by ICL and manufactured by Fujitsu.
- Compact design—four times power of 2966 in half the space.
- System has higher power/space ratio than any competitive offering.
- High speed peripherals include new disc storage units able to store up to 2500 M bytes in single cabinet.
- New local area networks—OSLAN and MACROLAN—for communications (see Pages 8 and 9).

THE INTRODUCTION of new enhanced models of the 2900 Series underlines the continuing success of the series—more than 1500 are already installed on customer sites around the world. These enhanced systems incorporate an OSLAN connection as standard as well as CAFS controller for high-speed data retrieval.

There are three enhanced models in the range: the 2958 Model 39, the 2966 Model 39 and the 2988 Model 39.

The 2958 Model 39 and 2966 Model 39 are available in single, dual and superdual configurations and the 2988 Model 39 as single and superdual.

There is a planned and cost-effective growth path available for all levels of existing ICL mainframe users.

- Existing 2958, 2966 and 2988 systems can be upgraded **in the field** to Model 39's;
- Smaller 2953 and 2957 systems can be enhanced to 2958 Model 39.
- ME29 users now have available a special CME* environment which runs under VME on the Level 30. This allows them to run their existing TME workload in parallel with VME when they upgrade to Series 39, saving both time and money. *Current 2953, 2957 and ME29 models continue to be available. Users with existing 2958, 2966 and 2988 also still have available second processors for dual-ling.*

Growth paths for all levels ICL users

AT A GLANCE | 2900 Model 39s

- Uses VME operating system to make planned and low-cost growth paths available for all levels of ICL mainframe users.
- Enhanced 2900s incorporate OSLAN connection.
- CAFS available for all to give high speed data search and retrieval.

Mainframe that's

THE SERIES 39 LEVEL 30 is another outstanding example of compact design and it is able to operate within an ordinary office environment. It needs no special air cooling and can be placed against an office wall as there is no requirement for maintenance from the rear.

This makes it ideal for incorporation in distributed systems and many users are expected to have Level 80 at the centre with Level 30s in the regions or divisions.

The Level 30 also incorporates the advanced chip technology resulting from ICL's collaboration with Fujitsu—in this case highly compact, cool running and extremely reliable CMOS chips.

The Level 30 node uses less than half the power of an electric kettle—yet can execute up to 2 million calculations a second. It takes up a floor space of only 1000 mm x 700 mm.

Connections of terminals and other peripherals via the new local area networks is extremely simple allowing customers to put their computer power where they need it.

Level 30 comes with four levels of main store—from 4Mb to 16Mb—and single and two node systems are available. Disc storage capacity is again virtually unlimited with the new disc drive units also being announced (see Page 10). In practice most customers are likely to need in the range of 1000 Mb to 10,000 Mb of information storage capacity. All well within the design capacity.

Each Level 30 node houses an Order Code Processor (OCP); one store nodule, one or two Input/Output Controllers, similar to those on the Level 80, which link the node to local area networks; and the unique Node Support Computer (see Page 11).

The OCP runs 2900 order code in native mode and concurrent TME order code is optional—another feature aimed at protecting the investment of users of existing ICL systems when they decide to upgrade.

THE PROCESS that brought Series 39 to market began in June 1981, when soon after his appointment as Managing Director ICL's present Chairman, Dr Robb Wilmot, publicly committed ICL to develop a new, integrated and highly competitive ICL product line.

This would include, he said, a policy to co-operate with other information suppliers to achieve Open Systems Interconnection (OSI).

A fundamental part of this product line, he said, would be a new range of distributed mainframe systems. And so, too, would be a policy to intercept technology—something which was underlined with the announcement in September of the same year of a major collaboration with the Japanese chip technology leaders, Fujitsu.

Series 39 and all the other products and enhancements now being announced hail the arrival of this new range of distributed mainframe systems.

LEFT: The new Series 39 Level 30 . . . ideal fo putting mainframe power in ordinary offices.
ABOVE: More power in less space—the level 8 (right) has four times the power of a 2966 and take up half the floor space. Also pictured are the new 2966 Model 39 and the Series 39, Level 30.

ADVANCED TECHNOLOGY has played a major part in the development of ICL's two new mainframes—the DM1 and Estriel—now known as Series 39 Level 30 and Level 80.

Both machines incorporate the fruits of our collaboration with Fujitsu on chip technology and include many other advanced features to make them world beaters.

The machines were designed and developed by the Mainframe Systems Division and are being manufactured at Ashton with some of the latest automated manufacturing equipment and quality safeguards.

Series 39 Level 30 sets new standards of compactness not only for ICL but also for the World.

This has been achieved by the use of the brand new LSI CMOS gate arrays—the logic chips—and the equally new fibre optic connections. All the circuit boards are contained in one cabinet requiring no air conditioning or false floor. It is quiet in operation and elegantly styled for an office environment.

Series 39 Level 80 is the most powerful mainframe system ever designed and produced by ICL.

The processor can execute up to 13 million calculations a second and provides the power needed to develop and run new applications in some of the world's largest organisations.

It is an outstanding example of compact design—in a single, air cooled cabinet it provides four times the power of a 2966 and occupies half the floor space.

In a two-node system the Level 80 breaks new ground and represents a significant step beyond anything offered by our competitors in terms of power/space ratios.

Like the Level 30 it takes advantage of a range of technological breakthroughs. These include:

- **New chip technology with logic designed by ICL and manufactured by Fujitsu** which has enabled the machines to be brought to market in the region of two years earlier than otherwise possible.
- **The incorporation of a Node Support Computer** within the node itself—a kind of caretaker computer which can be connected by telephone direct into an ICL Support Centre. This saves both time and money on maintenance and has been designed by ICL specifically to maintain high system availability.
- **The inclusion of a Support and Maintenance facility—called SAM**—which again provides service back-up by a direct telephone link to an ICL Support Centre. It also lets the user know, on a terminal on the computer site, when equipment needs servicing or replacing.

Together with the enhanced 2900 Model 39 range being announced simultaneously, users have almost unlimited growth potential—and an unprecedented power span under the same operating system: VME.

The power span is 1 to 22 and a key feature of all machines in Series 39 is multi-processing—they can operate on their own or can be linked with other machines of the same level for even greater power and future growth.

When nodes are linked in this way the user has other major benefits—if one should need maintenance or be closed down for any other reason the system will carry on working via the other node or nodes.

The links are made via a new MACROLAN local area network which is unique to mainframe systems and is an integral part of the Series 39. It replaces the mass of cables often running from mainframes to high-speed peripherals and other devices with a single fibre optic cable only 5mm in diameter (see story, Page 8).

It is the combination of this nodal architecture and new networking communication advances which make the range open-ended. New models or peripherals can be added to exploit new developments and meet changing customer needs—from those needing systems with under 50 workstations to more than 10,000.

These end-user devices can be spread over any distance—either by using existing communication networks, such as British Telecom or international telephone networks, or by another ICL local area network, OSLAN. This is a single coaxial cable linking the nodes with terminals, Personal Computers, printers and other workstations.

Once again this removes the need for a mass of cables (see Page 9).

What's more, as the user moves up the range he doesn't have to replace the software or hardware he has already bought.

He simply adds to it the power or terminals or applications he now needs.

The key here is the implementation of ICL's world beating VME operating system across both the existing 2900 range and Series 39.

Our customers who have invested in the 2900, and those investing in Series 39, can upgrade their systems by adding to their present hardware and software.

This protection of investment is central to ICL's strategy.

Applications can be transported from one system to another—or even developed on one and implemented on another in whatever way the user wishes.

"In the same way peripher als, from high-speed dis storage units to low-co printers and terminals, a compatible thoughout th range," said John Gardne Director of Business Strateg Mainframe Systems Divisio

"A key issue to this prote tion of investment, of cours is the commitment to VME.

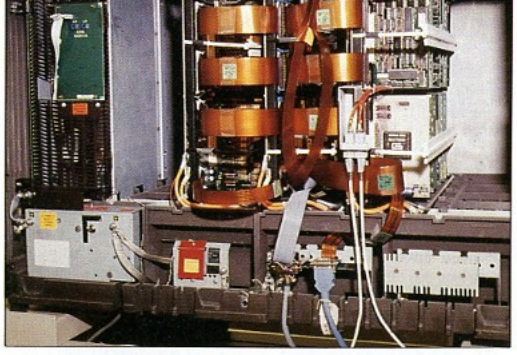
In addition, ICL's uniqu high-speed data search an retrieval system—CAFS—integrated into all machine and can be added to existin 2900's.

With CAFS alone existin 2900 customers can increas their number of active en users by TENFOLD becaus of the sheer speed of tran mission of information.

"When you put all th together, and then add ou commitment to Open Sta dards, the new local are networks, the inherent sec rity of VME and new dis units giving virtually unlimite storage capacity and ou ability to transmit data at 1,25 A4 pages a second down on small cable you begin to ge some idea of what Series 39 all about," said John Gardne

"In short, it's a worl beating architecture for mair frame systems and our mes sage to the world is Plan You Future with ICL."

ideal for use in an office



WHAT it's like inside the Level 30 . . . behind the orange multi-core ribbon connectors are the Printed Circuit Boards which use the new CMOS chips.

You can also see at the bottom, going from left to right, two grey power cables, a single cable which connects to a modem for the Node Support Computer, a blue drop cable into OSLAN and a two-core optical fibre MACROLAN cable.

The compact design makes the Level 30 ideal for use in ordinary offices—it takes up a floor space of only 1000 mm x 700 mm and uses less than half the power of an electric kettle.

AT A GLANCE — The Level 30

- Uses VME operating system and incorporates highly compact new CMOS chips designed by ICL and manufactured by Fujitsu.
- Able to be placed in ordinary offices rather than special computer room environment.
- Ideal for use in distributed networks.
- Totally new design of low level cabinet to suit office location.
- Has CAFS as standard facility.
- Processing node uses less than half the power of an electric kettle.
- High-speed peripherals include disc storage units able to store up to 2500 M/bytes in a single cabinet.
- OSLAN and MACROLAN for communications (see Pages 8 and 9).

AT A GLANCE — Series 39 and 2900 series

- All use VME operating system to give biggest power span in the world—support for systems with under 50 workstations to more than 10,000.
- Peripherals and software compatible across range. Existing 2900 users can retain current peripherals and applications as they upgrade to Series 39 through new enhanced 2900 models.
- All have ICL's unique data search and retrieval product, CAFS.
- Chip technologies and construction techniques put ICL firmly amongst world leaders for innovation.
- Major advances in interconnection—including fibre optic cable only 5mm in diameter which links mainframe to high speed peripherals and other nodes in larger systems.
- Exceptional data throughput capacities—50 million bits per second on each fibre optic cable.
- Nodal architecture is ideal for distributed networks and allows systems to grow with ease to suit customer needs.
- Outstanding operational efficiency with many built-in privacy and security safeguards.
- Comply with international standards for wider choice of attached devices.

VME

Protecting the investmen of ICL users

AT THE HEART OF ICL'S MAINFRAMES STRATEGY

Manufacturing – where quality is built in

ICL CUSTOMERS now have an even wider mainframe power span available to them under one operating system. The system is VME and it is central to ICL's Networked Product Line and to the whole ICL strategy for mainframes which will take us into the 21st century.

ICL's commitment to VME gives an unprecedented protection of investment for ICL mainframe customers.

In simple terms it means any applications programs written for, say, a 2953 under VME, can be run unchanged when the customer upgrades to the top of the Series 39 range.

In the same way, customers who have distributed systems with smaller ICL mainframes at various locations, use the same operating system throughout. Programs developed on one machine can be just as easily run on any other.

Investment

It means that investment in the writing of application programs, in training of end-users, in setting up business procedures are all protected—and this applies throughout the Series 39 range, taking a user from under 25 workstations to more than 10,000.

The same thing applies to his peripherals and networked equipment—his workstations, disc drives, terminals, PCs, tape decks and so on: Use within the VME family is the same regardless of the level in the VME family the customer is at—or plans to go to.

This protection of customer investment is a key benefit in ICL's VME strategy.

Yet the VME operating system also offers other major benefits to meet increasing demands for systems that are easy to use, economical to run and offer system security.

It is also a commitment to the future—for VME is ready to cater for even larger growth as user demands increase.

VME, of course, is not new—it was first introduced on the 2900 series over ten years ago.

Development

Since then an enormous number of enhancements have been made and these have been spearheaded by ICL's own research, design and development teams at Kidsgrove, Bracknell and West Gorton. Every year since 1975 has brought improvements, sometimes dramatic, in facilities, reliability and performance.

The VME system is now acclaimed around the world—and more than 1,100 installations in 27 countries vouch for its outstanding success.

The reasons are clear, for VME provides the end user with all the facilities needed to meet his computing needs: supporting software pack and development tools, m code, hardware, input/ou and communication con —in both central and d buted systems.

So what is VME? And why is it so successful?

The story begins soon the merger of English Ele Computers and I.C.T. in when the initial design pr ples and the software dev ment tools needed to continued and flexible elopment were laid down

Those design principles development tools allowed VME to develo ways that could not pos have been foreseen in and have allowed the elopment of such ICL uni as CAFS—without the c mer changing his opera system.

Tribute

Today's VME is a tribu the people who set out t disciplines in the early 197 many of whom still work the product at Kidsgrove.

Among the original crea of VME is Brian Warb made the first ICL Fellow year, who is now Directo Engineering for Of Systems.

In addition, this core of employees has been regul augmented by other ployees from around the w who have been seconde work on the VME proc line. It is estimated tha many as a thousand employees have played a c tive role in bringing VM its outstanding positio decade on. VME stands Virtual Machine Envi ment. VME is the operating system for Serie and this allowed the desig

AT A GLANCE

VME Operating System

- Already used on more than 1,100 ICL installations worldwide.
- Many supporting software packages and development aids.
- Gives unprecedented protection of investment as VME is used throughout Series 39 and 2900 range.
- Software and peripherals also can be retained when users upgrade their systems.
- Privacy and security is built into the system.
- Designed to absorb new technologies—both hardware and software.
- Low staff costs to run the system.
- Supports from under 25 to more than 10,000 workstations.

ERCURY . . . automated production at Ashton.

HAS developed and is using one of the most advanced duction lines in the world at Ashton to manufacture the Series 39 mainframes.

he automated lines are a fine example of the ICL wcase principle and use both ICL hardware and software, ning on the VME operating system.

The production line itself alled Mercury and is a que worldwide manufac- ng solution in answering need to maintain the nest quality standards in embly and test.

Mercury has two rows of king four metres high and metres long. A computer ntrolled crane travels ween the rows, moving cabinets through the embly and test stations supplying parts to the rators and engineers.

What we have achieved merger of conventional rehousing with produc- n. It means we move terials much more ckly, cost-effectively and iciently," said Bruce nstrong, General Man- r, Ashton.

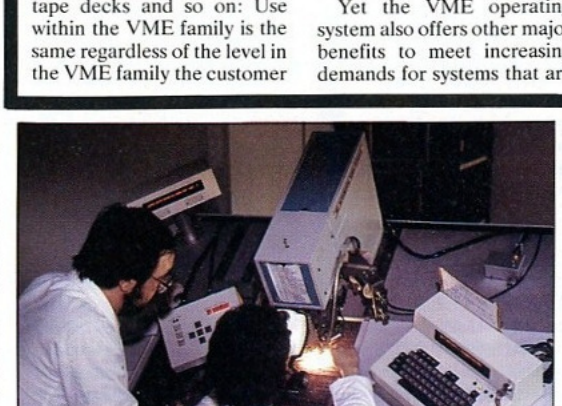
There are a range of lity tests built into the —even down to thermal ssing and a unique fault gnostic system (MFCC— nufacturing Fault-Clear- ance Control) under VME.

A key factor is a unique Local Quality System (LQS) which runs on an ICL 2966, was designed in-house and uses ICL's QuickBuild product again operating under VME.

The result is new benchmarks in quality control—and so planned has been the manufacturing operation that by the end of the year the line producing the Model 30s will actually be controlled by a Model 30.

Series 39 was designed and developed with manufacturing in mind—and manufacturing specialists were involved from the early days. "That close co-operation has been crucial to the success of the operation," said Bruce Armstrong.

● ***ICL News* will carry a special feature on the manufacture of Series 39 in our May issue . . . including the production of the Printed Circuit Boards at Kidsgrove.**



New to ICL . . . this Automatic Wire Bonder has been installed at West Gorton to allow us to do minor alterations on multi-chip carriers for the Series 39, Level 80 mainframe.

VME— How the outside world sees it

Coping with a changing wor

FOR ICL, mainframes mean VME—the operating system at the heart of protecting the investment of our customers and giving them forward compatibility, power and facilities.

It is not a new commitment—but a continuing policy which pays off both for ICL and our customers.

The operating system is designed so that it can cope with the changing world of information technology.

Nothing can prove the point more than the ICL installations around the world which use VME. These cover the original 2960, 2970, 2980 family through to the latest 2966 family—in all configurations available: singles, duals and superduals.

Now, of course, VME covers the new Level 30 and Level 80 mach in Series 39.

VME, therefore, is being use systems ranging from 2 Megabyt 64 Megabytes installed in the fiel with a storage span from ea Megabytes fixed discs to the cu FDS-640.

It also runs CAFS, Distrib Array Processors and a wide ran peripherals and networks inst from the early 1970s to the pr day.

On that journey it has also su ted a variety of 1900 software regi System 4 regimes and today sup a new range of Knowledge Engi ing products, 4th Generation guages and is being used on a va of future-looking Alvey projects

Softwar for all with VM

ICL'S SERIES 39 mainframe users have a host of software applications and development tools to choose from—another result of the commitment to the well-established VME operating system and to protecting user investment.

Hundreds of existing ICL customers—particularly those with 2900 Series mainframes—already have systems software which can run unchanged on the new range.

And newcomers to the range have the same wide choice.

Many of the applications have been developed within ICL itself but there has also been wide commitment to developing VME applications by third party software houses.

Packed software is available to cover every major industry need including:

- Office Systems
- Manufacturing
- Decision Support
- Local and Central Government
- Knowledge Engineering
- Retail systems
- Health systems
- Banking and Finance.

Within those areas the applications available are extremely wide. In the case of Local and Central Government, for example, applications software covers everything from housing benefits, registration of electors and fuel management to transport, rates many specialised areas such as aeological records.

The number of cross-indu software packages is also huge are continually being added to.

They include: personnel, pa stock control, financial modellin planning, graphics, accounting, management and information pr ing.

SOFTWARE DEVELOPMENT

IN ADDITION to packaged sof there is also a wide range of software application tools which users build their own applicatio suit their own specific needs.

A key feature of these is the wa ease the pressure on dat cessing departments by ing end-users, often with or no computer experien build their own applicat

The ICL Application elopment Product Line library of programmin guages as well as facilit help both the profession layman alike.

These include compr sive systems with inter testing, path analysis program activity sampli help with the developm COBOL and FORTRA plications.

QuickBuild

In addition, ICL's Build is a set of develo tools to help users creat own software with mi help from data proc departments.

It includes design ai on-line enquiry system generation of reports, processing application the management of databases.

This comprehensive duct line means user build applications tailo needs. In practice this removes the need to for and buy, and then ac commercially available age—or to commissi expensive bespoke pac

the hardware to be matched exactly to the advanced facilities of VME.

VME controls the processor, disc storage units, tape decks and the communication links with peripherals such as printers and terminals—whether they be the DRS 20, the One Per Desk, ICL Personal Computers, PERQ graphics workstations or an increasing range of non-ICL peripherals.

As the name suggests, the system is based on the concept of the Virtual Machine. Users can have their own private data and applications while at the same time sharing central data and applications with other users.

Tailored

More importantly, each user's private data and applications are completely protected from unauthorised access.

Because VME is already well-established there is a range of software packages and software development aids for users.

These include ICL's QuickBuild range of development tools which use simple, menu-driven user interfaces to allow applications to be tailored to individual needs.

Because the end-users can often develop their own systems by using QuickBuild products pressure is taken off processing departments.

This saves both time—and money—with increased productivity resulting in applications being developed more quickly.

There are a whole string of security measures, too.

Unauthorised access is protected by, among other things, a comprehensive password system.

Data corruption is avoided by VME's in-built resilience, by the security features of ICL's data management software and by data validation systems within the hardware itself.

Earlier this year an enhanced VME version, SV211, was released which extends the CAFS-ISP file searching facilities, gives more effective networking, implements Open Systems Interconnect (OSI) standards and includes internal structural improvements.

VME is already well-known for its reliability—one non-UK customer with a multiple 2900 Series installation of single, dual and superdual mainframes ran them for 12,000 hours without a software generated system failure.

Development in action . . . testing of the Model 30 Printed Circuit Boards at West Gorton.

Trevor Mills, Software Marketing Manager, Mainframes Systems Division highlighted the four key areas where VME gives ICL and VME users a competitive advantage.

"Firstly, it gives users growth or distribution of their systems without changing their operating system.

"Secondly, it allows new techniques and technologies to be incorporated into existing systems without a change of operating system. This is because of the flexibility of VME and an obvious example has been CAFS and new software such as that needed for Knowledge Engineering products.

"Thirdly, and of increasing importance around the world, is the inherent security of VME.

"Finally, VME is an operating system which gives all these benefits with low running costs. Some sites already run unattended and this is an increasing trend.

"In addition our firm commitment to VME means the future is assured. It will continue to absorb new technologies and software requirements to protect the investment of our customers."

THE VME FAMILY—how it fits together

THE SERIES 39 NODES

All use the VME operating system to give the biggest power span in the world — they support systems with under 50 workstations to more than 10,000.
Peripherals and software are compatible across the range.
All incorporate ICL's unique data search and retrieval product, CAFS.
Use new ECL and CMOS chips technology — designed by ICL and manufactured by Fujitsu — to give more power in less space.
Nodal architecture is ideal for distributed networks and allows systems to grow with ease to suit customer needs.
Outstanding operational efficiency with many built-in privacy, security and quality safeguards.
Incorporate Node Support Computer and SAM (Support and Maintenance) — an advanced teleservice facility.
Use of VME will allow new technologies to be incorporated as and when they become available — both software and hardware. VME also reduces staff costs to support systems.
There are two new mainframes in the series:

THE LEVEL 80

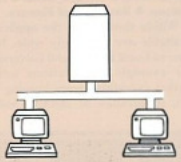
Most powerful processor ever from ICL.
Compact design — four times power of 2966 in half the space.
System has higher power space ratio than any competitive offering.

THE LEVEL 30

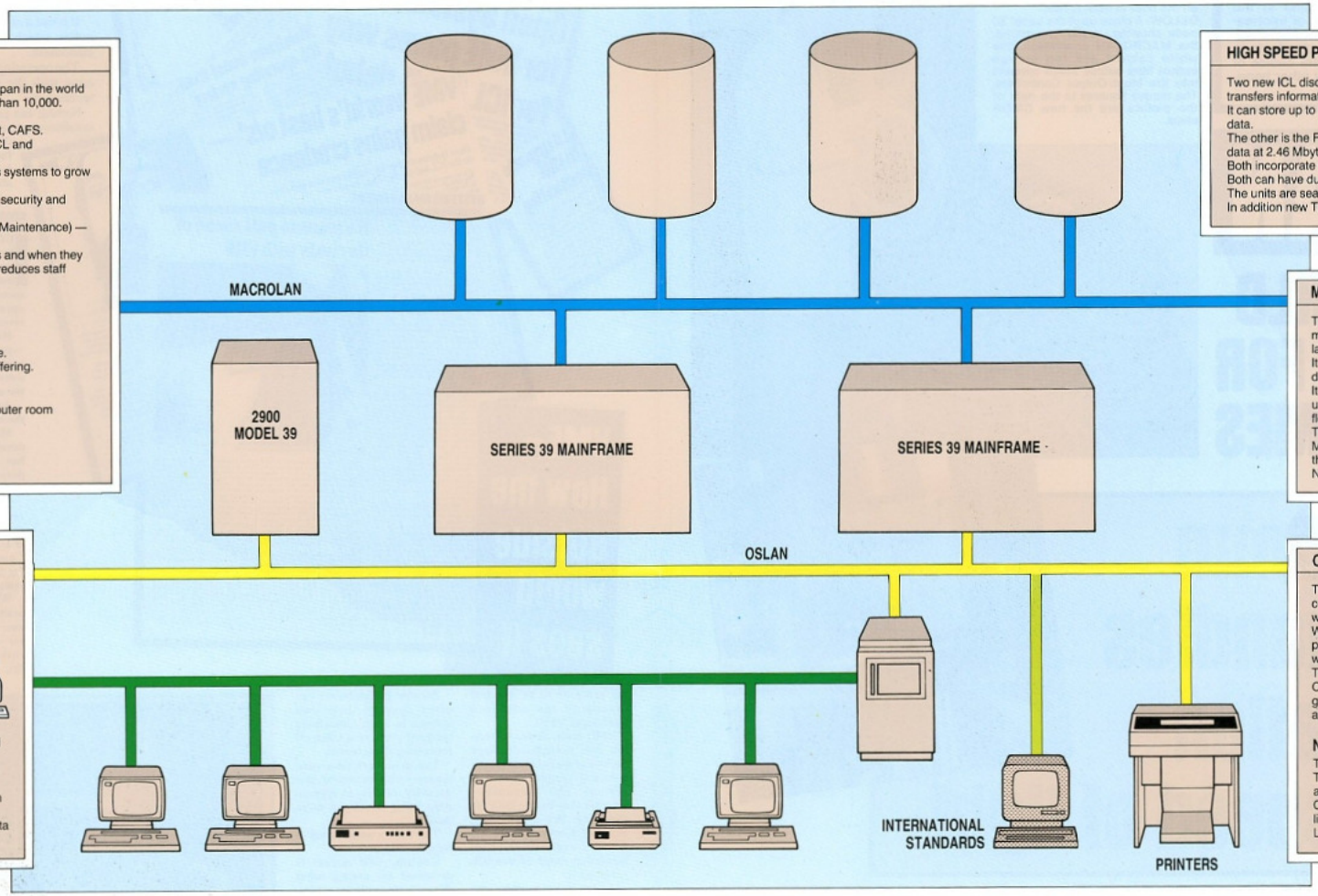
Able to be placed in ordinary offices rather than special computer room environment.
Ideal for use in distributed networks.
Totally new design of low level cabinet to suit office location.
Processing node uses less than half power of electric kettle.

2900 MODEL 39s

ICL's new 2900 Model 39s can be linked into the system via an OSLAN connection.
Existing 2900 users can upgrade their existing models, in the field, to Model 39 level.



In our main diagram the 2900 Model 39s appear to be placed near the Series 39 nodes — in practice they can be placed anywhere in the world with communicatons via modems and public telephone networks.
All Model 39s use VME to make planned and low-cost growth paths available for all levels of ICL mainframe users.
They have OSLAN connections and CAFS for high speed data search and retrieval.



HIGH SPEED PERIPHERALS AND TAPE DECKS

Two new ICL disc storage units are being announced — the FDS2500 transfers information at 2.86 Mbytes a second.
It can store up to 2521 Mbytes in one cabinet — or about 1 million A4 pages of data.
The other is the FDS 300 with up to 337 Mbytes of store and able to transfer data at 2.46 Mbytes a second.
Both incorporate CAFS for high speed data search and retrieval.
Both can have duplicated access routes for system resilience.
The units are sealed so they can be sited in ordinary offices.
In addition new Tape Decks are being announced.

MACROLAN

This is the unique ICL local area network which links the mainframes to high speed peripherals — and to other nodes in larger systems.
It uses a fibre optic cable only 5mm in diameter to transmit data at the speed of light — up to 1,250 A4 pages a second.
It allows high speed peripherals or mainframes to be placed up to 1500 metres from each other — giving far greater flexibility in installation of systems.
The cable can be run around a skirting board.
MACROLAN also improves the quality of data transmission — there is no electromagnetic or crosstalk interference.
No risk of unauthorised access.

OSLAN

This stands for Open Systems Local Area Network and connects peripherals such as terminals, printers and other workstations to the system by using a single co-axial cable.
With the use of Local and Remote OSLAN bridges it allows peripherals to be linked into the system from anywhere in the world.
Transfers data at speeds equivalent to 250 A4 pages a second.
Complies with international standards to give users a far greater choice of peripherals — some 60 manufacturers are already committed to OSLAN standards.

NEW PRINTERS

Three new printers are being announced.
Two are low-cost medium speed printers — Linewriters 400 and 800.
Other is very fast LP2000 — operates at speeds up to 2000 lines a minute and can print for OCR reading.
LP2000 is available to both Series 39 and 2900 series users.

DRS

ONE PER DESK

SOFTWARE

The VME operating system gives users a host of software applications and development tools to choose from.
Packaged software covers every major industry including: Office Systems, Manufacturing, Decision Support, Local and Central Government, Knowledge Engineering, Retail systems, Health systems, Banking and Finance.
Many cross-industry packages are also available including personnel, payroll, stock control, financial planning, accounting, data management etc.
VME software application tools allow applications to be developed easily and cost-effectively to suit specific customer needs.
ICL's QuickBuild set of development tools helps end users create their own applications with minimum help from data processing departments — saving time and money.

TERMINALS

The commitment to Open System standards gives users a wide choice of peripherals — both those manufactured by ICL and non-ICL companies.
Among the terminals available are DRS 20 distributed resource systems, teletype compatible videos, personal computers, One Per Desk, DRS 8800 word processors and PERQ graphics workstations.
Many products can communicate directly into OSLAN — those that do not or which are at remote locations, use communication gateways.
These interface to the advanced International Standard Wide Area Network (WAN) protocol — X25 — and also provide access to the ICL C03 protocol covering, as well as DRS and System 25, ME29, 2900, 7500 etc.

PERQ

8800 WORD PROCESSOR

Interconnection

MAJOR BREAKTHROUGH IN eries 39 is the implementation of ocal Area Network technology at he mainframe level.

In simple terms, LANs, as they re called, are the way the informa-on in a system gets to the people ho need it—or is put into the ystem by the people who have it.

ICL is now announcing with eries 39 two local area networks hich replace the traditional mass f cables needed to do this with st two cables—and they are the nly means necessary to connect ogether the components of a complete Series 39 system: mainframes, disc drives, terminals, printers, workstations and other peripherals.

Here we deal with these two major advances.

The first is the high-speed MACROLAN, a single fibre optic cable only 5mm in diameter which also breaks new ground in the speed of transmission of information and the other, OSLAN, which is based on industry standards to give users a far greater choice of peripherals and many other benefits.

RIGHT: The result of innovation . . . design manager Reg Stevens holds a MACROLAN cable: it replaces the pile of conventional cable heaped on the floor in front of him.
BELOW: A close up of the Level 30 node showing, in the foreground, the MACROLAN connection (the white cables) and the orange optical fibre cables which connect into the Input/Output Controllers. The mauve squares to the right of the picture are the new CMOS chips.

MACROLAN

A WORLD FIRST FOR MAINFRAMES

How a 5mm cable handles information at the speed of light

HE HIGH SPEED local area network MACROLAN announced along with the new Series 39 range of mainframes is another world first for ICL.

is the result of advanced fibre optic tech-gy—a local area network that passes infor-on around the system at speeds of up to /bits a second: equivalent to 1,250 A4 pages ta a *second.*

t MACROLAN is a cable 5 mm in diameter—inside vo optical fibres, one for smission and one for otion.

is used to connect the essing units to high speed herals such as disc and etic tape storage units s also used to link one to another in larger ms.

s the first time fibre optics been used to connect the onents of a mainframe m and is believed to be f the fastest data trans-on uses of optical fibre here in the world.

Design task

e MACROLAN has been oped by ICL teams at Gorton.

was ICL teams who oped the way the data is l for transmission; de-l the method of passing ata along the cable; and into the MACROLAN vare a range of safe-s to ensure the data gets gh in the right way.

rucial design task was to fibre optic technology it a system with many —in most applications now the technology has used to link Point A to B, usually over great nces. The obvious example is British Telecom.

With Series 39, however, the need was for the technology to be used to help a multitude of users. Data had to be moved far quicker than any existing fibre optic system—and it obviously had to reach the right people, at the right time, and had to be totally secure.

The resulting product is a tribute to the innovative work of the ICL employees involved.

And the benefits for ICL customers are immense:

Gone are the mass of cables normally running from mainframes to high speed peripherals or other mainframes—replaced by a 5 mm cable which can be run around a skirting board.

Gone is the need for peripherals to be sited near the mainframes—on MACROLAN they can be sited up to 1500 metres away as against the normal restrictions of about 35 metres.

Gone are the risks of unauthorised access—you can't break into it so ICL customers have the privacy and security they need.

There are other major plus points in the technology.

One is the significant advance in the quality of the information being transmitted because there is no electromagnetic or crosstalk interference with fibre optics.

Yet another is the flexibility it gives users when installing new systems or when they are upgrading or moving existing systems: Not simply because of the distances the MACROLAN can cover but also through the ease of installation of a one-cable system.

The way nodes or peripherals are linked to the cable greatly eases installation, too.

This is by a MACROLAN Port Switch Unit which is smaller than an average briefcase and fits onto the wall.

It has six transceiver/receiver ports via internal couplers and further Units can be cascaded to give up to 15 stations on a single MACROLAN.

System reliability is underlined because if there is a failure in an individual station—whether it's another node or a peripheral such as a disc storage unit—it will not affect the operation of the MACROLAN itself.

MACROLAN Port Switch Unit will detect the failure and bridge the gap to bypass the faulty unit.

And further back-up is provided as the new Series 39 mainframes can have duplicated MACROLANs.

"To apply the concept of fibre optic networks to mainframes is unique to Series 39—and is believed to be another world first for ICL." said Tom Hinchliffe, Director of Hardware Development, Mainframe Systems Division.

T A GLANCE — MACROLAN

Uses a cable only 5mm in diameter ransmit data at "speed of light"—up 1,250 A4 pages of data a second.
Connects mainframes to high speed ripherals including disc storage ts—and mainframes to other nodes arger systems.
CL world first in use of fibre optic hnology to connect components of inframe systems.
Unique use of local area network on inframes—allows high speed peripherals or mainframes to be placed up to 1,500 metres from each other.
- Improves quality of data transmission —no electromagnetic or crosstalk interference.
- No risk of unauthorised access.
- Gives great flexibility in installation of new systems or upgrading or moving existing systems.
- Easy to install—cable can run around skirting board.

made easy—with just two cables

AT A GLANCE — OSLAN

Stands for Open Systems Local Area Network.
- **Connects peripherals such as terminals and printers to the system by using a single, low-cost co-axial cable.**
- **Local and remote OSLAN bridges allow peripherals to be linked into system from anywhere in the world.**
- **Transfers data at speed equivalent to 250 A4 pages a second.**
- **Complies with international standards for more choice of peripherals—some 60 manufacturers already committed.**

Open system standards give users more optio

OSLAN

It's the gateway t the world

OSLAN IS THE local area network which connects terminals, printers and other devices to the mainframes and other peripherals.

It uses a single, co-axial cable and is already an integral part of ICL's mainframe strategy—it adheres to industry standards to give ICL mainframe users more options in the equipment they can use.

Some 60 manufacturers worldwide are already committed to OSLAN standards and the number is growing.

By using an ICL Communications Gateway, users can attach very large numbers of workstations to a single configuration.

It allows any user in a system to communicate with any other user—whether they are working in an office down the corridor or a factory on the other side of the world.

The OSLAN network operates at speeds of up to 10 M/bits a second—equivalent to around 1,000 high-speed communication lines or about 250 A4 pages of data being transmitted every second.

Put another way an organisation could run 250 high speed printers running flat out off any one OSLAN network—**all at the same time.**

Within ICL alone the products that can be linked directly to a Series 39 mainframe via the OSLAN cable include DRS 20 distributed resource systems, System 25 minicomputers, PERQ and, of course, the 2900 Series and Series 39 itself.

By using the Communications Gateway the choice is even greater—One Per Desks, Personal Computers, a wide variety of printers and a whole range of non-ICL products.

What's more they can be any distance apart because connecting repeaters and Local OSLAN bridges means there is no maximum cable length—users can run the cable mile after mile after mile.

When linked via Remote OSLAN Bridges to normal communications circuits, such as telephone sy peripherals can be wherever the user w virtually anywhere i world.

The cable itself is co —approximately 10 diameter—and each se can be up to 500 metre Up to three segments connected by the repea and the number of connections via O bridges, local or rem unlimited.

When OSLANs are c ted in this way they are as single logical OSL and up to 1024 devices connected.

But as any—or all o —could be a DRS 20 buted resource syste up to 24 terminals the n of users is far, far hig practice even the large customers are unlikely more than 10,000 stations.)

In addition, systen agers can connect a connect peripherals an on the network—n OSLAN not only an ir tion distribution circ also a power distri circuit.

ABOVE: Spot the OSLAN . . . how a single co-axial cable connects peripherals to ICL Computer systems without the traditional need for a mass of cables.

Compatibility in peripherals, too

ICL'S COMMITMENT to forward compatibility and investment protection is underlined by the number of peripherals which can be used with the new Series 39.

This includes many existing 2900 peripherals which can be attached directly to the new systems—thus simplifying transfer of files and software when 2900 users upgrade.

These retained peripherals include: MDSS discs, MTS 61 and GTS 2 tape units, Line Printers 1440 and, on the Level 80, the LP 1500, CR 300/1000 and EDS 200.

In addition, via OSLAN and communication bridges, a wide variety of both ICL and non-ICL terminals, workstations and printers can access Series 39.

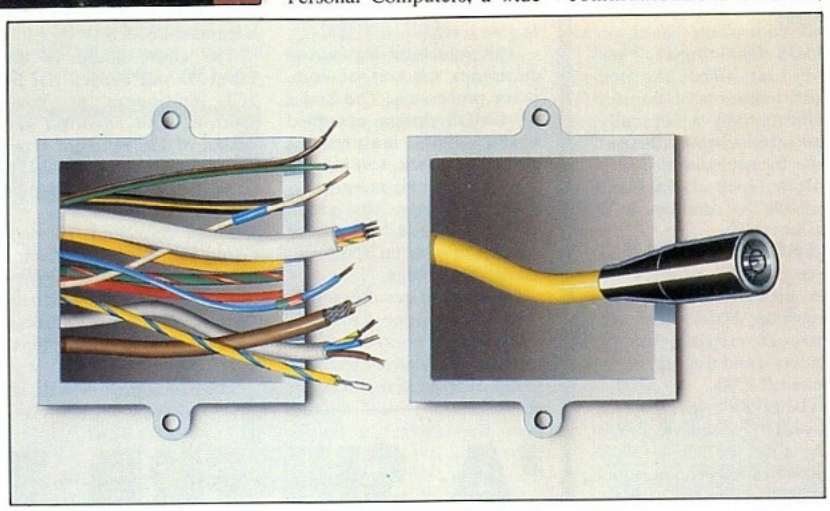
This wide choice is also being strengthened by ICL's Networked Product Line.

Among the terminals able to be linked to Series 39 are:

- **DRS 20 distributed resource systems.**
- **Teletype compatible videos.**
- **Personal Computers—including ICL, IBM.**
- **One Per Desk.**
- **DRS 8800 word processors.**
- **PERQ graphics workstations.**

The open standards of the OSLAN network means there are now some 60 manufacturers committed to providing equipment which can be linked to Series 39 systems.

Many are now involved in advanced development work on new products and as these come to market the options for those in ICL's VME family will increase even more.



Before and after . . . How OSLAN makes life easier for the end-user.

Communicating with Series 39

THE SERIES 39 HAS a completely innovative way of handling communications in that all connections are made via the OSLAN.

Many products that are located within connection distance of the Series 39 OSLAN can communicate directly over the LAN. For those products that do not themselves have direct OSLAN connect capability, or for those needing to connect from remote locations over a Wide Area Network (WAN), two Communications Gateways are offered.

The first, the Open Systems Gateway/Modular Connection Unit One (OSG/MCU1) provides a powerful gateway for ICL's strategic WAN protocol—X25. This high speed gateway interfaces to public and private X25 packet switching networks at 48K bps and communicates with remote X25 host and terminal systems supporting 200 concurrent virtual circuits. The gateway conforms to the ISO OSI standards up to the Transport layer (level 4) and will serve as the high speed X25 Gateway for all OSLAN based systems.

The second gateway, the Open Systems Gateway/Modular Connection Unit Nought (OSG/MCU0) provides access to one or more Series 39 systems from the Full XBM (ICLC-03) world providing continuing support for the wide range of systems that use this protocol (DRS, S25, ME29, 2900, ICL-PC, 7500 etc).

The OSG/MCU0 also provides the means for several specialised protocol handling units to access Series 39. These include:

- A medium speed X25 unit supporting not only remote X25 systems but also asynchronous devices connected via PADs.
- An Asynchronous Adaptor providing scroll mode access to VME for a wide variety of asynchronous devices.

Note: both the above units are free-standing versions of boards currently used in 2900/DCU systems.

- The Desk Terminal Connection Unit (DTCU) that provides OPD users with FXBM screen mode connection to Series 39. (The OPD must be configured with the 'ICL module.)
- Bulletin Link Unit, pr viewdata terminal users ac Series 39.
- A 2780/3780 Protocal Co providing a means of data ex between Series 39 and dev systems supporting the IBM 3780 protocols.

Series 39 can therefore be s truly open system with:

- X25 and OSLAN pr international standard con mechanisms for the way ahea
- FXBM—Asynchronous f large population of existing that need to be carried forwa

HIGH SPEEDS AND HUGE STORAGE CAPACITY

RE MAJOR benefits are available to ICL's VME family Series 39 mainframe users with the simultaneous ouncement of:

***new range of high speed fixed disc products with access* ds double those of current ICL discs and up to four s the storage capacity in the same floor space.**

***hree new printers*—one able to print to OCR standards rate of 2,000 lines a minute.**

New discs and printers to meet demands

E FIXED DISC ORAGE UNITS These ort today's huge de- ds for storage of infor- on and, by being sup- ed by ICL's high-speed S search and retrieval em, take that informa- to the people who need unbeatable speeds.

ey are easily attached eries 39 systems by a Speed Disc Controller ed into the unique CROLAN fibre optic ork cable.

e units are sealed which ns that, like the Level hey can be placed in ary offices as opposed he traditional require- t for them to be held in puter rooms.

ere are two versions announced, both of fixed disc units to give reliability and operator- functioning.

E FDS300 can store 337 es of unformatted data transmit information at ate of 2.46 Mb a second.

E FDS2500 has 2521 es of unformatted ge capacity and nomi- peak transfer rates of Mb a second.

to eight FDS300 units e attached to each High d Disc Controller and nal dual access allows disc to be accessed by than one Controller stem back-up.

ur FDS2500 discs can nked together to give 10 es of storage on one Speed Disc Controller. e discs are normally d via two Controllers on two separate MACROLANs—again to give system back-up and resilience by providing alternative routes for data transmission.

The disc systems with CAFS were designed by ICL teams based at Kidsgrove who have recently moved to MAN 05. While the mechanisms were bought in, it was ICL teams who carried out the major logic work to enable the discs to interface between the nodes and MACROLAN.

The Input/Output Controllers were also a major ICL development—they are advanced microprogrammed controllers based on CMOS 8000 logic. They carry out scheduling and synchronisation of transfer requests, via a logically separated Input/Output route for each node.

Both types of discs are available for the Level 30 and Level 80.

THE PRINTERS. The three new ICL printers are the Linewriter 400, the Linewriter 800—which are low-cost medium speed printers—and the very high-speed LP 2000.

The LP 2000 operates at a maximum speed of 2,000 lines a minute and is available with a 160 print position option. It connects to both 2900 Series and Series 39 systems and can produce output for reading on OCR (Optical Character Recognition) readers.

The LP 2000 is available with 48, 64 and 96 character sets.

TAPE DECKS—a new range of magnetic tape decks which operate in the GCR mode is also announced. They have transfer rates of 310, 470 and 780 Kb/sec and from one to four tape units can be attached to systems via High Speed Magnetic Tape Controllers linked to the MACROLAN local area network. Once again, the mechanisms were bought in and ICL teams did the major logic work on the interfaces between the decks, the nodes and

At A GLANCE

The new peripherals

c Storage Units:
Two versions being nounced — FDS300 h 337 Mbytes of store e to transmit data at 6 Mb a second plus S2500 with 2521 ytes of store and nsfer rates of 2.86 Mb econd.

nters:
Three new printers ng announced. Two are low-cost dium speed printers, ewriter 400 and 800. Other is very fast 2000—operates at eds up to 2,000 lines a ute and can print for R reading. P2000 available to ies 39 and 2900 series rs

You did it!

1,000 EMPLOYEES INVOLVED IN SERIES 39 BREAKTHROUGHS

THE DEVELOPMENT of the new Series 39 has been shrouded in secrecy and has involved more than 1,000 employees since the work began nearly three and a half years ago. Many of these have been working behind closed doors within ICL's Mainframe Systems Division at West Gorton, Kidsgrove and Bracknell.

Here they have carried out some of the most advanced design and development work ever undertaken in the company and it is this which is at the heart of the new members of the VME family—Series 39.

The nodes have been completely designed at West Gorton; the VME operating system at Kidsgrove; the disc and tape interfaces with CAFS at Kidsgrove, and so on.

The silicon chips in the Series 39 are the fruits of our collaboration with Fujitsu which began in September, 1981.

The Level 30 uses very advanced LSI C8000 CMOS cell gate arrays. Each gate array contains around 30,000 transistors—the equivalent of two or three large circuit boards on previous machines.

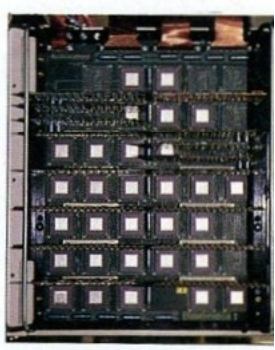
CMOS, while being the most densely packed LSI technology proved to date, has low heat dissipation yet is extremely fast. ICL has so far designed a total of 42 chip types using computer aided design techniques. The ICL approach has been to simulate the entire machine at the system level, right down to simulation of individual chips at gate level.

This simulation demands an enormous amount of computer processing. The Series 39 CMOS design occupied seven 2966 mainframes around the clock, seven days a week for over six months.

Impressively, the chips designed in this way proved capable of running VME with no further change.

"We had to get the design right first time or we would never have controlled the development timescales," says Colin Skelton, Project Manager for the Level 30.

The Level 80 cube . . .



. . . the new CMOS chips

This involved 50 people working in Design Automation at West Gorton to produce the simulations and design tools to ensure high quality.

There was also a major ICL/Fujitsu collaboration in the development of the ECL (Emitter Coupled Logic) chips which are used in the advanced Level 80.

The entire design of the Level 80 was carried out by ICL engineers at West Gorton. This involved the design of 120 different types of ECL chips and eight different types of state-of-the-art printed circuit boards.

These chips and the associated printed circuit boards are manufactured by Fujitsu to the ICL specification and then assembled before installation into the Level 80 cabinet at ICL's Ashton factory.

The design work was so advanced that one of the early actions was the installation at West Gorton of a powerful Fujitsu mainframe, the M190, with a design automation system.

In addition, to give the teams the tools and facilities they needed to supply Fujitsu with the information for manufacture, the M190 was coupled with ICL Design Automation running on a Superdual 2988 with high-level design capabilities and graphics equipment, including PERQ.

"What we were doing was marrying ICL's design automation with Fujitsu's to get the best of both worlds," said Tom Hinchliffe, Director of Hardware Development in Mainframe Systems with responsibility for the Level 30 and Level 80.

"In terms of high level design and systems simulation there were important a vances made in hardware both the Level 30 and Le 80," he said.

And quality has been o standing. *"When the 2970 a 2980 were being developed the early 1970s ICL w getting 100 per cent modifi tions—with the Level 30 a Level 80 it was barely one p cent,"* said Tom Hinchliffe.

"This level of first ti accuracy has been key to t development of Series 39 a is inherent throughout t whole of the software a hardware."

Not surprisingly, ma personal friendships ha developed between the I and Fujitsu engineers. Respe for skill and inventiveness h been shown in both dire ions. The collaboration h shown how well people c work together despite usua being 7,000 miles apart.

'A SUPERB TEAM EFFORT

SO INTENT was ICL on making sure the new Series 39 systems were of the highest quality that progress meetings were held EVERY DAY for more than 12 months—at one o'clock sharp.

It was at these Review meetings at West Gorton that individual task managers reported on progress and were able to pool resources to attack any new issues identified.

At these meetings—and at a weekly review chaired by David Hilliard, Director, Product Introduction, MSD—action was decided to meet the very demanding timescales of the development work.

A key group of ICL employees involved in this were the multi-disciplined members of ICL's Integration, Validation and Release Centre based at MAN 05.

These took the individual hardware components and associated microcode and together with VME integrated the and so on.

"We are talking here about many people who have been working seven days a week, on shift, for months and months," said David Hilliard. "It has been an absolutely superb team effort.

"The scale of testing alone has been orders of magnitude greater than anything we have done before.

"For the 2966 programme, we used three prototypes for the validation activity whereas the Series 39 validation has used 30 Level 30s and seven Level 80s.

"Other ICL divisions have made a major contribution to the System Validation Trial including Applied Systems, Customer Service and ICL's Engineering and Training Centre.

"There has also been a tremendous spirit of close cooperation between groups such as Manufacturing, the Networked Business Centre, ICL (UK) and non-UK locations including Australia and New Zealand."

feedback from customer sites—the fi Level 30 was installed in the field November and the first Level 80 at t Inland Revenue offices in Telford March this year. Level 30 sites inclu Racal and the Severn Trent Wat Authority.

The customers have been impress not simply with the quality of the ha ware and software but also with the ea of installation—one was installed in ju four hours. These Beta Test sites ha also already proved the Customer Servi support routes.

David Hilliard and Tom Hinchliffe al paid tribute to ICL's Design Servic teams at Manchester and Kidsgrove.

These ranged from Logic Integrati Services, Drawing Office, and Expe mental Workshops to Graphics, Enviro mental Engineering, Engineering S vices and those in Technical Literatur

● **Next issue—Product Introducti**

CUSTOMER SERVICE—

The 4 key elements

CUSTOMER SATISFACTION is at the heart of the announcements being made by ICL—and a major part has been played by ICL's Customer Service organisation. There has been more than three years of dedicated and professional planning by CS, and the teams who support them, to provide state-of-the-art support systems for ICL customers.

There were four key elements in the planning to tune the services capability to the potential and excellence of our products: People and Logistics; Technology; Software; and Services.

PEOPLE AND LOGISTICS

THE CS COMMUNITY covers 6,000 people in 80 countries and so the task of co-ordinating the worldwide introduction process was complex and demanding, and has been running for over three years.

The results are impressive with 13 full-time introduction managers, fully prepared and co-ordinated to introduce into their operation not only Series 39, but the complete services organisation that surrounds it.

Literally hundreds of hardware and software specialists are also fully trained—many of them with direct experience on pre-production systems—and are now back on station ready to install, service and support the complete range of Series 39 systems.

These skills are backed by substantial investments in the logistics needed to support our worldwide services capability. Already there is an advance contingent of spares worth over £2 million, a 24-hour telediagnostic centre opened in Manchester with two others opening shortly outside the UK, and further investments made to guarantee that all spares are kept at their original high quality using special purpose high technology equipment and enhanced capability on our Aladdin services.

TECHNOLOGY

CUSTOMER SERVICE wanted a technology that was designed into the heart of the system from day one to monitor and report constantly on the status of every Printed Circuit Board in Series 39.

ICL designers, drawing on the considerable experience of CS, produced the Node Support Computer (NSC). This not only checks on each element but also has its own independent computing and communication capability (which continues to function even if all other processing capability is lost), to ensure the investment in support technology covers every contingency.

SOFTWARE

THE NEXT important link was SAM, the support and Maintenance software. SAM embodies many hundreds of man years of systems experience and provides sophisticated support administration for the complete system.

It "eaves drops" on all system activities monitoring and evaluating, correcting and reporting all incidents, however minor. This ensures that the right action is initiated either by the user or by Customer Service to maintain the quality and reliability of the system.

Capitalising on the valuable experiences gained from ADEMS, SAM also introduces state-of-the-art teleservices techniques, allowing Customer Service specialists to examine all systems administrations and diagnostic data, both hardware and software, over the telephone network. Our specialists not only have rapid access to the system through SAM but are also backed up by large and sophisticated reference data bases.

SAM also employs unique advantages which ICL has through the world renowned security and privacy features of VME.

SERVICES

BUT CUSTOMER Service isn't just about Systems Support. CS believe in Total Systems Service and have developed a range of VME and Applications Services which are designed to support our customers through every phase of the system's life.

First of all there are services to get the customer started—these cover an integrated range of sizing, planning, installation and implementation services for everything from the office environment to the software applications, from training to project management.

A VIEW FROM ED COCKRAM, CS Manager in MSD.

"We are extremely pleased with the way the programme has come together. Our recent experience at the Systems Facilities Validation Trial in Letchworth endorsed our view that we have an excellent product with support systems to match."

Ed paid tribute to his whole team for their unstinting efforts, and to Bob Sproston in particular.

"Bob has lived with the project from development, through introduction, to launch, co-ordinating the activity of 13 managers worldwide and playing a major part in the establishment of the services and skills that are now poised to make Series 39 a world leader."

Next a set of se
support the custome
day operations, offe
systems support, wit
options to ensu
customer has a c
support services wh
suits his needs.

These flexible e
service options are
feature of Series 39
designed to let our c
tune their support
ments to the resilienc
system.

The unique combi
Series 39 and VI
architecture, with
connectivity and C
dards is capable of a
infinite range of deve
and exploitation.

The third group o
is designed to deliv
benefits productiv
professionally, and
everything from simp
enhancements, to 4t
tion applications
from Network Ser
Office Systems, fro
mation Services to
ment Support Syste
which can be develo
controlled exploitati
original investment.

Series 39 is an i
landmark in the deve
of these services. It
and flexibility, its
ordinary power ra
nodal design are all
tions for CS to deve
better services capal

The four importan
that have been deve
ensure our services
to the excellence of
ducts, therefore, are

☐ *The People are tra
ready with supportin
in place;*

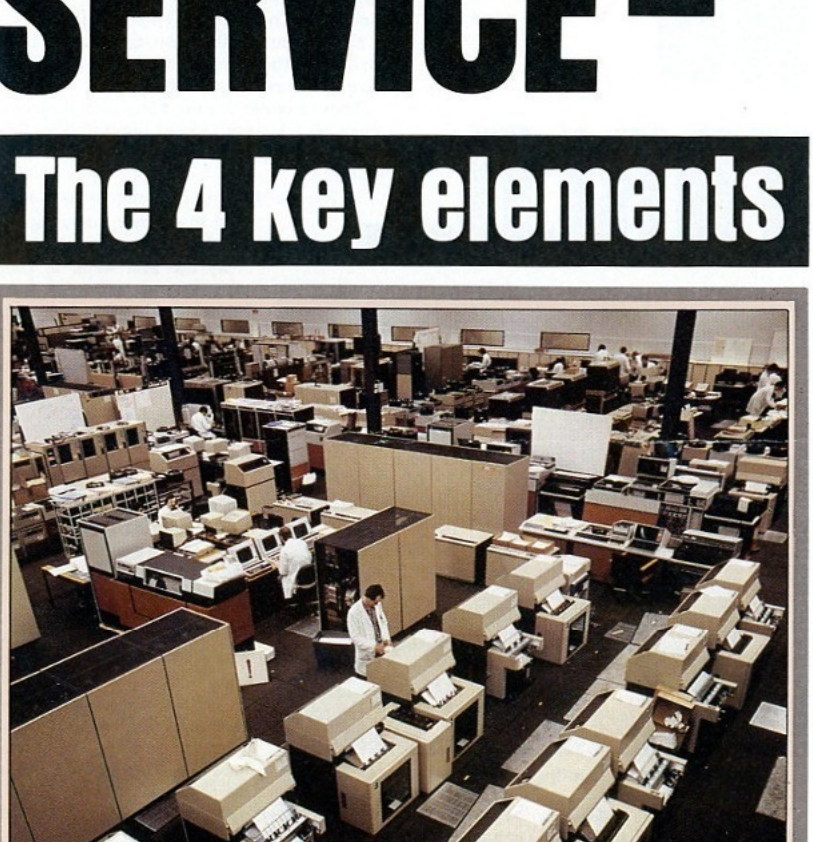
☐ *The Support Te
has been designed
Day One;*

☐ *The Support Softw
exploits our Tec
Experience and Skil*

☐ *Our Service Po
second to none.*

PUTTING IT TOG

*CS had the oppor
test their capability e
month, when a sys
delivered outside the
was installed in just
It has been up and
live customer wo
then—without a pro*



ICL's Computer Hall at MAN 05—Centre of the development work on Series 39.

EARLY WARNING SYSTEM OFFERS CARE AND PROTECTION

MANY OF THE new facilities in Series 39 are dedicated to maintaining high system availability. Among these are two which can use the ordinary telephone network to link the systems to ICL Support Centres. They are:

The Node Support Computer—this is a special computer within the main computer which monitors every Printed Circuit Board and passes a running log of what's happening to a second unique feature: SAM.

SAM—this stands for Support and Maintenance and is an early warning system that automatically tells the user when any part of the system—either hardware or software—needs attention.

The key words are prevention and care. Automatic checks are built into the system which cover everything from tape decks to memory store. In the case of disc drives, for example, these checks tell VME the quality of the data transfer and VME will re-run the access when necessary. The number of retries is passed to SAM which compares them to threshold error limits held on its software.

If the limits are reached SAM will send a prompt to a terminal designated by the customer for the purpose.

The message will either suggest a user action or some intervention by ICL Customer Service, in which case the normal action will be to link the ICL Product Diagnostic Centre at MAN 05 to VME via SAM—over the telephone network.

Systems at the Diagnostic Centre will automatically compare what's happening with a database held on ICL's Maintenance Database at Hitchin—once again the connection is by the public telephone network to save valuable time.

If the software needs a patch it will be sent directly down the line and placed in the customer file store.

If a part needs replacing an ICL engineer will be despatched with a replacement. This method of fault finding and solving will eventually apply to all applications systems as well as to VME.

The Node Support Computer also plays a major role in maintaining high system availability, even when the system is unable to run VME.

In this case, the user is able to connect the Node Support Computer—via the public telephone network—to an ICL Product Diagnostic Centre.

Here, an ICL engineer uses a piece of software called VISA (VME Inoperable System Access) to run tests on-line to the faulty system. These will identify what needs doing—again by matc
information in the NSC
database of known errors h
Management Data Base in

This process is called tele
and once the action n
defined an engineer will
patched to the customer
the appropriate replaceme

*"The great advantage
SAM and the NSC is that t
needed is being defined by
source of information avail
computer itself,"* said Ed C
Customer Service Manag
frame Systems Division.

*"Of course, it means th
bringing the problem almo
ly to the right ICL expert.
on travelling time and in
transit which often account
of the repair time."*

ICL news

PLAN YOUR FUTURE WITH ICL

Continued from Page 1

A major part of the announcements is investment protection for existing and new ICL customers and low-cost paths to more and more powerful systems.

A key feature of this is a firm commitment to the VME operating system—already being used on more than 1,000 ICL 2900 mainframe systems in more than 27 countries around the world.

The new Series 39 range also runs on VME and the result is that ICL is now offering the world's biggest mainframe power span to run on the same operating system.

Software and peripherals for the bottom of the range will run unchanged at the top, covering systems with under 50 workstations to more than 10,000.

The message to customers is: PLAN YOUR FUTURE WITH ICL.

The announcements also cover:

- Enhanced version of the 2900 Series—the 2900 Model 39s—which fit between the two new machines, the Level 30 and Level 80, and have many of their advanced features.
- Field upgradeable paths to the new Model 39s for existing 2900 users and a new Series 39 CME* environment for ME29 users. This allows them to run TME in parallel with VME in preparation for a future switch.
- The OSLAN local area network which adheres to industry standards allowing a far greater choice of peripherals for users. It links terminals and other devices to the mainframe all by a single coaxial cable. Speed of data transmission is 10 M/bits a second—equivalent to 250 A4 pages a second.

David Dace, Director of Mainframe Systems Division at West Gorton, said: "These new announcements offer ICL users at all levels the means to place computing power where they need it.

"Installation is far easier and because of the advances we have made in local area networks users have far more flexibility in setting up distributed networks.

"The strategy behind the announcements centres on several key issues.

"**Firstly,** we have designed mainframe systems which allow users to incorporate future technological advances without making their existing software and hardware redundant.

"The commitment to VME is crucial to this—it means that the new series uses the same software as current 2900 installations.

"**Secondly,** we are offering a clear path forward to our users not simply because of VME but also because the systems use a nodal architecture. This allows systems to grow to suit customer needs.

"**Thirdly,** the new systems conform to Open Systems Interconnect (OSI) standards, expanding ICL's Networked Product Line. This again increases the options for ICL users in both applications and peripherals.

"The world is going to be very excited by these products —they demonstrate a unique blend of British inventiveness with Japanese quality."

This special edition of *ICL News* has been produced to mark the start of this new era of mainframes within ICL.

Queen's Award for CAFS-ISP

ICL'S UNIQUE information search processor, CAFS-ISP, which is incorporated in the new Series 39 machines, has won the Queen's Award for Technological Achievement.

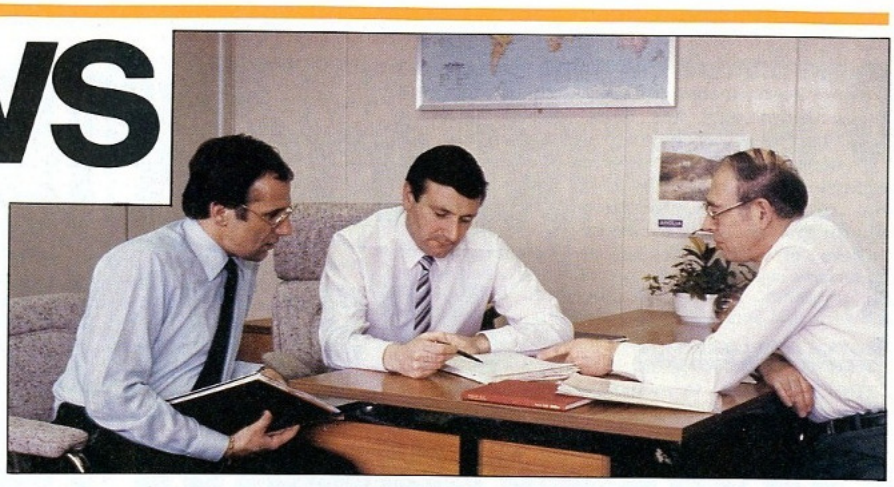
The announcement on April 21 recognised ICL's Mainframe Systems' innovative work in developing the product which is also now a standard feature on the 2900 series.

CAFS enables data files held on ICL computer systems to be searched and the required information retrieved up to 100 times faster than is possible with other computers.

Managing Director Peter Bonfield said: "The Queen's Award is the supreme accolade and a triumph for British design ingenuity.

"In February, 1983, CAFS was named Product of the Decade by *Computing*. Obviously, Mainframe Systems has taken it from strength to strength and the Award is the culmination of growing public and technical opinion that this is a great piece of technological creativity and application."

David Dace, Director of Mainframe Systems Division, said: "This Award really is deserved. The technological innovation shown in CAFS has put enormous power in the hands of the end-user and the fact that CAFS uses only a very small amount of processor power means that many users can simultaneously enjoy its capabilities."



Planning for the future . . . John Gardner, Director of Business Strategy, MSD, with Dennis Haines, Mainframes Marketing Manager and Brian Steptoe, Mainframes Strategic Planning Manager.

HOW WE'RE TELLING THE WORLD...

A SERIES OF internal and external presentations is being made around the world to underline ICL's world-beating mainframes strategy. The main thrust is at employees, customers and the Press—both in the UK and worldwide.

Special customer presentations began in the UK and Europe as we went to press. In the UK these are being held at two locations—the Pembroke Hotel in Blackpool and the Anugraha Conference Centre at Egham.

More than 3,000 customers have been invited to the events, four of which are at Blackpool and ten at Egham.

They include 35mm film, nine-projector audio visual, stereo sound presentations and the use of high quality computer-generated graphics.

In Europe the first customer presentation was in France—also as we went to press.

By the first week in June presentations will also have been made in Sweden, Holland, Denmark, Norway, Australia and New Zealand.

Briefings

Major account customers worldwide will also receive these comprehensive briefings, including those in the Middle East, Far East, Africa, Hong Kong and Singapore.

The UK, Australian and French Press launches were being held as we went to press (April 24).

The UK sales force has also received briefings on the new announcements—one was held in the North and three in the South.

As a tribute to the ICL employees who have been closely involved in the development of the new Series 39 products, and the wider ICL mainframe strategies, Mainframe Systems Division has arranged a special showing at West Gorton of the customer presentations.

And a video tape version of the customer events is being prepared for worldwide distribution—if you want to see this contact your manager.

Beaujolais and Mottram—in at the start of a million page story

The Mottram Hall Hotel . . . where the world briefings were set in motion.

IT'S BEEN estimated that nearly 1,000,000 A4 printed pages have been prepared within ICL to support the mainframe announcements covered in this special issue of *ICL News*.

It was a massive task and involved employees with a wide range of expertise—from lawyers to marketing experts.

The worldwide thrust was a major issue—for example, price lists needed to take account of currency rates and local trading conditions.

Contracts

In addition, VME is already installed in installations in 27 countries around the world—the documentation in this one area, which needs to take account of the differences of 27 different legal systems and import procedures, is something often overlooked.

Training, support, documentation, order processing, contracts, brochures, Press statements and so on all needed to be prepared with specific customer and market areas in mind.

The marketing and promotion effort which has been necessary began in earnest when a small committee met in the Mottram Hall Hotel, 15 miles from Manchester, in November last year.

It was the week when the first of the new Beaujolais wine was delivered—and the committee were just about unanimous that it was a bad year for the wine but a good one for ICL.

After that meeting the Series 39 range was code-named Mottram and it was that meeting which laid down many of the key priorities of the messages now being announced.

Since then a cross-divisional management committee has met every two weeks and their final meeting was held on March 25 at West Gorton.

The theme of their work throughout has been centred on the key customer message: Plan Your Future with ICL.

THE EIGHT KEY MESSAGES

THERE ARE EIGHT key messages in the announcements on mainframes being made by ICL. They are:

1. ICL is a mainframe supplier with the determination to increase its international markets.
2. For ICL, mainframe means VME—it is the operating system at the heart of today's and tomorrow's products.
3. ICL is again demonstrating its commitment to international standards with OSLAN and X25.
4. The 2900 Series and ME29 are not being replaced—they are part of the ICL family and all users can upgrade to Series 39 easily when the time is appropriate.
5. CAFS is an ICL unique and is an integral part of both Series 39 and 2900 Series.
6. ICL has shown its innovative capability—for example with the new chips and with optical fibres.
7. ICL *cares*—it is handling the introduction of the new products and enhancements with professionalism during a progressive delivery build-up.
8. Series 39 starts a new mainframe era for ICL; the future is clear—customers can plan with ICL with confidence.

Produced for ICL, a member of the Standard Telephones and Cables plc Group of Companies, by IH Publications. Printed by Libra Press, London.