



## ICS DreamTeam Member No 2455 CV

### Profile:

Senior developer with experience in real time systems, databases, communications and bespoke product development, GUI interfaces, mostly on windows albeit some on other operating systems. This has given me a wide insight into different sectors of the computer and IT industry (Europe and abroad). Experience and roles undertaken have covered the full development life cycle from first requirements capture to market release through to next phase redevelopment. Expertise covers software code design development, change control, acceptance trials, project and configuration management, training and ISO9001-3

### Technical Skills Summary:

Visual Studio 2010-8-5-3-2002, 6 up to dot net 4.0 (VB, C#, VC++) COM, command line driven or customer multilingual MMI applications. Created VBA (excel, access, outlook, word) office software based on COM & office OLE object models; he is capable of writing Visio or PowerPoint VBA. He has managed to combine these development activities with PowerShell v2, win32 API, ado, XML(XSD XMLMAP) ETL, in/out of process COM, multi-threaded software (call backs, spawned processes, mutexes), email software(pop3, mapi, SMTP), FTP, ODBC, Proficient in real time development with SQL server 2008r2/5, 2K, SQL management studio, Access 2, 97, 2000-3, junior oracle 9. Researching VSTO Ribbons/ Action Panes, Team Foundation Server [tfsBuild, continuous deployment, regression testing (Test Complete, MS Test, Pex & moles), customising templates in TFS], Patterns, WCF client services and WPF tool kit, test tools & MVVM V3Toolkit.

### Work Experience:

From – To: July 2008 – September 2009

Role Title: Developer Consultant

Project: Astrium 3B, 1M, 1N, Eutelsat HB9, Anik F3, Avanti Hylas, Amazonas AMZ-02, Alphasat PFM

Description: Design development of computer software and business processes

- Created VB net 2008 PSO.DLL licensing project for purpose of validating users write to use the application software on the network. This DLL used decryption to and provided host applications with use licence details. Also updated legacy vb6 projects to correct for software malfunctions.
- Designed part of the next generation of automated analysis tooling for mobile service satellites using C#. Created XSD to validate XML payload data. Created C# logic to compose excel XML Maps to ingest and render XML reports to excel workbooks using C# VSTO addin. Designed and created part of the user interface to work within word and excel to provide future features such as word reports for acceptance approval of payload results. Designed the SQL server database to support fixed and mobile satellites for the purpose of cataloguing test phases and search metadata (stored procedures, functions, table variables). Assisted in design, development of a user security database, created both data dictionaries. Created VS regression unit test project for testing of five DLL COM objects (Unit Test Framework).

- Conducted development, design & testing of several versions of the results analysis tool excel addin. The VBA tool is used on fixed service satellite projects to analyse XML data in excel tabulated calculations & graphical charts results showing frequency, power (logarithmic) & other types of graphical chart / plots.
- Other project work involved developing power shell scripts for automated deployment of source safe-ed labelled TSQL objects to targeted database servers. Paperwork involved authoring specifications, user manuals, database dictionaries, design definitions and some presentations on deployment and release.
- Created a 'test complete' black box regression test for use by the continuous integration & deployment server JScript. Purpose: Testing user interface for the satellite payload analysis tooling. MS Test for COM.
- Set up TFS for development, continuous integration and build server. This involved installing software, documenting, configuring and testing (TFS, build server, source safe, reporting services) for use by MIS and the development team. Achieved a working TFS change control and build server.
- Administration and consultancy work: Created several form templates & business formalities covering release notes, release register, coding standards, data dictionary, requirements, risk register, change requests. Created a release register and release note process for production deployment. Customised TFS Team foundation server templates for 'change request', 'tasks' & 'issue' work item types. Created C# app to automate import of word document fault reports into TFS. Created some TSQL & C# templates. Created some foundation articles in the WIKI.

**Skills Used:** Visual studio 2008 dot net3.5 (VB, C#) VB6, XSD, XML (xml Spy5), SQL server 2008/5 server/profiler TSQL, Word & Excel addins (C# VSTO & VBA 2003) (UDF charts XMLMap), Power Shell V2 CPT3, Visio diagrams & UML, Test Complete 7 using C# & Java script (white/black box regression testing), MS Test, Database unit test, MSI installer, MS Build, tfsBuild & TFS 2008 (Team Foundation Server).

**Customer:** Astrium Eads

**From – To:** January 2008 – June 2008

**Role Title:** Analyst Developer

**Project:** DocGen2 and DocGen1 Document generation and Batched invoice generation

**Description:** Design, development, negotiation and application of business practices

- Developed a patent invoice process for batched invoices that calculated form spot or historic currency rates for agent and client currencies involved in the transactions. Applied various country fee margin and agent mark-up fees according to the Inprotech system configured business rules.
- Created and updated stored procedures functions on the 3Tier Inprotech database for the worldwide patent business. Developed word VBA routines for automated document generation.
- Other work included creation of coding standards, software release processes, specifications, consultation with business representatives, testing and resolution / fixing of problems.

**Skills Used:** SQL 2005 server/profiler TSQL & Report Services, Word VBA, Excel 2003 UDF, ADO

**Customer:** Computer Patent Annuities (CPA)

**From – To:** December 2006 – December 2007

**Role Title:** Senior Analyst

**Project:** Bankruptcy and Mortgage Enforcement case management systems

Description: Design development case management features, applications / reports

- For VB based case management systems, created new screens for management of automated document template processing. Enhanced / corrected existing features. Created VB / TSQL import data ETL processing. Delivered several up-versioned releases of pyramid case management system plus worked on access databases. Worked on mortgage enforcement and bankruptcy litigation case management systems.
- Created many business reports (crystal / excel) from scheduled DTS scripts calling my TSQL procedures. DTS incorporated VB scripts that instantiated excel VBA objects to populate, format and compute results.
- Deployment & acceptance testing of own deliverables to some case management systems. Provided guidance and some mentoring to developers in Leeds on TSQL, change management, ADO transaction processing. Supplied information on case management object architecture and runtime processing. Work has involved design, software coding and formal testing, test environment management, documentation.

Skills Used: VB.Net, SQL server/profiler TSQL DTS, ADO Access, VBA, Excel 2003 UDF macros, XML, VB6/script, Crystal Reports

Customer: Eversheds LLP

From – To: July – November 2006

Role Title: Consultant Developer

Project: Bonus\_MI\_Provision, Data Warehouse Proposal and Analysis, TEC pilot MI automation

Description: Delivered an automated report engine that publishes excel reports with graphical and calculated analysis of call processing and telephony statistics. This bonus scheme report was used to target financial incentives to people or teams who performed beyond or better than calculated service target levels. The daily business reports for approx. 1000 employees' utilised SQL server, access, ADO, excel and many UDF functions.

- Updated and maintained several spread sheet reports for Bonus MI Provision, Average Handling Time report, Absence, Service Level Predictor, Leavers report amongst others.
- Conducted research, design, development and technical support during product development. Proposed over eight recommendations, five of which were adopted and progressed. Provided training and mentoring of staff on Access and Excel VBA, Database development technologies to improve report development.

Skills Used: ADO DAO, Windows API, Access 2003 SQL server TSQL,VBA, Excel 2003 UDF, macros, XLA Addin

Customer: Capita: Dixons DSG

From – To: May – June 2006

Role Title: Developer

Project: Athena product, BGT (British Gas) Mortar and Vortex - (7 sub development projects)

Description: Vortex: I designed and developed (from conception) a 2005 VB dot net2 addin com DLL that integrates with an existing VB6 MDI MMI application. It's used for managing fulfilment packs that are to be used within a contact management product and provides screens/ features for creating fulfilment packs.

- BGT: Developed a VB COM application to provide automated ETL import of CSV data into SQL database. It programmatically generates and executes DTS queries, stored procedures, data validation logic, data cleansing and provides auditable import logs and bad data import drop directories.

- Athena: Designed created C# COM net2 add in for issuing automated emails to customers based on XLST templates transforms. CSV data extracts were used to source XML batch files which in turn were XLST transformed from XML into HTML emails that were sent via Outlook exchange using SMTP.
- Created several SQL reports, TSQL procedures & functions, MSI installer applications, test harness apps.

Skills Used: VB6dotNet2, C# dotNet2 2005, SQL server (reporting services 2005), TSQL SQL Server Query Analyser, DTS, ADOnet, COM, Windows MSI installer, XML XSLT, SMTP Emails, WindowsAPI

Customer: CPM Software Ltd

From – To: March – April 2006

Role Title: Developer

Project: New Matter Management & New Contact procedure entry form - (3 sub development projects)

Description: Designed / created two outlook forms for management of new matters and new contacts.

- Designed / created VB com add-in that provided custom menus within outlook to present newly designed forms to the user. Features: data entry validation; forms were populated with data pulled from the elite document management system. Ability to email forms to central records and to export form data to elite 'upload' data files. Created data maps to map data from outlook into elite.
- Created MSI windows installer to deliver the outlook com add-in, INI files and outlook custom forms.

Skills Used: Elite and SQL Server Query Analyser, ADO, Outlook VBA object model 2003, COM, VB, windows API, MAPI, windows MSI installer

Customer: Anderson Strathern

From – To: June – December 2005

Role Title: Developer & Consultant

Project: Contact synchronization between outlook & office database - (10 sub development projects)

Description: Research, design and development of outlook and database synchronization software.

- Created VC++ Windows NT service application for automated background processing and spawning of processes to handle batched transfer processing tasks.
- Created a workhorse object containing four COM interfaces with outlook & MAPI processing for transference of data in both directions between outlook and a backend office database. Characteristics of this DLL are:-
  - Used XML to manage state and event driven batched transfers.
  - Incorporates encryption/ decryption for user logins and passwords.
  - Used mutexes and Call backs for timing, event processing and to manage access to XML state files.
  - Windows events used for error reporting and for remote access by technical support.
  - Diagnostic and debug reports dumped to CSV log files.
  - Application power up check and health status reporting to man readable text files.
  - Date and time arithmetic functions for comparison and synchronization of date & times between outlook and external databases operating in different time zones. Normalisation based on

computing the relative GMT plus zero offset before doing date and time arithmetic.

- ADO (ODBC drivers) and Transaction based database data processing to avoid issues related to intermittent network access to remote databases, reliable updates to shared database records and feasible/possible application run time failures.
- State processing to XML report files on unsuccessful transfers (user access writes, broken database connections etc.).
- MMI application and tool that provides a real time report of data flow status between outlook and the office database. Presents custom crystal reports on transfer processing activity. It also displays reports on installed run time status, missing installed items and the users' system environment.
- Created command line application that spawned batch data transfer EXE processes to effect data upload and download tasks. Automatic prioritisation of data transfers by suspending processing threads. Used mutexes to determine when threads need to be terminated or suspended.
- Ancillary projects and work involved creating windows MSI Installation application, UML design, release notes, requirements and software documentation. Created VC++ net COM library, also joint development on another VB dot net COM library object.
- Research and consultancy for client - dot net, crystal reports, ADO, COM, Installation / testing, remote OLE automation to drive Access 2003 VBA routines.

**Skills Used:** VC++ & VB dot net, SQL, ado, access2003, XMLdotnet-Xpath, mapi, NT services, Outlook VBA, win32, mutexes threads events & Call backs, Crypto API 128bit RC2(128 bits-Cipher, 64 bits block chaining), MSI windows installer, Crystal reports dot net, HTML workshop, UML design -Visio

**Customer:** Financial Services

**From - To:** March - April 2005

**Description:** Worked on the Care Programme Approach system (unified multi user client front end application and backend database). Developed patient care access reports, front end forms, created queries to extract patient medical, doctor and staff records for the NHS. Work also involved database design and ETL data migration with auditing from three legacy systems (South Tyneside, Gateshead and Sunderland district health authorities). Created data dictionary for migrated database. Also created two excel VBA software to repair data records and also extract / update data from other databases. One of the excel applications provided a full spread sheet processing report for auditing purposes.

**Skills Used:** SQL server, Access 2003, Visual Basic, Excel v97-2003, VBA, Windows API, OLE, ADO

**Customer:** NHS

**From - To:** September 2004 - January 2005

**Role Title:** Developer

**Project:** (4 sub development projects) also received training on kobra, Reuter's adfin, TIP DDE and real time data feeds

**Description:** Development of Excel spread sheets and Excel tools

- ETL Migration of office documents & user computers (NT4 > XP pro)
- Created Excel applications to automate analysis & programmatic modification of the banks spread sheets and Adfin formulae. Applications purpose was to adjust formulas, VBA code, hyperlinks (etc.) according to configurable patterns and rules stored in SQL server database. Application:

menu driven wizard based screens (configurable processing rules) to perform multi document processing.

- Enhanced access database improved its ability to discover, report, catalogue computer files, properties and owner details to programmatically make database records of such discovered files on PC boxes. Developed VB command line driven application for programmatic discovery of user files and directories on server boxes.

Skills Used: SQL 2K, Win API, COM, TSQL, Visual basic, XML, Excel 2003 VBA - OLE ADO, Access 2003

Customer: EDS: ABN Amro Bank

From - To: January 2000 - July 2004 (Repeat work adding upto 1year)

Description: Created an Excel contact management application & add-in. Used for reporting, filtering, collating and importing data from web sites. It uses formulas, UDFs and integrates into excels menu system providing an MMI & dialogue interface. Its analysis features provide reporting, automated surveys, configurable searching, sorting on specifications collected from the database. Statistics, activity reports are available with a maintained records log of contacts made. Application uses call-backs, Win32 API & MAPI to integrate with host email system to automate & manage email people contacts.

Skills Used: VB, OLE, ADO, XML, ActiveX, Windows API, Excel object library (v5, 97, 2003), VBA, XLL, XLA, MAPI

Customer: Diacomm Services

From - To: February 2004 - June 2004

Role Title: Developer

Project: Case Management System for document management - (11 sub development projects)

Description: Created DLL & MDI automation software for programmatic construction of sirene alert reports composed from XML/XSD schema data received via email. MSXML DOM used to interpret and construct schema and XML output files that were then stored in an oracle database. Created install/ online help/ test harness software.

- Created DLL, OCX and MMI software to construct report view stencils (stored in oracle backend). Created application that allowed operator to construct view stencils by dragging custom report controls onto a report canvas. The report controls are associated with XML metadata profile records. View stencils can be used to visually customise reports for the end user from database data collated from various Schengen alerts. Created install/ online help/ test harness software.

Skills Used: OCX, COM, DLL, MS XML XSD, Oracle (PL/SQL), Windows MSI Installer, VB6, Interdev6-HTML, Virtual PC

Customer: Titan System Solutions

From - To: February 2000 - December 2003 (Repeat work covering 5 months)

Description: Created an excel book keeping tool for accounting of stock sold at craft fairs. Wessex craft fares operate like a co-operative; they have a centralized cash desk for all stall holders at each craft fair. Created a day trading account spread sheet; algorithms for programmatic formatting & generation of formulas, UDFs /VBA code. It generates invoice statements / trading reports to detail payment of earnings and total sales made for all stallholders. Used at several craft fairs, the Excel spread sheet application provides extra excel menus & screen forms to facilitate account activities.

Skills Used: Excel object library Excel (v97, 2000), VBA

Customer: Wessex Craft Fairs

From – To: June 2003 - November  
 Role Title: Software Engineer  
 Project: Student loans and two other projects involving production control / automated manufacturing  
 Description: Expansion and upgrading of manufacturing software, specification development, testing.
 

- Software maintenance and development support backup to the technical support department.
- Developed applications suit to automate mass production of printed documents (production control system). Production state controlled process covered data import, batching, printing, manifesting, despatch and status tracking through to proof of delivery. Created PReS print scripts for batch printing on production machines. Work also involved dbase and ISQL batch test script development.
- Modified application to import CSV data to an SQL database, to batch print new document form(s) & generate excel reports (via OLE COM object) from XML data input. Created PReS scripts to drive manufacturing printer and generate the new document forms.

 Skills Used: Delphi 6, SQL 2K (Transact-SQL, Triggers, and stored procedures), ADO, POP3, PReS, Access, Interdev 6 -compressed HTML, VMware  
 Customer: Security Printing Systems

From – To: January 2003 –April  
 Role Title: Software Developer  
 Project: Aquaflex Data Manager in conjunction with temperature and moisture sensors provides an analysis tool for optimum water management  
 Description: Development of soil temperature and moisture analysis system.
 

- Consultancy on new product features and markets for analysis software and sensors.
- Redeveloped the product & enhanced the database access code, added mail (MAPI), added extra graphical analysis features and improved the run time error handling support. Upgraded 16-bit software to 32-bit.
- Prototyped an installation solution for the Aquaflex data manager.

 Skills Used: ADO 2.7 and DAO 2.5/3.5, 32-bit MAPI, Access, 'GigaSoft ProEssentials' API graph libraries v4.1, VBA, Visual basic 6 and Visual basic 4 (16 bit), Interdev version 6 and compressed HTML  
 Customer: Streat Instruments

From – To: January 2002 - November  
 Role Title: Software Engineer  
 Project: Word - PDI\_Indexer (ActiveX COM add-in) tool that integrates into word to generate document content, provides wizards to allow the user to manage the process of checking, defining and organizing indices, headings, fonts, RTF codes for use by key soft speech braille software resident within the WinCE device.  
 Description: Development of Braille products, enhancements and product support
 

- Two research projects into windows CE speech engines and off the shelf printer driver API libraries.
- Set the design brief for the new company web site that is being developed in part by Montage Interactive. Set up a test IIS web site for in-house development and test [IIS].
- Created an add-in (MMI and dialogue interface) for word for document batch processing, programmatic checking and correction of document content. Created operator wizards to generate key soft output documents

based on templates he created. Developed programmatic processing & translation algorithms used to spawn RTF and proprietary key soft documents. Used word OLE object library and VBA. Regression testing was performed on windows NT and 2000 platforms using the event log for runtime test error trace messages.

- Created windows MSI installer application to install add-in components to client machines.
- Created user documentation and conducted user hands on training for this tool.

**Project:** Keysoft note taker is a braille data assistant (word and speech processor, calendar, email, braille translator).

**Description:** Added enhancements to the keysoft personal organizer software to enable keysoft to self-configure and auto install user files, dictionaries, language and other support files as defined by its embedded serial / model / country code information.

**Skills Used:** WinCE / Visual CE++, ActiveX COM business object & MMI, Word API, WLL, Visual basic, VBA, IIS, MSI windows installer

**Customer:** Pulse Data

**From – To:** 2001

**Role Title:** Contractor

**Project:** Project LEO Designed and created a generic smart card control (ATL OCX COM). Other Features were the ability to interrogate the smart card type and any card applications supported by a card inserted into a card reader. Different card readers could also be connected.

**Description:** Design and development.

- Provided technical assistance and direction to junior developers. On occasion, this involved explaining code development, test and fault finding strategies. Topics covered (Visual C, MFC, Windows, MSDN and authoring help files).
- Software release, regression testing, design and specification development for smart card design.
- Created a set of service provider interfaces for managing, creating card data and card applications
- Created a resource manager interface for interrogating different smart card types.
- Created a COM interface that was run time configurable to switch between different smart card and smart card reader types.
- Created the algorithms for accessing and managing smart card data, directory structures using DES encryption.
- Created a smart card data explorer application to extract record and binary data from directories and files in Micardo or ICC61 smart cards. Proprietary serial communication protocols were used to communicate with card readers [Delphi].

**Project:** LEO smart card component tester. Jointly created and developed the smart card component tester. This was an MFC based test application for exercising different smart card COM business objects. It incorporated a script interpreter, test logging and features for automated run-time or manual testing.

**Description:** Created the GUI interfaces and underlying software algorithms for functional testing of smart card COM objects.

- Tested, Debugged and fixed aspects of the script interpreter logic.
- Other project work not covered in this CV were excel spread sheet test programs and debugging work for the Leo Key management storage interface control.

Skills Used: Visual C++ ATL/MFC ActiveX COM business object, Delphi MMI, Visual basic, Excel-VBA

Customer: Orga Kartensysteme Gambh

From – To: 2000 – 2001

Role Title: Contractor

Project:

Description: Design and development. Worked in the development and manufacturing departments.

- Provide technical assistance and guidance for engineers and technicians.
- Authored specifications, conducted product acceptance and software release testing.
- Used expertise with ISO9001, project and change management to help with organization of project folders and test results.
- Manufacturing test workstation and database Its purpose was to automate configuration and testing of manufactured parts. The workstation is used to verify that items are free of faults, correctly configured and calibrated. This includes tracking servicing history, calibrating and configuring parts going through the production test cycle and recording test results. The system is connected via specialized cable harnesses to manufactured items.
- LTE Windows based production test system is responsible controlling and configuring the LTE system. It uses a VC++ OCX control to communicate with the LTE system.
- LTE System responsible for providing climatic control to the Nokia CUA system.
- Other projects 'Cobra' and project work not covered in this CV involved upgrading software in the Cobra / MetroSite BBU, development of debug monitor, other production test applications, and firmware download software and installation programs.

Skills Used: SQL, ADO, Visual Basic MMI, Visual C++ MFC active X COM ocx, VB ActiveX COM business object, VBA, MDAC v2.5, Access 2000, Delphi ActiveX COM, Install Shield and ANSI C

Customer: Böke & Walterfang Electronic Systems

From – To: 1996 - 1999

Role Title: Consultant

Description: Other project work not covered in this CV involved development of test simulators, functional testers, Scalar factor calibration program, ProComm compiled scripts for functional and performance testing, installation programs and excel prototype application. Debugging and fixing software for other projects.

Skills Used: MFC Visual C++, Visual Basic, VBA, DAO, Access, Install Shield and Visual Release, Borland C++, Excel-VBA, ProComm, MMI (Latin based multilingual plus katakana)

Customer: Biotrace Limited

From – To: 1995 - 1996

Role Title: Project leader and Senior Analyst Programmer (promoted once)

Description: Test scripts for functional testing.

Skills Used: Visual C++ MFC MDI, GPIB, DSP, ANSI C

Customer: Science Systems (Industries)

From – To: 1992 - 1994

Role Title: Software Design Engineer

Skills Used: Borland C++, ANSI C, Procomm plus scripting, 25AD 68C11 assembler

Customer: Tait Electronics Ltd

From – To: 1986 - 1992

Role Title: Support Specialist (Grade 7) – Promoted twice

Description: Other project work not covered in this CV involved developing ATE software, statistical analysis of ATE efficiency using CQCS scripts (Note: CQCS is similar to SQL), helping to develop ISO9000 procedures, guidelines. Evaluation and purchase of test equipment and tooling.

Skills Used: C++ Greenleaf libraries and Microsoft C, MicroNova RISC, MV4dc, Lotus 123

Customer: Data General Limited

From – To: 1985 - 1986

Role Title: Designer

Description: Other project work not covered involved PCB switch mode power supply prototype work & software testing

Skills Used: Einstein basic, Pascal, assembler (development on VAX), digital PCB design for shim coil controller

Customer: Oxford Magnet Technology

### Education:

1985 BSc Electronic Systems Engineering

During this course, he completed two years; he developed fluency in FORTRAN, Pascal 8080, 6800, 6809 high and low level languages respectively. Subjects studied included digital, analogue electronics and software design in addition to industrial systems.

1982 Diploma in General and Electronic Engineering

This course covered electronics, mathematics, software and mechanical engineering; he developed fluency in Basic and 6500-02 high and low level languages respectively.

1980 Union of Electrical Institutions

Basic engineering craft studies Part 1(200)

1979 General engineering and mechanical engineering CREDIT

'O' level and CSE - Southern Regional Examinations Board

10 subjects including Mathematics, English, Engineering Science and Computer Studies

### Training:

1984 AMPEE GROUP Industrial Trainee

Soldering, circuit assembly and fault finding techniques

### Membership:

1980 Member of Institute of Electrical Engineers

### Professional Experience:

These summary details mask many ancillary applications, databases and program work

- Astrium EADS (Design & Manufacture Satellites) = 1 project (Automated analysis of satellite payload data).
- Eversheds LLP (Law firm) = 1 project (Case Management {Mortgage Enforcement, Bankruptcy}, VB, DTS based Excel / Crystal reports).
- Dixons computer service centre = 2 projects (Telephony call processing reporting, Bonus statistics, Call centre).
- Field marketing company = 1 project (Call centre, Telemarketing & British Gas customer management).
- Law Firm = 1 project (Automated Outlook VBA forms for new matters and new clients pulling data from Elite).

- Financial services = 1 project (Contact management - synchronization between outlook & office database)
- NHS = 1 project (Development of CPA - Care Programme Approach database system).
- EDS: ABN AMRO Bank = 1 project (Development of spreadsheets, excel tools NT4-office97-XP Pro office2003).
- Titan System Solutions = 1 project (document case management product based on oracle /hummingbird).
- Diacomm services = 1 project (Contact management - Excel VB/VBA add-in application).
- Security Printing Systems = 1 project (development of production and manufacturing solutions).
- Streat Instruments = 1 project (Moisture and temperature analysis application).
- Pulse Data = 1 project (Braille Note PDA - personal data assistant, PDI\_Indexer)
- ORGA Kartensysteme Gambh = 1 project (Smart card resource manager and business objects).
- Böke & Walterfang Electronic Systems = 3 projects (LTE climatic control system and Production Tester, Cobra / Metro Site system and controller, Manufacturing production workstation).
- Wessex craft fairs = 1 project (Craft fair day trading accounts)
- Biotrace Ltd = 3 projects (Enzyme measurement analysis system, Sales and marketing analysis, CFL)
- Science Systems = 2 projects (Satellite telephone calibration set, Hygiene measurement instrument)
- DEC = 1 project (SQL read only server component- Ingress ISQL – Crystal reports)
- Tait Electronics = 2 projects (Digital Audio Switch system, Call and Regional node simulators)
- Data General = 3 projects (Firmware database, RISC desktop tester application, ATE software)