

Codian Limited- Langley nr. Slough, Berkshire

The company: Codian is a UK company with an impressive story to tell.

In 2002, the founders of Codian began planning the creation of a new start up business where they could apply their expertise. These peers had been the core technology teams in previous successful start ups and the capital from these ventures enabled them to set up Codian.

They believed there was a growing market for video conferencing infrastructure products and that it should be possible to build high specification systems which would comprehensively outperform anything available at the time. To do this they established an R&D team encompassing Hardware Engineering, Software Engineering, Test Development and Technical Support in Langley, Berkshire.

Though they entered a sector with three firmly established global suppliers, their confidence proved well founded. Codian now has 40% of this rapidly growing market and is designing, manufacturing and selling the most powerful video conferencing infrastructure products available today.

Codian sells to and supports customers worldwide from offices in Europe, United States and Asia. In the last three years revenues have gone from \$8m to \$17m to \$40m. **Codian has recently been named the second fastest growing technology company in the UK, in the Sunday Times Tech Track 100 business survey. Current UK R&D headcount is 50 and is expected to grow by over 33% in the coming year.**

Codian's products bring people together without the need to get into a car or take to the skies, they support innovative ideas such as telemedicine and help companies reduce their carbon footprint.

In September 2007 Codian was acquired by Tandberg a leading global provider of telepresence, high-definition videoconferencing and mobile video. Although not well known in the UK, Tandberg www.tandberg.com, is one of the world's most respected and profitable technology companies. Tandberg has spent \$270M on Codian as a long term investment; for the technology, the staff and for access to UK labour market.

Different groups within Tandberg are given a high level of autonomy and "ownership" so that they are their own self-contained business units. This concept of small autonomous groups is also reflected in the structure within Codian. Consequently the start-up mentality and efficiency that has always characterised Codian remains: short time to market and an informal organisation where abilities, interests and ambitions determine your present status and future in the company.

The technology; Codian is one of the very few companies to find a successful commercial application for super computer technology. Based on massively parallel processor architectures Codian's top end product is packed with over 60 high performance parallel processing DSP processors. The next generation will incorporate over 300 parallel processors and work has already commenced on the generation after this. The hardware and software is developed in-house.

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Products are at the leading edge of high speed digital design, based on the highest performance processors available and built into novel circuit architectures. Software spans FPGA programming, hardware-level programming, operating system implementation, DSP work (including multiprocessor media processing frameworks and codecs), protocol implementation and highly advanced control and management applications.

The team; a major factor in Codian's success is that their obsessive pursuit of ultimate performance has not only been demonstrably good from a business perspective, but it has also enabled them to recruit the highest calibre graduates from the world's leading universities. They have been attracted by the technology on offer and an environment that is both informal and encourages the free flow of ideas.

We currently have vacancies from graduate entry level to senior engineer in the following areas (full job descriptions are on the following pages):

- Test Development Engineers (ref CD01)
- Software Engineers (ref CD02)
- 3rd Line Product Support Engineers (ref CD03)
- Hardware Engineers (ref CD04)
- Software Technical Lead (ref CD05)

Education: An excellent standard of education is highly valued by Codian (though not mandated for all experienced applicants)

Where a good degree is mandated whatever additional qualifications a candidate has secured (for example a PhD or Masters), British educated candidates must have achieved at least A, A, B at 'A' level (and ideally straight A grades) plus a 2i or 1st class honours degree in Computer Science, Engineering, science or Maths, from one of the UK's top universities.

Candidates educated outside of the UK, who believe they have reached an equivalent standard, will need to be able to support this claim with some form of independent assessment of their University's ranking. At the end of the document is a list of universities that we believe set an appropriate standard and we are keen to see graduates from. It is not an exhaustive list and we will certainly consider applicants educated elsewhere, who can illustrate that they have achieved an exceptional standard.

Test Development Engineers (ref CD01) from graduate entry level to c£60k (graduate starting salary £27K + £18K student loan repayment + £1K per term final year bursary for those who apply before leaving university)

Codian's Test Development team works as part of the R&D organisation alongside the hardware and software development engineers. The team has expanded from just one person to five graduate engineers over the last year and will double in size over the next 6-9 months.

As a member of the team you will play an integral part in the R&D process working on new products and technology throughout the full product development lifecycle (requirements capture, through design and implementation to system testing and integration).

It is your task to ensure that the products meet the market requirements. You are working with clients that include the Government, Universities, Healthcare organisations and businesses worldwide so it is essential that it is reliable. The units are designed from the ground up with test in mind and function according to the required specification and customer use cases including scalability, performance, interoperability and usability. You will be required to meet tight deadlines, whilst effectively managing priorities and communicating progress.

One of the great attractions of the role is the detailed understanding you will gain of the full functionality of the products. With such knowledge a number of career paths will become open to you as Codian's rapid growth ensures there are plentiful opportunities for career progression.

Main duties and responsibilities

- Work very closely with the software development team planning, developing and executing the test strategy
- Design, develop and execute manual test cases accurately recording the results as well as develop automated test suites
- Develop a thorough understanding of the technologies relevant to Codian's product lines
- Assist the technical documentation group with content for the product documentation
- Help the software development team to reproduce problems which need to be fixed and assisting the 3rd line support team
- On occasion attend external test events to test products for conformance with relevant international specifications
- Contribute to an ongoing program of process improvement

We are looking for outstanding recent graduates as well as experienced engineers who possess excellent problem solving and communication skills. We are looking for individuals who are able to learn very quickly "on the job" and enjoy the challenge of rapidly assimilating new technology and products.

Mandatory skills for graduates

British educated candidates must have achieved at least A, A, B at A level (and ideally straight A grades) plus a 2i or 1st class honours degree in Computer Science, Engineering, Science and Maths, from one of the UK's top universities. Those educated outside the UK need to have achieved the same standard.

Mandatory skills for experienced applicants

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Experienced candidates must have a demonstrable background in the planning, developing and executing of test strategy. Plus at least two of the desirable skills listed below. **Note:** a degree is not required if a candidate offers relevant commercial experience.

Desirable skills and experience

- Practical experience of the test lifecycle.
- Testing experience working in an embedded systems product development role
- Experience in the video conferencing industry
- Experience with languages such as Python, PHP, Perl or C/C++
- A thorough knowledge of networking products and technologies (such as; TCP/IP, Ethernet, VoIP, Switches, Video codecs, ISDN, PBX, Cisco CallManager, Streaming, H.323 and SIP)
- Experience obtaining and interpreting Ethereal/Wireshark traces

Software Engineers x 12 (ref CD02) from graduate entry level to c£60k (graduate starting salary £27K + £18K student loan repayment + £1K per term final year bursary for those who apply before leaving university)

Codian designs, creates and implements the most technologically advanced video conferencing infrastructure equipment available on the market today. The software team at Codian plays a crucial role in achieving this.

Based on massively parallel processor architectures, Codian products are used by thousands of customers ranging from large enterprises, banks and universities to service providers, each relying on their Codian equipment to fulfil their communication requirements.

The Codian software team spans FPGA programming, hardware-level programming, operating system implementation, DSP work (including multiprocessor media processing frameworks and codecs), protocol implementation and highly advanced control and management applications. A particular characteristic of Codian is that the company builds the majority of its software in-house to obtain the performance and flexibility required.

The Codian software team collaborates very closely with the Codian hardware team to design future hardware architectures and bring them to life. Software team involvement in the evaluation of new system components and the design of future platforms is central to the company's success. The team also liaises very closely with the test, documentation and 3rd line support teams to give customers the best possible experience of their products.

As a result this is an expert team capable of working on any aspect of Codian's products. Joining the Codian software team implies working with the most talented people in the business, and provides the opportunity for both contributing and learning, whatever your current level of experience.

Codian software development is organised in informal teams so that everyone has their own central role and strong personal contributions are recognised. The ability to quickly understand and contribute to building our complex systems is a core requirement for all members of the Codian software team.

Codian is part of Tandberg. However, the team works very hard to maintain the start-up mentality and efficiency that has always characterised Codian: short time to market and an informal organisation

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where abilities, interests and ambitions determine your present status and future in the company.

Main duties and responsibilities

- Involvement in the specification of new products and features
- Design/development of the products & features, working independently and as part of a wider team
- Both architectural/system design and detailed coding
- Working closely with the test and support teams to ensure and maintain the quality of the product
- Working with other groups (manufacturing/documentation etc) involved in shipping finished products

Mandatory skills and experience for both graduates and experienced applicants

British educated candidates must have achieved at least A, A, B at A level (and ideally straight A grades) plus a 2i or 1st class honours degree in Computer Science, Engineering, Science or Maths, from one of the UK's top universities. Those educated outside the UK need to have achieved the same standard.

We are looking for outstanding recent graduates as well as experienced engineers who possess excellent problem solving and communication skills. We are looking for individuals who are able to learn very quickly "on the job" and enjoy the challenge of rapidly assimilating new technology and products. Codian places much emphasis on individual ability and creativity as well as teamwork.

For experienced engineers, as well as excellent qualifications, you will have had experience in at least two of the following areas:

- C/C++ programming
- Multithreaded/event driven software
- Embedded software development
- DSP programming
- Multi-processor programming architectures
- System software

3rd Line Product Support Engineer (ref CD03) - knowledge of networking products and technologies an advantage. From graduate entry level to c£60k (graduate starting salary £27K + £18K student loan repayment + £1K per term final year bursary for those who apply before leaving university)

Codian's 3rd Line Product Support Engineering team is the customer-facing side of the R&D organisation, working alongside the hardware & software development engineers. Codian is justifiably proud of the record of its 3rd Line Support team who are recognised as the best in the industry, and they want to continue enhancing the service they provide to customers. The team has expanded from just one person to five graduate engineers over the last year and will double in size over the next year.

1st & 2nd line support is provided by Codian's extensive, well established reseller network. Issues they cannot resolve are escalated to the Product Support team. Your role involves investigating, solving and managing these difficult and challenging 3rd line issues. Given that Codian video conferencing bridges sit at the heart of some very large and complex networks, and that 50% of issues originate from 3rd party products & infrastructure, this role will challenge the most able of technical minds. In order to be successful you will have to work closely with R&D, product test group, sales, the documentation team and resellers in replicating and diagnosing issues. You will need to meet tight deadlines, sometimes under pressure, whilst effectively managing priorities and communicating progress.

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One of the great attractions of the role is the detailed understanding you will gain of the full functionality of the Codian products as well as many 3rd party products. With such knowledge a number of career paths will become open to you as Codian's rapid growth ensures there are plentiful opportunities for progression. Coupled with this, all Support staff are likely to have the opportunity to travel overseas from time to time, and though this is not a compulsory part of the job it is a great chance to be directly involved with the blue chip and technology-leading companies who run the biggest and technically most advanced networks in the world.

Main duties and responsibilities

- Obtain a thorough understanding of the technologies relevant to Codian's product lines
- Take ownership of support issues and ensure each one is managed through to the point that it is resolved to the customer's satisfaction. Reproduce customer issues in the support lab
- Help the software development team to reproduce problems
- Testing test builds and work arounds. Provide accurate information on the status of support cases
- Attend external test events to test products for conformance with international specifications
- Contribute to an ongoing program of process improvement
- Assist the technical documentation group with content for the product and support documentation
- Occasionally you may need to undertake site visits to customer locations world wide

We are looking for outstanding recent graduates as well as experienced engineers who possess excellent problem solving and communication skills. We are looking for individuals who are able to learn very quickly "on the job" and enjoy the challenge of rapidly assimilating new technology and products. The client facing nature of these roles means all candidates must have good written and verbal communication skills and be able to perform well, when under pressure. **Please note.** Prior customer facing experience is desirable, but certainly not mandatory.

Mandatory skills for graduates

British educated candidates must have achieved at least A, A, B at A level (ideally straight A grades) plus a 2i or 1st class honours degree in Computer Science, Engineering, Science and Maths, from one of the UK's top universities. If educated outside the UK you need to have achieved the same standard.

Mandatory skills for experienced applicants

Experienced candidates must possess at least two of the desirable skills listed below. **Note:** a degree is not mandated if a candidate offers high quality and relevant support background

Desirable skills and experience

- A thorough knowledge of networking products and technologies (such as; TCP/IP, Ethernet, VoIP, Switches, Video codecs, ISDN, PBX, Cisco CallManager, Streaming, H.323 and SIP)
- Experience obtaining and interpreting Ethereal/Wireshark traces
- Experience in the video conferencing industry
- Experience working in a highly technical 3rd line support role
- Foreign language skills (all European and Asian)
- Experience troubleshooting issues on a customer site

Hardware Engineers (ref CD04) from graduate entry level to c£60k (graduate starting salary £27K + £18K student loan repayment + £1K per term final year bursary for those who apply before leaving university)

The most discerning customers worldwide choose Codian products for their performance and reliability. Codian's Hardware Engineering Group designs the unique hardware platforms which form the basis of these best-in-the-world video conferencing infrastructure products.

The Hardware Group works at the leading edge of high speed digital design. Designs are based on the highest performance processors available, built into novel circuit architectures. The group includes a wealth of experience in all aspects of electronic hardware design. As well as system and circuit design, they incorporate CAD engineering and compliance engineering so that the team can deliver fully developed designs to the Codian manufacturing group.

Within the Hardware Group, the emphasis is on rigorous creative innovation and actively seeking demanding design challenges with which they can extend and broaden Codian's technological lead in the field. The team works closely with Software R&D, especially during the architectural phase of the development. They also work closely with key strategic suppliers to secure access to the latest high performance integrated circuits, sometimes even before their existence is announced publicly. To secure maximum product reliability, they incorporate testability into all designs so that correct functioning of the product can be verified both in production and in the field.

As a member of the Codian Hardware Development Group, you will have the opportunity to put your academic knowledge to use in a highly productive way. Through mentoring by more experienced team members, you will rapidly gain the broad range of skills and knowledge which will enable you to participate in the design process from concept to production.

Main Duties and Responsibilities

- Design of high speed digital circuits for performance, reliability and manufacturability
- Working closely with PCB CAD engineers to develop the physical PCB layout
- Working closely with Mechanical CAD designers as required to develop the complete product
- Working closely with Software engineering, particularly during prototype bring-up
- Providing technical support to Manufacturing, especially during the prototype and pre-production phases
- Verification of the robustness and reliability of the design

The role is based at Codian's UK headquarters in Langley. You will visit external Electromagnetic Test and Environmental Test laboratories as the design progresses to completion. Also visits to the main manufacturing facility and various specialist suppliers are required from time to time.

Mandatory skills and experience for both graduates and experienced applicants

British educated candidates must have achieved at least A, A, B at A level (and ideally straight A grades) plus a 2i or 1st class honours degree either in Electronic Engineering, or a more specialist degree that has a significant Electronic Engineering content to it (for example Telecommunications Engineering). Occasionally a related numerate degree (for example, Computer Science) may be acceptable if the candidate can show a determination to pursue a career in hardware together with relevant experience. The degree will have been gained at one of the UK's top universities.

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Those educated outside the UK need to have achieved the same standard.

We are looking for outstanding recent graduates who possess excellent problem solving and communication skills. We are looking for individuals who are able to learn very quickly “on the job” and enjoy the challenge of rapidly assimilating knowledge of new technology and products. The desire to work as part of a team is essential.

Software Technical Lead - Media Processing Team (ref CD05) to c£70k

The Codian software team spans FPGA programming, hardware-level programming, operating system implementation, DSP work (including multiprocessor media processing frameworks and codecs), protocol implementation and highly advanced control and management applications. A particular characteristic of Codian is that the company builds the majority of its software in-house to obtain the performance and flexibility required.

Codian software development is organised in the following four informal teams. Everyone has their own central role and strong personal contributions are recognised.

- The systems team is responsible for all platform issues including OS, device drivers, internal and external network, and FPGA code. This provides the platform for both media processing and application software.
- The media processing team is responsible for the media processing framework, codecs, signal processing and the interface to application software. This includes distribution of work in the multiprocessor system as well as performance optimizations.
- The protocol team is responsible for providing protocol implementations for applications.
- The application teams have overall responsibility for the development and maintenance of the individual products including integration of all components.

The systems team and the media processing team are closely involved in the design and architecture of future platforms.

The software team collaborates very closely with the hardware team to design future hardware architectures and bring them to life. Software team involvement in the evaluation of new system components and the design of future platforms is central to the company's success. The team also liaises very closely with the test, documentation and 3rd line support teams to give customers the best possible experience of their products. As a result this is an expert team capable of working on any aspect of Codian's products. Joining the Codian software team implies working with the most talented people in the business, and provides the opportunity for both contributing and learning, whatever your current level of experience.

As Technical Lead for the media processing group you will take on the role of technical authority and team leader. You will be expected to come up to speed quickly as the technical back-stop for the team; you are someone capable of resolving the most challenging technical issues. The job ranges from the architecture and design of next generation dedicated multiprocessor hardware platforms to development and maintenance of the current product range. The team leading job ranges from technical decision making, establishing schedules and assessing risks to mentoring.

Main duties and responsibilities

- Technical team lead for a small highly skilled development team (3-5 engineers).
- Designing, implementing and maintaining complex media processing components ranging from multi-processor/multi-core media frameworks to codecs (both audio and video), encryption and signal processing algorithms with specific focus on performance.
- Evaluating components for future platforms including prototyping and risk assessment
- Participating in designing future high performance platforms
- Optimization and performance enhancing design and implementation
- Both architectural/system design and detailed coding.
- Working closely with test and support teams to ensure and maintain the quality of the product.

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Mandatory skills and experience

The successful candidate must have significant experience (either commercial or academic) of multiprocessor architectures. Though this is very much a software role the code is low level and close to the hardware, as such we will consider candidates whose multiprocessor experience has been gained in a hardware or software environment. However, extensive software development skills are mandatory.

Candidates will also have experience in at least two of the following areas:

- Hardware-near programming including extensive knowledge of processor, memory and IO architectures
- Strong C/C++ programming
- Embedded software development
- Audio and video codec development
- Digital signal processing
- DSP programming
- Encryption
- FPGA's
- Technical team leading

How the Codian Video Conferencing system works

Codian develops video conferencing infrastructure. This is not the endpoints (cameras and codec systems) that participants use to join a video conference, but the far more sophisticated video transcoding and bridging products which sit on the Network and allow users to conduct world wide bridged video and audio calls in true high definition quality.

Codian products are bought by customers who want the very best in state of the art video conferencing bridging technology. They include some of the largest multinational organisations in the world spanning all market segments.

The Codian 4500 High Definition MCU is unarguably the most powerful Video conferencing bridge in the world. Packed with over 60 high performance parallel processing DSP processors and unique Codian control software the MCU 4500 has the power to bridge 40 High Definition (1080p at 30 fps) video conferencing calls simultaneously, whilst streaming 80 unicast video streams and an unlimited number of multicast video streaming viewing participants. This is true supercomputer power!

The Codian MCU 4500 Series is the only conferencing bridge with the power to deliver a true high definition (HD) multimedia experience. Without compromise or limits, this MCU supports the highest video resolution, speed, frame rate and codec of the latest HD endpoints. This includes full continuous presence for all conferences, including those with a mix of both HD and standard definition (SD). This makes it ideal for applications which demand the ultimate audio and video quality, such as business meetings, telemedicine, distance learning and corporate training.



The Codian MCU series is also unique in the market as the only MCU that generates an encode per participant by default. This means it can deliver market-leading video quality because each user will always see the best possible video that their endpoint and network connection is capable of. For example, in a conference call with four participants, each would call into the MCU and each participant, whether it's a video endpoint or phone, can use the best video or audio codec standard it supports without all participants in the call having to use the lowest common denominator. As each participant's link is individually encoded and decoded each user is also able to select their own specific layout of his/her view of the video conference.

Work Permits etc

Codian will consider the following categories of candidate:

- In possession of an HSMP Visa (preferably in residence in the UK, but we may consider overseas candidates who hold an HSMP)
- In the UK already on a work permit, but requiring work permit transfer
- All candidates with an automatic and unrestricted right to live and work in the UK
- Graduates who are eligible for an IGS (international graduate scheme) Visa, (we will look at these on a case by case basis)

Codian will not look at applicants:

- From outside the UK who require work permit sponsorship
- In the UK on a dependency visa

Benefits Package

- Permanent Health Scheme providing long term disability cover
- Private Healthcare
- Death in Service Insurance which currently provides life insurance cover equivalent to 4 times basic salary
- Access to a Stakeholder Pension Scheme
- 25 days holiday per year

Salary/progress review – graduates will have two reviews in the first year; one at six months, one at twelve months. Experienced recruits will be reviewed twelve months after commencement of employment. Going forward all applicants are reviewed on the anniversary of their starting date.

Personal/career development at Codian

Codian's policy of only recruiting the brightest and most productive staff, means that each engineer has the opportunity to take greater levels of responsibility and allows the company to organise them in to teams of five or less.

This structure engenders the free flow of information and new recruits rapidly come up to speed thanks to the support and mentoring of existing staff. As well as building internal training Codian has a generous budget should external training be required.

Each year there are company events away from work, with typically at least one abroad. In 2007 these included trips to Barcelona, Athens and Oslo for the development team. At the time of writing, voting is underway to choose the location of the main company event in October this year.

Career growth can be rapid (Codian currently have an engineer who five years out of university has technical responsibility for a product that is expected to generate £35m in revenues this coming year). Career mobility is encouraged. Engineers have moved from manufacturing to software, hardware to software and one has recently relocated to Codian's offices in Australia.

Codian Student Loan Repayment Scheme

Codian depends on excellent university graduates to develop new products and technology as well as to successfully grow the company. To attract the people needed and in recognition of the significant costs typically incurred at University, Codian has introduced the Codian Student Loan Repayment Scheme which aims to pay off student debt within 4 years.

Subject to eligibility, Codian will:

- Make additional payments on top of the basic rate salary
- Pay an additional £4,500 each year for 4 years
- Start payments 6 months after joining Codian
- Payments are not dependant on the size of any student loans a candidate has

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Selection procedure

Codian places a heavy emphasis on ensuring that the selection process is as two-way as possible. Staff turnover is historically very low and a major reason for this is the effort taken to make sure there is a very good fit between the candidate and Codian. The process is as follows:

Firstly, a telephone interview. This is an opportunity not only for us to assess the suitability of a candidate, but also answer any initial questions he/she may have. Those who excel at the telephone interview will then be invited to a face-to-face interview at the Codian's offices.