

## Curriculum Vitae

### Andrew Robert GORDON.

Age 46. Nationality British.

24, Sedley Taylor Road, Cambridge CB2 8PN  
01223 414000

#### Summary

An experienced embedded systems developer with both software and hardware skills; happy to take on any task in this field, but particularly experienced in MPEG and network protocols.

Most productive when working at the interface between hardware and software – on new projects, to achieve a holistic design, balancing hardware and software; or in a trouble-shooter role, able to take on a nominally software problem, but to go on and debug or redesign the hardware if that proves to be necessary.

Able to work alone or as part of a team, and experienced in doing so either as an external contractor joining the Client's in-house team, or leading a team of external contractors to deliver the Client's requirements.

Capable of taking on customer-facing roles and being the Client's representative in high pressure 'must-make-it-work-today' situations such as exhibition demos, factory visits, or EMC testing.

Does not expect an easy life: systems don't merely need to work, but hardware should have the lowest possible cost while using minimal power and passing EMC requirements; software should use the least possible memory and CPU while being resilient against error or abuse. And the Client inevitably wants all of this delivered next week.

#### Primary skills

- C, Assembler (various CPUs, most recent familiarity with MIPS, ARM, MSP430, PIC). Willing and able to learn new languages/dialects at short notice.
- Linux, BSD – knowledge of kernel internals. Copious experience writing device drivers as well as applications.
- Embedded software – familiar with working with minimal or no operating system at all, and producing useful results in minimal memory footprint (recent example: Ethernet-based SIP telephony in 64K RAM, 128K flash ARM Cortex M3 microcontroller).
- Networking – deep knowledge of Ethernet, TCP/IP and other more obscure/historic protocols.
- MPEG – experience of working with the bits and bytes of the protocols, not just handling them as 'black boxes'. Led a team that implemented from scratch decoders for MPEG2, MPEG4-pt2, H.264 and more.
- Hardware design (primarily digital, some analogue). Particular expertise in optimising hardware/software trade-offs for lowest overall cost, and using parts in novel ways.
- PCB layout – currently familiar with Protel/Altium Designer.
- Skills in design for volume manufacturing, design/implementation of functional test software etc. and experience with liasing with manufacturing contractors (including off-shore).
- Ability to write clear English – for reports, specifications, standards documents etc.

## Education

Cambridge University      Scholarship Entrance examination, December 1981: Open Exhibition in Engineering at St John's College. Engineering Tripos, Part Ia, Computer Science Tripos, Part II. Awarded BA degree 1985. MA 1989.

## Employment

### **2007-      Director, *Gordon Design Ltd.***

Design consultancy specialising in embedded hardware/software systems. Recent projects include:

- Innovative multi-room PVR for US Cable TV market (2 US patents filed). System architect role, managing a small team.
- SIP-based alarm/intercom system – initially a project specification role, ultimately full hardware design, PCB layout & software implementation undertaken, working alone.
- STB prototype (SoC + FPGA). Hardware design to client's specification, PCB layout, initial firmware for microcontroller and VHDL for FPGA, board debug and bring-up.

### **2006-2007      Manager - Advanced Codec Group, *Amino Communications Ltd.***

Following the acquisition of SJ Consulting Ltd, continued to lead the same team in adapting SJ's codec technology to Amino's STB products. Several STB designs in this period, including two which won awards at the IBC trade show.

### **1997-2006      Director (later Managing Director), *SJ Consulting Ltd.***

Initially a pure design consultancy; early projects included firmware for an early 802.11b chipset, and designing/building the ATM infrastructure for two of the UK's first VoD trials.

Early involvement in VoD led to the first of many Set-top-box designs: some as full design authority for a client with no in-house embedded systems capability; others providing specialist assistance to deliver the networking or MPEG subsystems for clients in the STB business but lacking these skills.

Later changed the direction of the company from pure consultancy to one of owning significant IPR to contribute to clients' requirements; led the team in developing initially an H.264 decoder (and a reference hardware platform on which to run it), and ultimately a complete suite of MPEG2, MPEG4, H.263, H.264 decoders and the accompanying audio decoders.

This software was recognized as the industry's most efficient H.264 implementation on TI's DSP platform, and was licensed to a number of clients. Ultimately, Amino, who had been a licensing client, acquired the company for its skills and technology.

### **1986-1997      Director, *Interspan Electronic Mail Ltd/NET-TEL Computer Systems Ltd.***

Co-founder of this company, which was established to develop a low-cost electronic mail service for schools and colleges. Led the development team which developed an effective implementation of the X.400 protocols on the limited hardware available in schools. Achieved a fully functional implementation of the X.400 protocols on Acorn hardware (6502, 32K RAM) at a time when industry leaders were questioning whether this was actually practical on contemporary PCs (80286, 640K RAM).

Following merger with NET-TEL, further developed this technology for more corporate use, leading to major deployments with multinationals and government departments. Primary job responsibility was software development and system architecture, leading a team of 6 people. Target systems were a wide variety of Unix platforms, plus MS/DOS and Windows.

In parallel with product development, took a major role in International Standards – becoming the UK's representative for this class of technology to the ISO and ITU standards bodies, and working in committee to draft several International Standards.

**1983-1986 Senior Engineer, *SJ Research Ltd.***

Design and development of a range of Local Area Network products. Involved in design aspects of the majority of the company's products, involving a mixture of hardware, low-level software and applications software design and development.

Personal responsibility for the design from scratch of the company's fileserver products. These provided a hierarchical filestore with access controls, user resource management etc.. Target hardware was a variety of custom-designed embedded Z80 systems (single- and multi-processor); hence the project included development of multi-processing executives and development tools in addition to the protocol handling and disc storage management of the fileserver itself.

Additionally undertook a number of consultancy contracts during this period, including a project to re-implement Acorn's Econet network protocols in a new hardware and Operating System environment for their *Communicator* product.

**1981-1982: *Acorn Computer Ltd (now ARM).***

Member of software development team for the BBC micro project. Work included aspects of Operating System design and hardware/software development of adaptor to receive broadcast Teletext. While not personally involved, the ARM CPU was being invented by colleagues in the adjacent cubicle during this time.