

Chapter 1 : LISP on the BBC Microcomputer | Open Library

The British Broadcasting Corporation Microcomputer System, or BBC Micro, is a series of microcomputers and associated peripherals designed and built by the Acorn Computer company in the s for the BBC Computer Literacy Project, operated by the British Broadcasting Corporation.

These are external links and will open in a new window Close share panel Image caption The BBC Micro has a relatively fast processor and a range of interfaces allowing its output to be viewed via a monitor, television set or professional TV equipment The tech industry is celebrating the 30th anniversary of the BBC Microcomputer. However, trying to establish an "official" launch date is trickier than it sounds. Although the computers were demonstrated at trade exhibitions and reviewed in the press in , a production snag pushed back deliveries. A circuit, which controlled the "high definition" screen display, was found to have a higher than acceptable failure rate. A redesign was ordered and as a result only a few hundred computers out of a planned batch of 3, were ready in time for the start of The Computer Programme when the first episode was broadcast in January This initial hiccup proved far from fatal. After Acorn overhauled its production system, the Model A and the more expensive Model B went on to sell more than 1. The BBC asked seven people whose lives were changed by the computers for their memories. When I did, it was truly inspirational and a revelation for me. I feel very lucky to have been part of the early days of home computing with the BBC Micro, because you could actually get at everything and do everything; not only could you access all of the devices directly through the software, but you could even take the lid off - they gave you a circuit diagram and you could mess with it. The first thing that I tried to do was become as famous as Duran Duran by turning this 8-bit microprocessor into a sampler, so that I could become a pop star and have hordes of women screaming after me. This involved religiously programming the computer, as well as also taking the unprecedented steps of cutting tracks on the PCB for bits that were upsetting its ability to make music. I learnt more about practical computing and solving programming problems from dealing with the BBC Micro than I could ever have learnt on any university computer science course. I still have my original BBC Micro in pride of place; I look back at it and it brings back the fondest memories of a time when all seemed possible. Mike Lynch is the co-founder and chief executive of Autonomy, the business-analytics software firm which was bought by Hewlett Packard earlier this year. The Beeb introduced a generation of British children to the power of programming and indeed I want to see this return in a modern form, part of my computerbasedmath. But I was fond of the Beeb, liked its funky orange function keys - cool compared to the staid Apple II at school - and even quite enjoyed that I had to glue a matchstick to prop up the failing space bar, a standard fix I found out about at school. That was the kind of problem solving and frustration a Beeb taught. And boy, have we come a long way. David Darling, Co-founder of Codemasters I started coding games at home when I was 11 years old with my brother Richard. We graduated to selling them by mail order, then to setting up a games company. The 8-bit era of home computing in the s was one of the most important and exciting times in the development of technology. There was an explosion of creativity, most of it coming from self-taught young men like us working at home. Everything was possible, the potential was infinite. At Codemasters we rode the crest of a wave creating games very quickly then selling millions of them, mostly in the UK and the rest of Europe. It laid the groundwork for a whole myriad of industries that grew out of what the talent went on to do. The BBC computer was central to the whole revolution because it added two veneers of respectability, firstly because it carried the good name of the BBC and secondly because it was used in schools. We had a BBC at our school and we played some amazing games on it: Scramble, Defender and Pac-Man-type games of a very high quality. But ironically we have a resurgence of exactly the same kind of massively creative ecosystem again today with the emergence of powerful mobile devices and the app markets that serve them. David Allen, Television producer It started with a man from the Wirral suggesting the BBC did an electronics series for soldering-iron enthusiasts. It ended with one of the most ambitious projects the BBC has ever mounted - its own name on 1. I was lucky enough to be the project editor and also series editor for the television series. These followed huge amounts of audience research and soul-searching by the BBC about what it could or

should do to prepare people for the Micro Revolution, as it was called. I think we succeeded. We helped to enthuse a whole generation of people who now are in senior positions in the IT industry. The UK lives or dies by innovation. I hope that the BBC can spearhead a new kind of national initiative based round the immense possibilities thrown up by the "future internet", where people and things communicate to improve our lives. It was so easy to learn on, to the extent just about everyone could write the program like this without even realising they were learning: It also came with everything you needed to program - even including one of the best assemblers around then and now - built in to the machine without any complex installation required. The impact it has had 30 years on is amazing. Many of these companies were founded by people whose thorough introduction to technology came through the BBC Micro. David Braben is chairman and founder of Frontier Developments, and a co-founding trustee of the charity The Raspberry Pi Foundation which plans to sell an ultra-low-cost computer. Here was a real computer, satisfyingly chunky and with a proper keyboard. To do anything you had to use the Basic programming language, so you learned the essentials of programming just to play a game or use a word processor. It was a very open system with excellent documentation and the accompanying TV series was very encouraging. A great community grew up, with magazines such as Beebug, and user groups across the UK. In those early days programs were listings you typed in, or supplied on cassette tapes. The community encouraged experimentation and sharing: Tips and techniques were shared as people discovered all the things you could do. Though limited compared to modern machines, the BBC Micro was a real computer capable of amazing things. It captured the imagination of a generation of programmers. It is still the computer I had the most fun with. Dan Crow is chief technology officer at the tour date tracking service Songkick. He previously worked at Apple and Google. My mum could see that I was hugely interested in computers and although a single parent at the time, she scraped together the money to buy one for me. I was so grateful. She then had to pay the repair bill too - thanks, Mum! Because of its expandability and capability, it was probably responsible for more small start-up companies than any other computer of its time. A huge number of companies started designing, manufacturing and selling third-party add-ons from bedrooms and garages across the country. I was one of them. I created a simple little memory expansion and sold a few via the classified ads. Elite was the first immersive wire-frame 3D computer game and would later be the inspiration for many other games in this new genre. I wasted many, many hours on that one! Yet I still have the cheek to tell my son not to spend so much time on the Xbox playing games! Most importantly, the BBC Micro was my favourite computer. He also runs a technical props company for the film and TV industry.

The BBC Micro was pretty fundamental to how my life turned out, in that it was the first computer I ever owned. I still remember exactly how much it cost - a whopping £, which I raised through.

To do a full upgrade with all the external ports did, however, require soldering the connectors to the motherboard. The original machines shipped with "OS 0. Variations in the Acorn OS exist as a result of home-made projects and modified machines can still be bought on internet auction sites such as eBay , as of This fault could be rectified partly by soldering a resistor across two pads. Early issue BBCs Issue 3 circuit boards and before are notorious for out of specification timings. A particular problem was the replacement of the Intel floppy disk controller [38] with the Western Digital " not only was the new controller mapped to different addresses, [39] it was fundamentally incompatible and the emulators that existed were necessarily imperfect for all but basic operation. A series of unsuccessful replacements were issued before one compatible with both was finally released. It had essentially the same based BBC architecture, with many of the upgrades that the original design had intentionally made possible extra ROM software, extra paged RAM, second processors now included on the circuit board as internal plug-in modules. Software and expandability[edit] Elite Acornsoft , The unusual game screen used two display modes at once, to show both detail and colour. The BBC Micro platform amassed a large software base of both games and educational programs for its two main uses as a home and educational computer. Programming languages and some applications were supplied on ROM chips to be installed on the motherboard. These loaded instantly and left the RAM free for programs or documents. Although appropriate content was little-supported by television broadcasters, telesoftware could be downloaded via the optional Teletext Adapter and the third-party teletext adaptors that emerged. The five total sockets were located partially obscured under the keyboard, with the leftmost socket hard-wired for the OS. The paged ROM system was essentially modular. The MOS recognised a handful of built-in commands, and polled the paged ROMs in descending order for service otherwise; if none of them claimed the command then the OS returned a Bad command error. Acorn strongly discouraged programmers from directly accessing the system variables and hardware, favouring official system calls. In this way the MOS could translate the request for the local machine or send it across the Tube interface, as direct access was impossible from the coprocessor. Published programs largely conformed to the API except for games, which routinely engaged with the hardware for greater speed, and thus required a particular Acorn model. With the exception of a tank game, Bolo , few became popular, in no small measure due to the limited number of machines aggregated in one place. A relatively late but well documented example can be found in a dissertation based on a ringed RS interconnect.

Chapter 3 : The BBC Microcomputer and me, 30 years down the line - BBC News

The BBC micro motherboard is the same for the Model A and Model B, but there were different 7 Issues and there were also case and keyboard changes. The changes to the circuit design are listed in section of the BBC Microcomputer Service Manual.

The project was initiated partly in response [1] to an extremely influential ITV documentary series *The Mighty Micro*, in which Dr Christopher Evans from the National Physical Laboratory predicted the coming microcomputer revolution and its impact on the economy, industry, and lifestyle of the United Kingdom. The BBC wanted to base its project on a microcomputer capable of performing various tasks which they could then demonstrate in their TV series *The Computer Programme*. The list of topics included programming, graphics, sound and music, Teletext, controlling external hardware and artificial intelligence. It decided to badge a micro, then drew up a fairly ambitious for its time specification and asked for takers. The Acorn team had already been working on an upgrade to their existing Atom microcomputer. The machine was only in prototype form at the time, but the Acorn team, largely made up of students including Sophie Wilson and Steve Furber, worked through the night to get a working Proton together to show the BBC [2]. Market impact

The machine was released as the BBC Microcomputer in late and became affectionately known as the Beeb. The machine was popular in the UK, especially in the educational market. For some months, there were long delays before customers received the machines they had ordered. A brief attempt to market the machine in the United States failed. The success of the machine in the UK was largely due to its acceptance as an "educational" computer – the vast majority of UK schools used BBC Micros to teach computer literacy and information technology skills [1]. One of the main advantages which helped the BBC Micro in the educational market was its durable construction. Acorn anticipated the total sales to be around 12, units, but eventually more than 1. The cost of the BBC Models was high compared to competitors such as the ZX Spectrum and the Commodore 64 and in , Acorn attempted to counter this by producing a largely compatible but cut-down version intended for game playing, the 32K Acorn Electron. Ports from left to right: This gave the BBC Micro a fully unified memory address structure with no speed penalties. Most competing micros with memory-mapped display incurred CPU speed penalties depending on the actions of the video circuits e. An Econet network interface and a disk drive interface were available as options. All motherboards had space for the electronic components, but Econet was rarely fitted. Additionally, an Acorn proprietary interface called the " Tube " allowed a second processor to be added. To do a full upgrade with all the external ports did, however, require soldering the connectors to the motherboard. An apparent oversight in the manufacturing process resulted in a significant number of Model Bs producing a constant buzzing noise from the built-in speaker. This fault could be partly rectified by soldering a resistor across two pads. Export models Two export models were developed: A particular problem was the replacement of the Intel floppy disk controller with the Western Digital – not only was the new controller mapped to different addresses [14], it was fundamentally incompatible and the many emulators that did exist were necessarily imperfect for all but basic operation [15]. A string of unsuccessful replacements were issued before one compatible with both was finally released. Software and expandability Elite Acornsoft , The unusual game screen used two display modes at once, to show both detail and colour. The BBC Micro platform amassed a large software base of games and educational titles, reflecting its dual niches at home and in the classroom. Programming languages and some applications were supplied on ROM chips to be installed on the motherboard. These could be loaded instantly and left the main RAM free for programs or documents. Although appropriate content was little-supported by television broadcasters, telesoftware could be downloaded via the optional Teletext Adapter and the third-party teletext adaptors that emerged. Features like vector graphics, keyboard macros, cursor-based editing, sound queues and envelopes, normally private to BASIC, were made available to any application. Acorn strongly discouraged programmers from directly accessing the hardware and system variables, favouring official API calls [17]. This was ostensibly to make sure programs kept working when moved to the Tube coprocessor, but it also made BBC Micro software more portable across the Acorn range. In this way the

MOS could translate the request for the devices and memory layout of the local machine especially the Electron and Archimedes or send it across the Tube interface, as direct access was impossible from the coprocessor. With the exception of a tank game, Bolo, few rose to popularity; in no small measure due to the limited number of machines aggregated in one place. A relatively late but well documented example can be found in a dissertation based on a ringed RS interconnect [19]. Advanced programs could be written without resorting to unstructured programming or machine code necessary with many competing computers. It also supported high-resolution graphics, four-channel sound, pointer-based memory access borrowed from BCPL and rudimentary macro assembly. Long variable names were accepted and distinguished completely, not just by the first two characters. Successor machines and the retro scene In , Acorn followed up with the BBC Master series, which offered memory sizes from KB and many other refinements which improved on the original, although at heart it was essentially the same based BBC architecture, with many of the upgrades that the original design had intentionally made possible extra ROM software, extra paged RAM, second processors now included on the circuit board or as internal plug-in modules. This was released in as four models in the Archimedes series, with the lower-specified two models with KB and 1 MB respectively released as BBC Microcomputers. Although the Archimedes ultimately was not a major success, the ARM family of processors has gone on to become the dominant processor architecture in mobile embedded consumer devices, particularly mobile phones. They still survive in a few interactive displays in museums across the country, and Jodrell Bank was reported to still be using a BBC Micro to steer its 42ft radio telescope in [20]. There are also a number of BBC Micro emulators for many OSes, so that even the original hardware is no longer necessary. The museum plans to hold an exhibition about the computer and its legacy in [21].

Chapter 4 : Acorn Computers - Wikipedia

Came also out for: Acorn Electron ZX Spectrum Game description: Millionaire is a text-based management game where you are a home-based games programmer trying to become a millionaire. Your goal is.

Early history[edit] On 25 July , Clive Sinclair founded Sinclair Radionics to develop and sell electronic devices such as calculators. In June , SoC launched a microcomputer kit, the Mk 14, that Curry wanted to develop further, but Sinclair could not be persuaded so Curry resigned. CPU as the vehicle with which to do this. The microcomputer systems[edit] This section called "The microcomputer systems" needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. This system was launched in January as the first product of Acorn Computer Ltd. The microcomputer kit was named as Acorn System Acorn was chosen because the microcomputer system was to be expandable and growth-oriented. It also had the attraction of appearing before " Apple Computer " in a telephone directory. At some point, Curry had a disagreement with Sinclair and formally left Science of Cambridge, but did not join the other Acorn employees at Market Hill until a little while later. The Acorn System 1 , upper board; this one was shipped on 9 April It was a very small machine built on two cards, one with an LED display, keypad, and cassette interface the circuitry to the left of the keypad , and the other with the rest of the computer including the CPU. Almost all CPU signals were accessible via a Eurocard connector. The System 3 moved on by adding floppy disk support, [14] and the System 4 by including a larger case with a second drive. Acorn Atom This section called "The Atom" needs additional citations for verification. Learning of this probably prompted Curry to conceive the Atom project to target the consumer market. It was at this time that Acorn Computers Ltd. It was Curry who wanted to target the consumer market—other factions within Acorn, including the engineers, were happy to be out of that market, considering a home computer to be a rather frivolous product for a company operating in the laboratory equipment market. To keep costs down and not give the doubters reason to object to the Atom, Curry asked industrial designer Allen Boothroyd to design a case that could also function as an external keyboard for the microcomputer systems. The internals of the System 3 were placed inside the keyboard, creating a quite typical set-up for an inexpensive home computer of the early s—the relatively successful Acorn Atom. It was decided to include this, the Econet , in the Atom, and at its launch at a computer show in March , eight networked Atoms were demonstrated with functions that allowed files to be shared, screens to be remotely viewed and keyboards to be remotely slaved. After a great deal of discussion, Hauser suggested a compromise—an improved based machine with far greater expansion capabilities: This compromise would make for an affordable machine for the mass market which could be expanded with more sophisticated and expensive processors. As a result of these questions, the Department of Industry DoI became interested in the programme, as did BBC Enterprises , which saw an opportunity to sell a machine to go with the series. BBC Engineering was instructed to draw up an objective specification for a computer to accompany the series. In through to , the DoI allocated funding to assist UK local education authorities to supply their schools with a range of computers, the BBC Micro being one of the most popular. Schools were offered 50 per cent of the cost of computers, providing they chose one of three models: Shortly afterwards, the literacy programme computer contract was awarded to Acorn, and the Proton was launched in December as the BBC Micro. But problems in producing the ULAs led to short supply, and the Electron, although launched in August , was not on the market in sufficient numbers to capitalise on the Christmas sales period. Acorn resolved to avoid this problem in and negotiated new production contracts. March Main article: ARM architecture Even from the time of the Atom, Acorn were considering how to move on from the processor: The development of a business machine looked like a good idea to Acorn. In developing these, Acorn had to implement the Tube protocols on each processor chosen, in the process finding out, during , that there were no obvious candidates to replace the Because of many-cycle uninterruptible instructions, for example, the interrupt response times of the Motorola were too slow to handle the communication protocol that the host based BBC Micro coped with easily. The National Semiconductor based model of the ABC range, was developed and later sold in as the Cambridge

Workstation using the Panos operating system. The main text of the advertisement referred to available mainframe languages, communication capabilities and the alternative option of upgrading a BBC Micro using a coprocessor. Acorn would need a new architecture. Cambridge Workstation advert in New Scientist , 24 April issue Acorn had investigated all of the readily available processors and found them wanting [9] or unavailable to them. It convinced the Acorn engineers that they were on the right track. Before they could go any further, however, they would need more resources. It was time for Wilson to approach Hauser and explain what was afoot. The ARM evaluation system was promoted as a means for developers to try the system for themselves. Such was the secrecy surrounding the ARM CPU project that when Olivetti were negotiating to take a controlling share of Acorn in , they were not told about the development team until after the negotiations had been finalised. It was the year when Atari was sold, [39] Apple nearly went bankrupt, and Acorn had solved ongoing issue of production volumes. The Electron had been launched in , but problems with the supply of its ULAs meant that Acorn was not able to capitalise on the Christmas selling period [40] – a successful advertising campaign, including TV advertisements, had led to , orders, but the Malaysian suppliers were only able to supply 30, machines. The apparently strong demand for Electrons proved to be ephemeral: Ferranti solved the production problem and in , production reached its anticipated volumes, but the contracts Acorn had negotiated with its suppliers were not flexible enough to allow volumes to be reduced quickly in this unanticipated situation – supplies of the Electron built up. Acorn was in real trouble: They did, however, make an appearance in the school of Supergirl in the film Supergirl: After a short period of negotiations, Curry and Hauser signed an agreement with Olivetti on 20 February. The Italian computer company took a In July , Olivetti announced that it had sold Lehman said it planned to resell the shares to investors. They made their first appearance in the A second processor, [50] which was used internally within Acorn as a development platform, and had a similar form-factor to the ARM development system. The Archimedes was advertised in both printed and broadcast media. As with the BBC, the Archimedes instead flourished in schools and other educational settings but just a few years later in the early s this market began stratifying into the PC -dominated world. These were sold mainly into education, specialist and enthusiast markets. Various requirements had been set for the processor in terms of power consumption, cost and performance, and there was also a need for fully static operation in which the clock could be stopped at any time. The ARM did not, for example, have an integral memory management unit, as this function was being provided by the MEMC support chip and Acorn did not have the resources to develop one. Essentially a rebadged OEM version of the Series 3 with slightly different on-board software, the device was marketed as an inexpensive computer for schoolchildren, rather than as an executive tool. Other programs were renamed: Online Media aimed to exploit the projected video-on-demand VOD boom, an interactive television system which would allow users to select and watch video content over a network. For the first six months the trial involved 10 VOD terminals; [63] the second phase was expanded to cover homes and eight schools with a further terminals in test labs. BBC Education tested delivery of radio-on-demand programmes to primary schools, and a new educational service, Education Online, was established to deliver material such as Open University television programmes and educational software. Netherhall School was provided with an inexpensive video server and operated as a provider of trial services, with Anglia Polytechnic University taking up a similar role some time later. NewsPad[edit] Risc User: NewsPad – Covered in the October edition In , the EU initiated the NewsPad [65] program, with the aim of developing a common mechanism to author and deliver news electronically to consumer devices. Apple Xemplar was wound up in Please see discussion on the linked talk page. Oracle had already talked seriously with computer manufacturers including Sun and Apple about the contract for putting together the NC blueprint machine; there were also rumours in the industry that said Oracle itself was working on the reference design. Acorn would define the NC Reference Standard. Ellison was expecting to announce the NC in February By January the formal details of the contract between Acorn and Oracle had been worked out, [82] and the PCB was designed and ready to be put into production. An Acorn NetStation NC It was hoped that the Network Computer would create a significant new sector in which Acorn Network Computing would be a major player, [83] either selling its own products or earning money from licence fees paid by other manufacturers for the right to produce their own NCs. The SA

was to be the first release target for Galileo. ART focused on the development of other software and hardware technologies built on top of ARM processors. Element 14[edit] Further information: It also produced a reference design for a Windows NT thin client using a Cirrus Logic system on a chip.

Chapter 5 : Acorn BBC Microcomputer - Deskthority wiki

Came also out for: -- Game description: Collect all the flags and get to the finish (F). Be aware of mines that you can't see, luckily you have a mine detector telling you how many mines are.

This concept would eventually become The Computer Programme, but it required an actual computer that could be sold to the public along with the program. The BBC met with several of the leading microcomputer companies in Britain at the time. Newbury Laboratories attempted to pitch their NewBrain, which was significantly under-powered for the project. Acorn, which was working on a new machine in its Atom line of computers, had preliminary sketches for a prototype new machine, called the Proton, which the BBC asked to get a look at, while also considering proposals from six other groups. The design for the Proton had gone little beyond basic sketches. The Proton was going to be the next step forward for the Atom line of computers. A team comprised mostly of Cambridge students, including Steve Furber and Sophie Wilson, took a week to transform the sketches into a prototype to show the BBC. Investing extremely long hours into the project, they managed to complete a machine that not only met the BBC specifications, but which exceeded them in many areas. It had especially powerful audio and video capabilities. The Micro had multiple video modes and multi-channel audio capabilities—features uncommon at the time on machines in its price range. The Micro sold for less than half the price of an Apple II system, the personal computer that had found great success in American education. This expandability made the BBC Micro into a device that could be used in a great many applications. Networked BBC Micros were common in schools, allowing for some of the earliest networked gaming. It had the unique feature that users could use an inline assembly to directly write assembly code. Games became one of the biggest segments of software for the BBC Micro. Some of the classics were based on established ideas like Dr. These were some of the most popular programs of all, and they encouraged a generation of English game programmers. While many point to the BBC Micro as an excellent tool to introduce young people to programming, it was its use as a game machine that was responsible for its popularity in the home. More than two hundred thousand Masters were sold between and The BBC Micro series of computers remained popular in education well into the s. A great many young people were introduced to computers for the first time through BBC Micros in the classroom and on The Computer Programme television series. Many individuals currently involved in the British software industry got their start programming for the BBC Micro, helping to establish the UK as a major provider of software to the world. While The Computer Programme and its comedy may seem dated today, you could say for its role in changing the perception of the English towards the computer, it was dead brill.

Chapter 6 : BBC Micro - Wikipedia

Long-time fans of the Raspberry Pi will know that we were inspired to make a programmable computer for kids by our own experiences with a machine called the BBC Micro, which many of us learned with in the s.

To do a full upgrade with all the external ports did, however, require soldering the connectors to the motherboard. The original machines shipped with "OS 0. Variations in the Acorn OS exist as a result of home-made projects and modified machines can still be bought on internet auction sites such as eBay , as of An apparent oversight in the manufacturing process resulted in a significant number of Model Bs producing a constant buzzing noise from the built-in speaker. This fault could be rectified partly by soldering a resistor across two pads. Early issue BBCs Issue 3 circuit boards and before are notorious for out of specification timings. A particular problem was the replacement of the Intel floppy disk controller[38] with the Western Digital " not only was the new controller mapped to different addresses,[39] it was fundamentally incompatible and the emulators that existed were necessarily imperfect for all but basic operation. A series of unsuccessful replacements were issued before one compatible with both was finally released. It had essentially the same based BBC architecture, with many of the upgrades that the original design had intentionally made possible extra ROM software, extra paged RAM, second processors now included on the circuit board as internal plug-in modules. Software and expandability Elite Acornsoft , The unusual game screen used two display modes at once, to show both detail and colour. The BBC Micro platform amassed a large software base of both games and educational programs for its two main uses as a home and educational computer. Programming languages and some applications were supplied on ROM chips to be installed on the motherboard. These loaded instantly and left the RAM free for programs or documents. Although appropriate content was little-supported by television broadcasters, telesoftware could be downloaded via the optional Teletext Adapter and the third-party teletext adaptors that emerged. The five total sockets were located partially obscured under the keyboard, with the leftmost socket hard-wired for the OS. The paged ROM system was essentially modular. The MOS recognised a handful of built-in commands, and polled the paged ROMs in descending order for service otherwise; if none of them claimed the command then the OS returned a Bad command error. Acorn strongly discouraged programmers from directly accessing the system variables and hardware, favouring official system calls. In this way the MOS could translate the request for the local machine or send it across the Tube interface, as direct access was impossible from the coprocessor. Published programs largely conformed to the API except for games, which routinely engaged with the hardware for greater speed, and thus required a particular Acorn model. With the exception of a tank game, Bolo , few became popular, in no small measure due to the limited number of machines aggregated in one place. A relatively late but well documented example can be found in a dissertation based on a ringed RS interconnect.

Chapter 7 : Chris's Acorns: BBC Microcomputers

The BBC met with several of the leading microcomputer companies in Britain at the time. Newbury Laboratories attempted to pitch their NewBrain, which was significantly under-powered for the project.

Solidisk Sideways expansion kit This particular computer has some truly horrible internal expansion that was bad even for the early 80s. It turns my otherwise professional-looking computer into a DIY kit! The case modding and overclocking fashion these days has nothing on this commercial memory upgrade from Solidisk Technology which, unlike my awesome floppy drive mod , was a serious upgrade. This is not AfroTech even if it looks like it. The fun started when I discovered that my computer would no longer start up. The first step was to take the computer apart and have a look inside to see what had gone wrong this time: Dirty connections with the Solidisk expansion kit had been the cause of boot problems in the past, but this time it was a flaky keyboard connection that was starting the system from stopping. Note that the camera is lying about the computer having a banana-shaped keyboard. The expansion kit comes in several parts. The most obvious one is a granddaughterboard the length of the case: The granddaughterboard is the board that carries the extra memory and provides the extra software chip sockets. The grey wire on this board is supposed to be soldered to its parent board but the previous cleaning effort to get the computer to start resulted in its detachment. This board is now dead. This software is run straight from ROM for extremely fast loading, permanent background access no matter what cassette or disc is inserted, and to offer considerable memory savings. The computer can address up to 16, 16 kilobyte Sideways pages, and each ROM is allocated one page. The motherboard, however, only has space for four sockets, and the small Solidisk board provides one extra. If you patch up the motherboard, you can also write-enable any Sideways bank, and this expansion kit provides, one assumes, a 16 kilobyte Sideways RAM bank. Clearly the best use of this is rampant software piracy, as the computer came with discs upon discs of ROM images. Not "romz" as in Amiga disc images, but actual ROM images. Fitting an extra board or card to a computer is all you have to do these days to perform an upgrade. Memory upgrades on the BBC Microcomputer also involve patching up the motherboard. In the case of this expansion kit, the daughterboard is wired up to all sorts of places: There are eleven flying leads: Two soldered to the processor black, brown except one has come off Two apparently soldered to the floppy disc interface yellow, orange Three soldered to one of the two Versatile Interface Adapters red, brown, black Four soldered to the Sideways configuration jumpers red, orange, yellow, green The upgrade also involved fitting a switch to the rear of the case, wired to the motherboard somewhere with no obvious relation to the rest of the system. This is normally a write-protect switch for the Sideways RAM to stop it from being accidentally erased: The expansion system leaves me puzzled. If you remove the granddaughterboard from its slot, the computer functions normally. A computer should not run with an obviously disconnected wire. And yes, that chip is indeed the processor.

Chapter 8 : BBC Micro Bit computer's final design revealed - BBC News

The BBC micro:bit is a pocket-sized codeable computer with motion detection, a built-in compass, LED display, and Bluetooth technology built in.

Optional serial, parallel interfaces Beyond the Atoms With plum sales on the System 2 and Atom, Acorn was in a position to make a discontinuous jump. By , it was clear that the days of 8-bit microprocessors, including the MOS , were numbered. There was a debate within the company on what technology the next Acorn should be based on. Unfortunately for Acorn, the new processor designs would require too much time. In , Sinclair was speaking publicly about his home computer designs, and the machinations of Newbury Laboratories were widely known. If Acorn was going to become a market leader in the UK, it would have to release its product quickly and ideally undercut its competition. After a long internal debate, a specification was drafted by Hermann for the Acorn Proton, and Roger Wilson, one of the engineers at Acorn, designed it. The chief advantages of the Proton over the Atom were to be better graphics and sound. The enclosure and the software were to remain identical to the System 2. Christopher Evans produced and hosted a very popular documentary, *The Mighty Micro*, which predicted the rise of the microcomputer and home computers in particular. The entire program TV shows and all was scheduled to begin in fall of , so there would be no time to develop an in-house design. Supposedly at the behest of Sinclair, the BBC opened up the selection process to accept proposals of other companies. The NewBrain was very primitive compared to the Atom and especially the Proton or most other British micros, but it was cheap. It had a membrane keyboard and a one-line vacuum fluorescent display. The more expensive model included a TV interface, though it was monochrome. Unfortunately for Newbury, they failed to enter the NewBrain into the competition, as the company would be unable to fill large orders. The Proton was submitted to the BBC for consideration. The Proton was the machine that most closely fit the original specification, since the Sinclair and Dragon did not include networking. Acorn was officially awarded the contract in April . It stipulated the company would have 12, BBC Micros read for mail order by spring of . Acorn instantly became the preeminent home computer company in the country and was very well reviewed. Even though its products were far more expensive than some of their competition from Sinclair, Acorn maintained a very high market share and remained the dominant computer brand in education well into the 90s and the advent of multimedia PCs. Later programs from the Computer Literacy Project would include instructions and news on other platforms but usually included a segment devoted to the BBC Micro. Primary schools across Britain and some colleges and universities were outfitted with entire networks of BBC Micros, which was possible through an inexpensive add-on that featured the Motorola networking controller it would also be used in AppleTalk on the original Macintosh two years later. Dozens of software houses produced educational programs for the BBC Micro, some of which are still used today, not unlike eduware for the long-lived Apple II. The explosive growth of Acorn hindered its ability to cope with the changing microcomputer industry. In alone, it had sold more than 24, computer, twice the number the BBC had required in its contract. Acorn had difficulty scaling to the huge demand for BBC Micros. Offices were established across England and Wales, but they were perpetually swamped with orders and service requests.

Chapter 9 : BBC Micro ROMs. Free Download - blog.quintoapp.com

The BBC Microcomputer System, or BBC Micro, is a series of microcomputers and associated peripherals designed and built by the Acorn Computer company for the BBC Computer Literacy Project, operated by the British Broadcasting Corporation.