

ATARI USER

THE BEST OF VOLUME 1



THE BEST BITS FROM 12 RAM BLOWING ISSUES

LIMITED SPECIAL EDITION

ATARI USER - THE BEST OF VOLUME 1

We've looked back, with a tear in our eye, over our first 12 issues and we've put the best bits into this limited edition, Best Of, compendium. We hope you enjoy reading it as much as we enjoyed making it...

In our first 12 issues we managed to cover a lot of Atari ground, with some in-depth features on Atari history as well as running interviews with some figures that were there in the glory days of the Atari scene.

In this limited edition compendium you'll also find lots of other interesting articles, reproduced exactly as they were published originally in their respective Atari User Magazine issues.



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Your relationship with money will always be the same. The only thing that changes is the number of zeroes

Ted Dabney to Nolan Bushnell

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Obviously, we can't cram the entire contents of 12 magazines into one special edition but we think we've picked some real gems for you, and hopefully there will be something for every Atari enthusiast.

Whether this is the first time you've dipped your toes into Atari User, or you are a regular reader, we hope you'll love this publication and find it a go-to reference for lots of Atari facts. Enjoy.

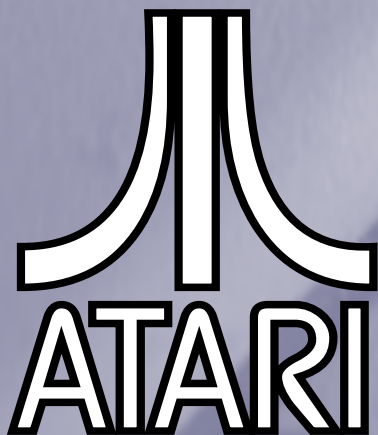


The Birth Of The Atari ST

It is 1984. Jack Tramiel, founder of Commodore International, has left the company and is busy putting together a team to build a new revolutionary home computer.

Gaming & home computer giant Atari is losing \$10,000 a day and Warner Communications are eager to sell.

The scene is thus set for what will be a battle between two computer giants, a tale of intrigue, deception and betrayal and from which will emerge a powerful 16-bit computer - this is its story, this is the birth of the Atari ST:



Atari User: The Birth Of The Atari ST

At Commodore International an argument involving Commodore's chairman Irving Gould and Commodore founder Jack Tramiel ensued over Tramiel's desire for his sons to take more active executive roles within Commodore. The argument resulted in Tramiel's immediate departure from Commodore in January of 1984.



Tramiel immediately formed a holding company, Tramiel Technologies, Ltd., bringing together people from around the world, all ex-Commodore employees, with the specific intention of designing, manufacturing, then somehow marketing a new, popular-priced computer.

Tramiel also began to visit various US computer companies with the intention of purchasing a company. Tramiel visited Mindset and Amiga, where Tramiel told Amiga staff that he was very interested in the chip-set, but not the staff.

By the end of May, Tramiel Technologies, Ltd. had rented a room at an apartment complex in Sunnyvale, and the core group of Tramiel recruits began to plan their new machine and to seek out a way to market it. Shortly thereafter, the negotiations with Warner Communications began to heat up.

Tramiel set his chief engineer (Shiraz Shivji) the task of developing a new low-cost, high-end computer system. Shivji soon had a block diagram of the machine on paper, but a detailed schematic was still months away. At least three CPU chip sets were under consideration, and the design engineers were still not sold on the Motorola 68000, the microprocessor at the heart of today's ST. Originally, the ST was intended to be a true 32-bit machine.

The original design considered using the NS32032 microprocessor, but in talks, National Semiconductor couldn't supply the chip in the numbers or price that the project required. In retrospect this proved to be fortunate as a prototype built on the NS32032 bench-marked slower than the 16/32-bit 68000.

"What the product was going to be and what it looked like was already very clear in our minds," Shivji says in recalling that time. "The work had already started. We knew what we wanted in a computing engine, what we wanted in a user interface. There was going to be a windowing system, it was going to have bit-mapped graphics, we knew roughly speaking what the [screen] resolutions were going to be, and so on. All those parameters were decided before the takeover. The idea was an advanced computer, 16/32-bit, good graphics, good sound, IDI, the whole thing--a fun computer--but with the latest in software technology."

The project, codenamed "RBP" for 'Rock Bottom Price', began to form between April and July 1984 into a design that was almost identical to the ST that eventually shipped. The design was a combination of custom chips and commonly available parts in a highly integrated singleboard design, fully equipped with standard and custom ports.

Jack Tramiel's son Leonard flew out to Silicon Valley in May to meet with his father, Shivji, and others to discuss the new machine.

Amiga contract

Prior to the introduction of the ST, Atari's computer division developed and sold a line of home computers based on the 6502 CPU with a set of custom VLSI processors - ANTIC, CTIA/GTIA, POKEY and PIA from 1979 through 1982 as the Atari 400 and Atari 800, in 1982 Atari introduced the 1200XL which was too closed a design and was replaced with the 600XL/800XL series.

Atari prepared several high-end computers for introduction in 1984, but these were cancelled when the Tramiels took over Atari. Several months prior to the release of the ST line, Atari released its 65XE and 130XE computers to replace the XL series 6502 8bit computers.

Jay Miner, one of the original designers for the custom chips found in the Atari 2600 and Atari 8-bit of machines, tried to convince Atari management to invest big money into creating a new chip-set and console/computer idea. When his idea was rejected, Miner left Atari to form a small think tank called Hi-Toro in 1982 and set about designing this new

Atari User: The Birth Of The Atari ST

chip-set. The computer would be renamed AMIGA and start selling various video game controllers and games while it developed its Amiga "Lorraine" computer system.

During development, Amiga had run out of capital to complete the development of its Lorraine chip-set, and the "Warner owned" Atari had paid Amiga to continue development work. In return Atari was to get one-year exclusive use of the design. Atari had plans for a 68000 based machine, code named "Mickey", that would have used custom chips, but details are sparse.

The following year, Tramiel discovered that Warner Communications wanted to sell Atari, which at that point was losing about \$10,000 a day. Interested in Atari's overseas manufacturing and world wide distribution network for his new computer, he approached Atari and entered talks. After on again/off again negotiations with Atari in May and June of 1984, Tramiel had secured his funding and bought Atari's Consumer Division that July.

As more execs and researchers left Commodore to join up Tramiel's new company Atari Corp. after the announcement, Commodore followed by filing lawsuits against four former engineers for theft of trade secrets. This was intended to in effect, bar Jack from releasing his new computer.

One of Jack's first acts after forming Atari Corp. was to fire most of Atari's remaining staff and cancel almost all ongoing projects in order to review their continued viability. It was during this time in late July/early August that Tramiel representatives discovered the original Amiga contract.

It turned out that Amiga was supposed to deliver the Amiga chip-set to Atari on June 30th, 1984. The Amiga crew, having continuing serious financial problems, had sought more monetary support from investors that Spring. Having heard rumours that Tramiel was in closed negotiations to complete the purchase of Atari in several days -- at around the same time that Jack was in negotiations with Atari -- Amiga entered into discussions with Commodore.

The discussions ultimately led to Commodore wanting to purchase Amiga outright, which would cancel any outstanding contracts - including Atari Inc.'s. So instead of Amiga delivering the chip-set, Commodore delivered a check of \$500,000 to Atari on Amiga's behalf, in effect returning the funds invested into Amiga for completion of the Lorraine chip-set.

Seeing a chance to gain some leverage Jack immediately used the situation to counter-sue Commodore through its new subsidiary, Amiga, which was done on August 13rd, 1984. He sought damages and an injunction to bar Amiga from producing anything with that technology. The suit tried to render Commodore's new acquisition useless and do to Commodore what they were trying to do to him.

Meanwhile at Commodore, the Amiga team was sitting in limbo for nearly the entire summer because of the lawsuit. No word on the status of the chip-set, the Lorraine computer system or the team's fate was known. Finally in the fall of 1984 Commodore informed the team that the Lorraine project was active again, the chip-set to be improved, the OS developed and the hardware design completed. This delay bought Atari several additional months in 1985 to release units to Atari User Groups in June 1985 and to go into full retail sales of the Atari 520ST in September of 1985.

So far as the Atari vs Amiga lawsuit - in March of 1987 the two companies had settled out of court in a closed decision.

TOS - The Operating System

With the hardware design nearing completion, the team started looking at solutions for the operating system. Soon after the buyout Microsoft approached Tramiel with the suggestion that they port Windows to the platform, but the delivery date was out about two years, far too long for their needs.

Another possibility was Digital Research, who were working on a new GUI-based system then known as Crystal, soon to become GEM (Graphical Environment Manager). Another option was to write a new operating system in-house, but this was eventually rejected due to risk.

The version of GEM first demonstrated to Tramiel Technology was actually running on top of CP/M-68K. Indeed, GEM's CP/M-68K incarnation was the only version of GEM available for the 68000 micro-processor at the time, and Atari would continue to plan for it to be the ST's underlying operating system in the months to come.

Digital Research was fully committed to the Intel platform, so a team from Atari was sent to the Digital Research headquarters to work with the "Monterey Team" which comprised a mixture of Atari and DRI engineers. Atari's Jim Tittsler was Atari key OS engineer overseeing "Project Jason" for the Atari ST line of computers. Their task was to translate Digital's IBM PC assembly code, written for the 8086

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microprocessor, into 68000 code, and also to re-write and recompile Digital's C code on the ST system.

CP/M-68K was essentially a direct port of CP/M's original, mature operating system. By 1985, it was becoming increasingly outdated in comparison to MS-DOS 2.0; for instance, CP/M did not support sub-directories and did not have a hierarchical file system. Digital Research was also in the process of building a new DOS-like operating system specifically for GEM, GEMDOS, and there was some discussion of whether or not a port of GEMDOS could be complete in time for product delivery in June.

The decision was eventually taken to port it, resulting in a GEMDOS file system which became part of TOS. This was beneficial as it gave the ST a fast, hierarchical file system, essential for hard drive storage disks, plus programmers had function calls similar to the IBM PC DOS.

Miraculously, by the beginning of January 1985 all the pieces began to come together. Atari officials realized they would meet the CES deadline, and they did: they shipped five STs to Las Vegas, with GEM still running on top of CP/M-68K.

Atari's first CES was an unequivocal success. Though product was not ready to ship and Atari had not yet signed on great numbers of computer retailers, the company had nonetheless brought off a tremendous public relations coup.

In February, GEMDOS was nearly complete and Atari had to make a crucial decision: should they continue with CP/M 68K or to move on to GEMDOS? CP/M-68K had been around several years; it was a well-known, well-understood, relatively well-accepted existing operating system. GEMDOS was a completely brand-new, untried, untested, incomplete operating system. However, it also offered significantly higher performance and gave the full hierarchical file system that CP/M-68K simply did not have. It was quite a difficult decision to make.

GEMDOS, while not written as an MS-DOS clone, nonetheless was modeled on MS-DOS. There is nearly a one-to-one correspondence between GEMDOS operating system calls and those of MS-DOS, and the mechanism for storing files on disk is identical--which is why ST disk drives can read IBM disks.

Throughout the spring of 1985, Atari shipped custom-built STs to developers. But during that spring, even as the hard work and dedication of so many

was paying off, the corporation's health was at its most critical stage. Jack Tramiel had put \$30 million in the company, and by then they were down to the point of no having cash flow from new products. Atari did finally begin shipping products, first in May with the XE line, then in June with the new STs. The bleakest period was over, and the company--along with its flagship 520 ST computer--began to blossom.

Debut of the ST

The design shipped in June 1985 to Atari User Groups and then in September 1985 for general retail sales as the 520ST. The machine had gone from concept to store shelves in a little under a year. Atari had originally intended to release versions with 128 KB and 256 KB of RAM as the 130ST and 260ST respectively. However, with the OS loaded from floppy into RAM, there would be little or no room left over for applications to run. The 260ST did make its way into Europe on a limited basis.

Early models shipped with TOS on disk, but were designed with ROM sockets to make for easy upgrading to the future ROM based TOS. These became available only a few months later, and were included in all new machines, as well as being available to upgrade older machines. By late 1985 the machines were also upgraded with the addition of an RF modulator, a version known as the 520STM.

Atari had originally intended to include GEM's GDOS, which allowed programs to send GEM VDI commands to drivers loaded by GDOS. This allowed developers to send VDI instructions to other devices simply by pointing to it. However, GDOS was not ready at the time the ST started shipping, and was included in software packages and later ST machines. Later versions of GDOS supported vector fonts.

On the plus side, the ST was less expensive than most machines, including the Macintosh Plus, and tended to be faster than most. Largely as a result of the price/performance factor, the ST would go on to be a fairly popular machine, notably in markets where the foreign exchange rates amplified prices. Indeed, the company's English advertising strapline of the era was "power without the price."

The Atari ST Story

David Asta continues his in-depth look at the Atari ST ...

The First ST model was the 130 ST. It was a prototype for the press demonstration and was never released because of its small memory size. The complete operating system couldn't fit in it.

The 130 ST was replaced by the Atari 260 ST and the Atari 520 ST. Despite its name, the Atari 260 ST was shipped with 512 KB of RAM, because the 192 KB operating system left less than 64 KB of free RAM.

The 260 ST Operating System was supplied on diskette with earlier models, then into 6 x 32 KB ROM chips when the development of the O.S. was fully finished.

The 260 ST was planned as a budget, entry level, machine with a retail price in the UK of less than £500. Two models were planned, one with a built in disk drive and one without. The 260 ST would also include a built-in RS modulator for direct connection to a TV set.

The 520 ST was an all-in-one unit, similar to earlier home computers like the Commodore 64. By the time the 520ST reached the market, consumers demanded a "full sized" keyboard, including cursor keys and a numeric keypad.

For this reason, the 520ST was fairly "boxy", generally over-sized for a machine that one had to move around to adjust the keyboard position. Adding to this problem was the number of large cables needed to connect to the peripherals.

This problem was addressed to some degree in the follow-on models which included a built-in floppy disk, though this addition resulted in the awkward placement of the mouse and joystick sockets to a cramped niche underneath the keyboard.

The case design was created by Ira Valenski - Atari's chief Industrial Designer. The ST being basically wedge shaped, with a series of grilles cut into the rear for airflow. The original 520ST design used an external floppy drive; the 1040ST-style case featured a built-in floppy drive. The power supply for the early 520ST was a large external brick while the 1040ST's was inside the machine.

In addition the majority of the machines had keyboards with very soft tactile feedback, not as good as those on the IBM PC, with unique and strange rhomboid function keys across the top edge.

The 520 ST was released before the 260 ST, and the ST's little brother would be quietly axed as the ST development program steam rolled ahead.

Port connections

The ST featured a large number of ports mounted at the rear of the machine.

Standard ports:

- RS-232c serial port
- Centronics printer port (bi-directional parallel communications)
- Joystick
- Mouse ports
- MIDI ports

ST-specific ports:

- Monitor port
- ACSI DMA port
- Floppy port
- ST cartridge port

Because of its bi-directional design, the Centronics printer port could be used for joystick input and several games made use of available adaptors that plugged into the printer socket, providing two additional 9-pin joystick ports.

Atari initially used single-sided disk drives that could store up to 360 KB. Later drives were double-sided versions that stored 720 KB. Due to the early sales of so many of the single-sided drives, almost all software would ship on two single-sided disks instead of a single double sided one, for fear of alienating early adapters.

ST magazines wishing to cater to the entire audience while still supplying a large amount of material on a single cover disc had to adopt innovative custom formats to work around this problem. Another sticking point was that while the Atari double-sided drive could read IBM-formatted disks, IBM PCs could not read Atari disks.

This was a formatting issue that was later resolved by third-party software formatters and TOS upgrades.

The Atari ST Story

ST cartridge port

Any device connected to the cartridge port can be directly controlled by the mighty 68000 processor with no "middle man". Theoretically, over 256K bytes/second could easily be transferred.

With the proper circuitry, over one million discrete processes could be individually monitored and controlled through this port. And, with the proper software added, an entire robot-controlled assembly line could be run entirely with the ST.

The 68000 processor easily surpassed the speed and memory requirements, and the cartridge port provides neat and eloquent access to this power. All 16 data lines and address lines, A1 through A15, are brought out to the ST cartridge port.

Since the 68000 can address two bytes (16 bits) of data at a time, there is no address bit zero. Instead, two control signals, UDS (upper data strobe) and LDS (lower data strobe), are present.

When the processor wants a word (16 bits) of data, the proper address is asserted on the address lines and both UDS and LDS are simultaneously brought low (Logic 0). If only a single byte (eight bits) is desired, the same process occurs except that only one of these signals will be strobed: UDS for even bytes, and LDS for odd.

So, it is possible to create an A0 address line using UDS and LDS. Moreover, it is possible to have several different operations based on the various combinations of these signals.

With 16 address lines, the ST could address up to 64K. The 68000 actually has 24 address lines however, and can address up to 16 megabytes! So the ST cartridge port has two more control signals available.

These are ROM3 and ROM4. Rather than bring out all 24 address lines, two possible 64K cartridge-bank address ranges are sensed by the ST's "glue" chip. When any address in the range of \$FB0000 through \$FBFFFF is asserted, ROM3 is strobed to logic zero. The other cartridge bank occupies the range of \$FA0000 through \$FAFFFF, and any address in this range will cause the ROM4 control line to be strobed.

Note that numerically, it would seem as if this were an error. However, the text is indeed correct: ROM4 is for

the lower \$FAxxxx range and ROM3 for \$FBxxxx. So, by using these control lines, a developer can easily prevent an interface circuit from interfering with any other memory operation that does not involve the port.

Since the cartridge port was originally intended to read cartridges which are normally just ROMs, Atari in its wisdom saved a few bucks by making the data lines (D0 through D15) unidirectional. In other words, data can be read in, but not written out on these lines.

To overcome this problem, and be able to transfer data in both directions through an interface, the system have to be fooled: Notice though, that the address lines have the exact opposite property: Data ("address" data, that is) can only be written out of the port. So if, for example, we want to write the word \$E812 through the port, we could make our circuitry respond to the ROM4 address range, and simply do:

```
def seg = &hfa0000
a = peek (&hE812)
```

in BASIC, or:

```
move.b $FAE812, d0
```

in assembler.

The ST thinks we're reading a byte from location \$FAE812, but what's actually happening is that the lower portion of the address data is being written to the port. (Note that the data returned is irrelevant.) So, since we have two memory-bank control lines available (ROM3 and ROM4), we could simply make two independent 16-bit interfaces on one board: one for reading data, the other for writing. The UDS and LDS control lines could be used to provide a "get status" function, in addition to read and write.

STF and STFM models

Atari later upgraded the basic design in 1986 with the 1040STF. The machine was generally similar to the earlier 520ST, but moved the power supply and a double-sided floppy drive into the rear of the housing of the computer, as opposed to being external. This added to the size of the machine, but reduced cable clutter in the back.

The Atari ST Story

The 1040 shipped with 1 MB of RAM, and the same design was also used for the new 512 KB 520STFM, which replaced the earlier models in the market.

The 1040ST was the first personal computer shipped with a base RAM configuration of 1 MB, and when the list price was reduced to \$999 in the U.S. it became the first computer to break the \$1000/MB price barrier, and was featured on the cover of Byte Magazine.

However, the ST remained generally the same internally over the majority of its several year life span. The choice of model numbers was inherited from the model numbers of the XE series of the Atari 8-bit family of computers. A limited number of 1040STFs shipped with a single-sided floppy drive.



Red LED vs Orange/Green LED

Red LED: Models produced between 1986 to 1987 have the first motherboard generation with ROM located under the PSU.

Orange LED (Green for power): Models produced between 1987 to 1989 have the second motherboard generation with ROM under the left of the keyboard (and space for a BLITTER chip : socket to be soldered)

Mega Models

Initial sales were strong, especially in Europe where Atari sold 75% of its computers. Germany became Atari's strongest market, with small business users using them for desktop publishing and CAD.

To address this growing market segment, Atari came up with the ST1. First debuted at Comdex, 1986, it was received favourably. Renamed the Mega, this new machine included a detached high-quality key-

board, stronger case, and internal bus expansion connector. The upcoming SLM804 laser printer would not come with a processor or memory, reducing costs.

It would attach to the Mega through the ST DMA port and have the Mega computer render the pages. Initially equipped with 2 or 4 MB, the Mega machines would complement the Atari laser printer for a low-cost desktop publishing package.

A custom Blitter co-processor was to be included to speed the performance of some graphics operations on the screen, but due to delays it was eventually released only on the Mega 2 and Mega 4 machines.

Developers wanting to use it had to detect for it in their programs because it was not present on all machines. However, properly-written programs using the screen VDI commands could use the blitter seamlessly since GEM API was a higher-level interface to TOS.



Later Models

For about the first four years, no major design changes in the ST platform took place as Atari focused on manufacturing problems and distribution.

Next issue the Atari ST story continues as we look at the remaining Atari ST releases.

Feature: Atari⁵²⁰⁰ Review

By 1980 the Atari 2600 was already considered obsolete. Atari needed a new product and fast

By 1979 Atari had moved into the personal computer market seeking higher sales prices and increased margins. The Atari 400/800 computers had launched with great success.

The company had enjoyed strong sales of its VCS (Atari 2600) console but Atari engineers knew that the company had to move forward, if it was to stay at the top of the console market.

By 1980 the Atari 2600 was already considered obsolete by many. Mattel were conducting an aggressive advertising campaign comparing the Intellivision's graphics capabilities against the Atari 2600. The adverts were sharp and to the point, the 2600 was being slated.

New players on the block were cutting into Atari's market share. The company needed to respond and bring out a machine that could compete with the Vectrex and the Intellivision.

Atari engineers began working on a replacement for the ageing 2600 and came up with a powerful 10-bit system, codenamed "Sylvia".

Well into development programmers began reporting back that the new console was just too difficult to program for. "Sylvia", now known as "System X" was shelved.

Atari then decided to build their second generation console around their then market leading 400/800 personal computers, and so the Atari 5200 was born, what Atari would call "The SuperSystem" or the "Video System X".

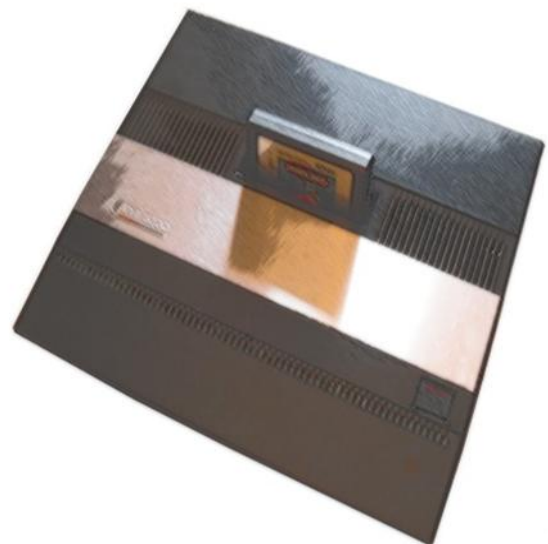
Using the custom graphics and sound chips of the Atari 8-bit computers, Atari hoped the System X, what would later be known simply as the 5200, would smash the competition.

The console would use groundbreaking 360-degree analog controllers featuring a numeric keypad, start, pause and reset buttons and, backed by the leading edge 8-bit technology,. Atari believed they were onto a winner and so, in late 1982, the "SuperSystem" was launched.

On launch Atari found their new console competing against the Colecovision.

The 5200 failed to be as groundbreaking as the company had hoped and customers began to look elsewhere to recreate the arcade experience at home.

That, coupled with the games market crash in 1984, would see the 5200 be consigned to Atari history after less than two years in production.



Continued...

Feature: Atari 5200 Review

The 5200 had been designed to be a cutting edge games console. The first version had four controller ports and a revolutionary automatic TV switchbox that would switch between TV and console game signals automatically when the console was in use.

A single lead connected the 5200 to the switchbox and provided both TV signal and electricity to the console.

The 5200 specific controllers were also revolutionary in their design with 360-degree analog movement. The controllers were not self centring, however and were either loved or hated by Atari 5200 owners.

The console itself was designed to include a storage compartment for two of the analog controllers and Atari hoped the unit's large dimensions would impress customers into making a 5200 purchase.

In 1983 Atari revised the 5200 design. The console went from having four controller ports to two, and the market leading but somewhat unreliable power and automatic switchbox design was replaced with the standard, non automatic, design and separate power supply.

Atari had implemented changes to the 5200's design toward the end of the four port version's production run to accommodate the new 2600 adapter which would allow 5200 owners to tap into the Atari 2600's vast cartridge library. The changes were fully implemented into the two port release.

Atari released a Trak-Ball for the 5200 and planned a new self centring analog controller as well as a paddle controller.

The company were also busy working on a new, slim-downed version of the 5200 design, codenamed the "5100". Neither the new controllers nor the 5100 design would make it to market.

In May 1984 Atari announced the launch of the new Atari 7800 console, at the same time confirming that production of the 5200 was to cease.

As the 7800 launched Atari announced a 7800 adapter for 5200 consoles, allowing the new 7800 cartridges to be played on the SuperSystem.

The Atari 5200 had lasted barely two years but Atari reported sales of over one million units. The 5200 was never sold beyond North America and it would pass, quite quietly, into Atari history.

There are many possible reasons for the 5200's rapid demise. The analog controllers, though revolutionary, were not well received. The video game market price-wars which led to the market crash also did not help.

The Colecovision had caught everybody by surprise and became the 5200's main rival. The Console's retail price more than halved in twelve months and Atari management quickly lost faith in the 5200.

As far as gamers were concerned the 5200 was considered an expensive but must have purchase. The console was considered cool, and for many it ticked all the right boxes.



Atari wanted the console to be the ultimate gaming experience which is why the original four port version shipped with "Super Breakout" to allow four player competitive play.

Super Breakout was slated by the public and was dumped as the in-box title, being replaced with Pac-Man some three months later. The Colecovision, however, had launched bundled with the most popular franchise of the time, Donkey Kong.

In reality the 5200 was launched during a somewhat tumultuous period of Atari's history. The company had gone from accounting for over sixty percent of Warner Communications revenue to being a loss maker. The company was losing its way with alleged infighting between the home computer and console development teams. For its part, Warner was now looking to offload Atari's home division.

There are many "what ifs". Perhaps the 5200 should have launched earlier, perhaps Atari should have focused its efforts on the console instead of continuing to milk the 2600 cow.

Continued...

Feature: Atari⁵²⁰⁰ Review

The 5200 was built around the 400/800 hardware but cost cutting meant the machine ended up as a “cut down” and feature restricted console instead of something which could have been used as a first step for users to move up from simply gaming to computing, much like Atari planned with the 7800 and would finally achieve with the XEGS.

During the console’s brief shelf life it had gone from a four port to two port console. Atari were also working on another version of the 5200, smaller in size and with the working title of “5100”.

History has, perhaps, judged too harshly the Atari 5200. There is a die-hard community of Atari 5200 owners and the platform has a limited but worth collecting for range of games titles.

The Atari 5200 is also far from dead, and several homebrew titles have been released for it in recent years.

If you are considering buying an Atari 5200 then you should go for the more reliable two port version over the original four controller port model. The two port model uses a separate power supply and conventional switch-box and is less likely to give you problems.

The console has a limited, but quality, range of games releases but this makes it quite easy to complete your collection.

The 5200 may only have been on the market for under two years but it is still going strong today.

Get out there, hunt one down and start playing on the SuperSystem. It won't take long for you to be blasted back to the eighties with the last word in cool console gaming.

Go give a home to an Atari 5200 today!



5200 Analog Controller

KEY ATARI 5200 SPECIFICATION:

- * CPU: 6502C (8 bit) 1.78 Mhz
- * RAM: 16 Kb
- * 2 Kb System BIOS
- * Colours: 256 Palette
- * Max Graphics Resolution: 320x192
- * Sound: 4 channel, via POKEY chip
- * 32Kb Games Cartridges



Mastertronic were renowned for releasing waves of budget games releases back in the eighties. This feature takes a look at the company that, as far as the Atari was concerned, kept the games coming.

The company was started in 1983. The video games industry was suffering from the collapse of the console market and demand was shifting toward the new home computer market, led by the likes of the Sinclair ZX80/ZX81 and the Commodore Vic20 / C64.

Three businessmen, Frank Herman, Martin Alper and Alan Sharam, backed with some outside investment, decided to use their previous distribution experience and setup a company that would sell computer games to the masses, and as cheaply as possible.

UK retailers were wary of the whole gaming market and were initially less than enthused about selling games which would give them less than one Pound worth of profit margin.

The directors used their experience in , and contacts from, the boom/bust video distribution market and setup a network of self-employed distributors and turned to corner shops, petrol stations, grocers and other small stores to sell their games, on a sale or return basis.

Instead of using one of the traditional distribution giants, Mastertronic opened up their own warehouse and handled distribution themselves. This was an expensive move that soon paid off for the company as Mastertronic were able to guarantee order delivery deadlines, and could quickly see what was working and what wasn't.

The company pioneered colour coding on its packaging using a coloured triangle on the game inlays. It was easy for retailers to sell the games without any computing experience and customers could see quickly which games were for their computer. As an example Spectrum games were coded yellow and C64 titles were coded red.

With the distribution model laid out all the new company had to do was find a product. Mastertronic partnered with Mr.Chip, a software house run by Doug Braisby and then secured a lucrative deal with the famous Darling brothers.

In the first fifteen months Mastertronic sold over two million units and new, budding, software authors began to approach the company with new games titles.

This was very much the time when games were more likely to be programmed by a spotty teenager from their bedroom than by a major software publisher. Mastertronic's business model was ideal for this and the company would kick-start the careers of many a would be games programmer.

The company didn't employ programmers in-house and typically paid programmers on a royalty basis. The Darling brothers alone earned £85,000 from sales in the first fifteen months.

In the UK and Europe games titles were most commonly released on cassette tape. This was ideal for Mastertronic as it was a low cost media. Games would retail at £1.99 and the company would sell to retailers usually around the ninety pence mark, with Mastertronic's production cost per unit being around forty-five pence including the royalty element.

The budget price point meant that a Mastertronic title could be afforded by most children using just their pocket money. It was a recipe for success.

The company avoided heavy advertising and would rely on editorial and press releases to advertise their titles. Generally speaking, however, Mastertronic titles would sell themselves.

In 1985 the company launched the MAD label ("Mastertronic's Added Dimension"). The aim was to push up the retail price to £2.99 by offering titles of higher quality. The company held a boat party on the Thames, invited the press, and demonstrated the first titles to launch under the new label.

"The Darling brothers earned £85,000 in royalties in the first fifteen months"



The launch of MAD combined with sales figures that spoke for themselves caused the press to finally begin giving Mastertronic's games titles print space in their reviews sections.

By 1986 the company was riding high. Martin Alper moved to California, to setup Mastertronic Inc. Most of the popular 8-bit computer platforms were unheard of in the States so the new division would focus initially on distributing C64 releases.

Mastertronic Inc then began distributing releases for the new 16-bit platforms as well as forging relationships and deals with US software houses. This enabled Mastertronic to release a range of great US titles into Europe under its new Entertainment USA and Americana labels.

Mastertronic also established exclusive, and successful, distribution deals in France and Europe.

Toward the end of 1986 the company took over Bulldog Distribution, a Mastertronic customer with a £30,000 debt. This gave the company access to the Bulldog brand and the strap-line "Best of British". A handful of titles were released on the Bulldog label.

For Atari 8-bit users Mastertronic were a lifesaver. Major UK retailers had largely turned their backs on the Atari XL/XE and titles were scarce. Mastertronic would release some thirty-nine titles for the Atari between 1984 and 1990.

The company was responsible for bringing us hit titles such as Kickstart, Ninja, LA Swat, Spellbound and One Man & His Droid.

Mastertronic also worked with US Gold and, through their Americana label, released the famous Bounty Bob Strikes Back for the XL/XE in the UK.

By 1987 Mastertronic were looking to enter the full-price games market and acquired publisher Melbourne House. The Melbourne House label would remain as a vehicle for Mastertronic to release full-price titles and the company got access to a large back-catalogue of titles that could be re-released onto the budget market.

At this point Mastertronic was beginning to attract the attention of major players in the industry and so it was that, later that year, Richard Branson's Virgin Group bought out Mastertronic's original outside investors and acquired 45% of the company shares.

The three original founders sold out in 1988 and the company was renamed "The Mastertronic Group Ltd" before being absorbed into Virgin and becoming "Virgin Mastertronic".

Earlier in 1987 Frank Herman had realised that SEGA had no UK distributor. After an initial, one year, deal, the SEGA franchise would grow enormously into what would become the giant SEGA Europe.

Virgin hadn't been interested in Mastertronic's budget games business but wanted the SEGA franchise. Mastertronic's core games business would decline rapidly from 1988 as Virgin shifted the company focus.

By 1991 SEGA could no longer ignore the success of their European franchise and so approached the company to buy them out. Virgin was eager to sell. SEGA had no interest in the publishing side of the business. Whilst most staff moved on to SEGA, a handful of programmers would remain with Virgin, for the now hastily renamed "Virgin Interactive Entertainment".

The Mastertronic brand would disappear, absorbed by the SEGA giant but would eventually reappear when founder Frank Herman negotiated the rights to the Mastertronic name and brand for the new company "Mastertronic Group".

Having purchased low cost software distributor "Sold Out" the new company distributes titles under the Sold Out label as well as the original "MAD" label back from the eighties. The group also distributes titles for PC Gamer magazine.

It is doubtful that three London businessmen could have imagined what a dramatic change their new company would have had on the game software market. Mastertronic revolutionised the industry and were the inspiration for dozens of "indie" software producers.

The golden years of the eighties can never be reproduced. Conditions were different then and now games production requires dozens of programmers and substantial investment.

The Mastertronic name may live on but those good times they brought to us will probably never return again.

The ProSystem Story



An Atari User Special Feature



ATARI 7800

The ProSystem Story

New York City, May 21st, 1984 . The day when Atari Inc announced to the world the arrival of the new Atari 7800 ProSystem.

The new console would offer the most advanced graphics seen to date on a video game or home computer and it would be compatible with over four hundred existing Atari 2600 titles.

A thirteen title line-up of games was promised along with an adapter for Atari 5200 owners to play 7800 and 2600 titles on their console.

The exciting news continued to flow. The 7800 would be expandable into a home computer, from its original 4K to 20K and users would be able to connect a professional keyboard through which they could connect standard Atari peripherals.

It was party time in Sunnyvale California. Months of hard work, consumer surveys and planning had come to fruition. A new console had been launched, signalling the death of the Atari 5200 - please don't send flowers.

Don't Send Flowers

Atari's flailing 5200 console had failed to make the impact Atari had wanted. The Colecovision had dented sales and the ground breaking analogue controllers were very hit and miss amongst consumers.

Atari decided to jump the 5200 ship and move forward at full speed, and work to bring out a machine that would be the best of its time.

A star Is Born

The company turned to General Computer Corporation (GCC - who still exist today) to work on the new machine, at the heart of which would be a powerful processor - the "MARIA" chip.

Under the prototype project reference of the "3600" Atari pumped huge amounts of resources into the project, at the expense of other in-development lines.

The company had actively sought opinions from its customers and the gaming public at large as to what

they wanted to see in a new, next generation, console and find out what exactly had gone wrong with the 5200.

With the 7800 Atari were going to pull out all the stops. Full compatibility with the 2600 VCS out of the box, a high score cartridge, hot new games titles and more. The 7800 could only be a winner.

Storm Clouds Are Gathering

As Atari and GCC moved ahead on the secretive 3600 project the storm clouds were beginning to gather.

Warner Communications were beginning to consider the Atari home divisions as a liability and were looking to sell. In addition a humble Japanese console manufacturer had approached the mighty Atari seeking a distribution deal with the Californian gaming giant.

A New Start, A Killer Product

Atari were keen to put the 5200 behind them, offer the public something they really wanted, and make a technological leap forward, right over the competition.

The project announcements were exciting. Apart from the console itself there was the keyboard, a high score cartridge (also developed by GCC), thirteen new games releases, a line of home productivity and educational software, and not forgetting new, self-centring controllers.

The 7800 would have a 256 colour palette as well as have 100 moveable objects on screen at any time.

Atari turned game development over to GCC. It made practical and commercial sense. GCC could turn out 7800 titles at a rapid pace.

Sunnyvale, We Have A Problem

The 7800 would be a sleek, compact design, with onboard TIA chip to ensure complete 2600 compatibility. The MARIA chip would bring cutting edge graphics but what would offer cutting edge sound?

The answer is nothing. The form factor for the 7800's motherboard was just too small to accommodate

The 7800 ProSystem story

Atari's custom POKEY chip. The 7800 was destined to offer cutting edge graphics but 2600 era sound.

A solution was needed and Atari decided on the cheapest option available to them - put a POKEY chip on each game cartridge.

GCC also came up with an audio chip of their own to use with each game ROM but Atari never took them up on the idea.

Atari would add the POKEY chip to a game title, brand it a "Super Cart" and hopefully sell more copies.

The Scene Is Set

Atari announce that the 7800 will ship from July with a retail price around the \$150 mark. The keyboard and high score cartridge will be available by the end of the year and from September the console will ship with Pole Position II built in.

The Curtain Falls

Production starts on the Atari 7800 and Atari, under Warner, are pushing ahead with plans to revitalise their whole product line.

Meanwhile, Jack Tramiel has left Commodore under a storm cloud and is looking to buy a company that will put him head to head against the Pennsylvania boys.

Tramiel sets his sights on Atari and Warner are keen to sell, quickly offloading Atari's home divisions.

Jack Tramiel moves in but the 7800 project becomes a victim of wrangling between the new Atari Corporation and Warner. Issues over licensing and payment to GCC for development of the MARIA chip would see the 7800 launch substantially delayed.

Remember Me?

Nintendo, having failed to reach a deal with Sunnyvale, had been quietly working on the North American launch of their Famicom system which by late 1984 was dominating the Japanese market.

In late 1985 the Nintendo Entertainment System (NES) hit the US with Canadian and European releases following soon after.

With a start price at under \$130 the NES shipped with two controllers and the Super Mario Bros. game.

Nintendo had redesigned the Famicom for their US release dropping the "family computer" concept in favour of a pure gaming console.

Whilst Nintendo prepared for the start of their North American offensive, Atari Corp. paid up GCC and secured the rights for ten 7800 launch titles. The 7800 was a go, but it would be 1986 before it would reach the market.

Warner Communications' grand designs for the 7800 went out of the window as Atari opted to keep the 7800 simple. There would be no keyboard, no high score cartridge, no 5200 adapter.

Many great game titles would fall by the wayside and, to make matters worse, Atari found that Nintendo had snapped up rights to the biggest arcade titles.

The product that should have stamped Atari's authority on the home console market would be a case of too little too late.

The Final Product

Atari made three main variations to the 7800, excluding the PAL version.

The initial version included the expansion port. The second revision saw the expansion port dropped and minor changes to the motherboard. By the final revision virtually all trace of the expansion port had been removed.

The European PAL version, again, showed no sign of the original grand expansion port plans and shipped with Asteroids built into the console.

North American models shipped with the new ProLine joysticks whilst the European models shipped with new Atari game pads.

The 7800 was to have been a vital part of Atari Inc's strategy for the home video game market but the sale of Atari and the emergence of the new Atari Corporation would result in delays that would be fatal for the console's success.

The 7800 arrived late to the prom and Nintendo were able to launch a new product into a stale market - and subsequently took Atari to the cleaners as far as console gaming was concerned.

By the time Atari discontinued the 7800, total global sales had reached 3.77 million, well short of what the company had hoped but still a profitable product.

The 7800 ProSystem Story



KEY 7800 FACTS:

Specification:

256 Colour Palette
100 Animated Objects On Screen
Custom Maria Graphics Chip
with 320x240 Resolution

CPU: 6502C
RAM: 4K*
ROM: 4K built in BIOS ROM
Onboard TIA Chip**

Vaporware:

Professional Keyboard with
SIO port
High Score Cartridge
Various titles for home
computing
5200 Adapter

* Atari planned to be able
to expand the 7800 up to 20K.

** TIA chip ensures virtually
100% compatibility with 2600
software. A few issues have
been reported by late series
NTSC owners.

PAL & NTSC versions are easily
distinguishable by their dif-
ferent bezel designs.

ORIGINAL RETAIL PRICE \$150 USD



*Proprietary Power Connector shown on left. Designed to
prevent damage by people using older Atari power supplies*

ATARI 7800

THE PROSYSTEM STORY

THIRD GENERATION CONSOLES HEAD TO HEAD



Atari 7800 ProSystem

Released: 1986 *

CPU: SALLY 6502C
Graphics: MARIA Chip
Max. Resolution: 320x240
Colour Palette: 256
Max Colours On Screen: 25
Sound: 2 Channel TIA
RAM: 4K
ROM: 4K
Media: ROM
Cartridge Size: 48K

Discontinued: 1992

Game Library: 60

Expansions & Add Ons:

Planned but never re-released include keyboard with SIO port, High Score Cartridge, RAM up to 20K

** Although announced in 1984, the 7800 didn't hit mass market until 1986. US Release date.*

Nintendo Entertainment System

Released: 1985 *

CPU: 6502 Core Ricoh 2A
Graphics: Picture Processing Unit
Max. Resolution: 256x240
Colour Palette: 52
Max Colours On Screen: 16
Sound: PSG 4 Channel
RAM: 2K + 2K Video RAM

Media: ROM
Cartridge Size: 32K

Discontinued: 1995*

Game Library: 791

Expansions & Add Ons:

Various controllers including light gun, floor mat controller, wireless multitap.

** US Dates & Data*

Sega Master System

Released: 1986 *

CPU: 8-bit Zilog Z80
Graphics: TI VDP
Max. Resolution: 256x224
Colour Palette: 64
Max Colours On Screen: 32
Sound: TI 4 Channel
RAM: 8K + 16K Video RAM
ROM: 8K

Media: ROM + Card
Cartridge Size: Up to 256K

Discontinued: 1992*

Game Library: 318

Expansions & Add Ons:

SegaScope 3D Glasses
Various controllers including light gun

** US Dates & Data*

The 7800 ProSystem Story

By the time Atari launched the 7800 Nintendo had established their presence in North America.

Sega followed Nintendo to market with their Sega Master System, originally sold in Japan as the Mark III.

Atari had gone from a position of market dominance to struggling to hold a minute market share. It seemed that, as far as the console market was concerned, it was game over for Atari.

Not all the major titles announced back in 1984 would make it to the 1986 7800 release. The system limped into stores as retailers were reluctant to push the console.

Titles trickled out and the console struggled to gain a footing in North America.

In Europe the 7800 fared better but was still up against fierce competition. Nintendo's distribution method was unpopular with retailers with several big chains and a large chunk of independents shunning the NES.

Sadly for the 7800, where Nintendo struggled Sega succeeded and the Master System was immensely popular.

The third generation console war was over before it had really started but elsewhere Atari were cooking on gas. The ST was a huge success in Europe and things were looking good indeed for Atari Corp.

The Atari 7800 would pass into history as yet another insignificant Atari product but its market failure would be significant for the company's future.

Today the 7800 lives on thanks to its small but easily collectable games library. In addition new homebrew titles such as FailSafe are helping to keep the console alive.

Legacy Engineering's new 7800 Expansion will hopefully kick-start the revival of a console that was never given the chance to shine.

Ed: Steve was lucky to grab over a dozen new in box 7800 systems formerly from Atari Holland several years ago.

Today their exaction location is a closely kept secret. We believe they might be kept under his bed or, maybe, in a top secret facility on a remote Scottish island.



On the morning of December 7th, 1941, Japanese carrier based aircraft launched a surprise attack on the American naval base at Pearl Harbor, Hawaii. Over 350 aircraft were launched from six carriers and sank four U.S navy battleships as well as three cruisers and damaging many other U.S ships. Over 2,500 American personnel were killed and the Japanese destroyed 188 aircraft, mostly caught sitting on the ground.



The Japanese had mistakenly believed that America would come to Britain's aid in Pacific Asia and also wanted to neutralise the U.S Navy, ahead of an invasion of the Philippines. On the eleventh of December Nazi Germany and Italy declared war on the United States forcing a previously reluctant America into world war.

The Japanese would steamroll through the Pacific, and would soon control a vast expanse of ocean. The Japanese Imperial Navy however was stretched. Japan depended on its sea routes to keep its war machine plied with vital resources. The United States Navy (USN) and their fleet submarines would go on to inflict heavy losses on the Japanese navy and the Japanese merchant fleet, cutting off Japan's supply routes. They would achieve what Nazi Germany had failed to do against Great Britain.

Often overlooked by historians, their role cannot be understated. By the time the war ended USN submarines had sunk over five million tons of enemy shipping.

The heroic men and the submarines they served in were known as the Silent Service.

SILENT SERVICE MICROPROSE ATARI 8-BIT & ST Versions



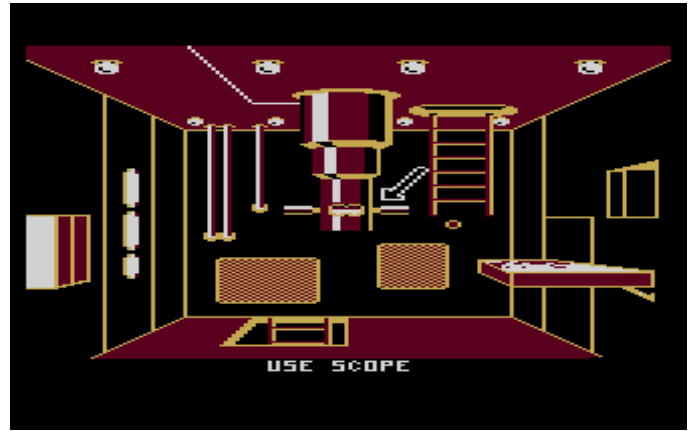
Sid Meier's Silent Service was released in 1985 on the Atari 8-bit with the ST version appearing a year later.

The game puts you in control of a USN fleet submarine during the pacific war and your job is to carry out a combat war patrol and sink as many Japanese ships as you can with your limited supply of torpedoes and fuel.

Silent Service is a submarine simulation and you can change in-game settings to suit your experience and playing style. The USN fleet submarines were plagued by faulty torpedoes until 1943 and you can choose to be historically accurate or go for one hundred percent reliability. You can choose one of several USN submarines to captain and replicate one of their historical combat patrols. Each patrol takes place in a different period of the war and this impacts directly on the quantity and type of Japanese ships out there to sink as well as the location of enemy shipping routes.

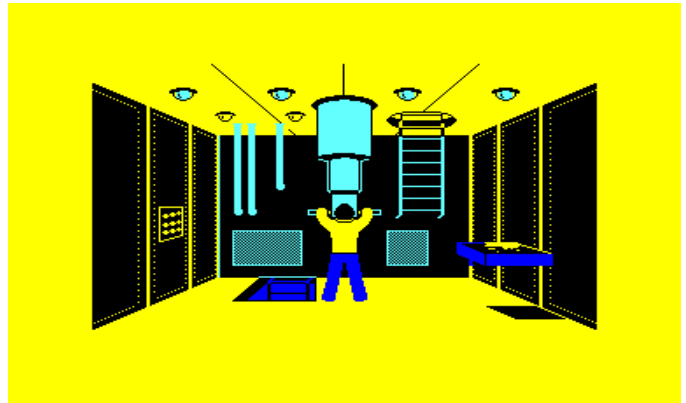


FEATURE:



Conning Tower, by night, on the Atari 8-bit

It could have been worse though, just look at the conning tower on the Amstrad CPC:



The charts section is a vital part of the game and it is from here that you will plot your course and that of the enemy ships as well as track your torpedoes. You can zoom in and out of the map view.



Aside from war patrols which are the most important part of the game you can indulge in a bit of torpedo and gun practice or carry out attacks on specific convoys.

Those new to the game should take some time to practice but Silent Service, despite being a very deep and involving game, is easy to get to grips with. The supplied manual is excellent and a must read just for all the historical information it contains.

To make things easier the game is split into bridge, periscope and conning tower screens. The conning tower acts as a menu and links you to different battle stations such as charts, damage control and gauges and instruments. Pressing the space bar will take you to the conning tower directly.



On the ST version the conning tower is detailed and well drawn out. The sub's captain (that will be you) is busy looking through the periscope and plotting his next kill. On the 8-bit the conning tower has been neglected somewhat and the captain has vanished, never to be seen again - presumably in order to keep the game within 48K to ensure maximum compatibility with older Atari 400/800 models.

FEATURE:

On the 8-bit the chart screens are pretty sharp and clear and you can see I've fired a torpedo at a Japanese convoy.



For the ST the chart screen got a revamp although I prefer the 8-bit version. Anyway, you'll be using the chart screen a lot during your war patrol.

The bridge is accessible only (obviously) when the submarine is not submerged. The bridge gives you a wide-angled view and allows you look around faster than when using the periscope. You can see what visibility is like (which impacts on how quickly and easily you can be spotted by the enemy) and also fire the deck gun, although firing the deck gun is more accurate via the periscope view.



On the 8-bit there isn't usually a great deal to see on the bridge. You get some waves, and clouds and you also get to see the coastline from time to time.

Things on the bridge don't get much more exciting on the ST. The extra detail is poorly implemented and almost annoying. Still, as you won't be spending too much time on the bridge it isn't a big deal.



Actual combat takes place usually from the periscope view, unless it has been damaged by the enemy or you failed to retract the scope when diving.

From the scope you can get a good 360 degree rotating view, identify targets, fire torpedoes, change heading and speed as well as firing the deck gun. You can also dive or surface the sub.

The scope view also gives you targeting and tracking information from the torpedo data computer (TDC). When starting a game you can choose whether the TDC will do the necessary calculations for torpedo firing for you or if you are going to do the calculations yourself.



As far as the 8-bit version goes the periscope view screen seems a bit limited however the enemy ships are quite detailed and you get to see your deck gun shells splashing into the water as well as nice explosions when a shell or a torpedo impacts on an enemy ship.

On the ST the periscope view screen has been enhanced but ships appear blocky and sometimes it is

FEATURE:

hard to tell what type of ship it is you are firing at and two or more ships tend to blur into one.



Sonar reports distant explosions even though I can see the ship I've just torpedoed right in front of me.

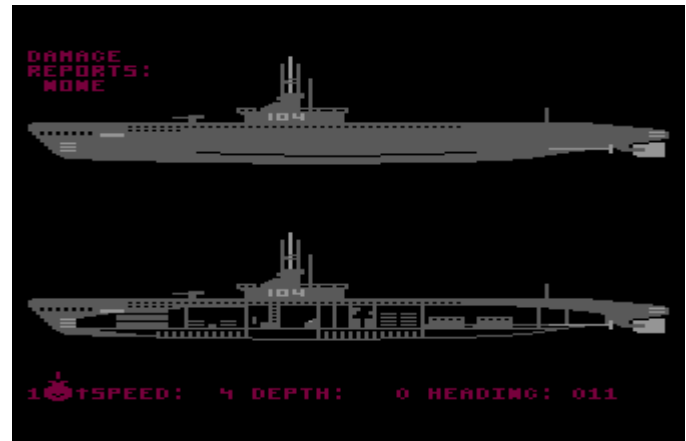
Damage control is an important screen that you'll no doubt find yourself referring to at some point in the game. If you get rammed, run aground, hit by enemy fire or depth charged then you are going to take on damage. You can choose the realistic "port only" repairs option when starting a new game or you can go for the easier option where your crew will automatically try and repair the submarine.

As your ship takes damage you may lose periscope, engines or suffer battery or dive planes damage. Your sub may also start to take on water.



The ST version gives you a nice colourful and detailed display of your submarine and you can click on damaged (highlighted in red) sections of the sub to find out specific details of how bad the problem really is.

The 8-bit damage control screen isn't as colourful but looks quite impressive none the less, especially when your sub has no damage whatsoever!



When you've engaged some enemy shipping you'll have fired off some torpedoes, maybe fired your gun and you might have spent plenty of time submerged. Your sub has a limited battery supply which will soon run out unless you surface and start using your engines. Your torpedo supply is limited and it also takes time for your crew to reload the sub's torpedo tubes. The gauges and instruments battle station is then a vital screen which you'll keep going back to.



From the instruments screen you can see battery levels, see if batteries are charging, check speed and depth as well as see the status of your torpedo tubes amongst other things.

Returning to the conning tower, there are two other options available. One is to view the Quartermaster's log to see the tonnage and type of enemy ships you've sunk so far and the other is to continue your war patrol. Usually you'll continue your patrol after you've taken out your targets but sometimes a target is just too fast or dangerous to bother with. You may

FEATURE:

also find yourself forced into a deep dive and silent running, waiting for the Japanese destroyers to give up hunting you down whilst their cargo and tanker ships have made their escape.

The war patrol screen gives you a huge view of the pacific ocean and you move your sub around the screen hunting for enemy shipping. Once your sub has located enemy shipping the screen goes red and you are given the option to engage. If you don't respond the enemy ships will sail on by and you simply keep patrolling.

Again, it is important to read the game manual as the number, type and location of enemy ships and convoy routes will vary at different times during the war. As the war progressed USN submarines had to go closer and closer to Japanese home waters in order to find worthwhile targets.



If you've taken damage, have run out of torpedoes or are running out of fuel then it is time to return to base.

Your war patrol ends when you return to base. It isn't possible to have a "career" and conduct several patrols and this is the only real weak point I can see in the game although it was addressed later on in the excellent Silent Service II.

As far as game-play is concerned the 8-bit and ST versions are pretty much the same. The ST version obviously has the better graphics but sound has been poorly implemented. The sound effects are very poor and the 8-bit version actually sounds better.

Compared to the C64 and other 8-bit versions, Silent Service on the Atari looks quite impressive. Apart from the absence of the sub's captain from the con-

ning tower screen the game display is sharper and with a better use of colours.



Silent Service, on the C64



Silent Service , on the Spectrum

Silent Service is both a complex yet intuitive game. Yes the ST version looks dated but don't let the average graphics and sound detract from what is a hugely playable game with so much depth and quality. My first impressions of the ST version were that maybe the game had been a rushed and poorly implemented port but the game graphics do compare to the Amiga version and they are different enough to distinguish the game from the DOS version.

It could have been much worse for both Atari 8-bit and Atari ST owners and I hope the screen shots from the Amstrad and Spectrum versions will show you just how bad this game could have looked.

No two war patrols are ever the same. Silent service is a must have game for the Atari 8-bit and for ST

FEATURE:

owners it remains as playable and enjoyable today as it did in 1985.

If you're still not inspired enough to fire up your Atari 8-bit or ST and start playing Silent Service then take a quick look (don't look too long or else your eyes will bleed) at this screen shot from the Apple II version of the game:



Go out and hunt down a copy of Silent Service today, you won't regret it.

ST VERSION

GRAPHICS:	8
SOUND:	6
PLAYABILITY:	10
OVERALL:	10

ATARI 8-BIT VERSION

GRAPHICS:	8
SOUND:	8
PLAYABILITY:	10
OVERALL:	10

Atari 8-Bit: 1985 Microprose. Released on cassette and disk. Minimum 48K.

Atari ST Version: 1986 Microprose.

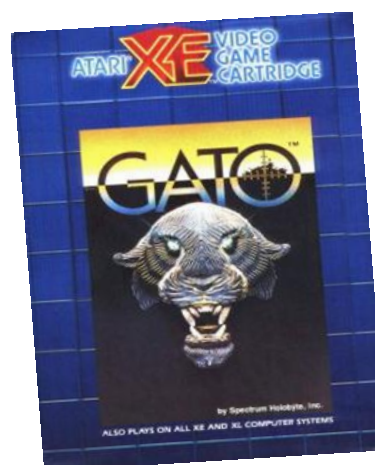
REVIEW: STEVE WILDS

COMPUTERS USED: Atari 800XL & Atari 1040 STE

GATO

**Spectrum Holobyte 1985 (IBM, MAC, APPLE)
Released by Atari 1987**

GATO made quite a few waves back in 1985, as the first submarine simulator for the PC. Atari licensed the game and released it on cartridge as part of their new range of games for the XE game system. The artwork on the game box and cartridge is impressive and the manual hints at a complex and involving game.



You are in charge of the Growler, a WWII attack submarine, GATO class and you are assigned orders by COMSUBPAC that can include convoy raids, rescue, re-supply and destroy missions. Instructions are received via the radio room on-screen and in morse code. On higher difficulty levels you only receive orders in morse code, adding to the realism.

An interesting game feature is that if you have a disk drive connected with a formatted blank floppy then the game will automatically update and save your game history - Captain's log.

Up to four people can play GATO. Once one player completes a patrol or gets lost in action the next player has their turn. I'm not convinced that players would wait patiently for their turn but it is nice to have a multi-player option.

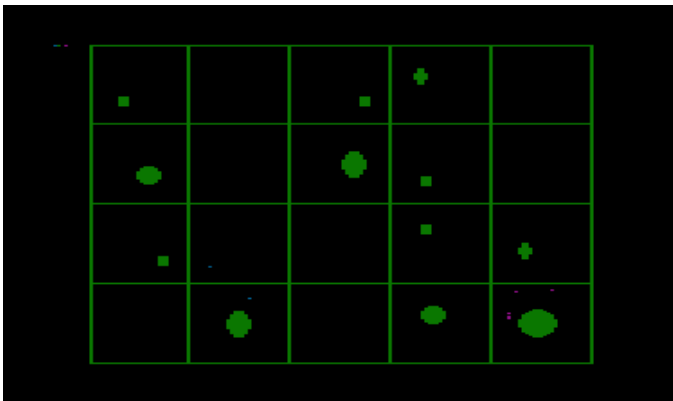
Most of the time you will be using the Patrol Area Chart - accessible by pressing C on the keyboard. The chart shows your location and heading as well as that of your sub-tender and enemy ships. On higher game levels only your submarine is visible and you'll have to use radar to help you.

FEATURE:

As your submarine and other vessels move they leave traces behind them so you can easily see their heading. You can actually exit from one side of the patrol chart and enter on the other. It saves you a bit of time but doesn't add to the realism.



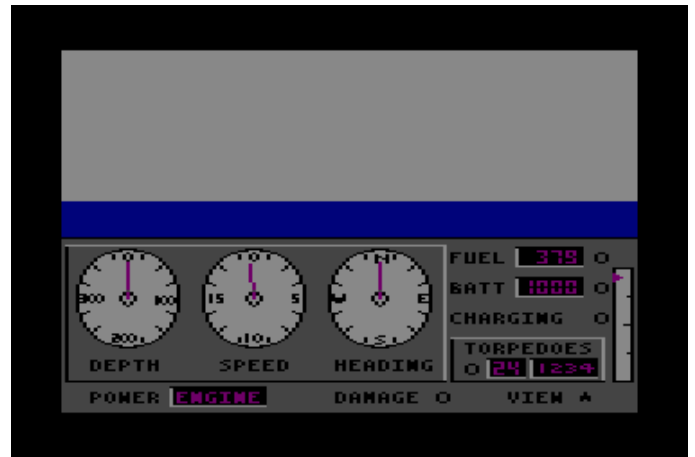
The Quadrant chart is a larger scale view and as before the level of information visible to you will depend on the game's difficulty level.



The patrol area chart is very basic. The blue dots represent your submarine and sub-tender with the reddish dots representing enemy shipping. The green 'splodges' are islands.

The Main Control screen replicates the view from the bridge and the periscope. If you've dived below 45 feet then there is no view available - you are running solely on instruments. With the periscope raised you get targeting crosshairs and as well as slowly rotating your view you can shift quickly between forward, aft, port and starboard views.

The main screen also shows depth, speed and heading along with the status of your torpedoes as well as fuel and battery levels. There is also a damage indicator. Pressing D will take you to the damage control screen and detail the damage to the sub.



Your submarine is equipped with radar, right off the bat, and you'll need to make good use of radar especially when playing the higher difficulty levels.

Graphics are overall reasonable however your sub-tender and enemy ships are line drawn 3D objects and, whilst 3D was used to great effect in Mercenary, in Gato they look very poor. Sound effects are sparse but realistic.

The main problem with Gato is the lack of targeting for torpedoes. It really is just a case of lining your ship up in front of a target, firing and hoping for the best.

The different missions, the ability to re-supply and the open-ended game-play make this game worth a look and help you to overlook the average graphics and simplified playing style.

Post Silent Service and Gato looked dated though credit to Atari for making this then popular simulator available on the Atari - but by 1987 Atari owners were expecting much better graphics than what this game can muster.

GRAPHICS:	7
SOUND:	7
PLAYABILITY:	7
OVERALL:	7

REVIEW:
STEVE WILDS
ATARI USED: 800XL

REVIEW:

Since 2010 the Earth Federation's most elite fighting force, the Star Raiders, have been policing space routes and preserving intergalactic peace. Now the Zylons, a bunch of barbarians from Alpha Solar, are wreaking havoc on interstellar trade and threatening to plunge the Federation into war.

You are a member of the elite Star Raiders, and your mission is to rid the galaxy of the Zylons once and for all. It will be a difficult task, the Zylons are already attacking Federation Starbases.

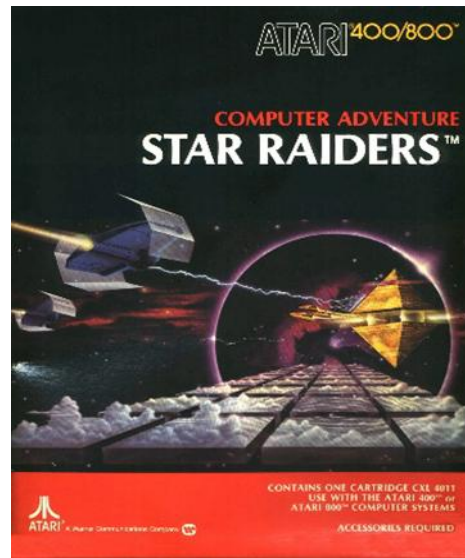
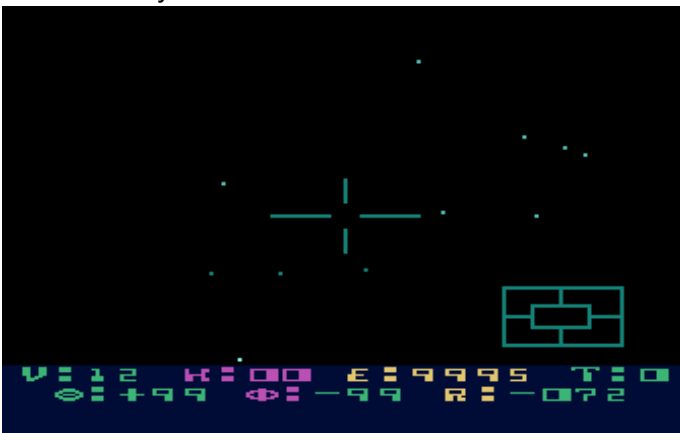
Star Raiders is probably the most iconic game ever made for the Atari 8-bit. Way ahead of its time, it was a perfect mix of space combat and strategy and would be the ideal sales vehicle for Atari's new 400/800 range of home computers. Nobody had really heard of a 3D space game before and Star Raiders really did make us reach for the stars.

As the modern day Atari are working on a new 21st century version of Star Raiders, we thought it was time to revisit this classic game and we're proud and humbled to be joined by Doug Neubauer, Star Raiders author, as we fire up the warp drive and hyperspace back in time to take another crack at the evil Zylons.

Star Raiders was written originally for the Atari 400/800. It would become the flagship game title for Atari's new machines. Atari 2600 and Atari 5200 versions would follow.

The aim of the game is to rid the galaxy of the evil Zylon invaders who are intent on destroying Federation starbases. You must pilot your starship through the galaxy, destroying the Zylons as well as ensuring your starbases aren't surrounded and destroyed.

Your starship has a limited amount of energy and can only take so much damage - you'll need to make use of your starbases to refuel and repair if you're going to defeat the Zylons.



The Zylons have developed three types of combat spacecraft. Zylon Fighters are fast and deadly at close range. Zylon Cruisers are patrol ships, defensive in nature but packing increased fire-power. Zylon Base-stars are heavily shielded and can only be destroyed from close range and are extremely dangerous.

To help you navigate the galaxy and hunt down the Zylons your ship is equipped with a complex navigation system and you can move between sectors using your galactic chart. This shows the position of the attacking Zylon fleets as well as the locations of your starbases.

By doing hyperspace jumps you can move across the galaxy quickly and easily but hyperspace jumps eat into your ship's energy supplies as does your ship's engines or using your shields or onboard attack computer.

If you take damage then your ship's onboard systems or even your engines will malfunction. You can repair and re-supply your starship by docking with a Federation starbase.

Zylon fleets are constantly on the move and their ultimate aim is to destroy all of your starbases. By using the galactic chart you have to plan your attack carefully as if you focus too much on one area you'll find the Zylons have surrounded and destroyed a starbase at the other side of the galaxy.

The action takes place in space, obviously, within a fantastic 3D starfield. Even today, years after first playing Star Raiders, this game remains very cool as you jump into a sector, go to red alert and activate your shields and attack computer.

REVIEW:

Combat is fast and furious as you engage in constant dogfights with the Zylons and destroy them with your photon torpedoes, trying to be as accurate as possible so you don't deplete your ship's energy supply.

After a tough battle you head off to the nearest star-ship, line up your approach, reduce speed and wait for the base to confirm you have established a correct orbit. A transport vessel is then launched to re-supply your ship.



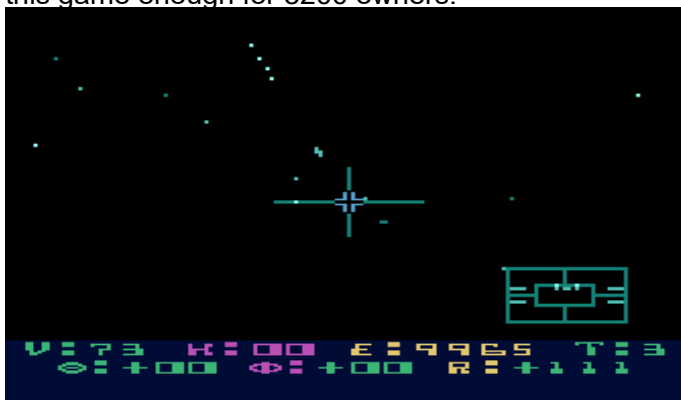
Galactic Chart: Zylons are everywhere...

Different difficulty levels mean that Star Raiders is a game you'll never tire of. No two games are ever the same and being able to defeat the Zylons on the Commander level is a real challenge.

Using the Computer tracking system and switching automatically between forward and aft view when in combat never gets old and the 3D space combat remains as exciting today as it did over 30 years ago.

The 8-bit and Atari 5200 versions are virtually identical although the console version has obviously been altered to take advantage of the 5200 analogue controllers.

Star Raiders is a game where the 5200 controllers really do come into their own and I cannot recommend this game enough for 5200 owners.



The 2600 version shipped with a video touchpad and whilst the game doesn't quite live up to the classic 8-bit version it is fast action and very playable.



The Zylons became the Krylons for the 2600 version of Star Raiders.

If I had to choose between the 5200 and 8-bit then I'm going to stick my neck out and say the 5200 version has the edge due to the fact the 5200 controllers are ideal for Star Raiders.



Shields on, time to kill some Zylons...

GRAPHICS:	8
SOUND:	8
PLAYABILITY:	10
OVERALL:	10



A must have game for any Atari gamer.

Steve Wilds

EXCLUSIVE:

STAR RAIDERS Creator Doug Neubauer talks to Atari User about his iconic game.

AU: Doug, first of all welcome to Atari User Towers, and thank you for the taking the time out to talk to us. **DOUG:** except for helping the test engineer getting the Pokey test fixture up and running.

We'll start the ball rolling by asking how you came to end up working at Atari? **AU:** What was it like working for Atari during such an exciting time?

DOUG: After graduating from college I had the option of either working at National Semiconductor in their calculator and home computer/video game department or working at IBM in Austin Texas in their electric typewriter division. **DOUG:** Atari was pretty laid back, and I was working for the legendary Jay Miner who let me work on the game. I think Star Raiders, along with the other early games, helped in finding any bugs in the Atari 800 chips.

Videogames and home computers looked a lot more interesting, not to mention fun. So going to National Semiconductor gave me the opportunity to eventually wind up at Atari. In hindsight, I think I made the right choice. Looking back at Atari it was a pretty unusual environment. In those days it was one programmer to a game. The programmer gets to invent the idea for a game, then gets to do the graphics, sounds, and the game play. That lasted up until '83 or so. Now of course, it's multimillion dollar budgets and huge teams of designers, artists and programmers.

I was hired at National by Richard Simone, who then went on to head Atari's "dedicated game" console department, which paralleled Jay Miner's "cartridge based" game console department. There were a number of people from Richard's National group who went on to Atari. For example, the Pokey design team, Mark Shieu, Steve Stone and Delwin Pearson all came from National. The chip design department at Atari was more like a traditional semiconductor company, with senior design architects coming up with the overall design specification, and then folks like me, the logic and circuit designers, implementing the spec.

AU: What inspired you to write the classic game we all now know and love? **AU:** Can you tell us a bit about what it was like writing the game and what was involved?

DOUG: Star Raiders was influenced by the old Star Trek game on mainframe computers in the seventies, especially the galactic chart. The basic concepts refueling and repairing damages at star bases (which you also had to defend), and cleaning up the galaxy of bad guys. **DOUG:** As far as I know, Star Raiders was the first 3D space game. I asked around Atari if anyone knew the algorithms for 3D motion, but nobody did. So I wasted a few weeks trying to figure out the equations, until I finally sat down with a piece of paper and worked out the geometry. The hard part was figuring out the rotation algorithm without using sines and cosines.

AU: We know you worked on the POKEY chip design, the legendary sound chip for the Atari 8-bit, but how did you get into writing Star Raiders? The Atari 800 had something like four sprites, that I really didn't know how to use very well at that time, so I think there are only 2 bad guys on the screen at a time along with your 2 photon torpedoes and one enemy torpedo. I could have gotten more bad guys on the screen by reusing the sprites like I did with Solaris on the 2600.

DOUG: Even though I was hired as a chip designer, I started working on Star Raiders during the time between Pokey being finished and waiting for the other two chips to be completed. So my work on Pokey was pretty much finished, Once I had the algorithm down for the 3D motion the star field was pretty simple, ditto the explosions, except

EXCLUSIVE:

that trying to calculate the positions of that many particles using my crummy 16 bit multiplier code slowed down the game.

One bit of trivia is that surprisingly it's a lot harder getting the star field to work right in the aft view than the forward view.

For the Galactic chart algorithm, the bad guys would randomly pick a Starbase to attack, and then each enemy fleet would choose the shortest path to the Starbase.

This algorithm didn't quite work as from time to time the bad guys would get stuck in a "traffic jam". So I added a little randomness to their path so they could get unstuck. On the higher levels, they move a little faster and they get smarter, in that there's less "randomness" in their attack algorithm.



Screenshot from the 2600 Star Raiders prototype, Atari 1981

AU: We know you wrote Solaris, which is easily one of many peoples' favourite games for the Atari 2600. How would you compare Star Raiders with Solaris?

DOUG: Comparing Star Raiders to Solaris, I didn't consider Solaris as a sequel to Star Raiders, although in hindsight I guess it kind of is. They both fly through space, they both have Galactic charts, but Solaris extends the game with flying on the planet surface and flying through a trench.

I think Star Raiders had better game play though and I much preferred Star Raiders explosion graphics. Also, I think I prefer the pure cockpit view of Star Raiders.

AU: Doug, a big thank you for speaking to us and for writing such an amazing game.



Solaris, Atari 2600. Atari 1986

Some Star Raiders Trivia:

Doug Neubauer now runs a Search Engine Optimisation (SEO), web design and promotional video business.

The colour of the shields in the Atari 8-bit version should be a dark blue however depending on your Atari hardware or the emulator you are using it will actually show as green.

Doug originally wanted to use the photon torpedo sound from Star Trek and actually went so far as to jury rig a sound capture input to the Atari 800 joystick ports and grabbed the sound. But it took far too many bytes to implement, so he came up with the final sound using the Pokey audio circuits.



XE SYSTEM REVIEWED

Atari chose to revisit their 8-bit line as well as the aging but still stubbornly selling well Atari 2600 in the late eighties. The company asked their largest retailers if they'd like to see a new low cost computer or a new console. The overwhelming response was for a new console, and so Atari opted to release the Atari XE System (XES) and make the best of both worlds.

The XE console was released in 1987, just in time for Christmas. Atari redesigned their packaging and released a slew of 8-bit titles on cartridge to back up their new arrival. From classic titles to previously unavailable games on ROM, the XE console would give birth to a mini albeit short-lived revival of the 8-bit scene.

From new packaging to new advertising, Atari pushed the new console and breathed new life into the 8-bit range that had seemingly been abandoned in favour of its big brother, the 16-bit Atari ST. Whilst the XES never benefited from anything near the marketing bucks Atari were spending on the ST the console was arguably a sales success for the company.

The console was designed to appeal both to casual gamers as well as computer enthusiasts. If all you wanted was a games console then the XES was a low cost way to dip your toes and enjoy games with great graphics and sound. If you wanted a home computer then the XES was a cheap way to get into computing and benefit from an established line of home computers with a software library running into thousands of titles.

You could choose between a standalone console package with joystick or a pack that included the console, detachable keyboard as well as light gun, joystick and Bug Hunt and Flight Simulator cartridges. In addition Atari offered two packs to compliment the XE System. The first was comprised of an XC12 data recorder and ten games, the second was a light gun and Bug Hunt package.

Let's take a look then at Atari's last venture into the 8-bit world and see how the XE System stacks up.

THE CONSOLE

The main unit is the heart of the machine. You'll be pleased to see the cartridge port is located on the top of the system. On the back we have a standard Atari SIO port for connection of 8-bit peripherals, plus TV out. Interestingly the XE System has two composite connectors for audio and video out, which gives a good quality display when connected to a modern day flat screen TV.

On the left side we have a 15 pin D connector which connects the detachable keyboard and on the right we have two standard joystick ports. Both the ports and keyboard connector are angled into the side of the unit and connecting joysticks can be a bit a pain. On the top of the unit we have the POWER button plus buttons for the usual Atari function keys - START, SELECT, OPTION and RESET. The buttons are large, round and pastel coloured. The decision to go with large coloured buttons was brave to say the least and does make the console look a bit like a toy.



THE KEYBOARD

This is a standard QWERTY keyboard with the control characters printed on the individual keys as with the other XE computers. The HELP key has been replaced by a round grey button, keeping with the styling of the main console unit. The keyboard is detachable from the main console although the standard lead is a bit short - you can use a standard plastic molded 15 pin PC joystick extender to get around this. The keyboard has a good feel about it. Being detachable is a bonus.



XE SYSTEM REVIEWED

The LIGHT GUN

The gun has a futuristic look about it and functions in practice just like an Atari light pen. The design is the same as the original 7800 gun prototype. The gun works pretty well although you'll need to have your XE connected up to an old CRT TV to use it.

USING THE XE SYSTEM

The XE System comes with Missile Command built in to the console. By adding the detachable keyboard you have a fully functioning Atari computer which is compatible with all the Atari disk drives, tape units, printers and even the 850 interface.

Sadly the parallel bus interface (PBI) is missing meaning the XE System misses out on the potential to easily add memory upgrades or I/O modifications via the PBI. Whilst this is a negative, the XE System was marketed as an entry level computer and as an easy crossover from console gaming to computing.



Atari have made changes to the ROM to accommodate the built in Missile Command as well as handle the detachable keyboard. On power up the XE looks for the keyboard and from there decides on what boot option to default to. With no keyboard present the console will run Missile Command. Turning on whilst pressing OPTION will get you the self-test mode and START will give you the cassette load prompt. You can power on by pressing SELECT which will take you to the familiar READY prompt with BASIC enabled although that is no use whatsoever if you have no keyboard attached.

Power-on options change when a keyboard is detected. The default option is to boot to BASIC whilst powering on whilst pressing SELECT will run Missile Command and OPTION gives you the self-test mode

The usual options for loading games with START and games with BASIC disabled (START+OPTION) remain.

The self-test mode has been changed from the original XL version which represented a 1200XL keyboard. In addition booting into self-test doesn't appear to disable BASIC so not all RAM is available to test. The ROM's RESET handler is a bit patchy and sometimes the only option available to you is to power off and on although there doesn't appear to be a problem when working with BASIC.

INSIDE THE XE SYSTEM

In reality the XE System is very similar to an Atari 800XL and makes use of the standard 8-bit chips such as POKEY, GTIA, PIA and ANTIC. For those of you who never enjoyed owning a Revision C bug free 800XL then you might get a bit excited when I mention the XE system uses the FREDDIE chip. Chips are soldered onto a cut down board and, curiously, it appears that the Parallel Bus driver code is still present in the XE System's ROM so a PBI hack could be possible although quite a challenge. The 64K RAM is split between 2 chips and whilst adding extra RAM wouldn't necessarily be straightforward at least two manufacturers were able to release 128K RAM upgrades specifically for the XE System. ROM is now 32K which takes into account the built in Missile Command, BASIC and the OS plus the revised self-test routines with FREDDIE and two memory management chips handling banking to the correct locations.

WHY BUY AN XE SYSTEM?

As already mentioned Atari wanted to offer a low cost console that could be easily turned into a full blown home computer. Remember this had been experimented with to some degree with the VCS/2600 and was one of the main plans for the then Warner Communications Atari 7800. It was hoped the XE System would appeal both to gamers and more serious computer enthusiasts and the company did succeed in attracting new customers to the Atari 8-bit platform.

The XE System was positioned, price wise, below the 65XE although if you went for one of the bundles it could actually work out more expensive than the 65XE or almost as expensive as a 130XE.

XE SYSTEM REVIEWED

THE VERDICT

Styling wise the XE System wins over the somewhat bland styling of the 65/130XE. The pastel coloured buttons are something you will either love or hate but they do grow on you. The keyboard is solid and reliable and the return of the cartridge port to the top of the machine is a plus.

Where the XE System wins hands down is its vastly improved video output which puts the 800XL to shame and is better than even the 130XE. Colours are displayed correctly and the picture is sharp and crisp. Composite video and audio out make the XE System an ideal machine to use with a more modern TV.

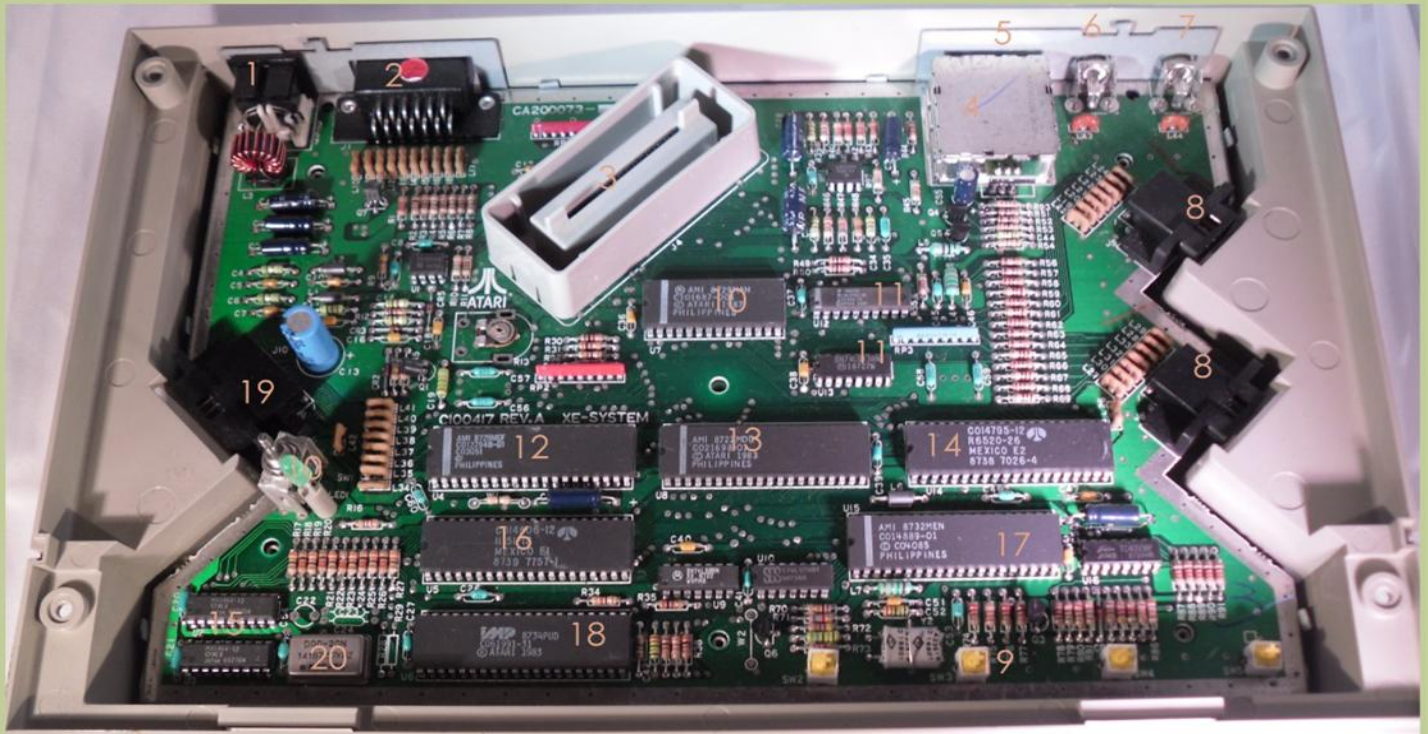
As far as pricing goes, the XE System generally sells for less than an Atari 800XL or 130XE on Ebay. They are common and quite easy to find, many boxed and

some as new. You can buy a new in box XE System bundle including light gun, Bug Hunt and Flight Simulator cartridges from B&C Computervisions in El Dorado, California. Call (530) 295-9270 or visit their website at www.myatari.com.

The XES has often been overlooked by Atari 8-bit collectors and is underrated to say the least. Given that the system is compatible with all of Atari's peripherals from tape decks to printers, the XES is a worthwhile addition to any Atari enthusiast's collection and will run quite happily either as a gaming machine or as a powerful 8-bit home computer.

STEVE WILDS

INSIDE THE XE SYSTEM:



- 1: Power Connector 2: SIO Connector 3: Cartridge Port 4: Modulator 5: TV Out 6: Composite Video Out 7: Audio Out 8: Joystick Ports 9: Function Switches 10: ROM 11: Memory Management Chips 12: POKEY 13: ANTIC 14: PIA 15: RAM Chips 16: 6502 CPU 17: GTIA 18: FREDDIE Chip 19: Keyboard Connector 20: 3Mhz Clock Crystal

Ted Dabney, the Whole Story

This issue we're proud to feature our interview with Atari founder Ted Dabney. Often overlooked, Ted's role in the early days of Atari was crucial and without him Atari would probably never have flourished.

We took a look at Atari's early years, the "pre-Warner" years back in Issue 3 and Ted sheds new and additional light on those exciting, and often turbulent, times.

AU: Ted, firstly welcome to Atari User Towers, and we'd like to say what an honour and a privilege it is to have you with us here today. Let's start the ball rolling by asking how you and Nolan Bushnell came to meet?

Ted: My knowledge of electronics came from Navy and Marine Corps schools and ten years working for Ampex. I originally worked in the Ampex Military Products group in Redwood City and later, I joined the Ampex Videofile group in Sunnyvale.



Nolan had a degree in engineering from a college in Utah where he finished last in his class. He had very little experience in electronics. He hired on to Ampex Videofile where we shared an office.

I don't know what he did except to study stuff. He said that he had worked repairing television sets but it was obvious that he didn't know much about how they worked.

Nolan was learning how to play the Japanese version of the Chinese game of GO. He wanted me to learn so he would have somebody to play with. He was much better than I was and beat me at GO and chess on a regular basis.

Nolan spent a lot of time telling me about his ambitions for a pizza parlor that was like an amusement park. His imagination was outrageous. He had visions of games and stuff like singing bears and dancing barrels. His imagination was boundless. We would go around to several places just to get ideas for these fantasies.

AU: How did the idea for what would become Atari first come about?

Ted: Nolan had seen a "space wars game" at Stanford. He wanted to create a coin-op game from that concept. He thought that we could do it on a time-share basis with a Digital Equipment Corporation computer (I think it was a PDP-8).

He and I didn't know programming so we contacted a guy named Larry Bryant who was a programmer. The three of us started an informal partnership as Syzygy. (Larry came up with the name.) We each agreed to put in \$100 to start things going which Nolan and I did but Larry never did. It didn't take long to realize this approach wouldn't work. The computer was too expensive and too slow.

One day Nolan asked me why the picture on a TV would move back and forth when the vertical hold knob was turned past sync. I told him. He asked if we could do that with control. I said we could if we did it digitally. I set up a workbench in my daughter's bedroom and designed a circuit that would do that.

Nolan realized that we could use this circuit to create a coin-op game, so we started a more formal partnership that didn't include Larry as he hadn't put in his \$100.

AU: What can you tell us about your time at Nutting, what appeared to be a short-lived but crucial step in Atari history?

Ted: Nolan and I both worked full time at Ampex so we didn't have a lot of time to devote to creating a game. Nutting Associates was a local coin-op game company that produced a mechanical game called "Computer Quiz". Nolan approached them with our concept. He got them to agree to hire him to create the game using the circuit that I had designed. They also agreed that we would own the game and that they would pay us a royalty on each game they sold.

Nolan brought only the concept of digitally controlled motion to Nutting. All of the work was done at Nutting. Nolan was also to be responsible for all of Nutting's production. When the game was done, we called it "Computer Space".

As the thing started to come to life, we needed to have a cabinet to put it in. I used some of our \$200 to buy some material to build one. Designing and building the cabinet was a full time job so I quit Ampex and came to work for Nutting to work on it. Before production however, Nolan came up with a fibreglass cabinet and mine was only used as a test bed.

EXCLUSIVE:

"Computer Space" sold pretty well so we were making some bucks off it, but we were ready for the next challenge.

A game operator had put one of these in an airport in Southern California. The owner of a large electronic company saw this thing and was so impressed that he offered Nolan a big-bucks job. Nolan was very tempted. I reminded him that working for someone else would not suit him very well.

He didn't take the job. If he had of, I would have been totally lost after giving up my job at Ampex. Nolan tried to negotiate with Nutting on a new order of business, but Nutting wouldn't agree. In my opinion, Bill Nutting was very short-sighted in his approach to everything.

Nutting had a super salesman that had worked very hard to keep the company alive by selling Nutting's aging game of "Computer Quiz". When Nutting saw how much money this salesman was making by selling "Computer Space", he fired him. Nutting should have known that how much money the salesman is making is a sign of how well the company is doing. The salesman had some street operations that included pinballs and pool tables. He had to sell them so we bought his whole operation.

AU: How and why did you make the transition from Nutting to Atari, and how did the Atari name come about?

Ted: We were ready to create a new game, but we needed a client. Bally was a big-time coin-op and slot machine company in Chicago, so Nolan contacted them. They said that as long as we were associated with Nutting, they wouldn't talk to us. We were getting pretty good royalties from Computer Space so we quit Nutting and started Syzygy Game Company in a 1700 sq ft office in Santa Clara.

After we quit Nutting, Nolan negotiated a deal with Bally where they agreed to pay us \$4,000 per month for 6 months in exchange for us designing a video game and a pinball machine for them. We felt it was time to incorporate our operation, so we started that process.

We were going to use the name "Syzygy" but it was owned by somebody else. The office of the California Secretary of State suggested that we submit three names so we submitted the names "Hane", "Sente" and "Atari" to them. They picked the name "Atari".

Al Alcorn had been a student who worked part-time for Ampex. He couldn't get back on with Ampex so we hired him.

We also hired Cynthia Villanueva as a receptionist. Cynthia and Al were our only employees. Neither Nolan nor I were taking any salary so we could pay Al and Cynthia, and pay the rent. He and I lived off the money we made from the street operations that we had bought from Nutting's ex-salesman.

AU: Why did you decide to start off with “Pong” and not another type of game?

Ted: Bushnell's idea was not a paddle game. He wanted a driving game. Magnavox had just come out with the "Odyssey" game so, while I worked on this new pinball machine, we gave Al the task of getting familiar with our new digital motion circuitry by coming up with a game similar to "Odyssey" which used analog circuitry.

The prototype AI came up with was so much fun to play that we decided to go with it instead of a driving game. We called it "Pong".

We built a prototype Pong in a small cabinet and put it on a barrel in Andy Capp's tavern in Sunnyvale. Late one evening, Al got a call saying that the unit stopped working. He went right over to find that the coin box was so full it jammed the coin switch. That one did so good that we built 12 more Pongs in standard cabinets.

We put 10 of them in our street locations around the county, sent one to Bally and kept one in our office. While we were waiting for Bally to respond, most of the 10 units were doing pretty well. Nolan stayed in touch with Bally to get their reaction. They kept stalling.

We were getting plenty worried because our future was in Bally's hands. We decided to put together an income report to give Bally some incentive. As we put this report on paper, the numbers looked impossible.



EXCLUSIVE:

We knew that they would think that we "cooked the books". Since the numbers were so damned high, I suggested that we cut the numbers to Bally by one half. The numbers still look unlikely so I said that we need to go to 1/3.

A couple of the machines were much lower than the others so Nolan suggested that we not cut those ones so drastically. I said that if we were going to lie, we have to be consistent so we would remember what the lie was. He agreed.

There were rumors that someone "stuffed the coin box". This is ridiculous. The 10 machines were doing nearly \$4,000 a week. Nobody I knew had that kind of money though half of the money had to go to the locations that had the machines.

Nolan and I had to live on our half of the money we got from these machines. Al and Cynthia were the only ones getting paid.

Even though our report to Bally showed only 1/3 of what the machines actually made, they still thought we had exaggerated the numbers. They were still stalling but they owned it so we were up a creek.

That's when I came up with the idea to get Bally to reject the game. I practically dictated to Nolan what he should say in a letter to them. I wanted them to think that we would design a new game for them if they rejected this one. Bally responded by rejecting the game. Our obligation to Bally was over. We designed a game for them, which they rejected so now the game belonged to us. We didn't owe them a second game.

AU: How did you go from the initial ten machines to a full production run?

Ted: We still hadn't planned to build them (the Pong machines) ourselves but maybe we could get Nutting or somebody else to do it. Nolan's interaction with Nutting didn't go at all well. We knew that no other game manufacturer would touch it since Bally had paid for it.

Nolan, Al and I were sitting around wondering what to do next. The cost of going into production was higher than we could afford. I said *"Either we go into production or we go home. I don't want to go home"*. Nolan and Al said we couldn't afford to. I said we should make the decision to go into production or go home and then decide how to do it. Nobody wanted to go home.

We decided to build 50 games. We all got on the phone to line up what we needed. Al and Nolan worked on getting the circuit boards and components while I worked on getting the TV's and cabinets. I ordered the cabinets and told them that I may not be able to pay for them. His only response was, "You can pick them up in 2 weeks.". I found the Hitachi distributor in San Francisco that wanted just under \$3500 for 50 sets. I paid for them with my own money. Al and Nolan worked out their end and we were in business.

None of us knew how to price this thing but we knew it had to be less than \$1,000. I looked out the window and saw a car that had "936" on its license plate. That was now the price we would use for Pong.

We had 1700 sq ft to work in and 50 cabinets didn't leave much elbowroom. Nolan was standing there while we were building the units. I told him that his job was to sell them. He got a very scared look on his face. He went to his office and came back about an hour later with a perplexed look on his face. He had made 3 calls and sold 300 games. We knew that we would have to ramp up production but we would need more money to do it. We felt that \$3,000 should be enough to let us expand our production.

The 300 units that Nolan sold included an order for 150 from a large LA distributor. Even though it was never done in this industry, Nolan got this guy to give us an actual purchase order for these units. Nolan wanted to use this to help us get a bank loan. I contacted the manager of my bank in Cupertino and told him what we wanted to do. He said that Nolan and I would both have to come in and talk to him.

On the way over to the bank, Nolan insisted that he do the talking because he could make it sound very good. I reminded Nolan that the bank has no up-side on this. He will need to know about the down-side. Nolan said, *"Don't worry about it. I know what I'm doing"*. So I said, *"Ok"*. So Nolan did the talking.

Two days later, the banker said that he didn't want to give us the loan. I hustled over there and had a long talk with him and got the money. His only concern was, what if it didn't pan out like we thought it would.

The 1700 sq ft we had at the Kohl location wasn't nearly large enough. We went up to about 3400 sq ft by cutting through the wall to the next unit. The manager of the complex said that we couldn't do that. Nolan said, *"We did it. You just tell us what we owe"*.

EXCLUSIVE:

Early on, my job was to keep the books and order parts. I didn't do a very good job of keeping books but I was able to keep the parts coming in.



Ted (far left) poses alongside a Pong cabinet with Nolan Bushnell, and Al Acorn (far right)

One of the things Nolan was good at was saving money. I don't mean that he was cheap. He wasn't, not at all. Our suppliers offered a 2% discount if we paid within 10 days. He insisted that we take all these discounts.

It turned out that they liked shipping to us because of that. Others like IBM and HP took 3 months to pay. Even though the market for IC's was really tight, we had no problem getting parts. That is until Nolan got more involved and wanted to show me how to save money. He looked over our parts list and saw that the 100 or so decoupling capacitors per board were one of the most expensive items on the list @ 6¢ each. He found a supplier who gave him a price of 3¢ each and ordered them.

About a week later, Al Alcorn was building Pong boards and ran out of these capacitors. He got very upset with me when he didn't find any in stock. I called the supplier. He said, "... *that guy wanted a low price so I gave him a low price, but I can't ship them at that price.*"

I ran down to a store on Bascome Ave and bought what we needed for 15¢ each. I reminded Nolan that the name of the game is "*everybody makes money*".

A few weeks later, I rented a truck and delivered the first 50 units to the LA distributor. We could really ramp up production now that we had money coming in but our 3400 sq ft space was jam-packed. We needed more room. A 10,000 sq ft roller rink became available just a few blocks from where we were, so we got that and moved production there but kept the office in the Kohl complex.

The orders were coming in so fast that even the roller rink was too small. Nolan and I started looking for something bigger.

We found the 30,000 sq ft Amphenol-Cadre building in Los Gatos. We both liked it very much but Nolan was concerned about how to justify moving out so far from the center of Silicon Valley. I reminded Nolan that we owned the company. We didn't have to justify anything to anybody. What I just told him would change his life. He was dead quiet all the way back to Santa Clara.



The parking lot at the roller rink was full of the cars of the people that worked for us. He said, "*All of these guys depend on us, don't they?*". I said, "*Yes ... and their landlords and grocery stores do too*". He then asked me, "*What's it going to be like to be very, very rich?*". I told him, "*Your relationship with money will always be the same. The only thing that changes is the number of zeroes*".

AU: It sounds like things were on the up-and-up for Atari. How and why did you leave?

EXCLUSIVE:

Ted: We got the building in Los Gatos and Nolan's ego started expanding faster than anything I had ever seen. All of a sudden he was hiring executives at a rapid pace. He never once, asked my opinion on any of this.

He hired an Industrial Psychologist as a president of the company. He hired a salesman to be Vice President of Marketing and an engineer that I knew as Vice President of Engineering (not Al Alcorn). He became Chairman. None of these people were capable of doing what they were hired to do. Atari was in a tail-spin.

They collectively decided that it was time for me to go. My ownership limited their level of participation. The changes that came over Nolan made me quite willing to leave. I sold my shares to Nolan. The value of the company had dropped so much that, in order to pay me what I wanted, Nolan had to include my share of the patent on the motion circuit that I designed in the buy-out. The value of Atari continued to drop.

AU: Didn't you take on Atari's coin-op service division?

Ted: Bushnell gave me that operation but Atari charged me too much for rent. I couldn't cover expenses so I had to give it up.

AU: You mentioned you were glad to leave Atari when you did. Do you think things went from bad to worse once you'd gone?

Ted: Nolan could see what was happening to his company but he had no clue as to why. His ego was deflating a bit so he and I were becoming friends again. I told him that he had to make some drastic changes if he wanted to save his company. The only thing his President could do was redecorate his office. His Vice President of Marketing knew nothing about marketing. His Vice President of Engineering was incapable of making a decision.

It really surprised him that I knew about his engineer but he knew I was right. I told him that he had to get rid of these bad actors. He said, "*How can I do that? These guys are friends of mine*". I reminded him that he had a company to run, friends or not. He asked, "*If I get rid of these guys, what do I do then?*". I said, "*I don't know. All I know is that you've got to do it*". He did it.

Not long after that, he brought in Joe Keenan. This guy turned Atari around at a very rapid rate. All of a sudden the company was what it was supposed to be.

Al Alcorn had come up with a home version of Pong. Atari negotiated a deal with Sears where they would have exclusive rights to it.

Sears gave Atari a very large order for these games. After Atari put tons of money into the manufacture of these units, Sears cancelled the order. I'm sure that Sears thought they would be able to renegotiate with Atari for a better deal. Wrong, all the cancellation did was lose Sears its exclusivity. Atari just took the Sears logo off and went with another chain of department stores.



Nolan finally sold Atari to Warner Communications but he stayed on. He obviously forgot what I told him about working for somebody else. They finally did to him what Atari had done to me. They got rid of him. He actually asked me if I had something to do with it, but I hadn't

AU: What do you think about the Magnavox settlement that probably influenced Nolan's decision to sell?

Ted: I have no first-hand knowledge of that but what I do know is that Baer's patent was on a concept. A concept is not a valid patent. A patent is only valid on the implementation of that concept and the Atari implementation was very much different than Baer's.

I think that the only reason that Bushnell lost is because he lied about having seen the Magnavox game. There was proof positive that he had.

AU: What did Nolan do after he left Atari?

Ted: Now he had time to work on creating his original fantasy. He called it "Pizza Time Theatre". Where Disney had a mouse, Nolan had a rat. He named it "Chuck E Cheese".

EXCLUSIVE:

He put his first place in Town and Country Village in Santa Clara. It wasn't really big enough for him to do all the things he wanted to do but it was a start. While I was up at his house one day, he asked me to come in with him on this adventure. I said, *"Been there, done that! I would rather be your friend then your partner again"*.

He then asked me to at least go and take a look at it and tell him what I think. So I did. I reported back to him that the place was so noisy that I couldn't tell when my pizza was ready. It was also dirty and the pizza wasn't very good.

He said he would take care of the "dirty" but that it had to be noisy. He also said, *"Mediocre pizza was good enough"*. I told him that that wasn't true. I said, *"Mediocre was not a workable standard because any less is unacceptable"*. He didn't agree.

He asked me to come up with a method to let people know when their pizza was ready even in all the noise. I invented a number call-out system which I called "Notalog". I built these things in my garage and sold them to Pizza Time.



AU: So, you and Nolan were friends again. Was this friendship to continue ?

Ted: I had introduced Nolan to a wine called "Gamay Beaujolais" which he liked very much. He bought several cases of a European equivalent while in Paris. He got a "real good deal" on an older vintage but he didn't know that Beaujolais has a very short shelf life. A few years later I was up at his place where we were trying to drink up as much as we could before it went bad.

We were getting pretty plastered when he asked me, *"Dabney, you know what I really hate about you?"*. I said, *"What?"*. He repeated, *"Dabney, you know what I really hate about you?"*. I again said, *"What?"*. He said, *"Dabney, do you remember when you said to me, 'The only thing that changes is the number of zeros'"*. I said, *"Yes"*. Again he asked, *"Dabney, you*

know what I really hate about you?". Again I said, *"What?"*. He said *"What I really hate about you is that you had no right to know that!"*.

Later, Nolan asked me to design a game for him that was exclusive to Pizza Time. I set up "Syzygy Game Company" where I designed and built a game called "Izaak Asimoz Presents Super Quiz" and sold them to Pizza Time.

I was selling several of these games but not making very much money. I had three people on payroll, rent, shipping and supplies. Pizza Time was paying regularly so I wasn't having any problems. That is until I had shipped a total of about 40 games and they hadn't paid me. I had shipping bills, back rent, utilities and people to pay. The folks at Pizza Time kept shining me on. I found out from one of the suppliers that I owed money to, that Pizza Time was going bankrupt.

It seems that their pizza wasn't very good. Nolan's standard of "mediocre" finally caught up with him. I rolled my debt over to Pizza Time's bankruptcy and called it quits.

AU: Ted, thank you for being extremely patient with answering all our questions and it has been a real honour and pleasure to have you here at Atari User. We wish you all the best.

From the Editor:

Ted Dabney is probably one of the nicest guys you could ever meet and speaking with Ted has been a real pleasure.

Sadly, Ted's crucial role and time at Atari is often overlooked and that is a real shame. Without Ted, Atari would probably never have become the gaming giant that presented itself as a great opportunity for Warner Communications. Ted was a vital piece in the Atari puzzle and without him history would have been very different.

We hope that this issue's interview will go some way to help give Ted the recognition and respect he deserves amongst the Atari community.

Thank you, Mr Dabney.

HARDWARE:

This issue I'm pleased to take a look at the Astra 2001 disk drive, a rare dual drive released by Astra Systems Inc, for the Atari 8-bit range.

Southern California Astra Systems Inc, was incorporated in May 1984 and operated out of 2500 S. Fairview, Santa Anna. They went on to manufacture a range of unique disk drives for the Atari 8-bit range. Later, Astra would turn their attentions to manufacturing hard drives for the Atari ST.

Specialising in dual drives, Astra offered a product that could not be beaten on price or value. Whilst early models were not well known for reliability, the company quickly addressed their shortcomings and Astra drives would become popular for their ease of use, storage capacity and reliability.

The company would produce five different versions of their dual drive design and offer a relatively low cost solution for Atari owners. Whilst Atari had back pedaled on double density for their 1050 drive, Astra amongst others filled the gap with true double density drives. It would be 1988 before Atari's XF-551 would reach the market..

Astra's first model was the Astra 1001, a dual SS/DD drive with built in parallel printer port. Sales of the 1001 were limited.

The Astra 1620 was the second model to be released. A dual drive, single sided (SS), double density (DD) model with a retail price of \$595. Early models came in an all white casing but this was changed for a white/brown case style that would be used for the Astra 2001. Models used a clumsy drive-door mechanism although this changed as the company moved to roll out the 2001.

The Astra 2001 was the direct replacement for the 1620, again offering SS/DD but with different, more reliable drive mechanisms. The 2001 would use the same casing as the 1620. Again the drive retailed at \$595.

The Astra "Big D" built on the success of the 1620 and 2001 models but offered double sided (DS), double density capacity.

The final model in the range was "The One". This was the last word in disk drives, offering a dual drive DS/DD unit with a built in printer (parallel) port.

Whilst Astra's drives certainly weren't cheap, you could save hundreds buying one Astra dual drive as opposed to buying two competitor drives. Two Atari 1050 drives would set you back almost a thousand

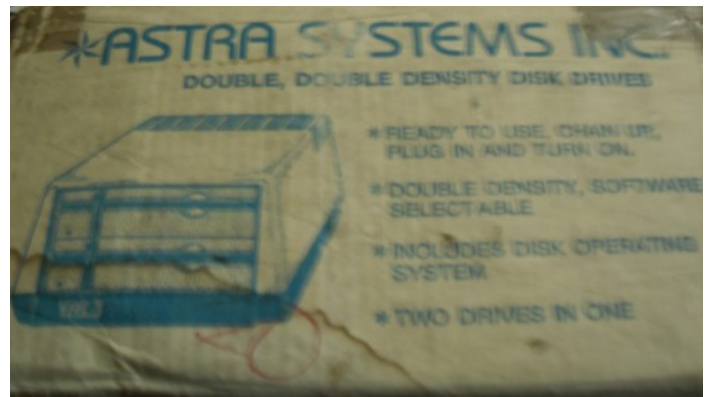
dollars, with two 810 drives costing nearly twelve hundred. Two Rana or two Indus GT drives would set you back \$900.



The drive itself features two slim-line 5.25" drives and you don't need to worry about drive selector switches here - non are needed or provided. The power supply is built in and there are no fancy buttons or LEDs that you might find on a RANA or INDUS GT drive - just a simple ON/OFF indicator on the POWER switch on the front of the drive.

At the back there are two SIO ports, one to connect the drive to an Atari computer, and one to be used as pass-through. Astra shipped their drives with DOS XL by OSS and disk copying is a breeze - whichever DOS you use. The 2001 is backward compatible with single density disks and you can, of course, use "flippies".

Packaging wise the 2001 was shipped in a large cardboard box with two huge foam inserts. The drive was marketed as being plug in and turn on, and that is just what it is.



DOS XL was used as the in-box DOS due to its double density support although would be discontinued in

HARDWARE:

1984. As part of the OSS catalogue, DOS XL was acquired by ICD in 1988 and then subsequently sold on to Fine Tooned Engineering (FTE) in 1994. FTE became infamous in the Atari community when owner Mike Holman vanished after taking a lot of orders for product he never delivered, but that is another story!

The documentation supplied with the Astra 2001 is pretty basic, supplied on several stapled photocopied typed pieces of paper but then the Astra 2001 doesn't really need much in the way of documentation. With no drive select or special function switches, it is just a case of connecting it up and turning it on.



Using double density, the Astra has a storage capacity of 176K compared to the Atari 810's 88K single density or the Atari 1050's *enhanced density's* 127K. Astra rounded up the capacity (176K for each drive) and advertised the 2001 as having 360K capacity.

The following are some sample benchmarks using the Astra 2001, connected to an Atari 800XL and using Atari's DOS XE. Times quoted are in seconds:

Operation	Time
Load into DOS (BASIC disabled)	19
Format SSDD Disk	36
Copy DOS XE Disk	156

As mentioned before there are no drive selector switches and duplicating a disk is pretty seamless, you just select drive 1 as source and drive 2 as destination. All the DOS versions I've tried that support double density recognise the Astra 2001's double density capability and work flawlessly with it.

Compared to Atari's 810 drive, the Astra 2001 is not only smaller but it would take four 810 drives to equal the capacity of the 2001, and three 1050 drives to

better the storage. When it was launched the 2001 went head to head against the TRAK AT-D2, the RANA 1000 and the INDUS GT but none could match the Astra's capacity for the price.

Here is a quick comparison of retail prices of the time:

Drive	Retail	Retail 2 Drives
Atari 810	\$599	\$1,198
Atari 1050	\$499.95	\$999.90
TRAK AT-D2	\$499	\$848*
RANA 1000	\$449	\$898
INDUS GT	\$449	\$898
ASTRA 2001	\$595	\$595

* TRAK AT-D2 had a slave drive option

Now obviously retail pricing was heavily discounted but even with hefty discounts the Astra range just couldn't be touched when it came to price.

Using the Astra 2001

I've found using the Astra 2001 a real pleasure. The drive is relatively quiet for a 5.25 drive, and it has worked flawlessly with every DOS I've thrown at it. The 2001 makes disk duplication quick and easy and it easy to see how Astra were able to carve a market out for themselves back in the eighties.

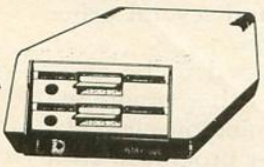
All of the drives Astra manufactured for the Atari 8-bit range are considered very rare and highly collectible. If you ever get the chance to buy one then I suggest you snap it up quick.

Steve Wilds

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Great Britain, famous for its Blitz spirit, **The Sinclair ZX81**

Fish & Chips, Red London Buses, Pop Music, the Spitfire, Katy Price, Cheryl Cole, Page 3 Girls and the Mini Cooper...

Back in the eighties the UK was leading the home computer revolution and there were more British computer manufacturers than you could shake a stick at. Whilst at least two computers would become well known household names many others would fade quietly into computing history with no fancy leaving party or glowing obituaries.

As is often the case, many great computers would vanish leaving their more inferior competitor's products to dominate the market. In this article I'll be looking at some of the Great British computers from the eighties - from the well known to the virtually unknown - and I'll be looking at how and why Atari failed to stake its claim to what was one of the biggest computer markets in the world.

At the start of the decade Atari found themselves competing against other, and more expensive, USA imports such as the TRS-80, APPLE II and the Commodore PET. Commodore also had just introduced their VIC-20 computer. Homegrown competition came from the Acorn Atom, the Sinclair ZX81 and the Microtan 65. The BBC were busy preparing for the launch of their own Micro Computer, based on the Acorn Proton.

The ZX81 dominated the market mainly due to price - £69.95 or even less if you bought it in kit form. The Vic-20 retailed at around £199 - cheaper than the Atari 400 and would quickly become the main competitor to the Sinclair machine.

The Acorn Atom

Released in 1980, the Atom would become a sales success although it would be short-lived. Released with a "massive" 2K (expandable to 128K) the Atom used the 6502 processor. The machine could be bought in kit form or assembled for around £150.

By 1981 the popular ZX80 (expandable up to 8K) had been replaced by the ZX81. Retailing in kit form for £49.95 or £69.95 as an assembled unit the ZX81 shipped with 1K of RAM. A 16K expansion was initially available for £49.95.

The low cost of the ZX81 meant it would dominate the market for some time - at one stage even alongside the ZX Spectrum 48K.

The ZX81 was exported around the globe and in the USA it was licensed by TIMEX and manufactured as the TIMEX TS 1000 - with some slight modifications.

Interestingly, Clive Sinclair had put forward the ZX81 for the lucrative upcoming BBC contract. The BBC considered the ZX81 too limited and Sinclair lost out. That aside though, the ZX81 was a major success and helped drive rapid growth and soaring profits at Sinclair Research Ltd.

The BBC Micro ("the beeb")

Released in late 1981, and based on the concept that was the Acorn Proton, the BBC models A & B retailed at £299 and £399 respectively with 16K and 32K. The Acorn team had literally worked through the night to get a working Proton prototype ready to present to the BBC. It would be the only machine to meet the BBC's minimum specifications and would actually exceed them. Price would limit the Beeb's penetration into the home computer market but it would be a major success in the educational market. Attempts to crack the US market failed.

The Dragon 32/64

A little known Welsh company had grabbed themselves a Tandy TRS-80 "CoCo" (Color Computer) and had modified it enough to produce their own version and hopefully avoid being sued. The Dragon 32 was released late 1982 at the same time as Sinclair were having major supply and manufacturing problems with their new ZX Spectrum. The Dragon 64



The 2K Acorn Atom



1K (expandable up to 16K), the ZX81 was a major success



The BBC "Beeb" Micro was a big computer with a big specification that shone both inside and outside the classroom.



The Dragon 32, a tongue in cheek poke at Tandy's CoCo machine that met limited success

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was released a year later and both models used the Motorola 6809 microprocessor. The most obvious difference between the CoCo and the Dragon is that the Dragon featured a parallel printer port.

The fact that Acorn, Spectrum and Commodore could not meet demand meant that the Dragon computers would initially sell well. Production was ramped up and a tie in with Tano Corporation in New Orleans saw the Dragon 64 being launched Stateside.

By 1984 Dragon Data was in trouble as retailers slashed prices and removed the Dragon 32 from their shelves - considering it an outdated machine. Attempts to offer an upgrade path to the 64 model for existing 32 model owners was bungled and costly and the market price was impacted heavily on the company. Tandy expressed interest in saving the company and continuing support for the 32 and 64 models but their interest was rejected as Dragon Data went into receivership. Spanish company Eurohard acquired Dragon Data's assets for around £1 million and announced great plans for the future of the Dragon. Meanwhile it emerged that Tano Corporation had stopped supporting the Dragon products.

Eurohard had promised a lot but actually didn't accomplish a great deal and had ceased manufacturing by 1987.

The ZX Spectrum

The small ZX Spectrum (1982) was initially released in 16K (£125) and 48K (£175) versions with prices dropping to £99/£129 before the arrival of the ZX Spectrum + . The rubber keys and small footprint didn't dent the Spectrum's popularity and it would become the most influential home computer of our time.

Initially Sinclair were plagued with manufacturing and supply problems and the black & white ZX81 would continue to be popular.

The State Of Atari in the UK 1982

1982 was a year of major product launches - the Commodore 64 had arrived as had the ZX Spectrum. Price drops and competition amongst dealers had seen prices for the Atari 400/800 drop considerably making the Atari 400 at least a much more attractive option than the popular Vic-20.

The arrival of the C64 was subdued and Sinclair were plagued by manufacturing and supply problems. The market was still wide open and the Atari computers were still holding their own.

Oric - The Tangerine Dream

Tangerine computer Systems had built one of the first 6502 based kit computers , the Microtan 65. Despite its limited success Tangerine had secured financial backing and changed direction from a desktop computer to working on a "Spectrum" beater - the idea to offer a machine with better capabilities that could beat the Spectrum on price - Pound per Pound.

Oric International products Ltd was formed and in 1983 the Oric-1 was launched with a 16K (£129) and 48K version (£169) being offered. By the end of the year the 16K Oric-1 was being sold for £99, and the Oric-1 48K for £139.

The Oric-1 was built around a 1 MHz 6502A processor and used a dedicated sound chip - the GI 8912 and boasted a high resolution 240x200 graphics mode.

The keyboard was unpopular, the manual badly written, the ROM was buggy and it could be a real pain to load programs from tape. Sales figures are disputed. It is claimed that over 160,000 Oric-1 computers were sold in the UK in 1983 and 50,000 sold in France although UK magazines of the time would argue otherwise.

The Oric-1 was more expensive than the ZX Spectrum and would not be able to put the bad press it had received behind it.

Acorn Electron



The Oric-1 was designed to be a "Spectrum Beater" and offered high resolution graphics. A big success in France, the Oric failed to shine in the UK.



The ZX Spectrum was the computer that changed history.

Unassuming, modest, the kind of computer that would never sleep with your girlfriend, the ZX Spectrum would mark the beginning of Sinclair's dominance of the UK home computer market.

THE GREAT BRITISH COMPUTER WARS



The Acorn Electron was launched in 1983 although supply problems meant that only small numbers would be available until the next year and the machine would miss the important Christmas sales period.

Based around the 6502A processor and with a non expandable 32K RAM the Electron was designed to be a low cost home computer that would use the success of the BBC Micro combined with a low price point to compete against the Spectrum and Dragon 32 computers.

The machine retailed at launch at £199 and sold quite well although I certainly wouldn't agree with claims that it was the UK's third best selling micro at its peak. Games like Elite and conversions of popular titles helped sales along but the Electron failed to impress and was shelved in 1985.

The Lynx Effect

In 1983 Computers Ltd launched the Lynx computer based around the Z80A CPU and using a dedicated Motorola 6845 as its graphics chip.

The 48K model was priced at £225 with 96K and 128K models being launched. It was possible to upgrade the Lynx to a whopping 192K. The Lynx was a capable machine, always running in high resolution, but price and the video game/ home computer crash took their toll. The company would fold by the Summer of 1984 with only around 30,000 units being sold.

1983 comes to an end

The ZX Spectrum had established itself firmly as the market leader. The Commodore 64 was slowly gathering momentum and had dropped in price to £199. The humble Vic-20 was still selling well and was now at a more reasonable £99 and the Oric-1 had dropped to £99 for the 16K model. The BBC model A had been discontinued with a 32K model B now selling for £349+tax.

The Lynx 48K model had dropped to £199 and prices for the Atari 400/800

models had been slashed. A 16K Atari 400 could now be bought for £99.

Atari had announced the 600XL and the 800XL models along with a full range of XL line peripherals. The 600XL was to retail at around £160 and the 800XL at around the £250 mark.

Both models would not be available in large numbers for the crucial Christmas period although they had been well received in initial magazine reviews. Strangely, Atari UK focused a lot of their marketing effort solely on the 600XL.

Along with the continued popularity of the Atari 400/800 models and the vast, pre-existing software library, there was still plenty of opportunity for Atari to establish themselves as a major contender.

The Oric Atmos

In January 1984 Oric launched their 48K Atmos model with a new case design, new keyboard and, more importantly, a V1.1 ROM. By the end of the year several peripherals were launched including a modem, printer and 3" floppy drive. In 1985 the company announced plans for an IBM compatible as well as an MSX compatible computer. Sadly, sales of the Atmos had failed to turn around the company's fortunes - the buggy tape loader remained, and in February the company was placed into receivership.

French company Eureka bought out what was left of Oric and went on to produce the planned successor to the Atmos, the Stratos / Telestrat under the Oric International brand. The game was over though, and Oric folded for the second and last time in 1987.

Today the Oric has a strong following especially in France.

ZX Spectrum +

In late 1984 Sinclair launched their ZX Spectrum +, identical to the 48K ZX Spectrum but with a QL style keyboard and a higher retail price. The ZX Spec-



The Acorn Electron was launched as a low cost machine to compete against the Spectrum and Dragon machines. It failed to achieve the desired level of success.



The Lynx 48/96 home computer was a capable and powerful machine that failed to impress the ladies, let alone anyone else



The Oric Atmos was launched to put right so many wrongs. Didn't do well enough to save the company from being sold off.



Hating that rubber keyboard was no longer a reason not to buy a Spectrum. Launched in a move to generate much needed cash by Sinclair.

THE GREAT BRITISH COMPUTER WARS



trum + would go on to outsell its rubber keyed counterpart.

Sinclair QL

Work on the QL had begun as early as 1981 and it was designed to replace the company's top selling ZX Spectrum and retail at £399. Built around a Motorola 68008 processor the QL came with 128K. Announced before the ZX Spectrum +, the QL initially attracted a lot of interest when officially launched in January 1984 with the company taking thousands of pre-orders. First units didn't arrive until April, with many customers waiting until 1985 to receive theirs.

Supply problems, initially unreliable and unpopular microdrives, buggy and incomplete firmware all conspired against the QL. In addition the large initial waiting list for pre-orders was hit dramatically as customers gave up waiting and switched to the new Amstrad CPC 464 instead. Production of the QL had ended by 1985 and the line was discontinued in 1986.

The QL was a major setback for Sinclair and, despite efforts to regroup with the Spectrum ZX Spectrum +, Sinclair was stuck in a downward spiral.

The Amstrad CPC 464

In 1984 Amstrad announced their entry into the home computer market with their CPC 464 model, based around the Zilog Z80A CPU processor. The 464 was designed to compete against the Spectrum and Commodore C64 computers and would establish itself as a major contender in the UK home computer market from 1985 onward.

The CPC 464 on one side offered a relatively low cost 64K machine with dedicated monitor and built-in storage medium but on the other hand the bundle price would make the Spectrum and especially the C64 more attractive options when it came to price.

It had been an important year. Amstrad had entered the market, Sinclair were about to make a major flop with the QL and it was the year that the first MSX computers hit the UK.

The Dragon had passed into computing history alongside the Lynx. The ageing Vic-20 was still selling and the Spectrum was now clearly the market leader, with the C64 snapping on its heels.

There was talk of a new computer, something that would give the Spectrum and the C64 a run for their money.

The Acorn Electron hadn't been the success Acorn had been hoping for and the company dabbled at promoting the BBC Model B as a games machine. The Oric machines were hanging on with new titles still being released.

Commodore had announced the new Plus 4 that used a 6502 compatible MOS 8501 processor, clocked 75% faster than the 6510 used on the C64. The Plus 4 was the new "flagship" in the Commodore range but wasn't compatible with the C64. The Plus 4 bombed and was canceled in 1985.

Commodore also announced the launch of the C16 - a 16K computer designed to replace the ageing Vic-20 and compatible with the Plus 4.

The C16 would have limited success in the UK, although would give Commodore the excuse they needed to discontinue the Vic-20.

Meanwhile Atari had slashed the retail price of the 800XL to £169 but the Spectrum and the C64 now seemed unstoppable.

The market was now clearly dominated by the Spectrum and the C64 and smaller players were being squeezed out quickly. Atari related third party advertising began to drop considerably.



The Sinclair QL was a disaster - rushed to market and sold to customers long before the machine was even ready to ship. A major blip for Sinclair.



The Amstrad CPC464 was a sales success despite Amstrad bundling cheaper models with a yucky green mono monitor.



The C16, an evil Plus4 compatible 16K computer that put the knife into the Vic-20.



The Commodore Plus 4, the flagship replacement for the C64 that bombed within months of release.

THE GREAT BRITISH COMPUTER WARS



First announced in 1983, making an appearance in 1984 and finally shipping in 1985 the Enterprise was launched with 64K and 128K versions and the design included a built-in joystick.

Using a Zilog Z80A running at 4 Mhz, the Enterprise boasted 3-channel stereo sound, 256 colour display and a maximum 672x512 resolution.

Known as the Elan, Flan and Samurai during development, the computer finally launched as the Enterprise. The late arrival saw the Enterprise competing against the Amstrad CPC 464 and only an initial run of 80,000 were made. The Enterprise bombed and a great example of British computing would vanish into history well before the fat lady got to sing.

1985 - Atari to fight back?

The arrival of the XL line and the end of production for the 400/800 models had seen prices for Atari computers slashed. By summer 1984 the 600XL had been quietly discontinued and '84 saw the end of Atari Inc, and the arrival of Atari Corporation.

Production of the 800XL would continue into 1985 with Atari Corp's Taiwan version shipping with REV C BASIC. Prices continued to fall and Atari would shift tens of thousands of the 800XL that year.

The arrival of the first of the new look XE range - the 128K 130XE was a shot across the bows of Commodore and the market was looking to see if Atari could back it up. Priced at £169 it was a great priced 128K machine.

With the 600XL and 800XL now at Commodore beating prices, and with the 130XE on the market offering unbeatable power for the price it was looking like Atari could turn things around and 1986 was looking very promising indeed.

Commodore, meanwhile, had quietly discontinued the Vic-20 and were smarting from the failures that were the C16 and

the Plus 4. One product launch that would gain moderate success would be the C128, the 128K version of the C64 that launched in the January. Few games would take advantage of the C128 and sales would be a cool 4 million units worldwide.

Acorn had called time on the Electron and the Oric 1/Atmos were now history.

The MSX machines had failed to make much impact and the market was now carved up between the Spectrum, the C64 and Amstrad.

Amstrad had launched their CPC664 64K model with built in 3" floppy drive. Production was short-lived, with the 128K CPC6128 arriving just a few months later.

Meanwhile the 800XL had won the 1985 Microcomputer of the year awards, beating the Amstrad CPC, and Sinclair's Spectrum + to take the crown.

With the 130XE on sale, and the 600XL and 800XL computers now selling at their lowest price, it seemed that the Atari 8-bit was about to strike back.

The 130XE wasn't the biggest announcement from Atari that year. The new 16-bit ST range was getting most of the press attention and the 520 ST was in stores well before the end of the year.

1986 & Beyond

Sinclair launched their Spectrum 128 in the UK in early 1986. 128K RAM, three channel audio and MIDI compatibility, the 128 would be Sinclair's last release before the Sinclair brand and Spectrum range were bought out by Amstrad.

Amstrad released the Spectrum +2 later that year with a built in datacorder, and two joystick ports.

Sadly, as far as the Atari 8-bit was concerned, the arrival of the 130XE followed by the 65XE (once the 800XL stock had sold through) did not herald a major revival of the Atari 8-bit scene. In the main



The Elan, Flan... No wait, the Enterprise. A shining example of British home computing genius that flopped.



The Spectrum 128, launched first in Spain in 1985, the UK launch was delayed due to huge existing stocks of the ZX Spectrum +



The Atari 130XE - power without the price and a 128K machine that might have turned things around.

THE GREAT BRITISH COMPUTER WARS



Atari's attentions were focused on the new 16-bit ST range which would go on to dominate the UK 16-bit market until Commodore were able to catch up.

So, our look at the most exciting years of British computing history and the impact of Atari in those crucial years is coming to an end but let's take a look at the winners, the non-starters and the losers and see what happened to the main players involved.

Non-Starters



Lynx 48/96/128

High price, bad timing and a lack of software caused this example of British computing engineering to never get off of the ground.

Enterprise 64/128

A powerful computer that used two custom chips for video and sound, 256 colour display, high resolution graphics, the Enterprise should have been a winner but it arrived late to the party.

Sinclair QL

Rushed into production, orders taken before it was even ready, unreliable and with patchy firmware the QL was a major flop and, along with the Sinclair C5, caused Sinclair's demise.

Commodore +4

Launched as a serious home computer, Commodore hoped the +4 (named after its four built-in ROM applications) would become the next best thing in

home computing. Incompatible with the best selling C64, the Plus+4 bombed.

Losers



ORIC-1/ATMOS

The Oric failed to really beat the Spectrum when it came to price. Dodgy tape loading, buggy ROM and unpopular design along with somewhat limited graphical capabilities meant that the Oric bombed. It still managed to hang around long enough for the Atmos to be released - which addressed some of the shortcomings but it was too late. Achieved quite some success in France, though.

Dragon 32/64

Poor graphics capabilities (heck this machine didn't even like displaying lower-case characters) , the Dragon couldn't even compete against the Spectrum when it came to graphics.

The party lasted whilst the company were able to take advantage of other peoples' supply problems.

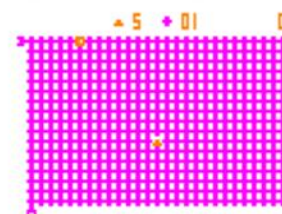
Acorn Electron

Billed as a serious contender against the Spectrum and Dragon 32 computers, the Electron failed to win hearts and minds and survived until 1985 thanks to the success of, and its compatibility with, its bigger brother - the BBC Micro.

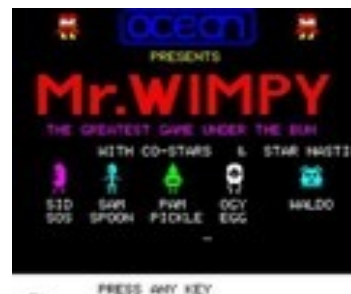
Winners



Blue Star, a 2008 homebrew release for the Vic-20



Grid Runner (1983) on the Dragon 32



Mr Wimpy (Ocean 1984) for the Oric-1



An unofficial Chuckie Egg port for the Enterprise 128

THE GREAT BRITISH COMPUTER WARS



THE VIC 20

This humble 5K machine (only 3.5K was actually available to use) was a major success for Commodore, so much so they had been quietly sticking the knife into their own machine long before they finally and silently killed it off in 1985.

Sinclair ZX81

This tiny black and white 1K machine was a beast that just couldn't be beaten on price. Expandable to 16K the ZX81 would survive until 1984 and compete directly against its bigger and younger brother the ZX Spectrum.

Sinclair ZX Spectrum

This was the machine that sparked a computing revolution and even if you never owned a Spectrum it is impossible to deny the success and impact this machine achieved. The 48K model would quickly establish itself as the standard format and the Spectrum platform would live on until 1992.

Commodore C64

The biggest selling home computer of all time, the C64 was a winner when it came to sound and graphics, backed by a company that knew how to market and support its products. This was one machine that Commodore couldn't kill off quietly - the machine would outlive the company - Commodore folded in 1994 - before the announced 1995 date for the C64 to be discontinued.

Amstrad CPC

The Amstrad CPC range was a relative late arrival but the company managed to establish a large share of the UK market within about 12 months. The practice of bundling the computer with a dedicated monitor could have backfired as it made the machine more expensive than the Spectrum and C64 but the gamble paid off - the public thought the Amstrad systems offered better value.

Amstrad were able to buy out the Sinclair brand and the Spectrum range. The CPC range would continue into 1990 when the CPC464 specifically was discontinued. A new 464 and 6128 *Plus* range was launched that same year but flopped. By the end of the year the Amstrad CPC was no more.

The Atari 800XL

Atari had been consistently selling well in the UK through the eighties but not in numbers that came close to the Spectrum, the Vic-20 or the C64.

Despite high prices for hardware and software, the Atari 400/800 machines carved out a name for the Atari brand and the 800XL would become the biggest selling Atari 8-bit in the UK.

The 800XL was a victim of problems within Atari and the subsequent sale of Atari Inc by Warner Communications. The new Atari Corp tweaked the 800XL motherboard design and extended production of the PAL models.

Whilst the 800XL would never come close to the Spectrum or the C64 when it came to numbers sold, it would play a vital role in revitalising the Atari range and prolonging the life of the Atari 8-bit home computers.

Atari discontinued the 8-bit line in 1992.

From 1987 onwards the 8-bit computing era would enter into decline. The exciting, often turbulent, golden days of home computing were coming to an end. What a ride it had been.



ELITE, on the Acorn Electron



Tennis, on the Sinclair QL



YOOGOR, a recent home-brew release for the ZX81



Dropzone, on the Atari 8-bit



So why did Atari fail to crack the UK 8-bit home computer market?

So why was it that Atari failed to establish a major foothold in the UK computer market, especially in the early years?

The Atari 400/800 computers were a powerful, professional looking solution especially when you put them alongside the likes of the Acorn Atom or the ZX81. The Atari computers were cheaper than other American imports but were still expensive when compared to the Commodore Vic-20.

Nothing could compete against the ZX81 when it came to price but the ZX81 was a pretty basic home computer.

By 1982 prices for the Atari 400/800 had been slashed but the machines were now competing against a new breed of computers including the ZX Spectrum and the Commodore 64. The Oric-1 beat the Atari 400 hands down on price whilst the Dragon 32 was also a serious contender. With the C64 an expensive arrival to the market a much more aggressively priced Atari 400/800 range might have made more of an impact.

In 1983 the Spectrum was riding high, seemingly untouchable when it came to price. The Atari 600XL and 800XL were launched but prices were high - £160 for a 16K 600XL just wasn't going to cut it against the now £99 Vic-20 or Oric-1 and the £250 800XL made it an expensive rival to the now £199 C64 or even the Acorn Electron. Only the Atari 400, which was now heavily discounted, could be considered as a competitor when looking no further than the price tag. Atari focused their attentions on the 600XL instead of pushing for 800XL sales.

During 1984 Atari slashed the prices of their XL range but the company seemed to be playing catch-up. The Dragon 32 was no longer a threat and the Electron was failing to live up to expectations.

The C64 was establishing itself as the main competitor to the Sinclair Spectrum and there was an opportunity here to go head to head against the C64 but problems within Atari and the subsequent sale to the Tramiels caused supply and other problems.

There was a new competitor to worry about though. Amstrad's CPC 464 had arrived and whilst expensive, the CPC looked better value with its dedicated monitor, built in tape unit and bundled software.

1984 and 1985 should have been the golden years for the Atari 800XL but the company failed to capitalise on renewed interest in Atari following the Tramiel takeover. Further price slashing in 1985 and the launch of the 130XE meant Atari could now compete on both specification and price. Suddenly Atari computers were cheap and offering great value for money.

With attentions focused elsewhere, on the Atari ST, Atari failed to capitalise on a final opportunity to stake a major claim to the UK market. The 800XL was "box-shifted" as Atari sought to clear out stock and replace it with the lower cost 65XE.

1986 represented the last chance for the company to grab market share but they missed the boat. Luckily for Atari, the ST would captivate the new 16-bit market and would be a considerable success.

In short Atari failed primarily due to the high prices of their 400/800 models. Price points for the XL range were soon addressed but there was a lack of marketing support. In addition the Atari's relied largely on expensive US game title imports or Atari ROM software. If Atari UK had chosen to better support the UK software market and encourage people to not only write for the Atari but also offer their titles at a price comparable to C64 or Spectrum releases then things would have been different.

The C64 had hit the UK in a rather subdued manner and it would take time to establish itself as a major player. An Atari 800XL properly marketed in 1983 might have changed things considerably.

With hindsight it is remarkable to see how, despite high prices, Atari computers sold as well as they did in the UK and for so long. The UK market didn't take any prisoners yet the Atari 8-bit would survive and go on to outlive some of its biggest competitors.



Asteroids On The Ataris Atari Lynx By Atari



Developed by the now legendary Ed Logg this game is officially the most popular arcade game ever produced by Atari and also one of the most converted games ever too. The original coin-op of Asteroids was one of the first games to feature vector graphics and involved you shooting the big space rocks into oblivion.

You could thrust your spacecraft around the screen and if it went off one side it came back on the other, this technique became known as wrap-around. You also had a handy hyper-space button to get you out of trouble where your ship would disappear and then reappear in a random place on the screen - not always a good place though!

Each time you shot a rock it would split into smaller one which would move much faster, after enough shots they vanish completely, clear all the space boulders and its on to the next level. Simple but addictive and as the levels get faster you also encounter more rocks and those UFO's which could be shot for bonus points. Anyway, on to the different Atari home versions of Asteroids

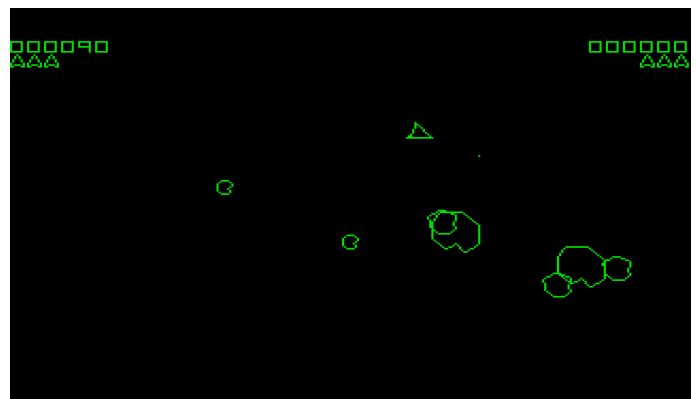


This version actually comes on a double game card with awesome Missile Command and is actually titled Super Asteroids. This version adds some highly polished graphics and sound to the mix as well as some great new features.

The first is a shield which depletes every time you are hit making the game a little less hard and a bit more forgiving on the small screen. The second addition is powers-ups that give you such delights as triple shot or new shields. This is a great little handheld version that while not completely faithful to the original adds some great new elements and a point of difference to all the other Atari versions.

8/10

Atari ST By Sinister Developments



Sinister Developments, who were also responsible for many other great ST conversions as well as Painter for the Jag CD, created easily

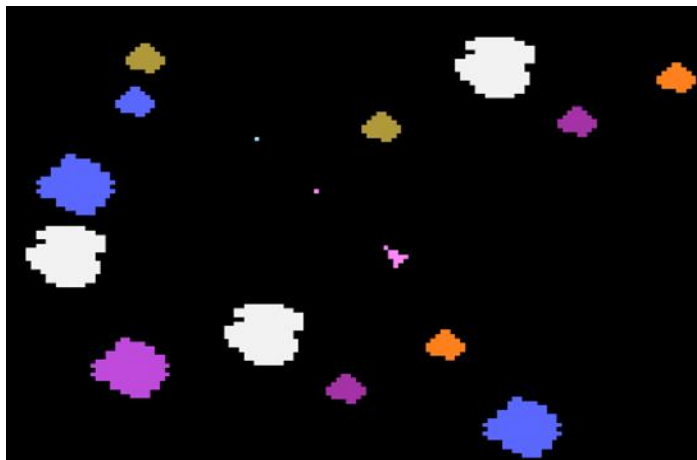


the most arcade perfect version of the game for any home machine. And what makes it even better is that it was also given away free too on the cover of ST Format and was public domain!

The only thing they added to this version is some absolutely stonking music which only adds to the frantic action. With its slick vectors and perfect gameplay this is a ST essential. Incidentally there is also a 1987 version called Asteroids Deluxe by Atari themselves but this version is far better!

10/10

Atari 2600 By Atari



Due to the VCS' limitations the vector graphics have been swapped for big colourful, if a bit blocky, rasters but don't let that worry you as they convey the action fine. In fact some people are known to prefer the look of this version to the arcade!

This version does have an incredible 66 different game variations however! You can select big ships, small ships, vanishing rocks, hyper speed and multi-player modes among others which only add to the already great gameplay. A solid version for this machine too and it's very common so there is no excuse not to own it!

8/10

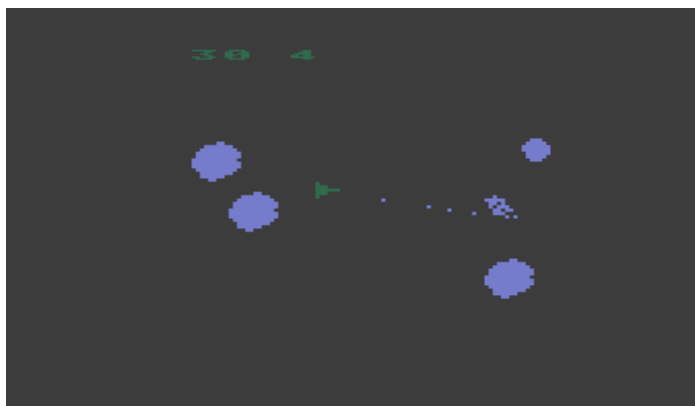
Atari 7800 By Atari / GCC



This 7800 version of the game was known as Asteroids 3D in North America but was built into all Pal machines so many of you will be familiar with it already. Instead of the vectors of the arcade game it has nicely shaded rocks which do kind of give a 3D effect. It also has a brilliant 2-player mode, several difficulty levels and uses the second joypad button for your hyperspace. It's a very good version but some bemoaned the lack of the vector graphics, thankfully this was remedied some years later and there is an arcade perfect hacked version now available!

8/10

Atari XL/XE - By Atari



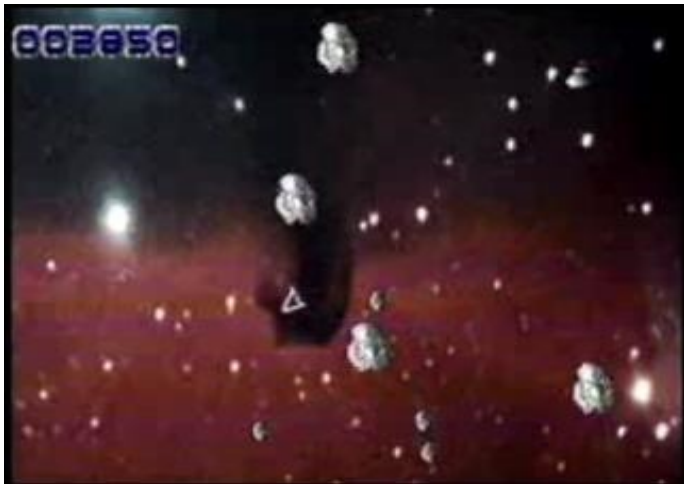
The Atari 8-bit translation of this game is a lot like the 2600 version just with less colours but a higher resolution and better sound effects. Still a solid version of the game but doesn't really add



anything like the other versions do and probably would have been better in vectors. It's also worth noting that Asteroids was scheduled to be a release game for the 5200 was later abandoned at the prototype stage after it was discovered that it was almost impossible to play with the machines analogue joysticks.

7/10

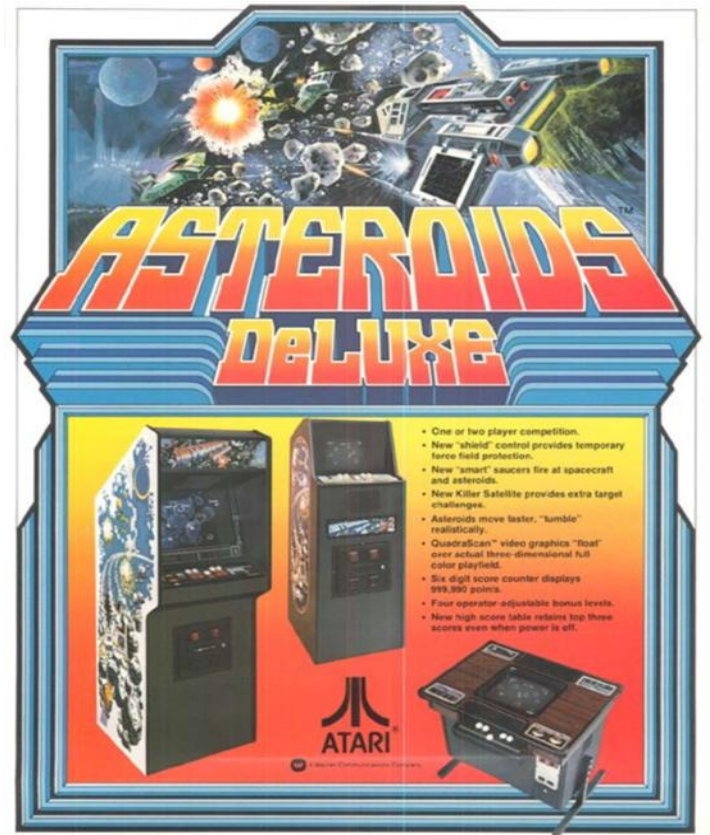
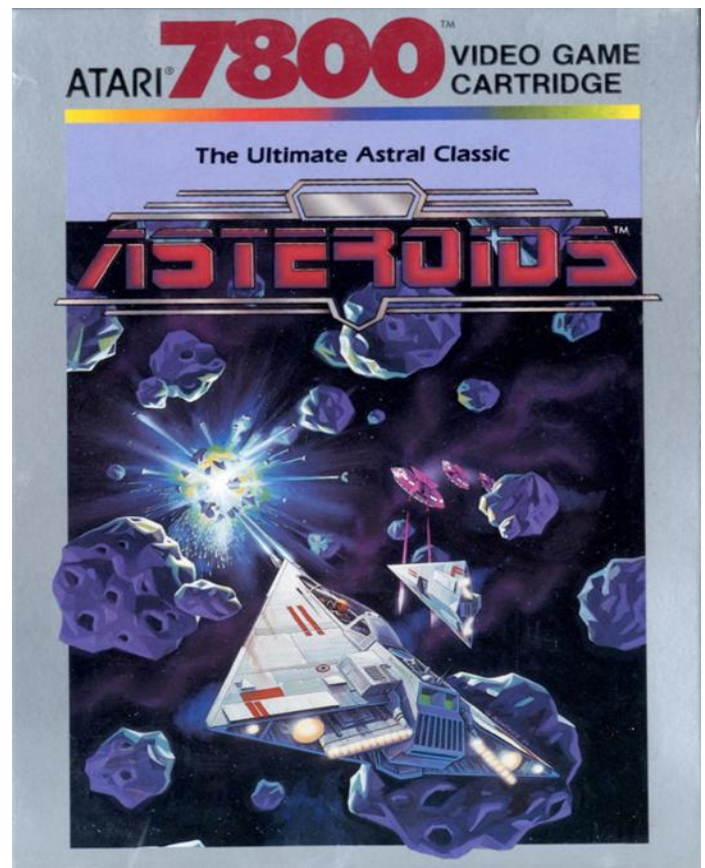
Atari Jaguar By Sinister Developments



This Jag version was coded by the same people behind the wonderful ST version and was really done just as a demo to get to grips with the machine. However it has since been made available as a free burnable CD image, which you can download from the Atari User forum, or is playable via BJL and Skunkboard on a standard machine. Don't expect much here though as it's not really finished. There is no sound, no real presentation, no game modes and there are a few bugs in the gameplay too. Still it's not bad for free just a shame they never finished it off.

5/10

Kieren Hawken



ATARI: The Warner Years

Following from our look at Atari's early years in issue 3 and our exclusive interview with Atari founder Ted Dabney, we now continue our look at Atari history ...

On October 1st 1976 Warner Communications completed the purchase of privately owned Atari Inc. The process had begun back in September.

Bushnell remained as Atari Chairman and Joe Keenan continued as Atari President. The company promptly moved to the now famous 1265 Borregas Ave., Sunnyvale, CA, USA address and there was no let up in Atari's busy release and development schedule.

Before the end of the year Atari had shipped Super Pong, and Night Driver - the upright arcade version. Atari also released their first pinball game - The Atarians.

Al Acorn became vice-president of research and development and Gene Lipkin became marketing director. Malcolm Kuhn was appointed sales director and promptly found himself on the defensive after the FTC announced a probe into video games causing burn-ins on TV tubes.

The first months of **1977** were hectic with Atari releasing Video Music, Dominos, Super Pong Pro-Am and Super Pong Pro-Am Ten. Atari exhibited in London at the Alexandra Palace and at the last winter CES in Chicago.

In May, as part of the purchase agreement with Nolan Bushnell, Atari opened the first Pizza Time Theatre in San Jose, California. The project was led by Bushnell in his role as Atari chairman and Gene N. Landrum was appointed Restaurant Operating Division General Manager.



The VCS made its first appearance at the 12th annual consumer electronics show (CES) in Chicago in June. Atari also announced six game cartridges for the VCS: Combat (to ship with the VCS), Indy 500, Space Mission (would ship as Star Ship), Video Olympics, Street Racer, and Air-Sea Battle.

In the Fall Atari released Video Pinball, Stunt Cycle, Ultra Pong and Ultra Pong Doubles. The VCS began to ship in November with a Combat cartridge, two joysticks and a pair of paddles. New VCS titles were announced: Air-Sea Battle, Indy 500 (with Steering

controllers), Street Racer, and Video Olympics. Sears also launched their own, licensed, version of the VCS under their Tele-Games brand - the Sears Tele Games Video Arcade which shipped with Tank-Plus (Combat), two joysticks and two paddles. Sears also shipped four titles for the Video Arcade - all renamed versions of the initial Atari releases. Sears would continue to publish Tele-Games versions of new VCS titles sometimes using different titles, sometimes using the same titles as the Atari versions.



1978 started off with Atari exhibiting at the Winter Consumer Electronics Show (CES) which had moved to Las Vegas, from Chicago. Four new VCS titles were announced taking the total games library to nine titles. The new releases were Star Ship, Blackjack, Basic Math and Surround. The VCS was exhibited with a retail price of \$199.95.

That same month (January) Atari exhibited once again at Alexandra Palace in London along with their new distributor Cherry Group. Several new arcade machines were announced including Sky Raider, Middle Earth and Ultra Tank. Kee Games would launch their version of Ultra Tank in the February - it would be the last title to be released under the Kee Games brand.

FEATURE:

March, and the Kee Games brand was dropped and Raymond Kassar was appointed to work at Atari as a consultant. Gene Lipkin was promoted to Atari vice president and general manager of the Atari Coin-Operated Games division and Ray Kassar moved quickly from consultant to President of the Atari Consumer Division.

During the following months Atari exhibited in Toronto and Germany and a slew of new releases were announced including nine new titles for the VCS.

In June Nolan Bushnell purchased the Pizza Time Theatre business from Atari for \$500,000. He would now be chairman of both Atari Inc and Pizza Time Theatre Inc. Atari would continue to hold a minority stake.

September saw Atari announcing the creation of Atari Ireland Inc, a wholly owned manufacturing plant in Tipperary, Ireland.

The busy release schedule continued with more arcade, pinball and VCS titles being announced through the year. The year would end with Ray Kassar being appointed CEO of Atari. Joe Keenan replaced Bushnell as chairman and Bushnell remained as a (somewhat sidelined) director on the board of executives.

1979 was an important year for Atari. The company exhibited their new Atari 400 and Atari 800 computers along with 410 program recorder, 820 printer and 810 disk drive at the Winter CES in Las Vegas. The Atari stand was mobbed. The VCS was also exhibited (now \$189.95) and eight new VCS titles were announced including Video Chess and BASIC Programming. That same month Cherry Leisure were once again exhibiting Atari products in London.



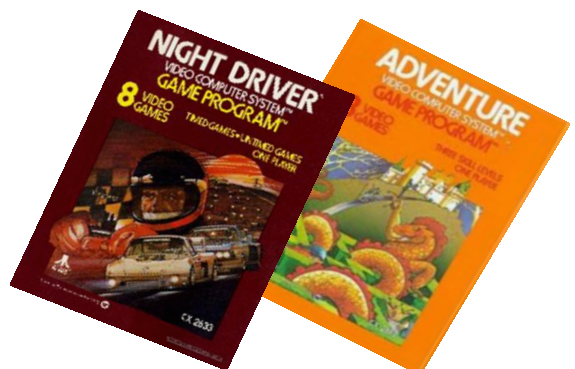
Bushnell and Atari parted company and the Atari founder moved into temporary and forced video gaming exile. Bushnell tried to lay some of the blame for his undoing at Ted Dabney. Dabney denied any involvement and replied that Atari had done to Bushnell what Bushnell had done to him.

Another summer CES saw yet more VCS titles being announced bringing the console's game catalogue to 32 titles. In September Joe Keenan resigned as Atari Chairman and went to join his close friend Bushnell at Pizza Time Theatre Inc. Keenan would take on the role as president.

In November Atari announced the release of Asteroids - the first video game to allow players to save their high scores with their initials. During '79 Atari had continued to dominate the coin-op business. Michael J. Moone became president of the Consumer Division at Atari, taking on that role from Ray Kassar. Also, in November, the eagerly awaited Atari 400 and Atari 800 home computers began to ship.



Chicago. Atari announced another six titles for the VCS including Space Invaders and Night Driver. The Atari 825 printer, 830 modem and 850 interface were announced. Space Invaders would ship before the end of the month, licensed from Taito, and would be the first "killer" console release. Atari were once again on the exhibition trail, this time in Germany and again in London exhibiting the Asteroids arcade machine. Later, Atari released Adventure for the VCS - the first known video game to feature an Easter Egg.



FEATURE:

Ray Kassar consolidated his position at Atari by becoming Atari chairman and CEO, filling the void left by the departure of Joe Keenan.



Ray Kassar, now Atari Chairman

In June Atari were back at the summer CES in Chicago announcing more titles for the VCS including Maze Craze and Video Checkers. The VCS now boasted 40 titles. A significant release for Atari that month was Missile Command - the first Atari arcade machine to default to 50 cents per play.

In October Roger H. Badertscher was named president of the newly established Atari Computer Division. In November Atari released Battlezone and Asteroids was voted as the biggest arcade game earner of 1980.

Riding high on the success of their 400/800 home computers, Atari began the process of making several design changes and enhancements to the 400/800 range. New consoles were under development and work on a successor to the 400/800 range had already begun. The 815, a dual and true double density disk drive, saw limited release and never made it into production. It had a price tag of \$1,500 USD.

1981 was another busy year for Atari with lots of new product announcements. In January, at the winter CES, Atari announced the Atari 2700 - an Atari 2600 in a new case with remote control joysticks that doubled as paddles. The company invested in packaging and advertising and prepared to launch the 2700 but last minute product testing showed that the range of the controllers was just too long and that they inter-

fered with other remote controlled devices such as garage door openers. The 2700 never made it to full production.



Also at the CES, Atari announced further new releases for the VCS (2600) including Asteroids and Warlords. Later that month the Cosmos was unveiled - a handheld holographic video game system. Atari managed to secure a decent amount of pre-orders despite the system receiving critical reviews. Ray Kassar would later step in and shelve the project, prompting Al Acorn (lead developer) to resign and leave Atari. Work began on the Atari Program Exchange (APX) and Gene Lipkin departed from Atari's Coin-Op division. Atari would continue to make significant new coin-op releases throughout the year including Warlords, Centipede and Asteroids Deluxe.

In May APX was launched, headed by Fred Thorlin. APX allowed Atari home computer users to write and get published their games and software for the Atari 400/800 computers and earn royalties for their work. APX was primarily geared toward titles that would normally not be considered good enough or lacking mass-market appeal for a commercial release.

In October Atari released Tempest and in November they held the finals of the 1981 "International Atari Asteroids Championship". Sixteen players competed, playing Asteroids on the VCS. The winner was 15-year-old Andy Breyer who took home a cheque for \$5000.

1981 would end as yet another significant year in Atari history. Work on a new console was well under way and the race was on for a replacement for the 400/800. Two different models were being considered. It was a year when Ray Kassar continued to stamp his authority. The "good times" at Atari weren't what they once were.

1982 , and at the January CEX Atari previewed the SuperSystem / System X, with a retail price of \$349. Fourteen titles were announced to accompany the new system. Six new titles for the VCS were announced including Haunted House, Pac-Man, Defender and Yar's Revenge.

Also in January, Atari announced the appointment of Alan Kay, formerly from Xerox PARC (Palo Alto Research Center). Atari Inc. Corporate Research (known commonly as Atari Research Labs) was born. The vision to study and develop ground breaking products for video-gaming, computing and interactivity using technology that was years ahead of the competition.

Haunted House was released in February, and Pac-Man was released (licensed from Namco) in March. April 3rd was world "Pac-Man day" with Atari heavily promoting the new title in over 27 cities.

Perry Odak became president of the new Consumer Products Group of Atari. The new Group consisted of the Consumer Electronics Division (headed by Michael Moone) and the International Consumer Division (headed by Anton Bruehl).

On the 8th of June Atari announced the "5200 Home Entertainment System". Remember System X?, the console would retail at \$299.95 and was to ship before the end of the year with ten launch titles including Pac-Man, Asteroids, Star Raiders and Super Breakout. A 5200 voice synthesiser as well as a VCS cartridge adapter for the 5200 were also announced.

At the Summer CES Atari announced another slew of new titles for the VCS including the SwordQuest and RealSports series. Star Raiders for the 2600 was released in the September.

In October the Atari 5200 began to ship - bundled with Super-Breakout - the idea being to promote the four player, four port capabilities of the new console. The in-pack game for the 2600 was changed from Combat to Pac-Man.

In December Perry Odak departed as president of the Consumer Products Group. Michael Moore (Consumer Electronics Division) and Anton Bruehl (International Consumer Division) were now reporting directly to Atari chairman and CEO Ray Kassir.

The now infamous E.T for the 2600 was released as were the first new titles for the 5200 including Galaxian and Star Raiders. Atari opened their second "Atari Adventure" arcade.

Warner Communications announced a profits warning - revealing that final quarter profits would be less than for the same period the previous year. Atari and Mattel were battling it out in a two-horse race. Whilst Warner warned that Atari sales were below expectations Mattel was warning it would end the fourth quarter at a loss - mostly due to the costs involved in keeping up with marketing for the intellivision.

Warner stock plummeted losing over \$16 - Warner stock holders lost over \$1 billion of share value in one day's trading. The bad news from Atari and Mattel sent the Dow Jones downward and talk of a possible market crash began although retailers were still reporting booming video game sales.

On December 13th Atari unveiled the new Atari 1200XL - the culmination of a design process that had first started back in 1980. The announcement sent Warner shares upward once more after a disastrous week of trading.



It would later emerge that Atari chairman Ray Kassir had sold 5000 shares just minutes before Warner Communications had made their profits warning.

Atari had ended the year with a new console, important new coin-op and video game releases and with a new computer that had sparked a recovery in stock value. The company had made over \$323 million in profits from sales of over \$2 billion but the storm clouds were beginning to gather.

We'll continue our look at Atari history in the next issue.

Steve Wilds

ATARI: The Warner Years

This issue we continue our look at the history of Atari - the company suffers from internal wrangling and management changes and begins to lose focus - the end results of which are now well known.

1983

Atari starts off the year with major management changes across its various divisions but hit the winter CES in Las Vegas in style. The January show would be the biggest show in the event's history with all the major players in the industry showcasing new product - even IBM would attend for the very first time.

Atari showed off the arcade smash Centipede for the VCS as well as Ms. Pac-Man. New titles were announced for the 5200 "Super System" including Defender and Centipede and a range of educational titles (in association with Children's Television Workshop) for the 2600 were shown.

The main attraction at the Atari booth was of course the new 64K Atari 1200 XL, with an announced retail price of \$895. The computer, and it's new XL styling got a very warm reception despite rumours that Commodore was about to start slashing C64 prices.



Nolan Bushnell was also at the winter CES, showing off his new "Brains On Board (B.O.B)" robot with a hefty \$2,495 list price. Reaction to BOB was mixed although Commodore's Bill Wade was enthusiastic about the robot's future potential.

Bushnell's presence at the CES didn't go unnoticed by Atari officials though with the show over, Atari couldn't help feel that their future was looking very bright indeed.

Before the end of the month Atari would launch Venture and Phoenix for the 2600 and Centipede for the 5200 began to ship.

In February Atari attended the 80th American Toy Fair in New York and announced the My First Computer add-on for the 2600 - which was later named The Graduate. With 8K of RAM, expandable to 32K, it would retail for around \$90. It never shipped.



It was a good month for new releases with SwordQuest FireWorld and Ms. Pac-Man being launched for the 2600 along with new arcade titles. Despite the success of the winter CES, the huge interest in the 1200XL and the new 2600 computer add-on Warner Communications were about to announce the first wave of a series of layoffs that would send shockwaves across the industry.

Atari announced that it was switching most of its manufacturing to Hong Kong and Taiwan and laying off some 1,700 employees.

In March the 1200XL began to ship although the new XL style 1010 cassette unit had beaten it to the stores. Atari also announced the creation of a new consumer telecommunications product division (AtariTel) headed by Peter Wensberg.

In April Atari filed suit against Nolan Bushnell and Joe Keenan for violation of their non-competition agreement related to the sale of Atari to Warner Communications back in 1976. Before the end of the month the 5200 would start shipping with Pac-Man as the in-box game, replacing Super Breakout.

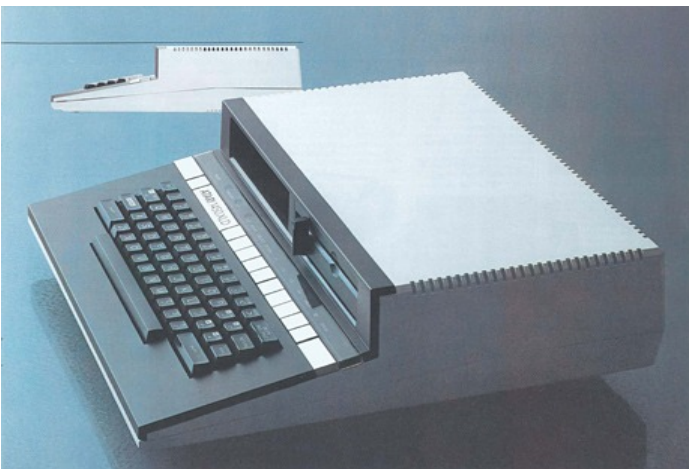
May, and Atari announced plans to merge the Consumer Electronics division with the Home Computer division. A further 225 California manufacturing layoffs were also announced. The month would end with Atari and Nolan Bushnell reaching an out of court settlement with Atari securing sole rights to develop any

ATARI: The Warner Years

home versions of any new arcade titles launched by Nolan's Sente Technologies.

The summer CES that year in Chicago was another huge event for Atari with the now re-named The Graduate (for the 2600) being showcased once more with a range of peripherals and add-on devices including RAM module, cassette unit, printer, modem and disk drive. A range of software titles were also announced. Despite the huge interest and the huge investment made so far by Atari, The Graduate would never ship.

Hot news was the announcement of the new XL line of home computers. The 1200XL was conspicuous by its absence. A new 600XL (16K), 800XL (64K), 1400XL and 1450XLD. The 1400 and 1450 models would include a built-in modem and speech synthesis chip, with the 1450 also including a built in disk drive. Prices would be much lower than with the previous 400/800 range and the 1200XL which had only been announced in the previous December and which had been shipping for less than four months.



New titles for the 2600 were announced including Joust, Pole Position, Voice Commander and Snoopy

and the Red Baron. New titles for the 5200 included Tempest (never released), Joust, and Moon Patrol.

Atari also announced their move into publishing titles for other platforms under their new Atari Publishing (AtariSoft) label. Titles were showcased for the Apple II, IBM PC, C64, VIC-20, ColecoVision, and TI-99/4A.

The 1200XL which had been a huge leap forward from the ageing 400/800 line was quietly discontinued that June, despite surviving the shift from USA to overseas manufacturing. It is believed that around 100,000 units were produced.

Whilst Atari captured the public's attention with their fantastic looking new product line the markets were talking about something else. Warner Communications had lost \$18.9 million in the first quarter of 1983 - a direct result of falling sales and profitability at Atari Inc. Ray Kassar was still under investigation by the Securities and Exchange Commission and many believed his departure from Atari was imminent. It was hoped that a new product line along with drastic restructuring would help turn the company around.

On July 7th Warner Communications announced that Ray Kassar had resigned as chairman and chief executive of Atari Inc and was to be replaced by James J. Morgan, a Phillip Morris executive. Kassar was quoted as saying he was satisfied with his role in turning Atari into a leader in the video game and home computer industry.

Even as Kassar was leaving the building, Warner were warning the markets to expect 2nd quarter losses to be higher than its first quarter deficit of \$18.9 million.

Morgan set to work immediately on restructuring the Atari business. In August he announced major changes with Atari Manufacturing Company and Atari Sales and Distribution Company being dissolved and merged into the Atari Products Company division. Only AtariTel and the Atari Coin-Operated Games division would go untouched in Morgan's first restructuring efforts.

In September James Morgan officially took up his role as chairman and chief executive of Atari Inc and announced a 30 day freeze on product development and production whilst Morgan evaluated all aspects of Atari operations. The freeze would have significant and far reaching implications.

The Graduate for the 2600 was cancelled as was the 1400XL. The 1450 XLD escaped Morgan's axe for the time being. The 600XL and 800XL were committed to production but Atari were unable to get sufficient man-

ATARI: The Warner Years

ufacturing in place to meet the crucial Christmas trading period. Morgan would later put a positive spin on things saying that Atari had “sold out” of their new 600/800XL models. By November Atari were refusing to take new orders for the machines - this would not change until the new year.

Peter Wensberg departed from AtariTel and was replaced by Richard Meier, formerly VP of AtariTel marketing. The month (September) would end with Atari announcing more new titles for the 2600 and 5200.

With the 600/800 XL computers now shipping, albeit in limited number, Atari launched the Atari 2800 (a redesigned 2600) for the Japanese market. Sears liked the design and used it for their new Tele-Games Video Arcade II.



The year would end with more important 2600, 5200 and arcade title announcements but 1983 would be disastrous for Atari, with losses of more than \$539 million on sales of over \$1.1 billion. Morgan was again upbeat, predicting that Atari would return to profit in 1984.

1984

Atari used the winter CES to announce new titles for the 2600 and 5200, including Mario Bros., licensed from Nintendo. New titles by Atarisoft were also launched. The official spin was 1984 would be a profitable year for a leaner, meaner Atari. The industry was yet to be convinced and the growing adult video industry presence seemed to get more press attention than the Atari booths.

Later in January Morgan announced another significant management reorganisation at Atari. The Coin-Operated Games division would now be merged into the Atari Products Company and AtariTel ceased to be a separate division and was placed on the back burner.

New game releases followed for the 2600 and 5200 - titles for the later included Bezerk, Robotron:2084 and Bezerk.

In February Atari stopped production of the 5200. March saw further job losses and that same month a judge refused to dismiss a case brought against the company by former employees claiming Atari had concealed plans for massive layoffs and dismissed employees without proper notice.

The APX operation was shutdown in April. During that same month Atari announced Crystal Castles and Taz for the 2600.

In May Atari announced a major tie-in with Lucasfilms with new titles for the 5200 and Atari home computers. The IBM, Apple and Commodore would benefit from titles being released under the AtariSoft label.

On May 21st Atari announced the new Atari 7800 ProSystem with 13 launch titles. The company also confirmed the end of 5200 production. The new console was expected to ship in the July. Atari claimed 5200 sales of over 1 million units.



Under growing pressure from Warner Communications, James Morgan began a further detailed evaluation of the Atari business and announced in a series of speeches and presentations to employees that Atari was to be re-born. A new Atari company (“NATCO”) would be created. Essentially, about a third of the Atari workforce (the best of the best) would be re-employed by NATCO. As the evaluation of the business would be ongoing, other employees would be transferred into “Delta Company” - whilst their fate was determined. Employees who didn’t make it into NATCO or Delta Company would be terminated. Employees who were moved into Delta Company would either eventually be moved into NATCO as the new business reorganisation developed or would be terminated.

ATARI: The Warner Years

It was alleged that in order to get employees to sign up to Morgan's NATCO proposals, they were offered a share in a bonus pool based on 1983 figures. With only a third of the Atari workforce expected to make it into NATCO, the lucky ones could expect a 1984 bonus up to three times higher than the bonus they'd received in 1983.

The NATCO consultations and preparations continued apace and in June Atari announced yet more significant layoffs - nearly half of its headquarters staff were axed. The company also announced an end to its manufacturing tie-in with Wong Electronics in Hong Kong. Hong Kong production of the 800XL would cease with manufacturing shifting to Taiwan.

Atari's presence at the Summer CES was designed to show that the company was "back in business" and committed to the future. New 2600 releases were announced - none were shipped apart from The Last Starfighter (Solaris 1986), as were new titles for the now defunct 5200. A ProSystem adaptor was announced - that would allow 5200 owners to play new 7800 titles on their consoles. It would never be released.

The 7800 was given a significant showing with new products including a high-score cartridge, and keyboard along with software to use the keyboard add-on. The idea was to market the 7800 as a console that could be easily turned into a basic home computer. Atari also announced the Mind Link system for the 2600, 7800 and XL range.

Atari began to ship small numbers of the 7800 but the console, and most of what Atari had showcased at the June CES, would become a victim of events.

James Morgan had been busy trying to reorganise the company but the Warner Communications board had had enough. Atari's losses had dragged down the whole company and made Warner Communications a target for a possible hostile takeover. Whilst Morgan worked to fill the holes and save the sinking ship, Warner Communications were already manning the lifeboats.

On the morning of July 2nd Americans and, more importantly, Atari employees woke up to the news that Warner Communications had offloaded the Atari Inc home computer and home video game businesses to Tramel Technology, headed by Jack Tramiel, former Commodore president.

The deal was complex with Tramel Technology acquiring the rights to the Atari brand and "fuji" logo but with Warner Communications retaining use of the brand for

exclusive use in the coin-operated market. No cash was paid, with Warner receiving \$240 million in long-term notes and effectively a 32% stake in the new business.

Tramel Technology would be renamed Atari Corporation but Warner's involvement with the Atari brand would continue as Atari Inc became Atari Games Inc and Warner would have an interest in the new Atari Corporation.

James Morgan took an extended leave of absence. He would never return. It is believed that Morgan was kept in the dark during the Warner/ Jack Tramiel negotiations and had little if no idea that Atari was about to be sold off literally right under his nose.

Warner Communications's handling of the sale would in time be widely criticised and would result in a lawsuit by former Atari employees who'd signed on to the NATCO agreement. They alleged that Warner Communications had never had any intention of following through on Morgan's NATCO proposals.

Morgan had taken the initial and crucial steps to turn Atari around. He'd slashed costs by at least 40% and had predicted a return to profitability by the end of the year. The number of Atari employees had been slashed to around 1,200. Even so, Atari had reported a loss of \$34.9 million in the first quarter.

Atari Games Inc would be sold to Namco Ltd in 1986, with Warner retaining a 40% stake in the new Atari Games Corp. Atari Games Inc would become Atari Holdings Inc, a shadow of a company existing solely to represent Warner Communications' remaining interests in the Atari brand - including the new Atari Corporation.

On the morning of July 2nd 1984, Jack Tramiel arrived at Atari's Sunnyvale headquarters. For many his arrival was the first sign that something significant had happened.

Tramiel had the press on his side. If anyone could turn Atari around then he was the man to do it.

Steve Wilds

HARDWARE: THE ATARI XC11

In issue 1 we took a look at the Atari XC12 program recorder and promised we'd take a look at the XC11. Well, the wait is over!

Atari Corp released the XC11 in 1986 to match the new 130XE computer. Up until then the only official Atari datacorder still on the market was the Atari 1010 which was styled to match the XL line. The XC11 didn't grab a lot of press attention on launch and many for years didn't even believe it existed.

In Europe it was believed that the XC11 had been focused for the North American market. In North America it was believed that the XC11 had only seen a European release. We know now that the XC11 was released in both markets but was only available for a very limited time.

Opinion seems to be divided over the reliability of the XC11 with some magazines claiming one of the reasons for it being withdrawn was poor reliability. Most former XC11 owners believed the unit to be very reliable. Looking back it is obvious that the XC11 was produced as a stop-gap product. Atari Corp needed a matching tape unit for their new XE line and didn't want people having to use older Atari Inc XL style 1010 units with their new machines. The XC12 was cheaper to produce and would prove itself as being a reliable piece of kit.

The XC11 takes its power from an Atari computer, via the SIO port, making it the first Atari tape unit not to require an external power source. The XC11 got a similar reaction from Atari owners as had the 1010 when it had first appeared and had a very short shelf life hence why its existence has often been denied, putting it up there with UFOs, and paying income tax being completely voluntary.



The unit has a built in SIO cable, like the XC12, but also has an SIO port on the rear - an advantage over the XC12 which doesn't. The XC11 is pretty rare and hard to find these days - especially a boxed one. They tend to turn up from time to time on European auction sites and less often on ebay.com .

You can download the XC11 user manual from this issue's bonus page.



ANNOUNCED in December 1982 and well received at the January '83 winter CES, the Atari 1200XL represented a major move forward for the Atari 8-bit line. The launch sent Warner's stock value climbing again and it all looked very promising indeed.

Within a few months the Atari 1200XL would be quietly discontinued and replaced with two new XL models. Let's take a look then at the Atari 1200XL and see where and why it all went wrong.

The Atari 400/800 computers had been selling well but were expensive to produce and their design was already starting to look outdated. Atari had been working on changes and improvements to the 400/800 since launch and work on a successor to the two launch models had started as early as 1980. Atari were looking at various options. Changes to FCC requirements and advances in manufacturing gave Atari the chance to work on a new, improved, design which would cost significantly less to manufacture.

One route Atari considered was the A-300 project which favoured a modular series of computers and add-ons. The second was a cut down, low profile, one-box design that would emerge as the 1200XL. The 1200XL itself had quite a drawn

out development process with at least two versions being considered with the end product not having all the features at one point considered during the design stages.

Atari were working on direct replacements for both the 400 and 800 models with a 16K and 64K computer in the works. The 600XL and 800XL would later launch based on designs mostly drawn up during 1981 - the same period when what would become the 1200XL was being developed.

Regan Cheng was behind the design for the new 1200 and the rest of what would become the new XL line of computers. Still considered stylish and ahead of their time even today, the 1200XL is arguably the most visually appealing model of the XL range.

The powers that be at Atari wanted the new 1200XL to be aimed squarely at home computing, a machine that could be used for games, and home productivity - not something that would be used for serious business computing or a machine that could be opened up and tinkered with by computer "hobbyists". In their defence Atari did carry out consumer research during the development process but, whilst this was going, on they were getting plenty of feedback and worried

comments from Atari user groups about what they were hoping to see in any new machine.

The 1200XL

Sporting a new stylish design, the 1200XL was a leap forward from the 400/800 line. Gone was the heavy shielding and different boards that made up the 800 - replaced by a single, all-in-one motherboard design with 64K RAM.

Two controller ports were axed as was a cartridge slot with the 1200XL's one cartridge slot positioned on the left side of the machine alongside the two joystick ports.

The back of the machine offered no expandability being limited to an SIO port, monitor out, TV out and channel selector switch.

Atari had worked on making improvements to sound and video with POKEY getting tweaked and the company claiming the 1200XL would offer much improved video over the Atari 800.

The 6502 microprocessor was also improved with on-board logic drivers and the 1200XL shipped with a new 16K operating system that fixed several bugs from the previous 10K 400/800 OS. The computer in-

THE ATARI 1200XL

cluded a new built-in self test system that allowed the user to quickly and easily check the computer's ROM, RAM, audio output and keyboard. An international character set, fully re-definable keyboard, and special function keys all were all-new features for the new machine. The 1200XL, however, would not have BASIC built-in.

As well as the power on indicator, the 1200XL had two special function indicators labeled L1 and L2. L1 lights up when the keyboard has been disabled, L2 lights up when the computer is using the international character set. The new self-test screens are accessed by the HELP key once the computer has booted up.

The 1200XL introduced Graphics modes 12 to 15, making them available for the first time using BASIC.

As for the new function keys, one disables ANTIC (the video display) to enable the computer to crunch data at a faster rate, one disables the keyboard, one disables the audible keystroke "click", and one switches between the international character set.

With a stylish new design and, in my opinion, the best keyboard out of any of the 8-bit computers, the 1200XL looked like a winner, and hopes were high.

The 1200XL hits the market

Radical design changes meant that the 1200XL got a very mixed reaction from existing Atari users but was quite well received by new computer owners. The closed design proved unpopular with die-hard Atari enthusiasts and the new OS, which addressed the new features of the computer as well as fixing several bugs, made the 1200XL incompatible with some existing software including cassette versions of several of Atari's own APX titles.

Atari stated that any software that did not use their official programming guidelines could fail on the 1200XL. Changes to memory locations over the previous Revision B 400/800 OS along with new memory locations, exclusive to the 1200XL, meant that the 1200XL would be a new challenge for programmers that had honed their programming skills on the 400/800.

The 1200XL, and beyond

It wasn't the sales success Atari had been hoping for and it had alienated a large portion of the Atari community. With James Morgan on a cost cutting drive, the 1200XL initially survived the shift from USA to overseas manufacturing but within a few months of launch Atari had announced new additions to the XL range including the 600XL, 800XL, 1400XL, and the 1450XLD. Initially the company claimed that production of the 1200XL would continue but in reality it would quietly be dropped, before most magazines of the day could even have chance to do an in-depth review of the machine.

The 1200XL case design survived as inspiration for the 1400XL and 1450XLD - neither of which would make it to market.

The machine's shortcomings were largely addressed with the release of the 800XL which was yet even cheaper to manufacture. The 1200XL had blazed the trail, taken the flak, and given a hint of what was to come.

Looking back, with the benefit of hindsight, we have to ask the question why the Atari 1200XL was released at all, given that the designs for the 600XL and 800XL were well developed.

Using the 1200XL

We can only speculate as to why Atari chose to leave the final

1200XL design lacking the parallel bus interface. It was a decision that would come back to bite them in the behind. Obviously changes needed to be made to the OS and some incompatibilities were inevitable but, today, the 1200XL stands out for the wrong reasons as having a unique OS - different to the 400/800 OS and different from the revised XL OS used in the 800XL. No support of the PBI is included in the original 1200XL OS and incompatibilities with older software didn't win the 1200XL any supporters. Many users chose to carry out a simple OS swap, using the 400/800 OS in their 1200XL. Bob Wooley went on to publish details of how to modify the 1200XL to use an 800XL or 130XE OS ROM and give the 1200XL PBI functionality.

The often stated much improved video output was in reality patchy with many users complaining that the 1200XL's video output was inferior to that of the Atari 800. Bob Wooley was again on hand to save the day with his CLEARPIC modification.

Whilst initially unpopular, the 1200XL was eventually considered as a great machine to mod, given the fantastic keyboard and the available space inside the machine.

Expect software compatibility problems with some older 400/800 software and some post 800XL releases given the 1200XL's unique OS.

Buying a 1200XL

The 1200XL is obviously nowhere near as common as the 800XL and was only officially released in North America. Usually the keyboard will require servicing especially if the computer has gone a long time without use but this is a straightforward procedure. The 1200XL represents the last of the Atari computers released before cost cutting at every corner became the norm.

THE ATARI 1200XL

Price wise the 1200XL commands much higher prices than an 800XL or 130XE although they continue to come out of the woodwork and crop up constantly on ebay. In heavy demand amongst collectors, you can expect to pay anywhere between \$50 to \$300 for one. Avoid getting into a bidding war and look for bundled listings to get better value.

1200XL Programming Guidelines

Programs written entirely in Atari BASIC which do not use PEEK or POKE instructions should work fine on the Atari 1200XL.

There are no spare locations in the OS database. Memory locations between \$0000-\$007F and \$0200 - \$047F are reserved and should not be assigned to user variables or constants. As an example, programs that assign values to the previously unspecified locations \$02C9 - \$02E3 are likely to fail on the 1200XL.

User accessible variables have retained their original addresses however internal and temporary variables may have been moved, so no attempt should be made to access them.

NEWROW and NEWCOL, previously at \$0060 and \$0061 have been relocated and are internal variables even though referenced in the Atari 400/800 BASIC reference manual.

System calls to operating system routines should only use stated entry points and vectors. Vectors labeled "for OS internal use only" or found when scanning the OS may have been moved and should not be used.

No attempt to detect BASIC, PILOT or other types of cartridges should be made as no documented procedures exist for doing so. No attempt should be made to jump directly into cartridge ROM.

Programs should conform to the interfaces described in the Operating System User's Manual with regard to:

- Power Up Initialisation
- RESET initialisation
- Interrupt Processing
- System time utilisation
- I/O Operations
- Floating Point operations
- Memory management

Programs should not rely on "side effects" of system functions as "bonus" features cannot be relied upon and should not be used.

The "initialisation values" given in section 6 of the early versions of the Operating System User's Manual are not valid for the 1200, and should not be relied upon.

No attempt should be made to access the hardware register PORTB, at memory location \$D301. Since the two joystick ports controlled by PORTB have been eliminated, it has been reallocated for other purposes.

System calls to O.S routines should utilise only "advertised" entry points and vectors. These addresses are provided in Appendix J of the Operating System User's Manual, and they fail in two address regions: 1) \$E400 - \$E47F (Rev A/B) for the operating system, and 2) \$D800 DFFF for the floating point package.

The character set definitions are at locations \$E000 - E3FF and \$CC00 - CFFF for the international character set.

The above are the official programming guidelines issued by Atari for the 1200XL. The manual referenced shipped with the Atari Home Computer System Technical Reference Notes (CA016555 REV. A)

Review: Steve Wilds





The Atari 1200XL is now much sought after amongst Atari enthusiasts and collectors.

High build quality, stylish design and a glimpse of Atari's glory days before the cost cutting axe began to fall.

Part of the "Sweet 16" project, Atari planned 16K & 64K versions known as the 1200 and 1200X during development. The end result is the 64K 1200XL, designed to be lower cost, higher build quality and offer enhancements over the Atari 800.

Pin 12 (12-volts) on the SIO port is not connected on the 1200XL. Additionally, pin 5 (chroma signal - monitor output) is not connected causing incompatibility with monitors using the composite chroma signal.

Atari Lynx takes on the Game Gear

Atari Lynx Vs.

The Sega Game Gear – Part 1

Starting this month is a new feature to the pages of Atari User which I am calling Atari Lynx versus. In this series of articles I will be looking how Atari's wonder portable compared to a number of other machines starting this month with its nearest competitor back in the day, the Sega Game Gear. To make sure we are on a level playing field I will only be looking at the same game where it appeared on each machine and then comparing them side by side. From my research I found just under 20 games fitting this criteria so I will be looking at these over 2 parts.

Ninja Gaiden

Originally released in the arcades by Tecmo it was also known by the name Shadow Warriors in the west. Taking the form of a scrolling beat 'em up it was very popular and converted to many of the home computers and consoles of the day. The Lynx version is a direct conversion of the coin-op while the Game Gear version is more like the awful Nintendo NES version, which took the form of a platformer with a few fighting aspects.

Because of this you can't compare them 100% side by side as they play quite differently. However there is no doubting that the Lynx version is the superior game and beats out the GG in just about every department.

Ms. Pac-man

One of the most popular games ever the wife of Pac-man has appeared on just about every single classic machine in existence in one way or another. The classic dot gobbler has been handled rather differently on each machine while retaining the same gameplay mechanics.

The Game Gear version by Tengen only shows a portion of the maze on the screen and scrolls it as you move Ms. Pacman around. The Lynx version however makes use of the wider screen and shows the whole maze which in my opinion makes it much better to play. The GG version looks nicer due to the bigger sprites but loses out where it really matters.

Shanghai

While the Game Gear version of this is actually called Shanghai II they are pretty much the same game following the same principles. For those who don't know

Shanghai is the home console and computer version of the classic Chinese board game mahjong that involves removing tiles of the same design from a board by matching up pairs. However you can only move tiles that are not blocked by another from each side or above. This addictive game had been a firm favourite of mine over the years especially on the Lynx.

The GG version by Sunsoft is very simple compared to the Lynx version converted by Activision themselves. It does not look as nice, sound as good or have as many features. The GG version was only ever released in Japan but isn't hard to find. The very common Lynx version is a must have game for the machine.

Paperboy

A massive arcade hit, Paperboy was another game to appear on a multitude of home machines with varying degrees of success. A common complaint of many of the home versions is that they do not control very well. The original arcade used a unique isometric viewpoint and even more unique handlebar controllers to guide your hero down each street delivering his papers.

Sadly, Tengen's GG version is one of these versions whilst Atari's Lynx translation is a near straight port of Elite's brilliant ST conversion. There isn't much difference with regards to the graphics, as you can probably see, but the Lynx version does have better sound. Yet another win for the Lynx.

Batman Returns

The film was a massive success in the cinema and is still regarded highly as a bit of a cult classic even today. In many theatres it also featured a long advert for the Lynx game, which was the first version to be released, which not only helped really sell the Lynx but also show people just how impressive Atari's machine really was. Atari's version of the game is a scrolling beat 'em up which really captures the feel and dark atmosphere of the film very well indeed. It also features some very impressive graphics and sound too.

Sega's take on the film is more of a platform game that is not nearly as faithful to the original material. It doesn't look as good, sound as good or even play as good. There is a common theme here

Pong

A slight difference here in a few ways because the Lynx version is not an official game and the GG version appears on a compilation, but they are still essentially the same product. The Lynx version is actually named

Atari Lynx takes on the Game Gear

Ponx and was the first game programmed by Carl Forhan for his now well known Songbird label. It's a solid version of the historic arcade game that also features many options to change the way you can play it.

The GG translation is one of 3 games on Tengen's Atari Arcade Classic cartridge and is actually named Ultra Pong as it also features the hockey game that many know from the 2600 version called Video Olympics. There really isn't a lot to choose between the versions but I actually prefer the GG game in this case mainly because it features other games on the same cart.

Super Skweek

A very under rated game for the Lynx by French software company Loricel - not many people actually realise it was also released on the GG, albeit under a different name. Known as Slider the Sega version is actually a conversion of the original Skweek computer game. It's a rather difficult game to explain but basically involves you moving a furry thing around levels turning squares from blue to pink and in many ways plays a lot like the classic Chip's Challenge.

The Lynx version is better in every department here and is one game I can't help but recommend to people, that isn't to say the GG version is bad though just lacks the polish of the Atari game.

Desert Strike

Electronic Arts take on the Iraq war was a huge hit when it was originally released for the Sega Megadrive back in 1992. It wasn't long before it saw conversions to other formats and these 2 were handled by Telegames (Lynx) and Domark (Game Gear) respectively. The game uses a type of isometric viewpoint as you control a helicopter trying to take out the enemy installations in the Gulf and rescue all the hostages. I don't actually think there is very much to choose between these versions as they look pretty similar, with maybe a slight edge to the Lynx version, sound almost the same and play pretty much identically. I call this one a draw.

NFL Football

Both officially licensed games of the sport us Brit's call Gridiron, the GG version called NFL '95, is by Sega and Atari themselves handled the Lynx game. Sega's version shows the game played from a $\frac{3}{4}$ view 3rd person perspective and also features limited commentary to accompany the action! Atari's game is viewed from above and is played vertically to make use of the long screen.

It used the Lynx's scaling to zoom in and out of the action where appropriate. For me it's a pretty clear cut win for the Sega machine on this one. The Lynx version probably looks nice but falls down massively when it comes to the gameplay.



Released in 1989, the Atari Lynx was a beast of a machine and looked set to revolutionise console gaming.

With a hardware specification that couldn't be touched, Atari hoped that their gaming heritage would shine through and drive Lynx sales.

A hefty price tag, and the launch of the low cost Nintendo Game Boy dented sales and in 1991 Atari launched the Lynx II with a lower price and renewed marketing campaign.

The arrival of the Sega Game Gear was another blow for Atari, with Sega grabbing sales from a market already largely dominated by the Game Boy.

In the UK the Lynx managed to sell well due to its hardware spec, competing head to head against the much cheaper and inferior Game Boy.

The Sega Game Gear failed to shine against the Lynx at least in the UK and other parts of Europe.

GAME GEAR

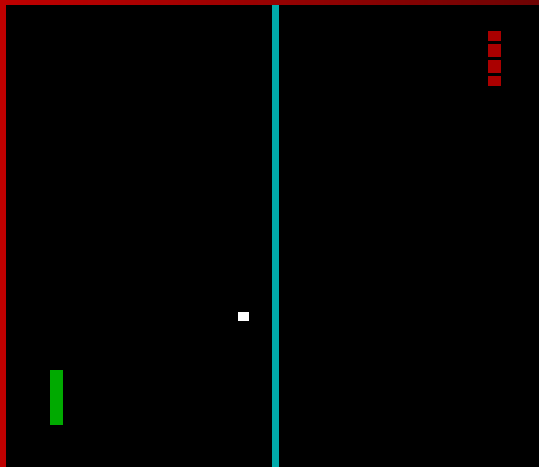


Not much between the GG & Lynx version graphics

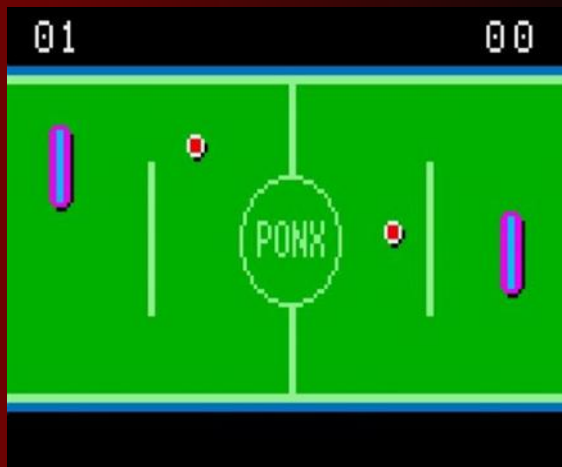
ATARI LYNX



Lynx version wins when it comes down to sound and controls



GG Pong, part of the Atari Arcade Classics Cartridge



Lynx version developed by Songbird

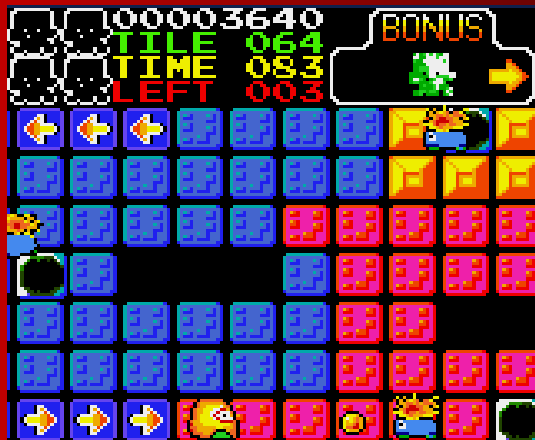


The GG version of Shanghai was only released in Japan



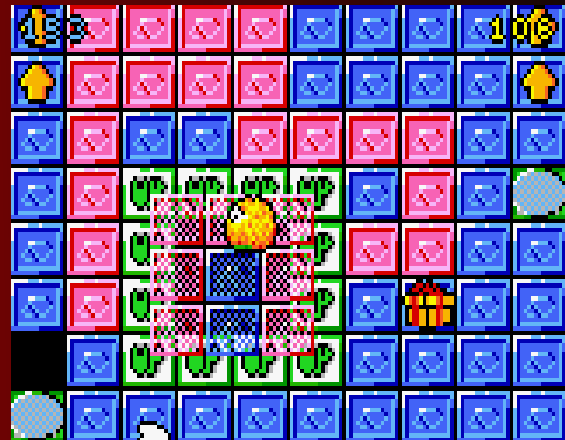
The Lynx version wins on sound, graphics and features

GAME GEAR

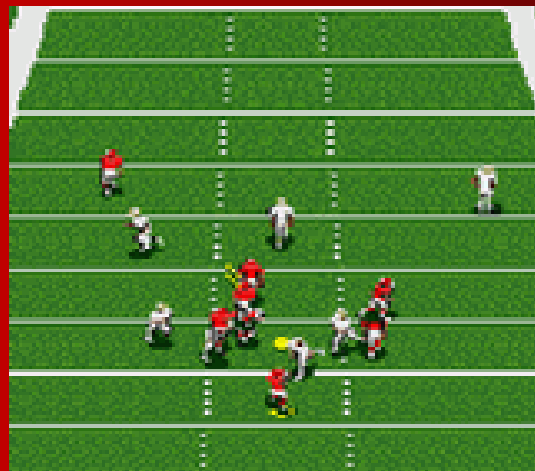


Skweek, released as "Slider" for the Game Gear

ATARI LYNX



Super Skweek on the Lynx outshines the GG version



NFL Football, a clear-cut winner for the Game Gear Version



NFL on the Lynx, doesn't stack up well against the Game Gear



Ninja Gaiden on the GG, not quite the arcade experience



Arcade-tastic, Ninja Gaiden on the Atari Lynx

GAME GEAR

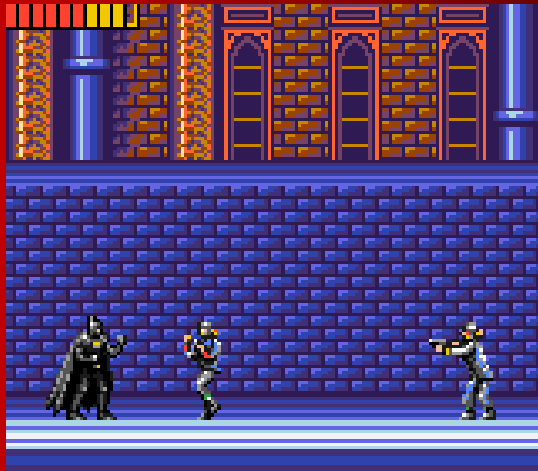


Domark handled the Game Gear version of Desert Strike

ATARI LYNX



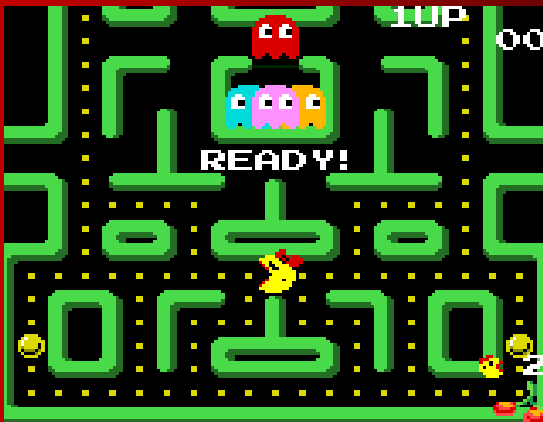
Telegames published the Lynx version of this console classic



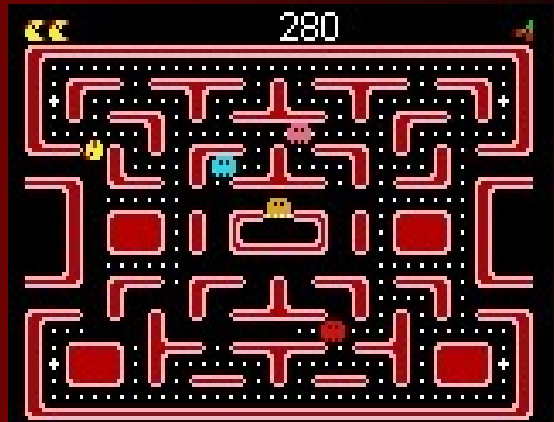
Batman Returns, sadly lacking for the Sega Game Gear



Batman just looks, sounds and plays better on the Atari Lynx



Ms. Pac-Man looks better on the Game Gear



Another game that plays better on the Atari Lynx



SEGA GAME GEAR

LAUNCHED: 1990
DISCONTINUED: 1997
GAMES RELEASED: 350
ORIGINAL U.S RETAIL: \$150

TOTAL SALES: 11 Million

ADD-ONS: TV TUNER, MASTER
SYSTEM CART ADAPTOR,
GEAR TO GEAR CABLE,
SCREEN MAGNIFIER

ATARI LYNX

LAUNCHED: 1989
DISCONTINUED: 1994
GAMES RELEASED: 120
ORIGINAL U.S RETAIL: \$189

TOTAL SALES: 5 Million

ADD-ONS: BATTERY PACK,
COMLYNX CABLE, SUN VISOR



PURE MAGIC: ROB FULOP TALKS TO ATARI USER

For this issue we've been joined at Atari User Towers by programming legend Rob Fulop, author of Demon Attack, Night Driver and more!

Rob is considered to be one of the greatest programmers of our time, pushing the envelope with new titles for the Atari 2600, then blazing the trail into online gaming.

AU: Rob, thank you for taking time out from your busy schedule to talk to Atari User. We'll get the ball rolling by asking when did you start working at Atari, and how did you end up working there?

Rob: While I was attending UC Berkeley in 1978, I had met Nolan Bushnell at a Backgammon tournament. He had given me his card but I was shy about just contacting him out of the blue. Then about a month later I found a summer job notice placed at the UC job board by the coin operated division of Atari, looking for a summer intern to work on sound effects for pinball games. I applied for the position and ended up being hired as a summer intern.

AU: What was it like working for Atari?, and what can you tell us about the game development process for the VCS?

Rob: Early Atari was all about experimentation and trying out new play patterns. In Coin Operated games, there was very little out in the world that programmers/designers could draw inspiration from, so many new games were tried, and maybe 30% of these games made it into actual production.

New games were field tested and evaluated purely on their "drop", how many quarters were put into the game. The VCS division had it somewhat easier in that we could lift play patterns from successful coin operated arcade games, and try our

best to replicate them using the very limited Atari 2600 hardware. 2600 game development was all about creating a clever display "kernel". I'd recommend the book *Racing The Beam* by Nick Montfort and Ian Bogost that focuses on the technical challenges of creating games for the 2600. At that time, programmers made their own graphics, using graph paper and coding each line of graphics into their Hexadecimal equivalents.

AU: Did the atmosphere change with the arrival of Ray Kassar? What prompted you and others to leave and setup Imagic?

Rob: I started at Atari right around the time the company had been sold to Warner, with Ray Kassar as CEO. So, I really never worked there under the original management team with Nolan at the helm. But from what I gather, the "new Atari" was quite a bit more formalized, which is pretty amazing given how loose the structure occurred to me when I started.

I was pretty much told to do whatever game I wanted. Nobody looked over my design documents, nobody even looked at what I was doing until I had a playable game. My first game was an adaptation of *Night Driver*, a popular Atari Coin Op game. I left Atari to co-found Imagic after finishing *Missile Command*, recruited by Bill Grubb and Dennis Koble, my supervisor at the time.

AU: During your time at Atari, what was the game you worked on that you're most proud of?

Rob: I think *Missile Command* is probably my best work at Atari. I had previously done a version of *Space Invaders* for the Atari 800, and had modified the game because I didn't want to simply copy an existing game. I made changes just for the sake of making it different. As it turned out, feedback from the game was pretty clear — people



were interested in the original arcade game and weren't really impressed with my "improvements". They expected the arcade *Space Invaders* and that's not what we gave them.

So, when I sat down to make 2600 *Missile Command*, I really tried the best I could to create an experience as close to the original arcade game as possible. It helped a lot that I had previously worked in the Coin Op division as an intern, as I knew everybody there and was very comfortable hanging out with the original *Missile Command* team.

AU: How different was it, working at Imagic?, and what development equipment did you use to write games for the VCS?

Rob: At Imagic, I was a partner in the business, with a royalty on any games I developed. Thus I felt a lot more pride of authorship, since my name was on each and every copy of any game that I made. We used a Kontron development system if I recall, we would write out the 6502 Assembly Language code and assemble it into a 6502 binary file which would load into a modified 2600. The Kontron allowed us to insert break points into the code, and single step through it line by

PURE MAGIC: ROB FULOP TALKS TO ATARI USER

line. It was pretty slow work, a 4K game would take 6-9 months.

AU: Did you have contact with the other leading games writers of the time like David Crane, and what was the relationship like with them?

Rob: We would see other designers primarily at the bi-annual Consumer Electronics Show in Las Vegas or Chicago. CES was the big event of the year in our business, where new games were shown. We would walk around talking to each other, showing off our games, bragging while being secretive about any new techniques, etc. We were always trying to impress each other, our relationship with each other could probably be described as "frenemies". We were chatty with each other, openly friendly, but obviously we were competitors.

AU: The market crash: Did you see it coming?, and what was the impact on Imagic as a company and on games writers like yourself?

Rob: I really didn't see the market crash coming. I recall the June 1982 CES where there were a lot of rumors going around about over supply, and a lot of carts being sent back by the retailers. The impact was immediate and the first great videogame market crash has been well documented at this point. The impact on me was I ended up leaving Imagic and going out on my own.

AU: How would you compare Imagic to Activision as it was then?

Rob: Imagic was always sort of the "Avis" while Activision was the "Hertz" of the game business. Activision had more clout, more money, more people, and more market recognition. Imagic ended up giving them a good run for their money though. We both tried to go public around the same time. When the market crashed, Activision's deeper pockets ultimately meant

that they would survive, while Imagic did not.

AU: Out of all the games you wrote for the VCS, which one is the one you're most fond of?

Rob: I think Demon Attack. It was a very special time, leaving Atari really served as inspiration for me to want to "show them" what they had lost, and there is nothing like the motivation of wanting to make your former employer cry.

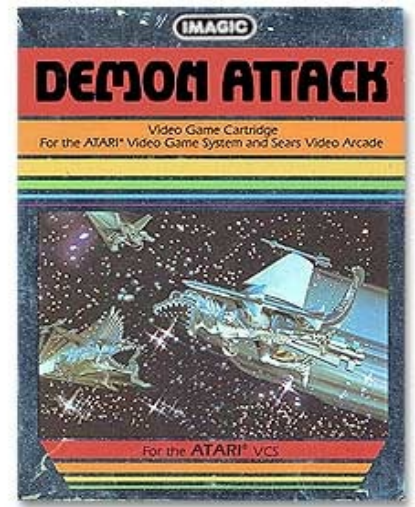
Such has inspired many great songwriters and film makers to do their best work. It's when a creative person leaves a situation that occurred to them as unfair or exploitive that they do their best work. It's that way in most creative industries, there are countless examples. George Lucas made "Star Wars" after being abused by the studios, many songwriters do their best work when they have been dumped by somebody in their lives. Such was the case with Demon Attack - I wanted the people at Atari to see it and just start crying.

AU: After Imagic, what did you do next?

Rob: The first real project of substance that I landed was doing an online casino game for the fledgling Quantum Link, who later became America On-Line.

AU: You worked for Hasbro, developing titles for the NEMO system, notably Night Trap. What can you tell us about the Nemo system and your time working for Hasbro?

Rob: The Nemo system was based on streaming videotape which meant that there was no branching or rewinding of any kind. The video would always be moving forward which proved to be a major constraint in the type of interactive entertainment which could be created on the system.



The "parallel storylines" that were featured in Night Trap where the user could bounce from room to room was derived from an interactive theatrical piece called "Tamara" which was popular in Los Angeles at the time.

In "Tamara", the story was told in a mansion where spectators moved from room to room while the story was in progress all over the house. Tamara became the model for Night Trap.

The Nemo system reminded me a lot of working on the Atari 2600, it was very constrained and we needed to really push ourselves to find games that could be done with the limited hardware.

AU: Night Trap was viewed as a controversial title by many. How did the press attention and US Senate hearings affect you personally?, and did it impact on your future game writing?

Rob: I was quite embarrassed by all the Night Trap controversy. The game itself had been developed five years prior to it coming out for the Sega CD, so I had all but forgotten about it. The game was used as a political football, with the people involved having little to no experience playing the actual game. I believe Senator Lieberman was on record stating that he never personally

PURE MAGIC: ROB FULOP TALKS TO ATARI USER

played or saw the game - it's just always easy to get attention by becoming some sort of media critic. The short documentary "Dangerous Games" which can be found on YouTube does a pretty good job presenting the "controversy" around Night Trap.

Regarding my future game writing, I just wanted to make something that was as cute and cuddly and warm and fuzzy as possible, which served as the inspiration for the digital pet, and Dogz and Catz in particular. As it turned out, Dogz and Catz are probably my most commercially successful games I ever worked on. Like Demon Attack, the inspiration came from my wanting to "prove something" to people out in the world. Dogz and Catz came directly out of the embarrassment generated by the Night Trap controversy.

AU: You went on to create PF. Magic and worked on the massive selling DOGZ and its follow up titles. Can you tell us what "PF" stands for?, as well tell us about your time at PF. Magic?

At Atari, I was known for not putting a lot of comments in my code. One routine in particular used in Missile Command controlled the "smart bombs". I was never really sure of how the code worked, having hacked at it over and over until the resultant algorithmic path taken by the smart bombs proved to be "just right" in terms of difficulty presented to the player. So my comment at the end of the routine was simply "Pure F&%king Magic!".

Years later, when we were discussing a name for our new company, I wanted something that would signify that the end user really didn't care about how our games worked technically, that actually the technology was invisible to the user, and all they cared about was that the play experience was good.

So I dragged out PF.Magic as a possible name, and it stuck. The

name inspired us to not forget how invisible the technology really was from the end user. The game should just feel "magical", end of story.

AU: What are you up to now?

Rob: For the past few years, I've been fairly immersed in the intersection of casual and social gaming. Lately I've been doing games that involve flirting, where people play a game more of as an excuse to meet each other, not to achieve any sort of score. Flirting occurs to me as a game that lots and lots of young adults like playing, so giving them fun ways to play this game occurs to me as a worthwhile endeavor.

AU: Do you have any unfinished VCS titles in the closet and is there any chance you'll ever release a new game for the VCS/2600 in the future?

Rob: No more, unfortunately.

Actionauts was the last 2600 game I worked on, and I'm real glad I had a chance to finally get it out there.

AU: Rob, thanks again for coming in to see us here at Atari User Towers and we wish you all the best with your future projects.

So you think you're hot stuff?

Imagic was founded in 1981 by former Atari employees. It became the second independent games publisher and was Activision's main rival.

Despite great games the magic didn't last as the bubble burst on the video game market. As the company was about to go public Atari announced their worst quarter ever. The market collapsed. Rights to Imagic's games library were acquired by Activision.

Rob Fulop wrote killer titles such as Cosmic Ark, Demon Attack, and Fathom for the Atari 2600. Following Imagic's demise Rob continued to be a gaming pioneer and today works with some of the biggest names in online social gaming.

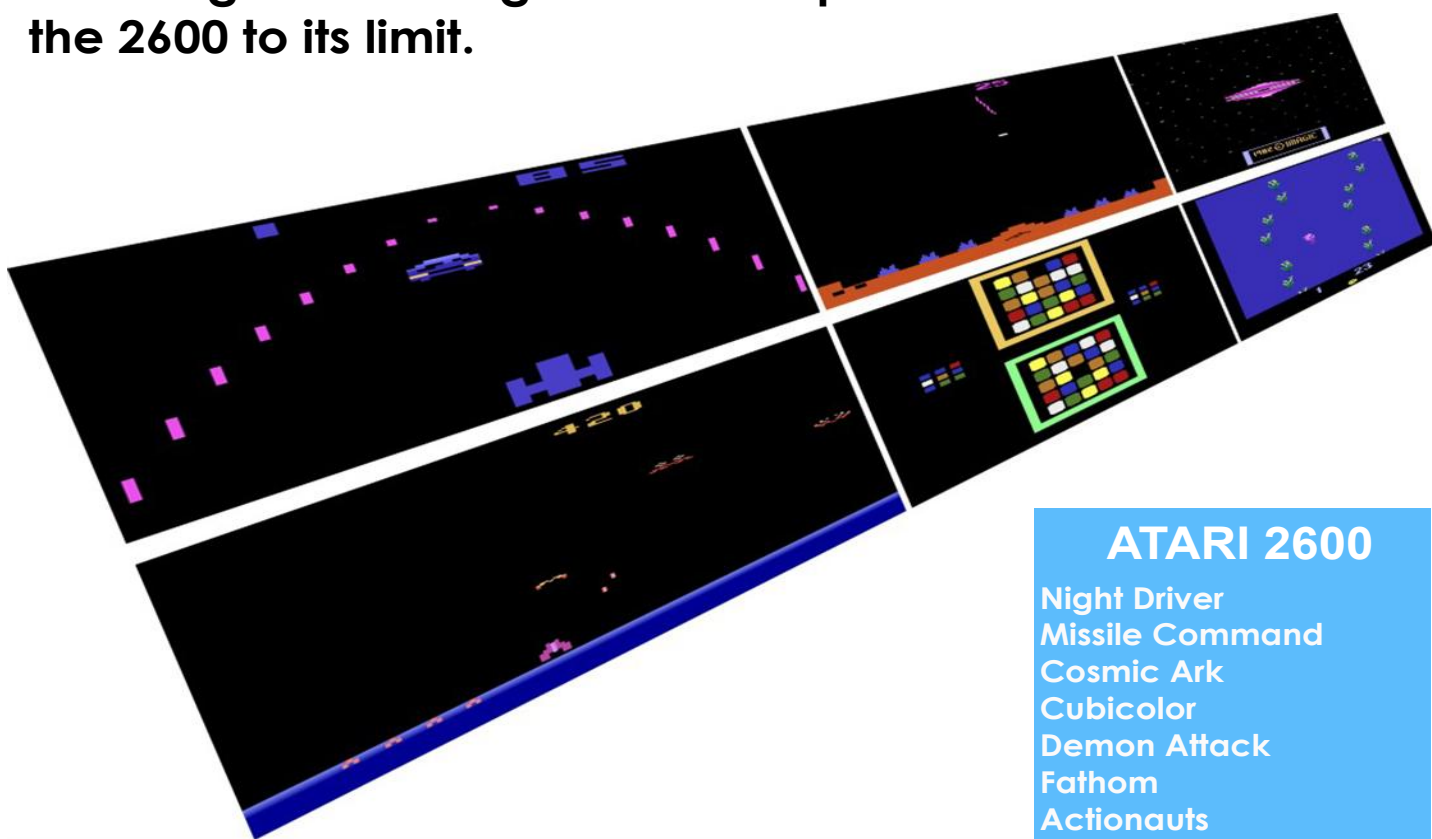


Originally developed for Hasbro's NEMO system, Night Trap was released years later for the Sega CD. It became a controversial title with leading politicians lining up to condemn the title, many without even seeing or playing it.

The game led to a ratings system for video games and today we have to ask: what was all the fuss about?

PURE MAGIC

During his time at Atari and Imagic, Rob Fulop created ground breaking titles that challenged our imagination and pushed the 2600 to its limit.



Night Driver & Missile Command were massive sellers for Atari.

Demon Attack was Imagic's award winning flagship title.

Cosmic Ark and Fathom both featured an innovative dual-player mode. Fathom has some of the most beautiful graphics you'll ever see in a 2600 game.

Cubicolor & Actionauts were both given a special limited edition release by Rob and are both highly sought after by collectors.



ATARI 2600

Night Driver
Missile Command
Cosmic Ark
Cubicolor
Demon Attack
Fathom
Actionauts

ATARI 400/800

Space Invaders

Demon Attack sold over one million copies and was voted Billboard's Video Game Of The Year in 1982.

Rob was named as Billboard's Designer Of The Year in 1983.

Rob's other titles include releases for the Philips CD-I, Sega CD, & pretty much everything else.

From demonic alien invaders to cute and cuddly virtual pets, you'll be hard pressed to find anyone who hasn't experienced a bit of Rob Fulop's magic.

ATARI *Portfolio*

AN ATARI USER SPECIAL

Late 1989 and Atari were busy on the final touches for their new portable computers. On one hand you had the new portable ST (STACY) and on the other you had a new hand held 16-bit computer - the Atari Portfolio.

By January 1990 the Portfolio had begun to ship, backed by (for Atari standards) a decent advertising campaign and with a retail price tag of \$399.95.

The Portfolio, however, wasn't a clever piece of Californian design. It was a British design, produced by DIP (Digital Information Processing) in Guildford, Surrey.

The three founders of the company were all ex-Psion men and had been working on a new pocket sized PC, along with a custom version of DOS.

Atari took notice of the design and licensed it. The Atari Portfolio was born - it sounded a lot better than "dip pocket PC" after all. Interestingly, DIP continued to sell their own branded version - the Pocket PC at least in the UK and all DIP versions have the Atari Fuji multi function key. DIP initially manufactured the Pocket PC in Britain before switching manufacturing to Japan.

The Portfolio is tiny, smaller than the 250 page manual it was supplied with. It is powered either by a 6V AC adaptor or three AA sized batteries. Atari themselves quoted battery life at around three weeks for average use but some Portfolio owners have reported batteries lasting for up to six weeks - not bad at all for something from 1989.

The Portfolio uses an 80C88 CMOS processor running at 4.9152 Mhz, 128KB of RAM (32KB of which is assigned for storage), and 256KB ROM which holds the operating

system as well as in-built applications.

The Portfolio's display is an 8 line by 40 character LCD screen which also has a 256x64 graphics mode. It has a 63 key touch QWERTY keyboard and localised versions were produced for different markets.

Each key is slightly raised at the back to help with typing. At the time many users would have found the Portfolio's keyboard took some getting used to but today, in the age of ever smaller cell phones, you'll probably find the keyboard easy to get to grips with.

The Portfolio was designed to be expandable and easy to use with the ability to easily transfer files between it and a PC. A parallel interface allowed direct connection to printers as well as file transfers. A serial interface allowed direct connection to modems and other serial devices and to top it all off an external card reader was launched that connected directly to your PC so you could easily transfer files to and from the Portfolio's memory cards.



The Portfolio's memory cards are credit card sized and slot directly into the unit's 32 pin connector port which essentially works as an A: drive. The cards were supplied in 32K, 64K and 128K versions and use battery backups to maintain data. The memory cards were the forerunners to the PCMCIA card as DIP founder Ian Cullimore later pushed for the PCMCIA standard.

Finally, a plug-in 256K expansion module was available to increase the built-in RAM as well as the space allocated to the RAM disk (C:). The expansion module featured a pass-through module - so you could connect yet another expansion module to it to increase RAM even further.

Onboard Applications

The Portfolio's applications can be opened either directly from DOS or by using the Atari multi-function key and specific characters. You can also open up the applications menu and select an app from there. The Portfolio uses a simple window GUI to make navigation through different application screens quick and easy.

ATARI *Portfolio*

AN ATARI USER SPECIAL



Finally, the Portfolio has a built in Setup application which allows you to set several hardware and software options including display mode, sound, operating language, printer and RS-232 port settings.

Beyond Applications

The Portfolio is quite a versatile machine with a lot of potential although did get some criticism for not shipping with a version of BASIC. Atari went on to release Portfolio PowerBASIC for the machine.

The Portfolio doesn't claim to be a games machine but there were a lot of bored business executives out there looking for something to play during the morning commute.

The first application is the built in address book which allows you to store hundreds of names, addresses and telephone numbers. A cool feature is that you can use your Portfolio to auto-dial numbers by holding it against a telephone handset.

You can search through your address book for specific names, numbers, addresses or do a search on partial information.

The built-in calculator has five memories, as well as general, fixed, scientific and engineering modes. You have optional printer output, a range of percentage tools and you can carry out "what if" calculations on numbers already entered.

The Diary operates in two modes - calendar and diary mode. Calendar mode allows you to move through the calendar and select any day's appointments whilst diary mode allows you to enter and edit notes and appointments for any time of any day.

There are a range of options available to set appointments and alarms and their frequency. The diary is searchable and can be printed. Alarms can be set and they'll go off even when the Portfolio is turned off.

The Portfolio comes with a basic ASCII text editor and formatter which allows you to create, load, save and merge documents as well as output to file or a printer. As with the Portfolio's other applications, you can search a document to quickly edit and replace specific text.

Also included is a built-in spreadsheet program, called Worksheet, which has many of the features of Lotus 1-2-3 and you can load .WKS and most .WK1 files created in Lotus.

This is a great feature as it allows you to use files created on your PC and transfer files between your Portfolio and computer. Worksheet is a decent enough spreadsheet application and whilst it doesn't have all the bells and whistles of Lotus 1-2-3 it is pretty comprehensive.

Apart from Portfolio Chess, the portfolio community came up with several games including versions of Worms, Tetris and Tron, plus several text adventures and music players!. Various books were also made available as text files for the Portfolio.

Beyond Atari

The Portfolio once boasted a thriving community of users and several products were developed including internal RAM and CPU upgrades, and a PCMCIA card adaptor allowing you to use high capacity PCMCIA cards and easily transfer files between your PC and Atari Portfolio.

Using the Portfolio Today

The Portfolio remains a very useful and underrated machine. The biggest problem today is that computers have moved on a bit since the Portfolio was launched and connecting your modern PC to your Portfolio isn't necessarily as straightforward today as it once was.

ATARI *Portfolio*

AN ATARI USER SPECIAL

The Portfolio is still a great personal organiser and a reliable and well built machine. The battery life is pretty amazing as is its ability to save what you were doing if you had to turn it off in a hurry.

Lots of cool applications, games and software can be downloaded online for free so if you do decide to invest in a Portfolio then you'll find plenty to keep you occupied.

Buying a Portfolio

The main things to look out for when buying a secondhand Portfolio are the condition of the case and screen, as well as the battery compartment.

You can still buy reconditioned Portfolios from the likes of Best Electronics but expect to pay a tidy sum for one. On Ebay UK Portfolios tend to go for between £20 to £45 , and on Ebay they tend to start at around \$50 upward. If buying from Ebay then take your time as they are quite common and look for a listing with bundled items such as RAM cards and adaptors as these generally represent better value. It is certainly worth looking for one that comes supplied with the original manual.

A wide range of new Portfolio accessories can be purchased from Best Electronics.

There is no doubting that the Portfolio was a ground breaking product at launch and it still has its uses even today. Next time you're in a business meeting dig out your Atari Portfolio - it may just land you a promotion!

Review: Steve Wilds



LYNX VS GAME GEAR

Atari & Sega battle it out in the handheld market and we get a ringside seat ...

PART 2

Last month we brought you a new feature to the pages of Atari Lynx versus. In this series of articles I will be looking how Atari's wonder portable compared to a number of other machines, this month, we once again look at its nearest competitor back in the day, the Sega Game Gear. To make sure we are on a level playing field I will only be looking at the same game where it appeared on each machine and then comparing them side by side. From my research I found just under 20 games fitting this criteria and in this second part I will be covering the games I missed out last month.

Missile Command

Without doubt my favourite ever game that Atari produced, Missile Command, appeared on many machines over the years. The GG version of this game is part of the Arcade Classics release that also features Centipede and Pong. It's pretty much a bog standard version of the original game that offers nothing new other than some gameplay options, one of the weakest versions I have played of this fine game. The Lynx version however is without doubt one of the finest versions, second only to the wonderful Jaguar translation.

It also appears as part of a multi-cart in a sense being on the same game card as the also brilliant Super Asteroids. It adds so much to the gameplay with the new addition of power-ups that can be purchased from a useful shop. Pretty much as perfect as a handheld game can get, the Lynx walks this one.

Dracula

One slight difference first of all with this game is that the Lynx title is an official license of the original book by Bram Stoker while the GG version is an official license of the movie that was called Bram Stoker's Dracula.

Now that confusion is over (I hope!) lets see how the 2 games actually compare. The GG game by Sony is a very un-original platformer with adventure elements that is incredibly loosely based on the film. It's about as cheap and worthless as movie licenses get. Not a terrible game but certainly a very average one. Meanwhile the Lynx game by Atari is a wonderful RPG with some of the best graphics you will see on the little console. As big and challenging as the game is, it's also known that the game was originally even bigger! No contest here, Lynx wins again.

Double Dragon

Here we have one of the most successful and popular arcade franchises of all time that at the same time also has some of the worst home conversions known to man. So it was pretty much already a forgone conclusion for me when I found out Virgin were responsible for the Game Gear version, knowing that they were also responsible for the shockingly bad home computer ports.

Worst of all instead of converting the actual arcade game they made this one player tosh where you play as Billy Lee out to avenge Jimmy's death!. It's woeful stuff to say the least but thankfully I got to play the Lynx version straight afterwards.

Converted by Telegames we have right here the best home conversion of DD on a classic console. Using a rather neat zoomed in look it still

manages to look just like the arcade game and what's that I hear? Yes it's the original DD soundtrack in all its glory. The GG really is getting a spanking so far this issue.

Klax

Now when the game in question is a conversion of an Atari game you would certainly expect the Lynx version to win with ease and you would be right but lets face it everybody knows how highly the Lynx port is regarded so there was never going to be a fight.

This classic block dropping puzzle game had a great showing across all the many formats that it appeared on. The Game Gear game is no exception and its certainly one of the best games for its genre on the machine. But put it next to the 16-bit graphics and unbelievably clear sampled speech of the Lynx version and its another tick in the column for the little cat.

Centipede

The final game to appear (that we haven't already covered) on the GG's Arcade Classics cart this is a really solid conversion of everyone's favourite bug blaster and sees the first win for the Game Gear this issue after a bit of a spanking so far. Unfortunately for any fans of the Sega handheld it's not a fair win as the Lynx version by Shadowsoft is just a prototype that was never finished and has no sound, rough graphics and several bugs in the gameplay. I almost feel sorry for the GG at this point so at least it gets a shred of credibility back here.

Super Off Road

Super Sprint in 4x4's this game is a conversion of the hugely popular Tradewest arcade game. The Lynx version is by 3rd party favourites Telegames and Virgin were respon-

sible for the Game Gear's version. I have to say that the respective versions here are incredibly close to each other in pretty much every department, in fact it's quite hard to even tell them apart. So I am going to judge this one a draw as I equally enjoyed them both.

Lemmings

Psygnosis' strategy puzzle classic appeared on just about every system known to man from the ZX Spectrum to the Philips CDi, and I don't think there was a bad version among them. These 2 are certainly no exception to that rule and its quite amazing how this game translated to such a small screen so well.

The differences between these versions are more down to the respective system's hardware more than anything else. The Lynx version wins out thanks to its better looking graphics and much better sound. It is also worth mentioning that the Lynx version has a much better control method that allows a bigger play area on an already bigger screen.

Pit-Fighter

This game is a bit of a cheat as the Game Gear version was never released, but at least it makes up for the unfair Centipede win. There are prototypes of the GG version and its identical to the atrocious Master System version.

Gone are the digitised graphics, sampled sound, multi-player game-play and scaling that made the arcade version so popular and in its place is a horrid garish mess. Cartoon like tiny sprites, that move unrealistically and it doesn't even play the same as the original.

The Lynx version however has all the digitised graphics of the arcade parent and the scaling which means it looks great. It also plays much like the original and although its missing the speech the Lynx version destroys its rival.



Sega's Game Gear outsold the Atari Lynx in most countries with notable exceptions including the UK and parts of Western Europe. With a games library of around 390 titles, it was essentially a portable version of the Master System but with some enhancements including stereo sound.

Sega had planned a touch screen successor to the Game Gear which, if it had been released, would have probably led to a much different handheld market today. Instead, Sega opted for a portable version of the Mega Drive/Genesis - it flopped.



Atari Lynx

Sega Game Gear



The Atari Lynx was the biggest and baddest handheld on the market. It was sadly overlooked by many in favour of the Nintendo Game Boy.



The Sega Game Gear was very popular but couldn't topple the Game Boy when it came to sales figures and even lost out to the Atari Lynx in some markets.



INSIDE: ATARI UK

This is the first part of our look at Atari UK and the titles they produced. We'll be focusing on the 8-bit this issue, with a look at the Atari ST in a future issue of Atari User.

In the early years Atari had relied on dealing with one or two key distributors to get their products to market. Once the International division had been setup Atari moved to create offices in each of their key markets.

Atari UK was located at Railway Terrace in Slough. Now Slough isn't really renowned for much, if anything, and that is why it was an ideal location to base the hit comedy series "The Office". For Atari fans though, Slough sounded like a very exciting and important place to be.

Atari International (UK) Inc had a lot of their focus on the Atari 2600 and Atari's ever popular arcade titles. The 2600 received quite a lot (by Atari standards) of TV advertising airtime. As we saw in an earlier issue the Atari 400/800 computers sold quite well in the UK, sometimes despite what seemed like Atari UK's best efforts!, and the company began to invest in rolling out a dealer and service centre network as well as regular advertising for the 8-bit line.

Atari UK played a crucial role in the expansion into western Europe, with UK staff coordinating the setup of offices, as well as the setting up of service networks and training Atari staff and dealers. By the time Warner Communications had offloaded Atari to Jack Tramiel, Atari UK staff numbered 130.

Under Warner Communications Atari UK had their own sales force and sold directly to retailers as opposed to using a distribution channel. The company used several well known celebrities of the time to



Railway Terrace was the home of Atari UK and once sported a large Atari logo.

The building is now long gone.

help promote their products and the arrival of the new XL range of computers looked like it was going to be a key moment for 8-bit sales in the UK. Atari UK initially made a couple of mistakes. The pricing for the new machines was wrong, especially for the 800XL, and the company chose to promote the 16K 600XL over the 64K 800XL. Atari itself was in dire trouble, laying off thousands of employees. The UK division wasn't immune to problems on the other side of the Atlantic but staff had largely escaped James Morgan's axe.

The arrival of Jack Tramiel would change things considerably and London was the first stop on his cost cutting international tour. Atari UK staff numbers dropped from 130 to just 30 as Jack sacked most of the staff including most of the senior management.

Atari International became Atari Corp (UK) Limited and the practice of direct dealings with retailers small and large went out of the window as Atari sought to build new relationships with distributors and large retail chains. Atari's new approach angered their traditional vendors with many refusing to commit to new minimum ordering and stock level commitments.

The 130XE had arrived in limited number and Atari UK had been busy slashing prices and launching

hardware bundles to make the 800XL a much more attractive purchase. By Christmas 1985 prices had been slashed further with the company offloading 100,000 800XL computer packs to Dixons, with a retail price of £99.99 for the computer, 1010, joystick and games bundle.

The company denied it was seeking to off-load its stock of 800XL computers and smaller retailers were furious saying they couldn't compete.

Everything looked extremely positive for the 8-bit after Christmas 1985 but there was some concern amongst retailers. The 800XL which had sold well was now confirmed to have been discontinued with Atari choosing to focus on the 130XE.

As ST sales boomed Atari UK promised that it would address problems of the past and start supporting software development for the 8-bit. With the 65XE finally arriving and the XES planned for 1987 it looked like things could only get better. What followed was a mini revival of 8-bit support and Atari UK would continue to support the 8-bit line right up until the turn of the decade.

Shortages of hardware didn't help matters though with 130XE owners originally forced to buy 1010 cas-

INSIDE: ATARI UK



Slough, not Scranton, was considered boring enough to be used as the base for the hit comedy series "The Office".

that is scattered about the dungeons. Not a bad game at all.

During 1987 Atari was focused largely on the XES as far as the 8-bit was concerned. Atari UK continued the practice of bundling titles with hardware and indulged in some XE System related advertising.

sette units and the XC11 only seeing a limited release. Disk drive shortages became a nightmare and when Atari UK finally began selling the XF-551 the whole thing was handled very badly with the drive seeing limited availability and only shipping with DOS 2.5. Yours truly managed to source DOS XE from Atari Spain and promptly sent off a copy to Les Ellingham at Page 6.

The much advertised Atari Games Centres became a running joke as far as the 8-bit was concerned with Atari owners traveling large distances to get to their nearest one only to find there were only three or four 8-bit titles stocked and usually no 8-bit hardware.

UK Atari 8-bit owners of the time never really held Atari UK in high esteem and strangely the company seemed to show more software support for the 8-bit in the later years.

Let's take a look then at some of the titles Atari UK published for the 8-bit range.

The Warner Years

Atari UK had largely concentrated on selling expensive cartridge imports and disk titles from the US. There was no real support of software development in the UK. The first British and Atari UK published title was Justin Whittaker's **The Lone Raider**, a three level game, published in 1983 on cassette.

Atari Corp (UK)

The dawn of the Tramiel era saw Atari UK more aggressively selling and marketing the 8-bit line. Initially the company focused on re-releasing older Atari disk and cartridge titles on cassette for bundling with their 800XL packs.

The Pay Off, a text adventure written by Bignose Software, was bundled with Atari 800XL and 1050 packs. It was the first real piece of 8-bit software commissioned by the new Atari Corp UK.

What followed, and despite Atari's claims that they were going to support 8-bit software development, was a bit of a drought until 1986 when Atari UK released **Twilight World**.



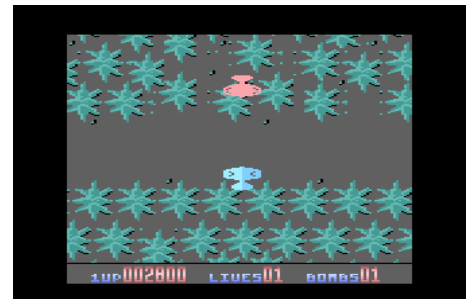
Twilight World is a horizontal scroller where you explore various dungeons and collect gems whilst killing or avoiding the different creatures that inhabit the dungeons. As you make contact with the creatures, fire, spikes and other nasties you'll lose energy. Lose too much energy and you'll lose a life. Energy can be restored by consuming food

Thunderfox was released by Atari UK in 1987, before making it to the XE cartridge range in 1988. An average scroller, Thunderfox was quite a difficult game to master.

Buoyed on by the relative success of the XES, Atari UK commissioned new titles for the 8-bit and it would be 1989 before they saw release.



Tiger Attack was Atari UK's answer to Flying Shark, with you piloting your plane against the Japanese and having to contend with ground targets as well as enemy planes. A decent enough shooter with smooth scrolling, reasonable graphics and sound. Well worth a look.



Nucleus, programmed by Paul Marshall, is a 1 or 2 player game where the idea is to destroy your opponent's forcefield by sending a nuclear satellite through it. You use

INSIDE: ATARI UK

your laser fire (energy bolts) to change the direction and momentum of the satellites and as they take fire they'll break up into smaller pieces, eventually exposing the nuclear core which after ten hits will become unstable. If an unstable core hits a forcefield then it will explode, creating a gap that can be exploited and used to force a satellite or piece of one through it. An interesting game, and the 2-player duel option makes it worth playing with a friend.

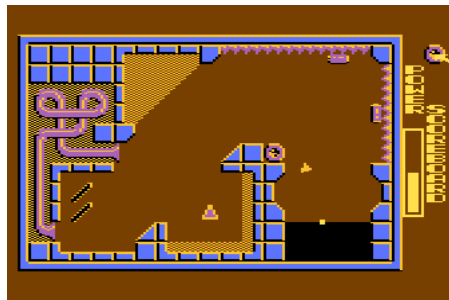


Cygnus X1 was developed by Anco who chose not to release it and passed the completed game to Atari UK who chose to release it as a budget title. Now within a few seconds of playing you can see that this game owes a lot to another Anco title that involved skiing, Essentially you need to navigate your ship through energy towers to replenish fuel which you'll burn up during flight, when firing at the alien ships and when being hit by enemy craft or enemy fire. The game looks good but in reality is quite basic.

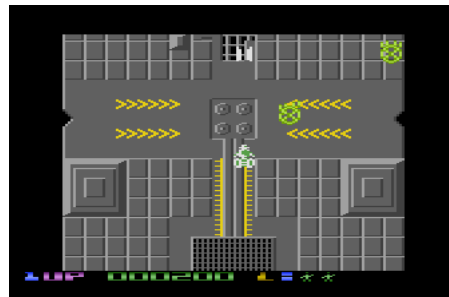


Slingshot was programmed by Matthew Trimby who also wrote Twilight World. Now this is one strange game, sort of like a twist between golf and pool. The basic

idea is to move a ball across the screen to hit a number of targets with as few shots as possible. Graphics and sound are great and this is a very unique game that even came with a construction set, all for the price of £7.99



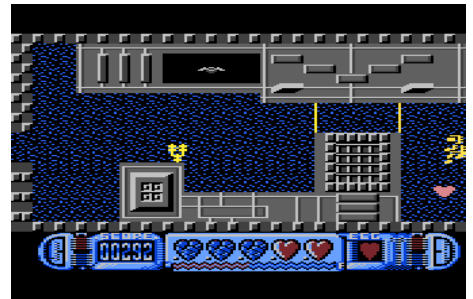
Speed Hawk was developed by Arena, the same people behind Atari's Tiger Attack and the two games are very similar although one takes place in World War II and the other in space. As you blast enemy ships you can pick up various power ups and if you survive long enough you can fight it out with an end of level guardian. Another game that isn't easy to master.



Heartache was actually titled "Heart Break" and was programmed by Andrew Dickinson with some below par music from Richard Munns. There are some in-game references to "Lisa" who presumably left Andrew feeling very sorry for himself.

Heartache is one of the most frustrating games you'll ever play as you try and move your heart shaped object through the zero gravity lab. You'll need to move your poorly drawn character around the screen using his jetpacks and make sure he's facing the right way to use your

compressed gas (press fire) to move the heart in the direction you want it to go. You'll need to keep your character close to be able to move the heart at all, and you'll need to avoid walls and objects as well as various nasties. Sadly, this is one game that is probably best left floating in space.



Black Lamp

Most UK Atari ST owners will be familiar with BT's Black Lamp. Atari UK commissioned an 8-bit version, programmed by Ivan Macintosh with music by Richard Munns. In Black Lamp you play the part of Jolly Jack the jester, madly in love with the king's daughter. The evil king will only let you have his daughter if you bring him the famous black lamp - that just happens to be guarded by a dragon!

Now graphics and sound in Black Lamp are excellent and the game is fun although can be frustrating early on as you get used to moving the joystick in diagonal directions to jump around. A pretty huge game with lots of locations to explore, although it is possible to get trapped and stuck in some of them.



INSIDE : ATARI UK

Contagion was developed by a team that included Stephen Goss. It was one of two titles the team had commissioned by Atari UK. Contagion was completed but by 1990 Atari UK's short-lived venture into 8-bit software releases had come to an end. The company was pulling the plug on the 8-bit line. Another quite distinctive title the game involves navigating a sphere across a game grid and destroying a virus before it spreads too far. Decent graphics and gameplay and Stephen went on to release the game through Page 6.



Ones That Got Away

Several Atari UK titles never made it to release due to various reasons. In some instances the programmers lost interest and moved on to other things, some developers fell out with Atari UK and some titles were finished but never released due to Atari UK putting a stop on 8-bit support.

Super Soccer was announced by Atari but was never released.

Tynesoft did release it under their own label, with some changes.

Z-Force was almost completed but never presented to Atari UK. **Moon Base** was never finished as the programmer grew disillusioned with Atari UK. **UFO** and **Zone Patrol** were two other titles that didn't make it .

The Verdict

We have to question why Atari UK somewhat belatedly went into 8-bit game publishing. A quite mixed bag of titles were released with some great games amongst them but it all came too late. Atari never saw the sales figures they needed to warrant future releases and the company was busy taking on new titles when it was in the process of pulling 8-bit support from the so called Atari Game Centres, and was also about to pull the plug on 8-bit sales altogether.

Obviously a lot of problems were out of Atari UK's control, such as the change in ownership, but if Atari had managed to get some killer titles out as early as 1985 then things would have been a whole lot better.

In reality, Atari was in a mess. Tramiel focused his efforts on the new ST with the 8-bit line being used as a vehicle initially to help raise some cash. Once the ST was in stores and selling well Atari Corp did turn their attentions back to the 8-bit but it was too little too late.

In the end Atari's own software publishing efforts fell victim to all the opportunities Atari had squandered. Sure the games were good but people had a hard time finding a store that stocked them.

Next issue we'll be looking at Atari UK and the Atari ST, but in the meantime check out this issue's bonus page for some downloads.

Feature: Steve Wilds

Thanks to Stephen Goss for his help in putting together this feature.



Z-Force



Moon Base



Zone Patrol



UFO

The Harlequin Story



Stephen Goss talks to Atari User

We'd done some tidying up here at Atari User Towers in anticipation of having another guest interview. We knew Stephen Goss was a bit of a celebrity in Atari 8-bit circles but we'd failed to appreciate what a celebrity he is in gaming circles - period.

When we saw him arrive in an armoured limousine, along with 2 busty female bodyguards, we realised that just getting Auntie Nora to put the kettle on wasn't going to cut it!

We made a mad dash down to the local Tesco and came back with a couple of bottles of cava and some truffles. After washing out a couple of old "Amstrad Action" mugs, that weren't too badly chipped, we got down to business.

AU: Welcome Steve to Atari User Towers, we hope you enjoy doing the interview.

At this point there was an awkward silence as the handle fell of Steve's mug and we stuck it back on with sticky tape.

AU: Steve, what can you tell us about yourself and how did you end up developing games for the Atari 8-bit?

Steve: Well I'm 44, I've been developing video games since I was a kid, first published title started in late 1988, and I've never stopped. I have more than 40 published games to my name from the earliest Atari games to current PS3, Wii and Xbox 360 titles.

I never meant to be games developer, I studied Film and Drama at college, dreamt of being behind the camera, but quickly discovered that computers could really inspire and help me make cool films, and that lead me away from film to games.

As to why Atari - pretty simple really, in 1980 we bought our first computer for the family, a Sinclair ZX80 kit, we built it, we turned it on, we found it was total trash and there stopped our flirtation with computers! That was until my father on a trip to the US on business spied the Atari 800 being demonstrated, and was so impressed he purchased one. So we had an NTSC 16K 800 for Christmas, a machine I still own to this day, and it still works.

Of course it is now one of a number of development machines I owned over the years, currently my loft is home to around 40 different systems, each one represented by several different variations - from NES dev kits to Dolphin boxes and around a dozen Atari 8-bit systems and 8 or 9 ST/TT/Falcon boxes.

AU: What was the reasoning behind the decision to focus on the Atari XL/XE?

Steve: It was an untapped market in the UK, everyone was making games for the C64 and Spectrum, Eastern Europe was just opening up so the idea to do some original and some license work on the 8-bit and ST seemed like a great idea - be a big fish in a small pool as it were.

In addition I was looking at the next Atari hardware (Lynx and Panther)

so getting onside with Atari was a strategic decision too - plus I lived in Reading and Atari UK was just up the road in Slough.

AU: What was the first game you worked on, and was it developed with a specific company in mind?

Steve: For commercial release I guess Zero War and Contagion were the first ones. John McManus, Kevin Learwood and myself created Contagion whilst we all worked at the Computer Store I managed.

I took the mockups of Contagion and Z-Force to Atari and they signed them right up (September 1988) - we worked on them for release in 1989.

The first game I signed to develop for Harlequin was Last Ninja II, followed by Shadow of the Beast, Pacland, Paperboy, Ghosts and Goblins and Menace.

AU: You said that Contagion was the first game you worked on and you pitched it to Atari UK. What was your impression of Atari UK and the Atari 8-bit scene at the time, and did that impression change once you'd visited the Atari offices and secured a contract?

Steve: Atari UK was very much in flux, shipping lots of cheap 2600 and XE systems to Poland and at knock down prices through Dixons and the like, so keen for new software to be bundled or made available for those new users - titles like Thunderfox, Black Lamp, Moonbase, Tiger Attack etc

I remember seeing plenty of games that never made it out the door



when I visited the offices (which was at least monthly to show off milestones). Things like Black Lamp on the 2600, XE Winter Games, XE UFO etc

The ST was doing really well and the new consoles were on the way too - so pretty exciting, but you always knew it was all done on a budget, there was not a lot of cash around.

AU: As well as Contagion, what other titles did you work on for Atari UK, and did any of the titles get published?

Steve: For Atari it was just Contagion and Z-Force that I signed up - the rest I did for myself/Harlequin.

I did pitch some 7800 ideas and we were commissioned to develop a Zelda clone which was dropped pretty quickly when Atari's interest shifted to the Jaguar.

AU: What was it like working with Atari UK?, were they very much hands on or were they pretty laid back when it came to game testing and quality control?

Steve: I don't think Atari operated any kind of formal test or QA, it seemed they let the "warehouse" guys do that!

At the late stage in the 8bit's life there was just the need to get some cheap games out to the new users to get a bit more cash into the product line.

They were very hands off, Bob Katz was the point of contact for me, and it was clear that our work was not a business priority for him or Atari, which was okay as we got on with our work, quietly.

AU: Apart from the already mentioned titles for Atari UK, what other games were you working on and what happened to them?

Steve: Deciding that working for Atari was never going to be likely to generate any meaningful return on the effort we were making, I with Tony King and John Knox decided to form Harlequin.

The older projects (Contagion and Z-Force) were handed over to Atari, my contribution to Zero War was only marginal and all effort focused on the Harlequin portfolio.

To that end we took the decision to approach a number of existing publishers, Elite, Grandslam, Psygnosis, System 3 etc and with the demonstration software (Contagion) we showed we could create games - funnily enough several of the companies we approached wanted to develop Contagion on the ST/Amiga - stupidly I failed to take any of those offers.

Anyway, the companies we approached had no interest in the 8-bit Atari, and were more than happy to offer the rights, with the offer of sufficient potential returns - of course I tried to minimize up front costs and offer an attractive per-unit sold return instead.

In a matter of weeks I toured the software companies and signed several titles:

Shadow of the Beast
Menace
Pacland
Ghosts and Goblins
Last Ninja II
Paperboy

I also optioned a whole bunch more, due to enter production once the initial titles had been completed.

Alongside the licensed games we also did some original titles like Paintz, Project Xanthien and looked at titles from developers we had met through our Atari work - which is where Plastron came from (we just missed out on Tube Baddies and Cavernia - which would have been awesome to have published).

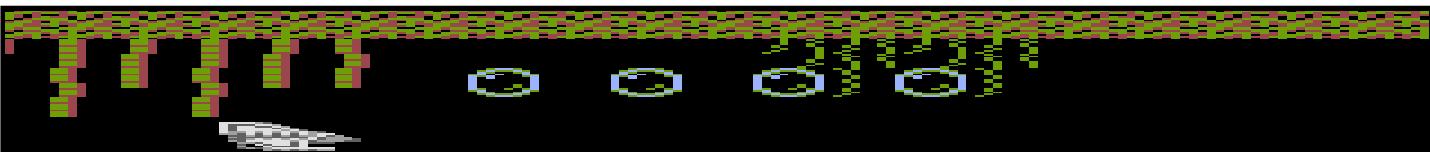
AU: How did you make the transition from independent games writers to a software label?

Steve: That was actually really simple, Tony King - one of the founders of Harlequin had been behind the Rainbird title Weird Dreams - and was working in promotion for retail at the time.

He would come to the Computer Cavern in Reading, (the store I was running) and we got chatting and that's how we got into business together - through his contacts we were able to call up and meet the great and the good of the UK software industry.

As well as developing their own titles, Harlequin signed up some big names for conversion to the 8-bit





I would then visit the publisher/developer, show them our work, explain our business plan and with a little salesmanship usually secured us the deal we needed.

I remember turning up at System 3, Roger Large was heading up their production side at the time, and he was an acquaintance of Tony's. So I showed him our work in progress software, some static mock ups of Last Ninja II on the 8-bit, talked about the technical approach we were taking and walked out of the building that afternoon with a signed contract to develop the game and publish it too. I still have all those contracts, it's a great record of what "almost was"!

AU: It is amazing that you managed to convince Psygnosis to license an Atari 8-bit version of Shadow Of The Beast. How far did you get with the game for the 8-bit?

Steve: I met Ian Hetherington at a PCW show at the Barbican. Taking my 800xl dev kit and a copy of Contagion I demonstrated the game and Ian thought I was looking to offer the IP to Psygnosis and he wanted to port it to the Amiga and ST - he liked the game.

However, what I asked for was the license to take Psygnosis IP onto the 8-bit - he was totally unprepared for that, but after I explained our business plan and strategy he agreed to allow me to sign SOB and Menace initially, with the offer of more of their catalogue if we proved we could do a great job on those titles.

To my eternal regret is the decision I took to not make a deal to license Contagion to them to produce 16-bit versions - that would have been sweet!

AU: Harlequin is remembered for Plastron. Were there other titles in development that never made it to release?

Steve: We had:

Project Xanthien
Shadow of the Beast
Menace
Pacland
Ghosts and Goblins
Last Ninja II
Paperboy

Contagion & Z-Force (once released from Atari contracts)

We were also talking to Ivan Macintosh and Richard Munns about taking their titles and working with the Plastron team for a follow up too.

Alongside the 8-bit titles we developed Paintz for the ST and Sound Express (an audio digitizer) for the Amiga.

Paintz was 80% complete and really should have been shopped around to another publisher, but it was caught in the whirlpool of Harlequin's collapse.

AU: That is an impressive sounding list of titles. What happened to Harlequin?, where did it go wrong?

Steve: Well Plastron sold a very few units, we could find no route to retail - being badly let down by a guy who

had been an account manager at a distributor. He gave us sales forecasts and promised the world, but failed to move a single unit, left us high and dry with unsold inventory!

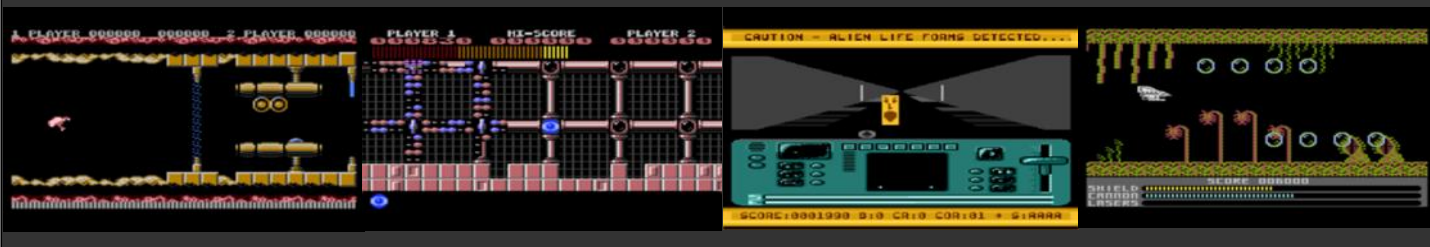
Added to that was the Sound Express fiasco. The same chap who let us down in distribution introduced Harelquin to a couple of developers who were creating a hardware/software combination audio sampling, editing and sequencing tool.

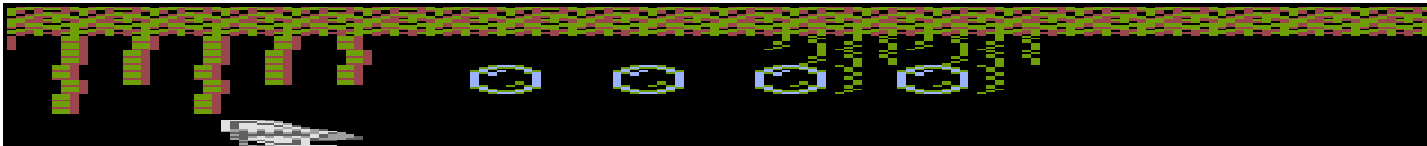
It was brilliant, fantastic software and cheap, but effective, hardware. We took that product to Commodore, and suggested they create a bundle featuring an Amiga 500 and Sound express, and they liked that idea - something to attack the ST's music making expertise at retail. They liked it because we could produce the hardware very cheaply - it would have been a great creative Amiga Bundle to put into retail.

However it turned out, at the 11th hour, that the hardware design and software were both "stolen" - the developers had worked on an identical system with their previous employers and upon leaving had simply taken the source code for the project - and with minor cosmetic changes were trying to pass it off as their work!

It was the straw that broke the camels back, we were getting involved with people who were misleading us, we were spending money and making no return - it was a mess.

Menace for the 8-bit (bottom right) was never completed but looks very impressive and faithful to the original





I approached Psygnosis and had the contracts for Menace and SOB signed over to me and I and Kevin continued development of Beast. With plans to find some investment to allow publication once the games were completed - my father gave me a few thousand pounds to cover costs for a couple of months to complete the first playable version.

Then the programmer for Menace fell critically ill, so that project was shelved, Computer Cavern needed more of my time, and I gave Kevin a job there as we had run out of money to continue the 8-bit development.

I tried to buy the retail business, as software development for the Atari was never going to provide a good income, and there was plenty of opportunity in retail for a good specialist shop. The 8-bit was less and less relevant as a platform, but things didn't quite work out with CC so I took a job at Microprose and everything about Harlequin and my attempts at 8-bit development stopped.

AU: Given what happened, do you have any regrets about focusing on the Atari 8-bit at the time?

Steve: Yes and no - the 8-bit is a fantastic machine, the best 8-bit computer of the early 80's - it's overall quality, architecture and physical design (the 800) was ahead of the market by years! But it was just not a real competitor in the late 80's.

In the UK it was a bit player system, it was never going to challenge the big 3 - Spectrum/C64/CPC - its user base was small, too small to be able to get a good return on development effort.

However cost effective 8-bit games could have made some money, established Harlequin and then we would have diversified into more

popular platforms (I was looking at the NES/SMS etc).

AU: What are the chances of some of your past and unfinished titles ever getting completed and are there any other unreleased treasures hidden in a closet somewhere we don't know about?

There is plenty of un-finished stuff rotting on discs, some was available on my website, which I'll soon close due to rising hosting costs.

There is no chance that any of the games will ever be finished, I own the rights to all the material and I don't want anything to be "continued" - it is what it is and should stay as a reminder of what could have been.

I would like to dig out and share the working code for Last Ninja II, G&G and the rest that remains unseen (including a neat version of Alligata's TRAP), but I've been unable to find it.

AU: What is the one game you regret the most for not being completed?

Steve: Looking back I think that Menace would have been AWESOME, it was being developed in a very original way.

But, in truth, I would have wanted Paintz on the ST to have made it. It was a nice simple game with a good 2-player competitive mode.

AU: The Atari 8-bit is going through a bit of a revival at the moment. We've seen some great games being released including the excellent Space Harrier. Is there any chance you'll take another stab at releasing games for the 8-bit?

Steve: No, my coding skills were never more than marginal, and I have no time now with a young family and my role as Director of

Design at Supermassive Games in Guildford.

I'm lucky, I've been in games development for over two decades, and make games every day - I've lived and worked all over the world - for companies such as EA, EIDOS, Crystal Dynamics, SONY, Disney, Microprose, Lionhead, Microsoft etc. I've worked on games that have sold millions of units on every platform imaginable - I get my fix of games development without having to "go retro".

I'm sure plenty of people have played games I have worked on - Black and White 2, Batman Arkham Asylum, Soul Reaver 3, Lord of the Rings - Return of the King, XCOM etc And that is why I continue to make games, I have a great time creating games and hope people enjoying what I create.

I still play Atari 8-bit games - I have an Atari 1200XL in my lounge, along with a good selection of past and present consoles - PS3, Wii, Game Cube, Dreamcast, PC Engine, N64, SNES etc.

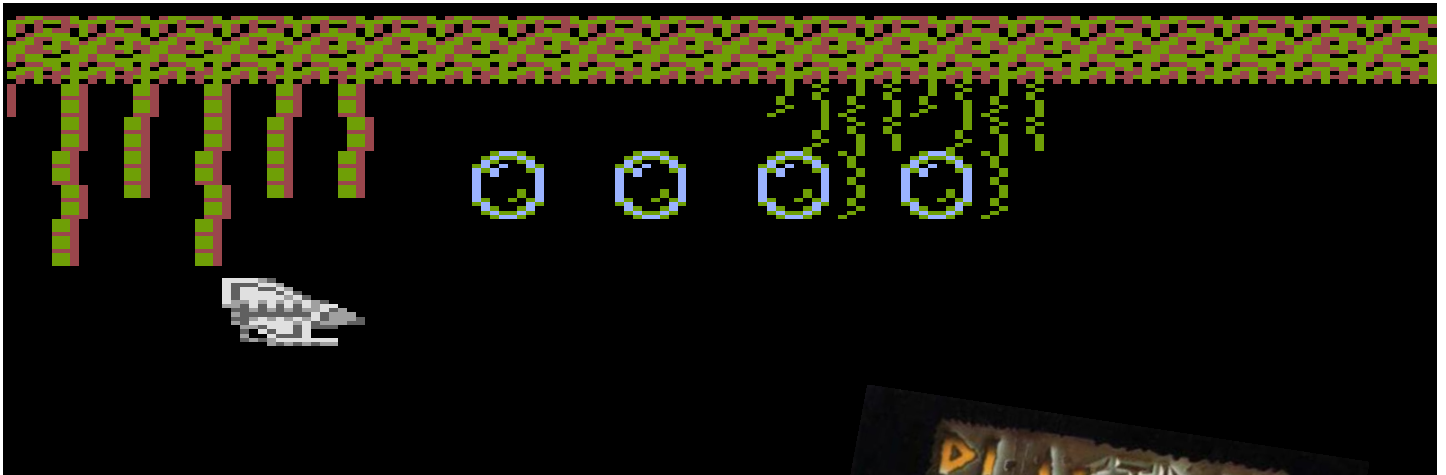
AU: If you were stranded on a desert island with only five Atari 8-bit games to play, what games would you choose and why?

Steve: Five is really tough, there are so many greats, but I'd choose:

M.U.L.E
Archon
Donkey Kong
Star Raiders
Boulderdash

Why - because I've been playing them since the day they were released, and still enjoy playing them - they are timeless - and top of my list M.U.L.E is as near perfection as any game I have ever played.

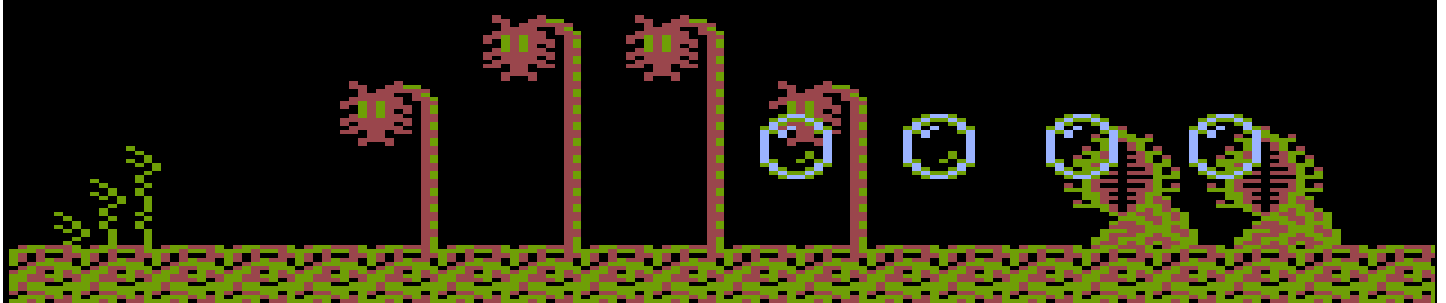
But I'd try and smuggle on a copy of Eastern Front just to round out my perfect selection though!!!



Impressive gameplay in Menace for the XL/XE



Nasty aliens in Zero War ...



Plastron - let down by distributors



Who are Supermassive Games?

Steve is now director of design at the Guildford (UK) based independent label. Their first title was released in 2010 and they've played a significant part in the release of Sony's Move controller for the PS3.

As well as Move based titles such as "Tumble" and "Start The Party". Supermassive have also been involved with level kits for PS3 smash "LittleBigPlanet".

Pizza, Robots & Videotape

Nolan Bushnell's sale of Atari to Warner Communications had made him rich, turned him into both celebrity and shining beacon of inspiration, whose light shone right across the valley. Flush with cash, Nolan would invest in a new 16 acre estate and a yacht named Pong. He was headline news, an inspiration for anyone wanting to grab hold of the American dream with both hands and take it right to the bank.

For a while Bushnell would live the dream and live up to the reputation he'd built around him. Certainly a talented visionary, for a while everything he touched seemed to turn to gold but, as everyone knows, nothing lasts forever. Read on to find out how Nolan Bushnell went from riches to almost rags.

Following the sale of Atari to Warner Communications, Nolan had remained on as chairman and convinced Warner to launch a restaurant division, fulfilling Nolan's dream – the Pizza Time concept. Operating as part of Atari, the first restaurant had opened in San Jose, California, in May 1977. Business was slow and by late 1978 Warner Communications had seen enough. They wanted Pizza Time shut down. Nolan was so obsessed with his vision of combining fast food with video games that he agreed to buy out the Pizza Time Theatre restaurant division and concept for some \$500,000. He hoped for rapid

expansion, fueled by a franchise scheme.

Meanwhile, Atari had been sitting on a pile of unsold VCS consoles. Sales had been sluggish and Bushnell and Warner executives couldn't agree either on the reason why or the solution to the problem. Warner executive Emanuel Gerard proposed that Bushnell move from chairman to director, being replaced by Joe Keenan. Ray Kassar was to become chief executive officer. A showdown was inevitable and Bushnell and Gerard exchanged insults and obscenities at a meeting in New York. Gerard had seen enough. Bushnell was sidelined and would exit Atari within the month.

Now completely cut-off from Atari, Bushnell focused on his dream and poured all his efforts into Pizza Time Theatre. Within two years, the number of restaurants had grown to 88 and in April 1981 the company went public. By 1982 the chain boasted 204 restaurants across 35 states. The original \$15 stock price had doubled. Bushnell's dream and vision had come true.

In late 1979 Bushnell had met with John Vurich, inventor of the first computerised pinball machine, and in March 1980 the two opened up shop just down the street from where Atari had started up some eight years before. Axlon started out as a peripheral manufacturer and soon attracted former Atari employees.

Axlon would later change direction but at the start, at least, it was a vehicle for Bushnell's sometimes wild imagination. By 1981 Axlon had generated sales of \$500,000 and sales were expected to reach \$4 million by 1982. Bushnell's forward thinking didn't always result in a successful product – many ideas failed in the design or concept stages simply because the technology wasn't there to make them work how Bushnell intended.

With Axlon and Pizza Time Theatre both moving forward Bushnell formed Catalyst Technologies, a holding company that he would use to seed startup ventures and get them rolling quickly. Catalyst was a way of turning sometimes mad ideas into reality and hopefully make some



serious coin. Bushnell huddled his new ventures into offices at 1287 Lawrence Station Road in Sunnyvale. The different startups shared resources and Bushnell led now legendary "Grand Council of the Empire" meetings every month. The idea was to carefully nurture each Catalyst startup, then watch them spread their wings and populate the entire Silicon Valley. Where Bushnell led, others wanted to follow and he became a magnet for disgruntled valley talent and people with over-active imaginations. This suited him down to the ground. Spurned by Disney, cast aside by Warner, Nolan had grand visions of empire, a dream to build a business giant that would dwarf both Disney and Warner Communications.

One of his grand ideas and visions was robotics. Nolan had been approached by a group of disgruntled ex-Atari engineers interested in forming a robotics company. They had the talent, he had the cash and contacts required to make it happen. This fitted well with Nolan's vision of a robot for every American home. The idea was to offer consumers a pet, a companion, a servant that would fetch their cold beer during the Saturday football. The group was led by Walter Hammeken, and included Rack Larsen, a valued Atari employee during Bushnell's tenure.

Nolan embraced the group, took their ideas and rolled with them, making them his own. Under Catalyst, Androbot Inc. was formed. Everything pointed to Androbot being another Bushnell success story. Bushnell considered Androbot to be another piece of his rapidly expanding empire, another weapon in his expanding armory that would soon be ready to see off his old adversaries on the field of battle. Central to his grand plan was a return to the video game business but he had to bide his time due to the non-compete agreement with Warner. The groundwork was being laid, the wheels were being set in motion, and it all looked very rosy indeed.

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Bushnell quickly secured \$1 million in funding for Androbot and focused most of his energy on the new company as designs were drawn up and plans were made for expansion and marketing. Bushnell soon found himself at odds with Hammeken who proposed the company focus on industrial robots — a move that would probably have seen Androbot survive today and competing alongside the likes of ABB. Bushnell was committed to family friendly robots, over-sized consumer gadgets. Hammeken departed and Bushnell plowed on with his vision bringing in Tony Frisina as president. Frisina had consumer electronics experience but no skills related to robotics. He shared Bushnell's vision for robots in every home — there was no mountain high enough to stop them.

January 1983, and Nolan was back with style, at the Las Vegas CES —



Nolan Bushnell had established himself as a leading entrepreneur and industry visionary. For many he was almost like the Second Messiah...

Pizza, Robots & Videotape

much to the anger of the Atari delegation. In many ways he stole the show as crowds gathered around the Androbot booth. The public and the press were enthralled by the company's first prototype - Bob (for "brain on board"), who would be able to sing, dance, tell jokes, entertain the kids as well as look out for hazards in the home or burglars. The plan was to start shipping in the Spring, with a full roll-out planned for the next year. Nolan and his team returned to California fired up by the reaction they'd received at the show. There was a lot of interest out there, they just had to get the right product to market on time.

Bushnell held a triumphant meeting with his team to thrash out a plan. Nolan had grand ideas about building no less than ten different types of robot, from machines like Bob to other less advanced robots focused on the educational market or machines that could be hooked up to and programmed via a home

computer. Frisina, and others, were worried that ten robots would be too much. Androbot hadn't even sold one robot yet, and in the end there was a compromise. Four different machines were agreed, three of which would be aimed at the lower end of the market. The company had to act quickly though. Mitsubishi & Heath Co. were just two of the competitors looking at what many believed would be a win-win market. Bushnell moved to prepare Androbot to go public by the Summer.

Bushnell, however, hadn't lost sight of his master plan. The dream of empire was very much alive and shortly after his return from the CEX show, with one eye on the end of his non-compete agreement with Atari, Nolan bought out Videa - a video game company run by former Atari employees, for a cool \$2.2. million. Videa represented an excellent purchase for Nolan, it would fit right into his new Sente Technologies. "Sente" is the only move in the board game Go that can overtake "Atari".

The name, as you can see, was chosen very carefully. Sente became a wholly owned subsidiary of Pizza Time Theatre. It would be a perfect vehicle to provide Pizza Time restaurants with cutting edge video games and allow Nolan to lease his cutting edge game technology to other retailers. October, and freedom from the non-compete agreement, was approaching fast.

Bushnell's maneuvering and his presence at the CEX hadn't gone unnoticed by Atari who promptly filed a lawsuit alleging that he was preparing Sente Technologies to enter the video game market. The lawsuit was a distraction for Bushnell - he managed to settle but Atari's action would delay his plans for Sente and help take his eye off other, more pressing, matters.

Joe Keenan had been quietly running day to day operations at Pizza Time Theatres after leaving Atari to rejoin his old pal. During 1982 sales at the restaurant chain had flattened and by March 1983 the company was issuing its first profits warning. Bushnell had chosen to largely ignore or dismiss concerns that things weren't going well at Pizza Time. For him it had always been about the games, all about the experience. The video game market was about to collapse and Bushnell was blinkered to all the signs. As interest in video games waned Pizza Time couldn't even compete on the food - "cardboard" pizza is a term often banded about by former employees and customers.

Back at Androbot, things weren't going too well either. Executives were working tirelessly on narrowing down exactly what the consumer market wanted. The problem was that as they moved to tick all the boxes they ended up alienating the



Pizza, Robots & Videotape

engineering department that couldn't, frankly, keep up with all the changes demanded. Being able to ship by the Summer began to seem like a dream and Androbot was leaking cash – Nolan's cash. A decision was made to drop focus on Bob and work on a cheaper, less complicated robot. Topo was born, a computer without the brains that would be programmed via personal computer. The product could ship relatively quickly and would be at a much more attractive price point. Bushnell and Frisina were focused entirely on taking the company public and seemed oblivious to the rising tensions within the company as it literally split down the middle. Many engineers felt they hadn't signed on to build a simple children's toy, others saw Topo as the only way to keep moving forward. By May the first Topo units had shipped but many came straight back – faulty.

Bushnell approached Merrill Lynch who were enthusiastic about Androbot and in July details of the new stock offering were circulated to investors with the flotation slated for August. As it happened, the market collapsed. Activision had floated in the June and their stock had plummeted to \$9 by July. That same month Atari, Coleco, Mattel and Texas Instruments all reported bad news. It was rumored that Osborne Computer Corp. was in serious trouble. Suddenly investors, that had been lining up to take advantage of the Androbot IPO, got cold feet. Merrill Lynch canceled the stock offering.

During the first part of 1983 Pizza Time Theatres had pressed on with expansion despite flat-lined sales at most of their existing restaurants. By July the company was reporting second quarter losses of \$3 million. Bushnell had been focused

elsewhere and still seemed oblivious to the underlying problems within the business. Joe Keenan began moves to turn the company around. Loss-making restaurants would be closed and the pizza menu would be revamped. Bushnell was unconvinced and still believed it was all about the games – Sente Technologies would save them all.

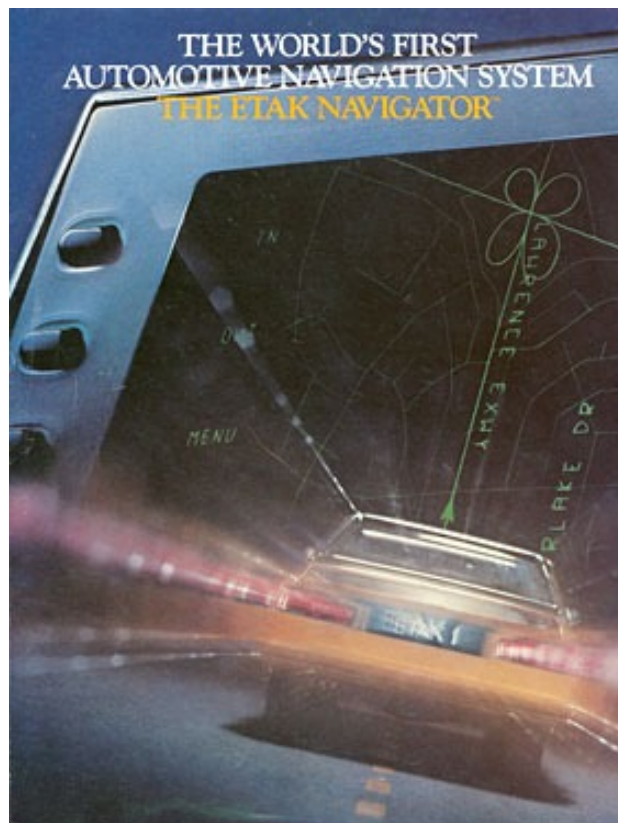
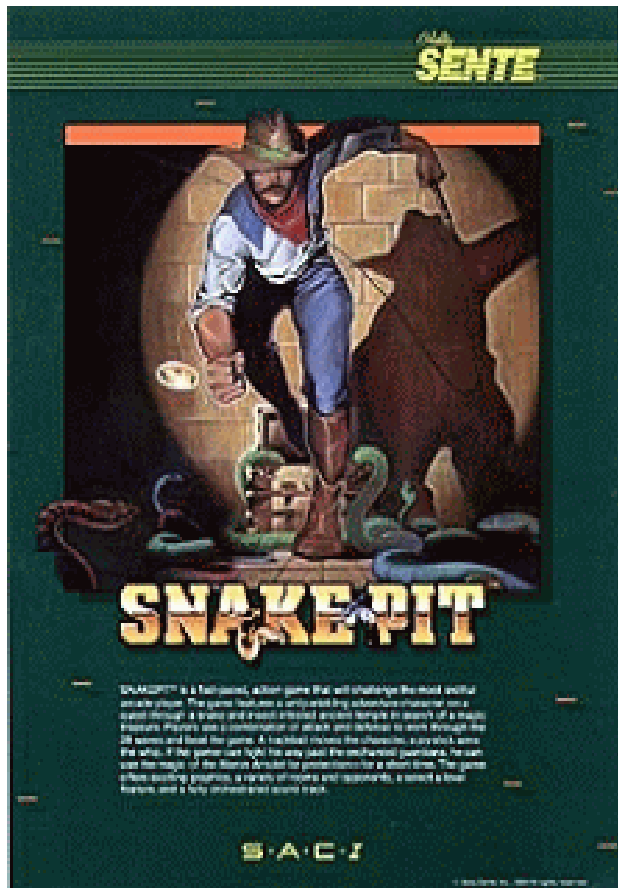
It was all going horribly wrong. Androbot had failed to go public and was bleeding cash. Suddenly Pizza Time was not only in sharp decline but also facing collapse. Axlon was faltering- great ideas in a world where the market and technology just weren't ready for them. Keenan resigned from Pizza Time and moved to a less demanding position within Catalyst Technologies as he and Nolan failed to see eye to eye on how to save the company. Bushnell was left with no other choice other than to take over day to day operations at the struggling pizza and entertainment chain. Bushnell remained convinced that great games and not great food would save the company and announced plans to split it into four separate divisions – restaurants, Sente, Zapp's (a single's bar concept) and Kadabrascope that would provide cutting edge cartoon animations for the restaurants.

On September 30th, Bushnell held a grand launch party for Sente at Milipitas in California. Hundreds gathered to witness the notebook thumping declaration of freedom. The gathered crowd were almost in a trance as Bushnell preached revival and success. Sente would not only bring great things, many probably believed it could save the world.

The launch party couldn't and didn't change harsh reality. Bushnell's world and his empire was falling



Pizza, Robots & Videotape



apart around him. As he struggled to split time between Sente, Pizza Time and Androbot, he refused to delegate and was unwilling to listen to his investors or directors. He'd planned to roll-out Sente's first video game ("Snakepit") in the October but Atari had put paid to that. The game was then scheduled to launch in the December but as development progressed it became clear that Pizza Time was having trouble paying its bills and some suppliers hadn't been paid in months. With Pizza time losing \$20 million a month, it was clear that Nolan's reorganization efforts had failed. He was now at odds with his own board but remained convinced that a new killer game combined with a new killer animated cartoon would turn the company around in the December. Snakepit did launch that month but failed to have any real impact on the company's fortunes.

In January Pizza Time announced massive losses and Bushnell resigned as CEO. Randall Pike took over and wasted no time in putting pen to paper and shutting the Kadabrascope division. Restaurant closures and job losses followed and Sente Technologies was put up for sale. Within weeks it was sold to Bally Midway – the \$3.5 million raised wasn't what Pike had expected or hoped for. Pizza Time filed for Bankruptcy protection as it emerged it owed creditors more than \$100 million. Anticipating the move, several large investors filed a class action against the company's

officers and directors. By the end of the month (March) Pike had resigned. What had once been one of the fastest growing public companies in America was now broke.

Bushnell had struggled on with Androbot. Various Topo prototypes had been launched but a low cost educational robot had failed to materialize. The workforce was decimated and the company would soon be shuttered after a deal to sell out to Atari failed to go through.

Even as his business empire collapsed, Nolan remained determined that he would stay in the game. The Catalyst concept remained viable and from it was born Etak Inc, the first company to digitize world maps and produce an in-car navigation system. Etak was later sold to Rupert Murdoch , for a cool \$50 million in 1989, and its legacy lives on today.

Bushnell continued with the Catalyst plan, launching several startups but it would be Etak and Axlon that would see him through the hard times that followed. Axlon changed focus from innovative and expensive high tech to low cost , electronic, children's toys – the most notable of which was A.G Bear which was a huge multi-million dollar success for the company. Other toys included electronic pets and robots.

Nolan wasn't out of the game business altogether though and Axlon worked on an interactive video console concept , using VHS tapes to store data and the various video and audio tracks. Axlon

Pizza, Robots & Videotape

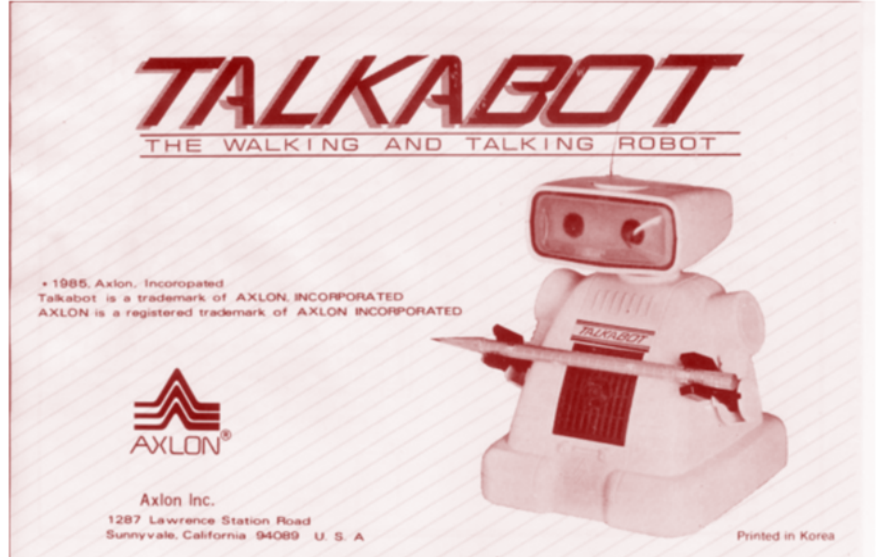
needed a partner able to stump up some cash and Hasbro stepped up with \$7 million to fund further project development. After several trials the Nemo system was canceled. Hasbro would go on to buy out most of Axlon's business and product rights.

The collapse of Androbot had cost Nolan at least \$23 million of his own cash which he would spend years paying back. In 1995 Merrill Lynch sued over a \$500,000 promissory note. At first Bushnell fought the action but eventually caved in rather than continue with protracted and costly litigation. The incident with Lynch would cost Nolan yet another IPO as investors panicked and scuttled another startup – an ambitious arcade concept named E2000. By now much of the opulence from the early eighties was gone but the settlement with Merrill Lynch would force Nolan to sell his home and downsize. Since then there have been other ventures, other projects, and many would argue that Nolan has failed more times than he has succeeded. He keeps a Topo robot in his home as a reminder of the past and his dreams of empire and robots are still there, just tucked away in the back of his mind.

The Chuck E. Cheese brand would survive and is going strong today. Atari, as we knew it, is no more. Androbot crashed and burned. Axlon was probably Nolan's savior, with Atari even using the company to develop two Atari 2600 games in the late eighties.

Today, Nolan is still very much in the game and the rest of the world is still having trouble keeping up with his imagination. Sure, Nolan has made mistakes - plenty of them, but we can't ignore his talent or his vision. Imagine if Nolan's second coming back in Milipitas, California, had materialized – the world would be a much different place today.

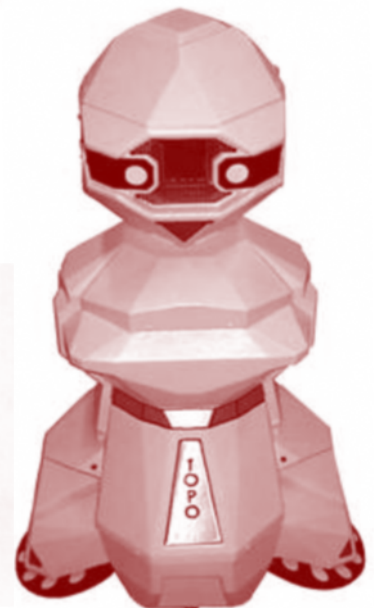
Feature: Steve Wilds



Nolan Bushnell's vision of a Robot in every American family home came probably several decades too early.

In a rush to take the company public the more ambitious projects were dropped. Androbot struggled with their Topo prototypes and, after the IPO had been withdrawn, the company was doomed.

Nolan Bushnell later admitted he was short of a few million - badly needed funding that just might have made his dream come true.



ST COIN OP CONVERSIONS



namco

Kieren continues our popular series on Atari ST coin-op conversions and this issue turns his attention to gaming giant namco.



namco

Namco was founded in 1955 by Masaya Nakamura as Nakamura Manufacturing. Based in Tokyo, the company started out by running children's rides on the roof of a department store in Yokohama. The business eventually expanded throughout the Tokyo area and Nakamura Manufacturing was reorganised in 1958 and underwent a slight name change to Nakamura Manufacturing Co.

This name would later be used to form the acronym Namco and the company we all know today. In 1970 the company produced their first coin-operated mechanical game, a driving simulator called "Racer".

Atari Japan, the Tokyo-based subsidiary of Atari, was struggling financially by 1974 and General manager Hide Nakajima was left in charge of the company after his boss had quit. Nakajima claims that employees had been stealing money and that he had contributed funds from his personal savings in order to pay creditors and stave off bankruptcy.

Although Nakajima wanted to try and save Atari Japan, owner Nolan Bushnell was already struggling to keep the parent company afloat due to under capitalisation and was looking to sell the Japanese subsidiary for some badly needed cash. Sega, then a manufacturer of pinball machines, offered to acquire Atari Japan for just \$50,000. Nakamura put in a bid for \$800,000 and shocked other potential bidders out of competing. The deal was eventually finalised at \$500,000 and Bushnell was glad to take it.

The debts inherited from Atari Japan would take Nakamura two years to pay off, but the deal had also secured for him an exclusive license to distribute Atari's games in Japan for ten years and this meant

guaranteed income. Nakamura would follow this up by opening video arcades predominantly featuring Atari games.

Nakajima was promoted to vice president in 1978 and on his recommendation Namco opened a subsidiary, Namco America, in the United States. The location he chose was very conveniently across the street from Atari's former headquarters in Sunnyvale, California.

At the time their games were not released in the U.S. under the Namco label. Namco America existed mainly to license Namco's games to companies such as Atari and Midway Games for distribution in the U.S.

In 1985 after the video game crash, and after previously having been sold to Warner Communications, Atari had been split into two corporate entities:

Atari Corporation, which took over the home computer and console hardware business; and Atari Games, which retained the arcade game business.

Namco America acquired a controlling interest in Atari Games for \$10 million, against the advice of their accountants at Price Waterhouse. Disagreement over how to run the Atari Games subsidiary led to a falling out between Nakamura and Nakajima. Nakamura considered Atari to be a competitor. Back in Japan, Namco still held the distribution rights for Atari's games, and Nakamura refused to sell them to other arcades.

Nakamura also resented sharing ownership of Atari Games with Warner. Nakajima grew increasingly frustrated with his boss, and in 1987

the two arrived at a means to part ways: Namco would sell part of its interest in Atari Games to Nakajima and the Atari Games employees, and the rest back to Warner. Nakajima and Wood then resigned from Namco to head Atari Games.

In 1996 Namco acquired a controlling share of the Japanese film company Nikkatsu, but its interest would be sold during the merger with Bandai.

In September 2005, Namco merged with Bandai to become "Namco Bandai Holdings", the 3rd largest video game entity in Japan. On March 31, 2006, Namco's game development operations absorbed that of Bandai's. From then on, the part of the company that was most closely associated with the Namco label would become Namco Bandai Games.

The Namco Ltd. name was retained by its Japanese arcade management division, and now operates as part of Namco Bandai's Amusement Facility SBU.

Namco's first original video game was Gee Bee (1978). Galaxian (1979) revolutionised the industry as the first video game to use RGB Color graphics. It was Pac-Man (1980), however, that would become definitive of Namco's legacy, going on to become a fixture in popular culture.

Galaga (1981), a follow-up to Galaxian, was one of the most successful sequels of the era. Dig Dug (1982), Xevious (1982), and Pole Position (1983) continued Namco's success in establishing iconic franchises during the so-called Golden Age.

NAMCO

Namco was also the industry's first manufacturer to develop and release a multi-player, multi-cabinet competitive game.

Called Final Lap it was released in 1987 and later converted to the PC Engine. This game allowed up to 8 players to compete when four 2-player cabinets were linked in a simple network.

Now Namco are probably most famous for being the producer that helped launch the original PlayStation with games such as Ridge Racer and Tekken but several of their earlier games did appear on the Atari ST, here we have a look at those games.

Pac-Land - By Grandslam



This game is most famous for being the very first Pacman platformer and was a massive hit for Namco in the arcades, strangely it never received a sequel until many years later on the Sony PlayStation.

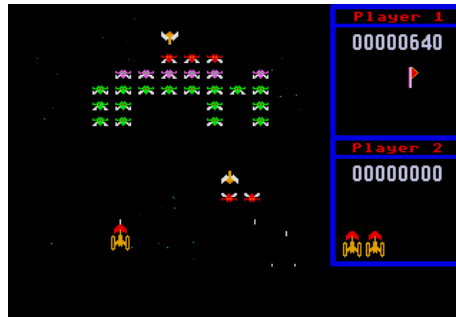
Most of the basic gameplay elements of the original Pacman are actually retained here. You still munch power pills to eat ghosts, there is bonus fruit to collect and all the characters are instantly recognisable.

This ST conversion is almost arcade perfect. The cartoon like graphics are great and the wonderful music is perfectly recreated on the good old Yamaha chip.

Pacman fans and platformer fans alike can put this down as a must have, the rest of you might want to pick it up too.

9/10

Galaxian By Sinister Developments



A shareware release, this conversion of the wonderful Galaxian was produced by Sinister Developments who were also responsible for the incredibly good ST conversion of Asteroids and the popular Painter on the Jaguar.

Like their other conversions this one is also arcade perfect in every single way. The way the aliens swoop and dive bomb you is perfect and the collision detection is spot-on. Galaxian has always been a massive favourite among fans of early arcade shooters and one play of this version will tell you why.

This game can be easily downloaded legally from the net these days so there really is no excuse not to have it in your collection!

9/10

Pac-Mania – Grandslam



After the release of Pac-Land, Namco decided to take Pacman back to his roots and stick him back in his familiar maze, only this time in 3D!

As well as adding the isometric perspective to the gameplay the programmers also added another unique feature, the ability to jump! This is incredibly useful as if you time it right you can avoid traps and grab a power pill to get your own back! However be warned because as the levels go on the ghosts get more intelligent and also learn to jump!

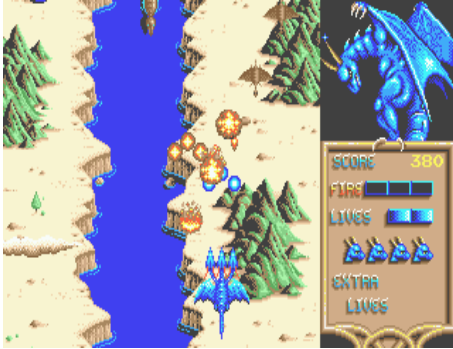
The only fault with this ST version is that they used the same reduced screen with a massive side panel just like the 8-bit versions while the Amiga version was full screen. Despite this it's still incredibly enjoyable with decent graphics and some incredibly memorable music which you will find yourself humming for a long time after playing the game.

Still a big favourite of mine and the ST is the only Atari machine that this version of Pacman was converted to.

9/10

namco

Dragon Spirit By Domark / Tengen



Not well known in the arcades this game is probably most famous for its excellent PC Engine version. Dragon Spirit is a vertically scrolling shoot 'em up where you get to control a giant dragon shooting down all sorts of other prehistoric monsters. Power-ups are hidden in eggs and these enable you to grow extra heads that increase your firepower.

Like another Namco game, Xevious, this game used 2 buttons in the arcade game for different types of shot. One that shoots forward in the air and another that drops bombs downward to destroy ground based targets. In the ST version you release both shots at once using the single fire button.

While Domark did a good job of converting this for its Tengen label, it's not up to the quality of its console cousin. The graphics and sound are both a little bland at times and the gameplay really contains nothing new. There are far better games of this type for the machine.

7/10

Rolling Thunder By US Gold



Released back in 1986 this was once of the earliest arcade conversions to be made for the ST and it really shows.

One of the main things that seemed to plague early ST games was the awful choice of colours used as programmers seemed to stick to a limited 8-bit looking palette and struggled to use its 16-bit features to their full extent.

Despite the horrid looks of Rolling Thunder it does thankfully play very much like the popular arcade original. Ripping off James Bond massively you must make your way through the levels taking out the enemies on your way to meeting Mr. Big.

There are 2 very unique features to the gameplay of Rolling Thunder that helps set it apart from other games of this type. The first one is the way you can jump from the bottom part of the screen up to the top part which helps you avoid some enemies and grab things like extra ammo which leads us onto the second feature. These are the doors that litter the levels, you will see the enemies come out of these but that's not the only thing they are used for.

You can also enter them yourself and some will contain things like extra ammo or life to help you on your way. Rough looking and pretty hard but certainly rewarding if you choose to stick with it.

7/10

Pacman – By Budgie UK



Budgie UK were a very predominant Public Domain publisher back in the glory days of the ST and were responsible for the release of some very fine clones of popular arcade games such as the excellent Ace Invaders and their own version of another Namco game in Quest For Galaxia (Galaxian).

Unlike their other releases though, their version of Pacman not only uses the original name but also references the copyright holder as Namco on the title screen much like an official release!

This version of Namco's mascot and most famous game gives you not only a perfect version of Pacman but also an improved ST version with scrolling mazes and nicely shaded graphics.

There are tons of Pacman clones out there for the ST but this one is probably the most faithful, not only by name but also by its gameplay.

8/10

NAMCO

Thunder Jaws By Domark / Tengen



Another Namco game ported by Domark for their Tengen label, which was the home computer/console label of Atari Games, it's actually a sequel of sorts to Rolling Thunder.

Clearly inspired again by James Bond you must once again take up the role of our secret agent on his mission to defeat the bad guys. From her secret underwater base the evil Madame Q is determined to control the world. To that end she has kidnapped thousands of beautiful girls to use in her diabolical experiments.

You are part of a team of experts hired by the government to find and penetrate Madame Q's fortress and free the hostages. After the submarine reaches its destination you must scuba dive to get to the base. This involves avoiding mines, chemical spills, battle sharks and enemy divers with their spear-shooting harpoons.

Once you get inside the fortress itself it plays almost exactly like Rolling Thunder. One of the best features of this game is that you can actually team up with a friend to take on the enemy in a rather neat 2-player mode!

Thunder Jaws is a real hidden gem in the ST's vast library.

9/10

Dugger (Dig Dug) – By Linel



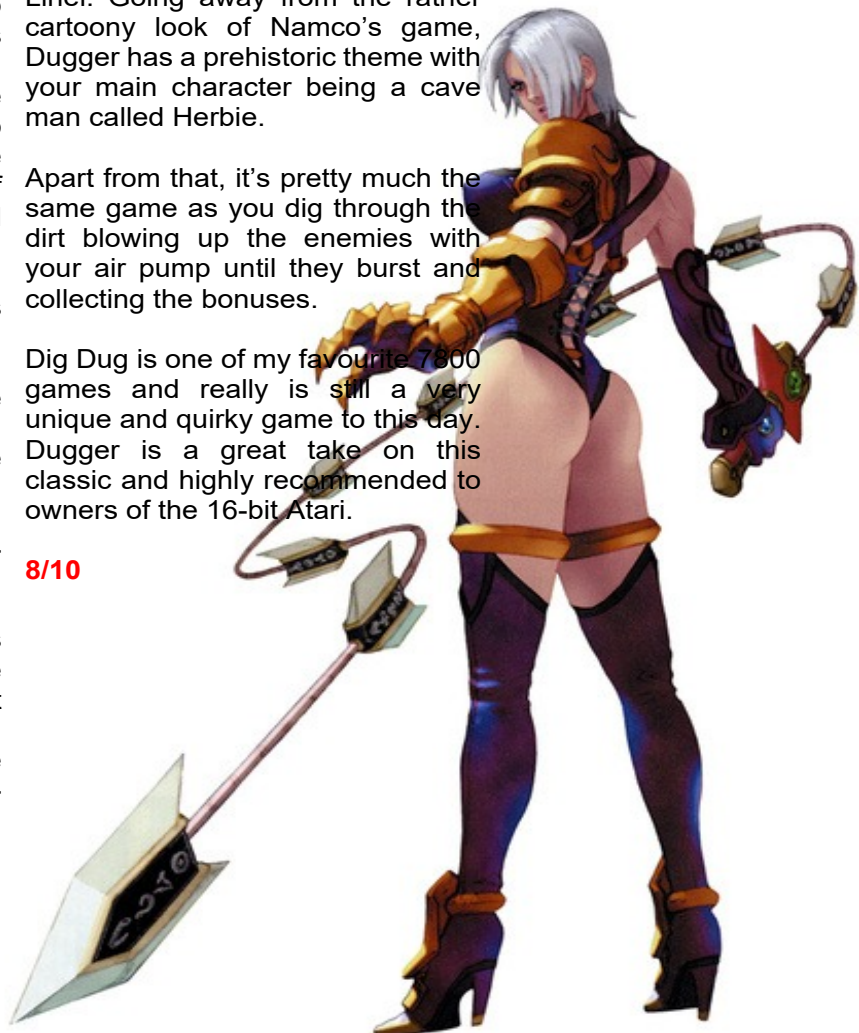
Last but not least we have another unofficial clone that does a great job of recreating another of Namco's most famous classics, the brilliant Dig Dug.

Released 1988 it comes to us from obscure Swiss software company Linel. Going away from the rather cartoony look of Namco's game, Dugger has a prehistoric theme with your main character being a cave man called Herbie.

Apart from that, it's pretty much the same game as you dig through the dirt blowing up the enemies with your air pump until they burst and collecting the bonuses.

Dig Dug is one of my favourite 7800 games and really is still a very unique and quirky game to this day. Dugger is a great take on this classic and highly recommended to owners of the 16-bit Atari.

8/10



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