

1979

Texas Instruments TI-99/4

In 1952, Texas Instruments entered the semiconductor business, opening a research division the following year and producing the first commercial transistor radio one year later. In 1958, Jack Kilby joined TI and invented the first integrated circuit. By the Seventies, TI was a world-leader in semiconductors and enjoyed a roaring calculator business.

Then in 1975, TI launched the TMS 9900, the first 16-bit micro-processor. It may have been way ahead of its time, but it found itself only employed in TI's own 990/4 and 990/5 mini-computers, both of which were too expensive to attract third party developers.

Computers were of course the perfect vehicle for selling TI's own components, so it decided to join the emerging micro-computer market and develop three affordable systems for the home, business and professional markets; TI's management insisted all use the TMS 9900 processor.

Later the business and professional projects were dropped in favour of concentrating on the home computer. TI's engineers equipped it with the TMS 9900 processor clocked at 3MHz and fitted 16KB RAM. TI's strategy would be to sell it cheaply, while making money on the software. It subsequently launched the TI-99/4 in June 1979.

Manufacturer: Texas Instruments
Model: TI-99/4

Launched: June 1979
Country of Origin: USA

SPECIFICATION

CPU model: TMS 9900
Speed: 3MHz
RAM: 16KB
Special features: Chicklet calculator-style keyboard, Texas Instruments CPU
Local price at launch: \$1150

COMPANY HISTORY

Texas Instruments was founded on May 16, 1930, by Eugene McDermott and John Clarence "Doc" Karcher. Originally known as the Geophysical Service and headquartered in Dallas, Texas, it specialized in oil exploration using seismographic equipment of its own design. In 1939 it changed names to Coronado Corporation, but kept Geophysical Service Incorporated (GSI) as a subsidiary. During early December 1941, GSI employee John Erik Jonsson learned Coronado was being sold and was asked if he wanted to buy the geophysical

side of the business. Fearing they might otherwise be out of jobs, Jonsson and Eugene McDermott, along with former employees Cecil Green and HB Peacock, raised funds and bought GSI, becoming owners on December 6, 1941: the eve of the Pearl Harbor attacks. GSI adapted its technology for the US Navy to locate enemy submarines during the war, and later grew, widening its product range. To reflect these changes, GSI was renamed General Instruments Incorporated in January 1951, but after confusion with another company, changed again to Texas Instruments.



1979

Texas Instruments TI-99/4



Aside from the monitor, the principal drawback with the TI-99/4 that was addressed with the 4A was the keyboard. The 41-key plastic arrangement was not only uncomfortable to use, but the Shift key behaved surprisingly by today's standards: Since there were no lower-case characters, Shift-called functions, Shift-Q broke from a program, losing all data.

Manufacturer: Texas Instruments
Model: TI-99/4

INPUT/OUTPUT

- 1 Tape interface
- 2 RGB video (non-FCC)
- 3 2x joystick
- 4 Cartridge slot

WHAT HAPPENED NEXT

TI had originally intended for the 99/4 to exploit a TV as a cheap display, but its RF modulator failed FCC tests, forcing the company to bundle an expensive monitor instead. What began as a budget proposition now cost \$1150. Its chicklet keyboard, while fine for calculators was also unpopular. Worse, whether by accident or design, TI had made it virtually impossible for anyone

other than itself and official licensees to develop peripherals or software for the TI-99/4. Taking these criticisms on board, TI launched the superior TI-99/4A model (as pictured on p43) in June 1981 with improved keyboard and a lower price of \$525, albeit without monitor. While the 99/4A was very successful, it entered into an aggressive price war with Commodore, resulting in TI pulling out of home computers in October 1983.



DID YOU KNOW?

On June 11th 1978, Texas Instruments announced a new speech synthesis chip. TI combined this with a pair of 128KB ROMs and a special version of the TMS 1000 "micro-computer-on-a-chip" to serve as the electronics behind its new Speak and Spell toy. Announced on the same

day as the synthesis chip, Speak and Spell was designed to help children spell and pronounce over 200 commonly mis-spelt words. It was the first time solid-state circuitry had been used to reproduce the human voice in a consumer product. Speak and Spell cost \$50 when it became available later in the summer of 1978.



1979

Mattel IntelliVision

046_47

In 1977, two years after the Handlers left Mattel, the company decided it should enter the games market. Richard Chang, Mattel's head of Design and Development, found almost everything he needed in a General Instruments (GI) integrated circuit catalog.

Chang's eye was caught by a video game system called the Gemini 6900, consisting of standard GI components. He contacted GI, and worked with them to enhance the graphics, while APh Technology Consultants in Pasadena was hired to write the operating system. Dave James, an artist from Mattel worked with APh to define the graphics, including the console's famous running man.

Mattel's directors, however, got cold feet and put the project on hold, leaving Chang and APh to concentrate on developing new handheld electronic games. By the time 1979 came round, though, the video game market was sufficiently strong to allow Mattel executive Jeff Rochlis to convince the board to resurrect the console project.

The hardware team, lead by Dave Chandler, completed the system and created the curious hand controllers which shunned joysticks in favor of a flat-disc, while David Rolfe at APh finished the software, including the Exec OS and *Major League Baseball*, the console's first game. After a successful test period in Gottschalk's department stores around Fresno during late 1979, the IntelliVision Master Component System was widely launched early the following year.

Manufacturer: Mattel
Model: IntelliVision

Launched: November 1979
Country of Origin: USA



COMPANY HISTORY

Mattel was founded in 1945 by Ruth and Elliot Handler and Harold "Matt" Matson out of a garage workshop in Southern California; the company name was derived from combining Matt and Elliot. The company started out producing picture frames, but soon developed a popular sideline in doll house furniture made from scraps. Matson later sold his share to the Handlers who, encouraged by the success of the doll furniture, subsequently concentrated on toys.

In 1955, Mattel began advertising toys on the Mickey Mouse Club show, but the company's defining moment came in 1959 when, inspired by her daughter Barbara playing with cut-out paper figures, Ruth Handler suggested producing a girl's doll. The doll was christened after her daughter's nickname, Barbie, with Ken (named for the Handlers' son) arriving in 1961, followed by friend Midge in 1963 and sister Skipper in 1965. Mattel's second major brand, Hot Wheels, rolled out in 1968.

SPECIFICATION

CPU model: General Instruments 1610
Speed: 1MHz
RAM: 2KB
Special features: Hand controllers with flat discs instead of joysticks
Local price at launch: \$299

1979

Mattel IntelliVision



Manufacturer: Mattel
Model: IntelliVision

WHAT HAPPENED NEXT

The IntelliVision's 159 x 96 pixel graphics were absolutely staggering in 1980, and made the rival Atari VCS look primitive in comparison. Mattel's advertising repeatedly pointed this out, but fearing its in-house programmers would be poached by Atari, kept their identities secret. A magazine article referred to them as The Blue Sky Rangers, a nickname which

stuck at Mattel. Several add-ons were launched, including a voice module and a new Mark II console in 1983, but by this time the video games market was in trouble, and Mattel soon closed the doors on all its non-toy divisions. While it really was game over for the IntelliVision at Mattel in January 1984, 3 million units had already been sold.

Like the Atari VCS before it, the IntelliVision's design owed more than a little to the music center, featuring a woodgrain plastic strip. This fitted in with the family-friendly marketing campaign that placed the console in the living room.



The game controllers could be stowed in the console, with their attached coiled cables tidily concealed. When in use, an overlay could be placed over the keypad to highlight the buttons' functions in the game.

DID YOU KNOW?

Mattel promised a keyboard add-on unit for the IntelliVision which would turn it into a computer from day one, but high costs saw it constantly delayed. Indeed, during his speech at the 1981 Mattel Electronics Christmas Party, comedian Jay Leno even joked the world's three big lies were "The check is in the mail, I'll still respect you in the morning, and the Keyboard will be out in the spring."

Somewhat more seriously though, the keyboard's non-arrival resulted in Mattel being investigated for fraud, and in mid-1982 was ordered by the FTC to pay a reputed monthly fine of \$10,000 until the promised peripheral was widely available. Mattel quickly produced a keyboard to placate a handful of its most disgruntled customers, but then set to work on an actual home computer, the ill-fated Aquarius (see p126).





1979

Tangerine Microtan 65

While still working at Cambridge Consultants, Johnson developed a new computer in his spare time which used a TV for its monitor. Chatting in the Cambridge Consultants drawing office, Johnson claimed that with £10,000 backing he could make a fortune. Barry Muncaster, a contractor at the time, overheard Johnson's claims, followed him back to his office and asked if he really meant it.

Subsequently convinced by Johnson's plan, Muncaster found an investor who helpfully also offered them warehouse space on their Cambridgeshire grounds. After buying out the company name from Johnson's school friend for a few hundred pounds, they registered Tangerine Computer Systems and started work on building Johnson's system.

The 6502 processor was chosen due to its popularity in other systems like the Apple II and Commodore PET. Johnson noticed the 6502 also only accessed its memory half the time, leaving it effectively free for the other half. He exploited this by using the memory's idle period to drive the display, thereby reducing component costs.

The Microtan name was formed from the words Microprocessor and Tangerine, while 65 was tagged on in reference to its processor. The Microtan 65 was launched at the end of 1979 for £69+VAT in kit-form, although a ready-built option was offered later for £79+VAT.

Manufacturer: Tangerine Computer Systems
Name: Microtan 65

Launched: December 1979
Country of Origin: England

050_51

COMPANY HISTORY

Tangerine Computer Systems was set up by Dr Paul Johnson and Barry Muncaster near Cambridge, England in October 1979. Johnson had previously graduated from Bradford University with a degree in digital audio and a PhD in electronics related to digital television. At this time microprocessor evaluation kits required ungainly 110 Teletype boards, so with his specialization Johnson developed a VDU Terminal which could be used with a normal TV set. On the strength of this, Johnson was approached to work on the

NASCOM-1 (see p32).

Johnson joined Cambridge Consultants after leaving university, but started a new company in his spare time with an old school friend. Following the trend for fruity company names they called themselves Tangerine and produced a kit-form VDU terminal for evaluating microprocessors. After meeting Muncaster—see system story—they bought the name from Johnson's school friend and officially registered the company as Tangerine Computer Systems.

SPECIFICATION

CPU model: 6502
Speed: 1MHz
RAM: 1KB
Special features: TV output, memory shared with video
Local price at launch: £69+VAT kit-form

