EXHIBIT C

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What ever happened to ... the Gavilan mobile computer? (Gavilan Computer Corp.) (Tech Section)
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ABSTRACT: The Gavilan Computer Corp, originally the Cosmos Computer Corp, developed its portable computer based on the Intel 8088 microprocessor using complementary metal oxide semiconductor (CMOS) components for high speed. The software for the product was a proprietary object-oriented operating system. Gavilan's design was sleek for the time - the early 1980s - and implemented a solid state mouse touch panel located between the keyboard and the liquid crystal display (LCD) screen. The pad was awkward and accident prone, leaving the users no place to rest their palms. In spite of the 8088 processor, Gavilan did not use MS-DOS, only offering it as an option after the company realized its popularity. Gavilan also chose the wrong size for the disk drive, leaving the product without access to most software. When the product shipped in 1984, there were fundamental bugs in the $3,995 machine. Competitors offered other machines at lower prices and had better distribution methods. Although the company went bankrupt, devotees of the machine formed users groups and built Gavilans from parts and accessories acquired at public auction.

TEXT:

How soon they forget. Over the last few years, laptops have become lightweight, powerful, and nearly as good as any desktop system. Jump back a few years to 1982, and the laptop you take for granted today would have been considered a minor miracle.

First, in 1982, LCD (Liquid Crystal Display) screen technology was primitive, and there was no backlighting. To put things in dramatic perspective, the then standard of excellence for portable computing was the 20-pound Osborne I. Later Compaq would emerge with its IBM version of the 20-pound Osborne. About this time, an upstart company popped on the scene with a deluge of hoopla and fanfare. It was the Gavilan--the prototype for today's modern laptop.

Gavilan Computer Corp. was founded by Manny Fernandez in February 1982. It was believed, at the time, that he raised $31 million in venture capital for the start-up. Fernandez, who had been a president of Zilog, recruited John Banning, his former dirctor of software and architecture at Zilog, to head the software development team that included two former Apple programmers and three alumni of the Xerox Palo Alto Research Center (PARC).

Gavilan's original name was Cosmos Computer Corp. The name was chosen because the founders believed its suggested "OS" for operating system and

"CMOS" for complementary metal-oxide semiconductor. Other than the 8088 CPU and the disk-drive controller, the Gavilan used all high-speed, low-power CMOS components. The software would be based on an object-oriented operating system the company was developing.

Their plans combined all of the advanced technological trends of the period into one blockbuster product. It took advantage of the trend towards portable computing that the Osborne 1 started, the new CMOS technology, and object-oriented programming methods being developed for SmallTalk at Xerox PARC--the type of icon-based user-interface Apple was developing for the Lisa and, later, the Macintosh.

Aesthetically, the Gavilan was a sleek black unit in a half-clamshell case design, foreshadowing the design of today's laptop computers at a time when the laptop state-of-the-art was the Tandy Model 100.

Not content to merely use existing technology, Gavilan set out to create a touch panel, officially referred to as a "solid-state mouse." The touch panel, located between the keyboard and the flip-up LCD screen, controlled the user-interface. The central area of the touch panel controlled the pointer in much the same way a mouse does. The pointer moved across the screen relative to the movement of your finger on the touch panel.

There were also several separate areas of the touch panel that invoked specific functions. Tapping one of these areas with your finger called up a context-sensitive help screen or a menu of basic functions. Other areas of the touch panel included commands to select, cancel, extend, and scroll. Anyone, like myself, who actually played with this pad found it to be awkward and uncomfortable. It was at the top of the keyboard, the user had to worry about hitting keys, and there was no place to rest your palm.

Unfortunately, as for the machine's problems, this was the tip of the iceberg. For example, although the machine used Intel's 8088 microprocessor, MS-DOS was not included in the original plans for the computer. It wasn't until it became apparent just how popular the IBM PC was that MS-DOS was included, and then only as an option.

Another problem was the floppy disk drive. Gavilan originally intended to use the odd 320K 3-inch-format floppy drive, then being promoted by Amdek and others. The prototype shown at the 1983 Spring COMDEX in Atlanta used the 3-inch floppy drive.

By the time the Gavilan began shipping, though, they had switched to a 360K 3.5-inch format. Even that was problematic at a time when all the available software was on 5.25-inch floppies. No matter, Gavilan arrogantly assumed that users were better off buying their software on the memory "capsules" used by the Gavilan, since the programs had to be loaded from disk into the memory capsules anyway. All the while the designers never worked on ways to transfer data to and from a desktop machine.

Finally, quantity shipments of the Gavilan didn't begin until June 1984, although the company kept promising 1983 dates.

In the interim, the press was told that some bugs had been discovered. This was not suprising in a product that used so many new technologies. Some veteran analysts had wondered whether the Gavilan would ship at all. Fixing the bugs, however, required some fundamental changes. Those changes caused the more than six-month delay in quantity shipments

between late 1983 and June 1984.

When the Gavilan finally did ship, customers were scarce. At a list price of $3,995 for the 96K regular model with a 16-line-by-80-character LCD screen and $2,995 for the 64K SC model with an 8-line-by-80-character display, it was too expensive for a machine that didn't have the IBM PC's "full" 256K of RAM.

There were also other machines on the market by this time that had the features users really needed at a lower price. Data General's DG/One, Hewlett-Packard's HP110, MicroOffice's RoadRunner, Morrow's Pivot, Quadram's Datavue 25, and Zenith Data Systems' ZP 150 were all available at about the time the Gavilan was actually shipping. All had comparable memory and features, and many at lower prices.

Another major problem was the method of distribution. Gavilan tried to use VARs (value-added reseller) to sell their product. On the whole, VARs were not as well established in portable computers, and there were fewer of them to sell the Gavilan. This made it even more difficult for the company to recoup its large development costs, and within six months of releasing the Gavilan Mobile Computer, the company had collapsed into bankruptcy.

The computer itself proved somewhat more durable than the company. The following year, a group calling itself the Gavilan Users Group (GUG) was building Gavilans from a stockpile of parts and accessories acquired at a public auction and selling the once costly machine for $800. By 1986, GUG had 12 branches in the United States.

Manny Fernandez licked his wounds, and after the failure of Gavilan in November 1984, he became CEO of Dataquest, Inc., the market research firm. He left there in January 1991, to take a similar position with Dataquest rival the Gartner Group.

John Dvorak is a noted industry columnist and writer with scores of articles, columns, and books to his credit.

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