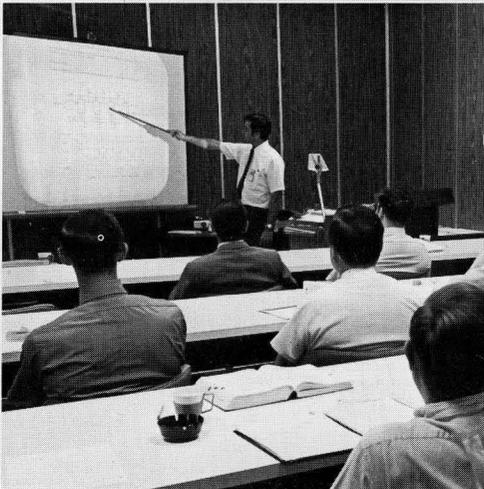
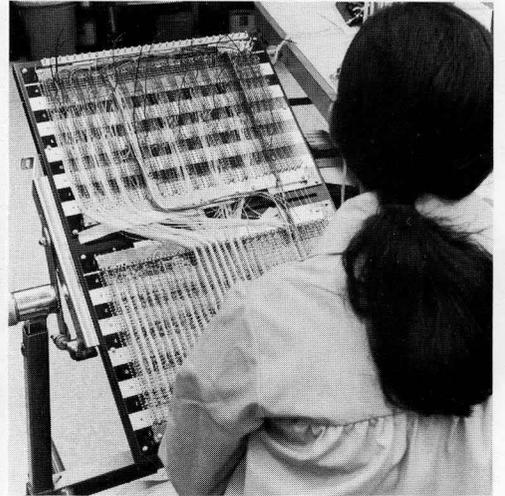
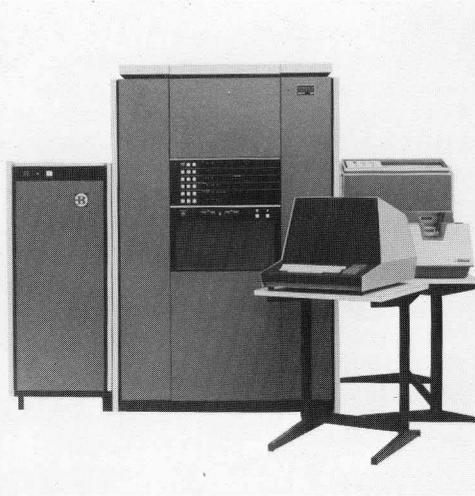


# A PROFILE OF FAIRCHILD SYSTEMS TECHNOLOGY

A Division of Fairchild Camera and Instrument Corporation



# Corporate Synopsis



Fairchild Camera and Instrument Corporation is a diversified, international company with capabilities in electronics components, systems and equipment. The company maintains manufacturing facilities in five states and eight foreign countries, and a worldwide sales and distribution network.

Semiconductor products account for approximately 85% of sales, and the company is one of the three largest U.S. suppliers of these devices. A pivotal force in the origins of solid-state technology, Fairchild sponsored the group of young scientists who in 1959 developed the Planar process, which became the fundamental technique used in manufacturing transistors and integrated circuits. Since then, Fairchild has been responsible for many of the significant advances in semiconductor technology.

The company was founded in 1920 by the late scientist and industrialist, Sherman M. Fairchild, whose inventions composed the initial product line. Today, Fairchild Camera consists of 13 operating units producing semiconductor components, as well as systems and equipment for commercial, industrial and government customers.

Sales of the company in 1974 exceeded \$384 million, with profit before taxes of more than \$40 million. Fairchild Camera common stock, held by some 10,000 investors, is traded on the New York, Pacific and various other stock exchanges.

## SEMICONDUCTOR COMPONENTS

Two groups, comprising seven divisions, supply a full range of semiconductor devices, from the simplest diodes to the most complex LSI (large-scale integration) circuits. Major manufacturing facilities are located in the San Francisco Bay Area, Shiprock, N.M., South Portland, Me., Hong Kong, Singapore, Korea and Germany. The divisions in the two groups, and their product lines, are:

### IC GROUP

**Analog Products Division** linear integrated circuits and integrated microsystems for the industrial, instrumentation and consumer electronics markets. Products range from operational amplifiers to complex subsystems.

**Digital Products Division** standard and custom digital integrated circuits, including MSI (medium-scale integration) and LSI, for the computer, industrial and aerospace/defense markets. Also produces charge-coupled devices.

**Bipolar Memory Division** the semiconductor industry's leading producer of bipolar memory circuits.

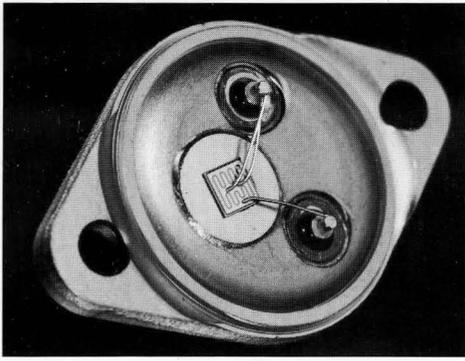
**MOS Products Division** metal-oxide-semiconductor devices, both standard and custom, for manufacturers of calculators and computer peripheral equipment, including memories.

### DISCRETE PRODUCTS GROUP

**Transistor Division** silicon Planar transistors for computer, industrial and consumer customers, including small-signal and power devices and multiple arrays.

**Diode Division** silicon diodes, rectifiers and diode arrays.

**Optoelectronics Division** light sensors and emitters, phototransistors, optical couplers and isolators, light-emitting diodes (LEDs) and displays.



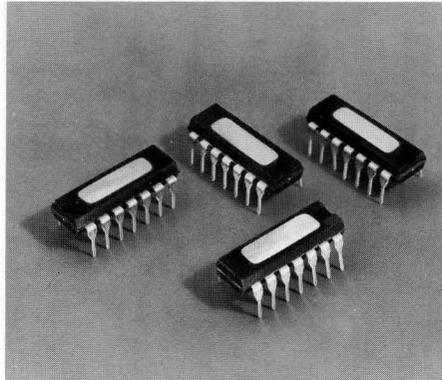
*Power Transistor Package with Chip*

## **NON-SEMICONDUCTOR OPERATIONS**

**Industrial Products Division** (Com-mack, N.Y.) audio/visual systems for commercial and industrial use, aircraft recording and announcing systems, and magnetic heads used for recording, storing and playback of data and/or sound.

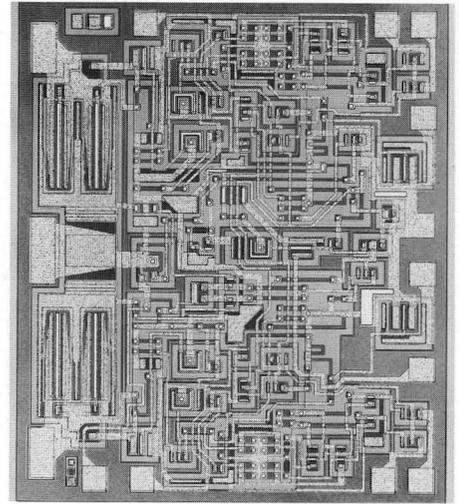
**Inland Manufacturing Division** (City of Industry, California) precision tooling for plastics and metals, including molding presses and molded piece parts.

**Systems Technology Division** (San Jose, California) semiconductor test systems for manufacturers and users of solid-state products, and semiconductor memory devices and memory systems for data processing equipment.



*Power Audio Amplifiers*

**Space and Defense Systems Division** (Syosset, N.Y.) camera and TV imaging systems for aerial reconnaissance and mapping applications, analog-to-digital converters; image data processing; specialized radio-frequency systems; precision optics.



*750 Linear Integrated Circuit*

**Electro-Optical Systems** (Syosset, N.Y.) electro-optical imaging systems. Low-power, high-resolution, low-noise systems utilizing charge-coupled device technology.

**Security and Surveillance Systems** (Syosset, N.Y.) development and operation of security and surveillance systems for industrial and commercial applications.

# Systems Technology Profile



**Fairchild Systems Technology** is an international operation engaged in designing, developing and producing automatic test systems for semiconductor devices, components, electronics subsystems and systems. The Division's headquarters and main manufacturing plant are located in San Jose, California, U.S.A. This modern, 140,000-square-foot facility is supported by a network of sales and service offices in the United States, Europe and Japan and by selected manufacturer's representatives in these areas.

The Division was founded in 1965, when the test equipment operation of Fairchild's Semiconductor Division was spun off as a separate operating entity. Initially called the Instrumentation Division, the operation expanded its test system product line and in 1969 changed its name to Fairchild Systems Technology.

Early developments included the 500 transistor/diode tester in 1963, and its second-generation counterpart—the 600 transistor/diode tester—in 1967. Fairchild Systems introduced an integrated-circuit tester, the 4000 series, in 1964. This was followed by the 5000 series of complex circuit testers introduced in 1968 and the first computer-controlled IC tester system, the 5000C, introduced in 1969. With its high throughput rates, high-speed analog-to-digital converter and versatile software package, the 5000C continues to serve a substantial segment of the test market.

Early in 1971, Fairchild Systems introduced the first computer-controlled, modularized, expandable test system product line, called the Sentry series. These third-generation systems are designed to test complex MSI/LSI integrated circuits, electronic subsystems and systems.

Fairchild Systems Technology has installed nearly 2000 automatic test systems to customers throughout the world, including companies such as IBM, Burroughs, Control Data, Litton Industries, Lockheed, General Dynamics, U.S. Air Force and U.S. Navy. The Division has doubled its sales volume since 1971. Activities are expanding and the Division is developing new equipment and systems responsive to changing technical requirements.

## Products

### Sentry series

The compatible and expandable Sentry series of test systems have become the industry standard and are used today by hundreds of companies for testing the complete range of integrated circuits as well as printed circuit boards and modules. The range of systems, although similar conceptually, have been optimized individually for specific production and engineering capabilities.

### Sentry 100

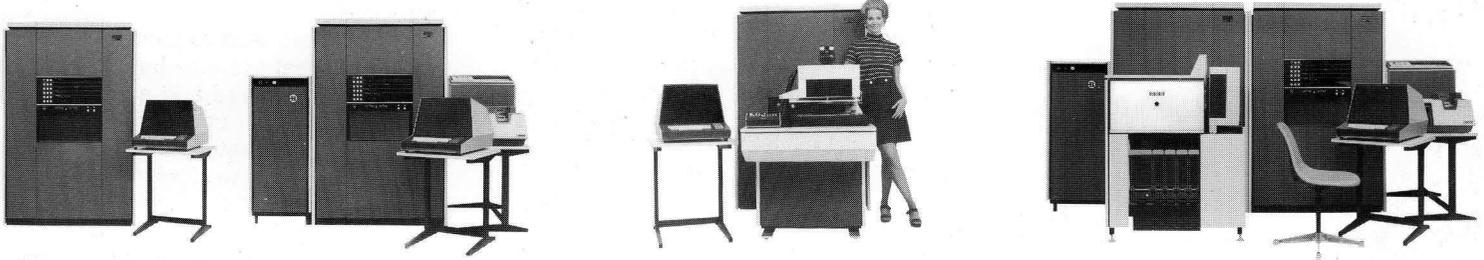
Optimized for low-cost, high-throughput production testing of MSI bipolar and PCB products. Low-cost and high-testing rates make this the ideal test system for MSI bipolar production—the Sentry 100 tests bipolar devices faster than any comparable system, at an entry cost lower than any other Sentry or equivalent tester.

### Sentry 200

Optimized for MSI bipolar engineering, QA and test-center operations, the Sentry 200 delivers maximum device characterization per dollar. As a versatile analytical tool, the Sentry 200 manipulates large amounts of data, handles arithmetic computation, logs data on every desired parameter from every device tested, reports statistical distributions, and provides the capacity to study environmental/electrical stress effects in depth.

### Sentry 510

Optimized for MOS/LSI production testing with exceptional price/performance, the Sentry 510 tests faster and more efficiently than any other comparable system. Though economical to buy, the 510 delivers high throughput because it has been designed for maximum testing rates. Non-essential analytical hardware has been eliminated, to give the MOS/LSI manufacturer more performance at lowest cost. The Sentry 510 has complete functional test capabilities both in wafer-probe and finished-package environments, at full rated device speeds.



### Sentry 610

Optimized for engineering, sophisticated production needs, QA and test center operations, the Sentry 610 is the most versatile analytical tester available for engineering and production. It can perform the widest range of tests for the broadest range of components. At user option, the Sentry 610 can perform high-speed MOS/LSI, PCB and bipolar tests simultaneously. It offers complete testing at the wafer level and through automatic handlers at full rated device speeds up to 10 MHz.

The wide choice of peripherals gives the Sentry 610 system massive data-handling capacity to manipulate, analyze, compute and generate reports on test procedures in analyzing MOS/LSI.

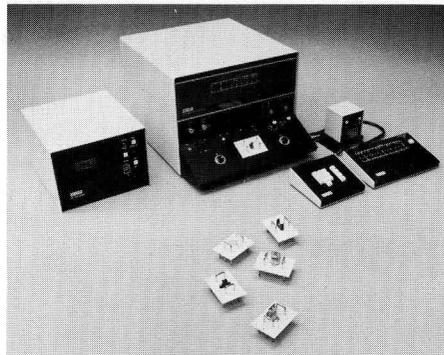
### Sentry 1200

Optimized for maximum-complexity circuit testing at highest speed, the Sentry 1200 can test 4K RAMs, large-scale hybrid LSI, microprocessors and similar state-of-the-art IC components. With up to 120-pin capacity and 10 MHz data rate, the Sentry 1200 is ideal for engineering development test applications where extremely complex, multi-state circuit functions must be tested and characterized. It can also function in the production-testing environment for testing the production versions of complex circuits. Through its peripherals, it can deliver the maximum results and the most complete detail of any Sentry or comparable test system.

ient methods, by means of magnetic-tape cassette, digiswitches, VKT (video keyboard terminal) or TTY (teletype). The system can be interfaced with wafer probers or mechanical handlers for fully automated operation, and multiplexed with up to three stations (master and two remotes) with additional plug-in options. Each station can test any mix of device types, for example PNP or NPN types at each station simultaneously.

### Ranger

The Ranger tester is a new system designed for RAM (Random Access Memory) and ROM (Read Only Memory) testing. The Ranger features a 20-MHz, hardware-oriented pattern generator able to execute N or N<sup>2</sup> type patterns programmed by any of 10 available programs (programs may also be generated in Sentry-series testers). The Ranger is designed primarily for testing memory devices and is optimized for this task to deliver maximum results and throughput rate at minimum cost.



PATT

### PATT

PATT is a versatile, high-speed benchtop system for testing transistors. It uses three bi-directional dc generators to test for every commonly specified parameter of discrete devices. This is typically accomplished through simple programming techniques.

PATT uses a state-of-the-art MOS Random Access Memory for multi-program storage. The basic system is supplied with a memory of 10 words (8 tests) that can be expanded to 96 words (84 tests). The advanced solid-state memory and logic design allows unique programming flexibility for a tester of this class and type. Programming is accomplished through several conven-

### Qualifier 901

The Qualifier 901 is a low-cost, high-performance, benchtop IC tester that features simple operation and maintenance. It is a state-of-the-art system intended primarily for incoming inspection by IC users, to keep faulty devices out of finished products and thus eliminate expensive rework or field repair. The 901 is a digital tester designed for extensive checking of CMOS, DTL and TTL logic devices, both parametrically and functionally. It is extremely fast and can test common TTL parts thoroughly in 60 milliseconds or less.

## Software

All programs for Fairchild testing equipment and systems are written in FACTOR, an English-language-like programming method that allows users to add many elements of decision making into their test operation. FACTOR provides a data-analysis tool that can help characterize and analyze devices, provide yield improvement data, monitor production control, monitor shipments and provide engineering data and controls. A library of FACTOR programs is available to users of Fairchild Systems testers.

Fairchild also offers FAIRTEST, FAULT ISOLATION, and the FACTOR-X Cross Compiler. FAIRTEST is a computer-aided test generation system that produces functional tests for digital logic subassemblies such as PCBs or logic module assemblies. This program has been developed for use on IBM 360/30 or larger computer systems and executive software. These test programs generate a card deck containing test programs in Sentry FACTOR. These test programs represent a Go/No-Go test of the digital logic subassembly complete with a diagnostic subroutine that permits fault isolation to component levels in No-Go situations.

FAULT ISOLATION provides additional capability for testing PCB function and pinpointing defective digital components. This program instructs the operator on specifically where to probe for further analysis until defective components are found rapidly, easily, and under computer control.

The FACTOR-X Cross Compiler is written in FORTRAN; it accepts input files of FACTOR statements and produces an output file containing code suitable for execution. With this cross-compiler, users can compile FACTOR programs elsewhere while dedicating the Sentry tester system to its primary function.

## Training

Fairchild Systems Technology maintains a comprehensive customer training program designed to maximize tester system installation effectiveness. A full-time training staff, using modern training aids and methods, conducts classes at Fairchild's Training Center in San Jose plant or at customer sites.

A comprehensive video tape library is also available to take training anywhere. Instruction is separated into various user aspects of the systems. Generally, there are three categories of personnel who need training:

- Operators and programmers
- Personnel responsible for system maintenance
- Personnel responsible for I/O peripheral maintenance

The amount of training offered on each system varies, depending on the complexity of the particular system and its customer-specified options. Courses are 'blocked' so that personnel may be trained as appropriate for their category. Comprehensive manuals are provided for enrollees in each course. Several test systems, located in the training area at FST, are designated for the hands-on laboratory portion of instruction. The systems, in addition to the regularly scheduled laboratory sessions, may be used after normal class hours for individual operation and practice. Special studios for reviewing video tapes of class material are available to students also.

## Service

Fairchild Systems Technology maintains the largest service network of its kind in the world, providing rapid turn-around service maintenance and representatives for users, regardless of location. Service contracts are available to cover parts, labor, automatic hardware update and receipt of software revisions; contracts are available also for resident field engineers or "On-Call" service.



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931 S. Douglas/Ste. 115  
El Segundo, California 90245  
(213) 678-3166

3080 Olcott St./Ste. 100C  
Santa Clara, California 95050  
(408) 998-0123  
TWX: 910-338-0558

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Altamonte Springs, Florida 32701  
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TWX: 810-853-0262

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Wellesley, Massachusetts 02181  
(617) 237-4787

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Minneapolis, Minnesota 55435  
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1790 East Marlton Pike  
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TWX: 710-896-1391

580 Valley Rd.  
Wayne, New Jersey 07470  
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TWX: 710-988-5846

## SALES OFFICES — FOREIGN

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Lamadrid 3140  
Olauarria — PCIA  
de Buenos Aires, FCNG Roca

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Mississauga, Ontario  
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Longueuil, Quebec  
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Calgary, Alberta  
(403) 261-0780

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(604) 253-7136

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Telex: 74015 CUMMH HX

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Cable: FLAENT

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