Fairchild Camera and Instrument Corporation 1974 Annual Report

"Following a strong first quarter, the combined effects of inflation and recession arrested the worldwide growth of the solid-state electronics market after three years of continued expansion... As a result, industry shipment rates during the second half of 1974 dropped sharply from their second quarter peak... Management had anticipated the slowing of business activity and took steps early to curtail spending, employment and production rates. Subsequent measures, keyed to the dynamics of the market, enabled Fairchild to post satisfactory results in 1974 and to enter the new year in a strong and liquid position"...

FINANCIAL HIGHLIGHTS

	1974	1973	% Change
For the year:			
Net sales	$384,933,000	$351,171,000	+ 9.6
Income before extraordinary credit	$ 27,032,000	$ 26,749,000	+ 1.1
Extraordinary credit	—	$ 14,410,000	—
Net income	$ 27,032,000	$ 41,159,000	− 34.3
Average number of common and common equivalent shares outstanding	5,228,523	5,224,826	+ .1
End of year:			
Working capital	$101,368,000	$ 98,285,000	+ 3.1
Shareholders' equity	$159,390,000	$134,207,000	+ 18.8
Number of employees	18,092	25,525	− 29.1
Number of shareholders	12,325	10,464	+ 17.8
Shares issued	5,161,592	5,106,187	+ 1.1
Per share statistics:			
Income before extraordinary credit	$ 5.17	$ 5.12	+ 1.0
Extraordinary credit	—	2.76	—
Net income	5.17	7.88	− 34.3
Shareholders' equity at year end	30.88	26.28	+ 17.5
Cash dividends	.75	.30	+150.0

TO OUR SHAREHOLDERS:

For the semiconductor industry, as for the nation, 1974 was a year of progressive difficulty. Following a strong first quarter, the combined effects of inflation and recession arrested the worldwide growth of the solid-state electronics market after three years of continued expansion.

The downturn began in late spring, when component supply and demand rapidly converged in key product lines. As the economy grew worse, orders slackened in most customer and geographic areas. Excess inventories were aggravated by falling end-product sales, beginning with the consumer and extending to the capital goods sector. As a result, industry shipment rates during the second half of 1974 dropped sharply from their second quarter peak.

Despite the severity of the decline, the company was able to adjust in a planned and orderly way. Management had anticipated the slowing of business activity and took steps early to curtail spending, employment and production rates. Subsequent measures, keyed to the dynamics of the market, enabled Fairchild to post satisfactory results in 1974 and to enter the new year in a strong and liquid position.

For the twelve months ended December 29, 1974, the company earned $27,032,000, or $5.17 per share, on sales of $384,933,000. This compared with 1973 income before extraordinary credit of $26,749,000, or $5.12 per share, on sales of $351,171,000.

Through the exercise of tight operating control, as well as careful asset management, the company concluded the year in healthy financial condition. Working capital exceeded $101 million, and shareholders' equity had risen to $159 million. Cash and short-term securities were approximately $33.4 million.

Total order backlog at the end of 1974 was substantially below the preceding year due to reduced net bookings in the second half. Worldwide employment was 18,000 persons, at year-end, compared with 25,500 at the close of 1973. Capital expenditures were cut back from a planned $50-55 million to approximately $41 million for the year.

As we moved into 1975, it was obvious that the economic slump had become deeper and more protracted than most experts had forecast. The timing and strength of the recovery remain uncertain, and we expect no sudden correction of prevailing industry trends. We believe Fairchild has the disciplines in place to perform effectively in the current climate, and to respond positively when business improves.

Despite declining sales, the company reduced inventories in the second half of 1974 and we have continued to take all

necessary actions to balance inventories with projected business volume. Capital spending in 1975 will be considerably below last year, although we are maintaining specific investment programs to achieve further cost reductions and enhance our long-term growth capability.

During 1974, Fairchild continued its program of upgrading facilities and phasing out older, less efficient manufacturing capacity. Marginal operating units—including the Defense Products Division, the Communications Equipment Division, and the Inland Manufacturing Division—were either sold or discontinued during the year.

The company continued to add new, cost-effective manufacturing facilities throughout the world. Production began in mid-1974 at our Wappingers Falls, New York, plant dedicated to high-volume MOS (metal-oxide-semiconductor) wafer fabrication, and at our silicon materials plant in Healdsburg, California. Operations are also underway at our new assembly facility in Jakarta, Indonesia.

In anticipation of future needs, Fairchild agreed in principle to form a joint venture with Applied Materials, Inc. for the manufacture of polysilicon, the basic material required for all semiconductor products.

The company is supporting a broad range of advanced technology programs to assure its competitive and technical leadership. Investment in research, development and engineering of new products, applications and processes reached $40 million in 1974, compared with $38 million in the previous year. This effort generated over 200 new products in 1974.

Significant progress has been made in the MOS field, where the company has placed major development emphasis. One highlight is our newly announced F8 microprocessor, a two-chip system with architecture greatly advanced over previous microprocessors on the market.

Other important new products include MOS and bipolar memory systems, a family of high-speed LSI (large-scale-integration) circuits, new CMOS (complementary-MOS) circuits, the first low-power Schottky TTL (transistor-transistor-logic) series, and a subnanosecond ECL (emitter-coupled-logic) product line.

Recognizing that the solid-state electronics market is now genuinely global in scope, Fairchild last year established an International Division to concentrate on all foreign business. European sales remained strong, and our joint venture with TDK Electronics Ltd. in Japan reached a significant level of maturity. In Brazil, the company opened a semiconductor assembly plant directed toward the expanding Latin American market. International sales for the corporation rose to more than $113 mil-

lion, or 30 percent of the total sales, in 1974.

Fairchild's non-semiconductor divisions, both government and commercial, also realized tangible accomplishments last year.

In the Federal Systems area, the company expanded product lines supplementing our basic aerial camera and imaging systems. The Space & Defense Systems Division created two operating units producing security and surveillance, as well as electro-optical, systems.

The Systems Technology Division, with new headquarters in San Jose, California, introduced semiconductor test systems at both the low and high ends of its product range, and focused marketing attention on the user, as well as the manufacturer, of semiconductor components.

In the audio-visual field, the Industrial Products Division brought to market a new and unique filmstrip projector to augment its successful Series Seventy line.

The company has also explored a variety of emerging, end-product areas which incorporate solid-state technology and expertise. It is our intent to participate directly in such markets on a timely and programmed basis.

To assure the financial capability for growth, Fairchild in February of 1975 completed an expanded, international and domestic credit agreement for borrowings at the prime rate in the United States and comparable rates in foreign countries. This agreement, which supersedes the company's previous $33 million revolving credit line, provides a flexible, multi-currency credit line of $50 million available through February, 1977 and convertible thereafter into a five-year term loan at prime rate plus a half of one percent.

In summary, we believe the actions of the recent past have materially strengthened our company and afford us an opportunity for sound progress in the years ahead. Fairchild commands excellent resources of people and technology, a broad customer and financial base, and worldwide marketing and manufacturing competence. These strengths are the foundation on which we will build for the future.

Wilfred J. Corrigan
President and Chief Executive Officer
March 17, 1975

OPERATIONS REVIEW

Technical Progress

Much of the company's recent technical effort has centered on the application to both bipolar and MOS device structures of our proprietary Isoplanar technology, which reduces circuit size and improves performance. Paralleling this has been a comprehensive program of new product development in the key areas of integrated circuit memories, microprocessors and logic.

In January of 1975, the company introduced the first commercially available charge-coupled-device memory, a 9,216-bit product whose high density and potentially low cost fills the gap between present electronic and electro-mechanical storage systems. Fairchild also announced a second CCD memory development, a 16,384-bit LARAM (line-addressable random-access-memory) to be marketed in the second quarter this year.

In addition, the company has developed a CCD linear image sensor, using buried channel technology, that will reduce costs and improve fidelity in the transmission of facsimile copies. The new product contains 1,728 imaging elements, more than three times the number in the company's first such imaging device introduced two years ago.

In the MOS field, Fairchild began production in the first quarter of its F8 microprocessor, a two-chip, 8-bit system which incorporates Isoplanar N-channel technology. Designed for use in products ranging from information processing systems to home washing machines, the F8 is particularly well adapted to controller-type applications, including automotive systems. Among its early applications will be a hand-held electronic reader employed by department and other retail stores to scan merchandise tags and relay their data to a central computer.

Extending its leadership in high-performance bipolar technology, the

An example of the rapidly developing point-of-sale market for solid-state devices is this optical wand for reading coded inventory and price information in a department store. This system is based on Fairchild's new F8 microprocessor.

company is now supplying a 4-bit LSI processor built on five chips with low-power Schottky TTL circuitry. This product family, called Macrologic™, is aimed primarily at minicomputer central-processing functions. A series of compatible CMOS logic devices will be added to the line during the second quarter of 1975.

Electronic Components and Systems

This line of business consists principally of semiconductor devices sold as components, as well as electronic test equipment and related items.

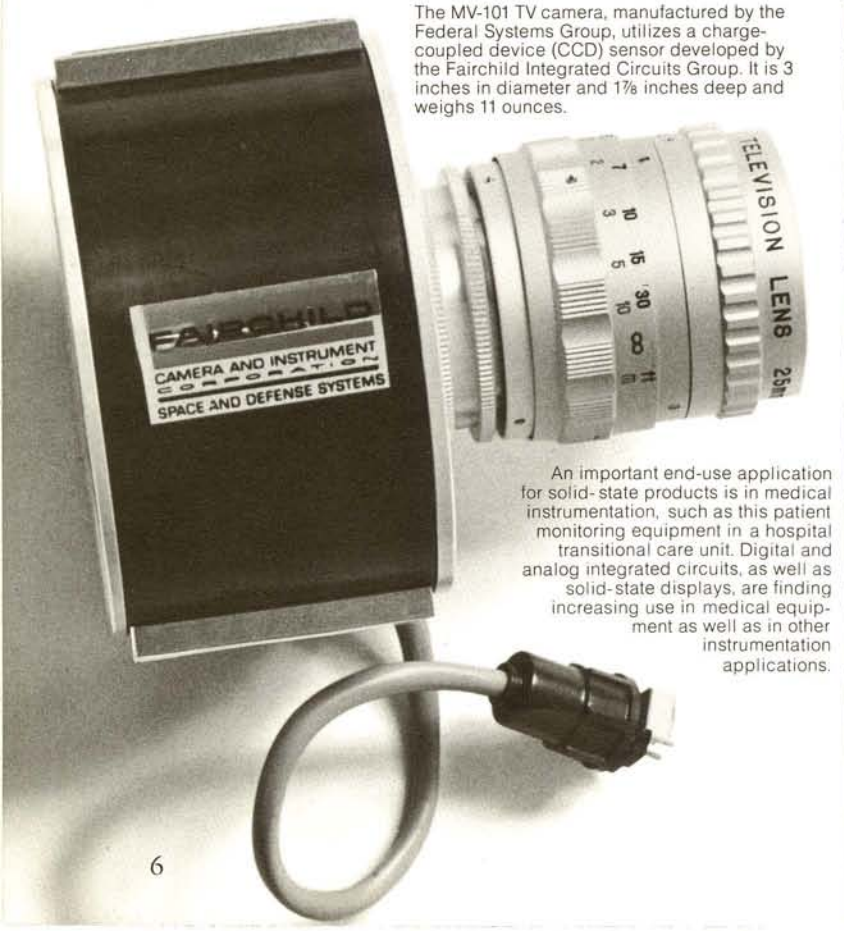
Fairchild manufactures and sells a wide range of semiconductor products consisting of analog and digital integrated circuits, discrete devices, and hybrid products. Approximately two-thirds of the company's semiconductor revenues derive from the sale of integrated circuits.

Electronic test equipment is sold to other semiconductor manufacturers and to users of components. The company offers a family of computer-controlled systems designed to test both MOS and bipolar products, including subassemblies and LSI circuits, as well as smaller bench-top testers for incoming quality inspection.

BIPOLAR MEMORY DIVISION, with headquarters in Mountain View, California, designs and manufactures bipolar digital memory circuits for computer, industrial and government markets.

This division was established in 1974 to serve the expanding bipolar memory market, to which Fairchild is a major supplier. The division last year added new TTL and ECL random access memories (RAMs) in both 256-bit and 1,024-bit configurations. Further process improvements enabled a dramatic reduction of the silicon chip size for bipolar RAMs, which, combined with plastic packaging, brings their costs within reach of a broad range of users.

Early in 1975, the division announced the F100K family of ECL logic circuits,



The MV-101 TV camera, manufactured by the Federal Systems Group, utilizes a charge-coupled device (CCD) sensor developed by the Fairchild Integrated Circuits Group. It is 3 inches in diameter and 1⅞ inches deep and weighs 11 ounces.

An important end-use application for solid-state products is in medical instrumentation, such as this patient monitoring equipment in a hospital transitional care unit. Digital and analog integrated circuits, as well as solid-state displays, are finding increasing use in medical equipment as well as in other instrumentation applications.

operating at picosecond (trillionth of a second) speeds, more than twice as fast as comparable products on the market. The series is timed for inclusion in new, large-scale computer systems scheduled for 1975 and 1976 design by our customers.

DIGITAL PRODUCTS DIVISION, with headquarters in Mountain View, California, produces standard and custom digital integrated circuits, including large and medium scale integration, for computer, industrial, military, and consumer markets.

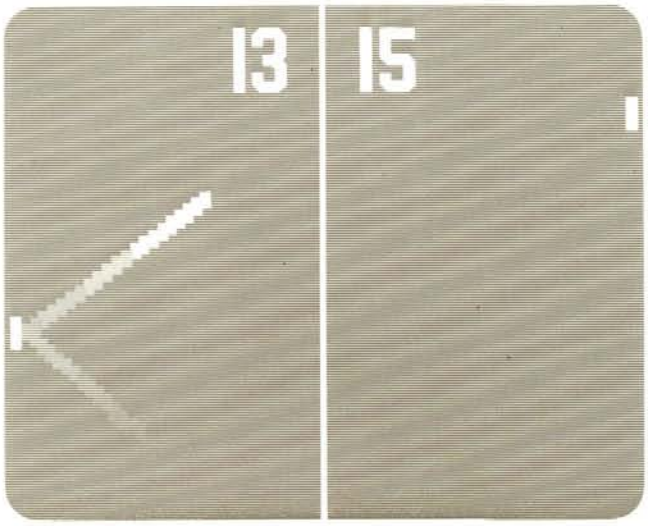
Following introduction in early 1974 of its CMOS circuits aimed at military applications, Fairchild began marketing a general purpose CMOS family which contained 50 devices at year-end. Utilizing the Isoplanar process, the Fairchild circuits —in both plastic and ceramic packages— offer low power consumption features, and open new areas of industrial and commercial usage. Early this year, the company also announced the first of its LSI family of proprietary CMOS products.

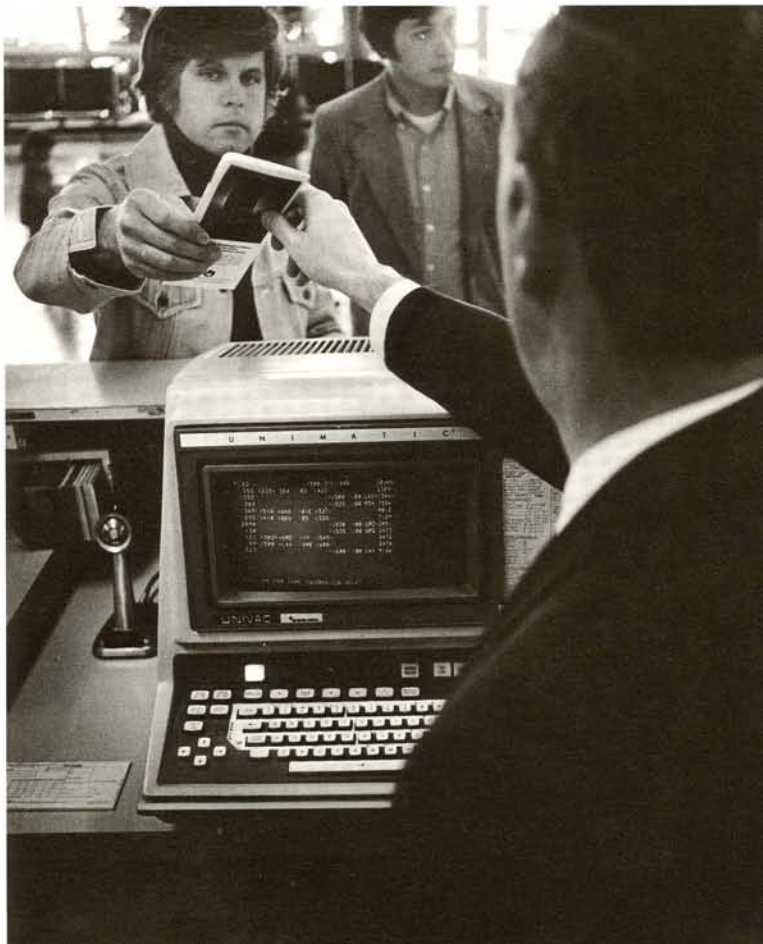
The Digital Products Division last year introduced over 30 new devices in the low-power Schottky TTL family, which greatly simplify digital circuit designs while reducing power consumption and noise. Another achievement by the division was development of the bipolar LSI processor elements discussed in the Technical Progress section.

DIODE DIVISION, headquartered in San Rafael, California, develops and manufactures silicon diodes, rectifiers, zeners and diode arrays for the consumer, computer, industrial and military markets.

During 1974, capacity for the assembly and test of diode products was enlarged at the company's Hong Kong plant. Diode assembly also began at the division's new 13,000-square-foot facility in Campinas, Brazil, selected as a strategic location from which to service the emerging Latin American semiconductor market.

A lucrative market that has emerged in the last two years has been the rapid development of coin-operated electronic games, in which digital integrated circuits control a representation of tennis, hockey, auto racing and a variety of other competitive activities.





A common use of computer terminals is the familiar airline ticket counter location, where compact terminals allow speedy checking of reservations and flight status. Digital integrated circuits are at the heart of the computer system that enables reliable service to travelers throughout the world.

Fairchild, a leading factor in the diode field, is continuing to emphasize its high reliability and military business, which represented an increasing share of diode shipments last year.

INTERNATIONAL DIVISION, headquartered in Mountain View, California, markets and distributes Fairchild products to other countries.

The International Division was formed in 1974 to coordinate sales activities in all foreign markets—Europe, the Far East and Latin America. Fairchild sales to customers outside the United States in 1974 were 29 percent above the level of the prior year.

Europe accounts for the major portion of foreign revenues, and Fairchild anticipates further penetration of this long-term growth market. The company supplies a full range of standard and custom integrated circuits and discrete devices in Europe, as well as test systems and other equipment, with customers ranging from major automotive producers to electronic clock and calculator manufacturers.

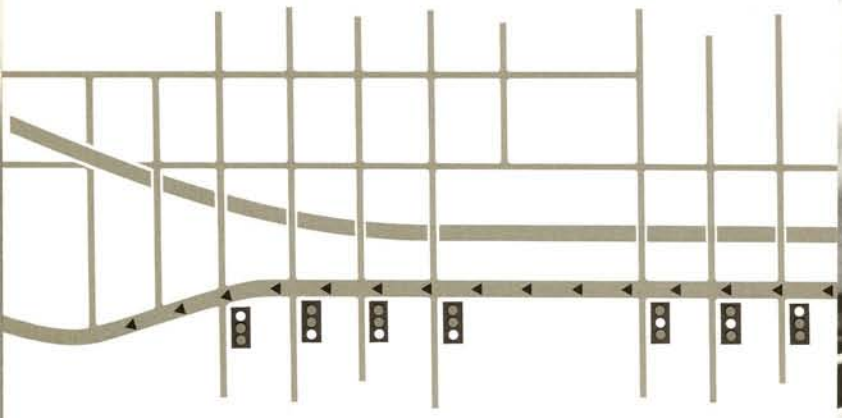
The company's joint venture in Japan—TDK-Fairchild Corp.—geared its operations to a slower Japanese economy, but continued to serve this key marketplace with a broad spectrum of Fairchild products.

LINEAR INTEGRATED CIRCUITS DIVISION, with headquarters in Mountain View, California, develops and manufactures linear integrated circuits for industrial, computer and consumer markets.

The linear market last year encompassed new volume applications, particularly in color television sets, hi-fi systems and a variety of automotive entertainment equipment.

Fairchild introduced an extensive number of LICs during the year, enlarging product breadth in existing lines as well as developing major new devices, including two advanced voltage regulators. The division began shipments of television circuits

Unseen behind the familiar street corner traffic signals, advanced electronic systems based on integrated circuit technology provide greatly improved control of traffic flow in many American cities. Interactive systems permit control of traffic flow according to actual variations in demand at different times of day.



A completely solid-state television tuning system shown here in developmental form, will make tuning all 84 available television channels as simple as pushing a few buttons on a keyboard. This system, made possible by new, high-frequency integrated circuit technology, would be redesigned into one or two circuit packages for commercial application.

compatible with the European PAL standard, as well as circuits used in ground-fault interrupt systems for home electrical appliances.

MOS PRODUCTS DIVISION, headquartered in Mountain View, California, produces metal-oxide-semiconductor devices, including memories and microprocessors, for the computer, industrial, and consumer markets.

As a result of vigorous development activity during the past two years, Fairchild today offers the broadest MOS product line in its history. These products span the range of device structures and serve a full complement of growing MOS markets.

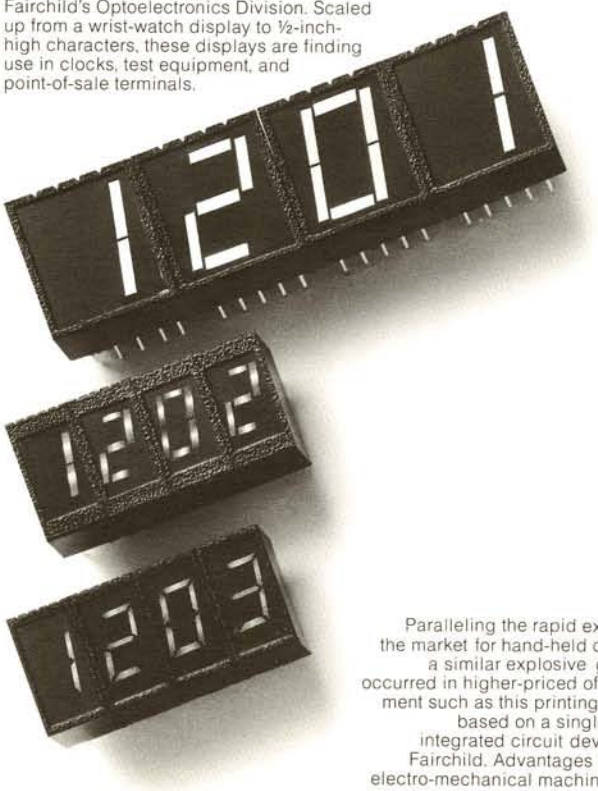
During 1974, Fairchild placed top priority on MOS memory development, utilizing the Isoplanar process. The company brought to market its 1103 dynamic and 2102 static RAMs, a 40x9-bit FIFO memory and an Isoplanar shift register which operates at speeds more than twice those of similar products. Fairchild's Isoplanar version of the 16-pin, 4,096-bit RAM is scheduled for production during the second quarter of 1975.

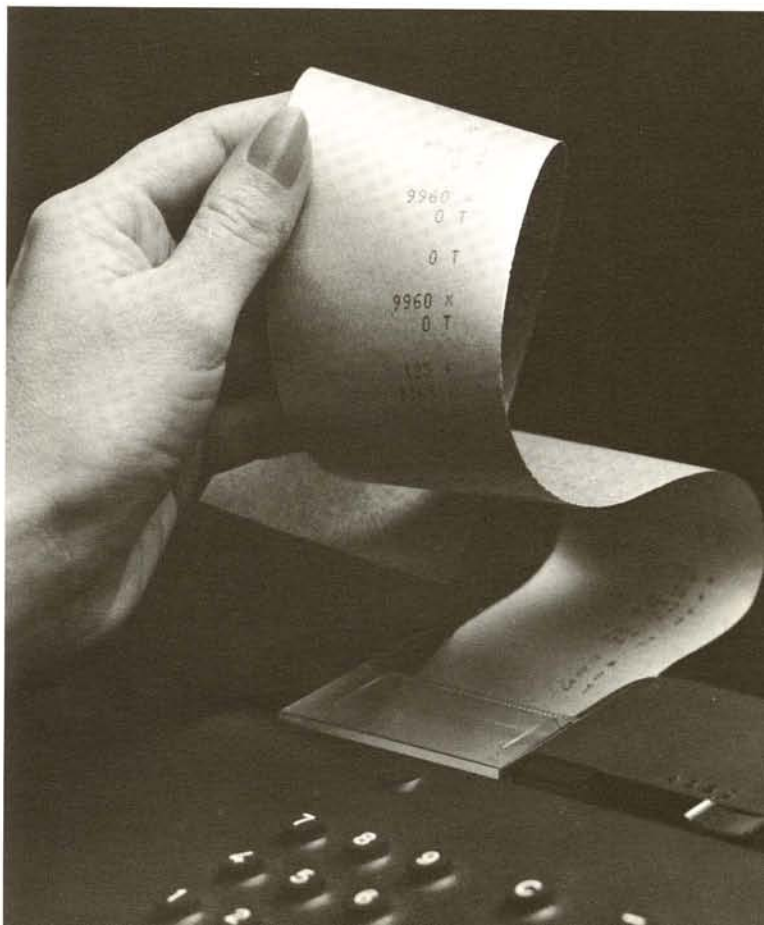
Of prime importance to the company was development of the F8 microprocessor discussed in the Technical Progress section, which brings sophisticated, multi-function information processing capability within reach of a broad range of users.

OPTOELECTRONICS DIVISION, with headquarters in Palo Alto, California, develops and produces light-emitting diodes for lamp and digit applications, phototransistors, light sensors and emitters, and optically coupled isolators.

Fairchild continued to be the leading supplier of light emitting diodes for the digital watch market. In the early months of 1974, the company de-emphasized production of LEDs for calculators and made a transition to single digits for other

The versatility of light-emitting diode (LED) display units is illustrated by this array of reliable solid-state display digits from Fairchild's Optoelectronics Division. Scaled up from a wrist-watch display to ½-inch-high characters, these displays are finding use in clocks, test equipment, and point-of-sale terminals.





Paralleling the rapid expansion of the market for hand-held calculators, a similar explosive growth has occurred in higher-priced office equipment such as this printing calculator based on a single MOS/LSI integrated circuit developed by Fairchild. Advantages over older electro-mechanical machines include increased reliability and virtually silent operation.

products—home appliances, test equipment, point of sale terminals, watches and clocks.

During the year, the company introduced new one-half and three-eighths-inch single digit displays. The division also added yellow and green to its standard red LED line, expanding customer options of colors for indicator displays in industrial and consumer products. The company marketed phototransistors and infra-red emitters and detectors as sensors in intrusion and smoke detection systems.

TRANSISTOR DIVISION, headquartered in Mountain View, California, produces silicon transistors, including small signal, power, and microwave, as well as multiple transistor devices for industrial, consumer, government, and medical applications.

Fairchild last year stressed development of power transistors, including an improved power Darlington device for automotive ignition systems and a series of high-voltage, high-current transistors used in home stereos.

While the economic decline affected the transistor market, particularly small signal devices, Fairchild continued to see increasing demand for high-reliability transistors used in space studies and military equipment. The division implemented extensive cost reduction programs during the year, and improved wafer fabrication yields.

AUTOMOTIVE UNIT, headquartered in Mountain View, California, produces electronic sub-systems for the automotive industry and modular solid-state devices for other applications.

1974 was the first full year of operation for the Automotive Unit, during which Fairchild delivered high-energy electronic ignition systems for 1975 model cars. Test marketing was also begun on a Fairchild-packaged electronic ignition system to be sold as a consumer product. The operating unit introduced a hybrid

A rapidly developing and vast new market for solid-state technology centers on point of sale equipment such as this electronic cash register built with integrated circuits. Other uses include a wide range of new equipment for credit-card verification, label code reading and other cash transactions and data recording.

Production of solid-state ignition systems, shown during assembly, increased throughout 1974—the first full year of operation for the company's Automotive Unit. This group supplies systems for both new cars and the replacement market.

voltage regulator slated for application throughout the electronic equipment industry.

SYSTEMS TECHNOLOGY DIVISION, headquartered in San Jose, California, develops and manufactures a diverse line of automatic test equipment for semiconductor devices.

During 1974, the Systems Technology Division moved into a new plant of 150,000 square feet in San Jose, California, designed for optimum efficiency in the manufacture of complex semiconductor test systems. The division's former headquarters building in Palo Alto, California, was sold during the year.

This division last year was successful in its attempts to expand its customer base among semiconductor users, who today represent the largest percentage of the division's market. A new product, aimed specifically at the user market, was the Qualifier™ 901, a benchtop tester designed for incoming inspection of digital IC devices. The Qualifier uses a unique optically coded plastic card for programming and incorporates a microprocessor.

One of the most important new entries in the division's large systems line is the Sentry 610, an automated, computer-controlled integrated circuit test system used primarily for testing LSI and microprocessor devices.

Another significant product introduced during the year was the Sentry 1200, a 120-pin test system capable of testing and characterizing the most complex semiconductor products.

To date, Fairchild Systems Technology has delivered almost 1,800 automatic test systems.

Other Products – Principally Government

Fairchild is engaged in the development and production of space and defense systems and products for NASA, the military services and other government

The Qualifier 901, a semiconductor test system (right) for incoming inspection by users, was introduced by the Fairchild Systems Technology Division in mid-year. The system is programmed to test a specific device with an optically coded plastic card (left).

FIVE YEAR FINANCIAL REVIEW

	1974	1973	1972	1971	1970
Progress in Operations (in thousands except per share data)					
Net sales	$384,933	$351,171	$223,896	$193,088	$219,138
Royalties and other income	10,619	10,397	6,329	7,629	9,334
	395,552	361,568	230,225	200,717	228,472
Cost of sales	264,194	245,450	165,794	158,940	195,452
Administrative and selling expenses	75,882	61,975	47,888	44,514	46,312
Interest expense	3,868	3,661	3,737	3,952	4,268
	343,944	311,086	217,419	207,406	246,032
Income (loss) before income taxes and extraordinary credit	51,608	50,482	12,806	(6,689)	(17,560)
Provision for income taxes	24,576	23,733	5,080	1,152	1,749
Income (loss) before extraordinary credit	27,032	26,749	7,726	(7,841)	(19,309)
Extraordinary credit	–	14,410	3,300	–	–
Net income (loss)	$ 27,032	$ 41,159	$ 11,026	$ (7,841)	$ (19,309)
Per share of common stock:					
Before extraordinary credit	$5.17	$5.12	$1.58	$(1.79)	$(4.40)
Net income (loss)	$5.17	$7.88	$2.26	$(1.79)	$(4.40)
Selected Operating Data (in thousands)					
Net sales by line of business:					
Electronic components and systems	$344,790	$301,091	$178,890	$135,169	$169,782
Other products – principally government	40,143	50,080	45,006	57,919	49,356
Income (loss) before income taxes and extraordinary credit by line of business:					
Electronic components and systems	46,909	45,888	11,191	(7,020)	(14,679)
Other products – principally government	4,699	4,594	1,615	331	(2,881)
Net sales of solid state devices	321,548	281,370	161,714	123,759	150,516
International sales	113,574	87,730	42,919	34,490	46,936
Royalty income	7,312	7,467	6,037	6,696	7,246
Research, development and engineering (1)	40,288	38,251	29,287	28,145	40,549
Depreciation and amortization	14,092	12,039	10,368	11,354	11,843
Capital expenditures	41,342	34,558	11,218	6,527	20,523
Financial Position at Year End (in thousands)					
Cash and cash investments	$ 33,392	$ 34,272	$ 25,535	$ 11,666	$ 11,895
Short-term borrowings	6,819	7,265	9,525	4,277	6,490
Working capital	101,368	98,285	75,833	46,583	49,115
Property, plant and equipment, net	108,847	88,040	66,044	69,494	75,430
Long-term debt, including current portion	49,592	51,674	57,199	59,202	59,587
Shareholders' equity	159,390	134,207	86,691	57,798	65,619
Statistics and Key Ratios					
Average common and common equivalent shares	5,228,523	5,224,826	4,877,184	4,385,120	4,385,715
Shares issued at year end	5,161,592	5,106,187	4,979,476	4,387,620	4,387,620
Number of shareholders at year end	12,325	10,464	11,836	14,486	15,795
Shareholders' equity per common share at year end	$30.88	$26.28	$17.41	$13.17	$14.96
Employees at year end	18,092	25,525	18,866	15,144	14,074
Net sales per employee (based on average number of employees)	$17,650	$15,800	$13,200	$13,200	$11,800
Backlog of orders at year end (000's)	$161,000	$265,000	$129,000	$94,000	$83,000
Income (loss) before extraordinary credit as a percent of:					
Net sales	7.0%	7.6%	3.5%	(4.1%)	(8.8%)
Shareholders' equity at year end	17.0%	19.9%	8.9%	(13.6%)	(29.4%)
Current ratio at year end	2.2	2.4	2.6	2.3	2.4
Long-term debt to total capitalization at year end (2)	24%	28%	40%	51%	48%

(1) Stated in accordance with the definition expressed in Summary of Accounting Policies in the financial statements. Amounts expressed include customer reimbursements.

(2) Total capitalization defined as the sum of long-term debt (including current portion) and shareholders' equity.

FAIRCHILD

Fairchild Camera and Instrument Corporation
464 Ellis Street, Mountain View, California 94042