

MERIX CORP

FORM 10-K405 (Annual Report (Regulation S-K, item 405))

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended May 29, 1999

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

Commission file number 0-23818

MERIX CORPORATION

(Exact name of registrant as specified in its charter)

OREGON
(State or other Jurisdiction of
Incorporation or Organization)

93-1135197
(I.R.S. Employer
Identification Number)

1521 Poplar Lane, Forest Grove, Oregon
(Address of principal executive offices)

97116
(Zip Code)

(503) 359-9300
(Registrant's telephone number)

Securities registered pursuant to Section 12(b) of the Act:

None

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, no par value
Series A Preferred Stock Purchase Rights

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to the filing requirements for the past 90 days. Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or in any amendment to this Form 10-K.

The aggregate market value of the voting stock held by non-affiliates of the Registrant as of July 1, 1999 was \$32.3 million based upon the composite closing price of the Registrant's Common Stock on the Nasdaq National Market System on that date.

The number of shares of the Registrant's Common Stock outstanding as of July 1, 1999 was 6,383,571 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement in connection with its 1999 Annual Meeting of Shareholders are incorporated by reference into Part III.

MERIX CORPORATION
FORM 10-K

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PART I

ITEM 1. BUSINESS.

Merix Corporation (Merix or the Company) is a leading manufacturer of advanced printed circuit boards for use in sophisticated electronic equipment. Principal markets served by the Company include the communications, computer, industrial and medical instrumentation segments of the electronics industry.

Merix, an Oregon corporation, was formed in March 1994 to succeed the business conducted by the Circuit Board Division of Tektronix, Inc. (Tektronix). The Company's manufacturing facility and corporate offices are located at 1521 Poplar Lane, Forest Grove, Oregon 97116 and the telephone number is (503) 359-9300.

In fiscal year 1999 the Company completed a restructuring, undertaken to improve capacity utilization and lower the Company's cost structure. Pursuant to the restructuring plan, the Company closed its Loveland, Colorado facility in October 1998 and sold its Soladyne facility in San Diego, California in February 1999. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Report.

Electronic Interconnect Industry Overview

Printed circuits, including rigid and flexible printed circuits, are the basic platforms used to connect the microprocessors, integrated circuits and other components essential to the functioning of electronic equipment. These products consist of patterns of electrical circuitry etched from copper laminate to a board made of insulating material. The manufacture of these and other complex interconnect products requires increasingly sophisticated engineering and manufacturing expertise and substantial capital investment. This has contributed to increasing reliance by original equipment manufacturers (OEMs) on independent manufacturers for such products.

According to industry reports, the U.S. domestic market for all interconnect products was approximately \$8.6 billion in 1998. During the last few years, virtually all domestic printed circuit board manufacturing has been outsourced by OEMs to independent producers, such as the Company. OEMs found that independent producers can often provide greater flexibility, higher levels of responsiveness and faster delivery at a lower overall cost than their own captive operations. Pursuant to the outsourcing strategy, printed circuit board manufacturing operations of captive producers, which were typically divisions of larger OEMs, have been sold to independent producers, spun-off or closed.

Historically, the industry has been highly fragmented. However, the industry is seeing a growing trend towards consolidation among printed circuit board producers. The increasing technology demands and resulting requirement for capital investment, the effects of the recent electronics industry downturn, continuing product pricing pressures intensified by Asian competition and the benefits of achieving economies of scale have all contributed to increased consolidation activity in the industry.

Customers, Marketing and Sales

The Company's customers include a diversified base of leading OEMs in the computer, communications and test and instruments segments of the electronics industry. These customers often use leading-edge technologies and their product requirements generally drive the advancement of electronic interconnect manufacturing technology.

The Company also manufactures and sells products to contract manufacturers which assemble components on the products for resale to OEMs. The Company seeks to expand existing relationships and establish relationships with other customers in the contract manufacturing channel to gain access to more OEM customers.

ITEM 1. BUSINESS. (Continued)

The Company seeks to develop strategic relationships with its customers and markets its products and services through a field-based direct sales force as well as manufacturers' representatives. The Company's applications engineers provide advice to customers with respect to applicable technology, manufacturability of designs and cost implications.

The Company believes continuous improvement in product technology is essential to satisfy customer needs. To gain knowledge of future technology needs and enhance the Company's visibility in the marketplace, the Company holds technology planning and review meetings with its major customers and attends technical conferences and trade shows. Additionally, the Company was recently chosen to participate in the Advanced Embedded Passive Technology Consortium sponsored by the National Center for Manufacturing Sciences.

In fiscal year 1999, five companies represented 67.8% of net sales, with each of those companies representing 20.7%, 15.0%, 13.8%, 10.9% and 7.4% of net sales, respectively. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Report and Note 11 of Notes to Financial Statements in Item 8 of this Report.

The Company generally does not obtain long-term purchase orders or commitments from its customers, and the orders received by the Company usually require delivery within 90 days. However, many of the Company's customers have maintained long-term purchasing relationships with the Company.

Manufacturing and Engineering

Products

The Company's principal products are high-density, multilayer rigid printed circuits manufactured with materials ranging from standard fiberglass to high-performance substrate materials.

The Company manufactures fiberglass-based circuit boards and high-performance circuits. Fiberglass-based circuit boards are used in virtually all segments of the electronics industry. High-performance circuits are used in electronic products requiring high-speed and high-frequency interconnect solutions, such as cellular phone base stations and other communications, computing and instrumentation products. High-performance circuits are manufactured using specialty materials with properties that address the need for faster speeds, higher operating temperatures and higher frequencies. The Company has developed the expertise and specialized engineering processes required to manufacture high-performance circuits using a broad range of materials, including Teflon(R) and GETEK(R).

Manufacturing Processes

The manufacture of complex multilayer printed circuits involves the use of a variety of sophisticated production processes and equipment. In general, the Company receives circuit designs directly from its customers in the form of computer aided design files that it reviews to ensure manufacturability. Using these computer files, the Company generates images of the circuit patterns that it develops on individual layers using advanced photographic processes. Through a variety of plating and etching processes, the Company selectively adds and removes conductive and insulating materials forming horizontal layers of thin traces or circuits. A finished multilayer circuit board sandwiches (or laminates) together a number of layers of circuitry, using intense heat and pressure under vacuum. Vertical connections between layers are achieved by plating through small holes called vias. Vias are made by highly specialized equipment capable of achieving extremely fine tolerances with high accuracy.

The Company specializes in multilayer printed circuits with extremely fine geometries and tolerances. Because of the tolerances involved, the Company uses clean rooms in certain manufacturing processes

ITEM 1. BUSINESS. (Continued)

where tiny particles can create defects on the circuit patterns, and uses automated optical inspection (AOI) to ensure consistent quality.

As OEMs continue to design more sophisticated electronics equipment requiring more complex printed circuits, the average number of layers of circuitry in the printed circuits manufactured by the Company has increased from approximately eight in fiscal year 1998 to 10 in fiscal year 1999. In May 1999, the Company completed a major expansion of its Forest Grove manufacturing capacity, which is expected to support the growing demand for printed circuits with higher layer counts. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Report.

The Company uses total quality management systems to meet the highest industry standards for product quality. The Company is ISO 9000 registered. In May 1996, the Company's Forest Grove facility received the Shingo Prize for Manufacturing Excellence. The Shingo Prize is awarded annually by the National Association of Manufacturers to recognize North American domestic manufacturing companies that demonstrate excellence in manufacturing leading to quality enhancement, productivity improvement, and customer satisfaction.

Supplier Relationships

Historically, the majority of raw materials used to manufacture the Company's products have been readily available. As printed circuit technology increases, the Company expects its use of certain high-performance raw materials to increase. These materials are often produced by a limited number of suppliers. From time to time, the Company has experienced difficulties in obtaining sufficient quantities of these materials. A significant shortage of these materials could have an adverse impact on the Company's sales and profitability. To date, material shortages or price fluctuations have not had a materially adverse effect on the Company.

In order to reduce lead times and inventory carrying costs, to enhance the quality and reliability of the supply of raw materials and to reduce transportation and other logistics costs, the Company has entered into strategic relationships with certain suppliers of laminates, raw materials and services. Matsushita Electronics Materials, a key laminate supplier, operates an 82,000 square foot factory adjacent to the Company's facility to produce standard and high-performance laminates. A second key laminate supplier utilizes an independent warehouse distribution center adjacent to the Company's facility to offer just-in-time delivery of high-performance raw materials. In addition, Probe Test Fixtures, Inc. provides on-site electrical test services at the Company's facility.

The Company strives to develop and maintain good working relationships with its key suppliers to enhance operation of the business. Supplier management programs drive improvements and cost reductions. These programs include, but are not limited to, quarterly review meetings, joint product and process development, and participation in meetings with the Company's key and strategic customers.

Environmental Controls

Electronic interconnect product manufacturing requires the use of a variety of materials, including metals and chemicals. As a result, the Company is subject to environmental laws relating to the storage, use and disposal of chemicals, solid waste, and other hazardous materials, as well as air quality regulations. Water used in the manufacturing process must be treated to remove heavy metals and neutralized before it can be discharged into the municipal sanitary sewer system. The Company operates and maintains effluent water treatment systems and utilizes approved laboratory testing procedures at its manufacturing facility under effluent discharge permits issued by authorized governmental agencies. These permits must be renewed periodically and are subject to revocation in the event of violations of environmental laws.

ITEM 1. BUSINESS. (Continued)

Certain waste materials and byproducts generated by the Company's manufacturing processes are sent to approved third parties for recycling, reclaim, treatment or disposal.

The Company believes that its environmental management complies with environmental protection requirements in all material respects. However, there can be no assurance that violations will not occur in the future. Further, to the extent that environmental laws change, environmental expenditures could increase.

Backlog

The Company's 90 day backlog was approximately \$18.0 million at the end of fiscal year 1999 and \$15.8 million at the end of fiscal year 1998. A substantial portion of the Company's backlog is typically scheduled for delivery within 60 days. Cancellation and postponement charges generally vary depending upon the time of cancellation or postponement, and a significant portion of the Company's backlog is subject to cancellation or postponement without significant penalty. The level and timing of orders placed by the Company's customers vary due to many factors, including customer attempts to manage inventory, timing of new product introductions and variation in demand for customer products. Accordingly, the Company's backlog is not necessarily indicative of future quarterly or annual financial results. The Company typically does not obtain long-term purchase orders or commitments from its customers and a variety of conditions may cause customers to cancel, reduce or delay orders that were previously placed. The Company cannot assure the timely replacement of canceled, delayed or reduced orders.

Competition

Competitive factors in the market for printed circuits include product quality, technological capability, responsiveness to customers in delivery and service, and price. The Company believes its primary competitive strengths are its ability to provide a wide array of high quality, high technology interconnect products with on-time delivery, engineering and manufacturing expertise, and customer service and support.

The printed circuit industry in the United States is highly fragmented. An industry source estimates there are approximately 700 companies producing circuit boards in the United States. According to an industry source, the top 10 merchant suppliers accounted for approximately 37% of total circuit board sales by independent suppliers in 1998. Increasing technology demands and the resulting demands for capital investment are expected to continue to contribute to a growing trend toward consolidation of independent producers.

Additionally, as a result of the economic situation in Asia, many Asian printed circuit companies have turned to the U.S. domestic market as a source of new customers to utilize their excess capacity, particularly in less technologically advanced product segments of the interconnect industry. Historically, Asian printed circuit suppliers have primarily competed in less technologically advanced markets, although they continue to expand their technology to include higher technology printed circuits. The Company's focus continues to be on providing high technology products and processes, and it currently does not expect to encounter direct competition from Asian suppliers in the high technology segment of the printed circuit market in the near future. However, the Company's basic interconnect technology is generally not subject to significant proprietary protection, and companies with significant resources may develop expertise in these higher technology processes and products and compete with the Company. Increased competition could result in price reductions, reduced margins or loss of market share, which could materially adversely affect the Company's business, financial condition and results of operations.

ITEM 1. BUSINESS. (Continued)

Patents and Other Intellectual Property

The Company's success depends in part on certain proprietary technology and manufacturing expertise. While the Company attempts to protect its proprietary technology through patents, copyrights and trade secrets, it believes that its success will depend more upon further innovation and technological advances. Companies in the electronics industry from time to time receive letters from third parties alleging infringement of patent rights and the Company may receive such letters in the future.

Executive Officers

The following table sets forth certain information with respect to the executive officers of the Company.

Name ----	Age ---	Position -----
Deborah A. Coleman	46	Chair and Chief Executive Officer
Mark R. Hollinger	41	President and Chief Operating Officer
Terri L. Timberman	41	Senior Vice President and Chief Administrative Officer
Janie S. Brown	54	Vice President, Chief Financial Officer and Treasurer

Deborah A. Coleman has served as Chair of the Board of Directors and Chief Executive Officer since the inception of the Company. Ms. Coleman also served as President until May 1999. From November 1992 to the inception of the Company, Ms. Coleman served as Vice President, Materials Operations of Tektronix, where she led worldwide procurement, distribution, component engineering and component manufacturing operations. Prior to joining Tektronix, Ms. Coleman held various positions at Apple Computer, Inc. for 11 years, including Chief Financial Officer, Vice President Information Systems & Technology, and Vice President of Operations. Ms. Coleman serves on the Board of Directors of Applied Materials Inc. and Synopsys, Inc.

Mark R. Hollinger has served as President since May 1999 and Chief Operating Officer since August 1998. From September 1997 until August 1998, he served as Senior Vice President - Operations. From October 1994 until joining the Company in September 1997, Mr. Hollinger served as Vice President of Operations at Continental Circuits Corporation. Prior to October 1994, Mr. Hollinger held various manufacturing and management positions at IBM Corporation.

Terri L. Timberman has served as Senior Vice President and Chief Administrative Officer since August 1998. Ms. Timberman served as Vice President - Human Resources from the inception of the Company until August 1998. Ms. Timberman joined the Circuit Board Division of Tektronix, Inc. in February 1994. From 1992 until joining the Company, Ms. Timberman served in various human resource management positions for Tektronix. Prior to 1992, Ms. Timberman served as Director of Human Resources for TriQuint Semiconductor, Inc.

Janie S. Brown has served as Vice President and Chief Financial Officer since August 1998 and Treasurer since September 1997. Ms. Brown served as Corporate Controller from June 1995 until August 1998. From September 1982 until joining the Company, Ms. Brown held various positions, including audit partner, with Deloitte & Touche LLP.

Employees

As of May 29, 1999 the Company had a total of 1,112 employees, of which 927 were regular employees and 185 were temporary agency employees. None of the Company's employees are represented by a labor

ITEM 1. BUSINESS. (Continued)

union. The Company has never experienced an employee-related work stoppage. The Company believes its relationship with its employees is good.

ITEM 2. PROPERTIES

The Company owns a 73-acre industrial land site located in Forest Grove, Oregon on which a 174,000-square-foot manufacturing facility, a 6,300-square-foot waste treatment facility and a 62,500-square-foot administration and training facility are located. In May 1999, the Company completed an expansion of the Forest Grove manufacturing capacity. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Report. Pursuant to a trust deed granted by the Company to Tektronix, the Company's manufacturing and waste treatment facilities are subject to a mortgage securing the Company's obligation to repay a note payable to Tektronix, under which \$2.3 million is currently outstanding. Additionally the Company owns a 37,500-square-foot building approximately one mile from the Forest Grove manufacturing facility. The Company uses approximately 30,000 square feet of this building for manufacturing operations, including electrical testing, final inspection and shipping.

Pursuant to the restructuring plan, the Company closed its Loveland, Colorado facility in October 1998 and sold its Soladyne facility in San Diego, California in February 1999. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Report.

ITEM 3. LEGAL PROCEEDINGS.

There are no material pending legal proceedings.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.

No matters were submitted to a vote of the security holders during the fourth quarter of the fiscal year covered by this Report.

PART II

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON STOCK AND RELATED

STOCKHOLDER MATTERS.

The Company's Common Stock is traded on the Nasdaq National Market System under the symbol MERX. The range of the high and low prices for the Company's Common Stock as reported on the Nasdaq National Market System for the eight most recent fiscal quarters were as follows:

	High	Low
Fiscal year 1999:		
Quarter 4	\$ 7.00	\$ 4.75
Quarter 3	7.00	3.00
Quarter 2	7.13	2.50
Quarter 1	12.38	4.00
Fiscal year 1998:		
Quarter 4	\$ 20.50	\$ 11.62
Quarter 3	16.75	13.62
Quarter 2	19.50	13.75
Quarter 1	18.50	15.75

As of July 1, 1999 there were 129 shareholders of record and approximately 3,400 beneficial shareholders.

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON STOCK AND RELATED STOCKHOLDER MATTERS. (Continued)

The Company has never declared any cash dividends. The Company currently intends to retain all future earnings for use in the Company's business and, accordingly, does not anticipate paying any cash dividends on its Common Stock in the foreseeable future.

ITEM 6. SELECTED FINANCIAL DATA.

	1999	1998	1997	1996	1995
	-----	-----	-----	-----	-----
	(In thousands, except per share data)				
Statement of Operations Data:					
Net sales	\$ 113,982	\$ 178,620	\$ 156,184	\$ 155,634	\$ 101,448
Net (loss) income	(20,681)	2,138	321	12,793	10,564
Basic net (loss) income per share	\$ (3.30)	\$ 0.35	\$ 0.05	\$ 2.10	\$ 1.74
Diluted net (loss) income per share	\$ (3.30)	\$ 0.34	\$ 0.05	\$ 1.98	\$ 1.67
Balance Sheet Data:					
Working capital	\$ 14,322	\$ 40,755	\$ 45,586	\$ 34,841	\$ 34,201
Total assets	109,383	135,168	130,449	111,170	69,597
Long-term debt, less current portion	34,299	40,000	42,390	26,670	6,427
Shareholders' equity	50,326	70,191	67,416	66,353	52,319

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

Results of Operations (Dollars in thousands)

Results of operations information in dollars and as a percentage of net sales are as follows:

	1999	1998	1997	Percentage of Net Sales		
				1999	1998	1997
	-----	-----	-----	-----	-----	-----
Net sales	\$ 113,982	\$ 178,620	\$ 156,184	100.0%	100.0%	100.0%
Cost of sales	110,534	151,100	134,328	97.0	84.6	86.0
Gross profit	3,448	27,520	21,856	3.0	15.4	14.0
Operating expenses:						
Engineering	4,100	5,854	6,013	3.6	3.3	3.9
Selling, general and administrative	9,045	14,266	13,822	7.9	8.0	8.8
Restructuring	21,750	1,878	-	19.1	1.0	-
Total operating expenses	34,895	21,998	19,835	30.6	12.3	12.7
Operating (loss) income	(31,447)	5,522	2,021	(27.6)	3.1	1.3
Interest income	912	1,432	1,380	0.8	0.8	0.9
Interest expense	(2,906)	(3,313)	(3,247)	(2.5)	(1.8)	(2.1)
Other income (expense), net	85	(290)	137	0.1	(0.2)	0.1
(Loss) income before taxes	(33,356)	3,351	291	(29.2)	1.9	0.2
Income tax benefit (expense)	12,675	(1,213)	30	11.1	(0.7)	-
Net (loss) income	\$ (20,681)	\$ 2,138	\$ 321	(18.1)%	1.2%	0.2%
	=====	=====	=====	=====	=====	=====

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(Continued)

Sales by market segments in dollars and as a percent of net sales are as follows:

Market Segments				Percentage of Net Sales		
	1999	1998	1997	1999	1998	1997
Computers	\$ 37,364	\$ 49,880	\$ 42,998	32.8%	27.9%	27.5%
Communications	43,186	46,735	32,406	37.9	26.2	20.7
Test and Instruments	28,912	75,247	54,263	25.4	42.1	34.8
Contract Manufacturers (a)	-	-	23,134	-	-	14.8
Other	4,520	6,758	3,383	3.9	3.8	2.2
Total	\$ 113,982	\$ 178,620	\$ 156,184	100.0%	100.0%	100.0%

(a) Amounts shown in the table as sales to contract manufacturers in fiscal year 1997 represent sales to those contract manufacturers. Sales to contract manufacturers in fiscal years 1999 and 1998 are reflected in sales to the original equipment manufacturer (OEM) served by the contract manufacturer. Sales through the contract manufacturing channel were \$35,617 and \$42,413 in fiscal years 1999 and 1998, respectively.

Comparison of Fiscal Years 1999 and 1998 (Dollars in thousands)

Fiscal Year. The Company's fiscal year is the 52 or 53-week period ending the last Saturday in May. Fiscal year 1999 and 1998 were 52-week years.

Net Sales. Net sales for fiscal year 1999 were \$113,982 compared to \$178,620 in fiscal year 1998. Net sales decreased as a result of lower unit sales and lower average selling prices which resulted from a general electronics industry downturn, pricing pressures in the printed circuit industry, excess customer inventories, the closure of the Loveland manufacturing facility in October 1998 and the sale of the Soladyne manufacturing facility in February 1999. See Note 2 of Notes to Financial Statements in Item 8 of this Report and "Restructuring" below.

The Company's five largest customers comprised 67.8% and 75.1% of total sales in fiscal years 1999 and 1998, respectively. See Note 11 of Notes to Financial Statements in Item 8 of this Report. The Company continues to focus on additional diversification of its customer base, and is achieving its objectives with regard to increasing sales in the high-end computing and communications market segments and decreasing sales of lower margin products in the test and measurement market segment. However, the loss of one or more principal customers or a change in the mix of product sales could have a material adverse effect on the Company's business, financial condition and results of operations. See "Business-Backlog" in Item 1 of this Report.

Net sales at the Forest Grove manufacturing facility increased throughout the last three quarters of fiscal year 1999. The Company attributes these increases to its continued efforts to penetrate new customers and new programs, a return of demand from its existing customers and increasing sales in the high-end computing and communications market segments. The Company's expansion of its Forest Grove manufacturing capacity was substantially complete at the end of fiscal year 1999. During the remainder of calendar year 1999, the Company will install manufacturing equipment transferred from the closed Loveland facility. Completion of the expansion project and installation of the Loveland equipment will add capacity and will position the Company to take advantage of increasing customer demand. However, future profitability and the ability to utilize added manufacturing capacity in an effective manner will be

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(Continued)

dependent upon the Company's ability to increase sales to existing and new customers. The failure to successfully utilize additional manufacturing capacity could adversely affect the Company's business, financial condition and results of operations.

During periods of slowdown in the electronics industry, the Company's customers are more price sensitive, which has had, and could continue to have, an adverse effect on interconnect pricing. While the Company's pricing stabilized during the last half of fiscal year 1999, the Company expects pricing pressures to continue. Additionally, as a result of the economic situation in Asia, many Asian printed circuit companies have turned to the U.S. domestic market as a source of new customers to utilize their excess capacity. See "Business-Competition" in Item 1 of this Report.

Gross Margins. The Company's gross margin was 3.0% in fiscal year 1999 and 15.4% in fiscal year 1998. The decrease in gross margin in fiscal year 1999 was attributable to lower capacity utilization, lower product pricing, and the effect of the net write-down of inventory related to the fiscal year 1999 restructuring charge. See Note 2 of Notes to Financial Statements in Item 8 of this Report and "Restructuring" below. The Company's gross margins are affected by various factors, including capacity utilization, product mix, production yields, price changes and changes in the Company's cost structure.

Gross profit began to improve in the last half of fiscal year 1999, primarily as a result of increased sales of higher margin products, increased capacity utilization of the Forest Grove manufacturing facility, lower costs as a result of the restructuring, and other cost reduction actions. The Company expects its gross margin will improve in fiscal year 2000 depending on a variety of factors which cannot be predicted with certainty, including, but not limited to, receipt and timing of orders for products, mix of products sold, product pricing and ability to utilize manufacturing capacity effectively.

Engineering. Engineering expenses were \$4,100 and \$5,854 in fiscal years 1999 and 1998, respectively, and were 3.6% and 3.3% of sales, respectively. These expenses decreased due to reduced headcount, cost controls and the capitalization of labor. The Company capitalized approximately \$650 of dedicated engineering labor related to the Forest Grove expansion project in fiscal year 1999.

Selling, General and Administrative. Selling, general and administrative expenses were \$9,045 and \$14,266 in fiscal years 1999 and 1998, respectively, and were 7.9% and 8.0% of net sales, respectively. These expenses decreased due to reduced headcount resulting from the restructurings, cost controls and reduced selling expenses as a result of a lower level of sales. See Note 2 of Notes to Financial Statements and "Restructuring" below.

Restructuring. In the first quarter of fiscal year 1999, the Company announced a restructuring plan, undertaken to improve capacity utilization and lower the Company's cost structure. Pursuant to the restructuring plan, the Company closed its Loveland, Colorado facility, reduced approximately 35 employees from administrative, engineering and support functions at its Forest Grove, Oregon location and sold its Soladyne facility in San Diego, California. The Soladyne facility was sold in February 1999. Closure of the Loveland facility was completed in October 1998 and resulted in the layoff of approximately 340 manufacturing and support employees. The Company transferred a portion of the Loveland production and manufacturing equipment used in the Loveland facility to the Forest Grove site, the installation of which is expected to be completed by the end of the second quarter of fiscal year 2000.

In the third quarter of fiscal year 1999, the Company reversed \$7,109 of the restructuring charge taken in the first quarter of the year. The reversal was the result of a favorable termination of the Loveland facility lease, higher than estimated proceeds from the sale of excess equipment and the sale of the Soladyne facility.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(Continued)

The components of the restructuring charge, along with the reversal, were as follows:

	Restructuring Charge	Reversal	Adjusted Restructuring Charge
	-----	-----	-----
Non-cash charges:			
Write-down and write-off of manufacturing equipment	\$ 15,672	\$ (2,826)	\$ 12,846
Write-off of goodwill and intangible assets	3,952	-	3,952
	-----	-----	-----
	19,624	(2,826)	16,798
Cash charges:			
Severance benefits	2,801	(372)	2,429
Lease termination costs	4,758	(3,059)	1,699
Other costs	696	128	824
	-----	-----	-----
	8,255	(3,303)	4,952
	-----	-----	-----
Total restructuring expense	\$ 27,879	\$ (6,129)	\$ 21,750
	=====	=====	=====
Write-off of inventory, included in cost of sales	\$ 2,118	\$ (980)	\$ 1,138
	=====	=====	=====

Cash proceeds from asset sales of \$4,770 are included in the amounts shown above for write-down and write-off of manufacturing equipment and inventory. All cash payments for severance benefits, lease termination costs and other costs related to the restructuring charge were paid in fiscal year 1999. At May 29, 1999, there were no outstanding liabilities associated with the restructuring plan.

In the second quarter of fiscal year 1998, the Company recorded a \$1,878 charge for the costs associated with a restructuring plan undertaken to improve the Company's profitability, which included a work force reduction, the write-off of certain manufacturing equipment and other miscellaneous costs. All liabilities associated with the restructuring plan were paid in the third quarter of fiscal year 1998.

Interest Income. Interest income was \$912 and \$1,432 in fiscal years 1999 and 1998, respectively. Interest income decreased primarily as a result of a lower level of cash, cash equivalents and short term investments during fiscal year 1999.

Interest Expense. Interest expense was \$2,906 and \$3,313 in fiscal years 1999 and 1998, respectively. The decrease in fiscal year 1999 was primarily due to the capitalization of interest related to the Forest Grove expansion project of approximately \$450 in fiscal year 1999.

Income Taxes. The Company's effective tax rate was approximately (38)% in fiscal year 1999 compared to 36% in 1998. The increase in the effective rate for fiscal year 1999 was due to the reduction in the 1998 Oregon state statutory rate resulting from the refunding of excess income taxes collected in prior years. The Company expects its effective tax rate for fiscal year 2000 will approximate 39%.

Comparison of Fiscal Years 1998 and 1997 (Dollars in thousands)

Fiscal Year. The Company's fiscal year is the 52 or 53-week period ending the last Saturday in May. Fiscal year 1998 was a 52-week year, fiscal year 1997 was a 53-week year.

Net Sales. Net sales for fiscal year 1998 were \$178,620 compared to \$156,184 in fiscal year 1997. The increase in sales was primarily attributable to a higher level of demand for the Company's products and an improvement in the product mix, including increased sales of higher layer count, higher priced products.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(Continued)

A general slow-down in the electronics industry and excess capacity in the domestic printed circuit industry negatively impacted the level and pricing of customer orders in the Company's fourth quarter ended May 30, 1998. Net sales were \$41,074 in the fourth quarter of fiscal 1998 compared to \$46,416 in the third quarter of fiscal 1998 and \$43,285 in the fourth quarter of fiscal 1997.

During the first three quarters of fiscal year 1998, manufacturing constraints limited the capacity available to meet the production needs of the Company's current and new customers. In response, in December 1997, the Company announced plans for a major expansion of its Forest Grove manufacturing capacity, expected to cost approximately \$21,000.

The Company's five largest customers comprised 75.1% and 73.6% of net sales for fiscal years 1998 and 1997, respectively.

Gross Margins. The Company's gross margin was 15.4% in fiscal year 1998, compared with 14.0% in fiscal year 1997. The improvement in gross margin was attributable to a higher sales volume, improved product pricing, improved product mix, reduced materials costs and cost reductions resulting from the restructuring which occurred in the second quarter of fiscal year 1998. The Company's gross margins are affected by various factors, including sales volumes, product mix, production yields, price changes and changes in the Company's cost structure.

Restructuring. Results of operations for fiscal year 1998 included a \$1,878 charge for the costs associated with a restructuring plan, announced in the second quarter of fiscal year 1998, undertaken to improve the Company's profitability.

The restructuring plan consisted of a work force reduction in the support and administrative functions, the write-down of certain manufacturing equipment, and other miscellaneous costs. The charge for the work force reduction of approximately \$700 included the reduction of 85 positions in the Company's support and administrative functions, including purchasing, materials, administration and computer automated tooling. No direct manufacturing jobs were eliminated. As of May 30, 1998, all outstanding liabilities associated with the workforce reduction had been paid. In connection with the restructuring plan, the Company analyzed its manufacturing equipment based on Statement of Financial Accounting Standards No. 121 "Accounting for the Impairment of Long-lived Assets and For Long-lived Assets To Be Disposed Of", and based on that analysis, recorded a non-cash charge for the write-off of approximately \$1,100 of manufacturing equipment located primarily at the Company's Loveland, Colorado facility.

Engineering. Engineering expenses were \$5,854 and \$6,013, respectively, and were 3.3% and 3.9% of net sales, respectively, in fiscal years 1998 and 1997.

Selling, General and Administrative. Selling, general and administrative expenses were \$14,266 and \$13,822 in fiscal years 1998 and 1997, respectively, and were 8.0% and 8.8% of net sales, respectively. Selling, general and administrative expenses have increased principally as a result of increased sales and marketing personnel, and costs associated with the reorganization and relocation of the Company's sales force.

Interest Income. Interest income remained relatively constant at \$1,432 and \$1,380 in fiscal years 1998 and 1997, respectively.

Interest Expense. Interest expense was \$3,313 and \$3,247 in fiscal years 1998 and 1997, respectively. The increase in fiscal year 1998 was principally due to a full year of interest expense related to the issuance of \$40,000 in senior notes in September 1996.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.
(Continued)

Income Taxes. The Company's effective tax rate was approximately 36% in fiscal year 1998 compared to (10)% in 1997. In fiscal year 1997, the Company had lower pretax income and higher tax exempt interest income in relation to such pretax income.

Liquidity and Capital Resources (Dollars in thousands)

Cash, cash equivalents and short-term investments at May 29, 1999 were \$13,381, compared to \$22,899 at May 30, 1998. Working capital decreased to \$14,322 at May 29, 1999 from \$40,755 at May 30, 1998, primarily as a result of decreases in cash and cash equivalents, accounts receivable, inventories and an \$8,000 reclassification of long-term debt to current liabilities to reflect payments due in fiscal year 2000.

Cash provided by operating activities in fiscal year 1999 was \$4,091, which primarily consisted of a net loss for the period, adjustments for depreciation and amortization, and an increase in deferred income taxes, primarily offset by the net restructuring charge, a decrease in accounts receivable and inventories. Deferred income taxes increased as a result of the net loss in the period, and accounts receivable and inventories decreased as a result of the lower level of sales in the period.

Cash used in investing activities in fiscal year 1999 was \$11,415, primarily consisting of \$15,914 in capital expenditures principally for manufacturing equipment, offset by \$4,537 of proceeds from the sale of assets. At May 29, 1999, the Company had capital commitments of approximately \$2,560.

Cash used in financing activities in fiscal year 1999 was \$2,232, which primarily consisted of payment of long-term debt.

The Company has a secured note payable to Tektronix, Inc. with \$2,299 outstanding at May 29, 1999. The note bears interest at 7.5% and was originally due in May 1999. In March 1999, the note was amended to defer the payment of the outstanding balance as follows: \$1,149 payable in June 2000 and \$1,150 payable in June 2001. All other terms of the note remain unchanged.

The Company has \$40,000 outstanding under a private placement of senior unsecured notes with two insurance companies, with interest payable semi-annually at 7.92%. On May 28, 1999 the notes, which originally provided for annual principal payments of \$8,000, were amended to provide for semi-annual principal payments of \$4,000 commencing in September 1999 with a final principal payment of \$8,000 payable in September 2003. Additionally, the notes were amended to omit the minimum net worth and interest coverage covenants until the fiscal quarter ending August 28, 1999, at which time minimum net worth and interest coverage covenants will be required to be met on a fiscal quarterly basis. As of May 29, 1999, the Company was in compliance with all covenants.

In July 1999, the Company obtained a commitment for an equipment lease line, which allows for the lease of up to \$5,000 of manufacturing equipment. The commitment expires on May 31, 2000. No amounts are currently outstanding under the equipment lease line.

The Company believes that its existing capital resources and cash generated from operations should be sufficient to meet its working capital and capital expenditure requirements during its 2000 fiscal year. To the extent necessary, the Company may also satisfy capital requirements through additional bank borrowings and equipment leases if such resources are available on satisfactory terms.

Year 2000 Disclosure

The Company has developed a program to perform assessment and remediation of its computer software programs and operating systems, including applications used in its financial, shop-floor control and manufacturing equipment control systems, to determine their readiness for the Year 2000 (the