UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended January 29, 2023

OR

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

For the transition period from ___ to ___

Commission file number 0-15451

PHOTRONICS

PHOTRONICS, INC.

(Exact name of registrant as specified in its charter)

Connecticut	**06-0854886**
(State or other jurisdiction of incorporation or organization)	*(IRS Employer Identification No.)*
15 Secor Road, Brookfield, Connecticut	**06804**
(Address of principal executive offices)	*(Zip Code)*
Registrant's telephone number, including area code	**(203) 775-9000**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
COMMON	PLAB	NASDAQ Global Select Market

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 periods that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ **No** ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ☒ **No** ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated Filer	☒	Accelerated Filer	☐	Non-Accelerated Filer	☐	Smaller Reporting Company	☐	Emerging Growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes ☐ No ☒

The registrant had 62,474,604 shares of common stock outstanding as of March 2, 2023.

PHOTRONICS, INC.
QUARTERLY REPORT ON FORM 10-Q
January 29, 2023

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Glossary of Terms and Acronyms

Definitions of certain terms and acronyms that may appear in this report are provided below.

AMOLED	Active-matrix organic light-emitting diode. A technology used in mobile devices.
Application-specific IC	An integrated circuit customized for a particular use, rather than intended for general-purpose use
ASC	Accounting Standards Codification
ASP	Average Selling Price
ASU	Accounting Standards Update
Chip stacking	Placement of an integrated circuit on top of another integrated circuit, resulting in the reduction of the distance between the chips in a circuit board
COVID-19	Covid virus 2019, an infectious disease that was declared a pandemic by the World Health Organization in March 2020
DNP	Dai Nippon Printing Co., Ltd.
EUV	A wafer lithography technology using the industry standard extreme ultraviolet (EUV) wavelength. EUV photomasks function by selectively reflecting or blocking light, in contrast to conventional photomasks which function by selectively transmitting or blocking light
Exchange Act	The Securities Exchange Act of 1934 (as amended)
FASB	Financial Accounting Standards Board
Form 10-K	Annual Report on Form 10-K
Form 10-Q	Quarterly Report on Form 10-Q
FPDs	Flat-panel displays, or “displays”
Generation	In reference to flat-panel displays, refers to the size range of the underlying substrate to which a photomask is applied. Higher generation (or “G”) numbers represent larger substrates
High-end (photomasks)	For IC, photomasks that are 28nm or smaller; for FPD, AMOLED, G10.5+, and LTPS photomasks
ICs	Integrated circuits, or semiconductors
LIBOR	London Inter-Bank Offered Rate
LTPS	Low-Temperature Poly Silicon, a polycrystalline silicon synthesized at relatively low temperatures; polycrystalline silicon in thin-film transistors (TFTs) are used in liquid-crystal display (LCD) flat panels and to drive organic light-emitting diode (OLED) displays
MLA	Master Lease Agreement
Optical proximity correction	A photolithography enhancement technique applied to compensate for the limitations of light to maintain the edge placement integrity of an original design, imaged onto a silicon wafer, for further processing to an etched pattern.
PDMCX	Xiamen American Japan Photronics Mask Co., Ltd., a joint venture of Photronics and DNP
Phase-shift photomasks	Photomasks that take advantage of the interference generated by phase differences to improve image resolution in photolithography
Pure-play foundry	A company that does not produce a significant volume of IC products of its own design, but rather operates IC fabrication plants dedicated to producing ICs for other companies
RMB	Chinese renminbi
ROU (assets)	Right-of-use asset
SEC	Securities and Exchange Commission
Securities Act	The Securities Act of 1933 (as amended)
Sputtering	The bombardment of a material with energetic particles to cause microscopic particles of the material to eject from its surface.
U.S. GAAP	Accounting principles generally accepted in the United States of America
Wafer	A wafer, or silicon wafer, is a thin slice of semiconductor material that, in the fabrication of microelectronics, serves as the substrate for microelectronic devices built in and upon the wafer

Forward-Looking Statements

This Form 10-Q contains forward-looking statements, as defined by the SEC. The Private Securities Litigation Reform Act of 1995 provides a “safe harbor” for forward-looking statements made by us, or on our behalf. Forward-looking statements are statements other than statements of historical fact, including, without limitation, those statements that include such words as “anticipates”, “believes”, “estimates”, “expects”, “intends”, “may”, “plans”, “predicts”, and similar expressions, and, without limitation, may address our future plans, objectives, goals, strategies, events, or performance, as well as underlying assumptions and other statements that are other than statements of historical facts. On occasion, in other documents filed with the SEC, press releases, conferences, or by other means, we may discuss, publish, disseminate, or otherwise make available, forward-looking statements, including statements contained within Part I, Item 2 – “Management’s Discussion & Analysis of Financial Condition and Results of Operations” of this Form 10-Q.

Forward-looking statements involve risks and uncertainties, which could cause actual results or outcomes to differ materially from those expressed. Our expectations, beliefs, and projections are expressed in good faith and are believed by us to have a reasonable basis, including, without limitation, management’s examination of historical operating trends, information contained in our records, and information we’ve obtained from other parties. However, we can offer no assurance that our expectations, beliefs, or projections will be realized, accomplished, or achieved.

Forward-looking statements within this Form 10-Q speak only as of the date of its filing, and we undertake no obligation to update any such statements to reflect changes in events or circumstances that may subsequently occur. Users of this Form 10-Q are cautioned that various factors may cause actual results to differ materially from those contained in any forward-looking statements found within this Form 10-Q and that they should not place undue reliance on any forward-looking statement. In addition, all forward-looking statements, whether written or oral and whether made by us or on our behalf, are expressly qualified by the risk factors provided in Part I, Item 1A “Risk Factors” of our Form 10-K, as well as any additional risk factors we may provide in Part II, Item 1A of our Quarterly Reports on Form 10-Q.

PART I. FINANCIAL INFORMATION

Item 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

PHOTRONICS, INC.
Condensed Consolidated Balance Sheets
(in thousands, except per share amounts)
(unaudited)

	January 29, 2023	October 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 334,792	$ 319,680
Short-term investments	39,199	38,820
Accounts receivable, net of allowance of $1,116 in 2023 and $1,002 in 2022	220,692	198,147
Inventories	52,796	50,753
Other current assets	53,337	37,252
Total current assets	700,816	644,652
Property, plant and equipment, net	710,927	643,873
Deferred income taxes	21,922	19,816
Other assets	8,015	7,489
Total assets	$ 1,441,680	$ 1,315,830
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of long-term debt	$ 6,541	$ 10,024
Accounts payable	84,818	79,566
Accrued liabilities	107,972	104,207
Total current liabilities	199,331	193,797
Long-term debt	27,323	32,310
Other liabilities	32,306	27,634
Total liabilities	258,960	253,741
Commitments and contingencies		
Equity:		
Preferred stock, $0.01 par value, 2,000 shares authorized, none issued and outstanding	-	-
Common stock, $0.01 par value, 150,000 shares authorized, 61,102 shares issued and outstanding at January 29, 2023, and 60,791 shares issued and outstanding at October 31, 2022	611	608
Additional paid-in capital	494,954	493,741
Retained earnings	449,620	435,634
Accumulated other comprehensive loss	(24,420)	(98,456)
Total Photronics, Inc. shareholders’ equity	920,765	831,527
Noncontrolling interests	261,955	230,562
Total equity	1,182,720	1,062,089
Total liabilities and equity	$ 1,441,680	$ 1,315,830

See accompanying notes to condensed consolidated financial statements.

PHOTRONICS, INC.
Condensed Consolidated Statements of Income
(in thousands, except per share amounts)
(unaudited)

	Three Months Ended	
	January 29, 2023	January 30, 2022
Revenue	$ 211,090	$ 189,827
Cost of goods sold	135,013	129,964
Gross profit	76,077	59,863
Operating expenses:		
Selling, general, and administrative	16,818	15,727
Research and development	3,302	5,939
Total operating expenses	20,120	21,666
Operating income	55,957	38,197
Other income (expense):		
Foreign currency transactions impact, net	(16,944)	5,268
Interest income and other income, net	2,584	334
Interest expense	(65)	(895)
Income before income tax provision	41,532	42,904
Income tax provision	12,582	11,178
Net income	28,950	31,726
Net income attributable to noncontrolling interests	14,964	8,662
Net income attributable to Photronics, Inc. shareholders	$ 13,986	$ 23,064
Earnings per share:		
Basic	$ 0.23	$ 0.38
Diluted	$ 0.23	$ 0.38
Weighted-average number of common shares outstanding:		
Basic	60,894	60,158
Diluted	61,470	60,936

See accompanying notes to condensed consolidated financial statements.

PHOTRONICS, INC.
Condensed Consolidated Statements of Comprehensive Income
(in thousands)
(unaudited)

	Three Months Ended	
	January 29, 2023	January 30, 2022
Net income	$ 28,950	$ 31,726
Other comprehensive (loss) income, net of tax of $0:		
Foreign currency translation adjustments	90,519	(9,831)
Other	(54)	37
Net other comprehensive (loss) income	90,465	(9,794)
Comprehensive income	119,415	21,932
Less: comprehensive income attributable to noncontrolling interests	31,393	8,874
Comprehensive income attributable to Photronics, Inc. shareholders	$ 88,022	$ 13,058

See accompanying notes to condensed consolidated financial statements.

PHOTRONICS, INC.
Condensed Consolidated Statements of Equity
(in thousands)
(unaudited)

	Three Months Ended January 29, 2023							
	Photronics, Inc. Shareholders							
	Common Stock		Additional Paid-in Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interests	Total Equity
	Shares	Amount						
Balance at October 31, 2022	60,791	$ 608	$ 493,741	$ 435,634	$ -	$ (98,456)	$ 230,562	$ 1,062,089
Net income	-	-	-	13,986	-	-	14,964	28,950
Other comprehensive income	-	-	-	-	-	74,036	16,429	90,465
Shares issued under equity plans	311	3	(608)	-	-	-	-	(605)
Share-based compensation expense	-	-	1,821	-	-	-	-	1,821
Balance at January 29, 2023	61,102	$ 611	$ 494,954	$ 449,620	$ -	$ (24,420)	$ 261,955	$ 1,182,720

	Three Months Ended January 30, 2022							
	Photronics, Inc. Shareholders							
	Common Stock		Additional Paid-in Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interests	Total Equity
	Shares	Amount						
Balance at October 31, 2021	60,024	$ 600	$ 484,672	$ 317,849	$ -	$ 20,571	$ 176,870	$ 1,000,562
Net income	-	-	-	23,064	-	-	8,662	31,726
Other comprehensive (loss) income	-	-	-	-	-	(10,006)	212	(9,794)
Shares issued under equity plans	728	7	2,733	-	-	-	-	2,740
Share-based compensation expense	-	-	1,457	-	-	-	-	1,457
Contribution from noncontrolling interest	-	-	-	-	-	-	14,997	14,997
Purchase of treasury stock	-	-	-	-	(2,522)	-	-	(2,522)
Retirement of treasury stock	(188)	(1)	(1,520)	(1,001)	2,522	-	-	-
Balance at January 30, 2022	60,564	$ 606	$ 487,342	$ 339,912	$ -	$ 10,565	$ 200,741	$ 1,039,166

See accompanying notes to condensed consolidated financial statements.

PHOTRONICS, INC.
Condensed Consolidated Statements of Cash Flows
(in thousands)
(unaudited)

	Three Months Ended	
	January 29, 2023	January 30, 2022
Cash flows from operating activities:		
Net income	$ 28,950	$ 31,726
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	19,105	20,810
Share-based compensation	1,821	1,457
Changes in assets and liabilities:		
Accounts receivable	(7,565)	3,269
Inventories	1,705	(7,020)
Other current assets	(13,060)	(6,730)
Accounts payable, accrued liabilities, and other	(3,276)	15,618
Net cash provided by operating activities	27,680	59,130
Cash flows from investing activities:		
Purchases of property, plant and equipment	(31,097)	(19,175)
Government incentives	1,014	-
Other	(87)	(43)
Net cash used in investing activities	(30,170)	(19,218)
Cash flows from financing activities:		
Repayments of debt	(9,218)	(15,192)
Purchases of treasury stock	-	(2,522)
Contribution from noncontrolling interest	-	14,997
Proceeds from share-based arrangements	672	3,840
Net settlements of restricted stock awards	(1,168)	(1,458)
Net cash used in financing activities	(9,714)	(335)
Effects of exchange rate changes on cash, cash equivalents, and restricted cash	27,499	(2,057)
Net increase in cash, cash equivalents, and restricted cash	15,295	37,520
Cash, cash equivalents, and restricted cash at beginning of period	322,409	279,680
Cash, cash equivalents, and restricted cash at end of period	337,704	317,200
Less: Ending restricted cash	2,912	3,005
Cash and cash equivalents at end of period	$ 334,792	$ 314,195
Supplemental disclosure of non-cash information:		
Accruals for property, plant and equipment purchased during the period	$ 12,031	$ 7,092

See accompanying notes to condensed consolidated financial statements.

PHOTRONICS, INC.
Notes to Condensed Consolidated Financial Statements
(unaudited)
(in thousands, except share amounts and per share data)

NOTE 1 - BASIS OF FINANCIAL STATEMENT PRESENTATION

Photronics, Inc. ("Photronics", "the Company", "we", "our", or "us") is one of the world's leading manufacturers of photomasks, which are high-precision photographic quartz or glass plates containing microscopic images of electronic circuits. Photomasks are a key element in the manufacture of ICs and FPDs and are used as masters to transfer circuit patterns onto semiconductor wafers and FPD substrates during the fabrication of ICs, a variety of FPDs and, to a lesser extent, other types of electrical and optical components. We operate eleven manufacturing facilities, which are located in Taiwan (3), Korea, China (2), the United States (3), and Europe (2).

The accompanying unaudited condensed consolidated financial statements ("the financial statements") have been prepared in accordance with U.S. GAAP for interim financial information, and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for annual financial statements. In the opinion of management, adjustments, all of which are of a normal recurring nature, considered necessary for a fair presentation have been included. The financial statements include the accounts of Photronics, its wholly owned subsidiaries, and the majority-owned subsidiaries which it controls. All intercompany balances and transactions have been eliminated in consolidation. These financial statements should be read in conjunction with the consolidated financial statements and accompanying notes included in our Form 10-K for the fiscal year ended October 31, 2022, where we discuss and provide additional information about our accounting policies and the methods and assumptions used in our estimates.

The preparation of financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect amounts reported in them. Our estimates, including those on the impact of COVID-19, are based on historical experience and on various assumptions that we believe to be reasonable under the facts and circumstances at the time they are made. Subsequent actual results may differ from such estimates. We review these estimates periodically and reflect any effects of revisions in the period in which they are determined.

Our business is typically impacted during the first quarter of our fiscal year by the North American, European, and Asian holiday periods, as some customers reduce their development and buying activities during this period. Operating results for the interim periods are not necessarily indicative of the results that may be expected for the fiscal year ending October 31, 2023.

NOTE 2 – SHORT-TERM INVESTMENTS

Short-term investments consist of U.S. government securities and are classified as available-for-sale. We classify available-for-sale securities on our consolidated balance sheet as follows:

-	Maturing within three months or less from the date of purchase	Cash and cash equivalents
-	Maturing, as of the date of purchase, more than three months, but with remaining maturities of less than one year, from the balance sheet date	Short-term investments
-	Maturing one year or more from the balance sheet date	Long-term marketable investments

As of January 29, 2023, all of our available-for-sale securities had, at their dates of purchase, remaining maturities of more than three months, but less than one year, and have been classified as Short-term investments.

Available-for-sale debt investments are reported at fair value, with unrealized gains or losses (net of tax) reported in Accumulated other comprehensive income. The fair values of our available-for-sale securities are Level 1 measurements, based on quoted prices from active markets for identical assets. In the event of a sale of an available-for-sale debt investment, we would determine the cost of the investment sold at the specific individual security level, and would include any gain or loss in Interest income and other income, net, where we also report periodic interest earned and the amortization (accretion) of discounts (premiums) related to these investments. The table below provides information on our available-for-sale debt securities.

	January 29, 2023				October 31, 2022			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Carrying Value	Amortized Cost	Unrealized Gains	Unrealized Losses	Carrying Value
Government securities	$ 39,280	$ -	$ (81)	$ 39,199	$ 38,911	$ -	$ (91)	$ 38,820

NOTE 3 - INVENTORIES

Inventories are stated at the lower of cost, determined under the first-in, first-out ("FIFO") method, or net realizable value. Presented below are the components of *Inventories* at the balance sheet dates.

	January 29, 2023	October 31, 2022
Raw materials	$ 51,160	$ 49,326
Work in process	1,593	1,408
Finished goods	43	19
	$ 52,796	$ 50,753

NOTE 4 - PROPERTY, PLANT, AND EQUIPMENT, NET

Presented below are the components of *Property, plant, and equipment, net* at the balance sheet dates.

	January 29, 2023	October 31, 2022
Land	$ 11,971	$ 11,134
Buildings and improvements	178,095	168,024
Machinery and equipment	1,909,200	1,769,478
Leasehold improvements	20,144	18,802
Furniture, fixtures, and office equipment	15,526	14,355
Construction in progress	115,190	90,846
	2,250,126	2,072,639
Accumulated depreciation and amortization	(1,539,199)	(1,428,766)
	$ 710,927	$ 643,873

Information on ROU assets resulting from finance leases, at the balance sheet dates, is presented below.

	January 29, 2023	October 31, 2022
Machinery and equipment	$ 42,822	$ 42,760
Accumulated amortization	(5,491)	(4,784)
	$ 37,331	$ 37,976

The following table presents depreciation expense (including the amortization of ROU assets) related to property, plant, and equipment incurred during the reporting periods.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Depreciation Expense	$ 19,028	$ 20,723

NOTE 5 - PDMCX JOINT VENTURE

In January 2018, Photronics, Inc., through its wholly owned Singapore subsidiary (hereinafter, within this Note “we”, “Photronics”, “us”, or “our”), and DNP, through its wholly owned subsidiary “DNP Asia Pacific PTE, Ltd.”, entered into a joint venture under which DNP obtained a 49.99% interest in our IC business in Xiamen, China. The joint venture, which we refer to as “PDMCX”, was established to develop and manufacture photomasks for semiconductors. We entered into this joint venture to enable us to compete more effectively for the merchant photomask business in China, and to benefit from the additional resources and investment that DNP provides to enable us to offer advanced-process technology to our customers.

In 2020, in combination with local financing obtained by PDMCX, Photronics and DNP fulfilled their investment obligations under the PDMCX operating agreement (“the Agreement”). As discussed in Note 6, liens were granted to the local financing entity on property, plant, and equipment with a January 29, 2023, and October 31, 2022, total carrying value of $74.0 million and $70.7 million, respectively, as collateral for the loans.

Under the Agreement, DNP is afforded, under certain circumstances, the right to put its interest in PDMCX to Photronics. These circumstances include disputes regarding the strategic direction of PDMCX that may arise after the initial two-year term of the Agreement and cannot be resolved between the two parties. As of the date of issuance of these financial statements, DNP had not indicated its intention to exercise this right. In addition, both Photronics and DNP have the option to purchase, or put, their interest from, or to, the other party, should their ownership interest fall below twenty percent for a period of more than six consecutive months. Under all such circumstances, the sales of ownership interests would be at the exiting party’s ownership percentage of the joint venture’s net book value, with closing to take place within three business days of obtaining required approvals and clearance.

The following table presents net income we recorded from the operations of PDMCX during the reporting periods.

	Three Months Ended	
	January 29, 2023	**January 30, 2022**
Net income from PDMCX	$ 5,918	$ 1,877

As required by the guidance in Topic 810 - “Consolidation” of the Accounting Standards Codification (“ASC”), we evaluated our involvement in PDMCX for the purpose of determining whether we should consolidate its results in our financial statements. The initial step of our evaluation was to determine whether PDMCX was a variable interest entity (“VIE”). Due to its lack of sufficient equity at risk to finance its activities without additional subordinated financial support, we determined that it was a VIE. Having made this determination, we then assessed whether we were the primary beneficiary of the VIE and concluded that we were the primary beneficiary during the current and prior year reporting periods; thus, as required, the PDMCX financial results have been consolidated with Photronics. Our conclusion was based on the facts that we held a controlling financial interest in PDMCX (which resulted from our having the power to direct the activities that most significantly impacted its economic performance) and had the obligation to absorb losses and the right to receive benefits that could potentially be significant to PDMCX. Our conclusions that we had the power to direct the activities that most significantly affected the economic performance of PDMCX during the current and prior year reporting periods were based on our right to appoint the majority of its board of directors, which has, among others, the powers to manage the business (through its rights to appoint and evaluate PDMCX’s management), incur indebtedness, enter into agreements and commitments, and acquire and dispose of PDMCX’s assets. In addition, as a result of the 50.01% variable interest we held during the current and prior year periods, we had the obligation to absorb losses, and the right to receive benefits, that could potentially be significant to PDMCX.

The following table presents the carrying amounts of PDMCX assets and liabilities included in our condensed consolidated balance sheets. General creditors of PDMCX do not have recourse to the assets of Photronics (other than the net assets of PDMCX); therefore, our maximum exposure to loss from PDMCX is our interest in the carrying amount of the net assets of the joint venture.

	January 29, 2023		October 31, 2022	
Classification	**Carrying Amount**	**Photronics Interest**	**Carrying Amount**	**Photronics Interest**
Current assets	$ 119,928	$ 59,976	$ 127,542	$ 63,784
Noncurrent assets	150,365	75,198	119,392	59,708
Total assets	270,293	135,174	246,934	123,492
Current liabilities	52,302	26,156	51,274	25,643
Noncurrent liabilities	5,414	2,708	9,161	4,581
Total liabilities	57,716	28,864	60,435	30,224
Net assets	$ 212,577	$ 106,310	$ 186,499	$ 93,268

NOTE 6 - DEBT

The tables below provide information on our long-term debt.

As of January 29, 2023	**Xiamen Project Loans**	**Finance Leases**	**Total**
Principal due:			
Next 12 months	$ -	$ 6,541	$ 6,541
Months 13 – 24	$ -	$ 20,772	$ 20,772
Months 25 – 36	3,893	2,633	6,526
Months 37 – 48	-	13	13
Months 49 – 60	-	12	12
Long-term debt	3,893	23,430	27,323
Total debt [4]	$ 3,893	$ 29,971	$ 33,864
Interest rate at balance sheet date	4.3%	N/A	
Basis spread on interest rates	0.00	N/A	
Interest rate reset	Quarterly	N/A	
Maturity date	December 2025	N/A	
Periodic payment amount	Varies as loans mature[1][3]	Varies as leases mature	
Periodic payment frequency	Semiannual, on individual loans	Monthly	
Loan collateral (carrying amount)	$ 73,973	$ 37,331[2]	

(1) During the three-month period ended January 29, 2023, we repaid 30.0 million RMB (approximately $4.4 million), of which, 6.0 million RMB was due to be paid in June 2025, and 24.0 million RMB was due to be paid in December 2025.
(2) Represents the carrying amount at the balance sheet date of the related ROU assets, in which the lessors have secured interests.
(3) In February 2023, we repaid the entire outstanding balance of 26.4 million RMB (approximately $3.9 million) shown in the table above.
(4) We are in compliance with all of our debt covenants as of January 29, 2023.

As of October 31, 2022	Xiamen Project Loans	Xiamen Working Capital Loans	Finance Leases	Total
Principal due:				
Next 12 months	$ -	$ 3,512	$ 6,512	$ 10,024
Months 13 – 24	$ -	$ -	$ 6,610	$ 6,610
Months 25 – 36	1,098	-	17,961	19,059
Months 37 – 48	6,641	-	-	6,641
Long-term debt	$ 7,739	$ -	$ 24,571	$ 32,310
Interest rate at balance sheet date	4.30% - 4.45%	4.46%	N/A	
Basis spread on interest rates	0.00	76	N/A	
Interest rate reset	Quarterly	Monthly/Annually	N/A	
Maturity date	December 2025	July 2023	N/A	
Periodic payment amount	Varies as loans mature (1)	Increases as loans mature	Varies as leases mature	
Periodic payment frequency	Semiannual, on individual loans	Semiannual, on individual loans	Monthly	
Loan collateral (carrying amount)	$ 70,705	N/A	$ 37,976(2)	

(1) During the three-month period ended October 31, 2022, we repaid 81.0 million RMB (approximately $11.5 million) that had contractual maturity dates ranging from December 2023 through June 2025.

(2) Represents the carrying amount at the balance sheet date of the related ROU assets, in which the lessors have secured interests.

Xiamen Project Loans

In November 2018, PDMCX obtained approval to borrow 345.0 million RMB from the Industrial and Commercial Bank of China. From November 2018 through July 2020, PDMCX entered into separate loan agreements (the “Project Loans”) for the entire approved amount and, as of January 29, 2023, 26.4 million RMB ($3.9 million) remained outstanding. The Project Loans were used to finance certain capital expenditures at the PDMCX facility and are collateralized by liens granted on the land use right, building, and certain equipment located at the facility. The interest rates on the Project Loans are variable (based on the RMB Loan Prime Rate of the National Interbank Funding Center), and interest incurred on the loans was eligible for reimbursement through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, which provide for such reimbursements up to a prescribed limit and duration. The Project Loans are subject to covenants and provisions, certain of which relate to the assets pledged as security for the loans, all of which we were in compliance with as of January 29, 2023. In February 2023, PDMCX repaid the entire outstanding balance of 26.4 million RMB ($3.9 million).

Xiamen Working Capital Loans

In November 2018, PDMCX obtained approval for revolving, unsecured credit of the equivalent of $25.0 million, pursuant to which PDMCX may enter into separate loan agreements with varying terms to maturity. This facility is subject to annual reviews and extensions, with the most recent extension set to expire in November 2023. In December 2022, we repaid our entire outstanding balance of 25.6 million RMB ($3.6 million). As of January 29, 2023, PDMCX had no amount outstanding against the approval. The interest rates are variable, based on the RMB Loan Prime Rate of the National Interbank Funding Center. Interest incurred on the loans related to the amount borrowed was eligible for reimbursement through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, which provided for such reimbursements up to a prescribed limit and duration.

Finance Leases

In February 2021, we entered into a five-year $7.2 million finance lease for a high-end inspection tool. Monthly payments on the lease, which commenced in February 2021, are $0.1 million per month. Upon the payment of the fiftieth monthly payment and prior to payment of the fifty-first monthly payment, we may exercise an early buyout option to purchase the tool for $2.4 million. If we do not exercise the early buyout option, then at the end of the five-year lease term, the lease shall continue to renew on a month-to-month basis at the same rental terms; at our option, after the original term or any renewal periods, we may return the tool, elect to extend the lease, or purchase the tool at its fair market value. Since we are reasonably certain that we will exercise the early buyout option, our lease liability reflects such exercise and we have classified the lease as a finance lease. The interest rate implicit in the lease is 1.08%.

In December 2020, we entered into a five-year $35.5 million finance lease for a high-end lithography tool. Monthly payments on the lease, which commenced in January 2021, increased from $0.04 million during the first three months to $0.6 million for the following nine months, followed by forty-eight monthly payments of $0.5 million. As of the due date of the forty-eighth monthly payment, we may exercise an early buyout option to purchase the tool for $14.1 million. If we do not exercise the early buyout option, then at the end of the five-year lease term, at our option, we may return the tool, elect to extend the lease term for a period and a lease payment to be agreed with lessor at the time, or purchase the tool for its then-fair market value, as determined by the lessor. Since we are reasonably certain that we will exercise the early buyout option, our lease liability reflects such exercise and we have classified the lease as a finance lease. The interest rate implicit in the lease is 1.58%. The lease agreement incorporates the covenants included in our Corporate Credit Agreement, which are detailed below, and includes a cross-default provision for any agreement or instrument with an outstanding, committed balance greater than $5.0 million in which we are the indebted party.

Corporate Credit Agreement

In September 2018, we entered into a five-year amended and restated credit agreement (the "Credit Agreement"), which has a $50 million borrowing limit, with an expansion capacity to $100 million. The Credit Agreement is secured by substantially all of our assets located in the United States and common stock we own in certain subsidiaries. The Credit Agreement includes covenants around minimum interest coverage ratio, total leverage ratio, and minimum unrestricted cash balance (all of which we were in compliance with at January 29, 2023), and limits the amount of cash dividends, distributions, and redemptions we can pay on our common stock to an aggregate annual amount of $50 million. We had no outstanding borrowings against the Credit Agreement at January 29, 2023. The interest rate on the Credit Agreement (5.52% at January 29, 2023) is based on our total leverage ratio at one-month LIBOR plus a spread, as defined in the Credit Agreement.

Hefei Equipment Loan

In October 2020, our Hefei, China, facility was approved to borrow 200 million RMB from the China Construction Bank Corporation. In July 2022, we repaid our entire outstanding balance of 120.7 million RMB ($18.0 million). This credit facility was subject to annual reviews and extension; the most recent extension expired in August 2022 and we did not apply for an extension. The loan proceeds were used to fund purchases of two lithography tools at the Hefei facility. The interest rate on the loan was variable and based on the RMB Loan Prime Rate of the National Interbank Funding Center. The borrowings were secured by the Hefei facility, its related land use right, and certain manufacturing equipment. The Hefei Equipment Loan was subject to covenants and provisions, certain of which relate to the assets pledged as security for the loan, including covenants for the ratio of total liabilities to total assets and the ratio of current assets to current liabilities, all of which we were in compliance with at the time of repayment.

NOTE 7 - REVENUE

We recognize revenue when, or as, control of a good or service transfers to a customer, in an amount that reflects the consideration to which we expect to be entitled in exchange for transferring those goods or services. We account for an arrangement as a revenue contract when each party has approved and is committed to perform under the contract, the rights of the contracting parties regarding the goods or services to be transferred and the payment terms are identifiable, the arrangement has commercial substance, and collection of consideration is probable. Substantially all of our revenue comes from the sales of photomasks. We typically contract with our customers to sell sets of photomasks, which are comprised of multiple layers, the predominance of which we invoice as they ship to customers. As the photomasks are manufactured to customer specifications, they have no alternative use to us and, as our contracts generally provide us with the right to payment for work completed to date, we recognize revenue as we perform, or "over time", on most of our contracts. We measure our performance to date using an input method, which is based on our estimated costs to complete the various manufacturing phases of a photomask. At the end of a reporting period, there are a number of uncompleted revenue contracts on which we have performed; for any such contracts under which we are entitled to be compensated for our costs incurred plus a reasonable profit, we recognize revenue and a corresponding contract asset for such performance. We account for shipping and handling activities that we perform after a customer obtains control of a good as being activities to fulfill our promise to transfer the good to the customer, rather than as promised services, or performance obligations, under the contract. We report our revenue net of any sales or similar taxes we collect on behalf of government entities.

As stated above, photomasks are manufactured to customer specifications in accordance with their proprietary designs; thus, they are individually unique. Due to their uniqueness and other factors, their transaction prices are individually established through negotiations with customers; consequently, our photomasks do not have standard or "list" prices. The transaction prices of the vast majority of our revenue contracts include only fixed amounts of consideration. In certain instances, such as when we offer a customer an early payment discount, an estimate of variable consideration would be included in the transaction price, but only to the extent that a significant reversal of revenue would not occur when the uncertainty related to the variability was resolved.

Contract Assets, Contract Liabilities, and Accounts Receivable

We recognize a contract asset when our performance under a contract precedes our receipt of consideration from a customer, or before payment is due, and our receipt of consideration is conditional upon factors other than the passage of time. Contract assets reflect our transfer of control of photomasks that are in process or completed but not yet shipped to customers. A receivable is recognized when we have an unconditional right to payment for our performance, which generally occurs when we ship the photomasks. Our contract assets primarily consist of a significant amount of our in-process production orders and fully manufactured photomasks which have not yet shipped, for which we have an enforceable right to collect consideration (including a reasonable profit) in the event the in-process orders are cancelled by customers. On an individual contract basis, we net contract assets with contract liabilities (deferred revenue) for financial reporting purposes. We did not identify impairment indicators for any outstanding contract assets during the three-month periods ended January 29, 2023, or January 30, 2022.

The following table provides information about our contract balances at the balance sheet dates.

Classification	January 29, 2023	October 31, 2022
Contract Assets		
Other current assets	$ 19,414	$ 15,752
Contract Liabilities		
Accrued liabilities	$ 18,805	$ 18,872
Other liabilities	6,786	4,989
	$ 25,591	$ 23,861

The following table presents revenue recognized from contract liabilities that existed at the beginning of the reporting periods.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Revenue recognized from beginning liability	$ 7,638	$ 4,242

We generally record our accounts receivable at their billed amounts. All outstanding past due customer invoices are reviewed for collectability during, and at the end of, every reporting period. To the extent we believe a loss on the collection of a customer invoice is probable, we record the loss and credit an allowance for credit losses. In the event that an amount is determined to be uncollectible, we charge the allowance for credit losses and derecognize the related receivable. We did not incur any credit losses on our accounts receivable during the three-month periods ended January 29, 2023, or January 30, 2022.

Our invoice terms generally range from net-thirty to ninety days, depending on both the geographic market in which the transaction occurs and our payment agreements with specific customers. In the event that our evaluation of a customer's business prospects and financial condition indicate that the customer presents a collectability risk, we modify terms of sale, which may require payment in advance of performance. At the time of adoption, we elected the practical expedient allowed under ASC Topic 606 "Revenue from Contracts with Customers" ("Topic 606") that permits us not to adjust a contract's promised amount of consideration to reflect a financing component when the period between when we transfer control of goods or services to customers and when we are paid is one year or less.

In instances when we are paid in advance of our performance, we record a contract liability and, as allowed under the practical expedient in Topic 606, recognize interest expense only if the period between when we receive payment from the customer and the date when we expect to be entitled to the payment is greater than one year. Historically, advance payments we have received from customers have generally not preceded the completion of our performance obligations by more than one year.

Disaggregation of Revenue

The following tables present our revenue for the three-month periods ended January 29, 2023, and January 30, 2022, disaggregated by product type, geographic origin, and timing of recognition.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Revenue by Product Type		
IC		
High-end	$ 48,003	$ 46,534
Mainstream	108,586	83,227
Total IC	$ 156,589	$ 129,761
FPD		
High-end	$ 45,691	$ 46,276
Mainstream	8,810	13,790
Total FPD	$ 54,501	$ 60,066
	$ 211,090	$ 189,827

	Three Months Ended	
	January 29, 2023	January 30, 2022
Revenue by Geographic Origin*		
Taiwan	$ 75,569	$ 67,841
China	58,932	45,953
Korea	37,832	39,515
United States	29,881	27,176
Europe	8,447	8,914
Other	429	428
	$ 211,090	$ 189,827

* This table disaggregates revenue by the location in which it was earned.

	Three Months Ended	
Revenue by Timing of Recognition	January 29, 2023	January 30, 2022
Over time	$ 197,164	$ 170,264
At a point in time	13,926	19,563
	$ 211,090	$ 189,827

Contract Costs

We pay commissions to third-party sales agents for certain sales they procure on our behalf. However, the bases of the commissions are the transaction prices of the sales, which are completed in less than one year; thus, no relationship is established with a customer that will result in future business. Therefore, we do not recognize any portion of these sales commissions as costs of obtaining a contract, nor do we currently foresee other circumstances under which we would recognize contract obtainment costs as assets.

Remaining Performance Obligations

As we are typically required to fulfill customer orders within a short period of time, our backlog of orders has historically been two to three weeks for FPD photomasks and one to two weeks for IC photomasks. However, the demand for some IC photomasks has expanded beyond the industry's capacity to supply them within the traditional time period; thus the backlog, in some cases, can expand to as long as two to three months. As allowed under Topic 606, we have elected not to disclose our remaining performance obligations, which represent the costs associated with the completion of the manufacturing process of in-process photomasks related to contracts that have an original duration of one year or less.

Product Warranties

Our photomasks are sold under warranties that generally range from one to twenty-four months. We warrant that our photomasks conform to customer specifications and will typically repair, replace, or issue a refund for any photomasks that fail to do so. The warranties do not represent separate performance obligations in our revenue contracts. Historically, customer claims under warranties have been immaterial.

NOTE 8 - SHARE-BASED COMPENSATION

In March 2016, shareholders approved our current equity incentive compensation plan (the "Plan"), under which incentive stock options, non-qualified stock options, stock grants, stock-based awards, restricted stock, restricted stock units, stock appreciation rights, performance units, performance stock, and other stock or cash awards may be granted. Shares to be issued under the Plan may be authorized and unissued shares, issued shares that have been reacquired by us (in the open market or in private transactions), or a combination thereof. The maximum number of shares of common stock approved that may be issued under the Plan is four million shares. Awards may be granted to officers, employees, directors, consultants, advisors, and independent contractors of Photronics or its subsidiaries. In the event of a change in control (as defined in the Plan), the vesting of awards may be accelerated. The Plan, aspects of which are more fully described below, prohibits further awards from being issued under prior plans. The table below presents information on our share-based compensation expenses for the three-month periods ended January 29, 2023, and January 30, 2022.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Expense reported in:		
Cost of goods sold	$ 281	$ 143
Selling, general, and administrative	1,378	1,180
Research and development	162	134
Total expense incurred	$ 1,821	$ 1,457
Expense by award type:		
Restricted stock awards	$ 1,764	$ 1,367
Stock options	1	38
Employee stock purchase plan	56	52
Total expense incurred	$ 1,821	$ 1,457
Income tax benefits of share-based compensation	$ 155	$ 84
Share-based compensation cost capitalized	$ -	$ -

Restricted Stock Awards

We periodically grant restricted stock awards, the restrictions on which typically lapse over a service period of one to four years. The fair value of the awards is determined on the date of grant, based on the closing price of our common stock. The table below presents information on our restricted stock awards for the three-month periods ended January 29, 2023, and January 30, 2022.

	Three Months Ended			
		January 29, 2023		January 30, 2022
Number of shares granted in period		786,500		535,400
Weighted-average grant-date fair value of awards (in dollars per share)	$	16.77	$	19.28
Compensation cost not yet recognized	$	18,526	$	15,106
Weighted-average amortization period for cost not yet recognized (in years)		3.2		3.0
Shares outstanding at balance sheet date		1,374,422		1,128,179

Stock Options

Option awards generally vest in one to four years and have a ten-year contractual term. All incentive and non-qualified stock option grants must have an exercise price no less than the market value of the underlying common stock on the date of grant. The grant-date fair values of options are based on closing prices of our common stock on the dates of grant and are calculated using the Black-Scholes option pricing model. Expected volatility is based on the historical volatility of our common stock. We use historical option exercise behavior and employee termination data to estimate expected term, which represents the period of time that options are expected to remain outstanding. The risk-free rate of return for the estimated term of an option is based on the U.S. Treasury yield curve in effect at the date of grant. The table below presents information on our stock options for the three-month periods ended January 29, 2023, and January 30, 2022.

	Three Months Ended			
		January 29, 2023		January 30, 2022
Number of options granted in period		-		-
Cash received from option exercised	$	563	$	3,714
Compensation cost not yet recognized	$	-	$	71
Weighted-average amortization period for cost not yet recognized (in years)		-		1.0

Information on outstanding and exercisable option awards as of January 29, 2023, is presented below.

Options	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding and exercisable at January 29, 2023	528,551	$ 10.11	3.28	$ 4,605

NOTE 9 - INCOME TAXES

We calculate our provision for income taxes at the end of each interim reporting period on the basis of an estimated annual effective tax rate adjusted for tax items that are discrete to each period. The table below sets forth the primary reasons that our effective income tax rates differed from the U.S. statutory tax rates in effect during the three-month periods ended January 29, 2023, and January 30, 2022.

Reporting Period	U.S. Statutory Tax Rates	Photronics Effective Tax Rates	Primary Reasons for Differences
Three months ended January 29, 2023	21.0%	30.3%	Non-recognition of the tax benefit of losses that, in certain jurisdictions, have been offset by valuation allowances; non-U.S. pre-tax income being taxed at higher statutory rates in non-U.S. jurisdictions; and the establishment of uncertain tax positions in non-U.S. jurisdictions.
Three months ended January 30, 2022	21.0%	26.1%	Non-recognition of the tax benefit of losses that, in certain jurisdictions, have been offset by valuation allowances; non-U.S. pre-tax income being taxed at higher statutory rates in non-U.S. jurisdictions; and the establishment of uncertain tax positions in non-U.S. jurisdictions.

Uncertain Tax Positions

Although the timing of reversal of uncertain tax positions may be uncertain, as they can be dependent upon the settlement of tax audits, we believe that the amount of uncertain tax positions (including interest and penalties, and net of tax benefits) that may be resolved over the next twelve months is $0.4 million. Resolution of these uncertain tax positions may result from either or both the lapses of statutes of limitations and tax settlements. We are no longer subject to tax authority examinations in the U.S., major foreign, or state tax jurisdictions for years prior to fiscal year 2017. The table below presents information on our unrecognized tax benefits as of the balance sheet dates.

	January 29, 2023	October 31, 2022
Unrecognized tax benefits related to uncertain tax positions	$ 6,318	$ 5,599
Unrecognized tax benefits that, if recognized, would impact the effective tax rate	$ 6,318	$ 5,599
Accrued interest and penalties related to uncertain tax positions	$ 467	$ 395

NOTE 10 - EARNINGS PER SHARE

The calculations of basic and diluted earnings per share are presented below.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Net income attributable to Photronics, Inc. shareholders	$ 13,986	$ 23,064
Effect of dilutive securities	-	-
Earnings used for diluted earnings per share	$ 13,986	$ 23,064
Weighted-average common shares computations:		
Weighted-average common shares used for basic earnings per share	60,894	60,158
Effect of dilutive securities:		
Share-based payment awards	576	778
Potentially dilutive common shares	576	778
Weighted-average common shares used for diluted earnings per share	61,470	60,936
Basic earnings per share	$ 0.23	$ 0.38
Diluted earnings per share	$ 0.23	$ 0.38

The table below illustrates the outstanding weighted-average share-based payment awards that were excluded from the calculation of diluted earnings per share because their exercise price exceeded the average market value of the common shares for the period or, under application of the treasury stock method, they were otherwise determined to be antidilutive.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Share-based payment awards	268	165
Total potentially dilutive shares excluded	268	165

NOTE 11 - COMMITMENTS AND CONTINGENCIES

As of January 29, 2023, we had commitments outstanding for capital expenditures of approximately $132.0 million, primarily for purchases of high-end equipment.

In May 2022, we were informed of a customs audit in one of our China operations. We estimated a contingency ranging from $2.2 million to $3.7 million, which include unpaid additional customs duties and related interest and penalties for the previous three years (the period under audit). In the three-month period ended May 1, 2022, we recorded a contingent loss of $2.2 million, as we believed this was the most likely outcome. The $2.2 million amount was recorded with a charge to *Cost of goods sold* in the condensed consolidated statements of income and *Accrued liabilities* in the condensed consolidated balance sheets. In November 2022, upon settlement of the audit, we reversed $1.0 million of the accrual.

We are subject to various other claims that arise in the ordinary course of business. We believe that our potential liability under such claims, individually or in the aggregate, will not have a material effect on our consolidated financial statements.

NOTE 12 - CHANGES IN ACCUMULATED OTHER COMPREHENSIVE (LOSS) INCOME BY COMPONENT

The following tables set forth the changes in our accumulated other comprehensive (loss) income by component (net of tax of $0) for the three-month periods ended January 29, 2023, and January 30, 2022.

	Three Months Ended January 29, 2023		
	Foreign Currency Translation Adjustments	Other	Total
Balance at October 31, 2022	$ (97,790)	$ (666)	$ (98,456)
Other comprehensive (loss) income	90,519	(54)	90,465
Less: Other comprehensive loss (income) attributable to noncontrolling interests	16,466	(37)	16,429
Balance at January 29, 2023	$ (23,737)	$ (683)	$ (24,420)

	Three Months Ended January 30, 2022		
	Foreign Currency Translation Adjustments	Other	Total
Balance at October 31, 2021	$ 21,476	$ (905)	$ 20,571
Other comprehensive (loss) income	(9,831)	37	(9,794)
Less: Other comprehensive loss (income) attributable to noncontrolling interests	194	18	212
Balance at January 30, 2022	$ 11,451	$ (886)	$ 10,565

NOTE 13 - FAIR VALUE MEASUREMENTS

The accounting framework for determining fair value includes a hierarchy for ranking the quality and reliability of the information used to measure fair value, which enables the reader of the financial statements to assess the inputs used to develop those measurements. The fair value hierarchy consists of three tiers as follows: Level 1, defined as quoted market prices (unadjusted) in active markets for identical securities; Level 2, defined as inputs other than Level 1 that are observable, either directly or indirectly; and Level 3, defined as unobservable inputs that are not corroborated by market data.

The fair values of our cash and certain cash equivalents (Level 1 measurements), accounts receivable, accounts payable, and certain other current assets and current liabilities (Level 2 measurements) approximate their carrying values due to their short-term maturities. The fair values of our Short-term investments are Level 1 measurements. (Please refer to “Investments” within Note 2 for additional fair value information on our Short-term investments.) The fair values of certain cash equivalents are Level 2 measurements that are provided by independent third-party pricing services or other independent entities, which may use matrix pricing, valuation models, or other methods which utilize observable market data. The fair values of our variable-rate debt instruments are Level 2 measurements and approximate their carrying values due to the variable nature of their underlying interest rates. Other than our Short-term investments, we did not have any assets or liabilities measured at fair value, on a recurring or a nonrecurring basis, at January 29, 2023, or October 31, 2022.

NOTE 14 - SHARE REPURCHASE PROGRAMS

In September 2020, the Company's board of directors authorized the repurchase of up to $100 million of its common stock, pursuant to a repurchase plan under Rule 10b5-1 of the Securities Act. We commenced repurchasing shares under this authorization on September 16, 2020. All of the shares repurchased under this authorization prior to January 30, 2022, have been retired prior to that date. As of January 29, 2023, $31.7 million was available under this authorization for the purchase of additional shares. The table below presents information on this repurchase program for the three-month periods ended January 29, 2023, and January 30, 2022.

	Three Months Ended	
	January 29, 2023	January 30, 2022
Number of shares repurchased	-	188
Cost of shares repurchased	$ -	$ 2,522
Average price paid per share	$ -	$ 13.43

NOTE 15 - RECENT ACCOUNTING PRONOUNCEMENTS

Accounting Standards Updates to be Adopted

In November 2021, the FASB issued ASU 2021-10, "Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance", to increase the transparency of government assistance including the disclosure of the types of assistance an entity receives, an entity's method of accounting for government assistance, and the effect of the assistance on an entity's financial statements. The guidance in this Update will be effective for Photronics in its fiscal year 2023 Form 10-K, with early application of the amendments allowed. The amendments are to be applied prospectively to all transactions within the scope of the amendments that are reflected in financial statements at the date of initial application and new transactions that are entered into after the date of initial application or, retrospectively to those transactions. We are currently evaluating the effect the adoption of this ASU may have on our disclosures.

In March 2020, the FASB issued ASU 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting", which provides optional expedients and exceptions to applying the guidance on contract modifications, hedge accounting, and other transactions, to simplify the accounting for transitioning from LIBOR, and other interbank offered rates expected to be discontinued, to alternative reference rates. The guidance in this Update was effective upon its issuance; if elected, it was to be applied prospectively from December 31, 2022. In December 2022, the FASB issued ASU 2022-06 "Deferral of the Sunset Date of Topic 848" which extended the time that the optional expedients and exceptions may be adopted to December 31, 2024. We do not expect the impact of this ASU to be material to our consolidated financial statements.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Overview

Management's discussion and analysis (“MD&A”) of the Company's financial condition and results of operations should be read in conjunction with its condensed consolidated financial statements and related notes. Various sections of this MD&A contain forward-looking statements, all of which are presented based on current expectations, which may be adversely affected by uncertainties and risk factors (presented throughout this filing and in the Company's Form 10-K for fiscal year 2022), that may cause actual results to materially differ from these expectations. See “Forward-Looking Statements”.

We sell substantially all of our photomasks to semiconductor designers and manufacturers, and manufacturers of FPDs. Photomask technology is also being applied to the fabrication of other higher-performance electronic products such as photonics, microelectronic mechanical systems, and certain nanotechnology applications. Our selling cycle is tightly interwoven with the development and release of new semiconductor and display designs and applications, particularly as they relate to the semiconductor industry's migration to more advanced product innovation, design methodologies, and fabrication processes. The demand for photomasks primarily depends on design activity rather than sales volumes from products manufactured using photomask technologies. Consequently, an increase in semiconductor or display sales does not necessarily result in a corresponding increase in photomask sales. However, the reduced use of customized ICs, reductions in design complexity, other changes in the technology or methods of manufacturing or designing semiconductors, or a slowdown in the introduction of new semiconductor or display designs could reduce demand for photomasks – even if the demand for semiconductors and displays increases. Advances in semiconductor, display, and photomask design and production methods that shift the burden of achieving device performance away from lithography could also reduce the demand for photomasks. Historically, the microelectronics industry has been volatile, experiencing periodic downturns and slowdowns in design activity. These negative trends have been characterized by, among other things, diminished product demand, excess production capacity, and accelerated erosion of selling prices, with a concomitant effect on revenue and profitability.

We are typically required to fulfill customer orders within a short period of time, sometimes within twenty-four hours. This results in a minimal level of backlog, typically two to three weeks of backlog for FPD photomasks and one to two weeks for IC photomasks. However, the demand for some IC photomasks has expanded beyond the industry’s capacity to supply them within the traditional time period; thus, for some products, the backlog can expand to as long as two to three months.

The global semiconductor and FPD industries are driven by end markets which have been closely tied to consumer-driven applications of high-performance devices, including, but not limited to, mobile display devices, mobile communications, and computing solutions. While we cannot predict the timing of the industry's transition to volume production of next-generation technology nodes, or the timing of up and down-cycles with precise accuracy, we believe that such transitions and cycles will continue into the future, beneficially and adversely affecting our business, financial condition, and operating results as they occur. We believe our ability to remain successful in these environments is dependent upon the achievement of our goals of being a service and technology leader and efficient solutions supplier, which we believe should enable us to continually reinvest in our global infrastructure.

Impact of the COVID-19 Pandemic

All of our facilities have continued to operate throughout the COVID-19 pandemic. However, since shortly after it was first identified near the end of calendar year 2019, the pandemic has had an impact on our business in a number of ways including customer shutdowns, which led to delays in new photomask design releases, and travel restrictions, which delayed tool installations and servicing. To date, we have not experienced significant raw material shortages; however, supply-chain disruptions could potentially delay or prevent us from fulfilling customer orders.

At certain facilities, employees not required to be on-site to maintain production have worked remotely at various times – either at our discretion or due to government mandates. The implementation of these measures has not materially affected our operations.

Results of Operations
Three Months Ended January 29, 2023

The following table presents selected operating information expressed as a percentage of revenue. The columns may not foot due to rounding.

	Three Months Ended		
	January 29, 2023	October 31, 2022	January 30, 2022
Revenue	100.0%	100.0%	100.0%
Cost of goods sold	64.0	61.8	68.5
Gross profit	36.0	38.2	31.5
Operating expenses:			
Selling, general, and administrative	8.0	7.5	8.3
Research and development	1.6	1.9	3.1
Operating income	26.5	28.8	20.1
Non-operating income (expense), net	(6.8)	5.1	2.5
Income before income tax provision	19.7	33.9	22.6
Income tax provision	6.0	7.6	5.9
Net income	13.7	26.3	16.7
Net income attributable to noncontrolling interests	7.1	8.7	4.6
Net income attributable to Photronics, Inc. shareholders	6.6%	17.6%	12.2%

Note: All tabular comparisons included in the following discussion, unless otherwise indicated, are for the three-month periods ended January 29, 2023 (Q1 FY23), October 31, 2022 (Q4 FY22), and January 30, 2022 (Q1 FY22), in millions of dollars, except number of shares (in thousands) and per share amount. The columns may not foot due to rounding.

Revenue

Our quarterly revenues can be affected by the seasonal purchasing practices of our customers. As a result, demand for our products is typically reduced during the first quarter of our fiscal year by the North American, European, and Asian holiday periods, as some of our customers reduce their development and, consequently, their buying activities during those periods.

The following tables present changes in disaggregated revenue in Q1 FY23 from revenue in prior reporting periods.

Quarterly Changes in Revenue by Product Type

	Q1 FY23 compared with Q4 FY22			Q1 FY23 compared with Q1 FY22	
	Revenue in Q1 FY23	Increase (Decrease)	Percent Change	Increase (Decrease)	Percent Change
IC					
High-end *	$ 48.0	$ 3.6	8.2%	$ 1.1	2.3%
Mainstream	108.6	(3.3)	(2.9)%	25.7	31.1%
Total IC	$ 156.6	$ 0.3	0.2%	$ 26.8	20.7%
FPD					
High-end *	$ 45.7	$ 2.3	5.3%	$ (0.6)	(1.3)%
Mainstream	8.8	(1.8)	(17.2)%	(5.0)	(36.1)%
Total FPD	$ 54.5	$ 0.5	0.8%	$ (5.6)	(9.3)%
Total Revenue	$ 211.1	$ 0.8	0.4%	$ 21.2	11.2%

* High-end photomasks typically have higher average selling prices (ASPs) than mainstream products.

*Quarterly Changes in Revenue by Geographic Origin***

	Q1 FY23 compared with Q4 FY22			Q1 FY23 compared with Q1 FY22	
	Revenue in Q1 FY23	Increase (Decrease)	Percent Change	Increase (Decrease)	Percent Change
Taiwan	$ 75.6	$ (0.7)	(0.9)%	$ 7.7	11.4%
China	58.9	6.5	12.4%	13.0	28.2%
Korea	37.8	(0.2)	(0.3)%	(1.7)	(4.3)%
United States	29.9	(4.1)	(12.1)%	2.7	10.0%
Europe	8.4	(0.6)	(6.7)%	(0.5)	(5.2)%
Other	0.5	(0.1)	(21.4)%	-	0.2%
	$ 211.1	$ 0.8	0.4%	$ 21.2	11.2%

** This table disaggregates revenue by the location in which it was earned.

Revenue in Q1 FY23 was $211.1 million, representing an increase of 0.4% compared with Q4 FY22 and 11.2% from Q1 FY22.

IC photomask revenue increased 0.2% and 20.7% in Q1 FY23, compared with Q4 FY22 and Q1 FY22, respectively. These increases were driven by continued strong demand in Asia, resulting from robust design activity for high-end products, and increased pricing and continued strong demand for mainstream products used for computer chips used in the production of consumer goods, products considered part of the “internet-of-things”, 5G wireless technology applications, and cryptocurrency mining.

The increase from Q4 FY22 is due to increased high-end demand, particularly in Asia, more than offsetting limited softness in mainstream. Although somewhat softer, mainstream demand remains strong, due to the proliferation of IC’s. This strong demand continues to strain the photomask industry’s mainstream tool capacity, thereby providing the conditions that support a favorable pricing environment. This has enabled us to maintain increased selling prices, though expediting premiums that customers pay to accelerate deliveries have decreased. The increase from Q1 FY22, is driven by continued strong growth in Asia and the U.S. for high-end products, increased pricing and continued growth for mainstream products.

FPD revenue increased 0.8% and decreased 9.3% in Q1 FY23, compared with Q4 FY22 and Q1 FY22, respectively. The increase from Q4 FY22 is driven by increased high-end demand more than offsetting lower mainstream demand. High-end growth came from improved G10.5+ demand and continued strength in mobile displays. The decrease from Q1FY22 is primarily due to softer mainstream demand, and lower G10.5+ demand that offset an increase in AMOLED. We believe that strong demand for AMOLED photomasks used in mobile devices will continue, as expected technology advances drives increasing overall demand for higher-value masks.

Gross Margin

	Q1 FY23	Q4 FY22	Percent Change	Q1 FY22	Percent Change
Gross profit	$ 76.1	$ 80.3	(5.2)%	$ 59.9	27.1%
Gross margin	36.0%	38.2%		31.5%	

Gross margin decreased by 2.2 percentage points in Q1 FY23, from Q4 FY22, despite a slight increase in revenue, primarily as a result of unfavorable product mix and lower expediting premiums that customers pay to accelerate deliveries. Material costs increased 2.9% from the prior quarter, and increased, as a percentage of revenue, by 60 basis points. Labor costs remained flat, and as a percentage of revenue. Equipment and other overhead costs increased 6.3% and increased 160 basis points as a percentage of revenue.

Gross margin increased by 4.5 percentage points in Q1 FY23, from Q1 FY22, primarily as a result of the increase in revenue from the prior year quarter. Material costs decreased 1.0% from the prior year quarter, and decreased 301 basis points, as a percentage of revenue. Labor and benefits costs increased 14.2% from the prior year quarter and increased 30 basis points as a percent of revenue, as labor increased in both the U.S. and at several Asia-based facilities, reflecting labor market conditions. Equipment and other overhead costs increased 4.5% but decreased 180 basis points, as a percentage of revenue. Increased outsourced manufacturing costs, partially offset by decreased depreciation and equipment maintenance expenses, were the most significant contributors to the net increase in equipment and other overhead costs.

Selling, General, and Administrative Expenses

Selling, general, and administrative expenses were $16.8 million in Q1 FY23, compared with $15.7 million in Q4 FY22. The increase of $1.1 million was primarily the result of increased compensation and related benefits and payroll tax expenses in the U.S. of $1.1 million. Selling, general, and administrative expenses increased $1.1 million in Q1 FY23, from $15.7 million in Q1 FY22, primarily as a result of increased compensation and related expenses of $0.9 million and increased professional fees of $0.2 million.

Research and Development Expenses

Research and development expenses, which primarily consist of development and qualification efforts related to process technologies for high-end IC and FPD applications, were $3.3 million in Q1 FY23, $4.0 million in Q4 FY22, and $5.9 million in Q1 FY22. Research and development expenses decreased from all prior periods as a result of decreased development activities in the U.S.

Non-operating Income (Expense)

	Q1 FY23	Q4 FY22	Q1 FY22
Foreign currency transactions impact, net	$ (16.9)	$ 10.4	$ 5.3
Interest expense, net	(0.1)	(0.4)	(0.9)
Interest income and other income (expense), net	2.6	0.8	0.3
Non-operating income (expense), net	(14.4)	10.8	4.7

Non-operating income (expense) decreased $25.2 million to $(14.4) million in Q1 FY23, compared with $10.8 million in Q4 FY22, primarily due to unfavorable movements of the South Korean won and the New Taiwan dollar against the U.S. dollar exceeding a favorable movement of the RMB against the U.S. dollar. Interest income and other income (expense) increased to $2.3 million in Q1 FY23, compared with $0.8 million in Q4 FY22, and $0.3 million in Q1 FY22 as a result of Treasury Securities purchased in Q4 FY22.

Non-operating income (expense) decreased $19.1 million to $(14.4) million in Q1 FY23, compared with $4.7 million in Q1 FY22. Unfavorable movement of the New Taiwan dollar and less favorable movement of the South Korean won against the U.S. dollar exceeding favorable movements of the RMB were the primary drivers of the negative impact of foreign currency transactions. Interest expense decreased as a result of our lower average debt balance, which decreased significantly as a result of early repayments made in FY22.

Income Tax Provision

	Q1 FY23	Q4 FY22	Q1 FY22
Income tax provision	$ 12.6	$ 16.1	$ 11.2
Effective income tax rate	30.3%	22.5%	26.1%

The effective income tax rate is sensitive to the jurisdictional mix of earnings, due in part to the non-recognition of tax benefits on losses in jurisdictions with valuation allowances where the tax benefits of the losses are not available.

The effective income tax rate increase in Q1 FY23, compared with Q4 FY22, is primarily due to changes in the jurisdictional mix of earnings and an increase in foreign taxes in Q1 FY23.

The effective income tax rate increase in Q1 FY23, compared with Q1 FY22, is primarily due to changes in the jurisdictional mix of earnings and an increase in foreign taxes in Q1 FY23.

Net Income Attributable to Noncontrolling Interests

Net income attributable to noncontrolling interests was $15.0 million in Q1 FY23, compared with $18.2 million in Q4 FY22, and $8.7 million in Q1 FY22. The increases from Q1 FY22 to Q1 FY23 resulted from increased net income at our Taiwan-based and China-based IC joint ventures.

Liquidity and Capital Resources

Cash and cash equivalents were $334.8 million and $319.7 million as of January 29, 2023, and October 31, 2022, respectively. As of the most recent balance sheet date, total cash and cash equivalents included $315.7 million held by foreign subsidiaries. Net Cash, a non-GAAP financial measure as defined and discussed in the *Non-GAAP Financial Measures* section below, was $340.2 million and $316.2 million as of January 29, 2023, and October 31, 2022, respectively. Our primary sources of liquidity are our cash on hand, cash we generate from operations, and borrowing capacity we have available from financial institutions. Our corporate credit agreement has a $50 million borrowing limit, with an expansion capacity to $100 million. Although we have not accessed funds under our corporate credit facilities since 2011, it continues to afford us financial flexibility. In addition, in China, we currently have approximately $25.0 million of borrowing capacity to support local operations. See Note 6 to the condensed consolidated financial statements for additional information on our currently available financing.

We continually evaluate alternatives for efficiently funding our capital expenditures and ongoing operations. These reviews may result in our engagement in a variety of investing and financing transactions, in the transfer of cash among subsidiaries, and/or the repatriation of cash to the U.S. The transfer of funds among subsidiaries could be subject to foreign withholding taxes; in certain jurisdictions, repatriation of these funds to the U.S. may subject them to U.S. state income taxes and/or local country withholding taxes. We believe that our liquidity, including available financing, is sufficient to meet our requirements through the next twelve months and thereafter for the foreseeable future. Through the utilization of our existing liquidity, cash we generate from operations, short-term investments, and (potentially) our borrowing capacity under our financing arrangements, we plan to continue to invest in our business, with our investments targeted to align with our customers' technology road maps. We may also elect to use our cash to reduce our debt through early repayments. In addition, we stand ready to invest in mergers, acquisitions, or strategic partnerships, should a suitable opportunity arise.

We estimate capital expenditures for full year FY23 will be approximately $130 million; these investments will be targeted towards high-end and mainstream IC capacity and efficiency, and enable us to support our customers' near-term demands. As of January 29, 2023, we had outstanding capital commitments of approximately $132.0 million and recognized liabilities related to capital equipment purchases of approximately $14.9 million. Although payment timing could vary, primarily as a result of the timing of tool delivery, installation, and testing, we currently estimate that we will fund $61.0 million of our total $147.0 million committed and recognized obligations for capital expenditures over the next twelve months. Please refer to Note 6 to the condensed consolidated financial statements for information on our outstanding debt.

In September 2020, the Company's board of directors authorized the repurchase of up to $100 million of its common stock, pursuant to a repurchase plan under Rule 10b5-1 of the Securities Act. This authorization does not obligate the Company to repurchase any dollar amount or number of shares of common stock. As of January 29, 2023, our current share repurchase program had approximately $31.7 million remaining under its authorization. Depending on market conditions, we may utilize some or the entire remaining approved amount to reacquire additional shares. On August 16, 2022, the Inflation Reduction Act ("IRA") was enacted in the U.S. Among other provisions, the IRA included a one percent excise tax on corporate share repurchases. The one percent excise tax on share repurchases applies to shares repurchased after December 31, 2022, and excludes repurchases under $1 million. We do not anticipate that the IRA will have a material effect on our liquidity.

As discussed in Note 5 to the condensed consolidated financial statements, DNP, the noncontrolling interest in our China-based joint venture has, under certain circumstances, the right to put its interest in the joint venture to Photronics, or to purchase our interest in the joint venture. Under all such circumstances, the sale of DNP's interest would be at its ownership percentage of the joint venture's net book value, with closing to take place within three business days of obtaining required approvals and clearance. As of the date of issuance of this report, DNP had not indicated its intention to exercise this right. As of January 29, 2023, Photronics and DNP each had net investments in this joint venture of approximately $106.3 million.

Cash Flows

	Q1 FY23	Q1 FY22
Net cash provided by operating activities	$ 27.7	$ 59.1
Net cash used in investing activities	$ (30.2)	$ (19.2)
Net cash used in financing activities	$ (9.7)	$ (0.3)

Operating Activities: *Net cash provided by operating activities* reflects net income adjusted for certain non-cash items, including depreciation and amortization, share-based compensation, and the impacts of cash from changes in operating assets and liabilities. Net cash provided by operating activities decreased by $31.4 million in Q1 FY23, compared with Q1 FY22, due to decreased net income and cash generated from changes in working capital.

Free Cash Flow and LTM ("Last Twelve Months") Free Cash Flow, which are non-GAAP financial measures as discussed in the "Non-GAAP Financial Measures" section below, decreased by $42.3 million and increased by $45.9 million, respectively, compared with Q1 FY23, primarily due to the decrease in *Net cash provided by operating activities* discussed above and a reduction in spending on property, plant, and equipment.

Investing Activities: *Net cash flows used in investing activities* primarily consisted of purchases of property, plant, and equipment of $31.1 million, which increased $11.9 million in Q1 FY23, compared with Q1 FY22. The increased spending on property, plant, and equipment was partially offset by a $1.0 million increase in investment related government incentives received in China.

Financing Activities: *Net cash flows used in financing activities* primarily consist of share repurchases, proceeds from and repayments of debt, and contributions from noncontrolling interests. Net cash used in financing activities increased by $9.4 million in Q1 FY23, compared with Q1 FY22, primarily due to contributions from noncontrolling interests in our majority owned subsidiaries in Taiwan and China of $15.0 million in Q1 FY22 and decreased debt repayments of $6.0 million.

The increase in our cash balance from Q1 FY22 was favorably impacted by the effects of exchange rate changes in the amount of $27.5 million in Q1 FY23, which was in contrast to the $2.0 million unfavorable impact the effects of exchange rate changes had on our cash balance in Q1 FY22.

Non-GAAP Financial Measures

Non-GAAP Net Income attributable to Photronics, Inc. shareholders and non-GAAP earnings per share, Free Cash Flow, LTM Free Cash Flow, and Net Cash are "non-GAAP financial measures" as such term is defined by the Securities and Exchange Commission and may differ from similarly named non-GAAP financial measures used by other companies. The financial tables below reconcile Photronics, Inc. financial results under GAAP to non-GAAP financial information. We believe these non-GAAP financial measures that exclude certain items are useful for analysts and investors to evaluate our future on-going performance because they enable a more meaningful comparison of our projected performance with our historical results. These non-GAAP metrics are not intended to represent funds available for our discretionary use and are not intended to represent, or be used as a substitute for, net income attributable to Photronics, Inc. shareholders, diluted earnings per share, cash and cash equivalents, or cash flows from operations, as measured under GAAP. The items excluded from these non-GAAP metrics but included in the calculation of their closest GAAP equivalent, are significant components of the condensed consolidated statements of income, condensed consolidated balance sheets and statement of cash flows and must be considered in performing a comprehensive assessment of overall financial performance.

The following table reconciles *GAAP to Non-GAAP Income* at the balance sheet dates. The columns may not foot due to rounding.

	Q1 FY23	Q4 FY22	Q1 FY22
Reconciliation of GAAP to Non-GAAP Net Income:			
GAAP Net Income attributable to Photronics, Inc. shareholders	$ 14.0	$ 37.1	$ 23.1
FX (gain) loss	16.9	(10.4)	(5.3)
Estimated tax effects of above	(4.5)	2.5	1.3
Estimated noncontrolling interest effects of above	(2.1)	2.0	0.1
Non-GAAP Net Income attributable to Photronics, Inc. shareholders	$ 24.4	$ 31.2	$ 19.2
Weighted-average number of common shares outstanding - Diluted	61,470	61,374	60,936
Reconciliation of GAAP to Non-GAAP EPS:			
GAAP diluted earnings per share	$ 0.23	$ 0.60	$ 0.38
Effects of the above adjustments	$ 0.17	$ (0.10)	$ (0.06)
Non-GAAP diluted earnings per share	$ 0.40	$ 0.51	$ 0.32

The following tables reconcile *Net cash provided by operating activities* to Free Cash Flow for Q1 FY23 and Q1 FY22 and present the calculations of LTM Free Cash Flow for Q1 FY23 and Q1 FY22. The columns may not foot due to rounding.

	Q1 FY23	Q1 FY22
Free Cash Flow		
Net cash provided by operating activities	$ 27.7	$ 59.1
Purchases of property, plant, and equipment	(31.1)	(19.2)
Government incentives	1.0	-
Free cash flow	$ (2.4)	$ 39.9

	Q1 FY23	Q1 FY22
LTM Free Cash Flow		
First three months of the respective fiscal year	$ (2.4)	$ 40.0
Prior fiscal year	166.5	47.4
First three months of the prior year	(40.0)	(9.2)
LTM free cash flow	$ 124.1	$ 78.2

The following table reconciles *Cash and cash equivalents* to Net Cash at the balance sheet dates. The increase in Net Cash was primarily driven by an increase in *Net cash provided by operating activities* and decreased spending on property, plant, and equipment, as discussed above. The columns may not foot due to rounding.

	As of	
	January 29, 2023	**October 31, 2022**
Net Cash		
Cash and cash equivalents	$ 334.8	$ 319.7
Short-term investments	39.2	38.9
Current portion of Long-term debt	(6.5)	(10.0)
Long-term debt	(27.3)	(32.3)
Net cash	$ 340.2	$ 316.2

Business Outlook

Our current business outlook and guidance was provided in the Photronics Q1 FY23 earnings release, earnings presentation, and financial results conference call, but is not incorporated herein. These can be accessed in the investor section of our website - www.photronics.com.

Our future results of operations and the other forward-looking statements contained in this filing and in the Photronics Q1 FY23 earnings presentation and the related financial results conference call and slide deck involve a number of risks and uncertainties, some of which are discussed in Part I, Item 1A of our 2022 Form 10-K. A number of other unforeseeable factors could cause actual results to differ materially from our expectations.

Critical Accounting Estimates

Please refer to Part II, Item 7 of our 2022 Form 10-K for discussion of our critical accounting estimates. There have been no changes to our critical accounting estimates since the filing of our Form 10-K for the year ended October 31, 2022.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Exchange Rate Risk

We conduct business in several major international currencies throughout our worldwide operations, and our financial performance may be affected by fluctuations in the exchange rates of these currencies. Changes in exchange rates can positively or negatively affect our reported revenue, operating income, assets, liabilities, and equity. The functional currencies of our Asian subsidiaries are the South Korean won, the New Taiwan dollar, the RMB, and the Singapore dollar. The functional currencies of our European subsidiaries are the British pound and the euro. In addition, we engage in transactions in, and have exposures to, the Japanese yen.

We attempt to minimize our risk of foreign currency transaction losses by producing products in the same country in which the products are sold (thereby generating revenues and incurring expenses in the same currency), and by managing our working capital. However, in some instances, we sell products in a currency other than the functional currency of the country where it was produced, or purchase products in a currency that differs from the functional currency of the purchasing entity. We may also enter into derivative contracts to mitigate our exposure to foreign currency fluctuations when we have a significant purchase obligation, or a significant receivable denominated in a currency that differs from the functional currency of the transacting subsidiary. We do not enter into derivatives for speculative purposes. There can be no assurance that this approach will protect us from the need to recognize significant foreign currency transaction gains and losses, especially in the event of a significant adverse movement in the value of any foreign currency in which we conduct business against any of our functional currencies, including the U.S. dollar.

Our primary net foreign currency exposures as of January 29, 2023, included the South Korean won, the Japanese yen, the New Taiwan dollar, the RMB, the Singapore dollar, the British pound sterling, and the euro. As of that date, a 10% adverse movement in the value of currencies different from the functional currencies of our subsidiaries would have resulted in a net unrealized pre-tax loss of $42.1 million, which represents an increase of $7.4 million from our exposure at October 31, 2022. Our most significant exposures at January 29, 2023, were exposures of the South Korean won, the RMB, and the New Taiwan Dollar to the U.S. dollar, which were, respectively, $11.8 million, $10.7 million, and $16.6 million at that date. We do not believe that a 10% change in the exchange rates of non-US dollar currencies, other than the aforementioned currencies and the Japanese yen, would have had a material effect on our January 29, 2023, condensed consolidated financial statements.

Interest Rate Risk

A 10% adverse movement in the interest rates on our variable rate borrowings would not have had a material effect on our January 29, 2023, condensed consolidated financial statements.

Item 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We have established, and currently maintain, disclosure controls and procedures, as such term is defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act, designed to provide reasonable assurance that information required to be disclosed in reports filed under the Exchange Act, is recorded, processed, summarized, and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to management, including our chief executive officer and chief financial officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Our management, under the supervision and with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based upon that evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures were effective at a reasonable assurance level as of the end of the period covered by this report.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting during the first fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. LEGAL PROCEEDINGS

Please refer to Note 11 within Item 1 of this report for information on legal proceedings involving the Company.

Item 1A. RISK FACTORS

There have been no material changes to our risk factors as set forth in “Item 1A. Risk Factors” in our 2022 Form 10-K.

Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Issuer Purchases of Equity Securities

In September 2020, the Company’s board of directors authorized the repurchase of up to $100 million of its common stock, pursuant to a repurchase plan under Rule 10b5-1 of the Securities Act. The share repurchase program commenced on September 14, 2020, and all shares repurchased under this program were retired. The table below presents share repurchase activity during the first quarter of 2023 in connection with the payment of withholding taxes related to the vesting of restricted stock awards.

	Total Number of Shares Purchased	Average Price Paid Per share	Total Number of Shares Purchased as Part of Publicly Announced Program	Dollar Value of Shares That May Yet Be Purchased (in millions)
November 1, 2022 – November 27, 2022	0	$ 0.00	0	$ 31.7
November 28, 2022 – December 25, 2022	0	$ 0.00	0	$ 31.7
December 26, 2022 – January 29, 2023	69,587	$ 16.79	0	$ 31.7
Total	69,587		0	

Certain of our debt agreements and lease arrangements include limitations on the amounts of dividends we may pay. Please refer to Note 6 of the condensed consolidated financial statements for information on these limitations.

Item 6. EXHIBITS

Exhibit Number	Description	Incorporated by Reference: Form	File Number	Exhibit	Filing Date	Filed or Furnished Herewith
10.40	Form Restricted Stock Award Agreement					X
10.41	Form Incentive Stock Option Award Agreement					X
10.42	Form Non-Qualified Stock Award Agreement					X
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document					X
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)					X

SIGNATURES

Pursuant to the requirements of the Exchange Act, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Photronics, Inc.
(Registrant)

By:	/s/ JOHN P. JORDAN	By:	/s/ ERIC RIVERA
	JOHN P. JORDAN Executive Vice President, Chief Financial Officer (Principal Financial Officer)		ERIC RIVERA Vice President, Corporate Controller (Principal Accounting Officer)
Date:	March 9, 2023	Date:	March 9, 2023

PHOTRONICS

RESTRICTED STOCK AWARD AGREEMENT

THIS AWARD OF RESTRICTED STOCK (this "Award") made as of the ____ day of ________________ 20___ by Photronics, Inc., a Connecticut corporation (the "Company"), to _______________________________ (the "Recipient").

WITNESSETH:

1) Award. The Company, in accordance with the approval of the Compensation Committee of the Board of Directors (the "Committee"), and subject to the terms and conditions of the Company's 2016 Equity Incentive Compensation Plan (the "Plan") has granted on the date hereof to Recipient a restricted stock award (the "Award") of _______________________________ (___________) shares of the Company's common stock, par value $0.01 per share ("Common Stock"), conditioned upon the achievement of all of the terms and conditions set forth on ***Exhibit "A"*** hereto and subject to all of the specific terms and conditions set forth in this Award. Recipient acknowledges receipt of a copy of the Plan, which is incorporated herein by reference.

2) Forfeiture. The shares subject to the Award shall be forfeited unless all of the terms and conditions set forth in this Award (including the terms and conditions set forth on ***Exhibit "A"*** hereto) have been satisfied and complied with, or, to the extent permitted by the Plan, have been waived by the Committee. Until all risk of forfeiture of the shares subject to the Award shall have lapsed, the certificates representing such shares shall be held by the Company.

3) Voting and Other Rights of Stockholder. Upon issuance in accordance with the Plan of the shares subject to the Award, Recipient shall, subject to the provisions of this Award and the Plan, have the rights of a stockholder with respect to such shares, including the right to vote such shares, but all dividends and distributions paid or made with respect to such shares shall be held by the Company subject to the restrictions, terms and conditions of this Award (including the terms and conditions set forth on ***Exhibit "A"*** hereto) and the Plan.

4) Certificates. The Company will hold the restricted stock subject to this stock award agreement until the stock is released upon achievement of and compliance with all of the terms of this Award (including the terms and conditions set forth on ***Exhibit "A"*** hereto) and the Plan. Upon satisfaction of the terms of this Award and proper vesting of the stock, the stock will be released to a broker account registered in the name of Recipient, and, if deemed necessary by counsel to the Company, legended to evidence any commitments given or restrictions imposed pursuant to this instrument or otherwise.

5) No Right of Employment. Nothing in the Plan or this Award shall confer upon Recipient any right to continue in the employ of the Company or any of its present or future Subsidiaries (as "Subsidiary" is defined in the Plan) or interfere in any way with the right of the Company or the Subsidiaries to terminate such employment at any time without liability to the Company or the Subsidiaries.

6) Representations. Recipient, in accepting the Award, represents and agrees that, in the event of receipt of any shares subject to the Award:

(a) The shares of Common Stock acquired will be acquired for investment and not with a view to the sale or distribution thereof; provided, however, that such restrictions shall be deemed removed and inoperative upon the registration under the Securities Act of 1933, as amended, of the shares of Common Stock subject to the Award; and,

(b) The 2016 Equity Incentive Compensation Plan allows satisfaction of withholding taxes by "net settling" an equivalent value of shares. The Company will net settle the shares awarded hereunder. Please note that you still may owe additional taxes to the Federal government or your local State government depending on your tax bracket; however, if you participate in net settlement you will not owe any additional taxes to the Company.

The fair market value of the number of shares of Common Stock that vest, from this stock award grant, will be treated as compensation, reported by the Company on IRS Form W-2, and subject to withholding for applicable income and employment taxes. The Company will determine the amount of your withholding in accordance with the applicable IRS regulations and satisfy this obligation by “netting” from your award shares of Common Stock with a fair market value equal to your obligation. The Company calculates withholding at the supplemental wage rate or the maximum withholding rate, as applicable, imposed by law where required.

Net settlement is not available for non-US tax payers.

When the restricted stock vests the tax basis in the shares relating to the vesting will equal the total pre-tax income included in your W-2.

An example of how net settlement works is set forth below:

If an employee has a restricted stock grant of 100 shares that vested, 27 will be withheld by the Company immediately to cover for taxes and the remaining 73 shares delivered to the employee brokerage account.

- W-2 income reported will include the total value of 100 shares as income.

- W-2 taxes withheld will include the value of 27 shares withheld to pay income taxes.

7) Transferability; Successors and Assigns. Until the shares subject to the Award are no longer subject to forfeiture, such shares shall not be transferable (except as permitted under the Plan, including without limitation Section 13(a) thereof) and may not be pledged or otherwise hypothecated. Subject to Section 8 below, if at any time Recipient is no longer employed by the Company or a Subsidiary for any reason, all shares subject to the Award which then remain subject to forfeiture, and all dividends and distributions with respect to such shares, shall thereupon be forfeited and automatically transferred to and re-acquired by the Company at no cost to the Company. The Award shall not be affected by any change of employment so long as Recipient continues to be an employee of the Company or any Subsidiary thereof or of a corporation or its parent or subsidiary issuing or assuming stock options of the Company in a transaction to which Section 424(a) of the Internal Revenue Code of 1986, as amended, applies. If Recipient is employed by a Subsidiary which, for any reason, ceases to be a Subsidiary, Recipient's employment with such Subsidiary shall be deemed to be terminated on the date that such Subsidiary ceases to be a Subsidiary. This Award shall be binding upon and enure to the benefits of any successor or assignee of the Company.

8) Exceptions on Certain Terminations. Notwithstanding anything to the contrary contained herein, if Recipient's employment is terminated with the consent of the Company or by reason of death, disability, or normal retirement, the Committee may, in its sole discretion, deem that the restrictions, terms, and conditions of this Award have been met for all or part of the shares subject hereto, subject to further terms and conditions, if any, as the Committee may determine.

9) Competitive Activities. If, while an employee or director of the Company or a Subsidiary thereof or at any time within one (1) year after Recipient ceases to be an employee or non-employee director of the Company or a Subsidiary thereof, Recipient engages in any activity in competition with any activity of the Company or a Subsidiary thereof, including, but not limited to:

(a) conduct related to the Recipient's employment for which either criminal or civil penalties against the Recipient may be sought;

(b) violation of Company policies, including, without limitation, the Company's insider trading policy;

(c) accepting employment with or serving as a consultant, advisor or in any other capacity to an employer that is in competition with or acting against the interests of the Company or a Subsidiary thereof, including employing or recruiting any present, former or future employee of the Company or a Subsidiary thereof;

(d) disclosing or misusing any confidential information or material concerning the Company; or

(e) participating in a hostile takeover attempt, then:

i) the Award and any stock options and other restricted stock awards from the Company (collectively "Grants") shall terminate effective the date on which Recipient enters into such activity, unless terminated sooner by operation of another term or condition of the Plan or the plan under which such Grants were granted;

iii) the aggregate of the closing market value on the date the forfeiture provision expired for all shares subject to the restricted stock awards included in the Grants as to which the forfeiture provision expired within one (1) year prior to the date (the "Termination Date") that Recipient ceased to be a director, employee, consultant, advisor, or independent contractor, or within one (1) year after the Termination Date, shall be paid by the Recipient to the Company.

By accepting this Award, Recipient consents to a deduction from any amounts the Company owes the Recipient from time to time (including amounts owed as wages or other compensation, fringe benefits or vacation pay, as well as any other amounts owed by the Company), to the extent of the amounts the Recipient owes the Company under the foregoing provisions of this Section 9. Whether or not the Company elects to make any set-off in whole or in part, if the Company does not recover by means of set-off the full amount the Recipient owes it, calculated as set forth above, the Recipient agrees to pay immediately the unpaid balance to the Company. Recipient may be released from his/her obligations under this Section 9 only by the Board of Directors or the Compensation Committee of the Company.

10) <u>Plan Governs</u>. The Award and Recipient shall be subject to and bound by the terms and conditions of the Plan, including relating to exercise thereof.

11) <u>Entire Agreement</u>. This Award (together with the Plan) constitutes the entire obligation of the Company as to the subject matter hereof, superseding any and all prior written and prior or contemporaneous oral agreements or understandings.

12) <u>Governing Law</u>. All questions concerning the construction, validity and interpretation of this agreement shall be governed by, and construed in accordance with, the laws of the State of Connecticut, without regard to the choice of law principles thereof.

[THE REMAINDER OF THIS PAGE IS LEFT BLANK]

IN WITNESS WHEREOF, the undersigned have hereunto set their hands as of the day and year first above written.

PHOTRONICS, INC.

By: ______________________________
EVP, Chief Administrative Officer,
General Counsel and Secretary

Recipient:

____
Signature

Date: ______________________________

EXHIBIT "A"

The vesting of the Shares shall be subject to the following conditions:

ONE-QUARTER	of the shares shall vest on the first anniversary after the date of this Award so long as Recipient is still an employee of the Company or a Subsidiary thereof**.**
ONE-QUARTER	of the shares shall vest on the second anniversary after the date of this Award so long as Recipient is still an employee of the Company or a Subsidiary thereof.
ONE-QUARTER	of the shares shall vest on the third anniversary after the date of this Award so long as Recipient is still an employee of the Company or a Subsidiary thereof.
ONE-QUARTER	of the shares shall vest on the fourth anniversary after the date of this Award so long as Recipient is still an employee of the Company or a Subsidiary thereof.

Exhibit 10.41

PHOTRONICS

* INCENTIVE STOCK OPTION AGREEMENT *

PHOTRONICS, INC., a Connecticut corporation (the "Company"), hereby grants _____________________ (the "Optionee"), an option to purchase a total of _______________ ***(__________)*** shares of common stock, par value $.01 per share ("Common Stock") of the Company, at the price determined as provided herein, and in all respects subject to the terms, definitions and provisions of the Company's 2016 Equity Incentive Compensation Plan (the "Plan"), which is incorporated herein by reference.

1) Nature of the Option

The options granted hereunder are intended to be an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"). The terms of any option granted hereunder shall comply in all respects with the provisions of Section 422 of the Code, or any successor provision thereto, as amended from time to time. The options granted hereunder are granted subject to the provisions of Section 8(e) of the Plan relating to Incentive Stock Options.

2) Option Price

The price of the options granted hereunder is $__.__ for each share.

3) Exercise of Option

The option shall be exercisable in accordance with the provisions of the Plan as follows:

(a) ***Right to Exercise***

The options granted hereunder shall be exercisable (subject to the conditions as to employment and other matters contained herein or in the Plan) with respect to one-fourth (1/4) of the shares purchasable hereunder on and after the first anniversary date of grant and, on a cumulative basis, with respect to an additional one-fourth (1/4) of such shares on each anniversary of its grant, so that the options granted hereunder shall be exercisable, to the extent not previously exercised, with respect to all of the shares purchasable hereunder, on and after the fourth anniversary of the date of grant.

(b) ***Method of Exercise***
The options granted hereunder shall be exercisable by delivery of a notice of exercise in a form approved by the Company, which notice shall state the election to exercise the option, the number of shares in respect of which the option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such shares of Common Stock as may be required by the Company pursuant to the provisions of the Plan or this agreement. Such written notice shall be signed by the Optionee and shall be delivered in person or by certified mail to the Secretary of the Company. The written notice shall be accompanied by payment of the purchase price. Payment of the purchase price shall be in cash or cash equivalents (certified check, bank draft or money order), or by such other means as the Administrator may authorize, in each case pursuant to the provisions of the Plan. Unless the shares of Common Stock have been registered under the Securities Act of 1933, as amended, pursuant to a registration statement filed on Form S-8 or otherwise, the certificate or certificates for shares of Common Stock as to which the option shall be exercised shall be registered in the name of the Optionee and shall contain the following legend:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND HAVE BEEN ACQUIRED FOR INVESTMENT PURPOSES ONLY AND NOT WITH A VIEW TO THE DISTRIBUTION THEREOF, AND SUCH SECURITIES MAY NOT BE SOLD OR TRANSFERRED UNLESS SUCH SALE OR TRANSFER IS REGISTERED UNDER THE ACT OR THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THESE SECURITIES SATISFACTORY TO THE COMPANY STATING THAT SUCH SALE OR TRANSFER IS EXEMPT FROM THE REGISTRATION REQUIREMENTS OF THE ACT, AND UNLESS SUCH SALE OR TRANSFER IS AUTHORIZED UNDER APPLICABLE STATE LAW."

(c) ***Restrictions on Exercise***
The options granted hereunder may not be exercised if the issuance of such shares upon such exercise would constitute a violation of any applicable federal or state securities laws or other law or regulation. As a condition to the exercise of the options granted hereunder, the Company may require the Optionee to make any representation and warranty to the Company as may be required by any applicable law or regulation.

4) Forfeiture of Options and Repayment of Market Value of Options
If, while an employee of the Company or a Subsidiary or at any time within one (1) year after Optionee ceases to be an employee of the Company or the Subsidiary, Optionee engages in any activity in competition with any activity of the Company or a Subsidiary thereof, including, but not limited to:

(a) conduct related to the Optionee's employment for which either criminal or civil penalties against the Optionee may be sought;

(b) violation of Company policies, including, without limitation, the Company's insider trading policy;

(c) accepting employment with or serving as a consultant, advisor or in any other capacity to an employer that is in competition with or acting against the interests of the Company or its Subsidiaries, including employing or recruiting any present, former or future employee of the Company or a Subsidiary thereof;

(d) disclosing or mis-using any confidential information or material concerning the Company or its Subsidiaries; or

(e) participating in a hostile takeover attempt, then:

i) options under this agreement and any other stock options and stock awards from the Company (collectively referred to as "Grants") shall terminate effective the date on which the Optionee enters into such activity, unless terminated sooner by operation of another term or condition of the Plan or the plan under which such Grants were granted;

ii) the aggregate difference between the exercise price of options included in the Grants which were exercised within one (1) year prior to the date (the "Termination Date") Optionee ceased to be an employee, consultant, advisor, or independent contractor of the Company or a Subsidiary thereof or within one (1) year after the Termination Date and the closing market value on the date of exercise of such shares covered by such options shall be paid by the Optionee to the Company; and

iii) the aggregate of the closing market value on the date the forfeiture provision expired for all shares subject to restricted stock awards included in the Grants as to which the forfeiture provision expired within one (1) year prior to or after the Termination Date, shall be paid by the Optionee to the Company.

By accepting the options subject to this agreement, the Optionee consents to a deduction from any amounts the Company owes the Optionee from time to time (including amounts owed as wages or other compensation, fringe benefits or vacation pay, as well as any other amounts owed by the Company), to the extent of the amounts the Optionee owes the Company under the foregoing provisions of this Section 4. Whether or not the Company elects to make any set-off in whole or in part, if the Company does not recover by means of set-off the full amount the Optionee owes it, calculated as set forth above, the Optionee agrees to pay immediately the unpaid balance to the Company. In addition, if Optionee fails to pay the Company the full amount due within 30 days of demand by the Company, Optionee agrees to pay the Company's reasonable costs of collection (including attorney's fees) as well as interest on the unpaid amount at the rate of 1% per month or if less, the maximum rate allowed by law, for each day that such amount remains unpaid. Optionee may be released from his/her obligations under this Section 4 only by the Board of Directors or the Compensation Committee of the Company.

5) Non-Transferability of Option, Successors and Assigns

Except as permitted under the Plan (including without limitation Section 13 thereof), the options granted hereunder may not be transferred in any manner and may be exercised during the lifetime of the Optionee only by the Optionee. The terms of this agreement shall be binding upon the executors, administrators, heirs, successors and assigns of the Optionee. This Award shall be binding upon and enure to the benefits of any successor or assignee of the Company.

6) Term of Option

The options granted hereunder may not be exercised more than 10 years from the date of this agreement, and may be exercised during such term only in accordance with the Plan and the terms of this agreement.

7) Termination of Employment

If your employment with the Company or a Subsidiary (as defined in the Plan) is terminated by you or the Company (except as provided in Section 4) for any reason other than disability or death, you may exercise the option, to the extent that you would otherwise be entitled to do so at the date of termination of employment, at any time within 30 days after the date of termination, but not after the expiration date of the option.

8) Withholding

The Company reserves the right to make whatever arrangements it deems appropriate for the withholding of any taxes in connection with any transaction contemplated by this agreement or the Plan, and the Optionee hereby consents to such arrangements.

9) Entire Agreement

This agreement (together with the Plan) supersedes any other agreement, written or oral, between the parties with respect to the subject matter hereof.

10) Governing Law

All questions concerning the construction, validity and interpretation of this agreement shall be governed by, and construed in accordance with, the laws of the State of Connecticut, without regard to the choice of law principles thereof.

Date of Grant: ____________________

PHOTRONICS, INC.

By: ________________________________
Richelle E. Burr
EVP, Chief Administrative Officer,
General Counsel and Secretary

Agreed to and accepted this

_____ *day of* _________, *20*___

____
Signature

Exhibit 10.42

PHOTRONICS

* NON-QUALIFIED STOCK OPTION AGREEMENT *

PHOTRONICS, INC., a Connecticut corporation (the "Company"), hereby grants ______________________________ (the "Optionee") an option to purchase a total of ________________ ***(_______)*** shares of common stock, par value $.01 per share ("Common Stock"), of the Company, at the price determined as provided herein, and in all respects subject to the terms, definitions and provisions of the Company's 2016 Equity Incentive Compensation Plan (the "Plan"), which is incorporated herein by reference.

1) Nature of the Option

The options granted hereunder are not intended to be an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended.

2) Option Price

The price of the options granted hereunder is $__.__ for each share.

3) Exercise of Option

The options granted hereunder shall be exercisable by delivery of a notice of exercise in a form approved by the Company, which notice shall state the election to exercise the option, the number of shares in respect of which the option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such shares of Common Stock as may be required by the Company pursuant to the provisions of the Plan or this agreement. Such written notice shall be signed by the Optionee (or other person entitled to exercise the option pursuant to the provisions of this agreement or the Plan) and shall be delivered in person or by certified mail to the Secretary of the Company. The written notice shall be accompanied by payment of the purchase price. Payment of the purchase price shall be in cash or cash equivalents, shares of Common Stock or a combination thereof, by net share settlement or similar procedure, (by "cashless exercise") or by such other means as the Administrator may authorize, in each case pursuant to the provisions of the Plan. Unless the shares of Common Stock have been registered under the Securities Act of 1933, as amended, pursuant to a registration statement filed on Form S-8 or otherwise, the certificate or certificates for shares of Common Stock as to which the option shall be exercised shall be registered in the name of the Optionee and shall contain the following legend:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND HAVE BEEN ACQUIRED FOR INVESTMENT PURPOSES ONLY AND NOT WITH A VIEW TO THE DISTRIBUTION THEREOF, AND SUCH SECURITIES MAY NOT BE SOLD OR TRANSFERRED UNLESS SUCH SALE OR TRANSFER IS REGISTERED UNDER THE ACT OR THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THESE SECURITIES SATISFACTORY TO THE COMPANY STATING THAT SUCH SALE OR TRANSFER IS EXEMPT FROM THE REGISTRATION REQUIREMENTS OF THE ACT, AND UNLESS SUCH SALE OR TRANSFER IS AUTHORIZED UNDER APPLICABLE STATE LAW."

4) Forfeiture of Options and Repayment of Market Value of Options

If, while an employee of the Company or a Subsidiary thereof or at any time within one (1) year after Optionee ceases to be an employee or Non-Employee Director of the Company or a Subsidiary thereof, Optionee engages in any activity in competition with any activity of the Company or a Subsidiary thereof, including, but not limited to:

(a) conduct related to the Optionee's employment for which either criminal or civil penalties against the Optionee may be sought;

(b) violation of Company policies, including, without limitation, the Company's insider trading policy;

(c) accepting employment with or serving as a consultant, advisor or in any other capacity to an employer that is in competition with or acting against the interests of the Company or its Subsidiaries, including employing or recruiting any present, former or future employee of the Company or a Subsidiary thereof;

(d) disclosing or mis-using any confidential information or material concerning the Company or its Subsidiaries; or

(e) participating in a hostile takeover attempt, then:

i) options under this agreement and any other stock options and stock awards from the Company (collectively referred to as "Grants") shall terminate effective the date on which the Optionee enters into such activity, unless terminated sooner by operation of another term or condition of the Plan or the plan under which such Grants were granted;

ii) the aggregate difference between the exercise price of options included in the Grants which were exercised within one (1) year prior to the date (the "Termination Date") Optionee ceased to be an employee, consultant, advisor, or independent contractor of the Company or a Subsidiary thereof or within one (1) year after the Termination Date and the closing market value on the date of exercise of such shares covered by such options shall be paid by the Optionee to the Company; and

iii) the aggregate of the closing market value on the date the forfeiture provision expired for all shares subject to restricted stock awards included in the Grants as to which the forfeiture provision expired within one (1) year prior to or after the Termination Date shall be paid by the Optionee to the Company.

By accepting the options subject to this agreement, the Optionee consents to a deduction from any amounts the Company owes the Optionee from time to time (including amounts owed as wages or other compensation, fringe benefits or vacation pay, as well as any other amounts owed by the Company), to the extent of the amounts the Optionee owes the Company under the foregoing provisions of this Section 4. Whether or not the Company elects to make any set-off in whole or in part, if the Company does not recover by means of set-off the full amount the Optionee owes it, calculated as set forth above, the Optionee agrees to pay immediately the unpaid balance to the Company. In addition, if Optionee fails to pay the Company the full amount due within 30 days of demand by the Company, Optionee agrees to pay the Company's reasonable costs of collection (including attorney's fees) as well as interest on the unpaid amount at the rate of 1% per month or if less, the maximum rate allowed by law, for each day that such amount remains unpaid. Optionee may be released from his/her obligations under this Section 4 only by the Board of Directors or the Compensation Committee of the Company.

5) Extent of Exercise

The options granted hereunder shall be exercisable (subject to the conditions as to employment and other matters contained herein or in the Plan, including without limitation Section 13(b) of the Plan) with respect to one-fourth (1/4) of the shares purchasable hereunder on and after the first anniversary date of grant and, on a cumulative basis, with respect to an additional one-fourth (1/4) of such shares on each anniversary of its grant, so that the option granted hereunder shall be exercisable, to the extent not previously exercised, with respect to all of the shares purchasable hereunder, on and after the fourth anniversary of the date of grant.

6) Restrictions on Exercise

The options granted hereunder may not be exercised if the issuance of such shares upon such exercise would constitute a violation of any applicable Federal or state securities laws or other law or regulation. As a condition to the exercise of the options granted hereunder, the Company may require the Optionee to make any representation or warranty to the Company as may be required by any applicable law or regulation or as may otherwise be appropriate.

7) Non-Transferability of Option, Successors, and Assigns

The options granted hereunder may not be transferred in any manner otherwise than by will or by the laws of descent or distribution (or as otherwise permitted under the Plan, including without limitation Section 13 thereof) and may be exercised, during the lifetime of the Optionee, only by the Optionee. The terms of this agreement shall be binding upon the executors, administrators, heirs, successors and assigns of the Optionee. This agreement shall be binding upon and enure to the benefits of any successor or assignee of the Company.

8) Term of Option

The options granted hereunder may not be exercised more than 10 years from the date of this agreement and may be exercised during such term only in accordance with the Plan, including the terms thereof prohibiting or restricting exercise after a termination of the Optionee's relationship with the Company.

9) Termination of Employment

If your employment with the Company or a Subsidiary (as defined in the Plan) is terminated by you or the Company (except as provided in Section 4 above) for any reason other than disability or death, you may exercise the option, to the extent that you would otherwise be entitled to do so at the date of termination of employment, at any time within 30 days after the date of termination, but not after the expiration date of the option.

10) Withholding

The Company reserves the right to make whatever arrangements it deems appropriate for the withholding of any taxes in connection with any transaction contemplated by this agreement or the Plan, and the Optionee hereby consents to such arrangements.

11) Entire Agreement

This agreement (together with the Plan) supersedes any other agreement, written or oral, between the parties with respect to the subject matter hereof.

12) Governing Law

All questions concerning the construction, validity and interpretation of this agreement shall be governed by, and construed in accordance with, the laws of the State of Connecticut, without regard to the choice of law principles thereof.

Date of Grant: ____________________

PHOTRONICS, INC.

By: ________________________________
Richelle E. Burr
EVP, Chief Administrative Officer,
General Counsel and Secretary

Agreed to and accepted this

_____ *day of* _________, *20*___

____
Signature

EXHIBIT 31.1

I, Frank Lee, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Photronics, Inc.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report.

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Frank Lee

Frank Lee
Chief Executive Officer
March 9, 2023

EXHIBIT 31.2

I, John P. Jordan, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Photronics, Inc.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report.

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ JOHN P. JORDAN

John P. Jordan
Chief Financial Officer
March 9, 2023

EXHIBIT 32.1

Section 1350 Certification of the Chief Executive Officer

I, Frank Lee, Chief Executive Officer of Photronics, Inc. (the "Company"), certify, to my knowledge, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(1) The Quarterly Report on Form 10-Q of the Company for the quarter ended January 29, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

The foregoing certification is being furnished pursuant to 18 U.S.C. § 1350 and will not be deemed "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

/s/ Frank Lee

Frank Lee
Chief Executive Officer
March 9, 2023

EXHIBIT 32.2

Section 1350 Certification of the Chief Financial Officer

I, John P. Jordan, Chief Financial Officer of Photronics, Inc. (the “Company”), certify, to my knowledge, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(1) The Quarterly Report on Form 10-Q of the Company for the quarter ended January 29, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

The foregoing certification is being furnished pursuant to 18 U.S.C. § 1350 and will not be deemed "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

/s/ JOHN P. JORDAN

John P. Jordan
Chief Financial Officer
March 9, 2023