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 27, 2019

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 000-06920

Applied Materials, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**94-1655526**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
3050 Bowers Avenue, P.O. Box 58039 Santa Clara, California	**95052-8039**
(Address of principal executive offices)	*(Zip Code)*

(408) 727-5555

(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to 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 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 definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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 ☑

Number of shares outstanding of the issuer's common stock as of January 27, 2019: 949,392,609

APPLIED MATERIALS, INC.

FORM 10-Q FOR THE QUARTERLY PERIOD ENDED JANUARY 27, 2019

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PART I. FINANCIAL INFORMATION

Item 1. *Financial Statements*

APPLIED MATERIALS, INC.

CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS

(In millions, except per share amounts)

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(Unaudited)	
Net sales	$ 3,753	$ 4,205
Cost of products sold	2,088	2,265
Gross profit	1,665	1,940
Operating expenses:		
Research, development and engineering	516	489
Marketing and selling	131	126
General and administrative	110	110
Total operating expenses	757	725
Income from operations	908	1,215
Interest expense	60	59
Interest and other income, net	40	27
Income before income taxes	888	1,183
Provision for income taxes	117	1,018
Net income	$ 771	$ 165
Earnings per share:		
Basic	$ 0.81	$ 0.16
Diluted	$ 0.80	$ 0.15
Weighted average number of shares:		
Basic	957	1,056
Diluted	965	1,071

See accompanying Notes to Consolidated Condensed Financial Statements.

APPLIED MATERIALS, INC.

CONSOLIDATED CONDENSED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(Unaudited)	
Net income	$ 771	$ 165
Other comprehensive income (loss), net of tax:		
Change in unrealized gain (losses) on available-for-sale investments	5	6
Change in unrealized net loss on derivative instruments	(17)	(19)
Change in defined and postretirement benefit plans	—	(2)
Other comprehensive income (loss), net of tax	(12)	(15)
Comprehensive income	$ 759	$ 150

See accompanying Notes to Consolidated Condensed Financial Statements.

APPLIED MATERIALS, INC.

CONSOLIDATED CONDENSED BALANCE SHEETS
(In millions)

	January 27, 2019	October 28, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 3,192	$ 3,440
Short-term investments	520	590
Accounts receivable, net	2,444	2,323
Inventories	3,703	3,721
Other current assets	426	530
Total current assets	10,285	10,604
Long-term investments	1,588	1,568
Property, plant and equipment, net	1,456	1,407
Goodwill	3,368	3,368
Purchased technology and other intangible assets, net	199	213
Deferred income taxes and other assets	2,026	473
Total assets	$ 18,922	$ 17,633
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$ 2,420	$ 2,721
Contract liabilities	1,356	1,201
Total current liabilities	3,776	3,922
Income taxes payable	1,303	1,254
Long-term debt	5,310	5,309
Other liabilities	324	303
Total liabilities	10,713	10,788
Stockholders' equity:		
Common stock	9	10
Additional paid-in capital	7,265	7,274
Retained earnings	23,032	20,880
Treasury stock	(21,943)	(21,194)
Accumulated other comprehensive loss	(154)	(125)
Total stockholders' equity	8,209	6,845
Total liabilities and stockholders' equity	$ 18,922	$ 17,633

Amounts as of January 27, 2019 are unaudited. Amounts as of October 28, 2018 are derived from the October 28, 2018 audited consolidated financial statements.

See accompanying Notes to Consolidated Condensed Financial Statements.

APPLIED MATERIALS, INC

CONSOLIDATED CONDENSED STATEMENTS OF STOCKHOLDERS' EQUITY

(In millions)

Three Months Ended January 27, 2019	Common Stock		Additional Paid-In Capital	Retained Earnings	Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Total
	Shares	Amount			Shares	Amount		
				(Unaudited)				
Balance as of October 28, 2018	967	$ 10	$ 7,274	$ 20,880	1,019	$ (21,194)	$ (125)	$ 6,845
Adoption of new accounting standards (a)	—	—	—	1,570	—	—	(17)	1,553
Net income	—	—	—	771	—	—	—	771
Other comprehensive loss, net of tax	—	—	—	—	—	—	(12)	(12)
Dividends declared ($0.20 per common share)	—	—	—	(189)	—	—	—	(189)
Share-based compensation	—	—	65	—	—	—	—	65
Issuance under stock plans	4	—	(74)	—	—	—	—	(74)
Common stock repurchases	(22)	(1)	—	—	22	(749)	—	(750)
Balance as of January 27, 2019	949	$ 9	$ 7,265	$ 23,032	1,041	$ (21,943)	$ (154)	$ 8,209

(a) - Represents the reclassification adjustment related to the adoption of Accounting Standard Update (ASU) 2016-01 *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* and ASU 2016-16 *Income Tax (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*. See Note 1.

Three Months Ended January 28, 2018	Common Stock		Additional Paid-In Capital	Retained Earnings (b)	Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Total
	Shares	Amount			Shares	Amount		
				(Unaudited)				
Balance as of October 29, 2017	1,060	$ 11	$ 7,056	$ 18,539	917	$ (15,912)	$ (64)	$ 9,630
Net income	—	—	—	165	—	—	—	165
Other comprehensive loss, net of tax	—	—	—	—	—	—	(15)	(15)
Dividends declared ($0.10 per common share)	—	—	—	(105)	—	—	—	(105)
Share-based compensation	—	—	65	—	—	—	—	65
Issuance under stock plans	5	—	(141)	—	—	—	—	(141)
Common stock repurchases	(15)	—	—	—	15	(782)	—	(782)
Balance as of January 28, 2018	1,050	$ 11	$ 6,980	$ 18,599	932	$ (16,694)	$ (79)	$ 8,817

(b) - Retained earnings balance as of October 29, 2017 included adjustment of $281 million related to the adoption of the standard related to revenue recognition.

See accompanying Notes to Consolidated Condensed Financial Statements.

APPLIED MATERIALS, INC.

CONSOLIDATED CONDENSED STATEMENTS OF CASH FLOWS
(In millions)

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(Unaudited)	
Cash flows from operating activities:		
Net income	$ 771	$ 165
Adjustments required to reconcile net income to cash provided by operating activities:		
Depreciation and amortization	88	119
Share-based compensation	65	65
Deferred income taxes	41	32
Other	1	—
Changes in operating assets and liabilities:		
Accounts receivable	(121)	156
Inventories	18	(211)
Other current and non-current assets	76	78
Accounts payable and accrued expenses	(313)	(127)
Contract liabilities	155	350
Income taxes payable	41	807
Other liabilities	12	32
Cash provided by operating activities	834	1,466
Cash flows from investing activities:		
Capital expenditures	(133)	(203)
Cash paid for acquisitions, net of cash acquired	—	(5)
Proceeds from sales and maturities of investments	464	1,944
Purchases of investments	(397)	(384)
Cash provided by (used in) investing activities	(66)	1,352
Cash flows from financing activities:		
Common stock repurchases	(750)	(782)
Tax withholding payments for vested equity awards	(74)	(141)
Payments of dividends to stockholders	(192)	(106)
Cash used in financing activities	(1,016)	(1,029)
Increase (decrease) in cash and cash equivalents	(248)	1,789
Cash and cash equivalents — beginning of period	3,440	5,010
Cash and cash equivalents — end of period	$ 3,192	$ 6,799
Supplemental cash flow information:		
Cash payments for income taxes	$ 34	$ 78
Cash refunds from income taxes	$ 8	$ 40
Cash payments for interest	$ 34	$ 34

See accompanying Notes to Consolidated Condensed Financial Statements.

APPLIED MATERIALS, INC.

NOTES TO CONSOLIDATED CONDENSED FINANCIAL STATEMENTS
(Unaudited)

Note 1 Basis of Presentation

Basis of Presentation

In the opinion of management, the unaudited interim consolidated condensed financial statements of Applied Materials, Inc. and its subsidiaries (Applied or the Company) included herein have been prepared on a basis consistent with the October 28, 2018 audited consolidated financial statements and include all material adjustments, consisting of normal recurring adjustments, necessary to fairly present the information set forth therein. These unaudited interim consolidated condensed financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in Applied's Annual Report on Form 10-K for the fiscal year ended October 28, 2018 (2018 Form 10-K). Applied's results of operations for the three months ended January 27, 2019 are not necessarily indicative of future operating results. Applied's fiscal year ends on the last Sunday in October of each year. Fiscal 2019 and 2018 each contain 52 weeks, and the first three months of fiscal 2019 and 2018 each contained 13 weeks.

At the beginning of the first quarter of fiscal 2019, Applied adopted the new revenue recognition standard using the full retrospective method. All financial statements and disclosures have been recast to comply with this new guidance. See "Recent Accounting Pronouncements - Accounting Standards Adopted" section below for further information.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ materially from those estimates. On an ongoing basis, Applied evaluates its estimates, including those related to standalone selling price (SSP) related to revenue recognition, accounts receivable and sales allowances, fair values of financial instruments, inventories, intangible assets and goodwill, useful lives of intangible assets and property and equipment, fair values of share-based awards, and income taxes, among others. Applied bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities.

Changes to Significant Accounting Policies

Applied adopted various amended guidance during the first quarter of fiscal 2019. The following accounting policies have been updated as part of the adoption of the new standards.

Allowance for Doubtful Accounts

Applied maintains an allowance for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. This allowance is based on historical experience, credit evaluations, specific customer collection history and any customer-specific issues Applied has identified. Changes in circumstances, such as an unexpected material adverse change in a major customer's ability to meet its financial obligation to Applied or its payment trends, may require Applied to further adjust its estimates of the recoverability of amounts due to Applied. Bad debt expense and any reversals are recorded in marketing and selling expenses in the Consolidated Condensed Statement of Operations.

Sales and Value Added Taxes

Taxes collected from customers and remitted to governmental authorities are presented on a net basis in the accompanying Consolidated Condensed Statements of Operations.

Shipping and Handling Costs

Applied accounts for shipping and handling activities related to contracts with customers as costs to fulfill our promise to transfer the associated products. Accordingly, amounts billed for shipping and handling costs are recorded as a component of net sales and costs as a component of cost of products sold.

Warranty

Applied provides for the estimated cost of warranty when revenue is recognized. Estimated warranty costs are determined by analyzing specific product, current and historical configuration statistics and regional warranty support costs. Applied's warranty obligation is affected by product and component failure rates, material usage and labor costs incurred in correcting product failures during the warranty period. If actual warranty costs differ substantially from Applied's estimates, revisions to the estimated warranty liability would be required.

Applied also sells extended warranty contracts to its customers which provide an extension of the standard warranty coverage period of up to 2 years. Applied receives payment at the inception of the contract and recognizes revenue ratably over the extended warranty coverage period, as the customer simultaneously receives and consumes the benefits of the extended warranty.

Revenue Recognition from Contracts with Customers

Applied recognizes revenue when promised goods or services are transferred to a customer in an amount that reflects the consideration to which Applied expects to be entitled in exchange for those goods or services. Applied determines revenue recognition through the following five steps; (1) identification of the contract(s) with customers, (2) identification of the performance obligations in the contract, (3) determination of the transaction price, (4) allocation of the transaction price to the performance obligations in the contract, and (5) recognition of revenue when, or as, a performance obligation is satisfied.

Identifying the contract(s) with customers. Applied sells manufacturing equipment, services, and spare parts directly to its customers in the semiconductor, display, and related industries. The Company generally considers written documentation including, but not limited to, signed purchase orders, master agreements, and sales orders as contracts provided that collection is probable. Collectability is assessed based on the customer's creditworthiness determined by reviewing the customer's published credit and financial information, historical payment experience, as well as other relevant factors.

Identifying the performance obligations. Applied's performance obligations include delivery of manufacturing equipment, service agreements, spare parts, installation, extended warranty and training. Applied's service agreements are considered one performance obligation and may include multiple goods and services that we provide to the customer to deliver against a performance metric. Judgment is used to determine whether multiple promised goods or services in a contract should be accounted for separately or as a group.

Determine the transaction price. The transaction price for Applied's contracts with customers may include fixed and variable consideration. Applied includes variable consideration in the transaction price to the extent that it is probable that a significant reversal of revenue will not occur when the uncertainty associated with the variable consideration is subsequently resolved.

Allocate the transaction price to the performance obligations. A contract's transaction price is allocated to each distinct performance obligation identified within the contract. Applied generally estimates the standalone selling price of a distinct performance obligation based on historical cost plus an appropriate margin. For contracts with multiple performance obligations, Applied allocates the contract's transaction price to each performance obligation using the relative standalone selling price of each distinct good or service in the contract.

Recognizing the revenue as performance obligations are satisfied. Applied recognizes revenue from equipment and spares parts at a point in time when Applied has satisfied its performance obligation by transferring control of the goods to the customer which typically occurs at shipment or delivery. Revenue from service agreements is recognized over time as customers receive the benefits of services.

The incremental costs to obtain a contract are not material.

Payment Terms. Payment terms vary by contract. Generally, the majority of payments are due within a certain number of days from shipment of goods or performance of service. The remainder is typically due upon customer technical acceptance. Applied typically receives deposits on future deliverables from customers in the Display and Adjacent Markets segment and, in certain instances, may also receive deposits from customers in the Applied Global Services segment. Applied's payment terms do not generally contain a significant financing component.

Investments

All of Applied's investments, except equity investments held in privately-held companies, are classified as available-for-sale at the respective balance sheet dates. Investments classified as available-for-sale are measured and recorded at fair value with changes in fair value recorded in the accompanying Consolidated Statements of Operations. Interest earned on cash and investments, as well as realized gains and losses on sale of securities, are included in interest and other income, net in the accompanying Consolidated Condensed Statements of Operations.

Equity investments without readily determinable fair value are measured at cost, less impairment, adjusted by observable price changes. Adjustments resulting from impairments and observable prices changes will be recorded in the accompanying Consolidated Condensed Statements of Operations.

Recent Accounting Pronouncements

Accounting Standards Adopted

Retirement Benefits. In March 2017, the FASB issued authoritative guidance which requires companies to present the service cost component of net benefit cost in the same line items in which they report compensation cost. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. Applied adopted this guidance in the first quarter of fiscal 2019 on a retrospective basis. The adoption of this guidance resulted in reclassification of other components of net benefit costs outside of income from operations and did not have a significant impact on Applied’s consolidated financial statements.

Business Combinations. In January 2017, the FASB issued authoritative guidance that clarifies the definition of a business to help companies evaluate whether acquisition or disposal transactions should be accounted for as asset groups or as businesses. Applied adopted this guidance in the first quarter of fiscal 2019 on a prospective basis. The impact of the adoption depends on the facts and circumstances of future acquisition or disposal transactions.

Income Taxes: Intra-Entity Asset Transfers. In October 2016, the FASB issued authoritative guidance that changed the tax accounting for intra-entity transfers of assets other than inventory. After adoption, the income tax effect of intra-entity transfers is realized at the time of the transfer instead of over the life of the asset. Applied adopted this guidance in the first quarter of fiscal 2019 using a modified retrospective approach, resulting in a cumulative effect adjustment to retained earnings. Upon adoption, deferred tax assets increased by $1.6 billion related to the estimated income tax effects of future amortization of intra-entity intangible asset transfers, with an offset to retained earnings.

Classification of Certain Cash Receipts and Cash Payments. In August 2016, the FASB issued authoritative guidance which addresses classification of certain cash receipts and cash payments related to the statement of cash flows. Effective in the first quarter of fiscal 2019, Applied adopted the authoritative guidance retrospectively. The adoption of this guidance did not have a significant impact and only impacts disclosures in Applied' s consolidated condensed statements of cash flow.

Financial Instruments: Classification and Measurement. In January 2016, the FASB issued authoritative guidance that requires equity investments that do not result in consolidation, and are not accounted for under the equity method, to be measured at fair value, and requires recognition of any changes in fair value in net income unless the investments qualify for a new measurement alternative. For financial liabilities measured at fair value, the change in fair value caused by a change in instrument-specific credit risk will be required to be presented separately in other comprehensive income. Applied adopted this standard in the first quarter of fiscal year 2019. Upon adoption, Applied elected to apply the measurement alternative for equity investments without readily determinable fair value. Under the alternative, Applied measures investments without readily determinable fair value at cost, less impairment, adjusted by observable price changes prospectively to all equity investments that exist as of adoption and will reassess at each reporting period whether an investment qualifies for the alternative. Adopting this standard required Applied to record a cumulative net increase to retained earnings of approximately $21 million with the corresponding $17 million decrease in accumulated other comprehensive income, net of tax, for the unrealized gains and losses associated with equity investments with readily determinable fair values, as the authoritative guidance is required to be adopted prospectively. Going forward, the impact of this new standard could result in volatility in Applied's consolidated statement of operations.

Revenue Recognition. In May 2014, the FASB issued authoritative guidance that requires revenue recognition to depict the transfer of promised goods or services to a customer in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services and requires certain additional disclosures. Applied adopted this authoritative guidance in the first quarter of fiscal 2019 using the full retrospective method, which required restating each prior reporting period presented. Refer to the Impacts to Previously Reported Results section below for the impact of the adoption of the standard to Applied’s consolidated financial statements.

For all periods prior to the date of initial adoption of this standard, Applied elected to use the practical expedient pursuant to which Applied excluded disclosures of both transaction prices allocated to remaining performance obligations and when these performance obligations are expected to be recognized as revenue.

The most significant impact from the adoption of this standard is fewer constraints on revenue recognition upon shipment of manufacturing equipment.

Impacts to Previously Reported Results

Adoption of the standards related to revenue recognition and retirement benefits impacted Applied's Consolidated Condensed Statement of Operations for the first quarter of fiscal 2018 as follows:

	Three Months Ended January 28, 2018			
	As Previously Reported	Revenue Recognition Adjustment	Retirement Benefit Adjustment	As Adjusted
	(In millions, except per share amounts)			
Net sales	$ 4,204	$ 1	$ —	$ 4,205
Cost of products sold	$ 2,284	$ (20)	$ 1	$ 2,265
Gross profit	$ 1,920	$ 21	$ (1)	$ 1,940
Research, development and engineering	$ 488	$ —	$ 1	$ 489
Interest and other income, net	$ 25	$ —	$ 2	$ 27
Income before income taxes	$ 1,162	$ 21	$ (2)	$ 1,183
Provision for income taxes	$ 1,027	$ (9)	$ —	$ 1,018
Net income	$ 135	$ 30	$ —	$ 165
Earnings per share: basic	$ 0.13	$ 0.03	$ —	$ 0.16
Earnings per share: diluted	$ 0.13	$ 0.02	$ —	$ 0.15

Adoption of the retirement benefits standard did not have any impact on Applied's Consolidated Balance Sheet or Consolidated Condensed Statement of Cash Flows.

Adoption of the standard related to revenue recognition impacted Applied's Consolidated Balance Sheet at October 28, 2018 as follows:

	October 28, 2018		
	As Previously Reported	Adjustment	As Adjusted
	(In millions)		
Accounts receivable, net	$ 2,565	$ (242)	$ 2,323
Inventories	$ 3,722	$ (1)	$ 3,721
Other current assets	$ 430	$ 100	$ 530
Deferred income taxes and other assets	$ 470	$ 3	$ 473
Customer deposits and deferred revenue	$ 1,347	$ (1,347)	$ —
Contract liabilities	$ —	$ 1,201	$ 1,201
Retained earnings	$ 20,874	$ 6	$ 20,880

Adoption of the revenue recognition standard did not impact cash provided by or used in investing or financing activities in Applied's consolidated Condensed Statement of Cash Flows for the first quarter of fiscal 2018. The adoption did not impact total cash provided by operating activities, however it impacted individual components of cash provided by operating activities for the first quarter of fiscal 2018 as follows:

	Three Months Ended January 28, 2018		
	As Previously Reported	Adjustment	As Adjusted
	(In millions)		
Cash flows from operating activities:			
Net income	$ 135	$ 30	$ 165
Adjustments required to reconcile net income to cash provided by operating activities:			
Deferred income taxes	$ 41	$ (9)	$ 32
Changes in operating assets and liabilities:			
Inventories	$ (195)	$ (16)	$ (211)
Accounts payable and accrued expenses	$ (125)	$ (2)	$ (127)
Contract liabilities	$ 353	$ (3)	$ 350

Accounting Standards Not Yet Adopted

Retirement Benefits: Changes to the Disclosure Requirements for Defined Benefit and other Postretirement Plans. In August 2018, the FASB issued authoritative guidance that adds, removes, and clarifies disclosure requirements for defined benefit and other postretirement plans. This authoritative guidance will be effective for Applied in fiscal 2021 on a retrospective basis, with early adoption permitted. Applied is currently evaluating the effect of this new guidance on Applied's consolidated financial statements.

Fair Value Measurement: Changes to the Disclosure Requirements for Fair Value Measurement. In August 2018, the FASB issued authoritative guidance that eliminates, amends, and adds disclosure requirements for fair value measurements. While the amended and new disclosure requirements primarily relate to Level 3 fair value measurements, the authoritative guidance also eliminates disclosure requirements related to the amount and reasons for transfer between Level 1 and Level 2 of fair value hierarchy, policy for timing of transfer between levels, and the valuation processes for Level 3 fair value measurements. The authoritative guidance will be effective for Applied in the first quarter of fiscal 2020. Early adoption is permitted only for the removal and amendment of certain disclosures, while the new disclosures requirements are to be applied prospectively. Applied is currently evaluating the effect of this new guidance on Applied's consolidated financial statements.

Derivatives and Hedging. In August 2017, the FASB issued authoritative guidance that modifies the recognition and presentation of hedge accounting to better align an entity's risk management strategies and financial reporting for hedging relationships. The authoritative guidance expands the application of hedge accounting for non-financial and financial risk components and eases certain hedge effectiveness assessment requirements. The authoritative guidance will be effective for Applied in the first quarter of fiscal 2020, with early adoption permitted. Applied is currently evaluating the effect of this new guidance on Applied's consolidated financial statements.

Receivables: Nonrefundable Fees and Other Costs. In March 2017, the FASB issued authoritative guidance that will shorten the amortization period for certain callable debt securities held at a premium to the earliest call date to more closely align with expectations incorporated in market pricing. This authoritative guidance will be effective for Applied in the first quarter of fiscal 2020 on a modified retrospective basis, with early adoption permitted. Applied is currently evaluating the impact of adopting this new accounting guidance on Applied's consolidated financial statements.

Goodwill Impairment. In January 2017, the FASB issued authoritative guidance that simplifies the process required to test goodwill for impairment. The authoritative guidance will be effective for Applied in the first quarter of fiscal 2021. Early adoption is permitted. The adoption of this guidance is not expected to have a significant impact on Applied's consolidated financial statements.

Financial Instruments: Credit Losses. In June 2016, the FASB issued authoritative guidance that modifies the impairment model for certain financial assets by requiring use of an expected loss methodology, which will result in more timely recognition of credit losses. The authoritative guidance will be effective for Applied in the first quarter of fiscal 2021. Early adoption is permitted beginning in the first quarter of fiscal 2020. Applied is currently evaluating the effect of this new guidance on Applied’s consolidated financial statements.

Leases. In February 2016, the FASB issued authoritative guidance for lease accounting, which requires lessees to recognize lease assets and liabilities on the balance sheet for certain lease arrangements that are classified as operating leases under the previous standard, and to provide for enhanced disclosures. The authoritative guidance will be effective for Applied in the first quarter of fiscal 2020 and should be applied using a modified retrospective approach. Early adoption is permitted. Applied is currently evaluating the effect of this new guidance on Applied’s consolidated financial statements.

Note 2 Earnings Per Share

Basic earnings per share is determined using the weighted average number of common shares outstanding during the period. Diluted earnings per share is determined using the weighted average number of common shares and potential common shares (representing the dilutive effect of stock options, restricted stock units, and employee stock purchase plan shares) outstanding during the period. Applied's net income has not been adjusted for any period presented for purposes of computing basic or diluted earnings per share due to the Company's non-complex capital structure.

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions, except per share amounts)	
Numerator:		
Net income	$ 771	$ 165
Denominator:		
Weighted average common shares outstanding	957	1,056
Effect of weighted dilutive stock options, restricted stock units and employee stock purchase plan shares	8	15
Denominator for diluted earnings per share	965	1,071
Basic earnings per share	$ 0.81	$ 0.16
Diluted earnings per share	$ 0.80	$ 0.15
Potentially weighted dilutive securities	8	—

Potentially weighted dilutive securities attributable to outstanding stock options and restricted stock units are excluded from the calculation of diluted earnings per share where the combined exercise price and average unamortized fair value are greater than the average market price of Applied common stock, and therefore their inclusion would be anti-dilutive.

Note 3 Cash, Cash Equivalents and Investments

Summary of Cash, Cash Equivalents and Investments

The following tables summarize Applied's cash, cash equivalents and investments:

January 27, 2019	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
		(In millions)		
Cash	$ 1,016	$ —	$ —	$ 1,016
Cash equivalents:				
Money market funds	1,911	—	—	1,911
Commercial paper, corporate bonds and medium-term notes	265	—	—	265
Total Cash equivalents	2,176	—	—	2,176
Total Cash and Cash equivalents	$ 3,192	$ —	$ —	$ 3,192
Short-term and long-term investments:				
U.S. Treasury and agency securities	$ 375	$ —	$ —	$ 375
Non-U.S. government securities*	9	—	—	9
Municipal securities	402	1	2	401
Commercial paper, corporate bonds and medium-term notes	628	1	3	626
Asset-backed and mortgage-backed securities	565	—	3	562
Total fixed income securities	1,979	2	8	1,973
Publicly traded equity securities	15	20	4	31
Equity investments in privately-held companies	104	—	—	104
Total equity investments	119	20	4	135
Total short-term and long-term investments	$ 2,098	$ 22	$ 12	$ 2,108
Total Cash, Cash equivalents and Investments	$ 5,290	$ 22	$ 12	$ 5,300

* Includes agency debt securities guaranteed by Canada.

October 28, 2018	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
		(In millions)		
Cash	$ 1,489	$ —	$ —	$ 1,489
Cash equivalents:				
Money market funds	1,599	—	—	1,599
Commercial paper, corporate bonds and medium-term notes	352	—	—	352
Total Cash equivalents	1,951	—	—	1,951
Total Cash and Cash equivalents	$ 3,440	$ —	$ —	$ 3,440
Short-term and long-term investments:				
U.S. Treasury and agency securities	$ 335	$ —	$ 2	$ 333
Non-U.S. government securities*	10	—	—	10
Municipal securities	399	—	4	395
Commercial paper, corporate bonds and medium-term notes	705	—	3	702
Asset-backed and mortgage-backed securities	595	—	4	591
Total fixed income securities	2,044	—	13	2,031
Publicly traded equity securities	17	25	4	38
Equity investments in privately-held companies	89	—	—	89
Total equity investments	106	25	4	127
Total short-term and long-term investments	$ 2,150	$ 25	$ 17	$ 2,158
Total Cash, Cash equivalents and Investments	$ 5,590	$ 25	$ 17	$ 5,598

* Includes agency debt securities guaranteed by Canada.

Maturities of Investments

The following table summarizes the contractual maturities of Applied’s investments as of January 27, 2019:

	Cost	Estimated Fair Value
	(In millions)	
Due in one year or less	$ 429	$ 428
Due after one through five years	985	983
No single maturity date**	684	697
Total	$ 2,098	$ 2,108

** Securities with no single maturity date include publicly-traded and privately-held equity securities and asset-backed and mortgage-backed securities.

Gains and Losses on Investments

During the three months ended January 27, 2019 and January 28, 2018, gross realized gains and losses on investments for these periods were not material.

As of January 27, 2019, and October 28, 2018, gross unrealized losses related to Applied’s debt investment portfolio were not material. Applied regularly reviews its debt investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether an unrealized loss is considered to be temporary, or other-than-temporary and therefore impaired, include: the length of time and extent to which fair value has been lower than the cost basis; the financial condition, credit quality and near-term prospects of the investee; and whether it is more likely than not that Applied will be required to sell the security prior to recovery.

Applied determined that the gross unrealized losses on its marketable fixed-income securities as of January 27, 2019 and January 28, 2018 were temporary in nature and therefore it did not recognize any impairment of its marketable fixed-income securities during the three months ended January 27, 2019 or January 28, 2018. Impairment charges on equity investments in privately-held companies during the three months ended January 27, 2019 and January 28, 2018 were not material. These impairment charges are included in interest and other income, net in the Consolidated Condensed Statement of Operations.

Unrealized gains and losses on investments classified as equity investments are recognized in other income (expense), net in the Consolidated Condensed Statement of Operations. Prior to the adoption of Accounting Standards Update (ASU) 2016-01 *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* in the first quarter of fiscal 2019, these unrealized gains and temporary losses were included within accumulated other comprehensive income (loss), net of any related tax effect.

The components of gain (losses) on equity investments for the three months ended January 27, 2019 were as follows:

	Three Months Ended January 27, 2019
	(In millions)
Publicly traded equity securities	
Unrealized gain	$ 6
Unrealized loss	(2)
Gain on sales	1
Loss on sales	—
Equity investments in privately-held companies	
Unrealized gain	7
Unrealized loss	(1)
Gain on sales	1
Loss on sales	—
Total gain on equity investments, net	$ 12

Note 4 Fair Value Measurements

Applied’s financial assets are measured and recorded at fair value, except for equity investments in privately-held companies. These equity investments are generally accounted for under the measurement alternative, defined as cost, less impairments, adjusted for subsequent observable price changes and are periodically assessed for impairment when events or circumstances indicate that a decline in value may have occurred. Applied’s nonfinancial assets, such as goodwill, intangible assets, and property, plant and equipment, are recorded at cost and are assessed for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable.

Fair Value Hierarchy

Applied uses the following fair value hierarchy, which prioritizes the inputs to valuation techniques used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

- Level 1 — Quoted prices in active markets for identical assets or liabilities;
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Applied’s investments consist primarily of debt securities that are classified as available-for-sale and recorded at their fair values. In determining the fair value of investments, Applied uses pricing information from pricing services that value securities based on quoted market prices and models that utilize observable market inputs. In the event a fair value estimate is unavailable from a pricing service, Applied generally obtains non-binding price quotes from brokers. Applied then reviews the information provided by the pricing services or brokers to determine the fair value of its short-term and long-term investments. In addition, to validate pricing information obtained from pricing services, Applied periodically performs supplemental analysis on a sample of securities. Applied reviews any significant unanticipated differences identified through this analysis to determine the appropriate fair value. As of January 27, 2019, substantially all of Applied’s available-for-sale, short-term and long-term investments were recognized at fair value that was determined based upon observable inputs.

Applied’s equity investments with readily determinable values consist of publicly traded equity securities. Upon adoption of ASU 2016-01, these investments are measured at fair value using quoted prices for identical assets in an active market and the changes in fair value of these equity investments are recognized in the consolidated statements of operations. Applied adopted the standard using a modified retrospective transition method, and reclassified the unrealized gains on these equity investments of $21 million to retained earnings as a cumulative-effect adjustment on the condensed consolidated balance sheets.

Investments with remaining effective maturities of 12 months or less from the balance sheet date are classified as short-term investments. Investments with remaining effective maturities of more than 12 months from the balance sheet date are classified as long-term investments.

Assets Measured at Fair Value on a Recurring Basis

Financial assets (excluding cash balances) measured at fair value on a recurring basis are summarized below:

	January 27, 2019			October 28, 2018		
	Level 1	Level 2	Total	Level 1	Level 2	Total
	(In millions)					
Assets:						
Available-for-sale debt security investments						
Money market funds	$ 1,911	$ —	$ 1,911	$ 1,599	$ —	$ 1,599
U.S. Treasury and agency securities	343	32	375	297	36	333
Non-U.S. government securities	—	9	9	—	10	10
Municipal securities	—	401	401	—	395	395
Commercial paper, corporate bonds and medium-term notes	—	891	891	—	1,054	1,054
Asset-backed and mortgage-backed securities	—	562	562	—	591	591
Total available-for-sale debt security investments	$ 2,254	$ 1,895	$ 4,149	$ 1,896	$ 2,086	$ 3,982
Equity investments with readily determinable values						
Publicly traded equity securities	$ 31	$ —	$ 31	$ 38	$ —	$ 38
Total equity investments with readily determinable values	$ 31	$ —	$ 31	$ 38	$ —	$ 38
Total	$ 2,285	$ 1,895	$ 4,180	$ 1,934	$ 2,086	$ 4,020

There were no transfers between Level 1 and Level 2 fair value measurements during the three months ended January 27, 2019 or January 28, 2018. Applied did not have any financial assets measured at fair value on a recurring basis within Level 3 fair value measurements as of January 27, 2019 or October 28, 2018.

Assets and Liabilities without Readily Determinable Values Measured on a Non-recurring Basis

Applied’s equity investments without readily determinable values consist of equity investments in privately-held companies. Upon adoption of ASU 2016-01, Applied elected the measurement alternative, defined as cost, less impairments, adjusted for subsequent observable price changes on a prospective basis for certain equity investments without readily determinable fair values and is required to account for any subsequent observable changes in fair value within the statements of operations. Applied adopted the guidance prospectively, effective October 29, 2018, and there was no impact to Applied’s condensed consolidated financial statements. Prior to the adoption of ASU 2016-01, these investments were generally accounted for under the cost method of accounting. These investments are periodically assessed for impairment when an event or circumstance indicates that a decline in value may have occurred. Impairment charges on equity investments in privately-held companies during the three months ended January 27, 2019 and January 28, 2018 were not material.

Other

The carrying amounts of Applied’s financial instruments, including cash and cash equivalents, accounts receivable, notes payable - short term, and accounts payable and accrued expenses, approximate fair value due to their short maturities. As of January 27, 2019, the aggregate principal amount of long-term debt was $5.4 billion and the estimated fair value was $5.5 billion. As of October 28, 2018, the aggregate principal and estimated fair value amounts of long-term debt were both $5.4 billion. The estimated fair value of long-term debt is determined by Level 2 inputs and is based primarily on quoted market prices for the same or similar issues. See Note 10 of the Notes to the Consolidated Condensed Financial Statements for further detail of existing debt.

Note 5 Derivative Instruments and Hedging Activities

Derivative Financial Instruments

Applied conducts business in a number of foreign countries, with certain transactions denominated in local currencies, such as the Japanese yen, euro, Israeli shekel and Taiwanese dollar. Applied uses derivative financial instruments, such as forward exchange contracts and currency option contracts, to hedge certain forecasted foreign currency denominated transactions expected to occur typically within the next 24 months. The purpose of Applied's foreign currency management is to mitigate the effect of exchange rate fluctuations on certain foreign currency denominated revenues, costs and eventual cash flows. The terms of currency instruments used for hedging purposes are generally consistent with the timing of the transactions being hedged.

Applied does not use derivative financial instruments for trading or speculative purposes. Derivative instruments and hedging activities, including foreign currency exchange and interest rate contracts, are recognized on the balance sheet at fair value. Changes in the fair value of derivatives that do not qualify for hedge treatment, as well as the ineffective portion of any hedges, are recognized currently in earnings. All of Applied's derivative financial instruments are recorded at their fair value in other current assets or in accounts payable and accrued expenses.

Hedges related to anticipated transactions are designated and documented at the inception of the hedge as cash flow hedges and foreign exchange derivatives are typically entered into once per month. Cash flow hedges are evaluated for effectiveness quarterly. The effective portion of the gain or loss on these hedges is reported as a component of AOCI in stockholders' equity and is reclassified into earnings when the hedged transaction affects earnings. The majority of the after-tax net income or loss related to foreign exchange derivative instruments included in AOCI as of January 27, 2019 is expected to be reclassified into earnings within 12 months. Changes in the fair value of currency forward exchange and option contracts due to changes in time value are excluded from the assessment of effectiveness. Both ineffective hedge amounts and hedge components excluded from the assessment of effectiveness are recognized in earnings. If the transaction being hedged is no longer probable to occur, or if a portion of any derivative is deemed to be ineffective, Applied promptly recognizes the gain or loss on the associated financial instrument in earnings. The amount recognized due to discontinuance of cash flow hedges that were probable not to occur by the end of the originally specified time period was not significant for the three months ended January 27, 2019 and January 28, 2018.

Additionally, forward exchange contracts are generally used to hedge certain foreign currency denominated assets or liabilities. These derivatives are typically entered into once per month and are not designated for hedge accounting treatment. Accordingly, changes in the fair value of these hedges are recorded in earnings to offset the changes in the fair value of the assets or liabilities being hedged.

The fair values of foreign exchange derivative instruments as of January 27, 2019 and October 28, 2018 were not material.

The effects of derivative instruments and hedging activities on the Consolidated Condensed Statements of Operations were as follows:

		Three Months Ended					
		January 27, 2019			January 28, 2018		
		Effective Portion		Ineffective Portion and Amount Excluded from Effectiveness Testing	Effective Portion		Ineffective Portion and Amount Excluded from Effectiveness Testing
	Location of Gain or (Loss)	Gain or (Loss)	Gain or (Loss) Reclassified from AOCI into Income	Gain or (Loss) Recognized in Income	Gain or (Loss)	Gain or (Loss) Reclassified from AOCI into Income	Gain or (Loss) Recognized in Income
		(In millions)					
Derivatives in Cash Flow Hedging Relationships							
Foreign exchange contracts	AOCI	$ (16)	$ —	$ —	$ (18)	$ —	$ —
Foreign exchange contracts	Cost of products sold	—	12	5	—	8	2
Foreign exchange contracts	General and administrative	—	(5)	(1)	—	(1)	(2)
Interest rate contracts	Interest expense	—	—	—	—	(1)	—
Total		$ (16)	$ 7	$ 4	$ (18)	$ 6	$ —

		Amount of Gain or (Loss) Recognized in Income	
		Three Months Ended	
	Location of Gain or (Loss) Recognized in Income	January 27, 2019	January 28, 2018
		(In millions)	
Derivatives Not Designated as Hedging Instruments			
Foreign exchange contracts	General and administrative	$ (10)	$ (8)
Total		$ (10)	$ (8)

Credit Risk Contingent Features

If Applied’s credit rating were to fall below investment grade, it would be in violation of credit risk contingent provisions of the derivative instruments discussed above, and certain counterparties to the derivative instruments could request immediate payment on derivative instruments in net liability positions. The aggregate fair value of all derivative instruments with credit-risk related contingent features that were in a net liability position was immaterial as of January 27, 2019.

Entering into derivative contracts with banks exposes Applied to credit-related losses in the event of the banks’ nonperformance. However, Applied’s exposure is not considered significant.

Note 6 Accounts Receivable, Net

Applied has agreements with various financial institutions to sell accounts receivable and discount promissory notes from selected customers. Applied sells its accounts receivable without recourse. Applied, from time to time, also discounts letters of credit issued by customers through various financial institutions. The discounting of letters of credit depends on many factors, including the willingness of financial institutions to discount the letters of credit and the cost of such arrangements.

Applied sold $464 million and $376 million of accounts receivable during the three months ended January 27, 2019 and January 28, 2018, respectively. Applied did not discount letters of credit issued by customers or discount promissory notes during the three months ended January 27, 2019 and January 28, 2018. Financing charges on the sale of receivables and discounting of letters of credit are included in interest expense in the accompanying Consolidated Condensed Statements of Operations and were not material for all periods presented.

Accounts receivable are presented net of allowance for doubtful accounts of $33 million as of January 27, 2019 and October 28, 2018. Applied sells its products principally to manufacturers within the semiconductor and display industries. While Applied believes that its allowance for doubtful accounts is adequate and represents its best estimate as of January 27, 2019, it continues to closely monitor customer liquidity and industry and economic conditions, which may result in changes to Applied's estimates.

Note 7 Contract Balances

Contract assets primarily result from receivables for goods transferred to customers and where payment is conditional upon technical sign off and not just the passage of time. Contract liabilities consist of unsatisfied performance obligations related to advance payments received and billings in excess of revenue recognized. Applied's contract assets and liabilities are reported in a net position on a contract-by-contract basis at the end of each reporting period.

Contract assets are generally classified as current and included in Other Current Assets in the Consolidated Condensed Balance Sheets. Contract liabilities are classified as current or non-current based on the timing of when performance obligations will be satisfied and associated revenue is expected to be recognized.

Contract balances at the end of each reporting period were as follows:

	January 27, 2019	October 28, 2018
	(In millions)	
Contract assets	$ 100	$ 99
Contract liabilities	$ 1,356	$ 1,201

The increase in net contract liabilities was primarily due to netted contract assets being classified to accounts receivable as conditions for payments were met.

During the three months ended January 27, 2019, Applied recognized revenue of approximately $288 million related to contract liabilities at October 28, 2018.

There were no impairment losses recognized on Applied's accounts receivables and contract assets during the three months ended January 27, 2019.

As of January 27, 2019, the amount of remaining unsatisfied performance obligations on contracts with an original estimated duration of one year or more was approximately $232 million, which is expected to be recognized within the next 36 months. Applied has elected the available practical expedient to exclude the value of unsatisfied performance obligations for contracts with an original expected duration of one year or less.

Note 8 Balance Sheet Detail

	January 27, 2019	October 28, 2018
	(In millions)	
Inventories		
Customer service spares	$ 1,093	$ 989
Raw materials	1,018	1,020
Work-in-process	526	505
Finished goods	1,066	1,207
	$ 3,703	$ 3,721

Included in finished goods inventory are $8 million as of January 27, 2019, and $19 million as of October 28, 2018, of newly-introduced systems at customer locations where the sales transaction did not meet Applied's revenue recognition criteria as set forth in Note 1. Finished goods inventory includes $341 million and $350 million of evaluation inventory as of January 27, 2019 and October 28, 2018, respectively.

	January 27, 2019	October 28, 2018
	(In millions)	
Other Current Assets		
Prepaid income taxes and income taxes receivable	$ 32	$ 40
Prepaid expenses and other	394	490
	$ 426	$ 530

	Useful Life	January 27, 2019	October 28, 2018
	(In years)	(In millions)	
Property, Plant and Equipment, Net			
Land and improvements		$ 245	$ 245
Buildings and improvements	3-30	1,460	1,448
Demonstration and manufacturing equipment	3-5	1,335	1,282
Furniture, fixtures and other equipment	3-5	639	634
Construction in progress		243	203
Gross property, plant and equipment		3,922	3,812
Accumulated depreciation		(2,466)	(2,405)
		$ 1,456	$ 1,407

	January 27, 2019	October 28, 2018
	(In millions)	
Deferred Income Taxes and Other Assets		
Non-current deferred income taxes and income taxes receivable	$ 1,856	$ 319
Other assets	170	154
	$ 2,026	$ 473

	January 27, 2019	October 28, 2018
	(In millions)	
Accounts Payable and Accrued Expenses		
Accounts payable	$ 978	$ 996
Compensation and employee benefits	426	639
Warranty	200	208
Dividends payable	190	193
Income taxes payable	129	136
Other accrued taxes	73	112
Interest payable	59	38
Other	365	399
	$ 2,420	$ 2,721

	January 27, 2019	October 28, 2018
	(In millions)	
Other Liabilities		
Defined and postretirement benefit plans	$ 178	$ 177
Other	146	126
	$ 324	$ 303

Note 9 Goodwill, Purchased Technology and Other Intangible Assets

Goodwill and Purchased Intangible Assets

Applied's methodology for allocating the purchase price relating to purchase acquisitions is determined through established and generally accepted valuation techniques. Goodwill is measured as the excess of the purchase price over the sum of the amounts assigned to tangible and identifiable intangible assets acquired less liabilities assumed. Applied assigns assets acquired (including goodwill) and liabilities assumed to one or more reporting units as of the date of acquisition. Typically, acquisitions relate to a single reporting unit and thus do not require the allocation of goodwill to multiple reporting units. If the products obtained in an acquisition are assigned to multiple reporting units, the goodwill is distributed to the respective reporting units as part of the purchase price allocation process.

Goodwill and purchased intangible assets with indefinite useful lives are not amortized, but are reviewed for impairment annually during the fourth quarter of each fiscal year and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The process of evaluating the potential impairment of goodwill and intangible assets requires significant judgment, especially in emerging markets. Applied regularly monitors current business conditions and considers other factors including, but not limited to, adverse industry or economic trends, restructuring actions and lower projections of profitability that may impact future operating results.

To test goodwill for impairment, Applied first performs a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If it is concluded that this is the case, Applied then performs the two-step goodwill impairment test. Otherwise, the two-step goodwill impairment test is not required. Under the two-step goodwill impairment test, Applied would in the first step compare the estimated fair value of each reporting unit to its carrying value. Applied determines the fair value of each of its reporting units based on a weighting of income and market approaches. If the carrying value of a reporting unit exceeds its fair value, Applied would then perform the second step of the impairment test in order to determine the implied fair value of the reporting unit's goodwill. If Applied determines that the carrying value of a reporting unit's goodwill exceeds its implied fair value, Applied would record an impairment charge equal to the difference.

As of January 27, 2019, Applied's reporting units include Semiconductor Product Group and Imaging and Process Control Group, which combine to form the Semiconductor Systems reporting segment, Applied Global Services, and Display and Adjacent Markets.

The evaluation of goodwill and intangible assets for impairment requires the exercise of significant judgment. In the event of future changes in business conditions, Applied will be required to reassess and update its forecasts and estimates used in future impairment analyses. If the results of these future analyses are lower than current estimates, a material impairment charge may result at that time.

Details of goodwill as of January 27, 2019 and October 28, 2018 were as follows:

	January 27, 2019	October 28, 2018
	(In millions)	
Semiconductor Systems	$ 2,151	$ 2,151
Applied Global Services	1,018	1,018
Display and Adjacent Markets	199	199
Carrying amount	$ 3,368	$ 3,368

A summary of Applied's purchased technology and intangible assets is set forth below:

	January 27, 2019	October 28, 2018
	(In millions)	
Purchased technology, net	$ 99	$ 109
Intangible assets - finite-lived, net	100	104
Total	$ 199	$ 213

Finite-Lived Purchased Intangible Assets

Applied amortizes purchased intangible assets with finite lives using the straight-line method over the estimated economic lives of the assets, ranging from 1 to 15 years.

Applied evaluates long-lived assets for impairment whenever events or changes in circumstances indicate the carrying value of an asset group may not be recoverable. Applied assesses the fair value of the assets based on the amount of the undiscounted future cash flow that the assets are expected to generate and recognizes an impairment loss when estimated undiscounted future cash flow expected to result from the use of the asset, plus net proceeds expected from disposition of the asset, if any, are less than the carrying value of the asset. When Applied identifies an impairment, Applied reduces the carrying value of the group of assets to comparable market values, when available and appropriate, or to its estimated fair value based on a discounted cash flow approach.

Intangible assets, such as purchased technology, are generally recorded in connection with a business acquisition. The value assigned to intangible assets is usually based on estimates and judgments regarding expectations for the success and life cycle of products and technology acquired. Applied evaluates the useful lives of its intangible assets each reporting period to determine whether events and circumstances require revising the remaining period of amortization. In addition, Applied reviews intangible assets for impairment when events or changes in circumstances indicate their carrying value may not be recoverable. Management considers such indicators as significant differences in actual product acceptance from the estimates, changes in the competitive and economic environments, technological advances, and changes in cost structure.

Details of finite-lived intangible assets were as follows:

	January 27, 2019			October 28, 2018		
	Purchased Technology	Other Intangible Assets	Total	Purchased Technology	Other Intangible Assets	Total
	(In millions)					
Gross carrying amount:						
Semiconductor Systems	$ 1,449	$ 252	$ 1,701	$ 1,449	$ 252	$ 1,701
Applied Global Services	33	44	77	33	44	77
Display and Adjacent Markets	163	38	201	163	38	201
Corporate and Other	—	9	9	—	9	9
Gross carrying amount	$ 1,645	$ 343	$ 1,988	$ 1,645	$ 343	$ 1,988
Accumulated amortization:						
Semiconductor Systems	$ (1,382)	$ (154)	$ (1,536)	$ (1,375)	$ (150)	$ (1,525)
Applied Global Services	(29)	(44)	(73)	(29)	(44)	(73)
Display and Adjacent Markets	(135)	(36)	(171)	(132)	(36)	(168)
Corporate and Other	—	(9)	(9)	—	(9)	(9)
Accumulated amortization	$ (1,546)	$ (243)	$ (1,789)	$ (1,536)	$ (239)	$ (1,775)
Carrying amount	$ 99	$ 100	$ 199	$ 109	$ 104	$ 213

Details of amortization expense by segment were as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Semiconductor Systems	$ 11	$ 46
Display and Adjacent Markets	3	4
Total	$ 14	$ 50

Amortization expense was charged to the following categories:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Cost of products sold	$ 9	$ 45
Marketing and selling	5	5
Total	$ 14	$ 50

As of January 27, 2019, future estimated amortization expense is expected to be as follows:

	Amortization Expense
	(In millions)
2019 (remaining 9 months)	$ 43
2020	52
2021	39
2022	24
2023	11
Thereafter	30
Total	$ 199

Note 10 Borrowing Facilities and Debt

Applied has credit facilities for unsecured borrowings in various currencies of up to $1.6 billion, of which $1.5 billion is comprised of a committed revolving credit agreement with a group of banks that is scheduled to expire in September 2021. This agreement provides for borrowings in United States dollars at interest rates keyed to one of various benchmark rates selected by Applied for each advance, plus a margin based on Applied's public debt rating and includes financial and other covenants. Remaining credit facilities in the amount of approximately $73 million are with Japanese banks. Applied's ability to borrow under these facilities is subject to bank approval at the time of the borrowing request, and any advances will be at rates indexed to the banks' prime reference rate denominated in Japanese yen. No amounts were outstanding under any of these facilities as of both January 27, 2019 and October 28, 2018, and Applied has not utilized these credit facilities. In fiscal 2011, Applied established a short-term commercial paper program of up to $1.5 billion. As of January 27, 2019, Applied did not have any commercial paper outstanding.

Debt outstanding as of January 27, 2019 and October 28, 2018 was as follows:

	Principal Amount			
	January 27, 2019	October 28, 2018	Effective Interest Rate	Interest Pay Dates
	(In millions)			
Long-term debt:				
2.625% Senior Notes Due 2020	$ 600	$ 600	2.640%	April 1, October 1
4.300% Senior Notes Due 2021	750	750	4.326%	June 15, December 15
3.900% Senior Notes Due 2025	700	700	3.944%	April 1, October 1
3.300% Senior Notes Due 2027	1,200	1,200	3.342%	April 1, October 1
5.100% Senior Notes Due 2035	500	500	5.127%	April 1, October 1
5.850% Senior Notes Due 2041	600	600	5.879%	June 15, December 15
4.350% Senior Notes Due 2047	1,000	1,000	4.361%	April 1, October 1
	5,350	5,350		
Total unamortized discount	(10)	(11)		
Total unamortized debt issuance costs	(30)	(30)		
Total long-term debt	$ 5,310	$ 5,309		

Note 11 Stockholders' Equity, Comprehensive Income and Share-Based Compensation

Accumulated Other Comprehensive Income (Loss)

Changes in the components of AOCI, net of tax, were as follows:

	Unrealized Gain on Investments, Net	Unrealized Gain (Loss) on Derivative Instruments Qualifying as Cash Flow Hedges	Defined and Postretirement Benefit Plans	Cumulative Translation Adjustments	Total
			(in millions)		
Balance as of October 28, 2018	$ 7	$ (9)	$ (137)	$ 14	$ (125)
Adoption of new accounting standards (a)	(17)	—	—	—	(17)
Other comprehensive income (loss) before reclassifications	5	(12)	—	—	(7)
Amounts reclassified out of AOCI	—	(5)	—	—	(5)
Other comprehensive income (loss), net of tax	5	(17)	—	—	(12)
Balance as of January 27, 2019	$ (5)	$ (26)	$ (137)	$ 14	$ (154)

(a) - Represents the reclassification adjustment related to the adoption of Accounting Standard Update (ASU) 2016-01 *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* in the first quarter of fiscal 2019. See Note 1.

	Unrealized Gain (Loss) on Investments, Net	Unrealized Gain (Loss) on Derivative Instruments Qualifying as Cash Flow Hedges	Defined and Postretirement Benefit Plans	Cumulative Translation Adjustments	Total
			(in millions)		
Balance as of October 29, 2017	$ 53	$ (11)	$ (120)	$ 14	$ (64)
Other comprehensive income (loss) before reclassifications	6	(14)	—	—	(8)
Amounts reclassified out of AOCI	—	(5)	(2)	—	(7)
Other comprehensive income (loss), net of tax	6	(19)	(2)	—	(15)
Balance as of January 28, 2018	$ 59	$ (30)	$ (122)	$ 14	$ (79)

The tax effects on net income of amounts reclassified from AOCI for the three months ended January 27, 2019 and January 28, 2018 were not material.

Stock Repurchase Program

In February 2018, the Board of Directors approved a common stock repurchase program authorizing up to an aggregate of $6.0 billion in repurchases. As of January 27, 2019, $3.6 billion remained available for future stock repurchases under this repurchase program.

The following table summarizes Applied's stock repurchases for the three months ended January 27, 2019 and January 28, 2018:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(in millions, except per share amount)	
Shares of common stock repurchased	22	15
Cost of stock repurchased	$ 750	$ 782
Average price paid per share	$ 34.04	$ 53.41

Applied records treasury stock purchases under the cost method using the first-in, first-out (FIFO) method. Upon reissuance of treasury stock, amounts in excess of the acquisition cost are credited to additional paid in capital. If Applied reissues treasury stock at an amount below its acquisition cost and additional paid in capital associated with prior treasury stock transactions is insufficient to cover the difference between the acquisition cost and the reissue price, this difference is recorded against retained earnings.

Dividends

In December 2018, Applied's Board of Directors declared a quarterly cash dividend, payable in March 2019, in the amount of $0.20 per share. Dividends paid during the three months ended January 27, 2019 and January 28, 2018 totaled $192 million and $106 million, respectively. Applied currently anticipates that cash dividends will continue to be paid on a quarterly basis, although the declaration of any future cash dividend is at the discretion of the Board of Directors and will depend on Applied's financial condition, results of operations, capital requirements, business conditions and other factors, as well as a determination by the Board of Directors that cash dividends are in the best interests of Applied's stockholders.

Share-Based Compensation

Applied has a stockholder-approved equity plan, the Employee Stock Incentive Plan, which permits grants to employees of share-based awards, including stock options, restricted stock, restricted stock units, performance shares and performance units. In addition, the plan provides for the automatic grant of restricted stock units to non-employee directors and permits the grant of share-based awards to non-employee directors and consultants. Share-based awards made under the plan may be subject to accelerated vesting under certain circumstances in the event of a change in control of Applied. Applied also has two Employee Stock Purchase Plans, one generally for United States employees and a second for employees of international subsidiaries (collectively, ESPP), which enable eligible employees to purchase Applied common stock.

During the three months ended January 27, 2019 and January 28, 2018, Applied recognized share-based compensation expense related equity awards and ESPP shares. The effect of share-based compensation on the results of operations was as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Cost of products sold	$ 22	$ 22
Research, development and engineering	24	24
Marketing and selling	8	8
General and administrative	11	11
Total share-based compensation	$ 65	$ 65

The cost associated with share-based awards that are subject solely to time-based vesting requirements, less expected forfeitures, is recognized over the awards' service period for the entire award on a straight-line basis. The cost associated with performance-based equity awards, which include both performance and market goals, is recognized for each tranche over the service period. The cost of equity awards related to performance goals is based on an assessment of the likelihood that the applicable performance goals will be achieved. For the equity awards based on market goals, the cost is recognized based upon the assumption of 100% achievement of the goal.

As of January 27, 2019, Applied had $514 million in total unrecognized compensation expense, net of estimated forfeitures, related to grants of share-based awards and shares issued under Applied's ESPP, which will be recognized over a weighted average period of 2.9 years. As of January 27, 2019, there were 67 million shares available for grants of share-based awards under the Employee Stock Incentive Plan, and an additional 17 million shares available for issuance under the ESPP.

Restricted Stock Units, Restricted Stock, Performance Shares and Performance Units

A summary of the changes in any restricted stock units, restricted stock, performance shares and performance units outstanding under Applied's equity compensation plans during the three months ended January 27, 2019 is presented below:

	Shares	Weighted Average Grant Date Fair Value
	(In millions, except per share amounts)	
Outstanding as of October 28, 2018	18	$ 32.64
Granted	7	$ 35.39
Vested	(7)	$ 27.83
Canceled	—	$ 32.06
Outstanding as of January 27, 2019	18	$ 35.46

As of January 27, 2019, 1.6 million additional performance-based awards could be earned based upon achievement of certain levels of specified performance goals.

During the first quarter of fiscal 2019, certain executive officers were granted awards that are subject to the achievement of targeted levels of adjusted operating margin and targeted levels of total shareholder return relative to a peer group, comprised of companies in the Standard & Poor's 500 Index. Each metric will be weighted 50% and will be measured over a three-year period.

The awards become eligible to vest only if performance goals are achieved and will vest only if the grantee remains employed by Applied through each applicable vesting date, subject to a qualifying retirement described below. The number of shares that may vest in full after three years ranges from 0% to 200% of the target amount. The awards provide for a partial payout based on actual performance at the conclusion of the three-year performance period in the event of a qualifying retirement based on age and years of service.

The fair value of the portion of the awards subject to targeted levels of adjusted operating margin is estimated on the date of grant. If the performance goals are not met as of the end of the performance period, no compensation expense is recognized and any previously recognized compensation expense is reversed. The expected cost is based on the portion of the awards that is probable to vest and is reflected over the service period and reduced for estimated forfeitures.

The fair value of the portion of the awards subject to the targeted levels of relative total shareholder return is estimated on the date of grant using a Monte Carlo simulation model. Compensation expense is recognized based upon the assumption of 100% achievement of the TSR goal and will not be reversed even if the threshold level of TSR is never achieved, and is reflected over the service period and reduced for estimated forfeitures.

Employee Stock Purchase Plans

Under the ESPP, substantially all employees may purchase Applied common stock through payroll deductions at a price equal to 85 percent of the lower of the fair market value of Applied common stock at the beginning or end of each 6-month purchase period, subject to certain limits. There was no purchase during both of the three months ended January 27, 2019 and January 28, 2018, respectively. Compensation expense is calculated using the fair value of the employees' purchase rights under the Black-Scholes model.

Note 12 Income Taxes

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act requires a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries payable over eight years. U.S. deferred tax assets and liabilities were subject to remeasurement due to the reduction of the U.S. federal corporate tax rate. The U.S. Securities and Exchange Commission issued Staff Accounting Bulletin No. 118, which provided guidance on accounting for the income tax effects of the Tax Act and a measurement period for companies to complete this accounting. Applied completed the accounting for the Tax Act during the measurement period, which ended one year after the enactment date of the Tax Act, including the accounting for the remeasurement of deferred tax assets completed in the fourth quarter of fiscal 2018 and the accounting for the transition tax completed in the first quarter of fiscal 2019.

The Tax Act also includes provisions that impact Applied starting in fiscal 2019, including a provision designed to tax global intangible low-taxed income (“GILTI”). On September 13, 2018, the U.S. government issued proposed regulations that, if finalized, would significantly affect how the Tax Act is interpreted related to a tax benefit of $46 million realized by Applied in the first quarter of fiscal 2019. Proposed regulations are not authoritative and may change in the regulatory review process. Pursuant to our accounting policies for uncertain tax positions, the tax benefit might reverse if the regulations are finalized as proposed. An accounting policy choice is allowed to either treat taxes due on future U.S. inclusions related to GILTI in taxable income as a current-period expense when incurred (the “period cost method”) or factor such amounts into the measurement of deferred taxes (the “deferred method”). Applied has chosen the period cost method.

Applied’s effective tax rates for the first quarter of fiscal 2019 and 2018 were 13.2 percent and 86.1 percent, respectively. The effective tax rate for the first quarter of fiscal 2019 was lower than the same period in the prior fiscal year primarily due to tax expense of $1.0 billion in the first quarter of fiscal 2018 for the transition tax and remeasurement of deferred tax assets as a result of the Tax Act. This decrease was partially offset by tax expense in the first quarter of fiscal 2019 related to the resolution of tax liabilities for uncertain tax positions and by the excess tax benefit from share-based compensation being lower in the first quarter of fiscal 2019 than in the same period in the prior fiscal year. The first quarter of fiscal 2019 also included tax expense related to GILTI and changes in the geographical composition of income which includes jurisdictions with differing tax rates.

Note 13 Warranty, Guarantees and Contingencies

Warranty

Changes in the warranty reserves are presented below:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Beginning balance	$ 208	$ 206
Warranties issued	39	45
Change in reserves related to preexisting warranty	1	2
Consumption of reserves	(48)	(43)
Ending balance	$ 200	$ 210

Applied products are generally sold with a warranty for a 12-month period following installation. The provision for the estimated cost of warranty is recorded when revenue is recognized. Parts and labor are covered under the terms of the warranty agreement. The warranty provision is based on historical experience by product, configuration and geographic region. Quarterly warranty consumption is generally associated with sales that occurred during the preceding four quarters, and quarterly warranty provisions are generally related to the current quarter’s sales.

Guarantees

In the ordinary course of business, Applied provides standby letters of credit or other guarantee instruments to third parties as required for certain transactions initiated by either Applied or its subsidiaries. As of January 27, 2019, the maximum potential amount of future payments that Applied could be required to make under these guarantee agreements was approximately $68 million. Applied has not recorded any liability in connection with these guarantee agreements beyond that required to appropriately account for the underlying transaction being guaranteed. Applied does not believe, based on historical experience and information currently available, that it is probable that any amounts will be required to be paid under these guarantee agreements.

Applied also has agreements with various banks to facilitate subsidiary banking operations worldwide, including overdraft arrangements, issuance of bank guarantees, and letters of credit. As of January 27, 2019, Applied has provided parent guarantees to banks for approximately $150 million to cover these arrangements.

Legal Matters

From time to time, Applied receives notification from third parties, including customers and suppliers, seeking indemnification, litigation support, payment of money or other actions by Applied in connection with claims made against them. In addition, from time to time, Applied receives notification from third parties claiming that Applied may be or is infringing or misusing their intellectual property or other rights. Applied also is subject to various other legal proceedings and claims, both asserted and unasserted, that arise in the ordinary course of business.

Although the outcome of the above-described matters, claims and proceedings cannot be predicted with certainty, Applied does not believe that any will have a material effect on its consolidated financial condition or results of operations.

Note 14 Industry Segment Operations

Applied's three reportable segments are: Semiconductor Systems, Applied Global Services, and Display and Adjacent Markets. As defined under the accounting literature, Applied's chief operating decision-maker has been identified as the President and Chief Executive Officer, who reviews operating results to make decisions about allocating resources and assessing performance for the entire Company. Segment information is presented based upon Applied's management organization structure as of January 27, 2019 and the distinctive nature of each segment. Future changes to this internal financial structure may result in changes to Applied's reportable segments.

The Semiconductor Systems reportable segment includes semiconductor capital equipment for etch, rapid thermal processing, deposition, chemical mechanical planarization, metrology and inspection, wafer packaging, and ion implantation.

The Applied Global Services segment provides integrated solutions to optimize equipment and fab performance and productivity, including spares, upgrades, services, certain remanufactured earlier generation equipment and factory automation software for semiconductor, display and other products.

The Display and Adjacent Markets segment includes products for manufacturing liquid crystal displays (LCDs), organic light-emitting diodes (OLEDs), equipment upgrades and flexible coating systems and other display technologies for TVs, monitors, laptops, personal computers, smart phones, and other consumer-oriented devices.

Each operating segment is separately managed and has separate financial results that are reviewed by Applied's chief operating decision-maker. Each reportable segment contains closely related products that are unique to the particular segment. Segment operating income is determined based upon internal performance measures used by Applied's chief operating decision-maker. The chief operating decision-maker does not evaluate operating segments using total asset information.

Applied derives the segment results directly from its internal management reporting system. The accounting policies Applied uses to derive reportable segment results are substantially the same as those used for external reporting purposes. Management measures the performance of each reportable segment based upon several metrics including orders, net sales and operating income. Management uses these results to evaluate the performance of, and to assign resources to, each of the reportable segments.

The Corporate and Other category includes revenues from products, as well as costs of products sold, for fabricating solar photovoltaic cells and modules, and certain operating expenses that are not allocated to its reportable segments and are managed separately at the corporate level. These operating expenses include costs related to share-based compensation; certain management, finance, legal, human resources, and research, development and engineering functions provided at the corporate level; and unabsorbed information technology and occupancy. In addition, Applied does not allocate to its reportable segments restructuring and asset impairment charges and any associated adjustments related to restructuring actions, unless these actions pertain to a specific reportable segment. Segment operating income also excludes interest income/expense and other financial charges and income taxes. Management does not consider the unallocated costs in measuring the performance of the reportable segments.

Net sales and operating income (loss) for each reportable segment were as follows:

	Three Months Ended	
	Net Sales	Operating Income (Loss)
	(In millions)	
January 27, 2019:		
Semiconductor Systems	$ 2,268	$ 631
Applied Global Services	962	285
Display and Adjacent Markets	507	115
Corporate and Other	16	(123)
Total	$ 3,753	$ 908
January 28, 2018:		
Semiconductor Systems	$ 2,852	$ 1,024
Applied Global Services	881	255
Display and Adjacent Markets	443	90
Corporate and Other	29	(154)
Total	$ 4,205	$ 1,215

Net sales by geographic region, determined by the location of customers' facilities to which products were shipped to, were as follows:

	Three Months Ended			
	January 27, 2019		January 28, 2018	
	(In millions, except percentages)			
China	$ 968	26%	$ 964	23%
Korea	572	15%	1,203	29%
Taiwan	656	18%	741	18%
Japan	651	17%	482	11%
Southeast Asia	160	4%	193	4%
Asia Pacific	3,007	80%	3,583	85%
United States	450	12%	370	9%
Europe	296	8%	252	6%
Total	$ 3,753	100%	$ 4,205	100%

Net sales for Semiconductor Systems by end use application for the periods indicated were as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
Foundry, logic and other	44%	37%
Dynamic random-access memory (DRAM)	21%	26%
Flash memory	35%	37%
	100%	100%

The reconciling items included in Corporate and Other were as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Unallocated net sales	$ 16	$ 29
Unallocated cost of products sold and expenses	(74)	(118)
Share-based compensation	(65)	(65)
Total	$ (123)	$ (154)

The following customers accounted for at least 10 percent of Applied's net sales for the three months ended January 27, 2019, and sales to these customers included products and services from multiple reportable segments.

	Percentage of Net Sales
Toshiba	14%
SK Hynix Inc.	13%
Intel Corporation	13%
Taiwan Semiconductor Manufacturing Company Limited	11%

Item 2. ***Management's Discussion and Analysis of Financial Condition and Results of Operations***

The following management's discussion and analysis is provided in addition to the accompanying consolidated condensed financial statements and notes, and for a full understanding of Applied's results of operations and financial condition should be read in conjunction with the consolidated condensed financial statements and notes included in this Form 10-Q and the financial statements and notes for the fiscal year ended October 28, 2018 contained in the Company's Form 10-K filed December 13, 2018.

This report contains forward-looking statements that involve a number of risks and uncertainties. Examples of forward-looking statements include those regarding Applied's future financial or operating results, customer demand and spending, end-use demand, market and industry trends and outlooks, cash flows and cash deployment strategies, declaration of dividends, share repurchases, business strategies and priorities, costs and cost controls, products, competitive positions, management's plans and objectives for future operations, research and development, strategic acquisitions and investments, growth opportunities, restructuring activities, backlog, working capital, liquidity, investment portfolio and policies, taxes, supply chain, manufacturing, properties, legal proceedings and claims, and other statements that are not historical facts, as well as their underlying assumptions. Forward-looking statements may contain words such as "may," "will," "should," "could," "would," "expect," "plan," "anticipate," "believe," "estimate," "potential" and "continue," the negative of these terms, or other comparable terminology. All forward-looking statements are subject to risks and uncertainties and other important factors, including those discussed in Part II, Item 1A, "Risk Factors," below and elsewhere in this report. These and many other factors could affect Applied's future financial condition and operating results and could cause actual results to differ materially from expectations based on forward-looking statements made in this document or elsewhere by Applied or on its behalf. Forward-looking statements are based on management's estimates, projections and expectations as of the date hereof, and Applied undertakes no obligation to revise or update any such statements.

Overview

Applied provides manufacturing equipment, services and software to the semiconductor, display, and related industries. Applied's customers include manufacturers of semiconductor wafers and chips, liquid crystal and organic light-emitting diode (OLED) displays, and other electronic devices. These customers may use what they manufacture in their own end products or sell the items to other companies for use in advanced electronic components. Each of Applied's businesses is subject to variable industry conditions, as demand for manufacturing equipment and services can change depending on supply and demand for chips, display technologies, and other electronic devices, as well as other factors, such as global economic and market conditions, and the nature and timing of technological advances in fabrication processes.

Applied operates in three reportable segments: Semiconductor Systems, Applied Global Services, and Display and Adjacent Markets. A summary of financial information for each reportable segment is found in Note 14 of Notes to Consolidated Condensed Financial Statements. A discussion of factors that could affect Applied's operations is set forth under "Risk Factors" in Part II, Item 1A, which is incorporated herein by reference. Product development and manufacturing activities occur primarily in the United States, Europe, Israel, and Asia. Applied's broad range of equipment and service products are highly technical and are sold primarily through a direct sales force.

Applied's results are driven primarily by customer spending on capital equipment and services to support key technology transitions or to increase production volume in response to worldwide demand for semiconductors and displays. While certain existing technologies may be adapted to new requirements, some applications create the need for an entirely different technological approach. The timing of customer investment in manufacturing equipment is also affected by the timing of next-generation process development, and the timing of capacity expansion to meet end-market demand. In light of these conditions, Applied's results can vary significantly year-over-year, as well as quarter-over-quarter.

The following table presents certain significant measurements for the periods indicated:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
	(In millions, except per share amounts and percentages)		
Net sales	$ 3,753	$ 4,205	$ (452)
Gross margin	44.4%	46.1%	(1.7) points
Operating income	$ 908	$ 1,215	$ (307)
Operating margin	24.2%	28.9%	(4.7) points
Net income	$ 771	$ 165	$ 606
Earnings per diluted share	$ 0.80	$ 0.15	$ 0.65

Fiscal 2019 and 2018 each contains 52 weeks, and the first three months of fiscal 2019 and 2018 each contained 13 weeks.

Investment in semiconductor and display manufacturing equipment and services continued to be the main driver of revenue during the first three months of fiscal 2019. Semiconductor equipment customers made investments in new capacity and technology transitions, although overall spending decreased compared to the same period in the prior year. Display equipment spending during the first quarter of fiscal 2019 reflected continued investment in new technology and manufacturing equipment for producing larger LCD TVs and in new equipment for mobile devices. Applied also continued to see strong growth in demand for services and continued demand for spares from customers as compared to the same period in the prior year.

While Applied anticipates major technology trends to continue driving long-term growth in the semiconductor industry, the trends characterizing the second half of 2018 continued into early fiscal 2019, with lower spending by memory customers, and foundry and logic customers prioritizing spending on longer lead-time equipment not in Applied's product portfolio. Applied also expects lower spending for display manufacturing equipment in fiscal 2019, although long-term demand drivers remain in place. Applied anticipates continued growth in semiconductor services spending in fiscal 2019.

The three months ended January 28, 2018 included a one-time expense related to the enactment of recent U.S. tax legislation that reduced diluted earnings per share by $0.94.

Applied adopted the authoritative guidance related to revenue recognition in the first quarter of fiscal 2019 using the full retrospective method. Applied also adopted authoritative guidance related to retirement benefits in the first quarter of fiscal 2019 using the retrospective method. The adoption of these guidance required restating each prior reporting period presented.

Results of Operations

Net Sales

Net sales for the periods indicated were as follows:

	Three Months Ended				
	January 27, 2019		January 28, 2018		Change
	(In millions, except percentages)				
Semiconductor Systems	$ 2,268	60%	$ 2,852	68%	(20)%
Applied Global Services	962	26%	881	21%	9 %
Display and Adjacent Markets	507	14%	443	11%	14 %
Corporate and Other	16	—%	29	—%	(45)%
Total	$ 3,753	100%	$ 4,205	100%	(11)%

For the three months ended January 27, 2019 compared to the same period in the prior year, net sales decreased primarily due to decreased customer investments in semiconductor equipment. The Semiconductor Systems segment's relative share of total net sales continued to represent the largest contributor of net sales.

Net sales by geographic region, determined by the location of customers' facilities to which products were shipped, were as follows:

	Three Months Ended				
	January 27, 2019		January 28, 2018		Change
	(In millions, except percentages)				
China	$ 968	26%	$ 964	23%	— %
Korea	572	15%	1,203	29%	(52)%
Taiwan	656	18%	741	18%	(11)%
Japan	651	17%	482	11%	35 %
Southeast Asia	160	4%	193	4%	(17)%
Asia Pacific	3,007	80%	3,583	85%	(16)%
United States	450	12%	370	9%	22 %
Europe	296	8%	252	6%	17 %
Total	$ 3,753	100%	$ 4,205	100%	(11)%

The changes in net sales in all regions in the three months ended January 27, 2019 compared to the same period in the prior year primarily reflected changes in semiconductor equipment spending and customer and product mix. The increase in net sales to customers in Japan, United States and Europe, for the three months ended January 27, 2019 compared to the same period in the prior year was primarily due to increased investments in semiconductor equipment. The decrease in net sales to customers in Korea for the three months ended January 27, 2019 compared to the same period in the prior year primarily reflected decrease in investments in semiconductor equipment.

Gross Margin

Gross margins for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
Gross margin	44.4%	46.1%	(1.7) points

Gross margin in the first three months of fiscal 2019 decreased compared to the same period in the prior year primarily due to the decrease in net sales and unfavorable changes in customer and product mix. Gross margin during the three months ended January 27, 2019 and January 28, 2018 each included $22 million of share-based compensation expense.

Research, Development and Engineering

Research, Development and Engineering (RD&E) expenses for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
		(In millions)	
Research, development and engineering	$ 516	$ 489	$ 27

Applied's future operating results depend to a considerable extent on its ability to maintain a competitive advantage in the equipment and service products it provides. Development cycles range from 12 to 36 months depending on whether the product is an enhancement of an existing product, which typically has a shorter development cycle, or a new product, which typically has a longer development cycle. Most of Applied's existing products resulted from internal development activities and innovations involving new technologies, materials and processes. In certain instances, Applied acquires technologies, either in existing or new product areas, to complement its existing technology capabilities and to reduce time to market.

Management believes that it is critical to continue to make substantial investments in RD&E to assure the availability of innovative technology that meets the current and projected requirements of its customers' most advanced designs. Applied has maintained and intends to continue its commitment to investing in RD&E in order to continue to offer new products and technologies.

RD&E expenses increased during the three months ended January 27, 2019 compared to the same period in the prior year primarily due to additional headcount and increased research and development program spending in Semiconductor Systems segment. This increase reflects Applied's ongoing investment in product development initiatives, consistent with the Company's strategy. Applied continued to prioritize existing RD&E investments in technical capabilities and critical research and development programs in current and new markets, with a focus on semiconductor technologies. RD&E expenses during the three months ended January 27, 2019 and January 28, 2018 each included $24 million of share-based compensation expense.

Marketing and Selling

Marketing and selling expenses for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
		(In millions)	
Marketing and selling	$ 131	$ 126	$ 5

Marketing and selling expenses increased in the three months ended January 27, 2019 compared to the same period in fiscal 2018 primarily due to additional headcount. Marketing and selling expenses during the three months ended January 27, 2019 and January 28, 2018 each included $8 million of share-based compensation expense.

General and Administrative

General and administrative (G&A) expenses for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
		(In millions)	
General and administrative	$ 110	$ 110	$ —

G&A expenses in the three months ended January 27, 2019 remained flat compared to the same period in the prior year. G&A expenses during the three months ended January 27, 2019 and January 28, 2018 each included $11 million of share-based compensation expense.

Interest Expense and Interest and Other Income (Loss), net

Interest expense and interest and other income (loss), net for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	January 28, 2018	Change
		(In millions)	
Interest expense	$ 60	$ 59	$ 1
Interest and other income, net	$ 40	$ 27	$ 13

Interest expenses incurred were primarily associated with issued senior unsecured notes. Interest expense in the three months ended January 27, 2019 remained relatively flat compared to the same period in fiscal 2018.

Interest and other income, net in the three months ended January 27, 2019 increased compared to the same period in fiscal 2018, primarily driven by unrealized gains on equity investment securities. Effective the first quarter of fiscal 2019, unrealized gains and losses on investments classified as equity investments are recognized in other income (expense), net in the Consolidated Condensed Statement of Operations. Prior to the adoption of Accounting Standards Update (ASU) 2016-01 *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* in the first quarter of fiscal 2019, these unrealized gains and temporary losses were included within accumulated other comprehensive income (loss), net of any related tax effect.

Income Taxes

Provision for income taxes and effective tax rates for the periods indicated were as follows:

	Three Months Ended		
	January 27, 2019	**January 28, 2018**	**Change**
	(In millions, except percentages)		
Provision for income taxes	$ 117	$ 1,018	$ (901)
Effective tax rate	13.2%	86.1%	(72.9) points

Applied's provision for income taxes and effective tax rate are affected by the geographical composition of pre-tax income which includes jurisdictions with differing tax rates, conditional reduced tax rates and other income tax incentives. It is also affected by events that are not consistent from period to period, such as changes in income tax laws and the resolution of prior years' income tax filings.

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act requires a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries payable over eight years. U.S. deferred tax assets and liabilities were subject to remeasurement due to the reduction of the U.S. federal corporate tax rate. The U.S. Securities and Exchange Commission issued Staff Accounting Bulletin No. 118, which provided guidance on accounting for the income tax effects of the Tax Act and a measurement period for companies to complete this accounting. Applied completed the accounting for the Tax Act during the measurement period, which ended one year after the enactment date of the Tax Act, including the accounting for the remeasurement of deferred tax assets completed in the fourth quarter of fiscal 2018 and the accounting for the transition tax completed in the first quarter of fiscal 2019.

The Tax Act also includes provisions that impact Applied starting in fiscal 2019, including a provision designed to tax global intangible low-taxed income ("GILTI"). On September 13, 2018, the U.S. government issued proposed regulations that, if finalized, would significantly affect how the Tax Act is interpreted related to a tax benefit of $46 million realized by Applied in the first quarter of fiscal 2019. Proposed regulations are not authoritative and may change in the regulatory review process. Pursuant to our accounting policies for uncertain tax positions, the tax benefit might reverse if the regulations are finalized as proposed. An accounting policy choice is allowed to either treat taxes due on future U.S. inclusions related to GILTI in taxable income as a current-period expense when incurred (the "period cost method") or factor such amounts into the measurement of deferred taxes (the "deferred method"). Applied has chosen the period cost method.

Excluding the tax expense of $1.0 billion in the first quarter of fiscal 2018 for the transition tax and remeasurement of deferred tax assets as a result of the Tax Act, the effective tax rate for the first quarter of fiscal 2019 was higher than the same period in the prior fiscal year primarily due to tax expense of $58 million in the first quarter of fiscal 2019 related to changes in uncertain tax positions and due to the excess tax benefit from share-based compensation in the first quarter of fiscal 2019 being $43 million less than in the same period in the prior fiscal year. The first quarter of fiscal 2019 also included tax expense related to GILTI and changes in the geographical composition of income which includes jurisdictions with differing tax rates.

Segment Information

Applied reports financial results in three segments: Semiconductor Systems, Applied Global Services, and Display and Adjacent Markets. A description of the products and services, as well as financial data, for each reportable segment can be found in Note 14 of Notes to Consolidated Condensed Financial Statements.

The Corporate and Other category includes revenues from products, as well as costs of products sold, for fabricating solar photovoltaic cells and modules and certain operating expenses that are not allocated to its reportable segments and are managed separately at the corporate level. These operating expenses include costs for share-based compensation; certain management, finance, legal, human resource, and RD&E functions provided at the corporate level; and unabsorbed information technology and occupancy. In addition, Applied does not allocate to its reportable segments restructuring and asset impairment charges and any associated adjustments related to restructuring actions, unless these actions pertain to a specific reportable segment.

The results for each reportable segment are discussed below.

Semiconductor Systems Segment

The Semiconductor Systems segment is comprised primarily of capital equipment used to fabricate semiconductor chips. Semiconductor industry spending on capital equipment is driven by demand for advanced electronic products, including smartphones and other mobile devices, servers, personal computers, automotive devices, storage, and other products, and the nature and timing of technological advances in fabrication processes, and as a result is subject to variable industry conditions. Development efforts are focused on solving customers’ key technical challenges in transistor, interconnect, patterning and packaging performance as devices scale to advanced technology nodes.

Semiconductor equipment customers made investments in new capacity and technology transitions, although overall spending decreased compared to the same period in the prior year. Applied continues to see customers optimize existing capacity and re-prioritize their capital spending plans on longer lead-time equipment not in Applied's product portfolio.

Certain significant measures for the periods indicated were as follows:

	Three Months Ended			
	January 27, 2019	January 28, 2018	Change	
	(In millions, except percentages and ratios)			
Net sales	$ 2,268	$ 2,852	$ (584)	(20)%
Operating income	$ 631	$ 1,024	$ (393)	(38)%
Operating margin	27.8%	35.9%		(8.1) points

Net sales for Semiconductor Systems by end use application for the periods indicated were as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
Foundry, logic and other	44%	37%
Dynamic random-access memory (DRAM)	21%	26%
Flash memory	35%	37%
	100%	100%

Net sales for the three months ended January 27, 2019 decreased compared to the same period in the prior year for all end use application customers. Operating margin for the three months ended January 27, 2019 decreased, primarily reflecting lower net sales, unfavorable changes in customer and product mix, as well as increased RD&E expenses. Four customers each accounted for at least 10 percent of this segment’s net sales, and together they accounted for approximately 68 percent of this segment’s total net sales, in the three months ended January 27, 2019.

The following regions accounted for at least 30 percent of total net sales for the Semiconductor Systems segment for one or more of the periods indicated:

	Three Months Ended				
	January 27, 2019		January 28, 2018		Change
	(In millions, except percentages)				
Korea	$ 434	19%	$ 1,040	36%	(58)%

Applied Global Services Segment

The Applied Global Services segment provides integrated solutions to optimize equipment and fab performance and productivity, including spares, upgrades, services, certain remanufactured earlier generation equipment and factory automation software for semiconductor, display and solar products. Customer demand for products and services is fulfilled through a global distribution system with trained service engineers located in close proximity to customer sites.

Demand for Applied Global Services' service solutions are driven by Applied's large and growing installed base of manufacturing systems, and customers' needs to shorten ramp times, improve device performance and yield, and optimize factory output and operating costs. Industry conditions that affect Applied Global Services' sales of spares and services are primarily characterized by increases in semiconductor manufacturers' wafer starts and continued strong utilization rates, growth of the installed base of equipment, growing service intensity of newer tools, and the company's ability to sell more comprehensive service agreements.

Certain significant measures for the periods indicated were as follows:

	Three Months Ended			
	January 27, 2019	January 28, 2018	Change	
	(In millions, except percentages and ratios)			
Net sales	$ 962	$ 881	$ 81	9%
Operating income	$ 285	$ 255	$ 30	12%
Operating margin	29.6%	28.9%		0.7 points

Net sales for the three months ended January 27, 2019 increased compared to the same period in the prior year primarily due to higher customer spending for services and legacy systems. Operating income and operating margin for the three months ended January 27, 2019 compared to the same period in the prior year increased due to higher net sales, partially offset by higher expenses related to an increase in headcount. In the three months ended January 27, 2019, one customer accounted for more than 10 percent of this segment's total net sales.

There was no region that accounted for at least 30 percent of total net sales for the Applied Global Services segment for any of the periods presented.

Display and Adjacent Markets Segment

The Display and Adjacent Markets segment encompasses products for manufacturing liquid crystal and OLED displays, and other display technologies for TVs, monitors, laptops, personal computers, electronic tablets, smart phones, and other consumer-oriented devices, equipment upgrades and flexible coating systems. The segment is focused on expanding its presence through technologically-differentiated equipment for manufacturing large-scale LCD TVs, OLEDs, low temperature polysilicon (LTPS), metal oxide, and touch panel sectors; and development of products that provide customers with improved performance and yields. Display industry growth depends primarily on consumer demand for increasingly larger and more advanced TVs as well as larger and higher resolution displays for next generation mobile devices.

The market environment for Applied's Display and Adjacent Markets segment in the first three months of fiscal 2019 was characterized by increased demand for manufacturing equipment for TVs and continued demand for mobile manufacturing equipment, compared to the same period in the prior year. Uneven spending patterns by customers in the Display and Adjacent Markets segment can cause significant fluctuations quarter-over-quarter, as well as year-over-year.

Certain significant measures for the periods presented were as follows:

	Three Months Ended			
	January 27, 2019	January 28, 2018	Change	
	(In millions, except percentages and ratios)			
Net sales	$ 507	$ 443	$ 64	14%
Operating income	$ 115	$ 90	$ 25	28%
Operating margin	22.7%	20.3%		2.4 points

Net sales for the three months ended January 27, 2019 increased compared to the same period in the prior year primarily due to higher customer investments in TV display manufacturing equipment. Operating income and operating margin for the three months ended January 27, 2019 increased compared to the same period in the prior year, reflecting higher net sales, partially offset by higher expenses related to an increase in headcount. In the three months ended January 27, 2019, three customers each accounted for at least 10 percent of this segment’s net sales, and together they accounted for approximately 79 percent of this segment’s total net sales.

The following region accounted for at least 30 percent of total net sales for the Display and Adjacent Markets segment for one or more of the periods presented:

	Three Months Ended				
	January 27, 2019		January 28, 2018		Change
	(In millions, except percentages)				
China	$ 477	94%	$ 311	70%	53%

Financial Condition, Liquidity and Capital Resources

Applied's cash, cash equivalents and investments consist of the following:

	January 27, 2019	October 28, 2018
	(In millions)	
Cash and cash equivalents	$ 3,192	$ 3,440
Short-term investments	520	590
Long-term investments	1,588	1,568
Total cash, cash-equivalents and investments	$ 5,300	$ 5,598

Sources and Uses of Cash

A summary of cash provided by (used in) operating, investing, and financing activities is as follows:

	Three Months Ended	
	January 27, 2019	January 28, 2018
	(In millions)	
Cash provided by operating activities	$ 834	$ 1,466
Cash provided by (used in) investing activities	$ (66)	$ 1,352
Cash used in financing activities	$ (1,016)	$ (1,029)

Operating Activities

Cash from operating activities for the three months ended January 27, 2019 was $834 million, which reflects net income adjusted for the effect of non-cash charges and changes in working capital components. Non-cash charges included depreciation, amortization, share-based compensation and deferred income taxes. Cash provided by operating activities decreased in the first three months of fiscal 2019 compared to the same period in the prior year primarily due to lower cash collections and higher payments to suppliers, offset by a lower change in inventory during the three months ended January 27, 2019, compared to the same period in the prior year.

Applied has agreements with various financial institutions to sell accounts receivable and discount promissory notes from selected customers. Applied sells its accounts receivable without recourse. Applied, from time to time, also discounts letters of credit issued by customers through various financial institutions. The discounting of letters of credit depends on many factors, including the willingness of financial institutions to discount the letters of credit and the cost of such arrangements. Applied sold $464 million and $376 million of accounts receivable during the three months ended January 27, 2019 and January 28, 2018, respectively. Applied did not discount promissory notes or utilize programs to discount letters of credit issued by customers during the three months ended January 27, 2019 or January 28, 2018.

Applied's working capital was $6.5 billion as of January 27, 2019 and $6.7 billion as of October 28, 2018.

Days sales outstanding for the three months ended January 27, 2019 was 59 days, an increase compared to 47 day sales outstanding for the same period in the prior year. Days sales outstanding varies due to the timing of shipments and payment terms, and the increase was primarily due to better revenue linearity for the same period in the prior year.

Investing Activities

Applied used $66 million of cash in investing activities during the three months ended January 27, 2019. Capital expenditures totaled $133 million and were partially offset by the proceeds from sales and maturities of investments, net of purchases of investments of $67 million during the three months ended January 27, 2019.

Applied's investment portfolio consists principally of investment grade money market mutual funds, U.S. Treasury and agency securities, municipal bonds, corporate bonds and mortgage-backed and asset-backed securities, as well as equity securities. Applied regularly monitors the credit risk in its investment portfolio and takes appropriate measures, which may include the sale of certain securities, to manage such risks prudently in accordance with its investment policies.

Financing Activities

Applied used $1.0 billion of cash in financing activities during the three months ended January 27, 2019, consisting primarily of repurchases of common stock of $750 million, cash dividends to stockholders of $192 million and tax withholding payments for vested equity awards of $74 million.

In December 2018, Applied's Board of Directors declared a quarterly cash dividend payable in March 2019, in the amount of $0.20 per share. Applied currently anticipates that cash dividends will continue to be paid on a quarterly basis, although the declaration of any future cash dividend is at the discretion of the Board of Directors and will depend on Applied's financial condition, results of operations, capital requirements, business conditions and other factors, as well as a determination by the Board of Directors that cash dividends are in the best interests of Applied's stockholders.

Applied has credit facilities for unsecured borrowings in various currencies of up to $1.6 billion, of which $1.5 billion is comprised of a committed revolving credit agreement with a group of banks that is scheduled to expire in September 2021. This agreement provides for borrowings in United States dollars at interest rates keyed to one of the two rates selected by Applied for each advance and includes financial and other covenants with which Applied was in compliance as of January 27, 2019. Remaining credit facilities in the amount of approximately $73 million are with Japanese banks. Applied's ability to borrow under these facilities is subject to bank approval at the time of the borrowing request, and any advances will be at rates indexed to the banks' prime reference rate denominated in Japanese yen. No amounts were outstanding under any of these facilities as of both January 27, 2019 and October 28, 2018, and Applied has not utilized these credit facilities.

In fiscal 2011, Applied established a short-term commercial paper program of up to $1.5 billion. As of January 27, 2019, Applied did not have any commercial paper outstanding but may issue commercial paper notes under this program from time to time in the future.

In the ordinary course of business, Applied provides standby letters of credit or other guarantee instruments to third parties as required for certain transactions initiated by either Applied or its subsidiaries. As of January 27, 2019, the maximum potential amount of future payments that Applied could be required to make under these guarantee agreements was approximately $68 million. Applied has not recorded any liability in connection with these guarantee agreements beyond that required to appropriately account for the underlying transaction being guaranteed. Applied does not believe, based on historical experience and information currently available, that it is probable that any amounts will be required to be paid under these guarantee agreements.

Applied also has agreements with various banks to facilitate subsidiary banking operations worldwide, including overdraft arrangements, issuance of bank guarantees, and letters of credit. As of January 27, 2019, Applied has provided parent guarantees to banks for approximately $150 million to cover these arrangements.

Others

During the three months ended January 27, 2019, Applied did not record a bad debt provision. While Applied believes that its allowance for doubtful accounts as of January 27, 2019 is adequate, it will continue to closely monitor customer liquidity and economic conditions.

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act. The Tax Act requires a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries. Applied realized a transition tax expense of $1.0 billion which is payable over eight years, with eight percent due in each of the first five years starting with fiscal 2018. Before the Tax Act, U.S. income tax had not been provided for certain unrepatriated earnings that were considered indefinitely reinvested. Income tax is now provided for all unrepatriated earnings.

Although cash requirements will fluctuate based on the timing and extent of factors such as those discussed above, Applied's management believes that cash generated from operations, together with the liquidity provided by existing cash balances and borrowing capability, will be sufficient to satisfy Applied's liquidity requirements for the next 12 months. For further details regarding Applied's operating, investing and financing activities, see the Consolidated Condensed Statements of Cash Flows in this report.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, assumptions and estimates that affect the amounts reported. Note 1 of Notes to Consolidated Financial Statements in Applied's Annual Report on Form 10-K and Note 1 of Notes to Consolidated Condensed Financial Statements in this report describe the significant accounting policies used in the preparation of the consolidated financial statements. Certain of these significant accounting policies are considered to be critical accounting policies.

A critical accounting policy is defined as one that is both material to the presentation of Applied's consolidated financial statements and that requires management to make difficult, subjective or complex judgments that could have a material effect on Applied's financial condition or results of operations. Specifically, these policies have the following attributes: (1) Applied is required to make assumptions about matters that are highly uncertain at the time of the estimate; and (2) different estimates Applied could reasonably have used, or changes in the estimate that are reasonably likely to occur, would have a material effect on Applied's financial condition or results of operations.

Estimates and assumptions about future events and their effects cannot be determined with certainty. Applied bases its estimates on historical experience and on various other assumptions believed to be applicable and reasonable under the circumstances. These estimates may change as new events occur, as additional information is obtained and as Applied's operating environment changes. These changes have historically been minor and have been included in the consolidated financial statements as soon as they became known. In addition, management is periodically faced with uncertainties, the outcomes of which are not within its control and will not be known for prolonged periods of time. These uncertainties include those discussed in Part II, Item 1A, "Risk Factors." Based on a critical assessment of its accounting policies and the underlying judgments and uncertainties affecting the application of those policies, management believes that Applied's consolidated financial statements are fairly stated in accordance with accounting principles generally accepted in the United States of America, and provide a meaningful presentation of Applied's financial condition and results of operations.

Management believes that the following are critical accounting policies and estimates:

Revenue Recognition

Applied recognizes revenue when promised goods or services (performance obligations) are transferred to a customer in an amount that reflects the consideration to which Applied expects to be entitled in exchange for those goods or services. Applied performs the following five steps to determine when to recognize revenue: (1) identification of the contract(s) with customers, (2) identification of the performance obligations in the contract, (3) determination of the transaction price, (4) allocation of the transaction price to the performance obligations in the contract, and (5) recognition of revenue when, or as, a performance obligation is satisfied. Management uses judgment to identify performance obligations within a contract and to determine whether multiple promised goods or services in a contract should be accounted for separately or as a group. Judgment is also used in interpreting commercial terms and determining when transfer of control occurs. Moreover, judgment is used to estimate the contract's transaction price and allocate it to each performance obligation. Any material changes in the identification of performance obligations, determination and allocation of the transaction price to performance obligations, and determination of when transfer of control occurs to the customer, could impact the timing and amount of revenue recognition, which could have a material effect on Applied's financial condition and results of operations.

Warranty Costs

Applied provides for the estimated cost of warranty when revenue is recognized. Estimated warranty costs are determined by analyzing specific product, current and historical configuration statistics and regional warranty support costs. Applied's warranty obligation is affected by product and component failure rates, material usage and labor costs incurred in correcting product failures during the warranty period. As Applied's customer engineers and process support engineers are highly trained and deployed globally, labor availability is a significant factor in determining labor costs. The quantity and availability of critical replacement parts is another significant factor in estimating warranty costs. Unforeseen component failures or exceptional component performance can also result in changes to warranty costs. If actual warranty costs differ substantially from Applied's estimates, revisions to the estimated warranty liability would be required, which could have a material adverse effect on Applied's business, financial condition and results of operations.

Allowance for Doubtful Accounts

Applied maintains an allowance for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. This allowance is based on historical experience, credit evaluations, specific customer collection history and any customer-specific issues Applied has identified. Changes in circumstances, such as an unexpected material adverse change in a major customer's ability to meet its financial obligation to Applied or its payment trends, may require Applied to further adjust its estimates of the recoverability of amounts due to Applied, which could have a material adverse effect on Applied's business, financial condition and results of operations.

Inventory Valuation

Inventories are generally stated at the lower of cost or net realizable value, with cost determined on a first-in, first-out basis. The carrying value of inventory is reduced for estimated obsolescence by the difference between its cost and the estimated net realizable value based upon assumptions about future demand. Applied evaluates the inventory carrying value for potential excess and obsolete inventory exposures by analyzing historical and anticipated demand. In addition, inventories are evaluated for potential obsolescence due to the effect of known and anticipated engineering change orders and new products. If actual demand were to be substantially lower than estimated, additional adjustments for excess or obsolete inventory may be required, which could have a material adverse effect on Applied's business, financial condition and results of operations.

Goodwill and Intangible Assets

Applied reviews goodwill and intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable, and also annually reviews goodwill and intangibles with indefinite lives for impairment. Intangible assets, such as purchased technology, are generally recorded in connection with a business acquisition. The value assigned to intangible assets is usually based on estimates and judgments regarding expectations for the success and life cycle of products and technology acquired. If actual product acceptance differs significantly from the estimates, Applied may be required to record an impairment charge to reduce the carrying value of the reporting unit to its estimated fair value.

To test goodwill for impairment, Applied first performs a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If it is concluded that this is the case, Applied then performs the two-step goodwill impairment test. Otherwise, the two-step goodwill impairment test is not required. Under the two-step goodwill impairment test, Applied would in the first step compare the estimated fair value of each reporting unit to its carrying value. If the carrying value of a reporting unit exceeds its estimated fair value, Applied would then perform the second step of the impairment test in order to determine the implied fair value of the reporting unit's goodwill. If Applied determines that the carrying value of a reporting unit's goodwill exceeds its implied fair value, Applied would record an impairment charge equal to the difference.

Applied determines the fair value of each reporting unit based on a weighting of an income and a market approach. Applied bases the fair value estimates on assumptions that it believes to be reasonable but that are unpredictable and inherently uncertain. Under the income approach, Applied estimates the fair value based on discounted cash flow method.

The estimates used in the impairment testing are consistent with the discrete forecasts that Applied uses to manage its business, and considers any significant developments during the period. Under the discounted cash flow method, cash flows beyond the discrete forecasts are estimated using a terminal growth rate, which considers the long-term earnings growth rate specific to the reporting units. The estimated future cash flows are discounted to present value using each reporting unit's weighted average cost of capital. The weighted average cost of capital measures a reporting unit's cost of debt and equity financing weighted by the percentage of debt and equity in a reporting unit's target capital structure. In addition, the weighted average cost of capital is derived using both known and estimated market metrics, and is adjusted to reflect both the timing and risks associated with the estimated cash flows. The tax rate used in the discounted cash flow method is the median tax rate of comparable companies and reflects Applied's current international structure, which is consistent with the market participant perspective. Under the market approach, Applied uses the guideline company method which applies market multiples to forecasted revenues and earnings before interest, taxes, depreciation and amortization. Applied uses market multiples that are consistent with comparable publicly-traded companies and considers each reporting unit's size, growth and profitability relative to its comparable companies.

Management uses significant judgment when assessing goodwill for potential impairment, especially in emerging markets. Indicators of potential impairment include, but are not limited to, challenging economic conditions, an unfavorable industry or economic environment or other severe decline in market conditions. Such conditions could have the effect of changing one of the critical assumptions or estimates used for the fair value calculation, resulting in an unexpected goodwill impairment charge, which could have a material adverse effect on Applied's business, financial condition and results of operations. See Note 9 of Notes to Consolidated Financial Statements for additional discussion of goodwill impairment.

Income Taxes

Applied's provision for income taxes and effective tax rate are affected by the geographical composition of pre-tax income which includes jurisdictions with differing tax rates, conditional reduced tax rates and other income tax incentives. It is also affected by events that are not consistent from period to period, such as changes to income tax laws and the resolution of prior years' income tax filings. Applied recognizes a current tax liability for the estimated amount of income tax payable on tax returns for the current fiscal year. Deferred tax assets and liabilities are recognized for the estimated future tax effects of temporary differences between the book and tax bases of assets and liabilities. Deferred tax assets are also recognized for net operating loss and tax credit carryforwards. Deferred tax assets are offset by a valuation allowance to the extent it is more likely than not that they are not expected to be realized.

Applied recognizes tax benefits from uncertain tax positions only if it is more likely than not that the tax position will be sustained upon examination by the taxing authorities based on the technical merits of the position. The tax benefits recognized from such positions are estimated based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. Any changes in judgment related to uncertain tax positions are recognized in Applied's provision for income taxes in the quarter in which such change occurs. Interest and penalties related to uncertain tax positions are recognized in Applied's provision for income taxes.

The calculation of Applied's provision for income taxes and effective tax rate involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws. Resolution of these uncertainties in a manner inconsistent with Applied's expectations could have an adverse material impact on Applied's results of operations and financial condition.

Non-GAAP Adjusted Financial Results

Management uses non-GAAP adjusted financial measures to evaluate the Company's operating and financial performance and for planning purposes, and as performance measures in its executive compensation program. Applied believes these measures enhance an overall understanding of its performance and investors' ability to review the Company's business from the same perspective as the Company's management and facilitate comparisons of this period's results with prior periods on a consistent basis by excluding items that management does not believe are indicative of Applied's ongoing operating performance.

The non-GAAP adjusted financial measures presented below are adjusted to exclude the impact of certain costs, expenses, gains and losses, including certain items related to mergers and acquisitions; restructuring charges and any associated adjustments; impairments of assets, or investments; gain or loss on sale of strategic investments; tax effect of share-based compensation; certain income tax items and other discrete adjustments. Additionally, non-GAAP results exclude estimated discrete income tax expense items associated with recent U.S. tax legislation. Reconciliations of these non-GAAP measures to the most directly comparable financial measures calculated and presented in accordance with GAAP are provided in the financial tables presented below. There are limitations in using non-GAAP financial measures because the non-GAAP financial measures are not prepared in accordance with generally accepted accounting principles, may be different from non-GAAP financial measures used by other companies, and may exclude certain items that may have a material impact upon our reported financial results. The presentation of this additional information is not meant to be considered in isolation or as a substitute for the directly comparable financial measures prepared in accordance with GAAP.

The following tables present a reconciliation of the GAAP and non-GAAP adjusted consolidated results:

APPLIED MATERIALS, INC.
UNAUDITED RECONCILIATION OF GAAP TO NON-GAAP ADJUSTED RESULTS

	Three Months Ended	
(In millions, except percentages)	**January 27, 2019**	**January 28, 2018**
Non-GAAP Adjusted Gross Profit		
Reported gross profit - GAAP basis	$ 1,665	$ 1,940
Certain items associated with acquisitions[1]	10	45
Non-GAAP adjusted gross profit	$ 1,675	$ 1,985
Non-GAAP adjusted gross margin	44.6%	47.2%
Non-GAAP Adjusted Operating Income		
Reported operating income - GAAP basis	$ 908	$ 1,215
Certain items associated with acquisitions[1]	14	49
Acquisition integration and deal costs	3	1
Non-GAAP adjusted operating income	$ 925	$ 1,265
Non-GAAP adjusted operating margin	24.6%	30.1%
Non-GAAP Adjusted Net Income		
Reported net income - GAAP basis	$ 771	$ 165
Certain items associated with acquisitions[1]	14	49
Acquisition integration and deal costs	3	1
Impairment (gain on sale) of strategic investments, net	—	(1)
Loss (gain) on strategic investments, net	(12)	—
Income tax effect of share-based compensation[2]	(5)	(39)
Income tax effect of changes in applicable U.S. tax laws[3]	(24)	1,006
Income tax effects related to amortization of intra-entity intangible asset transfers	(28)	—
Resolution of prior years' income tax filings and other tax items	59	(13)
Income tax effect of non-GAAP adjustments[4]	1	(3)
Non-GAAP adjusted net income	$ 779	$ 1,165

1 These items are incremental charges attributable to completed acquisitions, consisting of amortization of purchased intangible assets.

2 GAAP basis tax benefit related to share-based compensation is being recognized ratably over the fiscal year on a non-GAAP basis.

3 Charges to income tax provision related to a one-time transition tax and a decrease in U.S. deferred tax assets as a result of the recent U.S. tax legislation.

4 Adjustment to provision for income taxes related to non-GAAP adjustments reflected in income before income taxes.

APPLIED MATERIALS, INC.
UNAUDITED RECONCILIATION OF GAAP TO NON-GAAP ADJUSTED RESULTS

(In millions, except per share amounts)	**Three Months Ended**	
	January 27, 2019	**January 28, 2018**
Non-GAAP Adjusted Earnings Per Diluted Share		
Reported earnings per diluted share - GAAP basis	$ 0.80	$ 0.15
Certain items associated with acquisitions	0.01	0.04
Loss (gain) on strategic investments, net	(0.01)	—
Income tax effect of share-based compensation	—	(0.04)
Income tax effect of changes in applicable U.S. tax laws	(0.02)	0.94
Income tax effects related to amortization of intra-entity intangible asset transfers	(0.03)	—
Resolution of prior years’ income tax filings and other tax items	0.06	(0.01)
Non-GAAP adjusted earnings per diluted share	$ 0.81	$ 1.08
Weighted average number of diluted shares	965	1,071

The following table presents a reconciliation of the GAAP and non-GAAP adjusted segment results:

APPLIED MATERIALS, INC.
UNAUDITED RECONCILIATION OF GAAP TO NON-GAAP ADJUSTED RESULTS

(In millions, except percentages)	**Three Months Ended January 27, 2019**	**Three Months Ended January 28, 2018**
Semiconductor Systems Non-GAAP Adjusted Operating Income		
Reported operating income - GAAP basis	$ 631	$ 1,024
Certain items associated with acquisitions[1]	11	46
Non-GAAP adjusted operating income	$ 642	$ 1,070
Non-GAAP adjusted operating margin	28.3%	37.5%
AGS Non-GAAP Adjusted Operating Income		
Reported operating income - GAAP basis	$ 285	$ 255
Acquisition integration costs	—	1
Non-GAAP adjusted operating income	$ 285	$ 256
Non-GAAP adjusted operating margin	29.6%	29.1%
Display and Adjacent Markets Non-GAAP Adjusted Operating Income		
Reported operating income - GAAP basis	$ 115	$ 90
Certain items associated with acquisitions[1]	3	3
Non-GAAP adjusted operating income	$ 118	$ 93
Non-GAAP adjusted operating margin	23.3%	21.0%

1 These items are incremental charges attributable to completed acquisitions, consisting of amortization of purchased intangible assets.

Note: The reconciliation of GAAP and non-GAAP adjusted segment results above does not include certain revenues, costs of products sold and operating expenses that are reported within corporate and other and included in consolidated operating income.

Item 3: ***Quantitative and Qualitative Disclosures About Market Risk***

Applied is exposed to interest rate risk related to its investment portfolio and debt issuances. Applied's investment portfolio includes fixed-income securities with a fair value of approximately $2.0 billion as of January 27, 2019. These securities are subject to interest rate risk and will decline in value if interest rates increase. Based on Applied's investment portfolio as of January 27, 2019, an immediate 100 basis point increase in interest rates would result in a decrease in the fair value of the portfolio of approximately $26 million. While an increase in interest rates reduces the fair value of the investment portfolio, Applied will not realize the losses in the consolidated statement of operations unless the individual fixed-income securities are sold prior to recovery or the loss is determined to be other-than-temporary. As of January 27, 2019, the aggregate principal of long-term debt issued by Applied was $5.4 billion with an estimated fair value of $5.5 billion. A hypothetical decrease in interest rates of 100 basis points would result in an increase in the fair value of Applied's long-term debt issuances of approximately $501 million as of January 27, 2019.

Certain operations of Applied are conducted in foreign currencies, such as Japanese yen, euro, Israeli shekel and Taiwanese dollar. Applied enters into currency forward exchange and option contracts to hedge a portion of, but not all, existing and anticipated foreign currency denominated transactions generally expected to occur within the next 24 months. Gains and losses on these contracts are generally recognized in income at the time that the related transactions being hedged are recognized. Because the effect of movements in currency exchange rates on currency forward exchange and option contracts generally offsets the related effect on the underlying items being hedged, these financial instruments are not expected to subject Applied to risks that would otherwise result from changes in currency exchange rates. Applied does not use derivative financial instruments for trading or speculative purposes.

Item 4. ***Controls and Procedures***

Disclosure Controls and Procedures

As of the end of the period covered by this report, management of Applied conducted an evaluation, under the supervision and with the participation of Applied's Chief Executive Officer and Chief Financial Officer, of the effectiveness of Applied's disclosure controls and procedures, as such term is defined in Rule 13a-15(e) of the Securities Exchange Act of 1934 (the Exchange Act). Based upon that evaluation, Applied's Chief Executive Officer and Chief Financial Officer concluded that Applied's disclosure controls and procedures were effective as of the end of the period covered by this report in ensuring that information required to be disclosed was recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and to provide reasonable assurance that information required to be disclosed by Applied in such reports is accumulated and communicated to the Company's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control Over Financial Reporting

During the first quarter of fiscal 2019, Applied implemented controls and processes relating to adoption of the new revenue recognition accounting standard that the Company adopted in the beginning of fiscal 2019. Throughout the implementation, Applied evaluated the impact of the adoption of the new standard on its internal control over financial reporting and made changes to controls where necessary to maintain the effectiveness of internal control over financial reporting in all material respects. There were no other changes in the internal control over financial reporting, as such term is defined in Rule 13a-15(f) of the Exchange Act, that materially affected, or are reasonably likely to materially affect, Applied's internal control over financial reporting.

It should be noted that any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system will be met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events.

PART II. OTHER INFORMATION

Item 1. *Legal Proceedings*

The information set forth under “Legal Matters” in Note 13 in Notes to Consolidated Condensed Financial Statements is incorporated herein by reference.

Item 1A: *Risk Factors*

The risk factors set forth below include any material changes to, and supersede the description of, the risk factors disclosed in Part I, Item 1A of Applied’s 2018 Form 10-K. These factors could materially and adversely affect Applied’s business, financial condition or results of operations and cause reputational harm, and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

The industries that Applied serves can be volatile and difficult to predict.

As a supplier to the global semiconductor and display and related industries, Applied is subject to variable industry conditions, as demand for manufacturing equipment and services can change depending on several factors, including the nature and timing of technology inflections and advances in fabrication processes, the timing and requirements of new and emerging technologies and market drivers, production capacity relative to demand for chips and display technologies, end-user demand, customers’ capacity utilization, production volumes, access to affordable capital, consumer buying patterns and general economic conditions. Applied’s industries historically have been cyclical, and are subject to volatility and sudden changes in customer requirements for new manufacturing capacity and advanced technology. These changes can affect the timing and amounts of customer investments in technology and manufacturing equipment, and can have a significant impact on Applied’s net sales, operating expenses, gross margins and net income. The amount and mix of capital equipment spending between different products and technologies can have a significant impact on the Company’s results of operations.

To meet rapidly changing demand in the industries it serves, Applied must accurately forecast demand and effectively manage its resources and production capacity across its businesses, and may incur unexpected or additional costs to align its business operations. During periods of increasing demand for its products, Applied must have sufficient manufacturing capacity and inventory to meet customer demand; effectively manage its supply chain; attract, retain and motivate a sufficient number of qualified employees; and continue to control costs. During periods of decreasing demand, Applied must reduce costs and align its cost structure with prevailing market conditions; effectively manage its supply chain; and motivate and retain key employees. If Applied does not effectively manage these challenges during periods of changing demand, its business performance and results of operations may be adversely impacted. Even with effective allocation of resources and management of costs, during periods of decreasing demand, Applied’s gross margins and earnings may be adversely impacted.

Applied is exposed to risks associated with an uncertain global economy.

Uncertain global economic and business conditions, along with uncertainties and volatility in the financial markets, national debt and fiscal concerns in various regions, pose challenges to the industries in which Applied operates. Markets for semiconductors and displays depend largely on business and consumer spending and demand for electronic products. Economic uncertainty and related factors exacerbate negative trends in business and consumer spending and may cause certain Applied customers to push out, cancel, or refrain from purchasing for equipment or services, which may have an adverse impact on Applied’s revenues, results of operations and financial condition. Uncertain market conditions, difficulties in obtaining capital, or reduced profitability may also cause some customers to scale back operations, exit businesses, merge with other manufacturers, or file for bankruptcy protection and potentially cease operations, which can also result in lower sales, additional inventory or bad debt expense for Applied. Economic and industry uncertainty may similarly affect suppliers, which could impair their ability to deliver parts and negatively affect Applied’s ability to manage operations and deliver its products. These conditions may also lead to consolidation or strategic alliances among other equipment manufacturers, which could adversely affect Applied’s ability to compete effectively.

Uncertain economic and industry conditions also make it more challenging for Applied to forecast its operating results, make business decisions, and identify and prioritize the risks that may affect its businesses, sources and uses of cash, financial condition and results of operations. If Applied does not appropriately manage its business operations in response to changing economic and industry conditions, it could have a significant negative impact on its business performance and financial condition. Applied may be required to implement additional cost reduction efforts, including restructuring activities, which may adversely affect Applied’s ability to capitalize on opportunities. Even during periods of economic uncertainty or lower revenues, Applied must continue to invest in research and development and maintain a global business infrastructure to compete effectively and support its customers, which can have a negative impact on its operating margins and earnings.

Applied maintains an investment portfolio that is subject to general credit, liquidity, market and interest rate risks. The risks to Applied's investment portfolio may be exacerbated if financial market conditions deteriorate and, as a result, the value and liquidity of the investment portfolio, as well as returns on pension assets, could be negatively impacted and lead to impairment charges. Applied also maintains cash balances in various bank accounts globally in order to fund normal operations. If any of these financial institutions becomes insolvent, it could limit Applied's ability to access cash in the affected accounts, which could affect its ability to manage its operations.

Applied is exposed to the risks of operating a global business.

Applied has product development, engineering, manufacturing, sales and other operations distributed throughout many countries, and some of its business activities are concentrated in certain geographic areas. Moreover, in the three months ended January 27, 2019, approximately 88 percent of Applied's net sales were to customers in regions outside the United States. As a result of the global nature of its operations, Applied's business performance and results of operations may be adversely affected by a number of factors, including:

- uncertain global economic and political business conditions and demands;
- political and social attitudes, laws, rules, regulations and policies within countries that favor domestic companies over non-domestic companies, including customer- or government-supported efforts to promote the development and growth of local competitors;
- global trade issues and changes in and uncertainties with respect to trade policies, including the ability to obtain required import and export licenses, trade sanctions, tariffs, and international trade disputes;
- customer- or government-supported efforts to influence Applied to conduct more of its operations and sourcing in a particular country, such as Korea and China;
- variations among, and changes in, local, regional, national or international laws and regulations, including contract, intellectual property, cybersecurity, data privacy, labor, tax, and import/export laws, and the interpretation and application of such laws and regulations;
- ineffective or inadequate legal protection of intellectual property rights in certain countries;
- positions taken by governmental agencies regarding possible national commercial and/or security issues posed by international business operations;
- fluctuating raw material, commodity, energy and shipping costs;
- delays or restrictions in shipping materials or finished products between countries;
- geographically diverse operations and projects, and our ability to maintain appropriate business processes, procedures and internal controls, and comply with environmental, health and safety, anti-corruption and other regulatory requirements;
- supply chain interruptions, and service interruptions from utilities, transportation, data hosting or telecommunications providers, or other events beyond our control;
- a diverse workforce with different experience levels, languages, cultures, customs, business practices and worker expectations, and differing employment practices and labor issues;
- variations in the ability to develop relationships with local customers, suppliers and governments;
- fluctuations in interest rates and currency exchange rates, including the relative strength or weakness of the U.S. dollar against the Japanese yen, euro, Taiwanese dollar, Israeli shekel, Chinese yuan or Singapore dollar;
- the need to provide sufficient levels of technical support in different locations around the world;
- performance of third party providers of outsourced functions, including certain engineering, software development, manufacturing, information technology and other activities;
- political instability, natural disasters, pandemics, social unrest, terrorism or acts of war in locations where Applied has operations, suppliers or sales, or that may influence the value chain of the industries that Applied serves;
- challenges in hiring and integration of an increasing number of workers in new countries;
- the increasing need for a mobile workforce to work in or travel to different regions; and
- uncertainties with respect to economic growth rates in various countries, including for the manufacture and sale of semiconductors and displays in the developing economies of certain countries.

International trade disputes could result in increases in tariffs and other trade restrictions and protectionist measures that could have an adverse impact on our operations.

We sell a significant majority of our products into countries outside of the United States and we purchase a significant portion of equipment and supplies from suppliers outside of the United States. The United States and other countries have levied tariffs and taxes on certain goods. Increases in tariffs, additional taxes or other trade restrictions and retaliatory measures may impact end-user demand and customer investment in manufacturing equipment, increase our manufacturing costs, decrease margins, reduce the competitiveness of our products, or inhibit our ability to sell products or purchase necessary equipment and supplies, which could have a material adverse effect on our business, results of operations, or financial condition.

Certain international sales depend on our ability to obtain export licenses, and our inability to obtain such licenses could potentially limit our markets and impact our business. In addition, government authorities may impose conditions that require the use of local suppliers or partnerships with local companies, require the license or other transfer of intellectual property, or engage in other efforts to promote local businesses and local competitors, which could have a significant adverse impact on Applied's business. Many of these challenges are present in China and Korea, markets that represent significant long-term growth opportunities for Applied businesses.

Applied is exposed to risks as a result of ongoing changes in the various industries in which it operates.

The global semiconductor, display and related industries in which Applied operates are characterized by ongoing changes affecting some or all of these industries that impact demand for and the profitability of Applied's products and its consolidated results of operations, including:

- the nature, timing and degree of visibility of changes in end demand for electronic products, including those related to fluctuations in consumer buying patterns tied to seasonality or the introduction of new products, and the effects of these changes on customers' businesses and on demand for Applied's products;
- increasing capital requirements for building and operating new fabrication plants and customers' ability to raise the necessary capital;
- trade, regulatory or tax policies impacting the timing of customers' investment in new or expanded fabrication plants;
- differences in growth rates among the semiconductor, display and other industries in which Applied operates;
- the increasing importance of establishing, improving and maintaining strong relationships with customers;
- the increasing cost and complexity for customers to move from product design to volume manufacturing, which may slow the adoption rate of new manufacturing technology;
- the need for customers to continually reduce the total cost of manufacturing system ownership;
- the heightened importance to customers of system reliability and productivity and the effect on demand for fabrication systems as a result of their increasing productivity, device yield and reliability;
- manufacturers' ability to reconfigure and re-use fabrication systems which can reduce demand for new equipment;
- the increasing importance of, and difficulties in, developing products with sufficient differentiation to influence customers' purchasing decisions;
- requirements for shorter cycle times for the development, manufacture and installation of manufacturing equipment;
- price and performance trends for semiconductor devices and displays, and the corresponding effect on demand for such products;
- the increasing importance of the availability of spare parts to maximize the time that customers' systems are available for production;
- the increasing role for and complexity of software in Applied products; and
- the increasing focus on reducing energy usage and improving the environmental impact and sustainability associated with manufacturing operations.

Applied is exposed to risks as a result of ongoing changes specific to the semiconductor industry.

The largest proportion of Applied's consolidated net sales and profitability is derived from sales of manufacturing equipment in the Semiconductor Systems segment to the global semiconductor industry. In addition, a majority of the revenues of Applied Global Services is from sales to semiconductor manufacturers. The semiconductor industry is characterized by ongoing changes particular to this industry that impact demand for and the profitability of Applied's semiconductor equipment and service products, including:

- the increasing frequency and complexity of technology transitions and inflections, and Applied's ability to timely and effectively anticipate and adapt to these changes;
- the increasing cost of research and development due to many factors, including shrinking geometries, the use of new materials, new and more complex device structures, more applications and process steps, increasing chip design costs, and the increasing cost and complexity of integrated manufacturing processes;
- the need to reduce product development time, despite the increasing difficulty of technical challenges;
- the growing number of types and varieties of semiconductors and number of applications across multiple substrate sizes;
- the increasing cost and complexity for semiconductor manufacturers to move more technically advanced capability and smaller geometries to volume manufacturing, and the resulting impact on the rates of technology transition and investment in capital equipment;
- challenges in generating organic growth given semiconductor manufacturers' levels of capital expenditures and the allocation of capital investment to market segments that Applied does not serve, such as lithography, or segments where Applied's products have lower relative market presence;
- the importance of increasing market positions in segments with growing demand;
- semiconductor manufacturer's ability to reconfigure and re-use equipment, and the resulting effect on their need to purchase new equipment and services;
- shorter cycle times between order placements by customers and product shipment require greater reliance on forecasting of customer investment, which may lead to inventory write-offs and manufacturing inefficiencies that decrease gross margin;
- competitive factors that make it difficult to enhance position, including challenges in securing development-tool-of-record (DTOR) and production-tool-of-record (PTOR) positions with customers;
- consolidation in the semiconductor industry, including among semiconductor manufacturers and among manufacturing equipment suppliers;
- shifts in sourcing strategies by computer and electronics companies that impact the equipment requirements of Applied's foundry customers;
- the concentration of new wafer starts in Korea and Taiwan, where Applied's service penetration and service-revenue-per-wafer-start have been lower than in other regions;
- investment in semiconductor manufacturing capabilities in China, which may be affected by changes in economic conditions and governmental policies in China; and
- the increasing fragmentation of semiconductor markets, leading certain markets to become too small to support the cost of a new fabrication plant, while others require less technologically advanced products.

If Applied does not accurately forecast, and allocate appropriate resources and investment towards addressing, key technology changes and inflections, successfully develop and commercialize products to meet demand for new technologies, and effectively address industry trends, its business and results of operations may be adversely impacted.

Applied is exposed to risks as a result of ongoing changes specific to the display industry.

The global display industry historically has experienced considerable volatility in capital equipment investment levels, due in part to the limited number of display manufacturers, the concentrated nature of end-use applications, production capacity relative to end-use demand, and panel manufacturer profitability. Industry growth depends primarily on consumer demand for increasingly larger and more advanced TVs, and on demand for advanced smartphones and mobile device displays, which demand is highly sensitive to cost and improvements in technologies and features. The display industry is characterized by ongoing changes particular to this industry that impact demand for and the profitability of Applied's display products and services, including:

- the importance of new types of display technologies, such as organic light-emitting diode (OLED), low temperature polysilicon (LTPS) and metal oxide transistor backplanes, flexible displays, and new touch panel films;

- the increasing cost of research and development, and complexity of technology transitions and inflections, and Applied’s ability to timely and effectively anticipate and adapt to these changes;
- the timing and extent of an expansion of manufacturing facilities in China, which may be affected by changes in economic conditions and governmental policies in China;
- the importance of increasing market positions in products and technologies with growing demand;
- the rate of transition to larger substrate sizes for TVs and to new display technologies for TVs and mobile applications, and the resulting effect on capital intensity in the industry and on Applied’s product differentiation, gross margin and return on investment; and
- the variability in demand for display manufacturing equipment, concentration of display manufacturer customers and their ability to successfully commercialize new products and technologies, and uncertainty with respect to future display technology end-use applications and growth drivers.

If Applied does not successfully develop and commercialize products to meet demand for new and emerging display technologies, or if industry demand for display manufacturing equipment and technologies slows, Applied’s business and its results of operations may be adversely impacted.

The industries in which Applied operates are highly competitive and subject to rapid technological and market changes.

Applied operates in a highly competitive environment in which innovation is critical, and its future success depends on many factors, including the development of new technologies and effective commercialization and customer acceptance of its equipment, services and related products, and its ability to increase its position in its current markets, expand into adjacent and new markets, and optimize operational performance. The development, introduction and support of a broadening set of products in a geographically diverse and competitive environment, and that may require greater collaboration with customers and other industry participants, have grown more complex and expensive over time. Furthermore, new or improved products may entail higher costs and lower profits. To compete successfully, Applied must:

- identify and address technology inflections, market changes, new applications, customer requirements and end-use demand;
- develop new products and disruptive technologies, improve and develop new applications for existing products, and adapt products for use by customers in different applications and markets with varying technical requirements;
- differentiate its products from those of competitors, meet customers’ performance specifications, appropriately price products, and achieve market acceptance;
- maintain operating flexibility to enable responses to changing markets, applications, customers and customer requirements;
- enhance its worldwide operations across its businesses to reduce cycle time, enable continuous quality improvement, reduce costs, and enhance design for manufacturability and serviceability;
- focus on product development and sales and marketing strategies that address customers’ high value problems and strengthen customer relationships;
- effectively allocate resources between its existing products and markets, the development of new products, and expanding into new and adjacent markets;
- improve the productivity of capital invested in R&D activities;
- accurately forecast demand, work with suppliers and meet production schedules for its products;
- improve its manufacturing processes and achieve cost efficiencies across product offerings;
- adapt to changes in value offered by companies in different parts of the supply chain;
- qualify products for evaluation and volume manufacturing with its customers; and
- implement changes in its design engineering methodology to reduce material costs and cycle time, increase commonality of platforms and types of parts used in different systems, and improve product life cycle management.

If Applied does not successfully anticipate technology inflections, develop and commercialize new products and technologies, and respond to changes in customer requirements and market trends, its business performance and results of operations may be adversely impacted.

Applied is exposed to risks associated with a highly concentrated customer base.

Applied's customer base is highly concentrated, and has become increasingly so as a result of continued consolidation. Applied's customer base is also geographically concentrated. A relatively limited number of manufacturers account for a substantial portion of Applied's business. As a result, the actions of even a single customer can expose Applied's business and results of operations to greater volatility. The mix and type of customers, and sales to any single customer, including as a result of changes in government policy, may vary significantly from quarter to quarter and from year to year, and have a significant impact on Applied's net sales, gross margins and net income. Applied's products are configured to customer specifications, and changing, rescheduling or canceling orders may result in significant, non-recoverable costs. If customers do not place orders, or they substantially reduce, delay or cancel orders, Applied may not be able to replace the business, which may have a significant adverse impact on its results of operations and financial condition. The concentration of Applied's customer base increases its risks related to the financial condition of its customers, and the deterioration in financial condition of a single customer or the failure of a single customer to perform its obligations could have a material adverse effect on Applied's results of operations and cash flow. To the extent its customers experience liquidity constraints, Applied may incur additional bad debt expense, which may have a significant impact on its results of operations. Major customers may also seek pricing, payment, intellectual property-related, or other commercial terms that are less favorable to Applied, which may have a negative impact on Applied's business, cash flow, revenue and gross margins.

Applied is exposed to risks associated with business combinations, acquisitions and strategic investments.

Applied engages in acquisitions of or investments in companies, technologies or products in existing, related or new markets for Applied. Business combinations, acquisitions and investments involve numerous risks to Applied's business, financial condition and operating results, including but not limited to:

- diversion of management's attention and disruption of ongoing businesses;
- contractual restrictions on the conduct of Applied's business during the pendency of a proposed transaction;
- inability to complete proposed transactions due to the failure to obtain regulatory or other approvals, litigation or other disputes, and any ensuing obligation to pay a termination fee;
- the failure to realize expected returns from acquired businesses;
- requirements imposed by government regulators in connection with their review of a transaction, which may include, among other things, divestitures and restrictions on the conduct of Applied's existing business or the acquired business;
- ineffective integration of operations, systems, technologies, products or employees, which can impact the ability to realize anticipated synergies or other benefits;
- failure to commercialize technologies from acquired businesses or developed through strategic investments;
- dependence on unfamiliar supply chains or relatively small supply partners;
- inability to capitalize on characteristics of new markets that may be significantly different from Applied's existing markets and where competitors may have stronger market positions and customer relationships;
- failure to retain and motivate key employees of acquired businesses;
- the potential impact of the announcement or consummation of a proposed transaction on relationships with third parties;
- potential changes in Applied's credit rating, which could adversely impact the Company's access to and cost of capital;
- reductions in cash balances or increases in debt obligations to finance activities associated with a transaction, which reduce the availability of cash flow for general corporate or other purposes, including share repurchases and dividends;
- exposure to new operational risks, rules, regulations, worker expectations, customs and practices to the extent acquired businesses are located in regions where Applied has not historically conducted business;
- challenges associated with managing new, more diverse and more widespread operations, projects and people;
- inability to obtain and protect intellectual property rights in key technologies;
- inadequacy or ineffectiveness of an acquired company's internal financial controls, disclosure controls and procedures, cybersecurity, privacy policies and procedures, or environmental, health and safety, anti-corruption, human resource, or other policies or practices;
- impairment of acquired intangible assets and goodwill as a result of changing business conditions, technological advancements or worse-than-expected performance of the segment;
- the risk of litigation or claims associated with a proposed or completed transaction;
- unknown, underestimated or undisclosed commitments or liabilities; and

- the inappropriate scale of acquired entities' critical resources or facilities for business needs.

Applied also makes strategic investments in other companies, including companies formed as joint ventures, which may decline in value or not meet desired objectives. The success of these investments depends on various factors over which Applied may have limited or no control and, particularly with respect to joint ventures, requires ongoing and effective cooperation with strategic partners. In addition, new legislation or additional regulations may affect or impair our ability to invest in certain countries or require us to obtain regulatory approvals to do so. The risks to Applied's strategic investment portfolio may be exacerbated by unfavorable financial market and macroeconomic conditions and, as a result, the value of the investment portfolio could be negatively impacted and lead to impairment charges.

Applied is exposed to risks associated with operating in jurisdictions with complex and changing tax laws.

Applied is subject to income taxes in the United States and foreign jurisdictions. Significant judgment is required to determine and estimate worldwide tax liabilities. Applied's provision for income taxes and effective tax rates could be affected by numerous factors, including changes in applicable tax laws, interpretations of applicable tax laws, amount and composition of pre-tax income in jurisdictions with differing tax rates, and valuation of deferred tax assets. On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the "Tax Act"). On September 13, 2018, the U.S. government issued proposed regulations that, if finalized, would significantly affect how the Tax Act is interpreted related to a tax benefit of $46 million realized by Applied in the first quarter of fiscal 2019. Proposed regulations are not authoritative and may change in the regulatory review process. Pursuant to our accounting policies for uncertain tax positions, the tax benefit might reverse if the regulations are finalized as proposed. An increase in Applied's provision for income taxes and effective tax rate could have a material adverse impact on Applied's results of operations and financial condition.

Consistent with the international nature of its business, Applied conducts certain manufacturing, supply chain, and other operations in Asia, bringing these activities closer to customers and reducing operating costs. In certain foreign jurisdictions, conditional reduced income tax rates have been granted to Applied. To obtain the benefit of these tax incentives, Applied must meet requirements relating to various activities. Applied's ability to realize benefits from these incentives could be materially affected if, among other things, applicable requirements are not met or Applied incurs net losses in these jurisdictions.

In addition, Applied is subject to examination by the Internal Revenue Service and other tax authorities, and from time to time amends previously filed tax returns. Applied regularly assesses the likelihood of favorable or unfavorable outcomes resulting from these examinations and amendments to determine the adequacy of its provision for income taxes, which requires estimates and judgments. Although Applied believes its tax estimates are reasonable, there can be no assurance that the tax authorities will agree with such estimates. Applied may have to engage in litigation to achieve the results reflected in the estimates, which may be time-consuming and expensive. There can be no assurance that Applied will be successful or that any final determination will not be materially different from the treatment reflected in Applied's historical income tax provisions and effective tax rates.

Applied's indebtedness and debt covenants could adversely affect its financial condition and business.

Applied has $5.4 billion in aggregate principal amount of senior unsecured notes outstanding. Under the indenture governing the senior unsecured notes, it may be required to offer to repurchase the notes at a price equal to 101% of the principal amount, plus accrued and unpaid interest, upon a change of control of Applied and a contemporaneous downgrade of the notes below investment grade. Applied also has in place a $1.5 billion committed revolving credit agreement. While no amounts were outstanding under this credit agreement as of January 27, 2019, Applied may borrow amounts in the future under the agreement. Applied may also enter into new financing arrangements. Applied's ability to satisfy its debt obligations is dependent upon the results of its business operations and subject to other risks discussed in this section. Significant changes in Applied's credit rating or changes in the interest rate environment could have a material adverse consequence on Applied's access to and cost of capital for future financings, and financial condition. If Applied fails to satisfy its debt obligations, or comply with financial and other debt covenants, it may be in default and any borrowings may become immediately due and payable, and such default may also constitute a default under other of Applied's obligations. There can be no assurance that Applied would have sufficient financial resources or be able to arrange financing to repay any borrowings at such time.

Applied is exposed to risks associated with expanding into new and related markets and industries.

As part of its growth strategy, Applied must successfully expand into related or new markets and industries, either with its existing products or with new products developed internally, or those developed in collaboration with third parties, or obtained through acquisitions. Applied's ability to successfully expand its business into new and related markets and industries may be adversely affected by a number of factors, including:

- the need to devote additional resources to develop new products for, and operate in, new markets;
- the need to develop new sales and technical marketing strategies, cultivate relationships with new customers and meet different customer service requirements;

- differing rates of profitability and growth among multiple businesses;
- Applied’s ability to anticipate demand, capitalize on opportunities, and avoid or minimize risks;
- the complexity of managing multiple businesses with variations in production planning, execution, supply chain management and logistics;
- the adoption of new business models, business processes and systems;
- the complexity of entering into and effectively managing strategic alliances or partnering opportunities;
- new materials, processes and technologies;
- the need to attract, motivate and retain employees with skills and expertise in these new areas;
- new and more diverse customers and suppliers, including some with limited operating histories, uncertain or limited funding, evolving business models or locations in regions where Applied does not have, or has limited, operations;
- new or different competitors with potentially more financial or other resources, industry experience and established customer relationships;
- entry into new industries and countries, with differing levels of government involvement, laws and regulations, and business, employment and safety practices;
- third parties’ intellectual property rights; and
- the need to comply with, or work to establish, industry standards and practices.

In addition, Applied from time to time receives funding from United States and other government agencies for certain strategic development programs to increase its research and development resources and address new market opportunities. As a condition to this government funding, Applied may be subject to certain record-keeping, audit, intellectual property rights-sharing and/or other obligations.

Manufacturing interruptions or delays, or the failure to accurately forecast customer demand, could affect Applied’s ability to meet customer demand, lead to higher costs, or result in excess or obsolete inventory.

Applied’s business depends on its timely supply of equipment, services and related products that meet the rapidly changing technical and volume requirements of its customers, which depends in part on the timely delivery of parts, including components and subassemblies, from suppliers, including contract manufacturers. The inability to timely obtain sufficient quantities of parts can have an adverse impact on Applied’s manufacturing operations and ability to meet customer demand for equipment, spares and services. Some key parts are subject to long lead-times or obtainable only from a single supplier or limited group of suppliers, and some sourcing or subassembly is provided by suppliers located in countries other than the countries where Applied conducts its manufacturing. Variable industry conditions and the volatility of demand for manufacturing equipment increase capital, technical, operational and other risks for Applied and for companies throughout its supply chain. These conditions may cause some suppliers to scale back operations, exit businesses, merge with other companies, or file for bankruptcy protection and possibly cease operations. Applied may also experience significant interruptions of its manufacturing operations, delays in its ability to deliver products or services, increased costs or customer order cancellations as a result of:

- the failure or inability to accurately forecast demand and obtain sufficient quantities of quality parts on a cost-effective basis;
- volatility in the availability and cost of materials;
- difficulties or delays in obtaining required import or export approvals;
- shipment delays due to transportation interruptions or capacity constraints;
- information technology or infrastructure failures, including those of a third party supplier or service provider; and
- natural disasters or other events beyond Applied’s control (such as earthquakes, floods or storms, regional economic downturns, pandemics, social unrest, political instability, terrorism, or acts of war), particularly where it conducts manufacturing.

If a supplier fails to meet Applied's requirements concerning quality, cost, protection of intellectual property, socially-responsible business practices, or other performance factors, Applied may transfer its business to alternative sources, which could entail manufacturing delays, additional costs, or other difficulties. If Applied is unable to meet its customers' demand for a prolonged period due to its inability to obtain certain parts or components, it could affect its ability to manage its operations, and have an adverse impact on Applied's business, results of operations and customer relationships. In addition, if Applied needs to rapidly increase its business and manufacturing capacity to meet increases in demand or expedited shipment schedules, this may exacerbate any interruptions in Applied's manufacturing operations and supply chain and the associated effect on Applied's working capital. Moreover, if actual demand for Applied's products is different than expected, Applied may purchase more/fewer parts than necessary or incur costs for canceling, postponing or expediting delivery of parts. If Applied purchases inventory in anticipation of customer demand that does not materialize, or if customers reduce or delay orders, Applied may incur excess inventory charges.

The ability to attract, retain and motivate key employees is vital to Applied's success.

Applied's success, competitiveness and ability to execute on its global strategies and maintain a culture of innovation depend in large part on its ability to attract, retain and motivate employees with key skills and experience. Achieving this objective may be difficult due to many factors, including fluctuations in global economic and industry conditions, management changes, Applied's organizational structure, increasing global competition for talent, the availability of qualified employees, cost reduction activities (including workforce reductions and unpaid shutdowns), availability of career development opportunities, the ability to obtain necessary authorizations for workers to provide services outside their home countries, and the attractiveness of Applied's compensation and benefit programs, including its share-based programs. The loss or retirement of employees presents particular challenges to the extent they involve the departure of knowledgeable and experienced employees and the resulting need to identify and train existing or new workers to perform necessary functions, which may result in unexpected costs, reduced productivity, and/or difficulties with respect to internal processes and controls.

Applied is exposed to various risks related to protection and enforcement of intellectual property rights.

Applied's success depends in significant part on the protection of its patents, trade secrets, copyrights and other intellectual property rights. Infringement of Applied's rights by a third party, such as the unauthorized manufacture or sale of equipment or spare parts, could result in uncompensated lost market and revenue opportunities for Applied. Policing any unauthorized use of intellectual property is difficult and costly and Applied cannot be certain that the measures it has implemented will prevent misuse. Applied's ability to enforce its intellectual property rights is subject to litigation risks, as well as uncertainty as to the protection and enforceability of those rights in some countries. If Applied seeks to enforce its intellectual property rights, it may be subject to claims that those rights are invalid or unenforceable, and others may seek counterclaims against Applied, which could have a negative impact on its business. If Applied is unable to enforce and protect intellectual property rights, or if they are circumvented, invalidated, rendered obsolete by the rapid pace of technological change, it could have an adverse impact on its competitive position and business. In addition, changes in intellectual property laws or their interpretation, such as recent changes in U.S. patent laws, may impact Applied's ability to protect and assert its intellectual property rights, increase costs and uncertainties in the prosecution of patent applications and enforcement or defense of issued patents, and diminish the value of Applied's intellectual property.

Third parties may also assert claims against Applied and its products. Claims that Applied's products infringe the rights of others, whether or not meritorious, can be expensive and time-consuming to defend and resolve, and may divert the efforts and attention of management and personnel. The inability to obtain rights to use third party intellectual property on commercially reasonable terms could have an adverse impact on Applied's business. In addition, Applied may face claims based on the theft or unauthorized use or disclosure of third-party trade secrets and other confidential business information. Any such incidents and claims could severely harm Applied's business and reputation, result in significant expenses, harm its competitive position, and prevent Applied from selling certain products, all of which could have a significant adverse impact on Applied's business and results of operations.

Applied is exposed to risks related to cybersecurity threats and incidents.

In the conduct of its business, Applied collects, uses, transmits and stores data on information technology systems, including systems owned and maintained by Applied or third party providers. These data include confidential information and intellectual property belonging to Applied or its customers or other business partners, as well as personally-identifiable information of individuals. All information systems are subject to disruption, breach or failure. Applied has experienced, and expects to continue to be subject to, cybersecurity threats and incidents ranging from employee error or misuse to individual attempts to gain unauthorized access to these information systems, to sophisticated and targeted measures known as advanced persistent threats, none of which have been material to the Company to date. Applied devotes significant resources to network security, data encryption and other measures to protect its systems and data from unauthorized access or misuse. However, depending on their nature and scope, cybersecurity incidents could result in business disruption; the misappropriation of intellectual property, and corruption or loss of confidential information and critical data (Applied's and that of third parties); reputational damage; litigation with third parties; diminution in the value of Applied's investment in research, development and engineering; data privacy issues; and increased cybersecurity protection and remediation costs. Compliance with, and changes to, laws and regulations concerning privacy and information security could result in significant expense, and any failure to comply could result in proceedings against Applied by regulatory authorities or other third parties.

Applied is exposed to various risks related to legal proceedings.

Applied from time to time is, and in the future may be involved in legal proceedings or claims regarding patent infringement, intellectual property rights, antitrust, environmental regulations, securities, contracts, product performance, product liability, unfair competition, misappropriation of trade secrets, employment, workplace safety, and other matters. Applied also on occasion receives notification from customers who believe that Applied owes them indemnification or has other obligations related to claims made against such customers by third parties.

Legal proceedings and claims, whether with or without merit, and associated internal investigations, may be time-consuming and expensive to prosecute, defend or conduct; divert management's attention and other Applied resources; inhibit Applied's ability to sell its products; result in adverse judgments for damages, injunctive relief, penalties and fines; and negatively affect Applied's business. There can be no assurance regarding the outcome of current or future legal proceedings, claims or investigations.

The failure to successfully implement enterprise resource planning and other information systems changes could adversely impact Applied's business and results of operations.

Applied periodically implements new or enhanced enterprise resource planning and related information systems in order to better manage its business operations, align its global organizations and enable future growth. Implementation of new business processes and information systems requires the commitment of significant personnel, training and financial resources, and entails risks to Applied's business operations. If Applied does not successfully implement enterprise resource planning and related information systems improvements, or if there are delays or difficulties in implementing these systems, Applied may not realize anticipated productivity improvements or cost efficiencies, and may experience interruptions in service and operational difficulties, such as its ability to track orders, timely manufacture and ship products, project inventory requirements, effectively manage its supply chain and allocate human resources, aggregate financial data and report operating results, and otherwise effectively manage its business, all of which could result in quality issues, reputational harm, lost market and revenue opportunities, and otherwise adversely affect Applied's business, financial condition and results of operations.

Applied may incur impairment charges related to goodwill or long-lived assets.

Applied has a significant amount of goodwill and other acquired intangible assets related to acquisitions. Goodwill and purchased intangible assets with indefinite useful lives are not amortized, but are reviewed for impairment annually during the fourth quarter of each fiscal year, and more frequently when events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The review compares the fair value for each of Applied's reporting units to its associated carrying value, including goodwill. Factors that could lead to impairment of goodwill and intangible assets include adverse industry or economic trends, reduced estimates of future cash flows, declines in the market price of Applied common stock, changes in Applied's strategies or product portfolio, and restructuring activities. Applied's valuation methodology for assessing impairment requires management to make judgments and assumptions based on historical experience and projections of future operating performance. Applied may be required to record future charges to earnings during the period in which an impairment of goodwill or intangible assets is determined to exist.

Applied is subject to risks associated with environmental and safety regulations.

Applied is subject to environmental and safety regulations in connection with its global business operations, including but not limited to: regulations related to the development, manufacture and use of its products; handling, discharge, recycling and disposal of hazardous materials used in its products or in producing its products; the operation of its facilities; and the use of its real property. The failure or inability to comply with existing or future environmental and safety regulations could result in: significant remediation or other legal liabilities; the imposition of penalties and fines; restrictions on the development, manufacture, sale or use of certain of its products; limitations on the operation of its facilities or ability to use its real property; and a decrease in the value of its real property. Applied could be required to alter its manufacturing and operations and incur substantial expense in order to comply with environmental and safety regulations. Any failure to comply with environmental and safety regulations could subject Applied to significant costs and liabilities that could adversely affect Applied's business, financial condition and results of operations.

Applied is exposed to various risks related to the global regulatory environment.

As a public company with global operations, Applied is subject to the laws of the United States and multiple foreign jurisdictions and the rules and regulations of various governing bodies, which may differ among jurisdictions, including those related to financial and other disclosures, accounting standards, corporate governance, intellectual property, tax, trade, antitrust, employment, immigration and travel regulations, privacy, and anti-corruption. Changing, inconsistent or conflicting laws, rules and regulations, and ambiguities in their interpretation and application create uncertainty and challenges, and compliance with laws, rules and regulations may be onerous and expensive, divert management time and attention from revenue-generating activities, and otherwise adversely impact Applied's business operations. Violations of law, rules and regulations could result in fines, criminal sanctions, restrictions on Applied's business, and damage to its reputation, and could have an adverse impact on its business operations, financial condition and results of operations.

Item 2. *Unregistered Sales of Equity Securities and Use of Proceeds*

Issuer Purchases of Equity Securities

The following table provides information as of January 27, 2019 with respect to the shares of common stock repurchased by Applied during the first quarter of fiscal 2019 pursuant to a publicly announced stock repurchase program approved by the Board of Directors in February 2018, which authorized up to an aggregate of $6.0 billion in repurchases.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Aggregate Price Paid	Total Number of Shares Purchased as Part of Publicly Announced Program	Maximum Dollar Value of Shares That May Yet be Purchased Under the Program
	(In millions, except per share amounts)				
Month #1					
(October 29, 2018 to November 25, 2018)	5.9	$ 34.28	$ 204	5.9	$ 4,123
Month #2					
(November 26, 2018 to December 23, 2018)	7.6	$ 34.37	260	7.6	$ 3,863
Month #3					
(December 24, 2018 to January 27, 2019)	8.5	$ 33.58	286	8.5	$ 3,577
Total	22.0	$ 34.04	$ 750	22.0	

Item 6. ***Exhibits***

Exhibits are numbered in accordance with the Exhibit Table of Item 601 of Regulation S-K:

		Incorporated by Reference			
Exhibit No.	Description	Form	File No.	Exhibit No.	Filing Date
10.1	Amendment No. 1 to the Applied Materials, Inc. 2016 Deferred Compensation Plan†				
10.2	Second Amendment to the Applied Materials, Inc. 2016 Deferred Compensation Plan†				
10.3	Form of Performance Shares Agreement for members of the Executive Staff for use under the Applied Materials, Inc. Employee Stock Incentive Plan†				
10.4	Form of Restricted Stock Unit Agreement for members of the Executive Staff for use under the Applied Materials, Inc. Employee Stock Incentive Plan†				
31.1	Certification of the Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002†				
31.2	Certification of the Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002†				
32.1	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002‡				
32.2	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002‡				
101.INS	XBRL Instance Document‡				
101.SCH	XBRL Taxonomy Extension Schema Document‡				
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document‡				
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document‡				
101.LAB	XBRL Taxonomy Extension Label Linkbase Document‡				
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document‡				

† Filed herewith.
‡ Furnished herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

APPLIED MATERIALS, INC.

By: /s/ DANIEL J. DURN

Daniel J. Durn
Senior Vice President,
Chief Financial Officer
(Principal Financial Officer)

February 21, 2019

By: /s/ CHARLES W. READ

Charles W. Read
Corporate Vice President,
Corporate Controller
and Chief Accounting Officer
(Principal Accounting Officer)

February 21, 2019

Exhibit 10.1

AMENDMENT NO. 1 TO THE
APPLIED MATERIALS, INC.
2016 DEFERRED COMPENSATION PLAN

APPLIED MATERIALS, INC., having adopted the Applied Materials, Inc. 2016 Deferred Compensation Plan (the "Plan") effective as of January 1, 2005, and having since, amended and/or restated the Plan on several occasions, including having renamed it as of October 12, 2015, hereby again amends the Plan, as follows:

1. Section 7.1 is amended in its entirety to read as follows:

> 7.1 Administration. The Plan shall be administered by the Administrative Committee consisting of (a) the Corporate Vice President, Global Rewards, of the Company (the "CVP Global Rewards"); (b) the Corporate Controller of the Company (or an employee of the Company or an Affiliate appointed by the Corporate Controller; and (c) the Corporate Treasurer of the Company (or an employee of the Company or an Affiliate appointed by the Corporate Treasurer). The CVP Global Rewards also may appoint to Administrative Committee membership up to two additional employees of the Company or an Affiliate. The CVP Global Rewards shall chair the Administrative Committee. Any appointed member of the Committee may be removed by the applicable appointing authority at any time. The Administrative Committee shall have the exclusive right and full discretion (i) to appoint agents or other delegates to act on its behalf and to appoint the Global Rewards Department of the Company to act on its behalf in the day to day administration of the Plan, (ii) to interpret the Plan, (iii) to decide any and all matters arising hereunder (including the right to remedy possible ambiguities, inconsistencies, or omissions), (iv) to make, amend and rescind such rules as it deems necessary for the proper administration of the Plan and (v) to make all other determinations and resolve all questions of fact necessary or advisable for the administration of the Plan, including determinations regarding eligibility for benefits payable under the Plan. All interpretations by the Administrative Committee and its agents or other delegates with respect to any matter hereunder shall be final, conclusive and binding on all persons affected thereby and shall be given the maximum possible deference permitted by law. No member of the Administrative Committee or agent or other delegate thereof shall be liable for any determination, decision, or action made in good faith with respect to the Plan. Each of the Employers shall indemnify and hold harmless the members of the Administrative Committee from and against any and all liabilities, costs, and expenses incurred by such persons as a result of any act or omission, in connection with the performance of such persons' duties, responsibilities, and obligations under the Plan, other than such liabilities, costs, and expenses as may result from the bad faith, willful misconduct, or criminal acts of such persons. Each decision of a majority of the members of the Administrative Committee then in office shall constitute the final and binding act of the Administrative Committee. The Administrative Committee may act with or without a meeting being called or held and shall keep minutes of all meetings held and a record of all actions taken. Except as otherwise specifically or generally directed by the Administrative Committee, any action of the Administrative Committee may be evidenced by a writing signed by any member thereof.

7. This Amendment No. 1 to the restated Plan is effective as of September 1, 2016.

IN WITNESS WHEREOF, Applied Materials, Inc., by its duly authorized officer, has executed this Amendment No. 1 to the restated Plan on the date specified below.

Date: December 22, 2016. APPLIED MATERIALS, INC.

By /s/ Gregory Lawler
Gregory Lawler
Corporate Vice President, Global Rewards

Exhibit 10.2

SECOND AMENDMENT TO

APPLIED MATERIALS, INC. 2016 DEFERRED COMPENSATION PLAN

(OCTOBER 12, 2015 RESTATEMENT)

Applied Materials, Inc. (the "*Company*"), having established the Applied Materials, Inc. 2016 Deferred Compensation Plan (the "*Plan*"), originally effective as of January 1, 2005, most recently restated effective as of October 12, 2015,and as subsequently amended by the first amendment to the restated Plan, hereby further amends the restated Plan in the following particulars, effective as of the dates indicated:

1. Effective as of January 1, 2018, by substituting the following for the penultimate sentence of Section 1.28 of the Plan:

"In the event that the Participant is a 'key employee' (as defined in Code Section 416(i) without regard to paragraph (5) thereof) of the Company, to the extent required by Code Section 409A, the Payment Date for payments commencing on account of Separation from Service shall be no earlier than the earlier of (i) the first day of the seventh (7^{th}) calendar month commencing after the Participant's Separation from Service, or (ii) the Participant's death."

2. Effective January 1, 2019, by substituting the following for the first sentence of Section 3.1.6 of the Plan:

"After the beginning of the Plan Year (or the effective date of a mid-year commencement of participation, Fiscal Year Bonus Compensation deferral election or Performance-Based Compensation deferral election), or such earlier time as may be specified by the Administrative Committee in its discretion, deferral elections with respect to Compensation for services performed during such Plan Year (or other applicable performance period) shall be irrevocable except that the Administrative Committee may cancel a Participant's deferral election(s) to the extent permitted under Code Section 409A: (i) in the event of an Unforeseeable Emergency, (ii) by reason of the Participant's Qualifying Disability (as defined below), or (iii) as necessary for the Participant to receive a hardship distribution under the 401(k) Plan that is made prior to January 1, 2019."

3. Effective as of April 1, 2018, by substituting the following for Sections 7.2, 7.3, and 7.4 of the Plan:

"7.2 Claims Procedure. Any Participant, former Participant or Beneficiary who has a claim of any kind relating to the Plan must file such claim in writing with the Administrative Committee setting forth the nature of the benefit claimed, the amount thereof, and the basis for claiming entitlement to such benefit. The Administrative Committee shall determine the validity of the claim and communicate a decision to the claimant promptly and, in any event, not later than ninety (90) days after receipt of the claim. If additional information is necessary to make a determination on a claim, the claimant shall be advised of the need for such additional information within forty-five (45) days after receipt of the claim. The claimant shall have up to one hundred and eighty (180) days to supplement the claim information, and the claimant shall be advised of the decision on the claim within forty-five (45) days after the earlier of the date the supplemental information is supplied or the end of the one hundred and eighty (180) day period. Notwithstanding the foregoing, if the claim relates to a disability determination ('Disability Claim'), the decision shall be rendered within forty-five (45) days after receipt of the claim, which may be extended twice by an additional thirty (30) days per extension for matters beyond the control of the Administrative Committee. The claimant will be notified in writing of any such extension(s) before the end of the applicable decision period, as well as the circumstances requiring the extension, the date by which a decision on the claim is expected to be rendered and such other information required by ERISA. Every claim for benefits which is denied shall be denied by written notice setting forth in a manner calculated to be understood by the claimant (i) the specific reason or reasons for the denial, (ii) specific reference to any provisions of the Plan (including any internal rules, guidelines, protocols, criteria, etc.) on which the denial is based, (iii) description of any additional material or information that is necessary to process the claim and an explanation of why such material or information is necessary, (iv) an explanation of the procedure for further reviewing the denial of the claim and shall include an explanation of the claimant's right to submit the claim for binding arbitration in the event of an adverse determination on review (or legal action in the case of a Disability Claim), and (v) such other information required by ERISA (including, in the case of a denial of a Disability Claim based on a lack of medical necessity or because of an experimental, investigational, or unproven treatment or similar exclusion, an explanation of the scientific or clinical judgment for the claim determination, applying the terms of the Plan to the claimant's circumstances (or a statement that an explanation shall be provided free of charge upon request). For Disability Claims filed after April 1, 2018 ('New Disability Claims'), such notice shall also include: (a) a statement that, upon request and free of charge, the claimant shall be provided reasonable access to, and copies of, all documents, records, and other information relevant to the claimant's claim; (b) either the specific internal rules, guidelines, protocols, standards, or other similar criteria relied upon in making the claim determination, or a statement that such rules, guidelines, protocols, standards, or similar criteria do not exist; and (c) if applicable, a discussion of the decision, including the basis for disagreeing with or not following (1) the views of health care professionals treating the claimant and vocational professionals who evaluated the claimant that were provided by the claimant, (2) the views of medical or vocational experts whose advice was obtained on behalf of the Plan in connection with the claim denial, without regard to whether the advice was relied upon in making the denial, and (3) a disability determination regarding the claimant made by the Social Security Administration if provided by the claimant.

7.3 Review Procedures. A claimant or his/her authorized representative may appeal a denied claim under the Plan by filing a written request for review of such denial with the Administrative Committee within sixty (60) days after the receipt of the denial (one hundred and eighty (180) days in the case of a Disability Claim). Such review shall be undertaken by the Administrative Committee and shall be a full and fair review. The claimant or his/her authorized representative shall have the right to review all pertinent documents and to submit written comments, documents and other information relating to the claim. In addition, for Disability Claims, the following rules shall apply: (i) the claim review shall be made by a person different from the person who made the initial determination, and such person will not be the original decision-maker's subordinate or afford deference to the initial claim denial; (ii) in the case of a claim denied on the grounds of a medical judgment, the Administrative Committee will consult with a health care professional with appropriate training and experience; (iii) the health care professional who is consulted on appeal shall not be the individual who was consulted during the initial determination or a subordinate of such person; and (iv) if the advice of a medical or vocational expert was obtained by the Plan in connection with the denial of a claim, the Administrative Committee shall provide the claimant with the names of each such expert, regardless of whether the advice was relied upon. Effective for New Disability Claims, before the Administrative Committee may issue a denial on appeal, the Administrative Committee will provide the claimant, free of charge, with any new or additional evidence that was considered, relied upon, or generated in connection with the claim. In addition, before the Administrative Committee may issue a denial on appeal based on new or additional rationale, the Administrative Committee will provide the claimant, free of charge, with such rationale. The Administrative Committee will provide such evidence or rationale, as applicable, as soon as possible and sufficiently in advance of the date by which a response to the claimant's appeal must be provided (as described above) in order to provide the claimant with a reasonable opportunity to respond prior to that date.

The Administrative Committee shall issue a decision not later than sixty (60) days after receipt of such request for review (forty-five (45) days in the case of a Disability Claim), unless special circumstances, such as the need to hold a hearing, require a longer period of time, in which case a decision shall be rendered as soon as possible but not later than one hundred and twenty (120) days after receipt of the claimant's request for review (ninety (90) days in the case of a Disability Claim). The claimant or his/her authorized representative will be notified in writing of any such extension before the end of the original 60-day review period (or 45-day review period in the case of a Disability Claim), as well as the circumstances requiring the extension, the date by which a decision is expected to be rendered and such other information required by ERISA. The decision on review shall be in writing and shall include specific reasons for the decision written in a manner calculated to be understood by the claimant with specific reference to the provisions of the Plan on which the decision is based and other information required by ERISA (including, in the case of a denial of a Disability Claim based on a lack of medical necessity or because of an experimental, investigational, or unproven treatment or similar exclusion, an explanation of the scientific or clinical judgment for the claim determination, applying the terms of the Plan to the claimant's circumstances (or a statement that an explanation shall be provided free of charge upon request)), as well as an explanation of the claimant's right to submit the claim for binding arbitration in the event of an adverse determination on review (or legal action in the case of a Disability claim, including, for New Disability Claims, the applicable time limits for doing so and the calendar date on which the time limit expires). For New Disability Claims, such written decision on review shall also include: (a) either the specific internal rules, guidelines, protocols, standards, or other similar criteria relied upon in making the adverse determination, or a statement that such rules, guidelines, protocols, standards, or similar criteria do not exist; and (b) if applicable, a discussion of the decision, including the basis for disagreeing with or not following (1) the views of health care professionals treating the claimant and vocational professionals who evaluated the claimant that were provided by the claimant, (2) the views of medical or vocational experts whose advice was obtained on behalf of the Plan in connection with the denial, without regard to whether the advice was relied upon in making the denial, and (3) a disability determination regarding the Participant made by the Social Security Administration if provided by the Claimant.

7.4 Exhaustion of Plan's Claims and Review Procedures Required; Limitations on Any Legal Actions. The Plan's claims and appeal procedures described above must be exhausted with respect to any claim of any kind relating to the Plan (unless a court determines, pursuant to Department of Labor Regulation Section 2560.503-1(l)(2), that the Plan's claims and appeal procedures were not followed with respect to New Disability Claims and should be deemed exhausted). If any legal action is permitted to be filed with respect to a Disability Claim under the Plan, such action must be brought by the claimant no later than one (1) year after the Administrative Committee's denial of the claim on review, regardless of any state or federal statutes establishing provisions relating to limitations on actions."

IN WITNESS WHEREOF, the Company, by its duly authorized delegate, has executed this Second Amendment to the restated Plan on the date specified below.

APPLIED MATERIALS, INC.

Dated: December 21, 2018

By: Christina Lai
Christina Lai, Vice President
Corporate Legal Affairs

[EMPL_NAME]
Employee ID: [**EMPLID**] Grant Number: [**GRANT_ID**]

APPLIED MATERIALS, INC.

PERFORMANCE SHARES AGREEMENT

NOTICE OF GRANT

Applied Materials, Inc. (the "Company") hereby grants you, **[EMPL_NAME]** (the "Employee"), an award of Performance Shares under the Company's Employee Stock Incentive Plan (the "Plan"). The date of this Performance Shares Agreement (the "Agreement") is **[GRANT_DT]** (the "Grant Date"). Subject to the provisions of the Terms and Conditions of Performance Shares Agreement (the "Terms and Conditions") and Appendix A (attached) and of the Plan, the principal features of this Award are as follows:

Number of Performance Shares: **[MAX_SHARES]**

Vesting of Performance Shares: **[VESTING SCHEDULE and/or PERFORMANCE VESTING CONDITIONS.] ***

• Except as otherwise provided in Terms and Conditions of this Agreement, Employee will not vest in the Performance Shares unless he or she is employed by the Company or one of its Affiliates through the applicable vesting date.

***IMPORTANT*:**

Your electronic or written signature below indicates your agreement and understanding that this Award is subject to all of the terms and conditions contained in the Terms and Conditions to this Agreement (including exhibits thereto) and the Plan. For example, important additional information on vesting and forfeiture of this Award is contained in paragraphs 3 through 5, and 11 of the Terms and Conditions as well as in Appendix A and in Section 4.5 and 13.10 of the Plan. **PLEASE BE SURE TO READ ALL OF THE TERMS AND CONDITIONS AND APPENDIX A, WHICH CONTAINS THE SPECIFIC TERMS AND CONDITIONS OF THIS GRANT.**

By clicking the "ACCEPT" button below, you agree to the following: "**This electronic contract contains my electronic signature, which I have executed with the intent to sign this Agreement**."

EMPLOYEE

____

[NAME]

Date:_, 20__

Be sure to retain a copy of your returned electronically signed Agreement. You may obtain a paper copy at any time and at the Company's expense by requesting one from Stock Programs (see paragraph 12 of the Terms and Conditions). If you prefer not to electronically sign this Agreement, you may accept this Agreement by signing a paper copy of the Agreement and delivering it to Stock Programs.

For Employees who are People's Republic of China (PRC) Nationals on the Grant Date: In the event that you are or become employed by an Affiliate of the Company located in the PRC, you will be subject to the PRC State Administration of Foreign Exchange ("SAFE") regulations concerning the conversion and transfer of funds. As an employee of a Company Affiliate located in the PRC, you must enter into a separate agreement with the Company and the designated broker for the Plan, referred to as a Letter of Authorization, which includes, but is not limited to, the following provisions:

- Your participation in the Plan and this Award are subject to the rules and regulations set forth by SAFE;

- All cash proceeds related to the grant, vesting, and exercise of any Award granted to you by the Company and from the sale of Shares received by you under any Award granted to you by the Company must be transferred to you through a SAFE- approved foreign exchange bank account ("SAFE Account") established by the Company;

- The Shares received under the Award will be deposited into an account set up for you with the designated broker for the Plan and may not be transferred from that account to any other bank, brokerage, or share-holding account.

- Within 30 days of your Termination of Service, all of the Shares held in your account with the designated broker must be sold either by you or by the designated broker and the proceeds from the sale of those Shares will be transferred to you through the SAFE Account.

If you do not provide a signed copy of the Letter of Authorization to the Company at the time that you become employed by an Affiliate of the Company located in the PRC, this Award shall become null and void without any liability to the Company and/or your employer and shall lapse with immediate effect.

For Employees employed in the United Kingdom (U.K.) on the Grant Date: The grant of your Award is subject to the execution of a joint election between the Company and you (the "Election") under which you agree to pay all National Insurance contributions (NICs) that may become due in connection with the grant or vesting of the Award. The NICs include the "primary" NIC payable by an employee as well as the "secondary" NIC payable by the employer in the absence of any election (referred to as the Secondary Class 1 NIC). By accepting the Award, to the extent allowable by Applicable Law, you hereby consent and agree to satisfy any liability the Company and/or your employer realizes with respect to Secondary Class 1 NIC payments required to be paid by the Company and/or your employer in connection with the grant or vesting of the Award.

In addition, by accepting the Award, you hereby authorize the Company or your employer to withhold any such Secondary Class 1 NICs from the sale of a sufficient number of Shares upon vesting of the Award. In addition, and to the maximum extent permitted by law, the Company (or the employing Affiliate) has the right to retain without notice from salary or other amounts payable to you to satisfy such Secondary Class 1 NICs. The Company, in its discretion, may require you, and you hereby agree, to make payment on demand for such contributions by cash or check to the designated broker for the Plan, the Company or your employer, and such contributions will be remitted to the HMR&C. If additional consents and/or elections are required to accomplish the foregoing, you agree to provide them promptly upon request. If you do not enter an Election prior to the first vesting date or if the Election is revoked at any time by you or the HMR&C, the Award shall become null and void without any liability to the Company and/or your employer and shall lapse with immediate effect.

TERMS AND CONDITIONS OF PERFORMANCE SHARES AGREEMENT

1. Grant. Applied Materials, Inc. (the "Company") hereby grants to the Employee the number of Performance Shares set forth on the first page of the Notice of Grant of this Agreement, subject to all the terms and conditions in this Agreement and the Plan. When Shares are delivered to the Employee as payment for the Performance Shares, the par value of each Share will be deemed paid by the Employee by past services rendered by him or her to the Company, Payment of Shares shall be subject to the applicable tax withholdings. Unless otherwise defined herein, capitalized terms used herein will have the meanings ascribed to them in the Plan.

2. Company's Obligation to Pay. Each Performance Share has a value equal to the Fair Market Value of a Share on the Grant Date. Unless and until the Performance Shares have vested in the manner set forth in paragraphs 3 through 5, or paragraph 11, or Sections 4.5 or 13.10 of the Plan, the Employee will have no right to payment of such Performance Shares. Prior to actual payment of any vested Performance Shares, such Performance Shares will represent an unsecured obligation of the Company. Payment of any vested Performance Shares will be made in whole Shares only, provided, however, that if the Company determines that it is necessary or advisable, the Shares subject to this Performance Share award shall be sold

immediately upon settlement of the Performance Shares award, and the Employee shall receive the proceeds from the sale, less any applicable fees and taxes or other required withholding.

3. Vesting Schedule/Period of Restriction. Except as provided in paragraphs 4, 5 and 11 of this Agreement, and Sections 4.5 and 13.10 of the Plan, and subject to paragraph 7, the Performance Shares awarded by this Agreement will vest in accordance with the vesting provisions set forth on the first page of the Notice of Grant of this Agreement. Subject to paragraphs 4(b) and (d) below, Performance Shares will not vest in accordance with any of the provisions of this Agreement unless the Employee will have been continuously employed by the Company or by one of its Affiliates from the Grant Date up to and including the Scheduled Vesting Date set forth on the first page of the Notice of Grant of this Agreement of the Performance Shares.

4. Modifications to Vesting Schedule**.**

(a) *Vesting upon Personal Leave of Absence.* In the event that the Employee takes a personal leave of absence ("PLOA"), the Performance Shares awarded by this Agreement that are not then vested will be modified as follows:

(i) if the duration of the Employee's PLOA is six (6) months or fewer, the vesting schedule set forth on the first page of the Notice of Grant of this Agreement will not be affected by the Employee's PLOA.

(ii) if the duration of the Employee's PLOA is greater than six (6) months but not more than twelve (12) months, the scheduled vesting of any Performance Shares awarded by this Agreement that are not then vested will be deferred for a period of time equal to the duration of the Employee's PLOA, minus six (6) months.

(iii) if the duration of the Employee's PLOA is greater than twelve (12) months, any Performance Shares awarded by this Agreement that are not then vested will immediately terminate.

(iv) Example 1. Employee's Performance Shares are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a six-month PLOA. The vesting schedule of Employee's Performance Shares remains unchanged and will still be scheduled to vest on January 1, 2020.

(v) Example 2. Employee's Performance Shares are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a nine-month PLOA. Employee's Performance Shares awarded by this Agreement that are scheduled to vest after November 2, 2019 will be modified (this is the date on which the Employee's PLOA exceeds six (6) months). Employee's Performance Shares now will be scheduled to vest on April 1, 2020 (three (3) months after the originally scheduled date).

(vi) Example 3. Employee's Performance Shares are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a 13-month PLOA. Employee's Performance Shares will terminate on May 2, 2020.

In general, a "personal leave of absence" does not include any legally required leave of absence. The duration of the Employee's PLOA will be determined over a rolling twelve (12) month measurement period. Performance Shares awarded under this Agreement that are scheduled to vest during the first six (6) months of the Employee's PLOA will continue to vest as scheduled. However, Performance Shares awarded by this Agreement that are scheduled to vest after the first six (6) months of the Employee's PLOA will be deferred or terminated depending on the length of the Employee's PLOA to the extent permissible under Section 409A of the Code. The vesting schedule for the Performance Shares awarded under this Agreement will be modified, if at all, as soon as the duration of the Employee's PLOA exceeds six (6) months.

(b) *Death of Employee*. In the event that the Employee incurs a Termination of Service due to his or her death, one hundred percent (100%) of the Performance Shares awarded under this Agreement will vest on the date of the Employee's death. In the event that any Applicable Law limits the Company's ability to accelerate the vesting of this award of Performance Shares, this paragraph 4(b) will be limited to the extent required to comply with Applicable Law. If the Employee is subject to Hong Kong's ORSO provisions, this paragraph 4(b) will not apply to this award of Performance Shares.

(c) *Change of Control*. In the event of a Change of Control, the Performance Shares awarded under this Agreement will be treated in accordance with Section 4.5 of the Plan. In addition, in the event Employee experiences a qualifying Termination of Service within 12 months following a Change of Control, the vesting of the Performance Shares awarded under this Agreement may be accelerated to the extent provided under Section 13.10 of the Plan.

(d) *Retirement*. In the event that the Employee incurs a Termination of Service by reason of voluntary resignation on or after January 1, 2020 after obtaining at least sixty (60) years of age and completing at least five (5) Years of Service, a number of Performance Shares awarded under this Agreement will vest on the later of the Scheduled Vesting Date or the Certification Date in accordance with Appendix A and on the first page of the Notice of Grant of this Agreement determined in accordance with the following:

(i)if the Employee has completed at least five (5) (but fewer than ten (10)) Years of Service on the date of

Termination of Service, the number equal to (I) the Performance Shares that would have vested had the Employee remained employed through the later of the Scheduled Vesting Date or the Certification Date *multiplied by* (II) a fraction the numerator of which is twelve (12) and the denominator of which is thirty-six (36).

(ii)if the Employee has completed at least ten (10) (but fewer than fifteen (15)) Years of Service on the date of Termination of Service, the number equal to (I) the Performance Shares that would have vested had the Employee remained employed through the later of the Scheduled Vesting Date or the Certification Date *multiplied by* (II) a fraction the numerator of which is eighteen (18) and the denominator of which is thirty-six (36).

(iii)if the Employee has completed at least fifteen (15) Years of Service on the date of Termination of Service, the number equal to (I) the Performance Shares that would have vested had the Employee remained employed through the later of the Scheduled Vesting Date or the Certification Date *multiplied by* (II) a fraction the numerator of which is twenty-four (24) and the denominator of which is thirty-six (36).

Notwithstanding the definition of "Retirement" in the Plan, an Employee who incurs a Termination of Service by reason of voluntary resignation at the age of sixty-five (65) or over but who has not completed at least five (5) Years of Service will not be eligible for the vesting of Performance Shares described in this paragraph 4(d).

5. Committee Discretion. The Committee, in its discretion, may at any time accelerate the vesting of all or a portion of any unvested Performance Shares, subject to the terms of the Plan. If so accelerated, such Performance Shares will be considered as having vested as of the date specified by the Committee. Subject to the provisions of this paragraph 5, if the Committee, in its discretion, accelerates the vesting of all or a portion of any unvested Performance Shares, the payment of such accelerated Performance Shares shall be made as soon as practicable upon or following the accelerated vesting date, but in no event later than 60 days following the vesting date of such accelerated Performance Shares. If the Employee is subject to Hong Kong's ORSO provisions, the Committee may not accelerate the vesting of any unvested Performance Shares as a result of the Hong Kong Employee's Termination of Service.

Notwithstanding anything in the Plan or this Agreement to the contrary, if the vesting of all or a portion of any unvested Performance Shares is accelerated in connection with the Employee's Termination of Service (provided that such termination is a "separation from service" within the meaning of Section 409A, as determined by the Company), other than due to death**,** and if both (a) the Employee is a "specified employee" within the meaning of Section 409A at the time of such Termination of Service, and (b) the payment of such accelerated Performance Shares would result in the imposition of additional tax under Section 409A if paid to the Employee within the six (6) month period following the Employee's Termination of Service, then the payment of such accelerated Performance Shares will not be made until the date that is six (6) months and one (1) day following the date of the Employee's Termination of Service, unless the Employee dies following his or her Termination of Service, in which case, the Performance Shares will be paid in Shares to the Employee's estate as soon as practicable following his or her death. It is the intent of this Agreement to be exempt from or comply with the requirements of Section 409A so that none of the Performance Shares provided under this Agreement or Shares issuable thereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities or ambiguous terms herein will be interpreted to be so exempt or comply. For purposes of this Agreement, "Section 409A" means Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), and any proposed, temporary or final Treasury Regulations and Internal Revenue Service guidance thereunder, as each may be amended from time to time.

6. Payment after Vesting. Any Performance Shares that vest in accordance with paragraph 3 or 4 of this Agreement or Sections 4.5 or 13.10 of the Plan (subject in each case to withholding under paragraph 8) will be paid to the Employee (or in the event of the Employee's death, to his or her estate) as soon as practicable, but in all cases within 60 days, following the vesting date of such Performance Shares. Any Performance Shares that vest in accordance with paragraph 5 or 11 (subject to withholding under paragraph 8) will be paid to the Employee (or in the event of the Employee's death, to his or her estate) in accordance with the provisions of such paragraph. For each Performance Share that vests, the Employee will receive one Share, subject to withholding under paragraph 8.

7. Forfeiture. Notwithstanding any contrary provision of this Agreement and except in the event of Employee's death or retirement (see paragraph 4(b) and 4(d)), any Performance Shares that have not vested pursuant to paragraphs 3 through 5 or paragraph 11 of this Agreement or Sections 4.5 or 13.10 of the Plan at the time of the Employee's Termination of Service for any or no reason will be forfeited and automatically transferred to and reacquired by the Company at no cost to the Company. *[To be included for Awards subject to performance-based vesting:* Notwithstanding anything to the contrary in the Plan or this Agreement, the Board, in its sole discretion, may require the Employee to forfeit, return or reimburse the Company all or a portion of the Performance Shares subject to this Award in accordance with paragraph 16 of the Agreement.*]*

8. Withholding of Taxes. When Shares are issued as payment for vested Performance Shares or, in the discretion of the Company, at such earlier time as the Tax Obligations (defined below) are due, the Company (or the employing Affiliate) will

withhold a portion of the Shares that has an aggregate market value sufficient to pay all taxes and social insurance liability and other requirements in connection with the Shares, including, without limitation, (a) all federal, state and local income, employment and any other applicable taxes that are required to be withheld by the Company or the employing Affiliate, (b) the Employee's and, to the extent required by the Company (or the employing Affiliate), the Company's (or the employing Affiliate's) fringe benefit tax liability, if any, associated with the grant, vesting, or sale of the Performance Shares awarded and the Shares issued thereunder, and (c) all other taxes or social insurance liabilities with respect to which the Employee has agreed to bear responsibility (collectively, the "Tax Obligations"). The number of Shares withheld pursuant to the prior sentence will be rounded up to the nearest whole Share, with no refund provided in the U.S. for any value of the Shares withheld in excess of the Tax Obligations as a result of such rounding. Notwithstanding the foregoing, the Company (or, in respect of an Employee subject to Section 16 of the 1934 Act, the HRCC), in its sole discretion, may require the Employee to make alternate arrangements satisfactory to it for such Tax Obligations in advance of the arising of any Tax Obligations.

Notwithstanding any contrary provision of this Agreement, no Shares will be issued unless and until satisfactory arrangements (as determined by the Company) have been made by the Employee with respect to the payment of any Tax Obligations that the Company determines must be withheld or collected with respect to such Shares. In addition and to the maximum extent permitted by law, the Company (or the employing Affiliate) has the right to retain without notice from salary or other amounts payable to the Employee, cash having a sufficient value to satisfy any Tax Obligations that the Company determines cannot be satisfied through the withholding of otherwise deliverable Shares or that are due prior to the issuance of Shares under the Performance Shares award. All Tax Obligations related to the Performance Shares award and any Shares delivered in payment thereof are the sole responsibility of the Employee. Further, Employee shall be bound by any additional withholding requirements included in the Notice of Grant and Appendix A of this Agreement.

9. Rights as Stockholder. Neither the Employee nor any person claiming under or through the Employee will have any of the rights or privileges of a stockholder of the Company in respect of any Shares deliverable hereunder unless and until certificates representing such Shares (which may be in book entry form) will have been issued, recorded on the records of the Company or its transfer agents or registrars, and delivered to the Employee (including through electronic delivery to a brokerage account). Notwithstanding any contrary provision of this Agreement, any quarterly or other regular, periodic dividends or distributions (as determined by the Company) paid on Shares will affect neither unvested Performance Shares nor Performance Shares that are vested but unpaid, and no such dividends or other distributions will be paid on unvested Performance Shares or Performance Shares that are vested but unpaid. After such issuance, recordation and delivery, the Employee will have all the rights of a stockholder of the Company with respect to voting such Shares and receipt of dividends and distributions on such Shares.

10. No Effect on Employment. Subject to any authorized, written employment contract with the Employee, the terms of the Employee's employment will be determined from time to time by the Company, or the Affiliate employing the Employee, as the case may be, and the Company, or the Affiliate employing the Employee, as the case may be, will have the right, which is hereby expressly reserved, to terminate or change the terms of the employment of the Employee at any time for any reason whatsoever, with or without good cause. The transactions contemplated hereunder and the vesting schedule set forth [in Appendix] A][on the first page of the Notice of Grant of this Agreement] do not constitute an express or implied promise of continued employment for any period of time. A leave of absence or an interruption in service (including an interruption during military service) authorized or acknowledged by the Company or the Affiliate employing the Employee, as the case may be, will not be deemed a Termination of Service for the purposes of this Agreement.

11. Changes in Performance Shares. If as a result of a stock or extraordinary cash dividend, stock split, distribution, reclassification, recapitalization, combination of Shares or the adjustment in capital stock of the Company or otherwise, or as a result of a merger, consolidation, spin-off or other corporate transaction or event, the Performance Shares will be increased, reduced or otherwise affected, and by virtue of any such event, the Employee will, as the owner of unvested Performance Shares (the "Prior Performance Shares"), be entitled to new or additional or different shares of stock, cash or other securities or property (other than rights or warrants to purchase securities); such new or additional or different shares, cash or securities or property will thereupon be considered to be unvested Performance Shares and will be subject to all of the conditions and restrictions that were applicable to the Prior Performance Shares pursuant to this Agreement and the Plan. If the Employee receives rights or warrants with respect to any Prior Performance Shares, such rights or warrants may be held or exercised by the Employee, provided that until such exercise, any such rights or warrants and after such exercise any shares or other securities acquired by the exercise of such rights or warrants will be considered to be unvested Performance Shares and will be subject to all of the conditions and restrictions that were applicable to the Prior Performance Shares pursuant to the Plan and this Agreement. The Committee, in its sole discretion, at any time may (subject to paragraph 5) accelerate the vesting of all or a portion of such new or additional shares of stock, cash or securities, rights or warrants to purchase securities or shares or other securities acquired by the exercise of such rights or warrants; provided, however, that the payment of such accelerated new or additional awards will be made in accordance with the provisions of paragraph 5.

12. Address for Notices. Any notice to be given to the Company under this Agreement shall be addressed to the Company, in care of Stock Programs, at Applied Materials, Inc., 3225 Oakmead Village Drive, M/S 1213, P.O. Box 58039, Santa Clara, CA 95054, U.S.A., or at such other address as the Company may hereafter designate in writing.

13. Grant is Not Transferable. Except to the limited extent provided in this Agreement, this grant of Performance Shares and the rights and privileges conferred hereby shall not be sold, pledged, assigned, hypothecated, transferred or disposed of any way (whether by operation of law or otherwise) and shall not be subject to sale under execution, attachment or similar process, until the Employee has been issued Shares in payment of the Performance Shares. Upon any attempt to sell, pledge, assign, hypothecate, transfer or otherwise dispose of this grant, or any right or privilege conferred hereby, or upon any attempted sale under any execution, attachment or similar process, this grant and the rights and privileges conferred hereby immediately will become null and void.

14. Restrictions on Sale of Securities. The Employee's sale of the Shares issued as payment for vested Performance Shares under this Agreement will be subject to any market blackout period that may be imposed by the Company and must comply with the Company's insider trading policies, and all applicable securities and other laws.

15. Binding Agreement. Subject to the limitation on the transferability of this Performance Shares award contained herein, this Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

16. *[To be included for Awards subject to performance-based vesting:* Clawback in Connection with a Material Negative Financial Restatement. Pursuant to the Company's clawback policy, the Board, in its sole discretion, may require the Employee to forfeit, return or reimburse the Company all or a portion of his or her Performance Shares subject to this Award if (i) the Employee is or was a Section 16 Person during the performance period applicable to the performance-based vesting of the Performance Shares, and (ii) the Employee deliberately engaged in "Intentional Misconduct" (as defined below) that was determined by the Board, in its sole discretion, to be the primary cause of a material negative restatement of a Company financial statement that was filed with the U.S. Securities and Exchange Commission and such financial statement, as originally filed, is one of the Company's three (3) most recently filed annual financial statements. The portion of this Award, if any, that the Employee may be required to forfeit, return or reimburse will be determined by the Board, in its sole discretion, but will be no more than the "Clawback Maximum" (as defined below).

For purposes of this Agreement, "Clawback Maximum" means the portion of the Award that was in excess of the Shares that the Employee would have received under this Award had the Company's financial results been calculated under the restated financial statements .

To the extent Tax Obligations on such Performance Shares were paid or due, such forfeiture, return or reimbursement shall be limited to the after-tax portion of the Clawback Maximum, unless otherwise required by Applicable Laws.

For purposes of this Agreement, "Intentional Misconduct" means the Employee's deliberate engagement in any one or more of the following: (a) fraud, misappropriation, embezzlement or any other act or acts of similar gravity resulting or intended to result directly or indirectly in substantial personal enrichment to the Employee at the expense of the Company; (b) a material violation of a federal, state or local law or regulation applicable to the Company's business that has a significant negative effect on the Company's financial results; or (c) a material breach of the Employee's fiduciary duty owed to the Company that has a significant negative effect on the Company's financial results; provided, however, that the Employee's exercise of judgment or actions (or abstention from action), and/or decision-making will not constitute Intentional Misconduct if such judgment, action (or abstention from action) and/or decision is, in the good faith determination of the Board, reasonable based on the facts and circumstances known to the Employee at the time of such judgment, action (or abstention from action) and/or decision; and such judgment, action (or abstention from action) and/or decision is in an area or situation in which (i) discretion must be exercised by the Employee or (ii) differing views or opinions may apply.

Further, the Board, in its sole discretion, may require the Employee to forfeit, return and/or reimburse the Company for all or a portion of his or her Performance Shares and any amounts paid thereunder ("Clawback Amount"), in accordance with the Company's clawback policy as may be established and/or amended from time to time or as necessary or appropriate to comply with Applicable Laws. To the extent Tax Obligations on such Clawback Amount were paid or due, the forfeiture, return or reimbursement shall be limited to the after-tax portion of the Clawback Amount, unless otherwise required by Applicable Laws.]

17. Additional Conditions to Issuance of Certificates for Shares. The Company will not be required to issue any certificate or certificates (which may be in book entry form) for Shares payable under this Agreement prior to fulfillment of all of the following conditions: (a) the admission of such Shares to listing on all stock exchanges on which such class of stock is then listed; (b) the completion of any registration or other qualification of such Shares under any U.S. state or federal law or under the rulings or regulations of the Securities and Exchange Commission or any other governmental regulatory body, which the Committee, in its sole discretion, will have determined to be necessary or advisable; (c) the obtaining of any approval or other clearance from any U.S. state or federal governmental agency, which the Committee, in its sole discretion, will have determined to be necessary or advisable; and (d) the lapse of such reasonable period of time following the vesting date of the Performance Shares, as the Committee may establish from time to time, for reasons of administrative convenience.

18. Plan Governs. This Agreement is subject to all the terms and provisions of the Plan. In the event of a conflict between one or more provisions of this Agreement and one or more provisions of the Plan, the provisions of the Plan will

govern.

19. Committee Authority. The Committee will have the power to interpret the Plan and this Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules (including, but not limited to, the determination of whether or not any Performance Shares have vested). All actions taken and all interpretations and determinations made by the Committee in good faith will be final and binding upon the Employee, the Company and all other interested persons. No member of the Committee will be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or this Agreement.

20. Captions. Captions provided herein are for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

21. Agreement Severable. In the event that any provision in this Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Agreement.

22. Modifications to the Agreement. This Agreement constitutes the entire understanding of the parties on the subjects covered. The Employee expressly warrants that he or she is not accepting this Agreement in reliance on any promises, representations, or inducements other than those contained herein. Modifications to this Agreement or the Plan can be made only in an express written contract executed by a duly authorized officer of the Company. Notwithstanding anything to the contrary in the Plan or this Agreement, the Company reserves the right to revise this Agreement as it deems necessary or advisable, in its sole discretion and without the consent of the Employee, to comply with Section 409A or to otherwise avoid imposition of any additional tax or income recognition under Section 409A prior to the actual payment of Shares pursuant to this award of Performance Shares.

23. Amendment, Suspension or Termination of the Plan. By accepting this Performance Shares award, the Employee expressly warrants that he or she has received a right to receive stock under the Plan, and has received, read and understood a description of the Plan. The Employee understands that the Plan is discretionary in nature and may be amended, suspended or terminated by the Company at any time.

24. Labor Law. By accepting this Performance Shares award, the Employee acknowledges that: (a) the grant of these Performance Shares is a one-time benefit which does not create any contractual or other right of the Employee to receive future grants of Performance Shares, or benefits in lieu of Performance Shares; (b) all determinations with respect to any future grants, including, but not limited to, when the Performance Shares will be granted, the number of Performance Shares subject to each award and when the Performance Shares will vest, shall be at the sole discretion of the Company; (c) the Employee's participation in the Plan is voluntary; (d) the value of these Performance Shares is an extraordinary item of compensation that is outside the scope of the Employee's employment contract, if any; (e) these Performance Shares are not part of the Employee's normal or expected compensation for purposes of calculating any severance, resignation, redundancy, end-of-service payments, bonuses, long-service awards, pension or retirement benefits or similar payments; (f) the vesting of these Performance Shares shall cease upon Termination of Service for any reason, except as may otherwise be explicitly provided in the Plan or this Agreement; (g) the future value of the underlying Shares is unknown and cannot be predicted with certainty; (h) these Performance Shares have been granted to the Employee in the Employee's status as an employee of the Company or its Affiliates; and (i) there shall be no additional obligations for any Affiliate employing the Employee as a result of these Performance Shares.

25. Information on the Collection, Processing and Use of Employee Data. In administering this Performance Shares award, the Company will collect, use and transfer the Employee personal data as described in this paragraph. The Employee understands that the Company and its Affiliates hold certain personal information about him or her, including his or her name, home address and telephone number, date of birth, social security or identity number, salary, nationality, job title, any shares of stock or directorships held in the Company, details of all awards of Performance Shares or any other entitlement to shares of stock awarded, canceled, exercised, vested, unvested or outstanding in his or her favor, for the purpose of managing and administering the Plan ("Data").

The Employee further understands that the Company and/or its Affiliates will transfer Data among themselves as necessary for the purpose of implementation, administration and management of his or her participation in the Plan, and that the Company and/or any of its Affiliates may each further transfer Data to any third parties assisting the Company in the implementation, administration and management of the Plan. The Employee understands that these recipients may be located in the European Economic Area, or elsewhere, such as in the U.S. or Asia.

The aforementioned Data will be collected, processed and used during and after the employment relationship. Data is not retained for longer than necessary to meet its intended purpose or for longer than required by applicable law.

The Employee authorizes the Company to receive, possess, use, retain and transfer the Data in electronic or other form, for the purposes of implementing, administering and managing his or her participation in the Plan, including any requisite transfer of such Data to a broker or other third party with whom the Employee may elect to deposit any Shares of stock acquired from this award of Performance Shares, as may be required for the administration of the Plan and/or the subsequent holding of Shares of stock on his or her behalf. Subject to limitations set out in applicable law, the Employee has certain rights in respect of his or her Data, such as a right to access, correction, restriction, erasure, opposition and portability. Requests to exercise those rights can be made to the Human Resources department and/or the Stock Programs Administrator for the Company and/or its applicable Affiliates. The Employee understands, however, that refusing or opposing the collection and use of the Data may affect the Employee's ability to participate in the Plan. For more information on the consequences of the Employee's opposition to the collection or use of the Data, the Employee understands that he or she may contact the Employee's local Human Resources representative.

26. Notice of Governing Law. This award of Performance Shares will be governed by, and construed in accordance with, the laws of the State of California, in the U.S.A., without regard to principles of conflict of laws.

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[EMPL_NAME]
Employee ID: [**EMPLID**] Grant Number: [**GRANT_ID**]

APPLIED MATERIALS, INC.

RESTRICTED STOCK UNIT AGREEMENT

NOTICE OF GRANT

Applied Materials, Inc. (the "Company") hereby grants you, **[EMPL_NAME]** (the "Employee"), an award of Restricted Stock Units under the Company's Employee Stock Incentive Plan (the "Plan"). The date of this Restricted Stock Unit Agreement (the "Agreement") is **[GRANT_DT]** (the "Grant Date"). Subject to the provisions of the Terms and Conditions of Restricted Stock Unit Agreement (the "Terms and Conditions"), which constitute part of this Agreement, and of the Plan, the principal features of this Award are as follows:

Number of Restricted Stock Units: **[MAX_SHARES]**

Vesting of Restricted Stock Units: Please refer to the UBS One Source website for the vesting schedule related to this grant of Restricted Stock Units (click on the specific grant under the tab labeled "Grants/Awards/Units.").*

• Except as otherwise provided in the Terms and Conditions of this Agreement, the Employee will not vest in the Restricted Stock Units unless he or she is employed by the Company or one of its Affiliates through the applicable vesting date.

***IMPORTANT**:*

Your electronic or written signature below indicates your agreement and understanding that this Award is subject to all of the terms and conditions contained in the Terms and Conditions to this Agreement and the Plan. For example, important additional information on vesting and forfeiture of this Award is contained in paragraphs 3 through 5 and paragraph 7 of the Terms and Conditions, and in Section 4.5 and 13.10 of the Plan. **PLEASE BE SURE TO READ ALL OF THE TERMS AND CONDITIONS OF THIS GRANT. <u>CLICK HERE TO READ THE TERMS AND CONDITIONS</u>**.

By clicking the "ACCEPT" button below, you agree to the following: "**This electronic contract contains my electronic signature, which I have executed with the intent to sign this Agreement**."

Be sure to retain a copy of your returned electronically signed Agreement. You may obtain a paper copy at any time and at the Company's expense by requesting one from Stock Programs (see paragraph 12 of the Terms and Conditions). If you prefer not to electronically sign this Agreement, you may accept this Agreement by signing a paper copy of the Agreement and delivering it to Stock Programs.

For Employees who are People's Republic of China (PRC) Nationals on the Grant Date: In the event that you are or become employed by an Affiliate of the Company located in the PRC, you will be subject to the PRC State Administration of Foreign Exchange ("SAFE") regulations concerning the conversion and transfer of funds. As an employee of a Company Affiliate located in the PRC, you must enter into a separate agreement with the Company and the designated broker for the Plan, referred to as a Letter of Authorization, which includes, but is not limited to, the following provisions:

- Your participation in the Plan and this Award are subject to the rules and regulations set forth by SAFE;

- All cash proceeds related to the grant, vesting, and exercise of any Award granted to you by the Company and from the sale of Shares received by you under any Award granted to you by the Company must be transferred to you through a SAFE-approved foreign exchange bank account ("SAFE Account") established by the Company;

- The Shares received under the Award will be deposited into an account set up for you with the designated broker for the Plan and may not be transferred from that account to any other bank, brokerage, or share-holding account.

- Within 30 days of your Termination of Service, all of the Shares held in your account with the designated broker must be sold either by you or by the designated broker and the proceeds from the sale of those Shares will be transferred to you through the SAFE Account.

If you do not provide a signed copy of the Letter of Authorization to the Company at the time that you become employed by an Affiliate of the Company located in the PRC, this Award shall become null and void without any liability to the Company and/or your employer and shall lapse with immediate effect.

For Employees employed in the United Kingdom (U.K.) on the Grant Date: The grant of your Award is subject to the execution of a joint election between the Company and you (the "Election") under which you agree to pay all National Insurance contributions (NICs) that may become due in connection with the grant or vesting of the Award. The NICs include the "primary" NIC payable by an employee as well as the "secondary" NIC payable by the employer in the absence of any election (referred to as the Secondary Class 1 NIC). By accepting the Award, to the extent allowable by Applicable Law, you hereby consent and agree to satisfy any liability the Company and/or your employer realizes with respect to Secondary Class 1 NIC payments required to be paid by the Company and/or your employer in connection with the grant or vesting of the Award.

In addition, by accepting the Award, you hereby authorize the Company or your employer to withhold any such Secondary Class 1 NICs from the sale of a sufficient number of Shares upon vesting of the Award. In addition, and to the maximum extent permitted by law, the Company (or the employing Affiliate) has the right to retain without notice from salary or other amounts payable to you to satisfy such Secondary Class 1 NICs. The Company, in its discretion, may require you, and you hereby agree, to make payment on demand for such contributions by cash or check to the designated broker for the Plan, the Company or your employer, and such contributions will be remitted to the HMR&C. If additional consents and/or elections are required to accomplish the foregoing, you agree to provide them promptly upon request. If you do not enter an Election prior to the first vesting date or if the Election is revoked at any time by you or the HMR&C, the Award shall become null and void without any liability to the Company and/or your employer and shall lapse with immediate effect.

TERMS AND CONDITIONS OF RESTRICTED STOCK UNIT AGREEMENT

1. Grant. Applied Materials, Inc. (the "Company") hereby grants to the Employee the number of Restricted Stock Units set forth on the first page of the Notice of Grant of this Agreement, subject to all the terms and conditions in this Agreement and the Plan. When Shares are delivered to the Employee as payment for the Restricted Stock Units, the par value of each Share will be deemed paid by the Employee by past services rendered by him or her to the Company, Payment of Shares shall be subject to the applicable tax withholdings. Unless otherwise defined herein, capitalized terms used herein will have the meanings ascribed to them in the Plan.

2. Company's Obligation to Pay. Each Restricted Stock Unit has a value equal to the Fair Market Value of a Share on the Grant Date. Unless and until the Restricted Stock Units have vested in the manner set forth in paragraphs 3 through 5, or paragraph 11, or Sections 4.5 or 13.10 of the Plan, the Employee will have no right to payment of such Restricted Stock Units. Prior to actual payment of any vested Restricted Stock Units, such Restricted Stock Units will represent an unsecured obligation of the Company. Payment of any vested Restricted Stock Units will be made in whole Shares only, provided, however, that if the Company determines that it is necessary or advisable, the Shares subject to this Restricted Stock Units award shall be sold immediately upon settlement of the Restricted Stock Units award, and the Employee shall receive the proceeds from the sale, less any applicable fees and taxes or other required withholding.

3. Vesting Schedule/Period of Restriction. Except as provided in paragraphs 4, 5 and 11 of this Agreement, and Sections 4.5 and 13.10 of the Plan, and subject to paragraph 7, the Restricted Stock Units awarded by this Agreement will vest in accordance with the vesting provisions set forth on the UBS One Source website (click on the specific grant under the tab labeled "Grants/Awards/Units") (the "Vesting Schedule"). Subject to paragraphs 4(b) and (d) below, Restricted Stock Units will not vest in accordance with any of the provisions of this Agreement unless the Employee will have been continuously employed by the Company or by one of its Affiliates from the Grant Date up to and including the scheduled vesting date of the Restricted Stock Units.

4. Modifications to Vesting Schedule.

(a) *Vesting upon Personal Leave of Absence.* In the event that the Employee takes a personal leave of absence ("PLOA"), the Vesting Schedule of Restricted Stock Units awarded by this Agreement will be modified as follows:

(i) if the duration of the Employee's PLOA is six (6) months or fewer, the Vesting Schedule (set forth on the UBS One Source website (click on the specific grant under the tab labeled "Grants/Awards/Units")) will not be affected by the Employee's PLOA.

(ii) if the duration of the Employee’s PLOA is greater than six (6) months but not more than twelve (12) months, the scheduled vesting of any Restricted Stock Units awarded by this Agreement under the Vesting Schedule that are not then vested will be deferred for a period of time equal to the duration of the Employee’s PLOA, minus six (6) months.

(iii) if the duration of the Employee’s PLOA is greater than twelve (12) months, any Restricted Stock Units awarded by this Agreement that are not then vested will immediately terminate.

(iv) Example 1. Employee’s Restricted Stock Units are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a six-month PLOA. The Vesting Schedule of Employee’s Restricted Stock Units remains unchanged and will still be scheduled to vest on January 1, 2020.

(v) Example 2. Employee’s Restricted Stock Units are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a nine-month PLOA. Employee’s Restricted Stock Units awarded by this Agreement that are scheduled to vest after November 2, 2019 will be modified (this is the date on which the Employee’s PLOA exceeds six (6) months). Employee’s Restricted Stock Units now will be scheduled to vest on April 1, 2020 (three (3) months after the originally scheduled date).

(vi) Example 3. Employee’s Restricted Stock Units are scheduled to vest on January 1, 2020. On May 1, 2019, Employee begins a 13-month PLOA. Employee’s Restricted Stock Units will terminate on May 2, 2020.

In general, a “personal leave of absence” does not include any legally required leave of absence. The duration of the Employee’s PLOA will be determined over a rolling twelve (12) month measurement period. Restricted Stock Units awarded under this Agreement that are scheduled to vest during the first six (6) months of the Employee’s PLOA will continue to vest as scheduled. However, Restricted Stock Units awarded by this Agreement that are scheduled to vest after the first six (6) months of the Employee’s PLOA will be deferred or terminated depending on the length of the Employee’s PLOA to the extent permissible under Section 409A of the Code. The Vesting Schedule for the Restricted Stock Units awarded under this Agreement will be modified, if at all, as soon as the duration of the Employee’s PLOA exceeds six (6) months.

(b) *Death of Employee*. In the event that the Employee incurs a Termination of Service due to his or her death, one hundred percent (100%) of the Restricted Stock Units awarded under this Agreement will vest on the date of the Employee’s death. In the event that any Applicable Law limits the Company’s ability to accelerate the vesting of this award of Restricted Stock Units, this paragraph 4(b) will be limited to the extent required to comply with applicable law. If the Employee is subject to Hong Kong’s ORSO provisions, this paragraph 4(b) will not apply to this award of Restricted Stock Units.

(c) *Change of Control*. In the event of a Change of Control, the Restricted Stock Units awarded under this Agreement will be treated in accordance with Section 4.5 of the Plan. In addition, in the event Employee experiences a qualifying Termination of Service within 12 months following a Change of Control, the vesting of the Restricted Stock Units awarded under this Agreement may be accelerated to the extent provided under Section 13.10 of the Plan.

(d) *Retirement*. In the event that the Employee incurs a Termination of Service by reason of voluntary resignation on or after January 1, 2020 after obtaining at least sixty (60) years of age and completing at least five (5) Years of Service, a number of the Restricted Stock Units awarded under this Agreement will vest on the date of such Termination of Service determined in accordance with the following:

(i) if the Employee has completed at least five (5) (but fewer than ten (10)) Years of Service on such date, all Restricted Stock Units scheduled to vest under the Vesting Schedule during the twelve (12) months following such date.

(ii) if the Employee has completed at least ten (10) (but fewer than fifteen (15)) Years of Service on such date, all Restricted Stock Units scheduled to vest under the Vesting Schedule during the eighteen (18) months following such date.

(iii) if the Employee has completed at least fifteen (15) Years of Service on such date, all Restricted Stock Units scheduled to vest under the Vesting Schedule during the twenty-four (24) months following such date.

Any Restricted Stock Units vesting by reason of this paragraph 4(d) will be paid out in accordance with paragraph 6 of this Agreement; provided, however, that if the Employee’s Termination of Service is not considered a “separation from service” within the meaning of Section 409A, as determined by the Company, any Restricted Stock Unit vesting by reason of this paragraph 4(d) will be paid on the earliest of (x) the scheduled vesting date for such Restricted Stock Unit under the Vesting Schedule, (y) the Employee’s death or (z) the Employee’s actual “separation from service” within the meaning of Section 409A, as determined by the Company.

Notwithstanding the definition of “Retirement” in the Plan, an Employee who incurs a Termination of Service by reason of voluntary resignation at the age of sixty-five (65) or over but who has not completed at least five (5) Years of Service will not be eligible for the acceleration of Restricted Stock Units described in this paragraph 4(d).

5. Committee Discretion. The Committee, in its discretion, may at any time accelerate the vesting of all or a portion of any unvested Restricted Stock Units, subject to the terms of the Plan. If so accelerated, such Restricted Stock Units will be considered as having vested as of the date specified by the Committee. Subject to the provisions of this paragraph 5, if the Committee, in its discretion, accelerates the vesting of all or a portion of any unvested Restricted Stock Units, the payment of such accelerated Restricted Stock Units shall be made as soon as practicable upon or following the accelerated vesting date, but in no event later than 60 days following the vesting date of such accelerated Restricted Stock Units. If the Employee is subject to Hong Kong's ORSO provisions, the Committee may not accelerate the vesting of any unvested Restricted Stock Units as a result of the Hong Kong Employee's Termination of Service.

6. Payment after Vesting.

(a) Any Restricted Stock Units that vest in accordance with paragraph 3 or 4 of this Agreement or Sections 4.5 or 13.10 of the Plan (subject in each case to withholding under paragraph 8) will be paid to the Employee (or in the event of the Employee's death, to his or her estate) as soon as practicable, but in all cases within 60 days, following the vesting date of such Restricted Stock Units. Any Restricted Stock Units that vest in accordance with paragraph 5 or 11 (subject to withholding under paragraph 8) will be paid to the Employee (or in the event of the Employee's death, to his or her estate) in accordance with the provisions of such paragraph. For each Restricted Stock Unit that vests, the Employee will receive one Share, subject to withholding under paragraph 8.

(b) Notwithstanding anything in the Plan or this Agreement to the contrary, if the vesting of all or a portion of any unvested Restricted Stock Units is accelerated in connection with the Employee's Termination of Service (provided that such termination is a "separation from service" within the meaning of Section 409A, as determined by the Company), other than due to death**,** and if both (a) the Employee is a "specified employee" within the meaning of Section 409A at the time of such Termination of Service, and (b) the payment of such accelerated Restricted Stock Units would result in the imposition of additional tax under Section 409A if paid to the Employee within the six (6) month period following the Employee's Termination of Service, then the payment of such accelerated Restricted Stock Units will not be made until the date that is six (6) months and one (1) day following the date of the Employee's Termination of Service, unless the Employee dies following his or her Termination of Service, in which case, the Restricted Stock Units will be paid in Shares to the Employee's estate as soon as practicable following his or her death. It is the intent of this Agreement to be exempt from or comply with the requirements of Section 409A so that none of the Restricted Stock Units provided under this Agreement or Shares issuable thereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities herein will be interpreted to be so exempt or comply. For purposes of this Agreement, "Section 409A" means Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), and any proposed, temporary or final Treasury Regulations and Internal Revenue Service guidance thereunder, as each may be amended from time to time.

7. Forfeiture. Notwithstanding any contrary provision of this Agreement and except in the event of Employee's death (see paragraph 4(b)), any Restricted Stock Units that have not vested pursuant to paragraphs 3 through 5 or paragraph 11 of this Agreement or Sections 4.5 or 13.10 of the Plan at the time of the Employee's Termination of Service for any or no reason will be forfeited and automatically transferred to and reacquired by the Company at no cost to the Company. *[To be included for Awards subject to performance-based vesting:* Notwithstanding anything to the contrary in the Plan or this Agreement, the Board, in its sole discretion, may require the Employee to forfeit, return or reimburse the Company all or a portion of the Restricted Stock Units subject to this Award in accordance with paragraph 16 of the Agreement.*]*

8. Withholding of Taxes. When Shares are issued as payment for vested Restricted Stock Units or, in the discretion of the Company, at such earlier time as the Tax Obligations (defined below) are due, the Company (or the employing Affiliate) will withhold a portion of the Shares that has an aggregate market value sufficient to pay all taxes and social insurance liability and other requirements in connection with the Shares, including, without limitation, (a) all federal, state and local income, employment and any other applicable taxes that are required to be withheld by the Company or the employing Affiliate, (b) the Employee's and, to the extent required by the Company (or the employing Affiliate), the Company's (or the employing Affiliate's) fringe benefit tax liability, if any, associated with the grant, vesting, or sale of the Restricted Stock Units awarded and the Shares issued thereunder, and (c) all other taxes or social insurance liabilities with respect to which the Employee has agreed to bear responsibility (collectively, the "Tax Obligations"). The number of Shares withheld pursuant to the prior sentence will be rounded up to the nearest whole Share, with no refund provided in the U.S. for any value of the Shares withheld in excess of the Tax Obligations as a result of such rounding. Notwithstanding the foregoing, the Company (or, in respect of an Employee subject to Section 16 of the 1934 Act, the HRCC), in its sole discretion, may require the Employee to make alternate arrangements satisfactory to it for such Tax Obligations in advance of the arising of any Tax Obligations.

Notwithstanding any contrary provision of this Agreement, no Shares will be issued unless and until satisfactory arrangements (as determined by the Company) have been made by the Employee with respect to the payment of any Tax Obligations that the Company determines must be withheld or collected with respect to such Shares. In addition and to the maximum extent permitted by law, the Company (or the employing Affiliate) has the right to retain without notice from salary or other amounts payable to the Employee, cash having a sufficient value to satisfy any Tax Obligations that the Company determines cannot be satisfied through the withholding of otherwise deliverable Shares or that are due prior to the issuance of Shares under the Restricted Stock Units award. All Tax Obligations related to the Restricted Stock Units award and any Shares delivered in payment thereof are the sole responsibility of the Employee. Further, Employee shall be bound by any additional withholding requirements included in the Notice of Grant of this Agreement.

9. Rights as Stockholder. Neither the Employee nor any person claiming under or through the Employee will have any of the rights or privileges of a stockholder of the Company in respect of any Shares deliverable hereunder unless and until certificates representing such Shares (which may be in book entry form) will have been issued, recorded on the records of the Company or its transfer agents or registrars, and delivered to the Employee (including through electronic delivery to a brokerage account). Notwithstanding any contrary provision of this Agreement, any quarterly or other regular, periodic dividends or distributions (as determined by the Company) paid on Shares will affect neither unvested Restricted Stock Units nor Restricted Stock Units that are vested but unpaid, and no such dividends or other distributions will be paid on unvested Restricted Stock Units or Restricted Stock Units that are vested but unpaid. After such issuance, recordation and delivery, the Employee will have all the rights of a stockholder of the Company with respect to voting such Shares and receipt of dividends and distributions on such Shares.

10. No Effect on Employment. Subject to any authorized, written employment contract with the Employee, the terms of the Employee's employment will be determined from time to time by the Company, or the Affiliate employing the Employee, as the case may be, and the Company, or the Affiliate employing the Employee, as the case may be, will have the right, which is hereby expressly reserved, to terminate or change the terms of the employment of the Employee at any time for any reason whatsoever, with or without good cause. The transactions contemplated hereunder and the Vesting Schedule (set forth on the UBS One Source website (click on the specific grant under the tab labeled "Grants/Awards/Units")) do not constitute an express or implied promise of continued employment for any period of time. A leave of absence or an interruption in service (including an interruption during military service) authorized or acknowledged by the Company or the Affiliate employing the Employee, as the case may be, will not be deemed a Termination of Service for the purposes of this Agreement.

11. Changes in Restricted Stock Units. If as a result of a stock or extraordinary cash dividend, stock split, distribution, reclassification, recapitalization, combination of Shares or the adjustment in capital stock of the Company or otherwise, or as a result of a merger, consolidation, spin-off or other corporate transaction or event, the Restricted Stock Units will be increased, reduced or otherwise affected, and by virtue of any such event, the Employee will, as the owner of unvested Restricted Stock Units (the "Prior Restricted Stock Units"), be entitled to new or additional or different shares of stock, cash or other securities or property (other than rights or warrants to purchase securities), such new or additional or different shares, cash or securities or property will thereupon be considered to be unvested Restricted Stock Units and will be subject to all of the conditions and restrictions that were applicable to the Prior Restricted Stock Units pursuant to this Agreement and the Plan. If the Employee receives rights or warrants with respect to any Prior Restricted Stock Units, such rights or warrants may be held or exercised by the Employee, provided that until such exercise, any such rights or warrants, and after such exercise, any shares or other securities acquired by the exercise of such rights or warrants, will be considered to be unvested Restricted Stock Units and will be subject to all of the conditions and restrictions that were applicable to the Prior Restricted Stock Units pursuant to the Plan and this Agreement. The Committee, in its sole discretion, at any time may (subject to paragraph 5) accelerate the vesting of all or a portion of such new or additional shares of stock, cash or securities, rights or warrants to purchase securities or shares or other securities acquired by the exercise of such rights or warrants; provided, however, that the payment of such accelerated new or additional awards will be made in accordance with the provisions of paragraph 5.

12. Address for Notices. Any notice to be given to the Company under this Agreement shall be addressed to the Company, in care of Stock Programs, at Applied Materials, Inc., 3225 Oakmead Village Drive, M/S 1213, P.O. Box 58039, Santa Clara, CA 95054, U.S.A., or at such other address as the Company may hereafter designate in writing.

13. Grant is Not Transferable. Except to the limited extent provided in this Agreement, this grant of Restricted Stock Units and the rights and privileges conferred hereby shall not be sold, pledged, assigned, hypothecated, transferred or disposed of any way (whether by operation of law or otherwise) and shall not be subject to sale under execution, attachment or similar process, until the Employee has been issued Shares in payment of the Restricted Stock Units. Upon any attempt to sell, pledge, assign, hypothecate, transfer or otherwise dispose of this grant, or any right or privilege conferred hereby, or upon any attempted sale under any execution, attachment or similar process, this grant and the rights and privileges conferred hereby immediately will become null and void.

14. Restrictions on Sale of Securities. The Employee's sale of the Shares issued as payment for vested Restricted Stock Units under this Agreement will be subject to any market blackout period that may be imposed by the Company and must comply with the Company's insider trading policies, and all applicable securities and other laws.

15. Binding Agreement. Subject to the limitation on the transferability of this Restricted Stock Units award contained herein, this Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

16. *[To be included for Awards subject to performance-based vesting:* Clawback in Connection with a Material Negative Financial Restatement. Pursuant to the Company's clawback policy, the Board, in its sole discretion, may require the

Employee to forfeit, return or reimburse the Company all or a portion of his or her Restricted Stock Units subject to this Award if: (i) the Employee is or was a Section 16 Person during the performance period applicable to the performance-based vesting of the Restricted Stock Units, and (ii) the Employee deliberately engaged in "Intentional Misconduct" (as defined below) that was determined by the Board, in its sole discretion, to be the primary cause of a material negative restatement of a Company financial statement that was filed with the U.S. Securities and Exchange Commission and such financial statement, as originally filed, is one of the Company's three (3) most recently-filed annual financial statements. The portion of this Award, if any, that the Employee may be required to forfeit, return or reimburse will be determined by the Board, in its sole discretion, but will be no more than the "Clawback Maximum" (as defined below).

For purposes of this Agreement, "Clawback Maximum" means the portion of the Award that was in excess of the Shares that the Employee would have received under this Award had the Company's financial results been calculated under the restated financial statements.

To the extent Tax Obligations on such Restricted Stock Units were paid or due, such forfeiture, return or reimbursement shall be limited to the after-tax portion of the Clawback Maximum, unless otherwise required by Applicable Laws.

For purposes of this Agreement, "Intentional Misconduct" means the Employee's deliberate engagement in any one or more of the following: (a) fraud, misappropriation, embezzlement or any other act or acts of similar gravity resulting or intended to result directly or indirectly in substantial personal enrichment to the Employee at the expense of the Company; (b) a material violation of a federal, state or local law or regulation applicable to the Company's business that has a significant negative effect on the Company's financial results; or (c) a material breach of the Employee's fiduciary duty owed to the Company that has a significant negative effect on the Company's financial results; provided, however, that the Employee's exercise of judgment or actions (or abstention from action), and/or decision- making will not constitute Intentional Misconduct if such judgment, action (or abstention from action) and/or decision is, in the good faith determination of the Board, reasonable based on the facts and circumstances known to the Employee at the time of such judgment, action (or abstention from action) and/or decision; and such judgment, action (or abstention from action) and/or decision is in an area or situation in which (i) discretion must be exercised by the Employee or (ii) differing views or opinions may apply.

Further, the Board, in its sole discretion, may require the Employee to forfeit, return and/or reimburse the Company for all or a portion of his or her Performance Shares and any amounts paid thereunder ("Clawback Amount"), in accordance with the Company's clawback policy as may be established and/or amended from time to time or as necessary or appropriate to comply with Applicable Laws. To the extent Tax Obligations on such Clawback Amount were paid or due, the forfeiture, return or reimbursement shall be limited to the after-tax portion of the Clawback Amount, unless otherwise required by Applicable Laws.]

17. Additional Conditions to Issuance of Certificates for Shares. The Company will not be required to issue any certificate or certificates (which may be in book entry form) for Shares payable under this Agreement prior to fulfillment of all of the following conditions: (a) the admission of such Shares to listing on all stock exchanges on which such class of stock is then listed; (b) the completion of any registration or other qualification of such Shares under any U.S. state or federal law or under the rulings or regulations of the Securities and Exchange Commission or any other governmental regulatory body, which the Committee, in its sole discretion, will have determined to be necessary or advisable; (c) the obtaining of any approval or other clearance from any U.S. state or federal governmental agency, which the Committee, in its sole discretion, will have determined to be necessary or advisable; and (d) the lapse of such reasonable period of time following the vesting date of the Restricted Stock Units, as the Committee may establish from time to time, for reasons of administrative convenience.

18. Plan Governs. This Agreement is subject to all the terms and provisions of the Plan. In the event of a conflict between one or more provisions of this Agreement and one or more provisions of the Plan, the provisions of the Plan will govern.

19. Committee Authority. The Committee will have the power to interpret the Plan and this Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules (including, but not limited to, the determination of whether or not any Restricted Stock Units have vested). All actions taken and all interpretations and determinations made by the Committee in good faith will be final and binding upon the Employee, the Company and all other interested persons. No member of the Committee will be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or this Agreement.

20. Captions. Captions provided herein are for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

21. Agreement Severable. In the event that any provision in this Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Agreement.

22. Modifications to the Agreement. This Agreement constitutes the entire understanding of the parties on the subjects covered. The Employee expressly warrants that he or she is not accepting this Agreement in reliance on any promises, representations, or inducements other than those contained herein. Modifications to this Agreement or the Plan can be made only in

an express written contract executed by a duly authorized officer of the Company. Notwithstanding anything to the contrary in the Plan or this Agreement, the Company reserves the right to revise this Agreement as it deems necessary or advisable, in its sole discretion and without the consent of the Employee, to comply with Section 409A or to otherwise avoid imposition of any additional tax or income recognition under Section 409A prior to the actual payment of Shares pursuant to this award of Restricted Stock Units.

23. Amendment, Suspension or Termination of the Plan. By accepting this Restricted Stock Units award, the Employee expressly warrants that he or she has received a right to receive stock under the Plan, and has received, read and understood a description of the Plan. The Employee understands that the Plan is discretionary in nature and may be amended, suspended or terminated by the Company at any time.

24. Labor Law. By accepting this Restricted Stock Units award, the Employee acknowledges that: (a) the grant of these Restricted Stock Units is a one-time benefit which does not create any contractual or other right of the Employee to receive future grants of Restricted Stock Units, or benefits in lieu of Restricted Stock Units; (b) all determinations with respect to any future grants, including, but not limited to, when the Restricted Stock Units will be granted, the number of Restricted Stock Units subject to each award and when the Restricted Stock Units will vest, shall be at the sole discretion of the Company; (c) the Employee's participation in the Plan is voluntary; (d) the value of these Restricted Stock Units is an extraordinary item of compensation that is outside the scope of the Employee's employment contract, if any; (e) these Restricted Stock Units are not part of the Employee's normal or expected compensation for purposes of calculating any severance, resignation, redundancy, end-of-service payments, bonuses, long-service awards, pension or retirement benefits or similar payments; (f) the vesting of these Restricted Stock Units shall cease upon Termination of Service for any reason, except as may otherwise be explicitly provided in the Plan or this Agreement; (g) the future value of the underlying Shares is unknown and cannot be predicted with certainty; (h) these Restricted Stock Units have been granted to the Employee in the Employee's status as an employee of the Company or its Affiliates; and (i) there shall be no additional obligations for any Affiliate employing the Employee as a result of these Restricted Stock Units.

25. Information on the Collection, Processing and Use of Employee Data. In administering this Restricted Stock Units award, the Company will collect, use and transfer the Employee personal data as described in this paragraph. The Employee understands that the Company and its Affiliates hold certain personal information about him or her, including his or her name, home address and telephone number, date of birth, social security or identity number, salary, nationality, job title, any shares of stock or directorships held in the Company, details of all awards of Restricted Stock Units or any other entitlement to shares of stock awarded, canceled, exercised, vested, unvested or outstanding in his or her favor, for the purpose of managing and administering the Plan ("Data").

The Employee further understands that the Company and/or its Affiliates will transfer Data among themselves as necessary for the purpose of implementation, administration and management of his or her participation in the Plan, and that the Company and/or any of its Affiliates may each further transfer Data to any third parties assisting the Company in the implementation, administration and management of the Plan. The Employee understands that these recipients may be located in the European Economic Area, or elsewhere, such as in the U.S. or Asia.

The aforementioned Data will be collected, processed and used during and after the employment relationship. Data is not retained for longer than necessary to meet its intended purpose or for longer than required by applicable law.

The Employee authorizes the Company to receive, possess, use, retain and transfer the Data in electronic or other form, for the purposes of implementing, administering and managing his or her participation in the Plan, including any requisite transfer of such Data to a broker or other third party with whom the Employee may elect to deposit any Shares of stock acquired from this award of Restricted Stock Units, as may be required for the administration of the Plan and/or the subsequent holding of Shares of stock on his or her behalf. Subject to limitations set out in applicable law, the Employee has certain rights in respect of his or her Data, such as a right to access, correction, restriction, erasure, opposition and portability. Requests to exercise those rights can be made to the Human Resources department and/or the Stock Programs Administrator for the Company and/or its applicable Affiliates. The Employee understands, however, that refusing or opposing the collection and use of the Data may affect the Employee's ability to participate in the Plan. For more information on the consequences of the Employee's opposition to the collection or use of the Data, the Employee understands that he or she may contact the Employee's local Human Resources representative.

26. Notice of Governing Law. This award of Restricted Stock Units will be governed by, and construed in accordance with, the laws of the State of California, in the U.S.A., without regard to principles of conflict of laws.

EXHIBIT 31.1

CERTIFICATION

I, Gary E. Dickerson, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Applied Materials, 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(s) 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(s) 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.

Date: February 21, 2019

/s/ GARY E. DICKERSON

Gary E. Dickerson

President, Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

I, Daniel J. Durn, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Applied Materials, 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(s) 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(s) 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.

Date: February 21, 2019

/s/ DANIEL J. DURN

Daniel J. Durn

Senior Vice President, Chief Financial Officer

EXHIBIT 32.1

SARBANES-OXLEY ACT SECTION 906 CERTIFICATION

In connection with this Quarterly Report on Form 10-Q of Applied Materials, Inc. for the period ended January 27, 2019, I, Gary E. Dickerson, President, Chief Executive Officer of Applied Materials, Inc., hereby certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. this Form 10-Q for the period ended January 27, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. the information contained in this Form 10-Q for the period ended January 27, 2019 fairly presents, in all material respects, the financial condition and results of operations of Applied Materials, Inc. for the periods presented therein.

Date: February 21, 2019

/s/ GARY E. DICKERSON

Gary E. Dickerson
President, Chief Executive Officer

EXHIBIT 32.2

SARBANES-OXLEY ACT SECTION 906 CERTIFICATION

In connection with this Quarterly Report on Form 10-Q of Applied Materials, Inc. for the period ended January 27, 2019, I, Daniel J. Durn, Senior Vice President, Chief Financial Officer of Applied Materials, Inc., hereby certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. this Form 10-Q for the period ended January 27, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. the information contained in this Form 10-Q for the period ended January 27, 2019 fairly presents, in all material respects, the financial condition and results of operations of Applied Materials, Inc. for the periods presented therein.

Date: February 21, 2019

/s/ DANIEL J. DURN

Daniel J. Durn

Senior Vice President, Chief Financial Officer