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 June 30, 2023
OR

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

For the transition period from _________ to _________
Commission File Number: 0-20853

ANSYS, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**04-3219960**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
2600 ANSYS Drive, Canonsburg, PA	**15317**
(Address of Principal Executive Offices)	(Zip Code)

844-462-6797
(Registrant's telephone number, including area code)
N/A
(Former name, former address and former fiscal year, if changed since last report)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value per share	**ANSS**	**Nasdaq Stock Market LLC (Nasdaq Global Select Market)**

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter 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 the 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 ☒

The number of shares of the Registrant's Common Stock, $0.01 par value per share, outstanding as of July 28, 2023 was 86,791,073 shares.

ANSYS, INC. AND SUBSIDIARIES

INDEX

PART I – FINANCIAL INFORMATION

Item 1. Financial Statements:

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

(in thousands, except share and per share data)	June 30, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 477,875**	$ 614,391
Short-term investments	**137**	183
Accounts receivable, less allowance for doubtful accounts of $20,700 and $18,300, respectively	**692,849**	760,287
Other receivables and current assets	**243,374**	289,261
Total current assets	**1,414,235**	1,664,122
Long-term assets:		
Property and equipment, net	**78,539**	80,838
Operating lease right-of-use assets	**121,746**	129,140
Goodwill	**3,792,116**	3,658,267
Other intangible assets, net	**884,018**	809,183
Other long-term assets	**199,943**	261,880
Deferred income taxes	**114,655**	84,515
Total long-term assets	**5,191,017**	5,023,823
Total assets	**$ 6,605,252**	$ 6,687,945
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	**$ 14,166**	$ 14,021
Accrued bonuses and commissions	**64,015**	160,908
Accrued income taxes	**14,715**	7,698
Other accrued expenses and liabilities	**176,534**	198,220
Deferred revenue	**374,407**	413,989
Total current liabilities	**643,837**	794,836
Long-term liabilities:		
Deferred income taxes	**81,836**	58,126
Long-term operating lease liabilities	**105,198**	112,802
Long-term debt	**753,732**	753,574
Other long-term liabilities	**106,237**	102,756
Total long-term liabilities	**1,047,003**	1,027,258
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value; 2,000,000 shares authorized; zero shares issued or outstanding	**—**	—
Common stock, $0.01 par value; 300,000,000 shares authorized; 95,267,307 shares issued	**953**	953
Additional paid-in capital	**1,550,153**	1,540,317
Retained earnings	**4,953,078**	4,782,930
Treasury stock, at cost: 8,505,978 and 8,317,389 shares, respectively	**(1,488,337)**	(1,335,627)
Accumulated other comprehensive loss	**(101,435)**	(122,722)
Total stockholders' equity	**4,914,412**	4,865,851
Total liabilities and stockholders' equity	**$ 6,605,252**	$ 6,687,945

The accompanying notes are an integral part of the condensed consolidated financial statements.

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(Unaudited)

(in thousands, except per share data)	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Revenue:				
Software licenses	**$ 204,897**	$ 208,981	**$ 424,049**	$ 366,426
Maintenance and service	**291,702**	264,869	**581,997**	532,501
Total revenue	**496,599**	473,850	**1,006,046**	898,927
Cost of sales:				
Software licenses	**8,659**	8,509	**20,403**	16,945
Amortization	**20,079**	17,414	**39,697**	34,666
Maintenance and service	**39,602**	36,564	**75,892**	75,636
Total cost of sales	**68,340**	62,487	**135,992**	127,247
Gross profit	**428,259**	411,363	**870,054**	771,680
Operating expenses:				
Selling, general and administrative	**202,142**	170,383	**390,726**	340,138
Research and development	**125,023**	108,941	**245,358**	214,215
Amortization	**5,470**	4,029	**10,651**	8,154
Total operating expenses	**332,635**	283,353	**646,735**	562,507
Operating income	**95,624**	128,010	**223,319**	209,173
Interest income	**3,402**	269	**7,480**	796
Interest expense	**(11,560)**	(4,609)	**(22,318)**	(7,576)
Other expense, net	**(3,483)**	(776)	**(3,660)**	(1,470)
Income before income tax provision	**83,983**	122,894	**204,821**	200,923
Income tax provision	**14,457**	24,094	**34,673**	31,135
Net income	**$ 69,526**	$ 98,800	**$ 170,148**	$ 169,788
Earnings per share – basic:				
Earnings per share	**$ 0.80**	$ 1.14	**$ 1.96**	$ 1.95
Weighted average shares	**86,696**	87,001	**86,813**	87,062
Earnings per share – diluted:				
Earnings per share	**$ 0.80**	$ 1.13	**$ 1.95**	$ 1.94
Weighted average shares	**87,192**	87,321	**87,312**	87,535

The accompanying notes are an integral part of the condensed consolidated financial statements.

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

(in thousands)	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Net income	**$ 69,526**	$ 98,800	**$ 170,148**	$ 169,788
Other comprehensive income (loss):				
Foreign currency translation adjustments	**8,003**	(48,643)	**21,287**	(70,735)
Comprehensive income	**$ 77,529**	$ 50,157	**$ 191,435**	$ 99,053

The accompanying notes are an integral part of the condensed consolidated financial statements.

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Six Months Ended	
(in thousands)	**June 30, 2023**	**June 30, 2022**
Cash flows from operating activities:		
Net income	**$ 170,148**	$ 169,788
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and intangible assets amortization	**65,133**	58,012
Operating lease right-of-use assets expense	**10,750**	11,374
Deferred income tax benefit	**(36,764)**	(35,304)
Provision for bad debts	**2,311**	2,426
Stock-based compensation expense	**100,472**	75,149
Other	**855**	3,562
Changes in operating assets and liabilities:		
Accounts receivable	**133,435**	110,044
Other receivables and current assets	**47,903**	73,596
Other long-term assets	**(1,847)**	(3,834)
Accounts payable, accrued expenses and current liabilities	**(122,952)**	(129,933)
Accrued income taxes	**5,575**	9,097
Deferred revenue	**(45,371)**	(12,914)
Other long-term liabilities	**(6,016)**	(1,183)
Net cash provided by operating activities	**323,632**	329,880
Cash flows from investing activities:		
Acquisitions, net of cash acquired	**(197,786)**	(241,630)
Capital expenditures	**(12,037)**	(10,059)
Other investing activities	**(5,804)**	85
Net cash used in investing activities	**(215,627)**	(251,604)
Cash flows from financing activities:		
Purchase of treasury stock	**(196,494)**	(155,571)
Restricted stock withholding taxes paid in lieu of issued shares	**(59,855)**	(61,554)
Proceeds from shares issued for stock-based compensation	**13,622**	10,814
Other financing activities	**(1,294)**	(1,290)
Net cash used in financing activities	**(244,021)**	(207,601)
Effect of exchange rate fluctuations on cash and cash equivalents	**(500)**	(21,039)
Net decrease in cash and cash equivalents	**(136,516)**	(150,364)
Cash and cash equivalents, beginning of period	**614,391**	667,667
Cash and cash equivalents, end of period	**$ 477,875**	$ 517,303
Supplemental disclosure of cash flow information:		
Income taxes paid	**$ 83,635**	$ 11,926
Interest paid	**$ 21,847**	$ 6,298
Non-cash and unpaid consideration in connection with acquisitions	**$ 5,056**	$ 3,223

The accompanying notes are an integral part of the condensed consolidated financial statements.

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
Balance, January 1, 2023	**95,267**	**$ 953**	**$ 1,540,317**	**$ 4,782,930**	**8,317**	**$ (1,335,627)**	**$ (122,722)**	**$ 4,865,851**
Treasury shares acquired, including excise tax					**650**	**(197,416)**		**(197,416)**
Stock-based compensation activity			**(34,529)**		**(356)**	**34,350**		**(179)**
Other comprehensive income							**13,284**	**13,284**
Net income				**100,622**				**100,622**
Balance, March 31, 2023	**95,267**	**$ 953**	**$ 1,505,788**	**$ 4,883,552**	**8,611**	**$ (1,498,693)**	**$ (109,438)**	**$ 4,782,162**
Treasury shares acquired, including excise tax						**343**		**343**
Stock-based compensation activity			**44,365**		**(105)**	**10,013**		**54,378**
Other comprehensive income							**8,003**	**8,003**
Net income				**69,526**				**69,526**
Balance, June 30, 2023	**95,267**	**$ 953**	**$ 1,550,153**	**$ 4,953,078**	**8,506**	**$ (1,488,337)**	**$ (101,435)**	**$ 4,914,412**

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance, January 1, 2022	95,267	$ 953	$ 1,465,694	$ 4,259,220	8,188	$ (1,185,707)	$ (56,112)	$ 4,484,048
Treasury shares acquired					500	(155,571)		(155,571)
Stock-based compensation activity			(50,287)		(403)	36,865		(13,422)
Other comprehensive loss							(22,092)	(22,092)
Net income				70,988				70,988
Balance, March 31, 2022	95,267	$ 953	$ 1,415,407	$ 4,330,208	8,285	$ (1,304,413)	$ (78,204)	$ 4,363,951
Acquisition of Analytical Graphics, Inc.			511		(3)	300		811
Stock-based compensation activity			34,631		(33)	3,205		37,836
Other comprehensive loss							(48,643)	(48,643)
Net income				98,800				98,800
Balance, June 30, 2022	95,267	$ 953	$ 1,450,549	$ 4,429,008	8,249	$ (1,300,908)	$ (126,847)	$ 4,452,755

The accompanying notes are an integral part of the condensed consolidated financial statements.

ANSYS, INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
June 30, 2023
(Unaudited)

1. Organization

ANSYS, Inc. (Ansys, we, us, our) develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including high-tech, aerospace and defense, automotive, energy, industrial equipment, materials and chemicals, consumer products, healthcare and construction.

As defined by the accounting guidance for segment reporting, we operate as one segment.

Given the integrated approach to the multi-discipline problem-solving needs of our customers, a single sale may contain components from multiple product areas and include combined technologies. We also have a multi-year product and integration strategy that will result in new, combined products or changes to the historical product offerings. As a result, it is impracticable for us to provide accurate historical or current reporting among our various product lines.

2. Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States for interim financial information for commercial and industrial companies, the instructions to Form 10-Q and Rule 10-01 of Regulation S-X. Accordingly, the accompanying unaudited condensed consolidated financial statements do not include all of the information and footnotes required by accounting principles generally accepted in the United States for complete financial statements. The accompanying unaudited condensed consolidated financial statements should be read in conjunction with our audited consolidated financial statements (and notes thereto) included in our Annual Report on Form 10-K for the year ended December 31, 2022 (2022 Form 10-K). The condensed consolidated December 31, 2022 balance sheet presented is derived from the audited December 31, 2022 balance sheet included in the 2022 Form 10-K. In our opinion, all adjustments considered necessary for a fair presentation of the financial statements have been included, and all adjustments are of a normal and recurring nature. Operating results for the three and six months ended June 30, 2023 are not necessarily indicative of the results that may be expected for any future period. Certain items in the notes to the condensed consolidated financial statements of prior years have been reclassified to conform to the current year's presentation. These reclassifications had no effect on reported net income, comprehensive income, cash flows, total assets or total liabilities and stockholders' equity.

Accounting Guidance Issued and Not Yet Adopted

Recently issued accounting pronouncements are not expected to have a material impact on our financial position, results of operations or cash flows upon adoption.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of highly liquid investments such as deposits held at major banks and money market funds. Cash equivalents are carried at cost, which approximates fair value. Our cash and cash equivalents balances comprise the following:

	June 30, 2023		December 31, 2022	
(in thousands, except percentages)	Amount	% of Total	Amount	% of Total
Cash accounts	**$ 447,907**	**93.7**	$ 503,733	82.0
Money market funds	**29,968**	**6.3**	110,658	18.0
Total	**$ 477,875**		$ 614,391	

Our money market fund balances are held in various funds of two issuers.

3. Revenue from Contracts with Customers

Disaggregation of Revenue

The following table summarizes revenue:

(in thousands, except percentages)	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Revenue:				
Subscription lease licenses	**$ 134,999**	$ 135,031	**$ 282,921**	$ 226,488
Perpetual licenses	**69,898**	73,950	**141,128**	139,938
Software licenses	**204,897**	208,981	**424,049**	366,426
Maintenance	**273,692**	247,635	**542,285**	494,876
Service	**18,010**	17,234	**39,712**	37,625
Maintenance and service	**291,702**	264,869	**581,997**	532,501
Total revenue	**$ 496,599**	$ 473,850	**$ 1,006,046**	$ 898,927
Direct revenue, as a percentage of total revenue	**71.2 %**	73.7 %	**73.8 %**	73.1 %
Indirect revenue, as a percentage of total revenue	**28.8 %**	26.3 %	**26.2 %**	26.9 %

Our software license revenue is recognized up front, while maintenance and service revenue is generally recognized over the term of the contract.

Deferred Revenue

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The timing of revenue recognition may differ from the timing of billings to customers. Payment terms vary by the type and location of customer and the products or services offered. The time between invoicing and when payment is due is not significant.

The changes in deferred revenue, inclusive of both current and long-term deferred revenue, during the six months ended June 30, 2023 and 2022 were as follows:

(in thousands)	2023	2022
Beginning balance – January 1	**$ 435,758**	$ 412,781
Acquired deferred revenue	**7,910**	1,032
Deferral of revenue	**961,520**	888,130
Recognition of revenue	**(1,006,046)**	(898,927)
Currency translation	**(2,636)**	(19,394)
Ending balance – June 30	**$ 396,506**	$ 383,622

Total revenue allocated to remaining performance obligations as of June 30, 2023 will be recognized as revenue as follows:

(in thousands)	
Next 12 months	**$ 810,219**
Months 13-24	**330,640**
Months 25-36	**121,272**
Thereafter	**33,667**
Total revenue allocated to remaining performance obligations	**$ 1,295,798**

Revenue allocated to remaining performance obligations represents contracted revenue that has not yet been recognized, which includes both deferred revenue and backlog. Our backlog represents deferred revenue associated with installment billings for periods beyond the current quarterly billing cycle and committed contracts with start dates beyond the end of the current period. Revenue recognized during the six months ended June 30, 2023 and 2022 included amounts in deferred revenue and backlog at the beginning of the period of $527.9 million and $437.2 million, respectively.

4. Acquisitions

During the quarter ended June 30, 2023, we completed the acquisition of Diakopto for a purchase price of $83.3 million, or $77.2 million net of cash acquired, to expand our multiphysics simulation portfolio for semiconductor designers. The effects of the business combination were not material to our consolidated results of operations.

On January 3, 2023, we completed the acquisition of DYNAmore for a purchase price of $139.2 million, or $126.4 million net of cash acquired. The acquisition expands our position as a simulation solution provider within the automotive industry. The effects of the acquisition were not material to our condensed consolidated results of operations.

During the three and six months ended June 30, 2023, we incurred acquisition-related expenses of $2.1 million and $4.3 million, respectively. Acquisition-related expenses are recognized as selling, general and administrative and research and development expenses on the condensed consolidated statements of income.

The assets acquired and liabilities assumed in connection with the acquisitions have been recorded based upon management's estimates of the fair market values as of each respective date of acquisition. The following tables summarize the fair value of consideration and the fair values of identified assets acquired and liabilities assumed for the combined acquisitions at each respective date of acquisition:

Fair Value of Consideration:

(in thousands)		
Cash	$	217,392
Non-cash consideration		5,056
Total consideration	$	222,448

Recognized Amounts of Identifiable Assets Acquired and Liabilities Assumed:

(in thousands)		
Cash	$	18,866
Accounts receivable and other tangible assets		18,600
Developed software and core technologies		25,594
Customer lists		83,790
Trade names		2,910
Accounts payable and other liabilities		(9,049)
Deferred revenue		(7,910)
Net deferred tax liabilities		(31,279)
Total identifiable net assets	$	101,522
Goodwill	$	120,926

The goodwill, which is not tax-deductible, is attributed to intangible assets that do not qualify for separate recognition, including the assembled workforces of the acquired businesses and the synergies expected to arise as a result of the acquisitions.

The fair value of the assets acquired and liabilities assumed are based on preliminary calculations. The estimates and assumptions for these items are subject to change as additional information about what was known and knowable at each respective acquisition date is obtained during the measurement period (up to one year from the acquisition date).

We determined the fair value of our intangible assets using various valuation techniques, including the relief-from-royalty method and the multi-period excess earnings method. These models utilize certain unobservable inputs classified as Level 3 measurements as defined by ASC 820, *Fair Value Measurements and Disclosures*. The determination of fair value requires considerable judgment and is sensitive to changes in underlying assumptions, estimates and market factors. Estimating fair value requires us to make assumptions and estimates regarding our future plans, as well as industry and economic conditions. These assumptions and estimates include, but are not limited to: selection of a valuation methodology, royalty rate, discount rate and attrition rate.

The weighted-average useful life, valuation method and assumptions used to determine the fair value of the intangible assets acquired in 2023 are as follows:

Intangible Asset	**Weighted-Average Useful Life**	**Valuation Method**	**Assumptions**
Developed software and core technologies	5 years	Relief-from-royalty or multi-period excess earnings	Royalty rate: 20.0% Obsolescence rate: 20.0% Discount rate: 15.5% - 22.0%
Trade names	5 years	Relief-from-royalty	Royalty rate: 1.0% - 2.0% Discount rate: 15.5% - 22.0%
Customer lists	13 years	Multi-period excess earnings	Attrition rate: 5.0% Discount rate: 15.5% - 22.0%

2022 Acquisitions

During the year ended December 31, 2022, we completed several acquisitions to enhance our customers' experience. The combined purchase price of these acquisitions during the year ended December 31, 2022 was $401.7 million, or $390.8 million net of cash acquired.

The operating results of each acquisition have been included in our condensed consolidated financial statements since each respective date of acquisition. The effects of the acquisitions were not material to our condensed consolidated results of operations.

5. Other Receivables and Current Assets and Other Accrued Expenses and Liabilities

Our other receivables and current assets and other accrued expenses and liabilities comprise the following balances:

(in thousands)	**June 30, 2023**	**December 31, 2022**
Receivables related to unrecognized revenue	**$ 130,386**	$ 209,139
Income taxes receivable, including overpayments and refunds	**58,846**	28,963
Prepaid expenses and other current assets	**54,142**	51,159
Total other receivables and current assets	**$ 243,374**	$ 289,261
Accrued vacation	**48,784**	39,118
Consumption, VAT and sales tax liabilities	**17,271**	41,812
Accrued expenses and other current liabilities	**110,479**	117,290
Total other accrued expenses and liabilities	**$ 176,534**	$ 198,220

Receivables related to unrecognized revenue represent the current portion of billings made for customer contracts that have not yet been recognized as revenue.

6. Earnings Per Share

Basic earnings per share (EPS) amounts are computed by dividing earnings by the weighted average number of common shares outstanding during the period. Diluted EPS amounts assume the issuance of common stock for all potentially dilutive equivalents outstanding. To the extent stock awards are anti-dilutive, they are excluded from the calculation of diluted EPS.

The details of basic and diluted EPS are as follows:

	Three Months Ended		Six Months Ended	
(in thousands, except per share data)	June 30, 2023	June 30, 2022	June 30, 2023	June 30, 2022
Net income	**$ 69,526**	$ 98,800	**$ 170,148**	$ 169,788
Weighted average shares outstanding – basic	**86,696**	87,001	**86,813**	87,062
Dilutive effect of stock plans	**496**	320	**499**	473
Weighted average shares outstanding – diluted	**87,192**	87,321	**87,312**	87,535
Basic earnings per share	**$ 0.80**	$ 1.14	**$ 1.96**	$ 1.95
Diluted earnings per share	**$ 0.80**	$ 1.13	**$ 1.95**	$ 1.94
Anti-dilutive shares	**50**	979	**350**	522

7. Goodwill and Intangible Assets

Intangible assets are classified as follows:

	June 30, 2023		December 31, 2022	
(in thousands)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Finite-lived intangible assets:				
Developed software and core technologies	**$ 1,142,199**	**$ (519,683)**	$ 1,106,789	$ (483,033)
Customer lists	**288,261**	**(77,486)**	205,484	(71,618)
Trade names	**189,992**	**(139,622)**	186,424	(135,220)
Total	**$ 1,620,452**	**$ (736,791)**	$ 1,498,697	$ (689,871)
Indefinite-lived intangible asset:				
Trade name	**$ 357**		$ 357	

Finite-lived intangible assets are amortized over their estimated useful lives of two years to seventeen years.

As of June 30, 2023, estimated future amortization expense for the intangible assets reflected above was as follows:

(in thousands)	
Remainder of 2023	**$ 53,280**
2024	**112,021**
2025	**114,673**
2026	**115,521**
2027	**118,339**
2028	**111,449**
Thereafter	**258,378**
Total intangible assets subject to amortization	**883,661**
Indefinite-lived trade name	**357**
Other intangible assets, net	**$ 884,018**

The changes in goodwill during the six months ended June 30, 2023 and 2022 were as follows:

(in thousands)	2023	2022
Beginning balance – January 1	**$ 3,658,267**	$ 3,409,271
Acquisitions and adjustments[1]	**115,644**	196,417
Currency translation	**18,205**	(38,720)
Ending balance – June 30	**$ 3,792,116**	$ 3,566,968

[1] In accordance with the accounting for business combinations, we recorded adjustments to goodwill for the effect of changes in the provisional fair values of the assets acquired and liabilities assumed during the measurement period (up to one year from the acquisition date) as we obtained new information about facts and circumstances that existed as of the acquisition date that, if known, would have affected the measurement of the amounts recognized as of that date.

During the first quarter of 2023, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2023. No events or circumstances changed during the six months ended June 30, 2023 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

8. Fair Value Measurement

The valuation hierarchy for disclosure of assets and liabilities reported at fair value prioritizes the inputs for such valuations into three broad levels:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument; or
- Level 3: unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value.

A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Our debt is classified within Level 2 of the fair value hierarchy because these borrowings are not actively traded and have a variable interest rate structure based upon market rates. The carrying amount of our debt approximates the estimated fair value. See Note 10, "Debt", for additional information on our borrowings.

The following tables provide the assets carried at fair value and measured on a recurring basis:

		Fair Value Measurements at Reporting Date Using:		
(in thousands)	**June 30, 2023**	**Quoted Prices in Active Markets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Assets				
Cash equivalents	**$ 29,968**	**$ 29,968**	**$ —**	**$ —**
Short-term investments	**$ 137**	**$ —**	**$ 137**	**$ —**
Deferred compensation plan investments	**$ 2,276**	**$ 2,276**	**$ —**	**$ —**
Equity securities	**$ 715**	**$ 715**	**$ —**	**$ —**

		Fair Value Measurements at Reporting Date Using:		
(in thousands)	**December 31, 2022**	**Quoted Prices in Active Markets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Assets				
Cash equivalents	$ 110,658	$ 110,658	$ —	$ —
Short-term investments	$ 183	$ —	$ 183	$ —
Deferred compensation plan investments	$ 1,618	$ 1,618	$ —	$ —
Equity securities	$ 892	$ 892	$ —	$ —

The cash equivalents in the preceding tables represent money market funds, valued at net asset value, with carrying values which approximate their fair values because of their short-term nature.

The short-term investments in the preceding tables represent deposits held by certain foreign subsidiaries. The deposits have fixed interest rates with original maturities ranging from three months to one year.

The deferred compensation plan investments in the preceding tables represent trading securities held in a rabbi trust for the benefit of non-employee directors. These securities consist of mutual funds traded in an active market with quoted prices. As a result, the plan assets are classified as Level 1 in the fair value hierarchy. The plan assets are recorded within other long-term assets on our condensed consolidated balance sheets.

The equity securities represent our investment in a publicly traded company. These securities are traded in an active market with quoted prices. As a result, the securities are classified as Level 1 in the fair value hierarchy. The securities are recorded within other long-term assets on our condensed consolidated balance sheets.

9. Leases

Our right-of-use assets and lease liabilities primarily include operating leases for office space. Our executive offices and those related to certain domestic product development, marketing, production and administration are located in a 186,000 square foot office facility in Canonsburg, Pennsylvania. The term of the lease is 183 months, which began on October 1, 2014 and expires on December 31, 2029. The lease agreement includes options to renew the contract through August 2044, an option to lease additional space in January 2025 and an option to terminate the lease in December 2025. No options are included in the lease liability. Absent the exercise of options in the lease, our remaining base rent (inclusive of property taxes and certain operating costs) is $4.5 million per annum through 2024 and $4.7 million per annum for 2025 - 2029.

The components of our global lease cost reflected in the condensed consolidated statements of income are as follows:

	Three Months Ended		Six Months Ended	
(in thousands)	**June 30, 2023**	**June 30, 2022**	**June 30, 2023**	**June 30, 2022**
Lease liability cost	**$ 7,069**	$ 6,955	**$ 14,110**	$ 13,926
Variable lease cost not included in the lease liability[1]	**1,428**	1,103	**2,611**	2,187
Total lease cost	**$ 8,497**	$ 8,058	**$ 16,721**	$ 16,113

[1] Variable lease cost includes common area maintenance, property taxes, utilities and fluctuations in rent due to a change in an index or rate.

Other information related to operating leases is as follows:

	Three Months Ended		Six Months Ended	
(in thousands)	**June 30, 2023**	**June 30, 2022**	**June 30, 2023**	**June 30, 2022**
Cash paid for amounts included in the measurement of the lease liability:				
Operating cash flows from operating leases	**$ (6,926)**	$ (6,571)	**$ (13,705)**	$ (13,589)
Right-of-use assets obtained in exchange for new operating lease liabilities	**$ 902**	$ 4,357	**$ 5,316**	$ 20,675

	As of June 30,	
	2023	**2022**
Weighted-average remaining lease term of operating leases	**6.6 years**	7.3 years
Weighted-average discount rate of operating leases	**3.2 %**	3.0 %

The maturity schedule of the operating lease liabilities as of June 30, 2023 is as follows:

(in thousands)	
Remainder of 2023	**$ 14,092**
2024	**25,446**
2025	**21,918**
2026	**19,443**
2027	**18,129**
Thereafter	**43,637**
Total future lease payments	**142,665**
Less: Present value adjustment	**(14,140)**
Present value of future lease payments[1]	**$ 128,525**

[1] Includes the current portion of operating lease liabilities of $23.3 million, which is reflected in other accrued expenses and liabilities in the condensed consolidated balance sheets.

There were no material leases that have been signed but not yet commenced as of June 30, 2023.

10. Debt

On June 30, 2022, we entered into a credit agreement (2022 Credit Agreement) with PNC Bank, National Association, as administrative agent, swing line lender, and an L/C issuer, the lenders party thereto, and the other L/C issuers party thereto. The 2022 Credit Agreement refinanced our previous credit agreements in their entirety. Terms used in this description of the 2022 Credit Agreement with initial capital letters that are not otherwise defined herein are as defined in the 2022 Credit Agreement.

The 2022 Credit Agreement provides for a $755.0 million unsecured term loan facility and a $500.0 million unsecured revolving loan facility, which includes a $50.0 million sublimit for the issuance of letters of credit. The revolving loan facility is available for working capital and general corporate purposes. Each of the term loan facility and the revolving loan facility matures on June 30, 2027.

Borrowings under the term loan and revolving loan facilities accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available).

The 2022 Credit Agreement also provides for the option to add certain foreign subsidiaries as borrowers and to borrow in Euros, Sterling, Yen and Swiss Francs under the revolving loan facility, up to a sublimit of $150.0 million. Borrowings under the revolving loan facility denominated in these currencies will accrue interest at a rate that is based on (a) for Euros, €STR, (b) for Sterling, SONIA, (c) for Yen, TONAR and (d) for Swiss Francs, SARON, plus an applicable margin calculated as described above.

Under the 2022 Credit Agreement, the weighted average interest rate in effect for the three and six months ended June 30, 2023 was 5.88% and 5.72%, respectively. Under the prior credit agreements, the weighted average interest rate in effect for the three and six months ended June 30, 2022 was 1.90% and 1.63%, respectively. The rate in effect as of June 30, 2023 and for the third quarter of 2023 under the 2022 Credit Agreement is 6.22%.

The 2022 Credit Agreement contains customary representations and warranties, affirmative and negative covenants and events of default. The 2022 Credit Agreement also contains a financial covenant requiring us and our subsidiaries to maintain a consolidated net leverage ratio not in excess of 3.50 to 1.00 as of the end of any fiscal quarter (for the four-quarter period ending on such date) with an opportunity for a temporary increase in such consolidated net leverage ratio to 4.00 to 1.00 upon the consummation of certain qualified acquisitions for which the aggregate consideration is at least $250.0 million.

As of June 30, 2023, we had $755.0 million of borrowings outstanding under the term loan, with a carrying value of $753.7 million, which is net of $1.3 million of unamortized debt discounts and issuance costs. The total amount was included in long-term debt. As of June 30, 2023, no borrowings were outstanding under the revolving loan facility.

As of December 31, 2022, we had $755.0 million of borrowings outstanding under the term loan, with a carrying value of $753.6 million, which is net of $1.4 million of unamortized debt discounts and issuance costs. The total amount was included in long-term debt. As of December 31, 2022, no borrowings were outstanding under the revolving loan facility.

We were in compliance with all covenants under the 2022 Credit Agreement as of June 30, 2023 and December 31, 2022.

11. Income Taxes

Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Three Months Ended		Six Months Ended	
(in thousands, except percentages)	**June 30, 2023**	**June 30, 2022**	**June 30, 2023**	**June 30, 2022**
Income before income tax provision	**$ 83,983**	$ 122,894	**$ 204,821**	$ 200,923
Income tax provision	**14,457**	24,094	**$ 34,673**	$ 31,135
Effective tax rate	**17.2 %**	19.6 %	**16.9 %**	15.5 %

12. Stock Repurchase Program

Under our stock repurchase program, we repurchased shares as follows:

(in thousands, except per share data)	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Number of shares repurchased	**650**	500
Average price paid per share	**$ 302.34**	$ 311.14
Total cost	**$ 196,494**	$ 155,571

All of the shares repurchased during the six months ended June 30, 2023 were repurchased during the first quarter. As of June 30, 2023, 1.1 million shares remained available for repurchase under the program. Average price paid per share excludes excise tax. As of January 1, 2023, our share repurchases in excess of issuances are subject to a 1% excise tax enacted by the Inflation Reduction Act. Any excise tax incurred is recognized and reflected as part of the cost basis of the shares acquired in the Condensed Consolidated Statements of Stockholders' Equity.

13. Stock-Based Compensation

Total stock-based compensation expense and its net impact on basic and diluted earnings per share are as follows:

	Three Months Ended		Six Months Ended	
(in thousands, except per share data)	June 30, 2023	June 30, 2022	June 30, 2023	June 30, 2022
Cost of sales:				
Maintenance and service	**$ 3,478**	$ 2,264	**$ 6,356**	$ 4,827
Operating expenses:				
Selling, general and administrative	**32,194**	19,596	**56,099**	40,040
Research and development	**20,629**	17,638	**38,017**	30,282
Stock-based compensation expense before taxes	**56,301**	39,498	**100,472**	75,149
Related income tax benefits	**(10,669)**	(7,165)	**(28,855)**	(32,053)
Stock-based compensation expense, net of taxes	**$ 45,632**	$ 32,333	**$ 71,617**	$ 43,096
Net impact on earnings per share:				
Basic earnings per share	**$ (0.53)**	$ (0.37)	**$ (0.82)**	$ (0.50)
Diluted earnings per share	**$ (0.52)**	$ (0.37)	**$ (0.82)**	$ (0.49)

14. Geographic Information

Revenue to external customers is attributed to individual countries based upon the location of the customer. Revenue by geographic area is as follows:

	Three Months Ended		Six Months Ended	
(in thousands)	June 30, 2023	June 30, 2022	June 30, 2023	June 30, 2022
United States	**$ 210,422**	$ 187,239	**$ 457,129**	$ 384,800
Japan	**62,728**	57,105	**100,814**	94,976
Germany	**40,665**	33,187	**79,339**	63,773
China	**32,144**	29,863	**71,580**	55,659
South Korea	**26,076**	33,429	**47,940**	55,369
Other Europe, Middle East and Africa (EMEA)	**85,573**	89,755	**167,977**	164,192
Other international	**38,991**	43,272	**81,267**	80,158
Total revenue	**$ 496,599**	$ 473,850	**$ 1,006,046**	$ 898,927

Property and equipment by geographic area is as follows:

(in thousands)		June 30, 2023		December 31, 2022
United States	**$**	**57,891**	$	58,258
India		**5,382**		5,978
EMEA		**10,543**		11,043
Other international		**4,723**		5,559
Total property and equipment, net	**$**	**78,539**	$	80,838

15. Contingencies and Commitments

We are subject to various claims, investigations, and legal and regulatory proceedings that arise in the ordinary course of business, including, but not limited to, commercial disputes, labor and employment matters, tax audits, alleged infringement of third parties' intellectual property rights and other matters. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our consolidated results of operations, cash flows or financial position. However, each of these matters is subject to various uncertainties and it is possible that an unfavorable resolution of one or more of these proceedings could materially affect our consolidated results of operations, cash flows or financial position.

Our Indian subsidiary has several service tax audits pending that have resulted in formal inquiries being received on transactions through mid-2012. We could incur tax charges and related liabilities of $7.1 million. As such charges are not probable at this time, a reserve has not been recorded on the condensed consolidated balance sheet as of June 30, 2023. The service tax issues raised in our notices and inquiries are very similar to the case, M/s Microsoft Corporation (I) (P) Ltd. Vs. Commissioner of Service Tax, New Delhi, wherein the Delhi Customs, Excise and Service Tax Appellate Tribunal (CESTAT) issued a favorable ruling to Microsoft. The Microsoft ruling was subsequently challenged in the Supreme Court by the Indian tax authority and a decision is still pending. We can provide no assurances on the impact that the present Microsoft case's decision will have on our cases, however, an unfavorable ruling in the Microsoft case may impact our assessment of probability and result in the recording of a $7.1 million reserve. We are uncertain as to when these service tax matters will be concluded.

We sell software licenses and services to our customers under contractual agreements. Such agreements generally include certain provisions indemnifying the customer against claims, by third parties, of infringement or misappropriation of their intellectual property rights arising from such customer's usage of our products or services. To date, payments related to these indemnification provisions have been immaterial. For several reasons, including the lack of prior material indemnification claims, we cannot determine the maximum amount of potential future payments, if any, related to such indemnification provisions.

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

The following discussion and analysis should be read in conjunction with the accompanying unaudited condensed consolidated financial statements and notes thereto for the six months ended June 30, 2023, and with our audited consolidated financial statements and notes thereto for the year ended December 31, 2022 included in the 2022 Form 10-K filed with the Securities and Exchange Commission (SEC). The discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles (GAAP).

Business

Ansys, a corporation formed in 1994, develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including high-tech, aerospace and defense, automotive, energy, industrial equipment, materials and chemicals, consumer products, healthcare and construction. Headquartered south of Pittsburgh, Pennsylvania, we employed 6,000 and 5,600 people as of June 30, 2023 and December 31, 2022, respectively. We focus on the development of open and flexible solutions that enable users to analyze designs on-premises and/or via the cloud, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing, validation and deployment. We distribute our suite of simulation technologies through direct sales offices in strategic, global locations and a global network of independent resellers and distributors (collectively, channel partners). It is our intention to continue to maintain this hybrid sales and distribution model. We operate and report as one segment.

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality using Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push the boundaries of product design by using the predictive power of simulation. From sustainable transportation and advanced satellite systems to life-saving medical devices, Ansys powers innovation that drives human advancement.

Our strategy of Pervasive Insights seeks to deepen the use of simulation in our core market, to inject simulation throughout the product lifecycle and extend the accessibility to a broader set of users and use cases. Our business has three vectors of growth:

- More products. Our broad and deep multiphysics portfolio enables us to grow with customers as they use simulation to solve more complex problems across a broad set of industries.
- More users. Investments in simulation education and user experience simplification has made simulation more accessible to a broader user base.
- More computations. Larger and more complex simulations drive more computation, requiring customers to use more Ansys licenses to complete their simulations.

Through decades of investments in the academic community and enhanced user experiences, our solutions have become accessible and relevant beyond our core "engineering" end user, to reach more users upstream and downstream from our core, which is the product validation process. Our multiphysics solutions enable our customers to address increasingly complex R&D challenges from the component through the system and mission level of analysis. Our products seamlessly enable access to high performance compute capacity to run simulations, on-premises or in the cloud, which means our customers' R&D teams are unencumbered by compute capacity limitations that can hinder R&D cycle times.

The engineering simulation software market is strong and growing. The market growth is driven by customers' need for rapid, quality innovation in a cost efficient manner, enabling faster time to market for new products and lower warranty costs. Increasing product complexity is driving sustained demand for simulations. Key industry trends fueling customers' increasing needs for simulation include:

- Electrification;
- Autonomy;
- Connectivity;
- The industrial internet of things; and
- Sustainability, including minimizing waste and physical prototyping, and improving circularity and development time.

We have been investing and intend to continue to invest in our portfolio to broaden the range of physics and enable customers to analyze the interactions among physics at the component, system and mission level. Our strategy of Pervasive Insights is aligned with the near-term market growth opportunities and is laying the foundation for a future where simulation can be further democratized to broader classes of end users and end-use cases.

To augment our organic development roadmaps, we intend to continue our strategic and disciplined acquisition strategy to grow our business. Our strategy is to partner with industry leaders to extend simulation into other ecosystems and customer R&D workflows. Our business is built on a culture of high ethical standards and commitment to diversity, equity, inclusion and belonging.

We license our technology to businesses in a diverse set of industries, educational institutions and governmental agencies. We believe that the features, functionality and integrated multiphysics capabilities of our software products are as strong as they have ever been. The software business is generally characterized by long sales cycles which increase the difficulty of predicting sales for any particular quarter. We make many operational and strategic decisions based upon short- and long-term sales forecasts that are impacted not only by these long sales cycles, but also by current global economic conditions. As a result, we believe that our overall performance is best measured by fiscal year results rather than by quarterly results.

We address the competition and price pressure that we face in the short- and long-term by focusing on expanding the breadth, depth, ease of use and quality of the technologies, features, functionality and integrated multiphysics capabilities of our software products as compared to our competitors; investing in research and development to develop new and innovative products and increasing the capabilities of our existing products; maintaining a diverse industry footprint and focusing on customer needs, training, consulting and support; and enhancing our distribution channels. We also evaluate and execute strategic acquisitions to supplement our global engineering talent, product offerings and distribution channels.

Overview

Overall GAAP and Non-GAAP Results

This section includes a discussion of GAAP and non-GAAP results. For reconciliations of non-GAAP results to GAAP results, see the section titled "Non-GAAP Results" herein.

The 2023 period non-GAAP results exclude the income statement effects of stock-based compensation, excess payroll taxes related to stock-based compensation, amortization of acquired intangible assets, expenses related to business combinations and adjustments for the income tax effect of the excluded items. The 2022 period non-GAAP results also exclude the income statement effects of acquisition accounting adjustments to deferred revenue from business combinations closed prior to 2022. There is no adjustment in 2023 as the impact is not material.

Our GAAP and non-GAAP results for the three and six months ended June 30, 2023 as compared to the three and six months ended June 30, 2022 reflected the following variances:

	Three Months Ended June 30, 2023		Six Months Ended June 30, 2023	
	GAAP	Non-GAAP	GAAP	Non-GAAP
Revenue	**4.8 %**	**4.4 %**	**11.9 %**	11.2 %
Operating income	**(25.3)%**	**(6.8)%**	**6.8 %**	12.1 %
Diluted earnings per share	**(29.2)%**	**(9.6)%**	**0.5 %**	10.2 %

Our results reflect an increase in revenue during the three and six months ended June 30, 2023 due to growth in subscription lease license and maintenance revenue. We also experienced increased operating expenses during the three and six months ended June 30, 2023, primarily due to increased personnel costs. Additionally, the actual U.S. Dollar reported results were negatively impacted by a stronger U.S. Dollar. The second quarter's operating results reflect a structural timing dynamic in the renewal base this quarter in which fewer lease contracts were up for renewal, resulting in comparatively lower up-front lease license revenue recognition. Quarterly dynamics may not be representative of the momentum in our business given the shifting mix of license types and renewal cycles that can be volatile quarter to quarter. This further highlights the importance of measuring our results based on our fiscal year rather than individual quarters.

This section also includes a discussion of constant currency results, which we use for financial and operational decision-making and as a means to evaluate period-to-period comparisons by excluding the effects of foreign currency fluctuations on the reported results. All constant currency results presented in this Item 2 exclude the effects of foreign currency fluctuations on the reported results. To present this information, the 2023 period results for entities whose functional currency is a currency other than the U.S. Dollar were converted to U.S. Dollars at rates that were in effect for the 2022 comparable period, rather than the actual exchange rates in effect for the 2023 period. Constant currency growth rates are calculated by adjusting the 2023 period reported amounts by the 2023 period currency fluctuation impacts and comparing to the 2022 comparable period reported amounts.

Impact of Foreign Currency

Our comparative financial results were impacted by fluctuations in the U.S. Dollar during the three and six months ended June 30, 2023 as compared to the three and six months ended June 30, 2022. The impacts on our revenue and operating income as a result of the fluctuations of the U.S. Dollar when measured against our foreign currencies based on 2022 period exchange rates are reflected in the table below. Amounts in brackets indicate an adverse impact from currency fluctuations.

	Three Months Ended June 30, 2023		Six Months Ended June 30, 2023	
(in thousands)	**GAAP**	**Non-GAAP**	**GAAP**	**Non-GAAP**
Revenue	**$ (3,452)**	$ (3,452)	**$ (17,343)**	$ (17,343)
Operating income	**$ (1,740)**	$ (1,639)	**$ (5,643)**	$ (6,031)

In constant currency, our variances were as follows:

	Three Months Ended June 30, 2023		Six Months Ended June 30, 2023	
	GAAP	**Non-GAAP**	**GAAP**	**Non-GAAP**
Revenue	**5.5 %**	5.1 %	**13.8 %**	13.1 %
Operating income	**(23.9)%**	(5.9)%	**9.5 %**	13.8 %

Other Key Business Metric

Annual Contract Value (ACV) is a key performance metric and is useful to investors in assessing the strength and trajectory of our business. ACV is a supplemental metric to help evaluate the annual performance of the business. Over the life of the contract, ACV equals the total value realized from a customer. ACV is not impacted by the timing of license revenue recognition. ACV is used by management in financial and operational decision-making and in setting sales targets used for compensation. ACV is not a replacement for, and should be viewed independently of, GAAP revenue and deferred revenue as ACV is a performance metric and is not intended to be combined with any of these items. There is no GAAP measure comparable to ACV. ACV is composed of the following:

- the annualized value of maintenance and subscription lease contracts with start dates or anniversary dates during the period, plus
- the value of perpetual license contracts with start dates during the period, plus
- the annualized value of fixed-term services contracts with start dates or anniversary dates during the period, plus
- the value of work performed during the period on fixed-deliverable services contracts.

When we refer to the anniversary dates in the definition of ACV above, we are referencing the date of the beginning of the next twelve-month period in a contractually committed multi-year contract. If a contract is three years in duration, with a start date of July 1, 2023, the anniversary dates would be July 1, 2024 and July 1, 2025. We label these anniversary dates as they are contractually committed. While this contract would be up for renewal on July 1, 2026, our ACV performance metric does not assume any contract renewals.

Example 1: For purposes of calculating ACV, a $100,000 subscription lease contract or a $100,000 maintenance contract with a term of July 1, 2023 – June 30, 2024, would each contribute $100,000 to ACV for fiscal year 2023 with no contribution to ACV for fiscal year 2024.

Example 2: For purposes of calculating ACV, a $300,000 subscription lease contract or a $300,000 maintenance contract with a term of July 1, 2023 – June 30, 2026, would each contribute $100,000 to ACV in each of fiscal years 2023, 2024 and 2025. There would be no contribution to ACV for fiscal year 2026 as each period captures the full annual value upon the anniversary date.

Example 3: A perpetual license valued at $200,000 with a contract start date of March 1, 2023 would contribute $200,000 to ACV in fiscal year 2023.

During the three and six months ended June 30, 2023 our ACV was as follows:

(in thousands, except percentages)	Three Months Ended June 30, 2023		2022	Change			
	Actual	Constant Currency	Actual	Actual		Constant Currency	
		Amount		Amount	%	Amount	%
ACV	**$ 488,349**	$ 492,749	$ 460,273	$ 28,076	6.1	$ 32,476	7.1

(in thousands, except percentages)	Six Months Ended June 30, 2023		2022	Change			
	Actual	Constant Currency	Actual	Actual		Constant Currency	
		Amount		Amount	%	Amount	%
ACV	**$ 887,756**	$ 903,750	$ 804,418	$ 83,338	10.4 %	$ 99,332	12.3

Our trailing twelve-month recurring ACV, converted from the functional currency to U.S. Dollars at the 2022 period monthly average exchange rates, was as follows:

(in thousands, except percentages)	Twelve Months Ended June 30, 2023	2022	Change Amount	%
Recurring ACV at 2022 monthly average exchange rates	**$ 1,749,886**	$ 1,497,581	$ 252,305	16.8

Recurring ACV includes both subscription lease license and maintenance ACV and excludes perpetual license and service ACV.

Industry Commentary:

Our broad portfolio remains a key component in our customers' digital transformation journeys, delivering valuable insights throughout the product lifecycle, from development to operation. Artificial intelligence and machine learning applications are exacerbating multiphysics challenges that can only be overcome with high fidelity simulation solutions in the high-tech industry. Within the aerospace and defense industry, ongoing digital transformation efforts and an active, evolving space sector remain key drivers of simulation investment. Ongoing efforts to enhance electric vehicles, advanced driver-assistance systems, and digital transformation initiatives among automotive manufacturers and suppliers generated demand for solutions across our portfolio and continued to drive growth in the automotive industry. Additionally, the industrial equipment industry is driven by trends in increased electrification, the development of industrial internet of things (IIoT) devices and workflow automation.

Geographic Trends:

The following table presents our geographic revenue variances using actual and constant currency rates during the three and six months ended June 30, 2023 as compared to the three and six months ended June 30, 2022:

	GAAP			
	Three Months Ended June 30, 2023		Six Months Ended June 30, 2023	
	Actual	Constant Currency	Actual	Constant Currency
Americas	**12.5 %**	12.5 %	**19.1 %**	19.3 %
EMEA	**2.7 %**	1.0 %	**8.5 %**	10.0 %
Asia-Pacific	**(3.2)%**	0.3 %	**4.1 %**	9.1 %
Total	**4.8 %**	5.5 %	**11.9 %**	13.8 %

	Non-GAAP			
	Three Months Ended June 30, 2023		Six Months Ended June 30, 2023	
	Actual	Constant Currency	Actual	Constant Currency
Americas	12.0 %	12.0 %	18.4 %	18.5 %
EMEA	2.3 %	0.6 %	7.8 %	9.3 %
Asia-Pacific	(3.6)%	(0.1)%	3.5 %	8.4 %
Total	4.4 %	5.1 %	11.2 %	13.1 %

The value and duration of multi-year subscription lease contracts executed during the period significantly impact the recognition of revenue. As a result, revenue may fluctuate, particularly on a quarterly basis, due to the timing of such contracts, relative differences in duration of long-term contracts from quarter to quarter and changes in the mix of license types sold compared to the prior year. Large swings in revenue growth rates are not necessarily indicative of customers' software usage changes or cash flows during the periods presented. To drive growth, we continue to focus on a number of sales improvement activities across our geographic regions, including sales hiring, pipeline building, productivity initiatives and customer engagement activities.

Use of Estimates:

The preparation of our financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to contract revenue, standalone selling prices of our products and services, allowance for doubtful accounts receivable, valuation of goodwill and other intangible assets, useful lives for depreciation and amortization, acquired deferred revenue, operating lease assets and liabilities, fair values of stock awards, deferred compensation, income taxes, uncertain tax positions, tax valuation reserves, and contingencies and litigation. We base our estimates on historical experience, market experience, estimated future cash flows and various other assumptions that management believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

Forward-Looking Information

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 (the Exchange Act). Forward-looking statements are statements that provide current expectations or forecasts of future events based on certain assumptions. Forward-looking statements are subject to risks, uncertainties, and factors relating to our business which could cause our actual results to differ materially from the expectations expressed in or implied by such forward-looking statements.

Forward-looking statements use words such as "anticipate," "believe," "could," "estimate," "expect," "forecast," "intend," "likely," "may," "outlook," "plan," "predict," "project," "should," "target," or other words of similar meaning. Forward-looking statements include those about market opportunity, including our total addressable market. We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. We undertake no obligation to update forward-looking statements, whether as a result of new information, future events or otherwise.

The risks associated with the following, among others, could cause actual results to differ materially from those described in any forward-looking statements:

- adverse conditions in the macroeconomic environment, including high inflation, recessionary conditions and volatility in equity and foreign exchange markets; political, economic and regulatory uncertainties in the countries and regions in which we operate;

- impacts from tariffs, trade sanctions, export controls or other trade barriers including export control restrictions and licensing requirements for exports to China, and impacts from changes to diplomatic relations and trade policy between the United States and Russia or the United States and other countries that may support Russia or take similar actions due to the conflict between Russia and Ukraine;

- constrained credit and liquidity due to disruptions in the global economy and financial markets, which may limit or delay availability of credit under our existing or new credit facilities, or which may limit our ability to obtain credit or financing on acceptable terms or at all;

- our ability to timely recruit and retain key personnel in a highly competitive labor market for skilled personnel, including potential financial impacts of wage inflation;

- declines in our customers' businesses resulting in adverse changes in procurement patterns; disruptions in accounts receivable and cash flow due to customers' liquidity challenges and commercial deterioration; uncertainties regarding demand for our products and services in the future and our customers' acceptance of new products; delays or declines in anticipated sales due to reduced or altered sales and marketing interactions with customers; and potential variations in our sales forecast compared to actual sales;

- increased volatility in our revenue due to the timing, duration and value of multi-year subscription lease contracts; and our reliance on high renewal rates for annual subscription lease and maintenance contracts;

- our ability to protect our proprietary technology; cybersecurity threats or other security breaches, including in relation to breaches occurring through our products and an increased level of our activity that is occurring from remote global off-site locations; and disclosure and misuse of employee or customer data whether as a result of a cybersecurity incident or otherwise;

- our ability and our channel partners' ability to comply with laws and regulations in relevant jurisdictions; and the outcome of contingencies, including legal proceedings, government or regulatory investigations and tax audit cases;

- uncertainty regarding income tax estimates in the jurisdictions in which we operate; and the effect of changes in tax laws and regulations in the jurisdictions in which we operate;

- the quality of our products, including the strength of features, functionality and integrated multiphysics capabilities; our ability to develop and market new products to address the industry's rapidly changing technology; failures or errors in our products and services; and increased pricing pressure as a result of the competitive environment in which we operate;
- investments in complementary companies, products, services and technologies; our ability to complete and successfully integrate our acquisitions and realize the financial and business benefits of the transactions; and the impact indebtedness incurred in connection with any acquisition could have on our operations;

- investments in global sales and marketing organizations and global business infrastructure; and dependence on our channel partners for the distribution of our products;

- current and potential future impacts of a global health crisis, natural disaster or catastrophe, and the actions taken to address these events by our customers, suppliers, regulatory authorities and our business, on the global economy and consolidated financial statements, and other public health and safety risks; and government actions or mandates;

- operational disruptions generally or specifically in connection with transitions to and from remote work environments; and the failure of our technological infrastructure or those of the service providers upon whom we rely including for infrastructure and cloud services;

- our intention to repatriate previously taxed earnings and to reinvest all other earnings of our non-U.S. subsidiaries;

- plans for future capital spending; the extent of corporate benefits from such spending including with respect to customer relationship management; and higher than anticipated costs for research and development or a slowdown in our research and development activities;

- our ability to execute on our strategies related to environmental, social, and governance matters, and meet evolving and varied expectations, including as a result of evolving regulatory and other standards, processes, and assumptions, the pace of scientific and technological developments, increased costs and the availability of requisite financing, and changes in carbon markets; and

- other risks and uncertainties described in our reports filed from time to time with the SEC.

Results of Operations

The results of operations discussed below are on a GAAP basis unless otherwise stated.

Three Months Ended June 30, 2023 Compared to Three Months Ended June 30, 2022

Revenue:

(in thousands, except percentages)	Three Months Ended June 30, 2023 GAAP	2023 Constant Currency Amount	2022 GAAP	Change GAAP Amount	Change GAAP %	Change Constant Currency Amount	Change Constant Currency %
Revenue:							
Subscription lease licenses	**$ 134,999**	$ 136,549	$ 135,031	$ (32)	—	$ 1,518	1.1
Perpetual licenses	**69,898**	70,294	73,950	(4,052)	(5.5)	(3,656)	(4.9)
Software licenses	**204,897**	206,843	208,981	(4,084)	(2.0)	(2,138)	(1.0)
Maintenance	**273,692**	275,231	247,635	26,057	10.5	27,596	11.1
Service	**18,010**	17,977	17,234	776	4.5	743	4.3
Maintenance and service	**291,702**	293,208	264,869	26,833	10.1	28,339	10.7
Total revenue	**$ 496,599**	$ 500,051	$ 473,850	$ 22,749	4.8	$ 26,201	5.5

Revenue for the quarter ended June 30, 2023 increased 4.8% compared to the quarter ended June 30, 2022, or 5.5% in constant currency. Maintenance revenue growth of 10.5%, or 11.1% in constant currency, is correlated with previous license sales and is driven substantially by our existing customer base. The reported $26.1 million growth in maintenance revenue was attributable to a $22.2 million increase in maintenance associated with lease licenses and a $3.9 million increase in maintenance associated with perpetual sales. Perpetual license revenue, which is derived from new sales during the three months ended June 30, 2023, decreased 5.5%, or 4.9% in constant currency, as compared to the three months ended June 30, 2022. Driving the decrease in perpetual license revenue was a 4.5% decrease in the volume of deals and 1.0% decrease in average deal size.

We continue to experience increased demand from our customers for contracts that often include longer-term, subscription leases involving a larger number of our software products. These arrangements typically involve a higher overall transaction price. The upfront recognition of license revenue related to these larger transactions can result in significant subscription lease revenue volatility. Software products, across a large variety of applications and industries, are increasingly distributed in software-as-a-service, cloud and other subscription environments in which the licensing approach is time-based rather than perpetual. This preference could result in a shift from perpetual licenses to time-based licenses, such as subscription leases, over the long term.

With respect to revenue, on average for the quarter ended June 30, 2023, the U.S. Dollar was 1.5% stronger, when measured against our foreign currencies, than for the quarter ended June 30, 2022. The table below presents the net impacts of currency fluctuations on revenue for the quarter ended June 30, 2023. Amounts in brackets indicate an adverse impact from currency fluctuations.

(in thousands)	Three Months Ended June 30, 2023
Japanese Yen	**$ (3,545)**
South Korean Won	**(967)**
Indian Rupee	**(568)**
Taiwan Dollar	**(331)**
Euro	**2,326**
Other	**(367)**
Total	**$ (3,452)**

As a percentage of revenue, our international and domestic revenues, and our direct and indirect revenues, were as follows:

	Three Months Ended June 30,	
	2023	**2022**
International	**57.6 %**	60.5 %
Domestic	**42.4 %**	39.5 %
Direct	**71.2 %**	73.7 %
Indirect	**28.8 %**	26.3 %

Deferred Revenue and Backlog:

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The deferred revenue on our condensed consolidated balance sheet does not represent the total value of annual or multi-year, noncancellable agreements. Our backlog represents deferred revenue associated with installment billings for periods beyond the current quarterly billing cycle and committed contracts with start dates beyond the end of the current period. Our deferred revenue and backlog as of June 30, 2023 and December 31, 2022 consisted of the following:

	Balance at June 30, 2023		
(in thousands)	**Total**	**Current**	**Long-Term**
Deferred revenue	**$ 396,506**	**$ 374,407**	**$ 22,099**
Backlog	**899,292**	**435,812**	**463,480**
Total	**$ 1,295,798**	**$ 810,219**	**$ 485,579**

	Balance at December 31, 2022		
(in thousands)	**Total**	**Current**	**Long-Term**
Deferred revenue	$ 435,758	$ 413,989	$ 21,769
Backlog	981,088	432,323	548,765
Total	$ 1,416,846	$ 846,312	$ 570,534

Revenue associated with deferred revenue and backlog that will be recognized in the subsequent twelve months is classified as current in the tables above.

Cost of Sales and Operating Expenses:

The tables below reflect our operating results on both a GAAP and constant currency basis. Amounts included in the discussions that follow each table are provided in constant currency and are inclusive of costs related to our acquisitions. The impact of foreign exchange translation is discussed separately, where material.

	Three Months Ended June 30,									
	2023				2022		Change			
	GAAP		Constant Currency		GAAP		GAAP		Constant Currency	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	% of Revenue	Amount	%	Amount	%
Cost of sales:										
Software licenses	**$ 8,659**	**1.7**	8,661	1.7	$ 8,509	1.8	$ 150	1.8	$ 152	1.8
Amortization	**20,079**	**4.0**	20,034	4.0	17,414	3.7	2,665	15.3	2,620	15.0
Maintenance and service	**39,602**	**8.0**	39,899	8.0	36,564	7.7	3,038	8.3	3,335	9.1
Total cost of sales	**68,340**	**13.8**	68,594	13.7	62,487	13.2	5,853	9.4	6,107	9.8
Gross profit	**$ 428,259**	**86.2**	431,457	86.3	$ 411,363	86.8	$ 16,896	4.1	$ 20,094	4.9

Amortization: The increase in amortization expense was primarily due to the amortization of newly acquired intangible assets.

Maintenance and Service: The increase in maintenance and service costs was primarily due to the following:

- Increased stock-based compensation of $1.2 million.
- Increased third-party technical support of $1.0 million.
- Increased incentive compensation and other headcount-related costs of $0.9 million.

The improvement in gross profit was a result of the increase in revenue, partially offset by an increase in the cost of sales.

	Three Months Ended June 30,											
	2023				2022		Change					
	GAAP		Constant Currency		GAAP		GAAP		Constant Currency			
(in thousands, except percentages)	**Amount**	**% of Revenue**	**Amount**	**% of Revenue**	**Amount**	**% of Revenue**	**Amount**	**%**	**Amount**	**%**		
Operating expenses:												
Selling, general and administrative	**$ 202,142**	**40.7**	$ 203,343	40.7	$ 170,383	36.0	$ 31,759	18.6	$ 32,960	19.3		
Research and development	**125,023**	**25.2**	125,332	25.1	108,941	23.0	16,082	14.8	16,391	15.0		
Amortization	**5,470**	**1.1**	5,418	1.1	4,029	0.9	1,441	35.8	1,389	34.5		
Total operating expenses	**332,635**	**67.0**	334,093	66.8	283,353	59.8	49,282	17.4	50,740	17.9		
Operating income	**$ 95,624**	**19.3**	$ 97,364	19.5	$ 128,010	27.0	$ (32,386)	(25.3)	$ (30,646)	(23.9)		

Selling, General and Administrative: The net increase in selling, general and administrative costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $15.4 million.
- Increased stock-based compensation of $12.6 million.
- Increased business travel of $2.8 million as in-person meetings and live attendance at trade events have continued to expand.
- Increased bad debt expense of $2.3 million due to increased risk associated with receivables from customers in China.
- Decreased costs related to foreign exchange translation of $1.2 million due to a stronger U.S. Dollar.

We anticipate that we will continue to make targeted investments in our global sales and marketing organizations and our global business infrastructure to enhance and support our revenue-generating activities.

Research and Development: The increase in research and development costs was primarily due to the following:

- Increased salaries, incentive compensation and other headcount-related costs of $12.2 million.
- Increased stock-based compensation of $3.0 million.

Amortization: The net increase in amortization expense was primarily due to the amortization of newly acquired intangible assets.

We have traditionally invested significant resources in research and development activities and expect to continue to make investments in expanding the ease of use and capabilities of our broad portfolio of simulation software products.

The impacts from currency fluctuations resulted in decreased operating income of $1.7 million for the quarter ended June 30, 2023 as compared to the quarter ended June 30, 2022.

Interest Income: Interest income for the three months ended June 30, 2023 was $3.4 million as compared to $0.3 million for the three months ended June 30, 2022. Interest income increased as a result of a higher interest rate environment and the related increase in the average rate of return on invested cash balances.

Interest Expense: Interest expense for the quarter ended June 30, 2023 was $11.6 million as compared to $4.6 million for the quarter ended June 30, 2022 due to a higher interest rate environment.

Other Expense, net: Other expense for the quarter ended June 30, 2023 was $3.5 million as compared to other expense of $0.8 million for the quarter ended June 30, 2022. Other expense consisted primarily of losses on equity investments and net foreign currency losses during the three months ended June 30, 2023 and June 30, 2022.

Income Tax Provision: Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Three Months Ended June 30,	
(in thousands, except percentages)	2023	2022
Income before income tax provision	**$ 83,983**	$ 122,894
Income tax provision	**$ 14,457**	$ 24,094
Effective tax rate	**17.2 %**	19.6 %

The decrease in the effective tax rate for the three months ended June 30, 2023 was a result of a decrease in U.S. federal tax expense on foreign earnings and increased benefits related to research and development credits and the foreign-derived intangible income (FDII) deduction.

When compared to the federal and state combined statutory rate for each respective period, the effective tax rates for the quarters ended June 30, 2023 and June 30, 2022 were favorably impacted by the FDII deduction and research and development credits, offset by U.S. federal tax expense on foreign earnings.

Net Income: Our net income, diluted earnings per share and weighted average shares used in computing diluted earnings per share were as follows:

	Three Months Ended June 30,	
(in thousands, except per share data)	2023	2022
Net income	**$ 69,526**	$ 98,800
Diluted earnings per share	**$ 0.80**	$ 1.13
Weighted average shares outstanding - diluted	**87,192**	87,321

Six Months Ended June 30, 2023 Compared to Six Months Ended June 30, 2022

Revenue:

(in thousands, except percentages)	Six Months Ended June 30, 2023 GAAP	2023 Constant Currency Amount	2022 GAAP	Change GAAP Amount	Change GAAP %	Change Constant Currency Amount	Change Constant Currency %
Revenue:							
Subscription lease licenses	**$ 282,921**	$ 287,050	$ 226,488	$ 56,433	24.9	$ 60,562	26.7
Perpetual licenses	**141,128**	143,225	139,938	1,190	0.9	3,287	2.3
Software licenses	**424,049**	430,275	366,426	57,623	15.7	63,849	17.4
Maintenance	**542,285**	552,874	494,876	47,409	9.6	57,998	11.7
Service	**39,712**	40,240	37,625	2,087	5.5	2,615	7.0
Maintenance and service	**581,997**	593,114	532,501	49,496	9.3	60,613	11.4
Total revenue	**$ 1,006,046**	$ 1,023,389	$ 898,927	$ 107,119	11.9	$ 124,462	13.8

Revenue for the six months ended June 30, 2023 increased 11.9% compared to the six months ended June 30, 2022, or 13.8% in constant currency. Subscription lease license revenue increased 24.9%, or 26.7% in constant currency, as compared to the six months ended June 30, 2022, with substantially all of the increase attributable to incremental sales to our existing customers. The reported $56.4 million increase in lease license revenue was attributable to a $45.4 million increase in value from multi-year licenses and an $11.0 million increase in value from annual licenses. Maintenance revenue growth of 9.6%, or 11.7% in constant currency, is correlated with previous license sales and is driven substantially by our existing customer base. The reported $47.4 million growth in maintenance revenue was attributable to a $39.2 million increase in maintenance associated with lease licenses and an $8.2 million increase in maintenance associated with perpetual sales. Service revenue increased 5.5%, or 7.0% in constant currency, as compared to the six months ended June 30, 2022. Perpetual license revenue, which is derived from new sales during the six months ended June 30, 2023, increased 0.9%, or 2.3% in constant currency, as compared to the six months ended June 30, 2022. Driving the increase in perpetual license revenue was a 2.2% increase in average deal size, partially offset by a 1.3% decrease in the volume of deals.

With respect to revenue, on average for the six months ended June 30, 2023, the U.S. Dollar was 4.0% stronger, when measured against our foreign currencies, than for the six months ended June 30, 2022. The table below presents the net impacts of currency fluctuations on revenue for the six months ended June 30, 2023. Amounts in brackets indicate an adverse impact from currency fluctuations.

(in thousands)	Six Months Ended June 30, 2023
Japanese Yen	**$ (8,499)**
South Korean Won	**(2,265)**
Euro	**(1,704)**
Indian Rupee	**(1,476)**
Taiwan Dollar	**(1,074)**
Other	**(2,325)**
Total	**$ (17,343)**

As a percentage of revenue, our international and domestic revenues, and our direct and indirect revenues, were as follows:

	Six Months Ended June 30,	
	2023	2022
International	**54.6 %**	57.2 %
Domestic	**45.4 %**	42.8 %
Direct	**73.8 %**	73.1 %
Indirect	**26.2 %**	26.9 %

Cost of Sales and Operating Expenses:

The tables below reflect our operating results on both a GAAP and constant currency basis. Amounts included in the discussions that follow each table are provided in constant currency and are inclusive of costs related to our acquisitions. The impact of foreign exchange translation is discussed separately, where material.

	Six Months Ended June 30,						Change			
	2023				2022					
	GAAP		Constant Currency		GAAP		GAAP		Constant Currency	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	% of Revenue	Amount	%	Amount	%
Cost of sales:										
Software licenses	**$ 20,403**	**2.0**	$ 20,642	2.0	$ 16,945	1.9	$ 3,458	20.4	$ 3,697	21.8
Amortization	**39,697**	**3.9**	39,889	3.9	34,666	3.9	5,031	14.5	5,223	15.1
Maintenance and service	**75,892**	**7.5**	77,559	7.6	75,636	8.4	256	0.3	1,923	2.5
Total cost of sales	**135,992**	**13.5**	138,090	13.5	127,247	14.2	8,745	6.9	10,843	8.5
Gross profit	**$ 870,054**	**86.5**	$ 885,299	86.5	$ 771,680	85.8	$ 98,374	12.7	$ 113,619	14.7

Software Licenses: The increase in the cost of software licenses was primarily due to increased third-party royalties of $3.6 million.

Amortization: The increase in amortization expense was primarily due to the amortization of intangible assets acquired within the last year.

Maintenance and Service: The net increase in maintenance and service costs was primarily due to the following:

- Increased stock-based compensation of $1.5 million.
- Increased third-party technical support of $1.0 million.
- Increased business travel of $0.6 million as in-person meetings and live attendance at trade events have continued to expand.
- Decreased costs related to foreign exchange translation of $1.7 million due to a stronger U.S. Dollar.
- Decreased salaries and incentive compensation of $1.4 million.

The improvement in gross profit was a result of the increase in revenue, partially offset by the increase in the cost of sales.

	Six Months Ended June 30,						Change			
	2023				2022					
	GAAP		Constant Currency		GAAP		GAAP		Constant Currency	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	% of Revenue	Amount	%	Amount	%
Operating expenses:										
Selling, general and administrative	**$ 390,726**	**38.8**	$ 397,473	38.8	$ 340,138	37.8	$ 50,588	14.9	$ 57,335	16.9
Research and development	**245,358**	**24.4**	248,125	24.2	214,215	23.8	31,143	14.5	33,910	15.8
Amortization	**10,651**	**1.1**	10,739	1.0	8,154	0.9	2,497	30.6	2,585	31.7
Total operating expenses	**646,735**	**64.3**	656,337	64.1	562,507	62.6	84,228	15.0	93,830	16.7
Operating income	**$ 223,319**	**22.2**	$ 228,962	22.4	$ 209,173	23.3	$ 14,146	6.8	$ 19,789	9.5

Selling, General and Administrative: The net increase in selling, general and administrative costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $29.7 million.
- Increased stock-based compensation of $16.1 million.
- Increased business travel of $8.0 million as in-person meetings and live attendance at trade events have continued to expand.
- Increased IT maintenance and software hosting costs of $1.7 million.
- Increased marketing expenses of $1.3 million.
- Decreased costs related to foreign exchange translation of $6.7 million due to a stronger U.S. Dollar.

Research and Development: The net increase in research and development costs was primarily due to the following:

- Increased salaries, incentive compensation and other headcount-related costs of $21.8 million.
- Increased stock-based compensation of $7.7 million.
- Increased IT maintenance and software hosting costs of $1.6 million.
- Increased business travel of $1.5 million as in-person meetings have continued to expand.
- Decreased costs related to foreign exchange translation of $2.8 million due to a stronger U.S. Dollar.

Amortization: The net increase in amortization expense was primarily due to the amortization of newly acquired intangible assets.

The impacts from currency fluctuations resulted in decreased operating income of $5.6 million for the six months ended June 30, 2023 as compared to the six months ended June 30, 2022.

Interest Income: Interest income for the six months ended June 30, 2023 was $7.5 million as compared to $0.8 million for the six months ended June 30, 2022. The higher interest rate environment and the related increase in the average rate of return on invested cash balances was partially offset by a lower invested cash balance as a result of investments in acquisitions and share repurchases.

Interest Expense: Interest expense for the six months ended June 30, 2023 was $22.3 million as compared to $7.6 million for the six months ended June 30, 2022. Interest expense increased as a result of a higher interest rate environment.

Other Expense, net: Other expense for the six months ended June 30, 2023 was $3.7 million as compared to other expense of $1.5 million for the six months ended June 30, 2022. Other expense consisted primarily of losses on equity investments and net foreign currency losses.

Income Tax Provision: Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Six Months Ended June 30,	
(in thousands, except percentages)	**2023**	**2022**
Income before income tax provision	**$ 204,821**	$ 200,923
Income tax provision	**$ 34,673**	$ 31,135
Effective tax rate	**16.9 %**	15.5 %

The increase in the effective tax rate for the six months ended June 30, 2023 was primarily due to decreased benefits related to stock-based compensation, many of which were recognized discretely.

When compared to the federal and state combined statutory rate for each respective period, the effective tax rates for the six months ended June 30, 2023 and June 30, 2022 were favorably impacted by tax benefits from stock-based compensation, the FDII deduction and research and development credits, partially offset by the impact of non-deductible compensation.

Net Income: Our net income, diluted earnings per share and weighted average shares used in computing diluted earnings per share were as follows:

	Six Months Ended June 30,	
(in thousands, except per share data)	**2023**	**2022**
Net income	**$ 170,148**	$ 169,788
Diluted earnings per share	**$ 1.95**	$ 1.94
Weighted average shares outstanding - diluted	**87,312**	87,535

Non-GAAP Results

We provide non-GAAP revenue, non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share as supplemental measures to GAAP regarding our operational performance. These financial measures exclude the impact of certain items and, therefore, have not been calculated in accordance with GAAP. A detailed explanation and a reconciliation of each non-GAAP financial measure to its most comparable GAAP financial measure are included below.

ANSYS, INC. AND SUBSIDIARIES
Reconciliations of GAAP to Non-GAAP Measures
(Unaudited)

	Three Months Ended June 30, 2023						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	**$ 496,599**	**$ 428,259**	**86.2 %**	**$ 95,624**	**19.3 %**	**$ 69,526**	**$ 0.80**
Stock-based compensation expense	**—**	**3,478**	**0.7 %**	**56,301**	**11.4 %**	**56,301**	**0.65**
Excess payroll taxes related to stock-based awards	**—**	**16**	**— %**	**953**	**0.1 %**	**953**	**0.01**
Amortization of intangible assets from acquisitions	**—**	**20,079**	**4.1 %**	**25,549**	**5.2 %**	**25,549**	**0.29**
Expenses related to business combinations	**—**	**—**	**— %**	**2,101**	**0.4 %**	**2,101**	**0.02**
Adjustment for income tax effect	**—**	**—**	**— %**	**—**	**— %**	**(15,099)**	**(0.17)**
Total non-GAAP	**$ 496,599**	**$ 451,832**	**91.0 %**	**$ 180,528**	**36.4 %**	**$ 139,331**	**$ 1.60**

[1] Diluted weighted average shares were 87,192.

	Three Months Ended June 30, 2022						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	$ 473,850	$ 411,363	86.8 %	$ 128,010	27.0 %	$ 98,800	$ 1.13
Acquisition accounting for deferred revenue	2,036	2,036	0.1 %	2,036	0.3 %	2,036	0.02
Stock-based compensation expense	—	2,264	0.5 %	39,498	8.3 %	39,498	0.45
Excess payroll taxes related to stock-based awards	—	27	— %	217	0.1 %	217	—
Amortization of intangible assets from acquisitions	—	17,414	3.6 %	21,443	4.5 %	21,443	0.25
Expenses related to business combinations	—	—	— %	2,428	0.5 %	2,428	0.03
Adjustment for income tax effect	—	—	— %	—	— %	(9,839)	(0.11)
Total non-GAAP	$ 475,886	$ 433,104	91.0 %	$ 193,632	40.7 %	$ 154,583	$ 1.77

[1] Diluted weighted average shares were 87,321.

ANSYS, INC. AND SUBSIDIARIES
Reconciliations of GAAP to Non-GAAP Measures
(Unaudited)

	Six Months Ended June 30, 2023						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	**$ 1,006,046**	**$ 870,054**	**86.5 %**	**$ 223,319**	**22.2 %**	**$ 170,148**	**$ 1.95**
Stock-based compensation expense	**—**	**6,356**	**0.6 %**	**100,472**	**10.0 %**	**100,472**	**1.14**
Excess payroll taxes related to stock-based awards	**—**	**300**	**— %**	**5,029**	**0.5 %**	**5,029**	**0.06**
Amortization of intangible assets from acquisitions	**—**	**39,697**	**4.0 %**	**50,348**	**5.0 %**	**50,348**	**0.58**
Expenses related to business combinations	**—**	**—**	**— %**	**4,293**	**0.4 %**	**4,293**	**0.05**
Adjustment for income tax effect	**—**	**—**	**— %**	**—**	**— %**	**(29,196)**	**(0.33)**
Total non-GAAP	**$ 1,006,046**	**$ 916,407**	**91.1 %**	**$ 383,461**	**38.1 %**	**$ 301,094**	**$ 3.45**

[1] Diluted weighted average shares were 87,312.

	Six Months Ended June 30, 2022						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	$ 898,927	$ 771,680	85.8 %	$ 209,173	23.3 %	$ 169,788	$ 1.94
Acquisition accounting for deferred revenue	5,596	5,596	— %	5,596	0.4 %	5,596	0.06
Stock-based compensation expense	—	4,827	0.6 %	75,149	8.4 %	75,149	0.86
Excess payroll taxes related to stock-based awards	—	444	0.1 %	5,270	0.6 %	5,270	0.06
Amortization of intangible assets from acquisitions	—	34,666	3.8 %	42,820	4.7 %	42,820	0.49
Expenses related to business combinations	—	—	— %	4,166	0.4 %	4,166	0.05
Adjustment for income tax effect	—	—	— %	—	— %	(28,971)	(0.33)
Total non-GAAP	$ 904,523	$ 817,213	90.3 %	$ 342,174	37.8 %	$ 273,818	$ 3.13

[1] Diluted weighted average shares were 87,535.

We use non-GAAP financial measures (a) to evaluate our historical and prospective financial performance as well as our performance relative to our competitors, (b) to set internal sales targets and spending budgets, (c) to allocate resources, (d) to measure operational profitability and the accuracy of forecasting, (e) to assess financial discipline over operational expenditures and (f) as an important factor in determining variable compensation for management and employees. In addition, many financial analysts that follow us focus on and publish both historical results and future projections based on non-GAAP financial measures. We believe that it is in the best interest of our investors to provide this information to analysts so that they accurately report the non-GAAP financial information. Moreover, investors have historically requested, and we have historically reported, these non-GAAP financial measures as a means of providing consistent and comparable information with past reports of financial results.

While we believe that these non-GAAP financial measures provide useful supplemental information to investors, there are limitations associated with the use of these non-GAAP financial measures. These non-GAAP financial measures are not prepared in accordance with GAAP, are not reported by all our competitors and may not be directly comparable to similarly titled measures of our competitors due to potential differences in the exact method of calculation. We compensate for these limitations by using these non-GAAP financial measures as supplements to GAAP financial measures and by reviewing the reconciliations of the non-GAAP financial measures to their most comparable GAAP financial measures.

The adjustments to these non-GAAP financial measures, and the basis for such adjustments, are outlined below:

Acquisition accounting for deferred revenue. Historically, we have consummated acquisitions in order to support our strategic and other business objectives. Under prior accounting guidance, a fair value provision resulted in acquired deferred revenue that was often recorded on the opening balance sheet at an amount that was lower than the historical carrying value. Although this fair value provision has no impact on our business or cash flow, it adversely impacts our reported GAAP revenue in the reporting periods following an acquisition. In 2022, we adopted accounting guidance which eliminates the fair value provision that resulted in the deferred revenue adjustment on a prospective basis. In order to provide investors with financial information that facilitates comparison of both historical and future results, we have historically provided non-GAAP financial measures which exclude the impact of the acquisition accounting adjustment for acquisitions prior to the adoption of the new guidance in 2022. The 2022 non-GAAP financial measures presented in this document include the adjustment to exclude the income statement effects of acquisition accounting adjustments to deferred revenue from business combinations closed prior to 2022. There is no adjustment included for 2023 as the impact is not material.

Amortization of intangible assets from acquisitions. We incur amortization of intangible assets, included in our GAAP presentation of amortization expense, related to various acquisitions we have made. We exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance because these costs are fixed at the time of an acquisition, are then amortized over a period of several years after the acquisition and generally cannot be changed or influenced by us after the acquisition. Accordingly, we do not consider these expenses for purposes of evaluating our performance during the applicable time period after the acquisition, and we exclude such expenses when making decisions to allocate resources. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our past reports of financial results as we have historically reported these non-GAAP financial measures.

Stock-based compensation expense. We incur expense related to stock-based compensation included in our GAAP presentation of cost of maintenance and service; research and development expense; and selling, general and administrative expense. This non-GAAP adjustment also includes excess payroll tax expense related to stock-based compensation. Although stock-based compensation is an expense and viewed as a form of compensation, we exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance. Specifically, we exclude stock-based compensation during our annual budgeting process and our quarterly and annual assessments of our performance. The annual budgeting process is the primary mechanism whereby we allocate resources to various initiatives and operational requirements. Additionally, the annual review by our board of directors during which it compares our historical business model and profitability to the planned business model and profitability for the forthcoming year excludes the impact of stock-based compensation. In evaluating the performance of our senior management and department managers, charges related to stock-based compensation are excluded from expenditure and profitability results. In fact, we record stock-based compensation expense into a stand-alone cost center for which no single operational manager is responsible or accountable. In this way, we can review, on a period-to-period basis, each manager's performance and assess financial discipline over operational expenditures without the effect of stock-based compensation. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

Expenses related to business combinations. We incur expenses for professional services rendered in connection with business combinations, which are included in our GAAP presentation of selling, general and administrative expense. We also incur other expenses directly related to business combinations, including compensation expenses and concurrent restructuring activities, such as employee severances and other exit costs. These costs are included in our GAAP presentation of selling, general and administrative and research and development expenses. We exclude these acquisition-related expenses for the purpose of calculating non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance, as we generally would not have otherwise incurred these expenses in the periods presented as a part of our operations. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

Non-GAAP tax provision. We utilize a normalized non-GAAP annual effective tax rate (AETR) to calculate non-GAAP measures. This methodology provides better consistency across interim reporting periods by eliminating the effects of non-recurring items and aligning the non-GAAP tax rate with our expected geographic earnings mix. To project this rate, we analyzed our historic and projected non-GAAP earnings mix by geography along with other factors such as our current tax structure, recurring tax credits and incentives, and expected tax positions. On an annual basis we re-evaluate and update this rate for significant items that may materially affect our projections.

Non-GAAP financial measures are not in accordance with, or an alternative for, GAAP. Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP financial measures and should be read only in conjunction with our consolidated financial statements prepared in accordance with GAAP.

We have provided a reconciliation of the non-GAAP financial measures to the most directly comparable GAAP financial measures as listed below:

GAAP Reporting Measure	Non-GAAP Reporting Measure
Revenue	Non-GAAP Revenue
Gross Profit	Non-GAAP Gross Profit
Gross Profit Margin	Non-GAAP Gross Profit Margin
Operating Income	Non-GAAP Operating Income
Operating Profit Margin	Non-GAAP Operating Profit Margin
Net Income	Non-GAAP Net Income
Diluted Earnings Per Share	Non-GAAP Diluted Earnings Per Share

Constant currency. In addition to the non-GAAP financial measures detailed above, we use constant currency results for financial and operational decision-making and as a means to evaluate period-to-period comparisons by excluding the effects of foreign currency fluctuations on the reported results. To present this information, the 2023 results for entities whose functional currency is a currency other than the U.S. Dollar were converted to U.S. Dollars at rates that were in effect for the 2022 comparable period, rather than the actual exchange rates in effect for the 2023 period. Constant currency growth rates are calculated by adjusting the 2023 reported amounts by the 2023 currency fluctuation impacts and comparing the adjusted amounts to the 2022 comparable period reported amounts. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our reported results to our past reports of financial results without the effects of foreign currency fluctuations.

Liquidity and Capital Resources

(in thousands, except percentages)	June 30, 2023	December 31, 2022	Change Amount	Change %
Cash, cash equivalents and short-term investments	**$ 478,012**	$ 614,574	$ (136,562)	(22.2)
Working capital	**$ 770,398**	$ 869,286	$ (98,888)	(11.4)

Cash, Cash Equivalents and Short-Term Investments

Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain of our foreign subsidiaries with original maturities of three months to one year. The following table presents our foreign and domestic holdings of cash, cash equivalents and short-term investments as of June 30, 2023 and December 31, 2022:

(in thousands, except percentages)	June 30, 2023	% of Total	December 31, 2022	% of Total
Domestic	**$ 142,984**	**29.9**	$ 326,784	53.2
Foreign	**335,028**	**70.1**	287,790	46.8
Total	**$ 478,012**		$ 614,574	

In general, it is our intention to permanently reinvest all earnings in excess of previously taxed amounts. Substantially all of the pre-2018 earnings of our non-U.S. subsidiaries were taxed through the transition tax and post-2018 current earnings are taxed as part of global intangible low-taxed income tax expense. These taxes increase our previously taxed earnings and allow for the repatriation of the majority of our foreign earnings without any residual U.S. federal tax. Unrecognized provisions for taxes on indefinitely reinvested undistributed earnings of foreign subsidiaries would not be significant.

The amount of cash, cash equivalents and short-term investments held by foreign subsidiaries is subject to translation adjustments caused by changes in foreign currency exchange rates as of the end of each respective reporting period, the offset to which is recorded in accumulated other comprehensive loss on our condensed consolidated balance sheet.

Cash Flows from Operating Activities

(in thousands, except percentages)	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
Net cash provided by operating activities	**$ 323,632**	$ 329,880	$ (6,248)	(1.9)

Net cash provided by operating activities decreased during the six months ended June 30, 2023 compared to the six months ended June 30, 2022. The decrease in net cash provided by operating activities was a result of increased income tax payments, payments related to higher operating expenses and interest payments, partially offset by increased customer receipts driven primarily by ACV growth as compared to the six months ended June 30, 2022.

Cash Flows from Investing Activities

(in thousands, except percentages)	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
Net cash used in investing activities	**$ (215,627)**	$ (251,604)	$ 35,977	14.3

Net cash used in investing activities decreased by $36.0 million during the six months ended June 30, 2023 compared to the six months ended June 30, 2022 due to decreased acquisition-related net cash outlays of $43.8 million. We currently plan capital spending of $28.0 million to $38.0 million during fiscal year 2023 as compared to the $24.4 million that was spent in fiscal year 2022. The level of spending will depend on various factors, including the growth of the business and general economic conditions.

Cash Flows from Financing Activities

(in thousands, except percentages)	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
Net cash used in financing activities	**$ (244,021)**	$ (207,601)	$ (36,420)	(17.5)

Net cash used in financing activities increased during the six months ended June 30, 2023 compared to the six months ended June 30, 2022 due to increased stock repurchases of $40.9 million.

Other Cash Flow Information

On June 30, 2022, we entered into the 2022 Credit Agreement with PNC Bank, National Association as administrative agent, swing line lender, and an L/C issuer, the lenders party thereto, and the other L/C issuers party thereto. The 2022 Credit Agreement refinanced our previous credit agreements in their entirety. The 2022 Credit Agreement provides for a $755.0 million unsecured term loan facility and a $500.0 million unsecured revolving loan facility, which includes a $50.0 million sublimit for the issuance of letters of credit. Terms used in this description of the 2022 Credit Agreement with initial capital letters that are not otherwise defined herein are as defined in the 2022 Credit Agreement.

As of June 30, 2023, the carrying value of our term loan was $753.7 million, with no principal payments due in the next twelve months. Borrowings under the term loan and revolving loan facilities accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available). The rate in effect for the third quarter under the 2022 Credit Agreement is 6.22%.

We previously entered into operating lease commitments, primarily for our domestic and international offices. The commitments related to these operating leases is $142.7 million, of which $27.0 million is due in the next twelve months.

Under our stock repurchase program, we repurchased shares as follows:

(in thousands, except per share data)	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Number of shares repurchased	**650**	500
Average price paid per share	**$ 302.34**	$ 311.14
Total cost	**$ 196,494**	$ 155,571

As of June 30, 2023, 1.1 million shares remained available for repurchase under the program. Average price paid per share excludes excise tax. As of January 1, 2023, our share repurchases in excess of issuances are subject to a 1% excise tax enacted by the Inflation Reduction Act. Any excise tax incurred is recognized and reflected as part of the cost basis of the shares acquired in the Condensed Consolidated Statements of Stockholders' Equity.

The authorized repurchase program does not have an expiration date, and the pace of the repurchase activity will depend on factors such as working capital needs, cash requirements for acquisitions, our stock price, and economic and market conditions. Our stock repurchases may be effected from time to time through open market purchases including pursuant to a Rule 10b5-1 plan.

We continue to generate positive cash flows from operating activities and believe that the best uses of our excess cash are to invest in the business; acquire or make investments in complementary companies, products, services and technologies; and make payments on our outstanding debt balances. Any future acquisitions may be funded by available cash and investments, cash generated from operations, debt financing or the issuance of additional securities. Additionally, we have in the past, and expect in the future, to repurchase stock in order to both offset dilution and return capital, in excess of our requirements, to stockholders with the goal of increasing stockholder value.

We believe that existing cash and cash equivalent balances, together with cash generated from operations and access to our $500.0 million revolving loan facility, will be sufficient to meet our working capital and capital expenditure requirements and contractual obligations through at least the next twelve months and the foreseeable future thereafter. Our cash requirements in the future may also be financed through additional equity or debt financings. However, future disruptions in the capital markets could make financing more challenging, and there can be no assurance that such financing can be obtained on commercially reasonable terms, or at all.

Contractual and Other Obligations

There were no material changes to our significant contractual and other obligations during the six months ended June 30, 2023 as compared to those previously reported within "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our 2022 Form 10-K.

Critical Accounting Estimates

During the first quarter of 2023, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2023. No events or circumstances changed during the six months ended June 30, 2023 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

No significant changes have occurred to our critical accounting estimates as previously reported within "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our 2022 Form 10-K.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk. As we operate in international regions, a portion of our revenue, expenses, cash, accounts receivable and payment obligations are denominated in foreign currencies. As a result, changes in currency exchange rates will affect our financial position, results of operations and cash flows. We seek to reduce our currency exchange transaction risks primarily through our normal operating and treasury activities, including the use of derivative instruments.

With respect to revenue, on average for the quarter ended June 30, 2023, the U.S. Dollar was 1.5% stronger, when measured against our foreign currencies, than for the quarter ended June 30, 2022. With respect to revenue, on average for the six months ended June 30, 2023, the U.S. Dollar was 4.0% stronger, when measured against our foreign currencies, than for the six months ended June 30, 2022. The table below presents the net impacts of currency fluctuations on revenue for the three and six months ended June 30, 2023. Amounts in brackets indicate a net adverse impact from currency fluctuations.

(in thousands)	Three Months Ended June 30, 2023	Six Months Ended June 30, 2023
Japanese Yen	$ **(3,545)**	$ **(8,499)**
South Korean Won	**(967)**	**(2,265)**
Euro	**2,326**	**(1,704)**
Indian Rupee	**(568)**	**(1,476)**
Taiwan Dollar	**(331)**	**(1,074)**
Other	**(367)**	**(2,325)**
Total	$ **(3,452)**	$ **(17,343)**

The impacts from currency fluctuations resulted in decreased operating income of $1.7 million and $5.6 million for the three and six months ended June 30, 2023, respectively, as compared to the three and six months ended June 30, 2022, respectively.

A hypothetical 10% strengthening in the U.S. Dollar against other currencies would have decreased our revenue by $23.0 million and $43.8 million for the three and six months ended June 30, 2023, respectively, and decreased our operating income by $10.1 million and $15.2 million for the three and six months ended June 30, 2023, respectively.

The most meaningful currency impacts on revenue and operating income are typically attributable to U.S. Dollar exchange rate changes against the Euro and Japanese Yen. Historical exchange rates for these currency pairs are reflected in the charts below:

	Period-End Exchange Rates	
As of	**EUR/USD**	**USD/JPY**
June 30, 2023	**1.09**	**144**
December 31, 2022	1.07	131
June 30, 2022	1.05	136

	Average Exchange Rates	
Three Months Ended	**EUR/USD**	**USD/JPY**
June 30, 2023	**1.09**	**137**
June 30, 2022	1.06	130

	Average Exchange Rates	
Six Months Ended	**EUR/USD**	**USD/JPY**
June 30, 2023	**1.08**	**135**
June 30, 2022	1.09	123

Interest Rate Risk. Changes in the overall level of interest rates affect the interest income that is generated from our cash, cash equivalents and short-term investments and the interest expense that is generated from our outstanding borrowings. For the three and six months ended June 30, 2023, interest income was $3.4 million and $7.5 million, respectively, and interest expense was $11.6 million and $22.3 million, respectively.

Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain foreign subsidiaries with original maturities of three months to one year. A hypothetical 100 basis point change in interest rates on these holdings would have an immaterial impact on our financial results.

Our outstanding term loan borrowings of $755.0 million as of June 30, 2023 accrue interest at a rate that is based on the Term SOFR plus an applicable margin or at the base rate plus an applicable margin, at our election. The base rate is the highest of (i) the Overnight Bank Funding Rate, plus 0.500%, (ii) the PNC Bank, National Association prime rate, and (iii) Daily Simple SOFR plus an adjustment for SOFR plus 1.00%. The applicable margin for the borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated net leverage ratio and (2) a pricing level determined by our public debt rating (if available). Because interest rates applicable to the outstanding borrowings are variable, we are exposed to interest rate risk from changes in the underlying index rates, which affects our interest expense. A hypothetical increase of 100 basis points in interest rates would result in an increase in interest expense and a corresponding decrease in cash flows of $7.7 million over the next twelve months, based on outstanding borrowings at June 30, 2023.

No other material change has occurred in our market risk subsequent to December 31, 2022.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. As required by Rules 13a-15 and 15d-15 of the Exchange Act, we have evaluated, with the participation of management, including the Chief Executive Officer and the Chief Financial Officer, the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on such evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that such disclosure controls and procedures are effective, as defined in Rule 13a-15(e) and Rule 15d-15(e) of the Exchange Act.

We believe, based on our knowledge, that the financial statements and other financial information included in this report fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in this report. We are committed to both a sound internal control environment and to good corporate governance.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate.

From time to time, we review the disclosure controls and procedures, and may periodically make changes to enhance their effectiveness and to ensure that our systems evolve with our business.

Changes in Internal Control. There were no changes in our internal control over financial reporting that occurred during the three months ended June 30, 2023 that materially affected, or that are reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings

We are subject to various claims, investigations and legal and regulatory proceedings that arise in the ordinary course of business, including, but not limited to, commercial disputes, labor and employment matters, tax audits, alleged infringement of third parties' intellectual property rights and other matters. Use or distribution of our products could generate product liability, regulatory infraction, or claims by our customers, end users, channel partners, government entities or third parties. Sales and marketing activities that impact processing of personal data, as well as measures taken to promote license compliance against pirated or unauthorized usage of our commercial products, may also result in claims by customers and individual employees of customers or by non-customers using pirated versions of our products. Each of these matters is subject to various uncertainties, and it is possible that an unfavorable resolution of one or more of these matters could have a significant adverse effect on our condensed consolidated financial statements as well as cause reputational damage. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our financial position, results of operations or cash flows.

Item 1A. Risk Factors

We face a number of risks that could materially and adversely affect our business, prospects, financial condition, results of operations and cash flows. A discussion of our risk factors can be found in Part I, Item 1A "Risk Factors" in our 2022 Form 10-K. No material changes have occurred to such risk factors after the filing of our 2022 Form 10-K.

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

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

Trading Arrangements

During the three months ended March 31, 2023, Ajei Gopal, President and Chief Executive Officer of ANSYS, Inc., entered into a trading plan, dated and adopted March 13, 2023, that is intended to comply with the requirements of Rule 10b5-1(c) under the Exchange Act and is intended to satisfy the affirmative defense of Rule 10b5–1(c). The trading plan is in effect until November 27, 2023. The aggregate number of securities that may be sold under the plan is 208,882, which reflects the execution of an option grant received by Dr. Gopal at the time he began employment.

During the three months ended June 30, 2023, Glenda M. Dorchak, a director of ANSYS, Inc., entered into a trading plan, dated and adopted May 10, 2023, that is intended to comply with the requirements of Rule 10b5-1(c) under the Exchange Act and is intended to satisfy the affirmative defense of Rule 10b5-1(c). The trading plan is in effect until April 30, 2025. The aggregate number of securities that may be sold under the plan is 1,483.

Amended and Restated By-Laws

Our Board of Directors approved amendments to the Company’s Fourth Amended and Restated By-Laws (the Amended and Restated By-Laws), which became effective on May 12, 2023. The Amended and Restated By-Laws include certain changes to the procedures by which stockholders may recommend nominees to the Company’s Board of Directors, among other updates, including to:

- revise and enhance the procedures and disclosure requirements set forth in the advance notice by-law provisions for director nominations made by stockholders (other than proposals submitted pursuant to Rule 14a-8 under the Exchange Act); and

- address matters relating to Rule 14a-19 under the Exchange Act (the Universal Proxy Rule) including (i) requiring that any stockholder submitting a nomination notice make a representation as to whether such stockholder intends to solicit proxies in support of director nominees other than the Company’s nominees in accordance with the Universal Proxy Rule; (ii) providing the Company a remedy if a stockholder fails to satisfy the Universal Proxy Rule requirements; and (iii) requiring stockholders intending to use the Universal Proxy Rule to provide reasonable evidence of the satisfaction of the requirements under the Universal Proxy Rule at least five business days before the meeting.

Item 6. Exhibits

Exhibit No.	Exhibit
3.1	Restated Certificate of Incorporation of ANSYS, Inc., dated May 31, 2023
3.2	Fifth Amended and Restated By-Laws of ANSYS, Inc., adopted and effective May 12, 2023 (filed as Exhibit 3.2 to the Company's Current Report on Form 8-K, filed May 16, 2023, and incorporated herein by reference)
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

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.

ANSYS, Inc.

Date:	August 2, 2023	By:	/s/ *Ajei S. Gopal*
			Ajei S. Gopal President and Chief Executive Officer (Principal Executive Officer)
Date:	August 2, 2023	By:	/s/ *Nicole Anasenes*
			Nicole Anasenes Chief Financial Officer and Senior Vice President, Finance (Principal Financial Officer and Principal Accounting Officer)

RESTATED
CERTIFICATE OF INCORPORATION
OF
ANSYS, INC.

ANSYS, Inc., a corporation organized and existing under the laws of the State of Delaware (the “***Corporation***”), hereby certifies as follows:

1. The name of the Corporation is ANSYS, Inc. The date of the filing of its original Certificate of Incorporation with the Secretary of State of the State of Delaware was January 12, 1994. The name under which the Corporation filed its original Certificate of Incorporation was SAS Holdings, Inc.

2. This Restated Certificate of Incorporation only restates and integrates and does not further amend the provisions of the Sixth Certificate of Incorporation of the Corporation filed with the Secretary of State of the State of Delaware on May 25, 2022 (the “***Sixth Restated Certificate of Incorporation***”), as theretofore amended or supplemented. There is no discrepancy between the provisions of this Restated Certificate of Incorporation and the provisions of the Sixth Restated Certificate of Incorporation, as theretofore amended or supplemented. This Restated Certificate of Incorporation was duly adopted by the Board of Directors in accordance with the provisions of Section 245 of the General Corporation Law of the State of Delaware (the “***DGCL***”).

3. The text of the Sixth Restated Certificate of Incorporation is hereby restated and integrated in its entirety to provide as herein set forth in full.

ARTICLE I
NAME

The name of the Corporation is ANSYS, Inc.

ARTICLE II
REGISTERED OFFICE

The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

ARTICLE III
PURPOSES

The nature of the business or purposes to be conducted or promoted by the Corporation is to engage in any lawful act or activity for which corporations may be organized under the DGCL.

ARTICLE IV
CAPITAL STOCK

Section 1. Number of Shares.

The total number of shares of capital stock which the Corporation shall have the authority to issue is Three Hundred Two Million (302,000,000) shares, of which (i) Two Million (2,000,000) shares shall be Undesignated Preferred Stock, par value $.01 per share (the "***Preferred Stock***"), and (ii) Three Hundred Million (300,000,000) shares shall be Common Stock, par value $.01 per share (the "***Common Stock***"). As set forth in this Article IV, the Board of Directors or any authorized committee thereof is authorized from time to time to establish and designate one or more series of Preferred Stock, to fix and determine the variations in the relative rights and preferences as between the different series of Preferred Stock in the manner hereinafter set forth in this Article IV, and to fix or alter the number of shares comprising any such series and the designation thereof to the extent permitted by law.

The number of authorized shares of the class of Preferred Stock may be increased or decreased (but not below the number of shares outstanding) by the affirmative vote of the holders of a majority of the Common Stock, without a vote of the holders of the Preferred Stock, pursuant to the resolution or resolutions establishing the class of Preferred Stock or this Restated Certificate of Incorporation, as it may be amended from time to time.

Section 2. General.

The designations, powers, preferences and rights of, and the qualifications, limitations and restrictions upon, each class or series of stock shall be determined in accordance with, or as set forth below in, Sections 3 and 4 of this Article IV.

Section 3. Common Stock.

Subject to all of the rights, powers and preferences of the Preferred Stock, and except as provided by law or in this Article IV (or in any certificate of designation of any series of Preferred Stock) or by the Board of Directors or any authorized committee thereof pursuant to this Article IV:

(a) the holders of the Common Stock shall have the exclusive right to vote for the election of Directors and on all other matters requiring stockholder action, each share being entitled to one vote;

(b) dividends may be declared and paid or set apart for payment upon the Common Stock out of any assets or funds of the Corporation legally available for the payment of dividends, but only when and as declared by the Board of Directors or any authorized committee thereof; and

(c) upon the voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the net assets of the Corporation shall be distributed pro rata to the holders of the Common Stock in accordance with their respective rights and interests.

Section 4. Preferred Stock.

Subject to any limitations prescribed by law, the Board of Directors or any authorized committee thereof is expressly authorized to provide for the issuance of the shares of Preferred Stock in one or more series of such stock, and by filing a certificate pursuant to applicable law of the State of Delaware, to establish or change from time to time the number of shares to be included in each such series, and to fix the designations, powers, preferences and the relative, participating, optional or other special rights of the shares of each series and any qualifications, limitations and restrictions thereof. Any action by the Board of Directors or any authorized committee thereof under this Section 4 shall require the affirmative vote of a majority of the Directors then in office or a majority of the members of such committee. The Board of Directors or any authorized committee thereof shall have the right to determine or fix one or more of the following with respect to each series of Preferred Stock to the extent permitted by law:

(a) The distinctive serial designation and the number of shares constituting such series;

(b) The dividend rates or the amount of dividends to be paid on the shares of such series, whether dividends shall be cumulative and, if so, from which date or dates, the payment date or dates for dividends, and the participating and other rights, if any, with respect to dividends;

(c) The voting powers, full or limited, if any, of the shares of such series;

(d) Whether the shares of such series shall be redeemable and, if so, the price or prices at which, and the terms and conditions on which, such shares may be redeemed;

(e) The amount or amounts payable upon the shares of such series and any preferences applicable thereto in the event of voluntary or involuntary liquidation, dissolution or winding up of the Corporation;

(f) Whether the shares of such series shall be entitled to the benefit of a sinking or retirement fund to be applied to the purchase or redemption of such shares, and if so entitled, the amount of such fund and the manner of its application, including the price or prices at which such shares may be redeemed or purchased through the application of such fund;

(g) Whether the shares of such series shall be convertible into, or exchangeable for, shares of any other class or classes or of any other series of the same or any other class or classes of stock of the Corporation and, if so convertible or exchangeable, the conversion price or prices, or the rate or rates of exchange, and the adjustments thereof, if any, at which such conversion or exchange may be made, and any other terms and conditions of such conversion or exchange;

(h) The price or other consideration for which the shares of such series shall be issued;

(i) Whether the shares of such series which are redeemed or converted shall have the status of authorized but unissued shares of Preferred Stock (or series thereof) and whether such shares may be reissued as shares of the same or any other class or series of stock; and

(j) Such other powers, preferences, rights, qualifications, limitations and restrictions thereof as the Board of Directors or any authorized committee thereof may deem advisable.

ARTICLE V
STOCKHOLDER ACTION

Any action required or permitted to be taken by the stockholders of the Corporation at any annual or special meeting of stockholders of the Corporation must be effected at a duly called annual or special meeting of stockholders and may not be taken or effected by a written consent of stockholders in lieu thereof.

ARTICLE VI
DIRECTORS

Section 1. General.

The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors except as otherwise provided herein or required by law.

Section 2. Election of Directors.

Election of Directors need not be by written ballot unless the By-laws of the Corporation shall so provide.

Section 3. Terms of Directors.

The number of Directors of the Corporation shall be fixed by resolution duly adopted from time to time by the Board of Directors. Until the election of Directors at the 2026 annual meeting of stockholders, the Directors, other than those who may be elected by the holders of any series of Preferred Stock of the Corporation, shall be classified, with respect to the term for which they severally hold office, into three classes, as nearly equal in number as possible. Any Director elected prior to the 2024 annual meeting of stockholders shall hold office for a term expiring at the annual meeting of stockholders held in the third year following the year of their election. Each Director elected at the 2024 annual meeting of stockholders will be elected for a term expiring at the 2025 annual meeting of stockholders. Each Director elected at the 2025 annual meeting of stockholders will be elected for a term expiring at the 2026 annual meeting of stockholders. At the 2026 annual meeting of stockholders and at each annual meeting of stockholders thereafter, all Directors will be elected for a term expiring at the next annual meeting of stockholders. Each Director shall hold office until the annual meeting of stockholders at which such Director’s term expires and serve until such Director’s successor shall have been duly elected and qualified or until such Director’s earlier death, resignation, disqualification or removal.

Notwithstanding the foregoing, whenever, pursuant to the provisions of Article IV of this Restated Certificate of Incorporation, the holders of any one or more series of Preferred Stock shall have the right, voting separately as a series or together with holders of other such series, to elect Directors at an annual or special meeting of stockholders, the election, term of office, filling of vacancies and other features of such directorships shall be governed by the terms of this Restated Certificate of Incorporation and any certificate of designations applicable thereto.

During any period when the holders of any series of Preferred Stock have the right to elect additional Directors as provided for or fixed pursuant to the provisions of Article IV hereof, then upon commencement and for the duration of the period during which such right continues: (i) the then otherwise total authorized number of Directors of the Corporation shall automatically be increased by such specified number of Directors, and the holders of such Preferred Stock shall be entitled to elect the additional Directors so provided for or fixed pursuant to said provisions, and (ii) each such additional Director shall serve until such Director’s successor shall have been duly elected and qualified, or until such Director’s right to hold such office terminates pursuant to said provisions, whichever occurs earlier, subject to such Director’s earlier death, resignation, disqualification or removal. Except as otherwise provided by the Board in the resolution or resolutions establishing such series, whenever the holders of any series of Preferred Stock having such right to elect additional Directors are divested of such right pursuant to the provisions of such stock, the terms of office of all such additional Directors elected by the holders of such stock, or elected to fill any vacancies resulting from the death, resignation, disqualification or removal of such additional

Directors, shall forthwith terminate and the total and authorized number of Directors of the Corporation shall be reduced accordingly.

Section 4. Vacancies.

Subject to the rights, if any, of the holders of any series of Preferred Stock to elect Directors and to fill vacancies in the Board of Directors relating thereto, any and all vacancies in the Board of Directors, however occurring, including, without limitation, by reason of an increase in size of the Board of Directors, or the death, resignation, disqualification or removal of a Director, shall be filled solely by the affirmative vote of a majority of the remaining Directors then in office, even if less than a quorum of the Board of Directors. Prior to the election of Directors at the 2026 annual meeting of stockholders, any Director appointed in accordance with the preceding sentence shall hold office for the remainder of the full term of the class of Directors in which the new directorship was created or the vacancy occurred and until such Director's successor shall have been duly elected and qualified or until his or her earlier death, resignation, disqualification or removal. From and after the election of Directors at the 2026 annual meeting of stockholders, any Director appointed in accordance with the first sentence of this Section 4 of Article VI shall hold office until the next annual meeting of stockholders and until such Director's successor shall have been duly elected and qualified or until his or her earlier death, resignation, disqualification or removal. Subject to the rights, if any, of the holders of any series of Preferred Stock to elect Directors, when the number of Directors is increased or decreased, for as long as the Board of Directors continues to be classified, the Board of Directors shall determine the class or classes to which the increased or decreased number of Directors shall be apportioned; provided, however, that no decrease in the number of Directors shall shorten the term of any incumbent Director. In the event of a vacancy in the Board of Directors, the remaining Directors, except as otherwise provided by law, may exercise the powers of the full Board of Directors until the vacancy is filled.

Section 5. Removal.

Subject to the rights, if any, of any series of Preferred Stock to elect Directors and to remove any Director whom the holders of any such stock have the right to elect, any Director (including persons elected by Directors to fill vacancies in the Board of Directors) may be removed from office (i) with or without cause (except that any Director who is serving a three-year term prior to the 2026 annual meeting of stockholders may be removed only for cause) and (ii) only by the affirmative vote of a majority of the total votes which would be eligible to be cast by stockholders in the election of such Director. At least 30 days prior to any meeting of stockholders at which it is proposed that any Director be removed from office, written notice of such proposed removal shall be sent to the Director whose removal will be considered at the meeting. For purposes of this Restated Certificate of Incorporation, "cause," with respect to the removal of any Director shall mean only (i) conviction of a felony, (ii) declaration of unsound mind by order of court, (iii) gross dereliction of duty, (iv) commission of any action involving moral turpitude, or (v) commission of an action which constitutes intentional misconduct or a knowing violation of law if such action in either event results both in an improper substantial personal benefit and a material injury to the Corporation.

ARTICLE VII
LIMITATION OF LIABILITY

A Director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a Director, except for liability (i) for any breach of the Director's duty of loyalty to the Corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which the Director derived an improper personal benefit. If the DGCL is amended after the effective date of this Restated Certificate of Incorporation to authorize corporate action further eliminating or limiting the personal liability of Directors, then the liability of a Director of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended.

Any repeal or modification of this Article VII by either of (i) the stockholders of the Corporation or (ii) an amendment to the DGCL, shall not adversely affect any right or protection existing at the time of such repeal or modification with respect to any acts or omissions occurring before such repeal or modification of a person serving as a Director at the time of such repeal or modification.

ARTICLE VIII
AMENDMENT OF BY-LAWS

Section 1. Amendment by Directors.

Except as otherwise provided by law, the By-laws of the Corporation may be amended or repealed by the Board of Directors.

Section 2. Amendment by Stockholders.

The By-laws of the Corporation may be amended or repealed at any annual meeting of stockholders, or special meeting of stockholders called for such purpose, by the affirmative vote of a majority of the total votes eligible to be cast on such amendment or repeal by holders of voting stock, voting together as a single class.

ARTICLE IX
AMENDMENT OF CERTIFICATE OF INCORPORATION

The Corporation reserves the right to amend or repeal this Restated Certificate of Incorporation in the manner now or hereafter prescribed by statute and this Restated Certificate of Incorporation, and all rights conferred upon stockholders herein are granted subject to this reservation. No amendment or repeal of this Restated Certificate of Incorporation shall be made unless the same is first approved by the Board of Directors pursuant to a resolution adopted by the Board of Directors in accordance with Section 242 of the DGCL, and, except as otherwise provided by law, thereafter approved by the stockholders. Whenever any vote of the holders of voting stock is required, and in addition to any other vote of holders of voting stock that is required by this Restated Certificate of Incorporation or by law, the affirmative vote of a majority of the total votes eligible to be cast by holders of voting stock with respect to such amendment or repeal, voting together as a single class, at a duly constituted meeting of stockholders called expressly for such purpose shall be required to amend or repeal any provisions of this Restated Certificate of Incorporation.

IN WITNESS WHEREOF, ANSYS, Inc. has caused this Restated Certificate of Incorporation to be signed by Ajei S. Gopal, its President and Chief Executive Officer, this 31 day of May, 2023.

/s/ Ajei S. Gopal

Ajei S. Gopal

President and Chief Executive Officer

EXHIBIT 31.1

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, Ajei S. Gopal, certify that:

1. I have reviewed this quarterly report on Form 10-Q of ANSYS, Inc. ("Ansys");
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 Ansys as of, and for, the periods presented in this report;
4. Ansys' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for Ansys 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 Ansys, 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 Ansys' 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 Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and
5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' 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 Ansys' 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 Ansys' internal control over financial reporting.

Date: August 2, 2023

/s/ Ajei S. Gopal
Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CHIEF FINANCIAL OFFICER CERTIFICATION

I, Nicole Anasenes, certify that:

1. I have reviewed this quarterly report on Form 10-Q of ANSYS, Inc. ("Ansys");
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 Ansys as of, and for, the periods presented in this report;
4. Ansys' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for Ansys 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 Ansys, 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 Ansys' 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 Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and
5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' 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 Ansys' 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 Ansys' internal control over financial reporting.

Date: August 2, 2023

/s/ Nicole Anasenes
Nicole Anasenes
Chief Financial Officer and Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)

EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of ANSYS, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Ajei S. Gopal, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

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

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ *Ajei S. Gopal*
Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)
August 2, 2023

EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of ANSYS, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Nicole Anasenes, Chief Financial Officer and Senior Vice President, Finance of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

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

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ *Nicole Anasenes*

Nicole Anasenes
Chief Financial Officer and Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)
August 2, 2023