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

FORM S-8 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

MERCURY SYSTEMS, INC. (Exact Name of Registrant as Specified in its Charter)

Massachusetts (State of Incorporation) 04-2741391 (I.R.S. Employer Identification Number)

50 Minuteman Road Andover, Massachusetts 01810 (978) 256-1300 (Address of Principal Executive Offices)

MERCURY SYSTEMS, INC. Amended and Restated 2018 Stock Incentive Plan (Full Title of the Plan)

Christopher C. Cambria
Executive Vice President, General Counsel, and Secretary
Mercury Systems, Inc.
50 Minuteman Road
Andover, Massachusetts 01810
(978) 256-1300
(Name, Address and Telephone Number, Including Area Code, of Agent for Service)

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 [X] 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 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered (1)(2)	Proposed Maximum Offering Price Per Share (3)	Proposed Maximum Aggregate Offering Price (3)	Amount of Registration Fee (3)
Common Stock	28,775	\$50.29	\$1,447,094.75	\$134.15

(1)	Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement also covers an indeterminate number of additional shares of Common Stock to be offered or sold as a result of the anti-dilution provisions of the employee benefit plan described herein, including to prevent dilution resulting from any reorganization, recapitalization, reclassification, stock dividend, stock split, or other similar change.
(2)	28,775 shares of the registrant's Common Stock listed were part of the shares previously registered by the registrant on Form S-8 (File No. 333-217735 filed on May 5, 2017) in connection with the registrant's Amended and Restated 2005 Stock Incentive Plan.
(3)	Calculated in accordance with Rule 457(c) and (h) under the Securities Act solely for the purpose of determining the amount of the registration fee, based on the average of the high and low prices of our Common Stock on the Nasdaq Global Select Market on November 3, 2021.

EXPLANATORY NOTE

This Registration Statement is being filed solely for the purpose of registering 28,775 additional shares of common stock, par value \$0.01 per share ("Common Stock"), of Mercury Systems, Inc. (the "Company") to be offered to participants under the Company's Amended and Restated 2018 Stock Incentive Plan (the "2018 Plan"). The number of shares of Common Stock reserved for issuance under the 2018 Plan includes 6,781,597 shares which were previously registered with the Securities and Exchange Commission (the "Commission") on Forms S-8 (File Nos. 333-228617 filed on November 30, 2018, 333-234534 filed on November 6, 2019, and 333-250039 filed on November 12, 2020) (the "Prior Registration Statements"), plus the number of shares underlying any grants previously made under the Company's Amended and Restated 2005 Stock Incentive Plan (the "2005 Plan") that are forfeited, canceled, or are terminated (other than by exercise) from and after the effective date of the 2018 Plan.

All 28,775 shares registered hereby have been included in the shares reserved for issuance under the 2018 Plan as a result of the forfeiture, cancellation, or termination (other than by exercise) of grants previously made under the 2005 Plan.

This Registration Statement relates to securities of the same class as that to which the Prior Registration Statements relate, and is submitted in accordance with General Instruction E to Form S-8 regarding Registration of Additional Securities. Pursuant to General Instruction E of Form S-8, the contents of the Prior Registration Statements, to the extent relating to the registration of Common Stock issuable under the 2018 Plan, are incorporated herein by reference and made part of this Registration Statement, except as amended hereby.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

The following documents are incorporated herein by reference:

- (a) The Company's Annual Report on Form 10-K for the fiscal year ended July 2, 2021, as filed with the Commission on August 17, 2021;
- (b) The Company's Definitive Proxy Statement on Schedule 14A, as filed with the Commission on September 9, 2021, as amended by the Revised Definitive Proxy Soliciting Materials on Schedule DEFR 14A filed with the Commission on September 14, 2021, to the extent specifically incorporated by reference into the Company's Annual Report on Form 10-K for the fiscal year ended July 2, 2021;
- (c) The Company's Quarterly Report on Form 10-Q for the fiscal quarter ended October 1, 2021, as filed with the Commission on November 9, 2021;
- (d) The Company's Current Reports on Form 8-K filed with the Commission on August 3, 2021 (Items 2.05 and 5.02 only) and November 1, 2021; and
- (e) The description of the Company's Common Stock contained in the Company's Registration Statement on Form 8-A dated January 7, 1998, as updated by Exhibit 4.2 to the Company's Annual Report on Form 10-K for the fiscal year ended July 3, 2020, as filed with the Commission on August 18, 2020.

All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14, and 15(d) of the Securities Exchange Act of 1934, as amended, prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or that deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be a part hereof from the date of the filing of such documents.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL.

The validity of the Common Stock offered under this Registration Statement will be passed upon for the Company by Morgan, Lewis & Bockius LLP, Boston, Massachusetts. Morgan, Lewis & Bockius LLP does not have a substantial interest, direct or indirect, in the Company.

ITEM 8. EXHIBITS.

See the Exhibit Index attached hereto.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Town of Andover, the Commonwealth of Massachusetts on this 9th day of November, 2021.

MERCURY SYSTEMS, INC.

By: /s/ Michael D. Ruppert
Michael D. Ruppert
Executive Vice President, Chief Financial Officer, and Treasurer

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS that each person whose signature appears below constitutes and appoints Mark Aslett, Christopher C. Cambria, and Michael D. Ruppert as his or her true and lawful attorneys-in-fact and agents, each acting alone, with full powers of substitution and resubstitution, for him or her or in his or her name, place and stead, in any and all capacities to sign any and all amendments or post-effective amendments to this Registration Statement (or any Registration Statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, each acting alone, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Title	Date
President, Chief Executive Officer, and Director (Principal Executive Officer)	November 9, 2021
Executive Vice President, Chief Financial Officer, and Treasurer (Principal Financial Officer)	November 9, 2021
Vice President, Chief Accounting Officer (Principal Accounting Officer)	November 9, 2021
Chairman of the Board of Directors	November 9, 2021
Director	November 9, 2021
	President, Chief Executive Officer, and Director (Principal Executive Officer) Executive Vice President, Chief Financial Officer, and Treasurer (Principal Financial Officer) Vice President, Chief Accounting Officer (Principal Accounting Officer) Chairman of the Board of Directors Director Director Director Director Director

EXHIBIT INDEX

Exhibit	Description
4.1	Articles of Organization (incorporated herein by reference to Exhibit 3.1.1 of the Company's Annual Report on Form 10-K for the fiscal year ended June 30,
	<u>2009)</u>
4.2	Articles of Amendment (incorporated herein by reference to Exhibit 3.1.2 of the Company's Annual Report on Form 10-K for the fiscal year ended June 30,
	2010)
4.3	Articles of Amendment (incorporated herein by reference to Exhibit 1 of the Company's Registration Statement on Form 8-A filed with the Commission on December 15, 2005)
4.4	Articles of Amendment (incorporated herein by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on
	November 13, 2012)
4.5	Articles of Amendment (incorporated herein by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on June 30,
	<u>2015)</u>
4.6	By-laws, amended and restated effective July 28, 2020 (incorporated herein by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on July 31, 2020)
4.7	Mercury Systems, Inc. Amended and Restated 2018 Stock Incentive Plan (incorporated herein by reference Exhibit 10.5 of the Company's Annual Report on
	Form 10-K for the fiscal year ended July 2, 2021)
5.1*	Opinion of Morgan, Lewis & Bockius LLP
23.1*	Consent of KPMG LLP
23.2	Consent of Morgan, Lewis & Bockius LLP (contained in the opinion filed as Exhibit 5.1 to this Registration Statement)
24.1	Power of Attorney (included in signature page to this Registration Statement)
*	Filed herewith

Morgan Lewis

November 9, 2021

Mercury Systems, Inc. 50 Minuteman Road Andover, Massachusetts 01810

Re: Registration Statement on Form S-8

Ladies and Gentlemen:

This opinion is furnished in connection with the registration, pursuant to a Registration Statement on Form S-8 under the Securities Act of 1933, as amended (the "Securities Act"), to be filed with the Securities and Exchange Commission on or about November 9, 2021 (the "Registration Statement"), of 28,775 shares (the "Shares") of common stock, par value \$0.01 per share of Mercury Systems, Inc., a Massachusetts corporation (the "Company"), which are or will be issuable to officers, employees, non-employee directors and consultants of the Company and its subsidiaries upon the exercise of options granted pursuant to the Company's Amended and Restated 2018 Stock Incentive Plan (the "2018 Plan"), or which the Company may issue pursuant to awards of stock appreciation rights, restricted stock or deferred stock under the 2018 Plan.

We have acted as counsel to the Company in connection with the foregoing registration of the Shares. We have examined and relied upon originals or copies of such records, instruments, certificates, memoranda, and other documents as we have deemed necessary or advisable for purposes of this opinion and have assumed, without independent inquiry, the accuracy of those documents. In that examination, we have assumed the genuineness of all signatures, the conformity to the originals of all documents reviewed by us as copies and the authenticity and completeness of all original documents reviewed by us in original or copy form. We have further assumed that all options granted or to be granted pursuant to the 2018 Plan were or will be validly granted in accordance with the terms of the 2018 Plan, that all Shares to be issued upon exercise of such options will be issued in accordance with the terms of such options and the 2018 Plan, and that all Shares sold or granted as a stock appreciation right, restricted stock award or deferred stock award will be sold or granted in accordance with the terms of the 2018 Plan.

This opinion is limited solely to the substantive laws of the Commonwealth of Massachusetts.

Based upon and subject to the foregoing, we are of the opinion that, upon the issuance and the delivery of the Shares in accordance with the terms of the 2018 Plan, the Shares will be validly issued, fully paid, and nonassessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder. In rendering the opinions set forth above, we are opining only to the specific legal issues expressly set forth therein, and no opinion shall be inferred as to any other matter or matters.

Very truly yours,

/s/ MORGAN, LEWIS & BOCKIUS LLP

Consent of Independent Registered Public Accounting Firm

We consent to the use of our report dated August 17, 2021, with respect to the consolidated financial statements and financial statement schedule II of Mercury Systems, Inc. and subsidiaries, and the effectiveness of internal control over financial reporting, incorporated herein by reference.

Our report dated August 17, 2021 on the effectiveness of internal control over financial reporting as of July 2, 2021 contains an explanatory paragraph that states that the Company acquired Physical Optics Corporation ("POC"), Pentek Technologies, LLC and Pentek Systems, Inc. (collectively, "Pentek") during fiscal year 2021, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of July 2, 2021, POC's and Pentek's internal control over financial reporting associated with 22 percent of total consolidated assets (of which 16 percent represented goodwill and intangible assets included within the scope of the assessment) and 9 percent of total consolidated revenues included in the consolidated financial statements of the Company as of and for the fiscal year ended July 2, 2021. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of POC and Pentek.

/s/ KPMG LLP

Boston, Massachusetts

November 9, 2021