

Cardiovascular Systems Inc  
Form SC 13D  
August 17, 2011

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

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SCHEDULE 13D

Under the Securities Exchange Act of 1934

(Amendment No. )\*

Cardiovascular Systems, Inc.  
(Name of Issuer)

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Common Stock, par value \$0.001 per share

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(Title of Class of Securities)

141619106

(CUSIP Number)

Michael R. Murphy  
Discovery Group I, LLC  
191 North Wacker Drive  
Suite 1685  
Chicago, Illinois 60606  
Telephone Number: (312) 265-9600

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(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

August 8, 2011

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(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the

following box. o

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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CUSIP No. 141619106

1. Names of Reporting Persons.  
Discovery Equity Partners, L.P.
  2. Check the Appropriate Box if a Member of a Group (See Instructions)
    - (a)
    - (b)
  3. SEC Use Only
  4. Source of Funds (See Instructions)  
WC
  5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
  6. Citizenship or Place of Organization  
Illinois
    7. Sole Voting Power  
None.
    8. Shared Voting Power  
864,268
    9. Sole Dispositive Power  
None.
    10. Shared Dispositive Power  
864,268
  11. Aggregate Amount Beneficially Owned by Each Reporting Person  
864,268
  12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
  13. Percent of Class Represented by Amount in Row (11)  
5.3%
  14. Type of Reporting Person (See Instructions)  
PN
-

CUSIP No. 141619106

1. Names of Reporting Persons.  
Discovery Group I, LLC
  2. Check the Appropriate Box if a Member of a Group (See Instructions)
    - (a)
    - (b)
  3. SEC Use Only
  4. Source of Funds (See Instructions)  
AF
  5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
  6. Citizenship or Place of Organization  
Delaware
  7. Sole Voting Power  
None.
  8. Shared Voting Power  
986,525
  9. Sole Dispositive Power  
None.
  10. Shared Dispositive Power  
986,525
  11. Aggregate Amount Beneficially Owned by Each Reporting Person  
986,525
  12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
  13. Percent of Class Represented by Amount in Row (11)  
6.0%
  14. Type of Reporting Person (See Instructions)  
IA
-

CUSIP No. 141619106

1. Names of Reporting Persons.  
Daniel J. Donoghue
2. Check the Appropriate Box if a Member of a Group (See Instructions)  
(a)   
(b)
3. SEC Use Only
4. Source of Funds (See Instructions)  
AF
5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
6. Citizenship or Place of Organization  
United States of America
7. Sole Voting Power  
None.
8. Shared Voting Power  
986,525
9. Sole Dispositive Power  
None.
10. Shared Dispositive Power  
986,525
11. Aggregate Amount Beneficially Owned by Each Reporting Person  
986,525
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
13. Percent of Class Represented by Amount in Row (11)  
6.0%
14. Type of Reporting Person (See Instructions)  
IN

Number of  
Shares  
Beneficially  
Owned by  
Each  
Reporting  
Person With

CUSIP No. 141619106

1. Names of Reporting Persons.  
Michael R. Murphy
  2. Check the Appropriate Box if a Member of a Group (See Instructions)
    - (a)
    - (b)
  3. SEC Use Only
  4. Source of Funds (See Instructions)  
AF
  5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
  6. Citizenship or Place of Organization  
United States of America
  7. Sole Voting Power  
None.
  8. Shared Voting Power  
986,525
  9. Sole Dispositive Power  
None.
  10. Shared Dispositive Power  
986,525
  11. Aggregate Amount Beneficially Owned by Each Reporting Person  
986,525
  12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
  13. Percent of Class Represented by Amount in Row (11)  
6.0%
  14. Type of Reporting Person (See Instructions)  
IN
-

Item 1. Security and Issuer

This statement relates to the Common Stock, \$0.001 par value per share (the “Common Stock”), of Cardiovascular Systems, Inc., a Delaware corporation (the “Company”), which has its principal executive offices at 651 Campus Drive St. Paul, Minnesota 55112.

Item 2. Identity and Background

This statement is being jointly filed by the following persons (the “Reporting Persons”):

Discovery Equity Partners, L.P. (“Discovery Equity Partners”) is an Illinois limited partnership primarily engaged in the business of investing in securities.

Discovery Group I, LLC (“Discovery Group”) is a Delaware limited liability company and a registered investment adviser under the Investment Advisers Act of 1940, as amended, that is primarily engaged in the business of investing in securities on behalf of institutional clients.

Daniel J. Donoghue is a Managing Member of Discovery Group and of various related entities, which is his principal occupation.

Michael R. Murphy is a Managing Member of Discovery Group and of various related entities, which is his principal occupation.

Both Mr. Donoghue and Mr. Murphy are United States citizens.

The business address of each of the Reporting Persons is 191 North Wacker Drive, Suite 1685, Chicago, Illinois 60606.

During the past five years, none of the Reporting Persons have been (i) convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws, or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

The total purchase price for the 986,525 shares of Common Stock beneficially owned by Discovery Group and Messrs. Donoghue and Murphy as of August 16, 2011 was approximately \$13,547,046, and the total purchase price for the 864,268 shares of Common Stock beneficially owned by Discovery Equity Partners was approximately \$11,868,310. The source of such funds was the assets of Discovery Equity Partners and another private investment partnership (collectively, the “Partnerships”) over which Discovery Group exercises discretionary investment management authority, including proceeds of margin loans under margin loan facilities maintained in the ordinary course of business by the Partnerships with a broker on customary terms and conditions. The Partnerships are the legal owner of all of the Common Stock beneficially owned by Discovery Group and Messrs. Donoghue and Murphy.





Item 4. Purpose of Transaction

The Reporting Persons acquired beneficial ownership of the shares of Common Stock reported herein as part of their investment activities on behalf of the Partnerships. The Reporting Persons acquired the shares of Common Stock reported herein because they believe that the trading prices of the Common Stock do not adequately reflect the potential value of the Company's underlying business and assets.

The Reporting Persons intend to review and evaluate their investment in the Common Stock on an ongoing basis and may, depending upon their evaluation of the business and prospects of the Company, or such other considerations as they may deem relevant, determine to increase, decrease, or dispose of their holdings of Common Stock. As a part of such review and evaluation, the Reporting Persons may hold additional discussions with the Company's management and directors, other shareholders and other interested parties.

Except as otherwise described in this Item 4, the Reporting Persons do not have present plans or proposals that relate to or would result in any of the following (although the Reporting Persons reserve the right to develop such plans or proposals or any other plans relating to the Company and to take action with respect thereto): (i) the acquisition by any person of additional securities of the Company, or the disposition of securities of the Company; (ii) an extraordinary corporate transaction, such as a merger, reorganization, or liquidation, involving the Company or any of its subsidiaries; (iii) a sale or transfer of a material amount of assets of the Company or any of its subsidiaries; (iv) any change in the present board of directors or management of the Company, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board; (v) any material change in the present capitalization or dividend policy of the Company; (vi) any other material change in the Company's business or corporate structure; (vii) changes in the Company's certificate of incorporation, bylaws, or instruments corresponding thereto or other actions that may impede the acquisition of control of the Company by any person; (viii) causing a class of securities of the Company to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association; (ix) a class of equity securities of the Company becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Securities Exchange Act of 1934, as amended; or (x) any action similar to any of those enumerated above.

Item 5. Interest in Securities of the Issuer

The information concerning percentages of ownership set forth below is based on 16,350,698 shares of Common Stock reported outstanding as of May 31, 2011 in the Company's Registration Statement of Form S-3, filed on June 3, 2011.

Discovery Equity Partners beneficially owns 864,268 shares of Common Stock as of August 16, 2011, which represents 5.3% of the outstanding Common Stock.

Discovery Group beneficially owns 986,525 shares of Common Stock as of August 16, 2011, which represents 6.0% of the outstanding Common Stock.

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Mr. Donoghue beneficially owns 986,525 shares of Common Stock as of August 16, 2011, which represents 6.0% of the outstanding Common Stock.

Mr. Murphy beneficially owns 986,525 shares of Common Stock as of August 16, 2011, which represents 6.0% of the outstanding Common Stock.

Discovery Group is the sole general partner of Discovery Equity Partners and has sole discretionary investment authority with respect to the other Partnership's investment in the Common Stock. Messrs. Donoghue and Murphy are the sole managing members of Discovery Group. As a consequence, Discovery Group and Messrs. Donoghue and Murphy may be deemed to share beneficial ownership of all of the shares of Common Stock owned by both of the Partnerships, while Discovery Equity Partners shares beneficial ownership with Discovery Group and Messrs. Donoghue and Murphy of only the shares of Common Stock owned by it.

The transactions in Common Stock effected by the Reporting Persons during the past 60 days are set out in Exhibit 1 hereto.

No person other than the Partnerships is known to any Reporting Person to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, any of the shares of Common Stock reported herein.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

There are no contracts, arrangements, understandings or relationships (legal or otherwise) between or among any of the Reporting Persons and any other person with respect to any securities of the Company other than the governing documents of Discovery Group and the Partnerships, the margin loan facilities referred to under Item 3 above, the Joint Filing Agreement of the Reporting Persons with respect to this Schedule 13D included as Exhibit 2 to this Schedule 13D, and the Powers of Attorney granted by Messrs Donoghue and Murphy with respect to reports under Section 13 of the Securities Exchange Act of 1934, as amended, which Powers of Attorney are included as Exhibit 3 and Exhibit 4, respectively, to this Schedule 13D.

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Item 7. Material to Be Filed as Exhibits

Exhibit 1: List of transactions by Reporting Persons in the Company's Common Stock during the 60-day period preceding this filing.

Exhibit 2: Joint Filing Agreement dated as of August 17, 2011, by and among Discovery Equity Partners; Discovery Group; Daniel J. Donoghue; and Michael R. Murphy.

Exhibit 3: Power of Attorney of Daniel J. Donoghue, dated as of April 28, 2008.

Exhibit 4: Power of Attorney of Michael R. Murphy, dated as of April 28, 2008.

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Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

August 17, 2011

Date

DISCOVERY GROUP I, LLC,  
for itself and as general partner of  
DISCOVERY EQUITY PARTNERS, L.P.

By: Michael R. Murphy\*

Signature

Michael R. Murphy, Managing Member

Name/Title

Daniel J. Donoghue\*

Signature

Daniel J. Donoghue

Name/Title

Michael R. Murphy\*

Signature

Michael R. Murphy

Name/Title

\*By: /s/ Mark Buckley

Mark Buckley

Attorney-in-Fact for Daniel J. Donoghue

Attorney-in-Fact for Michael R. Murphy

Exhibit Index

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- Exhibit 3 Power of Attorney of Daniel J. Donoghue, dated as of April 28, 2008.
- Exhibit 4 Power of Attorney of Michael R. Murphy, dated as of April 28, 2008.