

Murphy Michael R
Form 4
October 25, 2011

FORM 4

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

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *
Discovery Group I, LLC

(Last) (First) (Middle)

191 N. WACKER DRIVE SUITE
1685,

(Street)

CHICAGO, IL 60606

(City) (State) (Zip)

2. Issuer Name and Ticker or Trading Symbol
Cardiovascular Systems Inc [CSII]

3. Date of Earliest Transaction
(Month/Day/Year)
10/21/2011

4. If Amendment, Date Original Filed(Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

___ Director ___X___ 10% Owner
___ Officer (give title below) ___ Other (specify below)

6. Individual or Joint/Group Filing(Check Applicable Line)

___ Form filed by One Reporting Person
X Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------|
| | | | Code | V Amount (A) or (D) Price | | | |
| Common Stock | 10/21/2011 | | P | 1,103 (1) A \$ 8 | 1,795,651 | I | By Discovery Equity Partners, L.P. (1) |
| Common Stock | 10/25/2011 | | P | 8,930 (1) A \$ 8 | 1,804,581 | I | By Discovery Equity Partners, L.P. (1) |
| Common Stock | 10/25/2011 | | P | 1,070 (2) A \$ 8 | 260,708 | I | By Pleiades Investment |

Partners - D,
L.P (2)

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

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(9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Beneficially Owned Following Transaction (Instr. 6) |
|--------------------------------------------|--------------------------------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------|
| | | | | Code | V (A) (D) | Date Exercisable | Expiration Date | Title | Amount or Number of Shares |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--------------------------------------------------------------------------------------------------------|---------------|-----------|---------|-------|
| | Director | 10% Owner | Officer | Other |
| Discovery Group I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | | X | | |
| Donoghue Daniel J C/O DISCOVERY GROUP I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | | X | | |
| Murphy Michael R C/O DISCOVERY GROUP I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | | X | | |

Signatures

Michael R. Murphy, Managing Member
10/25/2011

**Signature of Reporting Person

Date

Daniel J. DOnoghue 10/25/2011
**Signature of Reporting Person Date

Michael R. Murphy 10/25/2011
**Signature of Reporting Person Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
 - (1) Discovery Group I, LLC is the General Partner of Discovery Equity Partners, L.P., which is a discretionary client of the reporting person, that owns the reported securities. The reporting person disclaims beneficial ownership of the reported securities except to the extent of its pecuniary interest therein
 - (2) Discovery Group I, LLC is an investment manager for Pleiades Investment Partners - D, L.P., which is a discretionary client of the reporting person, that owns the reported securities. The reporting person disclaims beneficial ownership of the reported securities except to the extent of its pecuniary interest therein

Remarks:

Michael R. Murphy and Daniel J. Donoghue are managing members of Discovery Group I, LLC, and each disclaims beneficial securities except to the extent of his pecuniary interest therein.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.