

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

| OMB APPROVAL | |
|----------------------------------------------|-----------|
| OMB Number: | 3235-0104 |
| Estimated average burden hours per response: | 0.5 |

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Name and Address of Reporting Person* <u>Discovery Group I, LLC</u> (Last) (First) (Middle) 191 N. WACKER DRIVE SUITE 1685 (Street) CHICAGO IL 60606 (City) (State) (Zip) | 2. Date of Event Requiring Statement (Month/Day/Year) 11/01/2010 | 3. Issuer Name and Ticker or Trading Symbol <u>AtriCure, Inc. [ATRC]</u> | |
| | | 4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below) | 5. If Amendment, Date of Original Filed (Month/Day/Year) 6. Individual or Joint/Group Filing (Check Applicable Line) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person |

Table I - Non-Derivative Securities Beneficially Owned

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Common Stock | 1,378,887 ⁽¹⁾ | I | By Discovery Equity Partners, L.P. ⁽¹⁾ |
| Common Stock | 235,628 ⁽²⁾ | I | By Pleiades Investment Partners - D, L.P. ⁽²⁾ |

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

| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--------------------------------------------|----------------------------------------------------------|-----------------|-----------------------------------------------------------------------------|----------------------------|--------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|
| | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | | | |

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)

1. Name and Address of Reporting Person*
Murphy Michael R
 (Last) (First) (Middle)
 C/O DISCOVERY GROUP I, LLC
 191 N. WACKER DRIVE SUITE 1685
 (Street)
 CHICAGO IL 60606
 (City) (State) (Zip)

1. Name and Address of Reporting Person*
Donoghue Daniel J
 (Last) (First) (Middle)
 C/O DISCOVERY GROUP I, LLC
 191 N. WACKER DRIVE SUITE 1685
 (Street)

CHICAGO IL 60606

(City) (State) (Zip)

Explanation of Responses:

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 ownership of the reported securities except to the extent of his pecuniary interest therein.

Michael R. Murphy, Managing Director 11/02/2010

Daniel J. Donoghue 11/02/2010

Michael R. Murphy 11/02/2010

** Signature of Reporting Person Date

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

* If the form is filed by more than one reporting person, see Instruction 5 (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).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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 Number.