

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

FORM 8-A

**For registration of certain classes of securities
pursuant to Section 12 (b) or (g) of the Securities Exchange Act of 1934**

AtriCure, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State of incorporation or organization)
6033 Schumacher Park Drive
West Chester, OH
(Address of principal executive offices)

34-1940305
(IRS Employer
Identification No.)
45069
(Zip Code)

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A.(c), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A.(d), check the following box.

Securities Act registration statement file number to which this form relates: 333-124197 (if applicable)

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

**Title of each class
to be so registered**

Not applicable

**Name of each exchange on which
each class is to be registered**

Not applicable

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

Common Stock, par value \$0.001 per share
(Title of Class)

Item 1. Description of Registrant's Securities to be Registered

A description of the Common Stock, par value \$0.001 per share, of AtriCure, Inc. (the "Registrant") to be registered hereunder is contained under the caption "Description of Capital Stock" in the prospectus included in the Registrant's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on April 20, 2005, as amended on June 14, 2005, July 7, 2005, July 19, 2005 and July 29, 2005 (SEC File No. 333-124197), and by any other amendments to such Registration Statement on Form S-1 (collectively, the "Registration Statement") and any prospectus relating thereto filed subsequently pursuant to Rule 424(b) of the Securities Act of 1933, as amended, each of which is hereby incorporated by reference.

Item 2. Exhibits

The following exhibits are filed as a part of this registration statement (each of which is incorporated by reference to the exhibit of the same number filed with the Registration Statement):

- 3.2 Form of Amended and Restated Certificate of Incorporation to be effective upon the completion of the offering.
- 3.4 Form of Second Amended and Restated Bylaws to be effective upon the completion of the offering.
- 4.1 Amended and Restated Investors' Rights Agreement, dated June 6, 2002 between the Registrant and each of the signatory Investors.
- 4.1.1 Amendment No. 1 to Amended and Restated Investors' Rights Agreement, dated March 8, 2005 between the Registrant and each of the signatory investors.
- 4.4 Specimen certificate for Registrant's Common Stock.

SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

Date: August 1, 2005

ATRICURE, INC.

By: /s/ DAVID J. DRACHMAN

David J. Drachman
President and Chief Executive Officer