

SCHEDULE 13G

Amendment No.

Name of Issuer: AtriCure, Inc.

Title of Class of Securities: Common Stock

CUSIP Number: 04963C209

Item 1: Reporting Person: Wasatch Advisors, Inc. 87-0319391

Item 2: Check Box If Member of Group: Not Applicable

Item 3: SEC Use

Item 4: Place of Organization: Utah

Items 5-8: Number of Shares Owned With:

Item 5: Sole Voting Power: 1,097,267

Item 6: Shared Voting Power: 0

Item 7: Sole Dispositive Power: 1,097,267

Item 8: Shared Dispositive Power: 0

Item 9: Aggregate Amount Owned: 1,097,267

Item 10: Check Box If Aggregate Amount Excludes Certain Shares: N/A

Item 11: Percent of Class Owned: 7.0%

Item 12: Type of Reporting Person: IA

Item 1(a): Name of Issuer: AtriCure, Inc.

Item 1(b): Address of Issuer:

6217 Centre Park Drive, West Chester, OH 45069

Item 2(a): Name of Person Filing: Wasatch Advisors, Inc.

Item 2(b): Address: 150 Social Hall Avenue, Salt Lake City, UT 84111

Item 2(c): Citizenship: Not Applicable

Item 2(d): Title of Class of Securities: Common Stock

Item 2(e): CUSIP Number: 04963C209

Item 3(e): Investment Adviser registered under section 203 of the Investment Advisers Act of 1940

Item 4(a): Amount Owned: 1,097,267

Item 4(b): Percent of Class Owned: 7.0%

Item 4(c)(i): Sole Voting Power: 1,097,267

Item 4(c)(ii): Shared Voting Power: 0

Item 4(c)(iii): Sole Dispositive Power: 1,097,267

Item 4(c)(iv): Shared Dispositive Power: 0

Item 5: Check Box If Ownership Is 5% or Less of Class: []

Item 6: Ownership of More Than 5% on Behalf of Another Person: N/A

Item 7: Identification of Subsidiary: Not Applicable

Item 8: Identification of Members of Group: Not Applicable

Item 9: Notice of Dissolution of Group: Not Applicable

Item 10: Certification:

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired in the ordinary course of business and were not acquired for the purpose of and do not have the effect of changing or influencing the control of the issuer of such securities and were not acquired in connection with or as a participant in any transaction having such purpose or effect.

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 as of December 31, 2010.

Date: 02/14/11

Signature: /s/Jeff S. Cardon

Name/Title: Jeff S. Cardon/CEO