UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) April 26, 2007

Microsemi Corporation

(Exact name of registrant as specified in its charter)

DE (State or other jurisdiction of incorporation) **0-8866** (Commission File Number) 95-2110371 (IRS Employer Identification No.)

2381 Morse Avenue, Irvine, California92614(Address of principal executive offices)(Zip Code)Registrant's telephone number, including area code:(949) 221-7100

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

[] Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

[] Soliciting material pursuant to Rule 14a-12(b) under the Exchange Act (17 CFR 240.14a-12)

[] Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

[] Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 2.02 Results of Operations and Financial Condition

On April 26, 2007 the Registrant issued a press release, a copy of which is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

Exhibit 99.1. Press release dated April 26, 2007

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Microsemi Corporation

(Registrant)

April 26, 2007

/s/ DAVID R. SONKSEN

(Date)

David R. Sonksen Executive Vice President, Chief Financial Officer, Treasurer and Secretary

Exhibit Index

99.1 Press release dated April 26, 2007