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 22, 2004

MICROSEMI CORPORATION

(Exact name of Registrant as specified in its charter)

Delaware (State or other jurisdiction

of incorporation)

0-8866 (Commission File Number) 95-2110371 (I.R.S. Employer

Identification No.)

2381 Morse Avenue, Irvine, California (Address of principal executive office) 92614 (Zip Code)

Registrant s telephone number, including area code (949) 221-7100

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Not Applicable

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

Item 7. Financial Statements, Pro Forma Financial Information and Exhibits

(c) Exhibits.

99.1 News Release dated April 22, 2004 relating to the Registrant s earnings

Item 9. Regulation FD Disclosure.

(This information is furnished pursuant to this Item 9 and Item 12. Results of Operations and Financial Condition)

On April 22, 2004, the Registrant is publicly issuing a News Release, which is attached hereto as Exhibit 99.1 and incorporated herein by reference, relating to the Registrant s earnings.

SIGNATURES

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

MICROSEMI CORPORATION

(Registrant)

Date: April 22, 2004

By: /s/ DAVID R. SONKSEN

David R. Sonksen,

Executive Vice President,

Chief Financial Officer,

Treasurer and Secretary