September 22, 2006

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):

September 21, 2006

MONOLITHIC POWER SYSTEMS, INC.

(Exact name of Registrant as specified in its charter)

Delaware (State or other jurisdiction of

000-51026 (Commission File Number) 77-0466789 (I.R.S. Employer

incorporation or organization)

983 University Avenue, Building A

Identification Number)

Los Gatos, California 95032

(Address of principal executive offices) (Zip Code)

(408) 357-6600

(Registrant s telephone number, including area code)

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 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 1.01 Entry into a Material Definitive Agreement

On September 21, 2006, we reached a settlement of the patent infringement and trade secret misappropriation lawsuit brought by Micrel in November 2004 in the United States District Court for the Northern District of California. The patents and alleged trade secrets were related to semiconductor manufacturing process and semiconductor design elements.

In the settlement, the parties agreed to dismiss all claims and counterclaims in the litigation with prejudice, and Micrel agreed not to assert the patents-in-suit against us or our customers in the future. Micrel also agreed to release Michael Hsing, our chief executive officer, and Jim Moyer, our chief design engineer, from all claims for any alleged trade secret claims based on any confidential information.

In return, we agreed to pay Micrel \$3 million in three equal installments in each of 2006, 2007 and 2008.

A copy of the Settlement Agreement and press release announcing the settlement are attached to this Current Report as Exhibits 10.1 and 99.1, respectively.

Item 9.01. Financial Statements and Exhibits

(d) Exhibits.

Exhibit No. Description

10.1 Settlement Agreement dated September 21, 2006

99.1 Press Release dated September 21, 2006

SIGNATURES

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, thereunto duly authorized.

Date: September 21, 2006 By: /s/ C. Richard Neely, Jr.

C. Richard Neely, Jr. Chief Financial Officer

(Principal Financial and Accounting Officer

and Duly Authorized Officer)

EXHIBIT INDEX

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99.1 Press Release dated September 21, 2006