

NIERENBERG INVESTMENT MANAGEMENT CO  
Form SC 13D/A  
January 10, 2007

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

SCHEDULE 13D  
Under the Securities Exchange Act of 1934  
(Amendment No. 5)

ELECTRO SCIENTIFIC INDUSTRIES INC. (ESIO)  
(Name of Issuer)

Common Stock  
(Title of Class of Securities)

285229100  
(CUSIP Number)

David Nierenberg  
The D3 Family Funds  
19605 NE 8th Street  
Camas, WA 98607  
(360) 604-8600

With a copy to:

Henry Lesser, Esq.  
DLA Piper US LLP  
2000 University Avenue  
East Palo Alto, CA 94303  
(650) 833-2000

(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

January 05, 2007  
(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D and is filing this schedule because of ss.ss. 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box .

-----  
1 NAME OF REPORTING PERSON  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSON

The D3 Family Fund, L.P.  
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2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)   
(b)

-----  
3 SEC USE ONLY

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4 SOURCE OF FUNDS\*

WC

5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED  
PURSUANT TO ITEMS 2(d) OR 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Washington

7 SOLE VOTING POWER

547,032 Common shares (1.9%)

8 SHARED VOTING POWER  
NUMBER OF SHARES  
BENEFICIALLY OWNED BY

0

9 SOLE DISPOSITIVE POWER  
EACH REPORTING PERSON WITH

547,032

10 SHARED DISPOSITIVE POWER

0

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

For the reporting person listed on this page, 547,032; for all reporting persons as a group, 3,159,484 shares (10.8 %)

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES\*

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

10.8%

14 TYPE OF REPORTING PERSON\*

PN

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

2

1 NAME OF REPORTING PERSON

S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSON

The DIII Offshore Fund, L.P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

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(a)   
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS\*

WC

5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED  
PURSUANT TO ITEMS 2(d) OR 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Bahamas

7 SOLE VOTING POWER

727,274 common shares (2.5%)

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

8 SHARED VOTING POWER

0

9 SOLE DISPOSITIVE POWER

727,274

10 SHARED DISPOSITIVE POWER

0

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

For the reporting person listed on this page, 727,274; for all reporting persons as a group, 3,159,484 shares (10.8%)

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES\*

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

10.8%

14 TYPE OF REPORTING PERSON\*

PN

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

3

1 NAME OF REPORTING PERSON

S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSON

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The D3 Family Bulldog Fund, L.P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)   
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS\*

WC

5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED  
PURSUANT TO ITEMS 2(d) OR 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Washington

7 SOLE VOTING POWER

1,885,178 common shares (6.5%)

NUMBER OF  
SHARES  
BENEFICIALLY  
OWNED BY

8 SHARED VOTING POWER

0

EACH  
REPORTING  
PERSON  
WITH

9 SOLE DISPOSITIVE POWER

1,885,178

10 SHARED DISPOSITIVE POWER

0

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

For the reporting person listed on this page, 1,885,178; for all reporting  
persons as a group, 3,159,484 shares (10.8%)

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES\*

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

10.8%

14 TYPE OF REPORTING PERSON\*

PN

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

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1 NAME OF REPORTING PERSON  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSON

Nierenberg Investment Management Company, Inc.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)   
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS\*

WC

5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED  
PURSUANT TO ITEMS 2(d) OR 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Washington

7 SOLE VOTING POWER

0

NUMBER OF  
SHARES  
BENEFICIALLY  
OWNED BY  
EACH  
REPORTING  
PERSON  
WITH

8 SHARED VOTING POWER

3,159,484 shares (10.8%)

9 SOLE DISPOSITIVE POWER

0

10 SHARED DISPOSITIVE POWER

3,159,484 shares

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

For the reporting person listed on this page, 3,159,484; for all reporting persons as a group, 3,159,484 shares (10.8%)

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES\*

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

10.8%

14 TYPE OF REPORTING PERSON\*

PN

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

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1 NAME OF REPORTING PERSON  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSON

Nierenberg Investment Management Offshore, Inc.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\* (a)   
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS\*  
WC

5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED  
PURSUANT TO ITEMS 2(d) OR 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION  
Bahamas

7 SOLE VOTING POWER  
0

8 SHARED VOTING POWER  
727,274 common shares (2.5%)

9 SOLE DISPOSITIVE POWER  
0

10 SHARED DISPOSITIVE POWER  
727,274 common shares

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  
For the reporting person listed on this page, 727,274 for all reporting  
persons as a group, 3,159,484 shares (10.8%)

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES\*

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)  
10.8%

14 TYPE OF REPORTING PERSON\*  
PN

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

This Amendment No. 5 to Schedule 13D (this "Amendment") amends the below-indicated items from the Schedule 13D previously filed by or on behalf of the undersigned parties (the "Reporting Persons") (the "Schedule 13D"), by supplementing such Items with the information below:

Item 4. Purpose of Transaction

We recently acquired 400,000 more shares of ESIO, after the financial community over-reacted, in our view, to the short term, fixable declines in ESIO's gross margin and backlog. The stock market's myopic obsession with short term and out of context fragments of information causes it to undervalue, or even ignore, good companies which have the potential to multiply their share prices over several years, if the market sees the shares as "dead money" over the next one or two quarters. Therefore, we now own over 10.83% of ESIO and believe that we are ESIO's second largest shareholder.

In our most recent prior Form 13D/A, we asked ESIO's Board of Directors to cure the company's excessive capitalization, and its resulting low return on equity, by paying the shareholders a special dividend of \$4.00 per share. Because we believe that the Board will be meeting soon to deliberate about our request, it is neither appropriate nor necessary to comment further at this time.

The only thing we will do is update our prior discussion about cash and marketable securities per share from ESIO's latest Form 10-Q, for the fiscal quarter ended December 2, 2006. On its face, the 10-Q appears to show that ESIO's cash and marketable securities per share rose sequentially from \$7.33 per share to \$7.46 per share on December 2, even after investing \$5 million cash in a private company. A close reading of the 10-Q, however, shows that ESIO has an additional \$8 million of cash, not included in the cash and marketable securities lines of the balance sheet, \$1 million from a subsequent insurance settlement and \$7 million in a litigation bond in Taiwan, which increases cash per share to \$7.73. Finally, as management volunteered in their January 4 quarterly earnings conference call, the amount of ESIO's cash invested in inventory currently exceeds their MBO's and will be reduced. Similarly, receivables are \$5.6 million higher than at the beginning of ESIO's fiscal year. If ESIO were to restore inventories and receivables to June 3, 2006 levels (we believe both ultimately can be reduced even more), and if we were to add the above-mentioned \$8 million cash, ESIO's total cash and marketable securities would be \$8.21 per share, 43.2% of ESIO's share price at the close on January 9. ESIO is profitable, cash flow positive, and it has zero debt. The company generated \$9.9 million of net cash from operating activities in the quarter ended December 2, or 34 cents per share.

In conclusion, we reiterate why we bought 400,000 more ESIO shares on January 4 and 5, 2007:

1. We believe that ESIO has excellent management.
2. ESIO enjoys world leading market shares in its three major product lines, which give it the potential to earn an attractive return on equity.

3. The combination of organic growth, increased R&D investment, a number

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of promising new product releases, and possible acquisitions could enable ESIO to double its revenues over the next three to four years. Management has shared this goal with the public on several occasions. Given the company's business model, such growth would drive earnings per share north of \$2.00, and, in our view, ESIO's share price to \$40, more than double its current depressed level.

4. ESIO continues to have a fortress balance sheet, fed by free operating cash flow from profitable operations.

The previous statements by the Reporting Persons to their views regarding their investment in ESIO represent solely their own analyses and judgments, based on publicly-available information and their own internal evaluation thereof. Those statements are not intended, and should not be relied on, as investment advice to any other investor or prospective investor. To the extent those statements reflect assessments of possible future developments, those assessments are inherently subject to the uncertainties associated with all assessments of future events; actual developments may materially differ as a result of circumstances affecting ESIO and/or extrinsic factors such as developments in the company's industry and the economic environment. The Reporting Persons reserve the right to change their internal evaluation of this investment in the future, as well as to increase or decrease their investment depending on their evaluation, without further amending their Schedule 13D except as required by applicable rules.

Item 5. Interest in Securities of the Issuer

(a,b) The Reporting Persons, in the aggregate, beneficially own 3,159,484 common shares, constituting approximately 10.8% of the outstanding shares.

(c) During the past sixty (60) days the following purchases of Shares were made by D3 Family Funds in open market transactions:

Fund	Transaction Date	Shares Bought	Price
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D3 Family Bulldog Fund LP	1/4/2007	4,625	19.29
D3 Family Fund LP	1/5/2007	60,350	19.13
D3 Family Bulldog Fund LP	1/5/2007	242,755	19.13
DIII Offshore Fund LP	1/5/2007	92,270	19.13

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, each of the undersigned certifies that the information set forth in the Statement is true, complete and correct.

D3 Family Fund, L.P., and D3 Bulldog Fund, L.P.

By: Nierenberg Investment Management Company, Inc.

Its: General Partner

January 10, 2007

By: /s/ David Nierenberg

David Nierenberg, President



DIII Offshore Fund, L.P.

By: Nierenberg Investment Management  
Offshore, Inc.

Its: General Partner

January 10, 2007  
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By: /s/ David Nierenberg  
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David Nierenberg, President

Nierenberg Investment Management  
Company, Inc.

January 10, 2007  
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By: /s/ David Nierenberg  
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David Nierenberg, President

Nierenberg Investment Management  
Offshore, Inc.

January 10, 2007  
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By: /s/ David Nierenberg  
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David Nierenberg, President