

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

OMB APPROVAL	
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Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>PALETTE DONALD W</u> (Last) (First) (Middle) <u>C/O AXCELIS TECHNOLOGIES, INC.</u> <u>108 CHERRY HILL DRIVE</u> (Street) <u>BEVERLY MA 01915</u> (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) <u>01/10/2005</u>	3. Issuer Name and Ticker or Trading Symbol <u>AXCELIS TECHNOLOGIES INC [ACLS]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>Vice President, Finance</u>	5. If Amendment, Date of Original Filed (Month/Day/Year) 6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
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Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)	4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date				
Right to Buy (Stock Option)	01/25/2003	01/25/2010	Common Stock	8,470	8.44	D
Right to Buy (Stock Option)	07/10/2004	07/10/2010	Common Stock	5,625	22	D
Right to Buy (Stock Option)	07/30/2005 ⁽¹⁾	07/30/2011	Common Stock	7,500	14.1	D
Right to Buy (Stock Option)	07/30/2005 ⁽²⁾	07/30/2011	Common Stock	7,500	13.2	D
Right to Buy (Stock Option)	06/21/2006 ⁽³⁾	06/21/2012	Common Stock	5,500	10.28	D
Right to Buy (Stock Option)	06/21/2006 ⁽⁴⁾	06/21/2012	Common Stock	5,500	5.85	D
Right to Buy (Stock Option)	03/27/2007 ⁽⁵⁾	03/27/2013	Common Stock	20,000	5.24	D
Right to Buy (Stock Option)	05/01/2007 ⁽⁶⁾	05/01/2013	Common Stock	8,000	5.7	D
Right to Buy (Stock Option)	05/01/2007 ⁽⁷⁾	05/01/2013	Common Stock	8,000	11.48	D
Right to Buy (Stock Option)	06/25/2008 ⁽⁸⁾	06/25/2014	Common Stock	15,000	11.87	D
Right to Buy (Stock Option)	06/25/2008 ⁽⁹⁾	06/25/2014	Common Stock	15,000	7.97	D

Explanation of Responses:

- Exercisable as to 25% of the shares on each of 7/30/2002, 7/30/2003, 7/30/2004 and 7/30/2005.
- Exercisable as to 25% of the shares on each of 7/30/2002, 7/30/2003, 7/30/2004 and 7/30/2005.
- Exercisable as to 25% of the shares on 6/21/2003, 6/21/2004, 6/21/2005 and 6/21/2006.
- Exercisable as to 25% of the shares on 6/21/2003, 6/21/2004, 6/21/2005 and 6/21/2006.
- Exercisable as to 25% of the total shares on each of 3/27/2004, 3/27/2005, 3/27/2006 and 3/27/2007.
- Exercisable as to 25% of the total shares on each of 5/01/2004, 5/01/2005, 5/01/2006 and 5/01/2007.
- Exercisable as to 25% of the total shares on each of 5/01/2004, 5/01/2005, 5/01/2006 and 5/01/2007.
- Exercisable as to 25% of the total shares on each of 6/25/2005, 6/25/2006, 6/25/2007 and 6/25/2008.
- Exercisable as to 25% of the total shares on each of 6/25/2005, 6/25/2006, 6/25/2007 and 6/25/2008.

Lynnette C. Fallon, as attorney-in-fact 01/19/2005

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

POWER OF ATTORNEY

For Executing Reports under Section 16(a)
with respect to securities of
AXCELIS TECHNOLOGIES INC.

The undersigned hereby constitutes and appoints each of Mary G. Puma, Lynnette C. Fallon, Matthew C. Dallett and Stanley Keller, each acting singly, the undersigned's true and lawful attorney-in-fact, from the date hereof until this Power of Attorney is revoked, to:

(1) execute, for and on behalf of the undersigned, Forms 3, 4 and 5 with respect to securities of Axcelis Technologies, Inc. in accordance with Section 16(a) of the Securities Exchange Act of 1934 and the rules thereunder, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in his or her discretion; and

(2) do and perform any and all acts, for and on behalf of the undersigned, that may be necessary or desirable to complete the execution of any such Form 3, 4 or 5 and the timely filing of such form with the United States Securities and Exchange Commission and any other authority.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform all and every act and thing whatsoever requisite, necessary and proper to be done in the exercise of any of the rights and powers herein granted, as fully for all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or his or her substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming any of the undersigned's responsibilities to comply with Section 16 of the Securities Exchange Act of 1934.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed this 11th day of January, 2005.

/s/ Donald Palette _____
Donald Palette

(continued...)
(continued...)