

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP**

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*			2. Issuer Name and Ticker or Trading Symbol			5. Relationship of Reporting Person(s) to Issuer (Check all applicable)		
<u>Xiao Deming</u>			<u>MONOLITHIC POWER SYSTEMS INC</u>			<input type="checkbox"/> Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>Pres. of MPS Asia Operations</u>		
(Last)	(First)	(Middle)	3. Date of Earliest Transaction (Month/Day/Year)			6. Individual or Joint/Group Filing (Check Applicable Line)		
<u>79 GREAT OAKS BLVD</u>			<u>08/16/2012</u>					
(Street)	(City)	(State)	(Zip)					
<u>SAN JOSE CA 95119</u>			4. If Amendment, Date of Original Filed (Month/Day/Year)			<input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person		

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	08/15/2012		J	V	228 <sup>(1)</sup>	A	\$14.9685	10,228	I	by Spouse
Common Stock	08/16/2012		M		4,688	A	\$16	14,916	I	by Spouse
Common Stock	08/16/2012		S		4,688	D	\$21.9	10,228	I	by Spouse
Common Stock	08/16/2012		M		10,312	A	\$16	20,540	I	by Spouse
Common Stock	08/16/2012		S		10,312	D	\$21.9	10,228	I	by Spouse
Common Stock								125,200	D	

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date					
Incentive Stock Option (right to buy)	\$16	08/16/2012		M			4,688	01/17/2008	01/17/2016	Common Stock 4,688	\$0.0	0.0	I	by Spouse
Non-Qualified Stock Option (right to buy)	\$16	08/16/2012		M			10,312	01/17/2008	01/17/2016	Common Stock 10,312	\$0.0	0.0	I	by Spouse

**Explanation of Responses:**

1. Acquired through the Company's qualified ESPP program.

By: Saria Tseng For: Deming 08/17/2012  
Xiao

\*\* 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 4 (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.**