

Intel Corporation
Flash Products Div.
1900 Prairie City Rd.
Folsom, CA 95630
Mail Stop: FM3-83



July 31, 1997

Needham's Electronics Inc.
4630 Beloit Dr. Suite 20
Sacramento, CA 95838

REF: **Intel and Needham's Electronics Inc. Test Services Agreement dated 10/30/95**

Dear Programmer Vendor:

I am pleased to inform **Needham's Electronics Inc.** that your device programming hardware and software has passed programmer testing by the Flash Products Division (FPD). Programmer testing was conducted by MCD under the following test parameters:

DEVICE PROGRAMMER:	EMP-30
PROGRAMMER SOFTWARE:	3.57
HARDWARE TESTED:	Attached in Table 1

FPD's Programmer testing consists of functional tests of Intel Flash memory products on the specified hardware and software programming platform. FPD tests the functionality of Flash erase, data program, and data read algorithms using multiple data patterns. The results of this programmer testing are contained in the attached **Table 1 DEVICE Programmer Test Report**.

When **Needham's Electronics Inc.** releases Flash related programmer revisions, please provide these revisions to FPD and we will test these new algorithms. Thank you for your participation in this value added program.

Sincerely yours,

A handwritten signature in cursive script that reads "Peter T. Larsen".

Peter T. Larsen
FPD Programmer Evaluation Lab, Manager

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Table 1
DEVICE Programmer Test Report

Intel Flash memory products that passed programmer testing using Needham's Electronics Inc. EMP-30, software revision 3.57 programmer hardware and software:

PART NUMBER	FAMILY MODULE	EMP-30 SOCKET MODULE
Fast Flash:		
E28F016XS	1A	TSOP56
DA28F016XS	1A	SSOP56
E28F016XD	1A	TSOP56
FlashFile:™		
DD28F032SA	1A	TSOP56
E28F016SA	1A	TSOP56
E28F016SV	1A	TSOP56
DA28F016SA	1A	SSOP56
DA28F016SV	1A	SSOP56
E28F008SA	1A	TSOP56
F28F008SA	1A	TSOP56
PA28F008SA	1A	PSOP44
E28F008SA-L	1A	TSOP56
F28F008SA-L	1A	TSOP56
E28F008SC	1A	TSOP56
E28F008S5	1A	TSOP56
PA28F008SA-L	1A	PSOP44
Boot Block:		
E28F400B5-T	1B	TSOP56
E28F400B5-B	1B	TSOP56
E28F400BX-T	2A	TSOP56
PA28F400BX-T	1B	PSOP44
E28F400BX-B	2A	TSOP56
PA28F400BX-B	1B	PSOP44
E28F400BL-T	2A	TSOP56
PA28F400BL-T	1B	PSOP44
E28F400BL-B	2A	TSOP56
PA28F400BL-B	1B	PSOP44
E28F004BX-T	1B	TSOP56
E28F004BX-B	1B	TSOP56
E28F004BL-T	1B	TSOP56
E28F004BL-B	1B	TSOP56
E28F200BX-T	2A	TSOP56
PA28F200BX-T	1B	PSOP44
E28F200BX-B	2A	TSOP56
PA28F200BX-B	1B	PSOP44
E28F200BL-T	2A	TSOP56
PA28F200BL-T	1B	PSOP44
E28F200BL-B	2A	TSOP56
PA28F200BL-B	1B	PSOP44
E28F002BX-T	1B	TSOP56
E28F002BX-B	1B	TSOP56
E28F002BL-T	1B	TSOP56
E28F002BL-B	1B	TSOP56
E28F001BX-T	1A	TSOP56
E28F001BX-B	1A	TSOP56
N28F001BX-T	1A	PLCC32
N28F001BX-B	1A	PLCC32
P28F001BX-T	1A	PSOP44
P28F001BX-B	1A	PSOP44
BIOS CHIP		
E28F002BC	1B	TSOP56
PA28F002BC	1B	PSOP44
SmartVoltage		

Boot Block:

PA28F800BV-T	1B	PSOP44
PA28F800BV-B	1B	PSOP44
E28F800CV-T	1B	TSOP56
E28F800CV-B	1B	TSOP56
E28F800CE-T	1B	TSOP56
E28F800CE-B	1B	TSOP56
E28F008BV-T	1B	TSOP56
E28F008BV-B	1B	TSOP56
E28F008BE-T	1B	TSOP56
E28F008BE-B	1B	TSOP56
E28F400BV-T	2A	TSOP56
E28F400BV-B	2A	TSOP56
E28F400CV-T	1B	TSOP56
E28F400CV-B	1B	TSOP56
E28F400CE-T	1B	TSOP56
E28F400CE-B	1B	TSOP56
PA28F400BV-T	1B	PSOP44
PA28F400BV-B	1B	PSOP44
E28F004BV-T	1B	TSOP56
E28F004BV-B	1B	TSOP56
E28F004BE-T	1B	TSOP56
E28F004BE-B	1B	TSOP56
E28F200BV-T	2A	TSOP56
E28F200BV-B	2A	TSOP56
E28F200CV-T	1B	TSOP56
E28F200CV-B	1B	TSOP56
PA28F200BV-T	1B	PSOP44
PA28F200BV-B	1B	PSOP44
E28F002BV-T	1B	TSOP56
E28F002BV-B	1B	TSOP56

Bulk Erase:

E28F020	1A	TSOP56
F28F020	1A	TSOP56
N28F020	1A	PLCC32
P28F020	1A	DIP48
E28F010	1A	TSOP56
F28F010	1A	TSOP56
N28F010	1A	PLCC32
P28F010	1A	DIP48
N28F512	1A	PLCC32
P28F512	1A	DIP48
N28F256A	1A	PLCC32
P28F256A	1A	DIP48

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