

**Intel Corporation**  
Memory Components Div.  
1900 Prairie City Road  
Folsom Ca. 95630  
Mail Stop: FM3-83



February 14, 1997  
**Needhams Electronics**  
**4630 Beloit Drive #20**  
**Sacramento, CA 95838**

Dear PROM Programmer Vendor:

I am pleased to inform **Needhams Electronics** that your PROM programming hardware and software has passed PROM programmer testing by the Memory Components Division (MCD). PROM programmer testing was conducted by MCD under the following test parameters:

<b>PROM PROGRAMMER:</b>	<b>EMP-20</b>
<b>PROGRAMMER SOFTWARE:</b>	<b>3.42</b>
<b>HARDWARE TESTED:</b>	Attached in <b>Table 1</b>

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

When **Needhams Electronics** releases Flash related PROM programmer revisions, please provide these revisions to MCD 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  
MCD Testing Lab, Manager

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**Table 1**  
**PROM Programmer Test Report**

**Intel Flash memory products that passed PROM programmer testing using Needhams Electronics EMP-20 revision 3.42 PROM programmer hardware and software:**

	<b>Fast Flash:</b>	<b>FAMILY MODULE</b>	<b>EMP-20 SOCKET</b>
1	E28F016XS	01B	B56
2	E28F016XD	01B	C56
3	DA28F016XS	01B	56SS-40D-B6-TI
	<b>FlashFile™ components:</b>	<b>FAMILY MODULE</b>	<b>EMP-20 SOCKET</b>
1	DD28F032SA	01B	56TS-40D-C6-YAM-S R2
2	E28F016SA	01B	56TS-40D-C6-YAM-S R2
3	E28F016SV	01B	56TS-40D-C6-YAM-S R2
4	DA28F016SA	01B	56SS-40D-A6-TI
5	DA28F016SV	01B	56SS-40D-A6-TI
6	E28F008SA	01B	40TS-40D-A6-YAM-S
7	F28F008SA	01B	40TS-40D-A6-YAM-R
8	PA28F008SA	01B	C44
9	E28F008SA-L	01B	40TS-40D-A6-YAM-S
10	F28F008SA-L	01B	40TS-40D-A6-YAM-R
11	PA28F008SA-L	01B	C44
12	E28F008SC	022B	B40
13	PA28F008SC	01B	C44
	<b>BootBlock Components</b>	<b>FAMILY MODULE</b>	<b>EMP-20 SOCKET</b>
1	E28F400BX-T	01B	A56
2	PA28F400BX-T	01B	C44
3	E28F400BX-B	01B	A56
4	PA28F400BX-B	01B	C44
5	E28F400BL-T	01B	A56
6	PA28F400BL-T	01B	C44
7	E28F400BL-B	01B	A56
8	PA28F400BL-B	01B	C44
9	E28F004BX-T	01B	A40
10	E28F004BX-B	01B	A40
11	E28F004BL-T	01B	A40
12	E28F004BL-B	01B	A40
13	E28F200BX-T	01B	C44
14	PA28F200BX-T	01B	C44
15	E28F200BX-B	01B	A56
16	PA28F200BX-B	01B	C44
17	E28F200BL-T	01B	A56
18	PA28F200BL-T	01B	C44
19	E28F200BL-B	01B	A56
20	PA28F200BL-B	01B	C44
21	E28F002BX-T	01B	A40
22	E28F002BX-B	01B	A40
23	E28F002BL-T	01B	A40
24	E28F002BL-B	01B	A40
25	E28F001BX-T	01A	32TS-32D-A6-ENP-S
26	E28F001BX-B	01A	32TS-32D-A6-ENP-S
27	N28F001BX-T	01A	PD32
28	N28F001BX-B	01A	PD32
29	P28F001BX-T	01A	N/A
30	P28F001BX-B	01A	N/A
	<b>SmartVoltage™ Boot Block</b>	<b>FAMILY MODULE</b>	<b>EMP-20 SOCKET</b>
1	E28F400BV-T	01B	A56
2	E28F400BV-B	01B	A56
3	E28F200BV-T	01B	A56
4	E28F200BV-B	01B	A56
5	E28F800CV-T	01B	A48/B48
6	E28F800CV-B	01B	A48/B48
7	E28F400CV-T	01B	A48/B48
8	E28F400CV-B	01B	A48/B48
9	E28F200CV-T	01B	B48

10	E28F200CV-B	01B	B48
11	E28F800CE-T	01B	A48/B48
12	E28F800CE-B	01B	A48/B48
13	E28F400CE-T	01B	A48/B48
14	E28F400CE-B	01B	A48/B48
15	E28F200CE-T	01B	A48/B48
16	E28F200CE-B	01B	A48/B48
17	PA28F400BV-T	01B	C44
18	PA28F800BV-B	01B	C44
19	PA28F800BV-T	01B	C44
20	PA28F400BV-B	01B	C44
21	PA28F200BV-T	01B	C44
22	PA28F200BV-B	01B	C44
23	E28F008BV-T	01B	A40
24	E28F008BV-B	01B	A40
25	E28F004BV-T	01B	A40
26	E28F004BV-B	01B	A40
27	E28F002BV-T	01B	A40
28	E28F002BV-B	01B	A40
29	E28F008BE-T	01B	A40
30	E28F008BE-B	01B	A40
31	E28F004BE-T	01B	A40
32	E28F004BE-B	01B	A40
33	E28F002BE-T	01B	A40
34	E28F002BE-B	01B	A40

**Bulk Erase Components**

**FAMILY MODULE**

**EMP-20 SOCKET**

1	E28F020	01A	32TS-32D-A6-ENP-S
2	F28F020	01A	32TS-32D-A6-ENP-R
3	N28F020	01A	32PL-32D-A6-YAM
4	P28F020	01A	N/A
5	E28F010	01A	32TS-32D-A6-ENP-S
6	F28F010	01A	32TS-32D-A6-ENP-R
7	N28F010	01A	PD32
8	P28F010	01A	N/A
9	N28F512	01A	PD32
10	P28F512	01A	N/A
11	N28F256A	01A	PD32
12	P28F256A	01A	N/A

**BIOS CHIP**

**FAMILY MODULE**

**EMP-20 SOCKET**

1	PA28F002BC	01B	C44
2	E28F002B C	01B	A40

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