

**MAX 5000
PRODUCT CHANGE NOTIFICATION**

Overview

The MAX 5000 product line will be transitioned from a 0.8 micron EPROM process to a 0.65 micron EPROM process. This change will improve Altera's ability to support the product line on a long term basis. This notification addresses the EPM5128 and EPM5192, the first MAX 5000 devices to undergo this change.

New die revisions offer drop-in compatibility with the existing die revisions, meaning that they are pin, function and programming file compatible.

A new programming adapter will be required to program the new die revisions when using MAX+PLUS II. New hardware will not be required to program the new die revisions when using most industry standard programming equipment. This includes programming hardware manufactured by Data I/O.

Implementation

Altera will phase in the new die revisions for commercial, industrial and military (non-883B) grade products beginning with the EPM5128, on or after November 1, 1994 and the EPM5192, on or after February 1, 1995. The schedule for the phase in of Mil-Std-883B grade products will be offset by three months.

The 0.65 micron process may be distinguished from the 0.8 micron process by the fourth character of the nine character lot number, which is marked on the device backside. The 0.65 micron process is identified by a 9, while the 0.8 micron process is identified by a 5, e.g., NCS521711 implies 0.8 micron process and NCD921762 implies 0.65 micron process.

Altera will exchange, without charge, existing EPM5128 and EPM5192 MAX+PLUS II programming adapters for new adapters. These new adapters are backwards compatible, supporting all existing die revisions. Table I lists existing adapters that can be exchanged for new adapters. The adapter type (PLEJ5128, PLMJ5128, etc.) can be identified by the marking in its top left-hand corner. **Please contact your Altera Sales Representative, to obtain these new adapters.**

Table 1

List of Adapters to be Exchanged Without Charge

<u>Existing Adapter</u>	<u>New Adapter</u>
PLEJ5128, PLMJ5128	PLMJ5128A
PLEG5128	PLMG5128A
PLMJ5192	PLMJ5192A
PLMG5192	PLMG5192A

Reliability Information

Reliability results for the new EPM5128 die revision are provided below:

Package	Reliability Test	Sample Size	Test Duration	Failures
68 PLCC	Lifetest, 125°C, 6V	154	1000 hours	0
68 PLCC	Autoclave, 121°C, 2 atmospheres steam, unbiased	154	168 hours	0
68 PLCC	Temperature Cycle, Condition B -55°C to 150°C	154	1000 cycles	0
68 PLCC	ESD, Human Body Model	2	2000 volts	0
68 PLCC	ESD, Machine Model	2	250 volts	0
68 PLCC	Latch-up, ± 5V, 125°C	2	± 200 ma	0

Reliability results will be available upon request, for the new EPM5192 die revision, by December 15, 1994.

Additional MAX 5000 devices will be transitioned to a 0.65 micron EPROM process in 1995. Altera will provide product change notification prior to implementing these additional product transitions.