PROCESS CHANGE NOTIFICATION PCN0506

ADDITION OF INTEL FLASH MEMORY AS SOURCE FOR EPC4, EPC8 & EPC16 ENHANCED CONFIGURATION DEVICES

Change Description:

Altera will be adding Intel's flash memory as a source used in the EPC4, EPC8, and EPC16 enhanced configuration devices. The 88-pin ultra FineLine BGA® and 100-pin plastic quad flat pack (PQFP) packages containing the Intel flash memory will be assembled at ASEK. Samples are currently scheduled to be available October 15, 2005. This change affects fit and function as indicated below.

Products Affected:

The devices affected by this change notification are shown in Table 1.

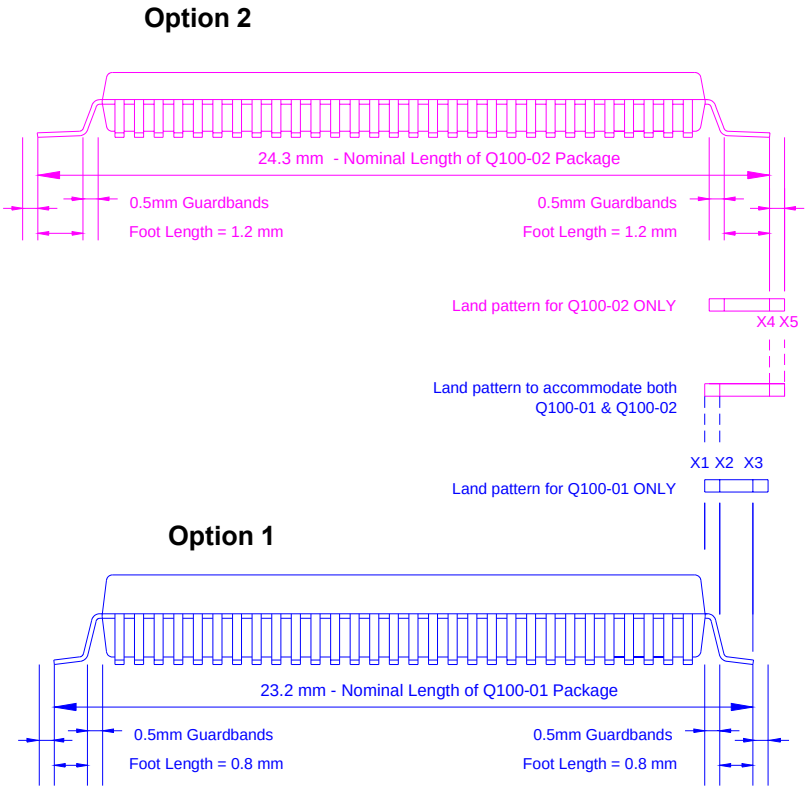
Table 1. Devices Affected By This Change Notification

EPC4	EPC8	EPC16
EPC4QC100	EPC8QC100	EPC16UC88
EPC4QI100	EPC8QI100	EPC16UC88N
EPC4QC100N	EPC8QC100DM	EPC16UI88AA
		EPC16UC88AA
		EPC16QC100
		EPC16QI100
		EPC16UC88AB

Fit:

The new 100-pin PQFP package from ASEK, for both the EPC8 and EPC16, will be JEDEC compliant and conform to option 1 outlined in the Altera® Device Package Information Data Sheet (http://www.altera.com/literature/ds/dspkg.pdf). The current 100-pin PQFP package conforms to option 2. Figure 1 in this PCN indicates the difference between options 1 and 2. The 100-pin PQFP package of the EPC4 currently conforms to Option 1 and will not change.

Figure 1. 100-pin Plastic Quad Flat Pack (PQFP) Options 1 & 2 Comparison



Function:

Intel-flash-based EPC4, EPC8, and EPC16 devices will be programming compatible with current devices when using existing programmer object files (POF) with Quartus® II software version 5.1 and later and POF or HEXOUT (HEX) files with updated third-party programming tools. Please contact the supplier of the third-party programming tool directly for the required update. Other file formats require a conversion procedure that will be made available at the time of device sampling. MAX+PLUS® II software will not support the Intel-flash-based EPC4, EPC8, and EPC16.

Most modes of operation work identically in existing EPC devices and in new Intel-flash-based EPC devices. Secondary feature modes that operate differently in the new Intel-flash-based EPC devices are highlighted in Table 2. It is recommended that designs do not use the modes that are not available in the new Intel-flash-based EPC4, EPC8, and EPC16.

Table 2: Lock Bit Mode Operation

Mode	Existing EPC4	Existing EPC8 & EPC16	New Intel-flash Based EPC4, EPC8 & EPC16
Full Chip Erase	Not available	Supported	Not available
Set Block Lock Bit	Not available	Supported	Not available
Clear Block Lock Bits	Not available	Supported	Not available
Set Permanent Lock Bit	Not available	Supported	Not available
Flash Mode OTP Program	Not available	Supported	Not available

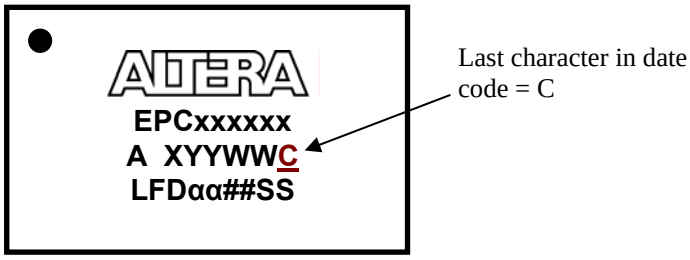
Reason for Change:

Intel flash memory is being added as a memory source to ensure guaranteed supply of enhanced configuration device products.

Product Traceability and Transition Dates:

Production EPC4, EPC8, and EPC16 devices containing the Intel flash memory will start shiping in the first quarter of 2006 and can be identified by the last character in the date code "C" marked on the device, as shown in Figure 2.

Figure 2. Marking to Identify Use of Intel Flash Memory



Qualification Data:

Qualification data is available upon request, as shown in Table 3.

Table 3. Qualification Data Availability

Intel's Flash Memory	Now
88 pin UFBGA	Now
100 pin PQFP	October 1, 2005

Contact:

For further information on the programming support and feature differences, contact Altera's mySupport website at https://mysupport.altera.com/eservice. An updated white paper describing all applicable programming details will be available on Altera's website by the sample date, October 15, 2005.

For more information on this change, contact your local Altera sales representative or Altera Customer Quality Engineering at customer-quality@altera.com.