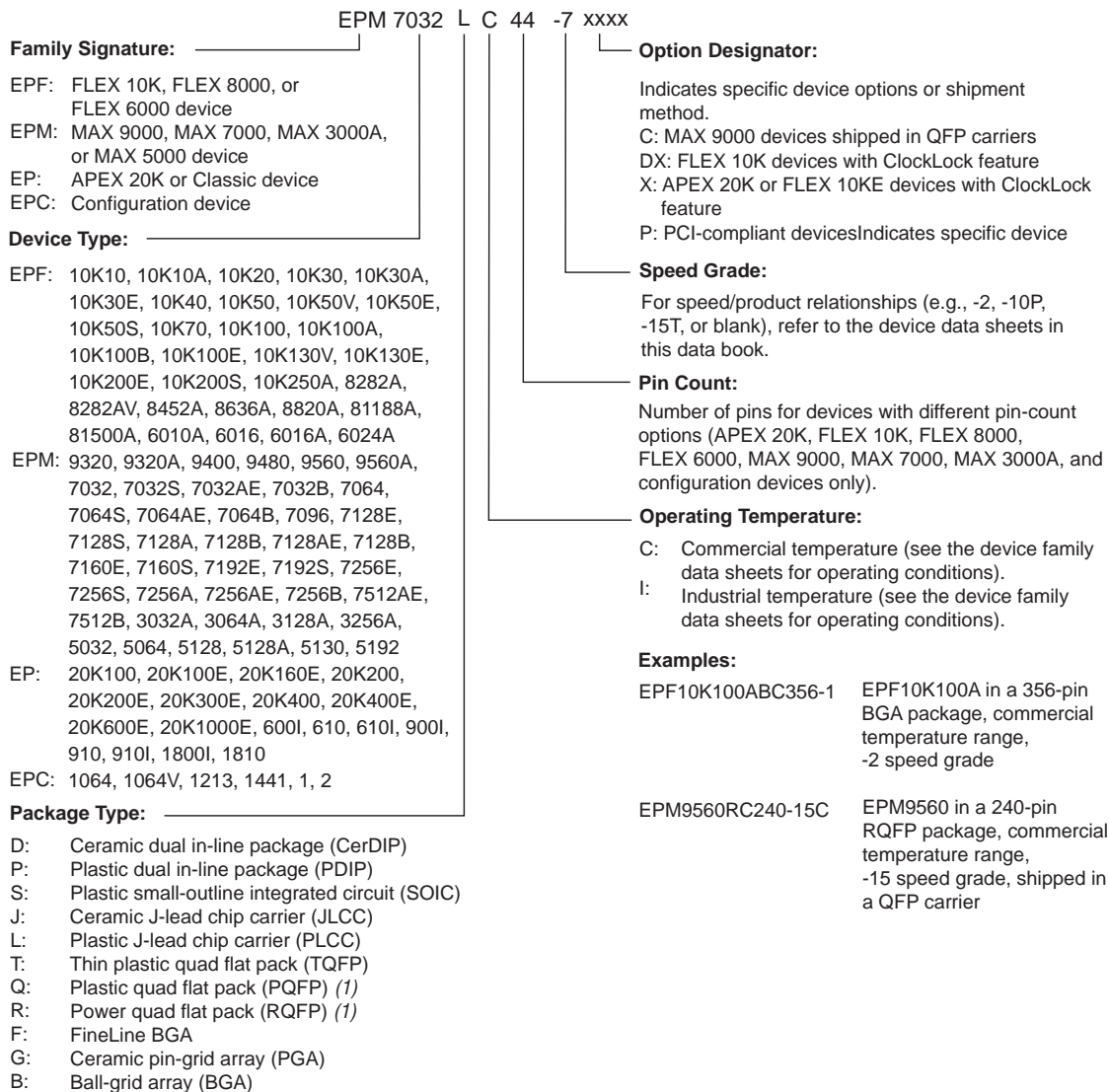


August 1999, ver. 10

## Altera Devices

Figure 1 explains the ordering codes for Altera® devices. Devices that have multiple pin counts for the same package include the pin count in their ordering codes. Some codes use relative numbers (e.g., -1, -2) to designate speed grades; others use actual propagation delay times (e.g., -15, -20). For information on specific package, speed grade, and operating temperature combinations, refer to the device family data sheets in this data book, or contact Altera Customer Marketing at (408) 544-7104.

**Figure 1. Device Package Ordering Codes**



**Note:**

(1) MAX<sup>®</sup> 9000 and MAX 7000 devices in QFP packages with 100 or more pins can be ordered in QFP carriers.

## Development Tools

The Altera Subscription Program offers the most recent versions of Altera's Quartus™ and MAX+PLUS® II software. An active subscription entitles you to the initial installation of the software, as well as all Altera development system updates and releases over the duration of the 12-month subscription period. As long as you have a valid subscription, you will automatically receive the latest versions of the Quartus and MAX+PLUS II software, which will offer support for the latest Altera programmable logic devices (PLDs), new software features, performance enhancements, and the most current on-line and printed documentation. [Table 1](#) explains the ordering codes for the Altera Subscription Program. For information on specific products, contact Altera Customer Marketing at (408) 544-7104.

**Table 1. Altera Subscription Program Product Line**

<b>Product</b>	<b>Description of Coverage</b>
FIXEDPC	Stand-alone single-user license for PCs
FLOATPC	Multiple-user network licensing for PCs only
FLOATNET	Multiple-user network licensing for PCs and UNIX networks
RENEWAL	Renewal of existing subscription program for additional 12 month period
ADD-FLOATPC	Additional PC-client seats to add on to FLOATPC product
ADD-FLOATNET	Additional PC or UNIX client seats to add on to FLOATNET product

Table 2 outlines the MegaCore™ functions available from Altera.

<b>Table 2. Altera MegaCore Functions (Part 1 of 2)</b>			
<b>Product Name</b>	<b>Description</b>	<b>Target Device</b>	<b>Ordering Code</b>
RGB2YCrCb and YCrCb2RGB	Color space converters	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-CSC
crc	Cyclic redundancy code generator and checker	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-CRC
FIR Compiler	FIR filter	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-FIR
fft	Fully parameterizable fast Fourier transform (FFT) function	APEX 20K FLEX 10K	PLSM-FFT
Interleaver/ Deinterleaver	Block and convolutional interleaver/deinterleaver	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-INLV
pci_a	32-bit peripheral component interconnect (PCI) master/target interface	FLEX 10K	PLSM-PCI/A
pcit1	32-bit PCI target interface function	FLEX 10K FLEX 6000	PLSM-PCIT1
pci_b	32-bit master/target interface function	FLEX 10K	PLSM-PCI/B
pci_c	64-bit PCI master/target interface function	APEX 20K FLEX 10K	PLSM-PCI/C
Microperipheral MegaCore Library	Library of universal asynchronous receiver/transmitter (UART), DMA controller, interrupt controller, and parallel port controller functions. Includes the a8237, a8251, a8255, a6402, a16450, a6850, and a8259 functions.	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-MICROLIB
a8237	Programmable DMA controller	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-8237

**Table 2. Altera MegaCore Functions (Part 2 of 2)**

<b>Product Name</b>	<b>Description</b>	<b>Target Device</b>	<b>Ordering Code</b>
a8251	Programmable communications interface	APEX 20K FLEX 10K FLEX 8000 FLEX 6000	PLSM-8251
a8255	Programmable peripheral interface adapter	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-8255
a6402	Universal asynchronous receiver/transmitter	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-6402
a16450	Universal asynchronous receiver/transmitter	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-16450
a6850	Asynchronous communications interface adapter	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-6850
a8259	Programmable interrupt controller	APEX 20K FLEX 10K FLEX 8000 FLEX 6000 MAX 9000 MAX 7000 MAX 3000A	PLSM-8259



For more information on these MegaCore functions, go to one of the following documents:

- [RGB2YCrCb & YCrCb2RGB Color Space Converters Data Sheet](#)
- [crc MegaCore Function Parameterized CRC Generator/Checker Data Sheet](#)
- [fft Fast Fourier Transform Data Sheet](#)
- [PCI Master/Target MegaCore Function with DMA Data Sheet](#)
- [pci\\_b PCI Master/Target MegaCore Function Data Sheet](#)
- [pcit1 PCI Target MegaCore Function Data Sheet](#)
- [Microperipheral MegaCore Function Data Book](#)
- [pci\\_b & pcit1 MegaCore Function User Guide](#)
- [pci\\_c MegaCore Function User Guide](#)

## Programming Hardware

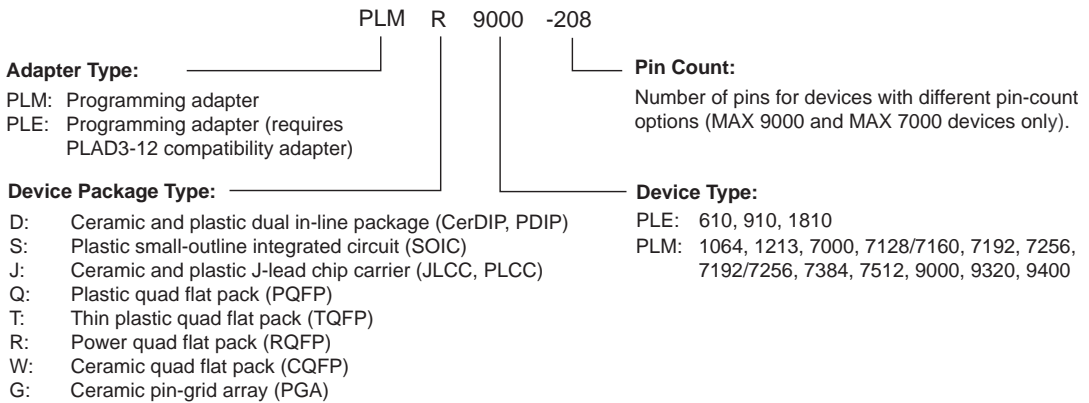
This section provides the ordering codes for Altera programming hardware and adapters. [Table 3](#) lists the ordering codes for the programming cards, cables, and programming units.

<b>Table 3. Programming Hardware</b>		
<b>Product</b>	<b>Ordering Code</b>	<b>Description</b>
Altera Stand-Alone Programmer	PL-ASAP2	Includes programming software, a Logic Programmer card, and the MPU.
LP6 Logic Programmer Card	PLP6	Interfaces with PCs.
Master Programming Unit (MPU)	PL-MPU	With the appropriate adapters, programs all Altera devices.
Compatibility Adapter	PLAD3-12	Interfaces PLE-prefix adapters to the MPU. Together with the MPU, directly programs 20-pin Classic devices.
BitBlaster™ Serial Download Cable	PL-BITBLASTER	Interfaces with PCs and UNIX workstations. RS-232 serial-port programming cable for MAX 9000, MAX 7000A, MAX 7000AE, MAX 7000S, MAX 3000A, and all FLEX and APEX devices.
ByteBlasterMV™ Parallel Port Download Cable	PL-BYTEBLASTERMV	Interfaces with PCs. PC parallel-port programming cable for MAX 9000, MAX 7000S, MAX 7000A, MAX 7000AE, MAX 3000A, and all FLEX devices. The ByteBlaster cable is obsolete and is replaced by the ByteBlasterMV cable, which can program and configure 2.5-V, 3.3-V, and 5.0-V devices.
MasterBlaster Serial/USB Communications Cable	PL-MASTERBLASTER	Interfaces with PCs and UNIX workstations. Standard PC serial or USB port hardware interface for programming or configuring APEX 20K, FLEX 10K, FLEX 8000, FLEX 6000, MAX 9000, MAX 7000S, and MAX 7000A devices.

Figure 2 explains the ordering codes for Altera programming adapters. Two types of adapters plug directly into the MPU: PLM-prefix and PLAD3-12 adapters. Multiple pin-compatible devices use the same device type code shown in Figure 1.

## Figure 2. Programming Adapter Ordering Codes

See the *Altera Programming Hardware Data Sheet* for specific information on each device and package combination.



## QFP Carrier & Development Sockets

Table 4 shows the ordering codes for QFP device sockets. All MAX<sup>®</sup> 9000 QFP devices may be ordered in QFP carriers. All MAX 7000 and MAX 5000 QFP devices with 100 or more pins are shipped with QFP carriers. QFP carriers and development sockets are rated from -65° C to 155° C and are qualified to handle commercial (C) and industrial (I) operating temperatures.

Product	Ordering Code
100-pin development socket (includes removal tool)	PL-SKT/Q100
160-pin development socket (includes removal tool)	PL-SKT/Q160
208-pin development socket (includes removal tool)	PL-SKT/Q208
240-pin development socket (includes removal tool)	PL-SKT/Q240
304-pin development socket (includes removal tool)	PL-SKT/Q304

Table 5 shows the ordering codes for QFP carrier extraction tools.

<b>Table 5. QFP Carrier Extraction Tools</b>	
<b>Product</b>	<b>Ordering Code</b>
100-pin QFP carrier extraction tool	PL-EXT1
160- and 208-pin QFP carrier extraction tool	PL-EXT2
240-pin QFP carrier extraction tool	PL-EXT4
304-pin QFP carrier extraction tool	PL-EXT5

For more information on QFP carriers, see the [QFP Carrier & Development Socket Data Sheet](#).



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