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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

EPM 7032B L C 44 -7 xxxx	
Family Signature:	Option Designer:
EPF: FLEX 10K, FLEX 8000, or FLEX 6000 device	Indicates specific device options or shipment method.
EPM: MAX 9000, MAX 7000, or MAX 3000A device	C: MAX 9000 devices shipped in QFP carriers
EP1M: Mercury device	X: APEX 20K or FLEX 10KE devices with ClockLock feature
EP: APEX 20K, ACEX 1K or Classic device	P: PCI-compliant devices
EPC: Configuration device	F: Fixed programming algorithm
Device Type:	Speed Grade:
EPF: 10K10, 10K10A, 10K20, 10K30, 10K30A, 10K30E, 10K40, 10K50, 10K50V, 10K50E, 10K50S, 10K70, 10K100, 10K100A, 10K100B, 10K100E, 10K130V, 10K130E, 10K200E, 10K200S, 10K250A, 8282A, 8282AV, 8452A, 8636A, 8820A, 81188A, 81500A, 6010A, 6016, 6016A, 6024A	For speed/product relationships (e.g., -2, -10P, -15T, or blank), refer to the device data sheets in this data book.
EP1M: 120, 350	Pin Count:
EPM: 9320, 9320A, 9400, 9480, 9560, 9560A, 7032, 7032S, 7032AE, 7032B, 7064, 7064S, 7064AE, 7064B, 7096, 7128E, 7128S, 7128A, 7128AE, 7128B, 7160E, 7160S, 7192E, 7192S, 7256E, 7256S, 7256A, 7256AE, 7256B, 7512AE, 7512B, 3032A, 3064A, 3128A, 3256A	Number of pins for devices with different pin-count options.
EP: 1K10, 1K30, 1K50, 1K100 20K60E, 20K100, 20K100C, 20K100E, 20K160E, 20K200, 20K200C, 20K200E, 20K300E, 20K400, 20K400C, 20K400E, 20K600C, 20K600E, 20K1000C, 20K1000E, 20K1500C, 20K1500E, 600I, 610, 610I, 900I, 910, 910I, 1800I, 1810	Operating Temperature:
EPC: 1064, 1064V, 1213, 1441, 1, 2	C: Commercial temperature (see the device family data sheets for operating conditions).
Package Type:	I: Industrial temperature (see the device family data sheets for operating conditions).
D: Ceramic dual in-line package (CerDIP)	Examples:
P: Plastic dual in-line package (PDIP)	EPF10K100ABC356-1 EPF10K100A in a 356-pin BGA package, commercial temperature range, -2 speed grade
S: Plastic small-outline integrated circuit (SOIC)	EPM7512BQC208-5 EPM7152B in a 208-pin PQFP package, commercial temperature range, -5 speed grade
J: Ceramic J-lead chip carrier (JLCC)	
L: Plastic J-lead chip carrier (PLCC)	
T: Thin plastic quad flat pack (TQFP)	
Q: Plastic quad flat pack (PQFP) (1)	
R: Power quad flat pack (RQFP) (1)	
F: FineLine BGA	
G: Ceramic pin-grid array (PGA)	
B: Ball-grid array (BGA)	

Note:

(1) MAX® 9000 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™ II 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 II 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

Product	Description of Coverage
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

Altera offers a variety of MegaCore™ functions for use with Altera devices for the following applications:

- PCI
- Signal processing
- Memory interfaces
- Communications
- Processors/peripherals



For more information on these MegaCore functions visit the Altera web site at <http://www.altera.com/IPmegastore> or 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 2 lists the ordering codes for the programming cards, cables, and programming units.

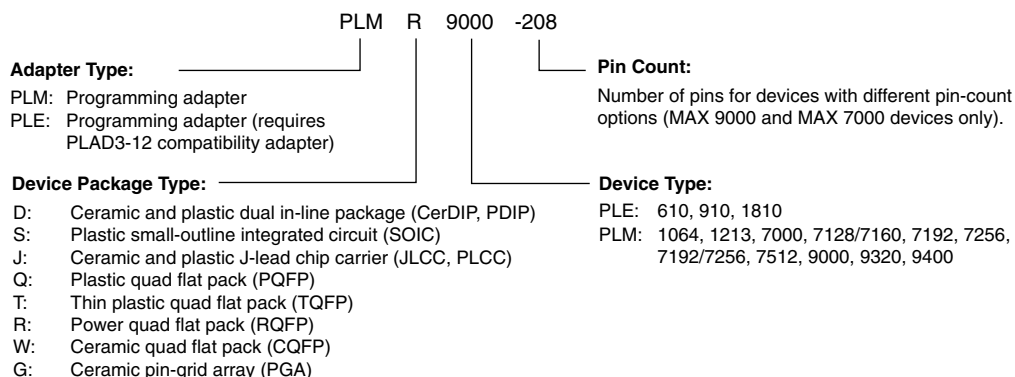
Table 2. Programming Hardware

Product	Ordering Code	Description
Altera Stand-Alone Programmer	PL-ASAP2	Includes programming software, a Logic Programmer card, and the MPU.
LP6 Logic Programmer Card	PLP6	Interfaces with PCs.
Altera Programming Unit	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, ACEX 1K, Mercury, FLEX 10K, FLEX 8000, FLEX 6000, MAX 9000, MAX 7000S, MAX 7000A and MAX 3000A 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 3 shows the ordering codes for QFP device sockets. All MAX 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.

Table 3. QFP Device Sockets

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 4 shows the ordering codes for QFP carrier extraction tools.

Table 4. QFP Carrier Extraction Tools	
Product	Ordering Code
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*.



101 Innovation Drive
San Jose, CA 95134
(408) 544-7000
<http://www.altera.com>
Applications Hotline:
(800) 800-EPLD
Customer Marketing:
(408) 894-7104
Literature Services:
lit_req@altera.com

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