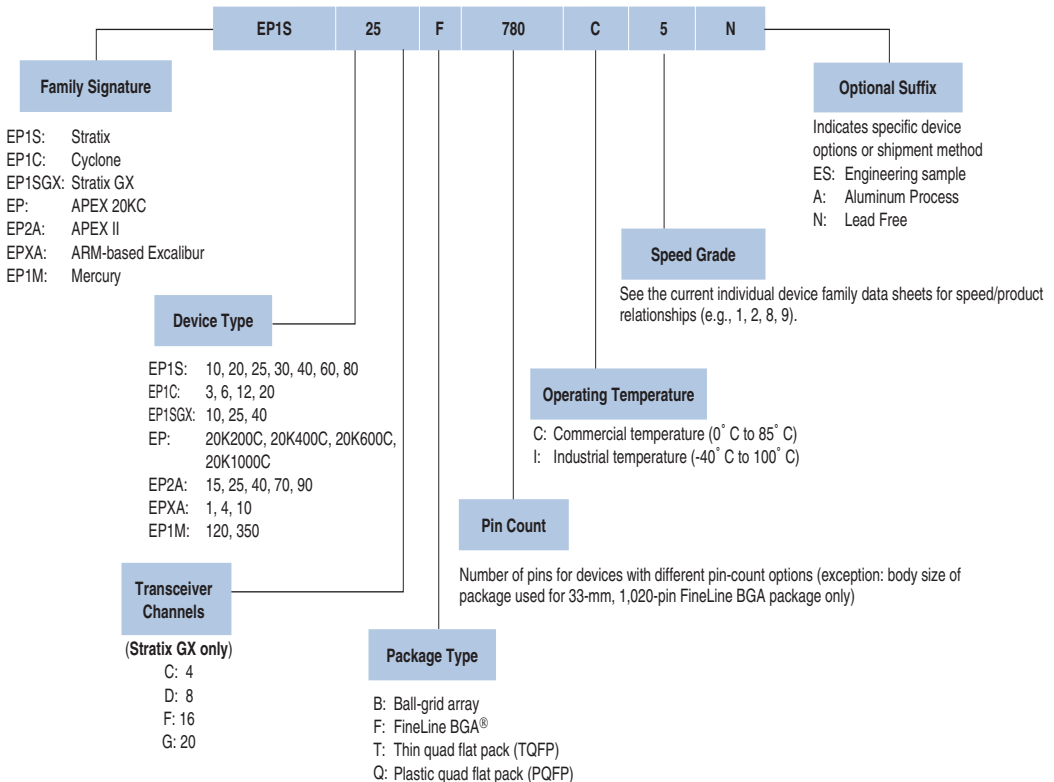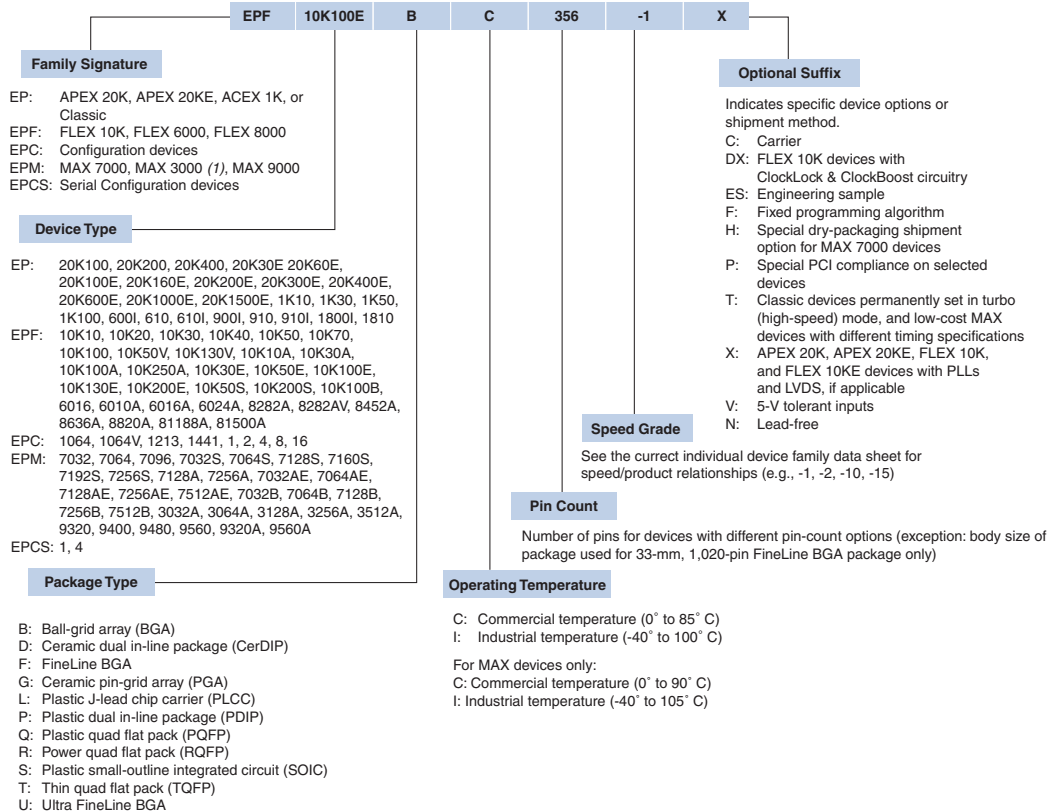# Ordering Information

Altera Devices

Figures 1 and 2 explain the ordering codes for Altera® devices. Devices that have multiple pin counts for the same package include the pin count in their ordering codes. For information on specific package, speed grade, and operating temperature combinations, refer to the specific device family data sheet, or contact Altera Customer Marketing at (408) 544-7104.

Figure 1. Device Package Ordering Information for Stratix™, Stratix GX, Cyclone™, APEX™ 20KC, APEX II, Mercury™ & Excalibur™ Devices

EP1S 25 F 780 C 5 N

Family Signature

EP1S: Stratix
EP1C: Cyclone
EP1SGX: Stratix GX
EP: APEX 20KC
EP2A: APEX II
EPXA: ARM-based Excalibur
EP1M: Mercury

Device Type

EP1S: 10, 20, 25, 30, 40, 60, 80
EP1C: 3, 6, 12, 20
EP1SGX: 10, 25, 40
EP: 20K200C, 20K400C, 20K600C, 20K1000C
EP2A: 15, 25, 40, 70, 90
EPXA: 1, 4, 10
EP1M: 120, 350

Transceiver Channels

(Stratix GX only)
C: 4
D: 8
F: 16
G: 20

Package Type

B: Ball-grid array
F: FineLine BGA®
T: Thin quad flat pack (TQFP)
Q: Plastic quad flat pack (PQFP)

Pin Count

Number of pins for devices with different pin-count options (exception: body size of package used for 33-mm, 1,020-pin FineLine BGA package only)

Operating Temperature

C: Commercial temperature (0° C to 85° C)
I: Industrial temperature (-40° C to 100° C)

Speed Grade

See the current individual device family data sheets for speed/product relationships (e.g., 1, 2, 8, 9).

Optional Suffix

Indicates specific device options or shipment method
ES: Engineering sample
A: Aluminum Process
N: Lead Free

Figure 2. Device Package Ordering Information for APEX 20K, APEX 20KE, FLEX®, ACEX®, MAX®, Classic™ & Configuration Devices

```
EPF   10K100E   B   C   356   -1   X
```

Family Signature

EP: APEX 20K, APEX 20KE, ACEX 1K, or
       Classic
EPF: FLEX 10K, FLEX 6000, FLEX 8000
EPC: Configuration devices
EPM: MAX 7000, MAX 3000 *(1)*, MAX 9000
EPCS: Serial Configuration devices

Device Type

EP: 20K100, 20K200, 20K400, 20K30E 20K60E,
       20K100E, 20K160E, 20K200E, 20K300E, 20K400E,
       20K600E, 20K1000E, 20K1500E, 1K10, 1K30, 1K50,
       1K100, 600I, 610, 610I, 900I, 910, 910I, 1800I, 1810
EPF: 10K10, 10K20, 10K30, 10K40, 10K50, 10K70,
       10K100, 10K50V, 10K130V, 10K10A, 10K30A,
       10K100A, 10K250A, 10K30E, 10K50E, 10K100E,
       10K130E, 10K200E, 10K50S, 10K200S, 10K100B,
       6016, 6010A, 6016A, 6024A, 8282A, 8282AV, 8452A,
       8636A, 8820A, 81188A, 81500A
EPC: 1064, 1064V, 1213, 1441, 1, 2, 4, 8, 16
EPM: 7032, 7064, 7096, 7032S, 7064S, 7128S, 7160S,
       7192S, 7256S, 7128A, 7256A, 7032AE, 7064AE,
       7128AE, 7256AE, 7512AE, 7032B, 7064B, 7128B,
       7256B, 7512B, 3032A, 3064A, 3128A, 3256A, 3512A,
       9320, 9400, 9480, 9560, 9320A, 9560A
EPCS: 1, 4

Package Type

B: Ball-grid array (BGA)
D: Ceramic dual in-line package (CerDIP)
F: FineLine BGA
G: Ceramic pin-grid array (PGA)
L: Plastic J-lead chip carrier (PLCC)
P: Plastic dual in-line package (PDIP)
Q: Plastic quad flat pack (PQFP)
R: Power quad flat pack (RQFP)
S: Plastic small-outline integrated circuit (SOIC)
T: Thin quad flat pack (TQFP)
U: Ultra FineLine BGA

Operating Temperature

C: Commercial temperature (0° to 85° C)
I: Industrial temperature (-40° to 100° C)

For MAX devices only:
C: Commercial temperature (0° to 90° C)
I: Industrial temperature (-40° to 105° C)

Pin Count

Number of pins for devices with different pin-count options (exception: body size of
package used for 33-mm, 1,020-pin FineLine BGA package only)

Speed Grade

See the currect individual device family data sheet for
speed/product relationships (e.g., -1, -2, -10, -15)

Optional Suffix

Indicates specific device options or
shipment method.
C: Carrier
DX: FLEX 10K devices with
    ClockLock & ClockBoost circuitry
ES: Engineering sample
F: Fixed programming algorithm
H: Special dry-packaging shipment
    option for MAX 7000 devices
P: Special PCI compliance on selected
    devices
T: Classic devices permanently set in turbo
    (high-speed) mode, and low-cost MAX
    devices with different timing specifications
X: APEX 20K, APEX 20KE, FLEX 10K,
    and FLEX 10KE devices with PLLs
    and LVDS, if applicable
V: 5-V tolerant inputs
N: Lead-free

Note to Figure 2:
(1)   See "Dual Marking".

Dual Marking

For MAX 3000A devices, packages display a dual marking for the -7 commercial and -10 industrial ordering codes. For 44-pin PQFP and PLCC packages, the dual marking is represented with a slash. For example, EPM3032ALC44-7 and EPM3032ALI44-10 are represented as EPM3032ALC44-7/I44-10 on the device marking. For MAX 3000A devices with 100 pins or more, the entire ordering codes are marked on the package (e.g., both EPM3128ATC100-7 and EPM3128TI100-10 appear).

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		
Platform Support	**Ordering Code**	**Description of Coverage**
PC	FIXEDPC	Stand-alone, single-user license
	FLOATPC	Multiple-user network license (one concurrent user)
	ADD-FLOATPC	Add additional concurrent users to FLOATPC license
PC, Solaris, HP-UX	FLOATNET	Multiple-user network license (one concurrent user)
	ADD-FLOATNET	Add additional concurrent users to FLOATNET license
RedHat Linux	FLOATLNX	Multiple-user network license for the Quartus II software on the RedHat Linux platform
	ADD-FLOATLNX	Add additional network licenses for the Quartus II software on the RedHat Linux platform
Same as original subscription	RENEWAL	One-year extension for FIXEDPC, FLOATPC, FLOATNET, FLOATLNX, ADD-FLOATPC, ADD-FLOATNET, or ADD-FLOATLNX licenses

Intellectual Property

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

- PCI and bus interfaces
- Digital signal processing (DSP)
- Memory controllers
- Communications
- Processors & peripherals

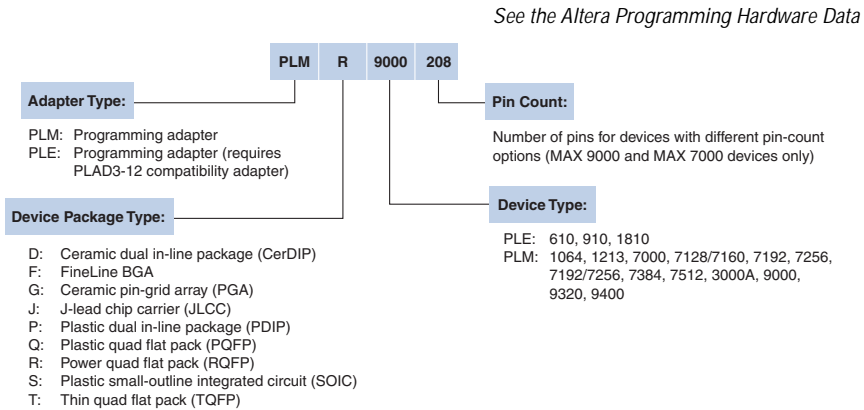For more information on these MegaCore functions visit the Altera web site at **http://www.altera.com/IPmegastore**.

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. For supported devices and adapters, see the *Altera Programming Hardware Data Sheet*.

Table 2. Programming Hardware

Product	Ordering Code	Description
Altera Programming Unit	PL-APU	With the appropriate adapter, programs Altera devices. Standard USB port hardware interface.
Compatibility Adapter	PLAD3-12	Interfaces PLE-prefix adapters to the APU. Together with the APU, directly programs 20-pin Classic devices.
ByteBlaster™ II Parallel Port Programming Cable	PL-BYTEBLASTER2	Interfaces with PCs. PC parallel-port cable for in-system programmable and in-circuit reconfigurable devices. The ByteBlaster II cable can program and configure 1.8-V, 2.5-V, 3.3-V, and 5.0-V devices. The ByteBlaster II cable also provides support for active serial programming of serial configuration devices.
ByteBlasterMV™ Parallel Port Download Cable	PL-BYTEBLASTERMV	Interfaces with PCs. PC parallel-port cable for in-system programmable and in-circuit reconfigurable devices. The ByteBlasterMV cable can program and configure 3.3-V, and 5.0-V devices.
MasterBlaster™ Serial/USB Communications Cable	PL-MASTERBLASTER	Interfaces with PCs and UNIX workstations. Standard serial or universal serial bus (USB) port hardware interface for in-system programmable and in-circuit reconfigurable devices.

Figure 3 explains the ordering codes for Altera programming adapters. Two types of adapters plug directly into the MPU and APU: PLM-prefix and PLAD3-12 adapters. Multiple pin-compatible devices use the same device type code shown in Figures 1 and Figures 2.

Figure 3. Programming Adapter Ordering Codes

See the Altera Programming Hardware Data

Adapter Type:

PLM: Programming adapter
PLE: Programming adapter (requires PLAD3-12 compatibility adapter)

Device Package Type:

D: Ceramic dual in-line package (CerDIP)
F: FineLine BGA
G: Ceramic pin-grid array (PGA)
J: J-lead chip carrier (JLCC)
P: Plastic dual in-line package (PDIP)
Q: Plastic quad flat pack (PQFP)
R: Power quad flat pack (RQFP)
S: Plastic small-outline integrated circuit (SOIC)
T: Thin quad flat pack (TQFP)

Pin Count:

Number of pins for devices with different pin-count options (MAX 9000 and MAX 7000 devices only)

Device Type:

PLE: 610, 910, 1810
PLM: 1064, 1213, 7000, 7128/7160, 7192, 7256, 7192/7256, 7384, 7512, 3000A, 9000, 9320, 9400