

Preliminary Information

This errata sheet provides new ordering code information for APEX™ 20KE devices. Altera is developing a faster process for APEX 20KE devices that will meet the timing specification for production -1 and -1X speed-grade devices.

In the interim, Altera is offering engineering sample (ES) devices for -1 and -1X speed-grade APEX 20KE devices. These ES devices have slower timing characteristics when operating under worst-case conditions (85 °C and 1.71 V) than what is reflected in the Quartus software for the -1 and -1X speed-grade devices. However, these devices should meet the timing specifications shown in the Quartus software under typical lab operating conditions.

APEX 20KE ES devices in -1 and -1X speed grades do not have the “-1” speed-grade identifier in the ordering code. Instead, an “ES” or “XES” is appended to the end of the ordering code. For example, the EP20K100ETC144-1 and EP20K100ETC144-1X device ES ordering codes are EP20K100ETC144ES and EP20K100ETC144XES, respectively.

Additionally, APEX 20KE ES devices in -1 and -1X speed grades are marked in one of two ways. Most of these ES devices are marked with the complete ordering code (i.e., including the “-1”) with an “ES” appended to the end. For example, the EP20K100ETC144-1 and EP20K100ETC144-1X ES devices have EP20K100ETC144-1ES and EP20K100ETC144-1XES markings, respectively. However, a small number of devices are marked with the exact ordering code (i.e., without the “-1”). [Table 1](#) lists the new ordering codes and markings for -1 and -1X speed-grade APEX 20KE ES devices.

Table 1. Ordering Codes for APEX 20KE ES Devices in -1 & -1X Speed Grades

Device	Package (1)	Ordering Code Example	Device Marking Example 1	Device Marking Example 2
EP20K100E	144-pin TQFP, 144-pin FineLine BGA™, 208-pin PQFP, 240-pin PQFP, 324-pin FineLine BGA, 356-pin BGA	EP20K100ETC144ES	EP20K100ETC144-1ES	EP20K100ETC144ES
		EP20K100ETC144XES	EP20K100ETC144-1XES	EP20K100ETC144XES
EP20K200E	208-pin PQFP, 240-pin PQFP, 356-pin BGA, 484-pin FineLine BGA, 652-pin BGA, 672-pin FineLine BGA	EP20K200EFC672ES	EP20K200EFC672-1ES	EP20K200EFC672ES
		EP20K200EFC672XES	EP20K200EFC672-1XES	EP20K200EFC672XES
EP20K300E	240-pin PQFP, 652-pin BGA, 672-pin FineLine BGA	EP20K300EFC672ES	EP20K300EFC672-1ES	EP20K300EFC672ES
		EP20K300EFC672XES	EP20K300EFC672-1XES	EP20K300EFC672XES
EP20K600E	652-pin BGA, 672-pin FineLine BGA, 1,020-pin FineLine BGA	EP20K600EFC672ES	EP20K600EFC672-1ES	EP20K600EFC672ES
		EP20K600EFC672XES	EP20K600EFC672-1XES	EP20K600EFC672XES
EP20K1000E	652-pin BGA, 672-pin FineLine BGA, 1,020-pin FineLine BGA	EP20K1000EFC672ES	EP20K1000EFC672-1ES	EP20K1000EFC672ES
		EP20K1000EFC672XES	EP20K1000EFC672-1XES	EP20K1000EFC672XES

Note:

(1) TQFP: thin quad flat pack; PQFP: plastic quad flat pack; BGA: ball-grid array.



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