

Clock Data Synchronization

Automatic clock-data synchronization (CDS) was offered as a feature in APEX™ II devices. CDS uses a training pattern to synchronize between clock and data. There are three synchronization modes:

- Single-bit (automatic)
- Multi-bit (automatic)
- Pre-programmed (-180, -90, 0, 90, or 180 degrees) (manual)

In the single bit mode of operation, CDS was intended to compensate for skew up to 50% of a bit period. In the multi-bit synchronization mode of operation, CDS was intended to compensate for unlimited skew.

These automatic CDS options are not able to select the correct phase of the clock and sample data correctly for certain clock data phase relationships. This makes the feature unreliable and unusable in the automatic mode. Hence, they will be removed and no longer available in all APEX II devices.

The Quartus® II software will be modified to reflect this change in version 5.0.

APEX II device users will still be able to use the manual pre-programmed mode for CDS.



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