System Synchronizer and Distribution Board - PCIe

New!

ReadyFlow
Board Support Package

Features

- Synchronizes up to eight separate Cobalt or Onyx boards
- Up to eight 7893s can be linked together to synchronize up to 64 boards
- Synchronizes sampling, data acquisition and playback for multichannel systems
- Synchronizes gating and triggering functions
- On-board programmable sample clock generator
- Output clock rates up to 800 MHz
- Front panel SMA connectors for TTL input signals and clock outputs
- Single-slot PCIe format

General Information

Model 7893 System Synchronizer and Distribution Board synchronizes multiple Pentek Cobalt and Onyx boards within a system. It enables synchronous sampling, playback and timing for a wide range of multichannel high-speed data acquisition, DSP and software radio applications.

Up to eight boards can be synchronized using the 7893, each receiving a common clock up to 800 MHz along with timing signals that can be used for synchronizing, triggering and gating functions.

For larger systems, up to eight 7893s can be linked together to provide synchronization for up to 64 Cobalt or Onyx boards.

Input Signals

The Model 7893 provides four front panel SMA connectors to accept LVTTL input signals from external sources: two for Sync/PPS and one for Gate/Trigger. In addition to the synchronization signals, a front panel SMA connector accepts sample clocks up to 800 MHz or, in an alternate mode, accepts a 10 MHz reference clock to lock an on-board VCXO sample clock source.

The 7893 also accepts the 26-pin Timing Bus connector used on Cobalt and Onyx boards. This input allows a single Cobalt or Onyx board to generate the timing and clock signals for the 7893 for distribution of up to eight additional boards. This input can also be used to link multiple 7893's for larger systems.

Output Signals

The 7893 provides eight timing bus output connectors for distributing all needed timing and clock signals to the front panels of Cobalt and Onyx boards via ribbon cables. The 7893 locks the Gate/Trigger and Sync/PPS signals to the system's sample clock. The 7893 also provides four front panel SMA connectors for distributing sample clocks to other boards in the system.
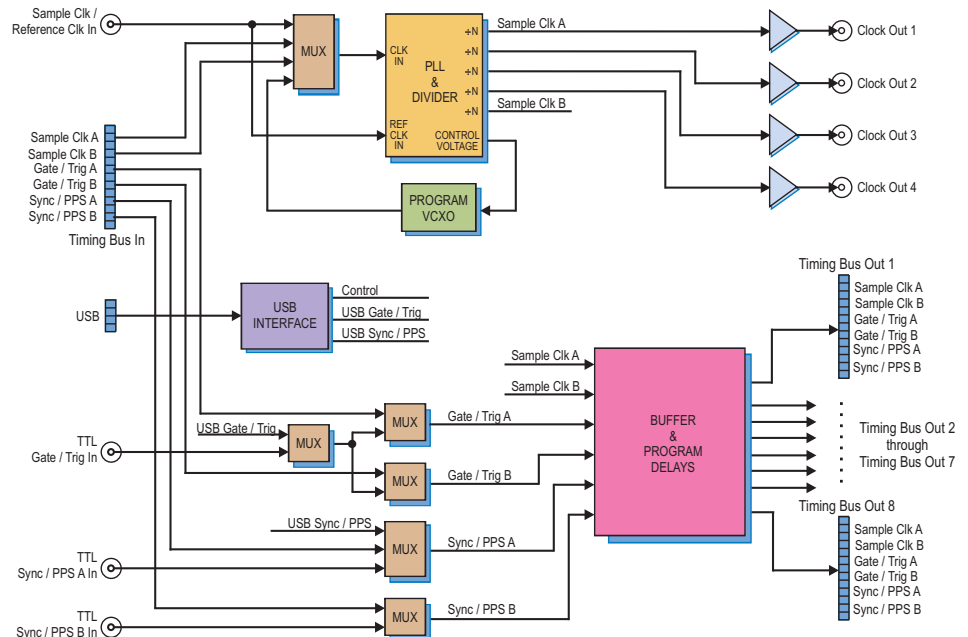
Clock Signals

The 7893 can accept a clock from either the front panel SMA connector or from the timing bus input connector. In addition, the board is equipped with a programmable on-board VCXO clock generator which can free run or be locked to a user supplied, 10 MHz typical, system reference. In all cases, the sample clock can be divided by 1, 2, 4, 8 or 16 prior to distribution to the Clock Out SMAs or the timing bus output connectors.

USB Interface

The 7893 is programmed via a USB interface. In addition to status and control, the USB interface can be used to generate Gate/Trigger and Sync/PPS signals for distribution to all connected boards.

Physical Characteristics

The 7893 is a single-slot PCIe size board which can be mounted in any PCI or PCIe slot. The board receives power from a standard six-pin PCIe power connector and uses the PCI or PCIe slot solely for physical mounting, with no electrical connections. ➤

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➤ Supported Products

The 7893 supports a wide range of products in the Cobalt family including the 78620 and 78621 three-channel A/D, 200 MHz transceivers, the 78650 and 78651 two-channel A/D, 500 MHz transceivers, the 78660, 78661 and 78662 four-channel 200 MHz A/Ds, and the 78690 L-Band RF Tuner. The 7893 also supports the Onyx 78760 four-channel 200 MHz A/D and will support all complementary models in the Onyx family as they become available.

Specifications

Sample Clock/Reference Clock Input
    Type: Front panel female SMC connector
    Signal: Sine wave, 0 to +10 dBm, AC-coupled, 50 ohms, accepts 10 to 800 MHz sample clock or 4 to 180 MHz PLL system reference, typically 10 MHz

TTL Gate/Trigger Input
    Type: Front panel female SMC connector
    Signal: LVTTL
    Function: Programmable functions include gate and trigger

TTL Sync/PPS Input A
    Type: Front panel female SMC connector
    Signal: LVTTL
    Function: Programmable functions include sync and PPS

TTL Sync/PPS Input B
    Type: Front panel female SMC connector
    Signal: LVTTL
    Function: Programmable functions include sync and PPS

Timing Bus In
    Type: One rear 26-pin connector
    Signals: LVPECL bus includes: Sample Clock A & B In, Gate/Trigger A & B In, and Sync/PPS A & B In

Clock Synthesizer
    Clock Source: Selectable from on-board programmable VCXO (10 to 800 MHz), front panel external clock or LVPECL timing bus
    Synchronization: VCXO can be locked to an external 4 to 180 MHz PLL system reference (front panel Reference Clock Input), typically 10 MHz
    Clock Dividers: External clock or VCXO can be divided by 1, 2, 4, 8, or 16 for each of five on-board clock buses.

Sample Clock Output
    Type: Four front panel female SMC connectors, each can be independently divided
    Output Level: +9 dBm, nominal, sine wave

Timing Bus Out
    Type: Eight rear 26-pin connectors
    Signals: LVPECL bus includes: Sample Clock A & B Out, Gate/Trigger A & B Out, and Sync/PPS A & B Out

Control: Rear USB input for connecting to motherboard on-board USB 8-pin header

Power: Rear 8-pin connector compatible with PCIe power connectors

Environmental
    Operating Temp: 0° to 50° C
    Storage Temp: –20° to 90° C
    Relative Humidity: 0 to 95%, non-cond.

Size: Half-length PCIe card, 4.38 in. x 7.13 in.

Ordering Information

Model	Description
7893	System Synchronizer and Distribution Board- PCIe

Accessories

2891	Timing Bus Cables