New!

Model 5292

High-Speed Synchronizer and Distribution Board - 3U VPX

Model 5292 COTS (left) and rugged version

ReadyFlow Board Support Package

Features

- Synchronizes up to four separate high-speed Cobalt or Onyx I/O boards
- Synchronizes sampling and data acquisition for multichannel systems
- Synchronizes gating and triggering functions
- Clock rates up to 1.8 GHz
- Front panel MMCX connectors for input signals
- Front panel µSync connectors compatible with a range of Pentek Cobalt and Onyx boards

General Information

The Model 5292 High-Speed Synchronizer and Distribution 3U VPX Board synchronizes multiple Pentek Cobalt or Onyx boards within a system. It enables synchronous sampling and timing for a wide range of multichannel high-speed data acquisition, DSP, and software radio applications.

Up to four boards can be synchronized using the 5292, with each receiving a common clock along with timing signals that can be used for synchronizing, triggering and gating functions.

Input Signals

Model 5292 provides three front panel MMCX connectors to accept input signals from external sources: one for clock, one for gate or trigger and one for a synchronization signal. Clock signals can be applied from an external source such as a high performance sine-wave generator. Gate/trigger and sync signals can come from an external system source. In addition to the MMCX connector, a reference clock can be accepted through the first front panel µSync output connector, allowing a single Cobalt or Onyx board to generate the clock for all subsequent boards in the system.

Output Signals

The 5292 provides four front panel µSync output connectors, compatible with a range of high-speed Pentek Cobalt and Onyx boards. The µSync signals include a reference clock, gate/trigger and sync signals and are distributed through matched cables, simplifying system design.

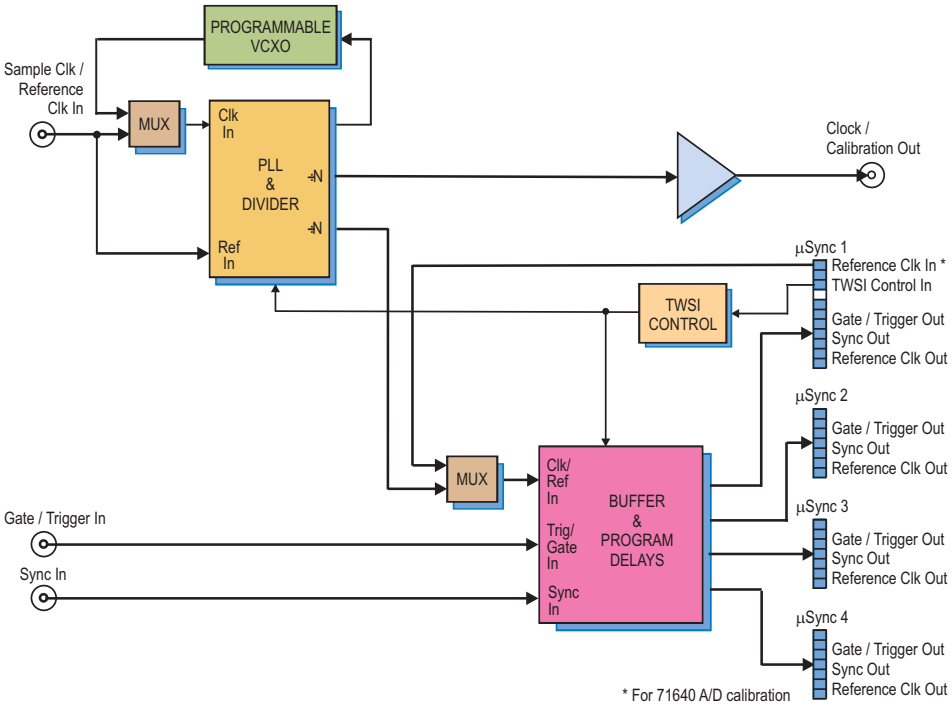
Clock Signals

The 5292 can accept a user supplied external clock on its front panel MMCX connector. As an alternative to the external clock, the 5292 can use its on-board programmable voltage-controlled crystal oscillator (VCXO) as the clock source. The VCXO can operate alone or be locked to a system reference clock signal delivered to the front panel reference clock input.

The external or on-board clock can operate at full rate or be divided and is used to register all sync and gate/trigger signals as well as providing a reference clock to all connected boards. In addition, the clock is available at the Clock Out MMCX as a sample or reference clock for other boards in the system.

Gate and Synchronization Signals

The 5292 features separate inputs for gate/trigger and sync signals. A programmable delay allows the user to make timing adjustments on the gate/trigger and sync signals before they are sent to buffers for output through the µSync output connectors. ➤



PENTEK

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Calibration

The 5292 features a calibration output specifically designed to work with the 52640 or 52740 3.6 GHz A/D board and provide a signal reference for phase adjustment across multiple D/As.

Programming

The 5292 allows programming of operating parameters including: VCXO frequency, clock dividers, and delays that allow the user to make timing adjustments on the gate and sync signals. These adjustments are made before they are sent to buffers for output through the µSync connectors.

The 5292 is programmed via a TWSI control interface on the first µSync connector. The control interface is compatible with the front panel µSync connectors of all high-speed Cobalt and Onyx boards, thereby providing a single cable connection that carries both control and timing signals.

Supported Products

The 5292 supports all high-speed models in the Cobalt family including the 52630 1 GHz A/D and D/A 3U VPX, the 52640 3.6 GHz A/D x3U VPX and the 52670 Four-channel 1.25 GHz, 16-bit D/A 3U VPX. The 5292 will also support high-speed models in the Onyx family as they become available.

Specifications

Front Panel Sample Clock/Reference Input
- **Connector Type:** MMCX
- **Input Impedance:** 50 ohms
- **Input Level:** 0 dBm to +10 dBm, sine wave
- **Sample Clock Frequency:** 100 MHz to 2 GHz
- **Reference Frequency:** 5 to 100 MHz

Front Panel Gate/Trigger & Sync Inputs
- **Connector Type:** MMCX
- **Input Level:** LVTTL

Front Panel µSync Inputs/Outputs
- **Quantity:** 4
- **Connector Type:** 19-pin µHDMI
- **Signal Level:** CML
- **Signals (µSync connector 1):** Reference Clock In, TWSI control In, Reference Clock Out, Gate/Trigger Out, Sync Out
- **Signals (µSync connectors 2–4):** Reference Clock Out, Gate/Trigger Out, Sync Out

Front Panel Clock / Calibration Output
- **Connector Type:** MMCX
- **Output Impedance:** 50 ohms
- **Output Level:** +6 dBm nominal, sine wave
- **Sample Clock Frequency:** 100 MHz to 1.8 GHz

Programmable VCXO:
- **Frequency Ranges:** 10-945 MHz, 970-1134 MHz, and 1213-1417.5 MHz
- **Tuning Resolution:** 32 bits
- **Unlocked Accuracy:** ±20 ppm

PLL, Divider & Jitter Cleaner
- **Type:** Texas Instruments CDCM7005
- **Frequency Dividers:** 1, 2, 3, 4, 6, 8 and 16

PCI Express Interface
- **PCIe Bus:** x4, power only

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

Size: 3.937 in. x 6.717 in. (100 mm x 170.6 mm)

Ordering Information

Model	Description
5292	High-Speed Synchronizer and Distribution Board - 3U VPX

Accessories

4 ea. 18" µSync cables are supplied; additional cables may be ordered:

2192-018	µSync cable - 18"
2192-036	µSync cable - 36"

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