Features

- Synchronizes up to four separate high-speed Cobalt or Onyx I/O modules
- 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 modules

General Information

The Model 5692 High-Speed Synchronizer and Distribution board synchronizes multiple Pentek Cobalt or Onyx modules 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 modules can be synchronized using the 5692, with each receiving a common clock along with timing signals that can be used for synchronizing, triggering and gating functions.

Input Signals

Model 5692 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 5692 provides four front panel μSync output connectors, compatible with a range of high-speed Pentek Cobalt and Onyx modules. The μSync signals include a reference clock, gate/trigger and sync signals and are distributed through matched cables, simplifying system design.

Clock Signals

The 5692 can accept a user supplied external clock on its front panel MMCX connector. As an alternative to the external clock, the 5692 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.
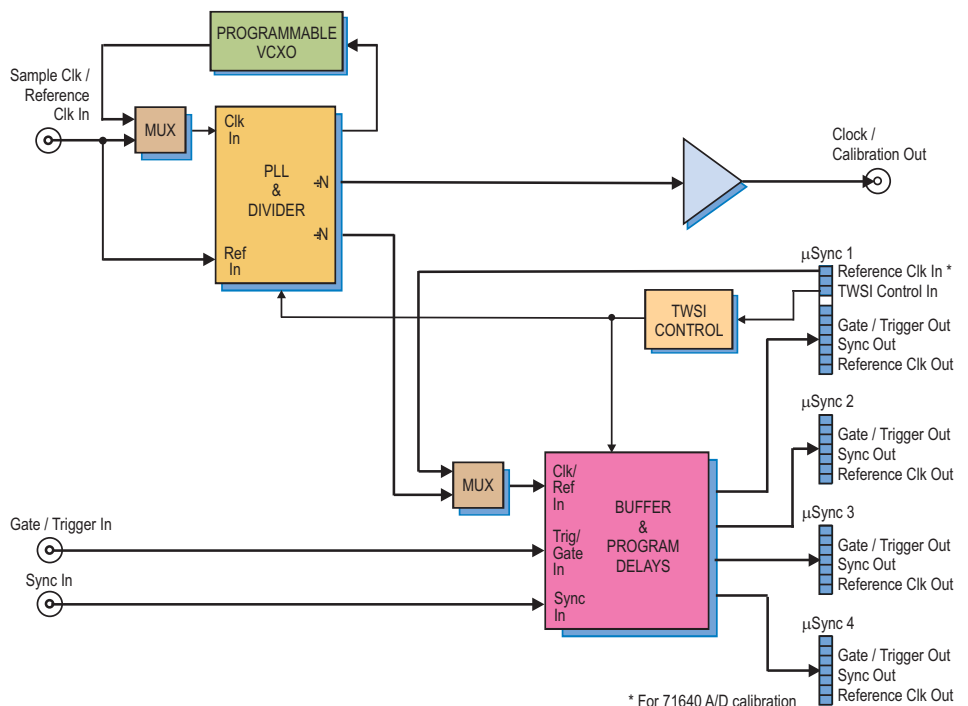
The external or on-board clock can operate at full rate or be divided and is used to register all sync and gate/trigger signals as well as providing a reference clock to all connected modules. In addition, the clock is available at the Clock Out MMCX as a sample or reference clock for other boards in the system.

Gate and Synchronization Signals

The 5692 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. ➤

Calibration

The 5692 features a calibration output specifically designed to work with the 56640 or 56740 3.6 GHz A/D module and provide a signal reference for phase adjustment across multiple D/As.

Programming

The 5692 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 5692 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 modules, thereby providing a single cable connection that carries both control and timing signals.

Supported Products

The 5692 supports all high-speed models in the Cobalt family including the 56630 1 GHz A/D and D/A AMC, the 56640 3.6 GHz A/D AMC and the 56670 Four-channel 1.25 GHz, 16-bit D/A AMC. The 5692 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
  PCI Express Bus: Gen. 1 x4 or x8, power only

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

Size: Single-width, full-height AMC module, 2.89 in. x 7.11 in.

Ordering Information

Model	Description
5692	High-Speed Synchronizer and Distribution Board - AMC

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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