

Models 5794 and 5894

High-speed clock generator – 6U VPX boards

Provides sample clock for up to four or eight separate 6U VPX boards

- Enables synchronous sampling, playback and timing for a wide range of multichannel high-speed data acquisition applications
- Locks to user-supplied 10 MHz reference clock or on-board reference
- OCXO provides an exceptionally precise clock



These High-Speed Clock Generators provide fixed-frequency sample clocks to 6U VPX Cobalt and Onyx boards in multiboard systems. They enable synchronous sampling, playback and timing for a wide range of multichannel high-speed data acquisition and software radio applications.

The 5794 is a 6U VPX board that generates four clocks. The 5894 is a double-density 6U VPX board that generates eight clocks.

SAMPLE CLOCK SYNTHESIZER

These models use one or two high-precision, fixed-frequency, PLOs (Phase-Locked Oscillators) to generate four or eight output sample clocks. The PLOs accept a 10 MHz reference clock through front panel SMA connectors. The PLOs lock the output sample clocks to the incoming reference. Power splitters then receive the sample clocks and distribute them to four or eight front panel SMA connectors. These models are available with sample clock frequencies from 1.4 to 2.0 GHz.

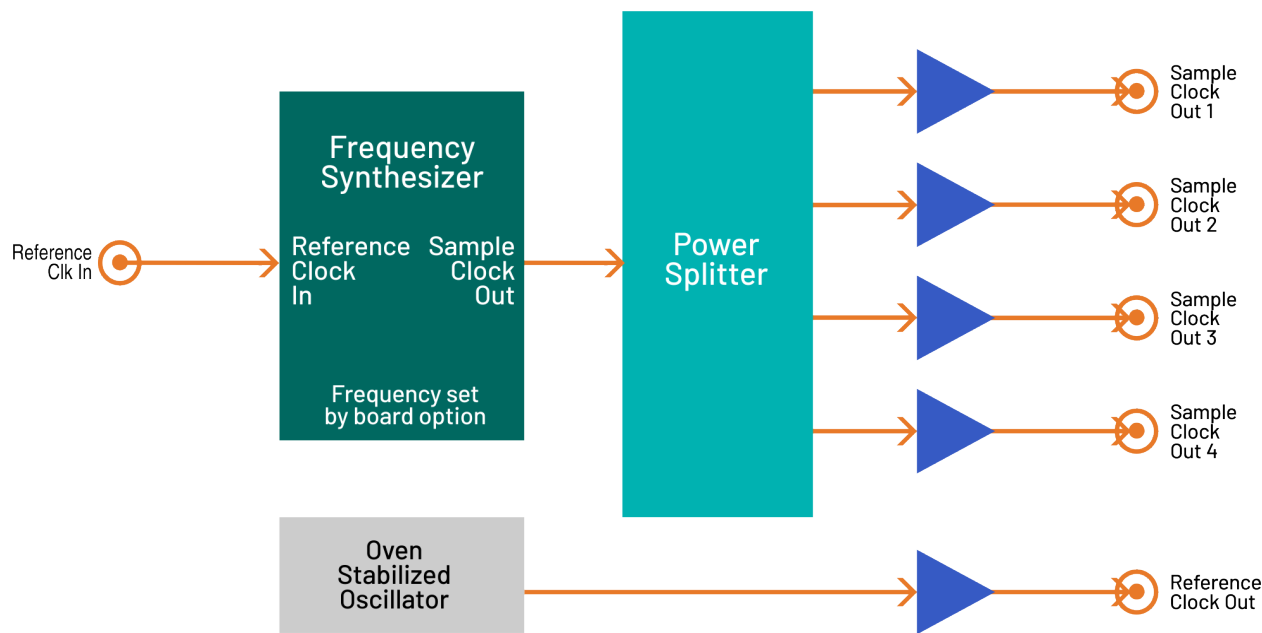
ON-BOARD REFERENCE CLOCK

In addition to accepting a reference clock on the front panel, these models include one or two on-board 10 MHz reference clocks. The reference clocks are OCXOs (Oven-Controlled Crystal Oscillators), which provide an exceptionally precise frequency standard with excellent phase noise characteristics.

PHYSICAL CHARACTERISTICS

These models are standard 6U OpenVPX boards. They do not require programming and the interface connectors are used solely for power. The boards can be optionally configured with a PCIe-style 6-pin power connector allowing them to be used in virtually any chassis or enclosure.

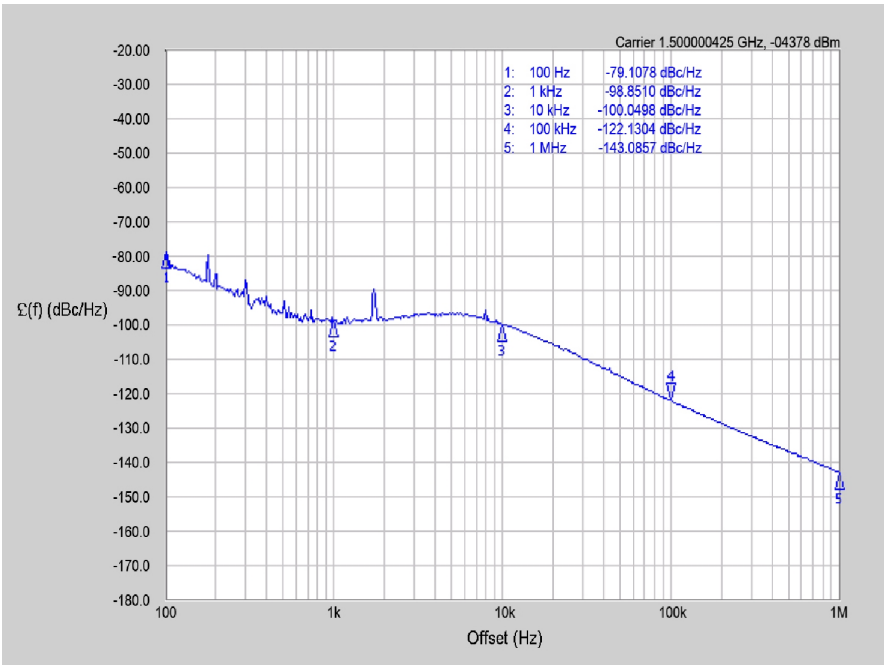
BLOCK DIAGRAM



Model 5894 doubles all resources.

SAMPLE CLOCK PHASE NOISE

Phase Noise {1 Hz DW, typical}

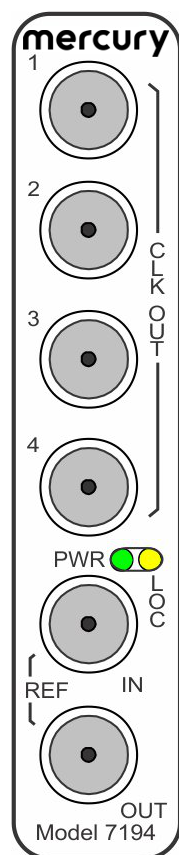


Phase Noise 10.00 dB/Ref -20.00 dBc/Hz

FRONT PANEL CONNECTIONS

The front panel includes one SMC connector for input of an optional external reference clock, four SMC connectors for sample clock output, one SMC connector for OCXO reference clock output, and two LEDs.

A 6-inch SMC cable is provided with this product. This cable is used to loop the 10 MHz reference clock output (**REF OUT**) back into the board's 100 MHz reference clock input (**REF IN**).



- **Sample Clock Output:** Four SMC connectors, labeled **CLK OUT 1, 2, 3,** and **4,** are used to provide sample clock output to Cobalt or Onyx boards.
- **Reference Clock Input:** An SMC connector, labeled **REF IN**, is used for an optional reference input.
- **Reference Clock Output:** An SMC connector, labeled **REF OUT**, is used to provide reference clock output. The reference is an Oven Controlled Crystal Oscillator (OCXO).
- **Power LED:** A green LED labeled **PWR** illuminates when a +5VDC is applied to the board.
- **Lock Detect LED:** A yellow LED labeled **LOC** illuminates when the PLO locks the output sample clock to the incoming reference.

SPECIFICATIONS

Sample Clock Frequency

Fixed, 1.4 to 2.0 GHz by ordering option

Sample Clock Outputs

Type: Four or eight front panel female SMA connectors

Output Level: +10 dBm, nominal, sine wave

Reference Clock In

Type: Front panel female SMA connector

Frequency: 10 MHz

Input Impedance: 50 ohms

Input Level: 0 dBm to +10 dBm, sine wave

Reference Clock Out

Type: Four or eight front panel female SMA connectors

Center Frequency: 10 MHz

Output Impedance: 50 ohms

Output Level: +10 dBm, nominal, sine wave

Frequency Stability vs. Change in Temperature: 50.0 ppb

Frequency Calibration: ± 1.0 ppm

Aging

- Daily: ± 10 ppb/day
- First Year: ± 300 ppb

Total Frequency Tolerance (20 years): ± 4.60 ppm

Phase Noise

- 1 Hz Offset: -67 dBc/Hz
- 10 Hz Offset: -100 dBc/Hz
- 100 Hz Offset: -130 dBc/Hz
- 1 KHz Offset: -148 dBc/Hz
- 10 KHz Offset: -154 dBc/Hz
- 100 KHz Offset: -155 dBc/Hz

PCI Express Interface

PCI Express Bus: 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

233 mm x 160 mm (9.173 in. x 6.299 in.)

ORDERING INFORMATION

Model	Description
5794	High-Speed Clock Generator - 6U VPX, Single Density
5894	High-Speed Clock Generator - 6U VPX, Double Density

Option	Description
-106	PCIe 6-pin connector (Power only)
-150	1.500 GHz sample clock
-180	1.800 GHz sample clock



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Learn more

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