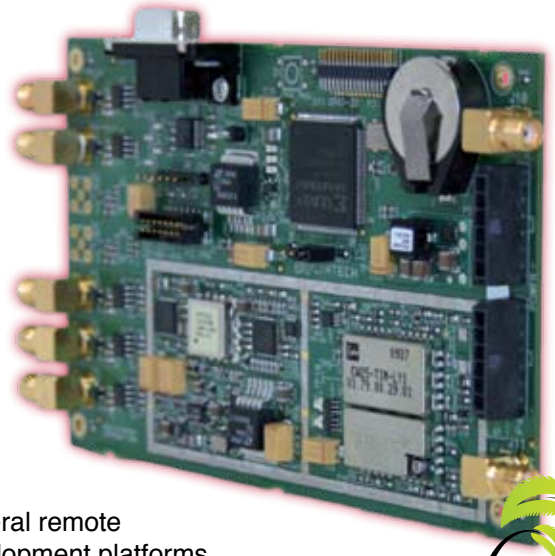
LYRTECH
Infinite possibilities...

Mini-ADACSync

GPS-disciplined, precision reference clocks generator

The Mini-ADACSync is a small form factor, GPS-disciplined, precision, low-jitter reference clocks generator featuring:

- Four output reference clocks (**Ref CLK Out**, **CLK0**, **CLK1**, **CLK2** (derived from the reference clock))
- The possibility of an external or onboard reference clock (**Ref CLK**)
- A high-precision GPS reference clock mode for GPS-disciplined reference clock applications



The Mini-ADACSync is designed specifically for Lyrtech's small form factor (SFF) software-defined radio (SDR) development platforms. It is capable of synchronizing the RF, data conversion, and baseband processing sections of SFF SDR development platforms with a common GPS-disciplined, low-jitter clock reference.

The Mini-ADACSync is equipped with an onboard GPS module, providing a universal and global time reference clock. An optional control loop logic core allows an onboard 10 MHz VCxO to precisely and continuously match the GPS reference, ensuring a very-low-jitter clock distribution and long-term frequency stability. It also makes possible synchronizing several remote SFF SDR development platforms.

At a glance

- Three, preconfigured clock outputs (**CLK0**, **CLK1**, **CLK2**)
- Less than 0.1 ppm, onboard VCxO, GPS-matched precision reference
- Reference clocks—External, onboard, or onboard GPS disciplined
- Drives 50 Ω, single-ended loads
- Selected reference clock (10 MHz) and 1-pps GPS buffered outputs
- GPS time/position stamp at the GPIO-32 output
- Stand-alone configuration through the onboard EEPROM (the EEPROM is preconfigured)
- Plug and Play with Lyrtech SFF SDR development platforms

RoHS compliant

The reference clock (**Ref CLK**), which could be an external clock or the onboard 10 MHz GPS-disciplined reference, is available from the buffered reference output **Ref CLK Out**. The Mini-ADACSync also supports three, buffered clock outputs (**CLK0**, **CLK1**, and **CLK2**), generated from the reference clock through an AD9511 PLL. The **CLK0**–**CLK2** outputs are preconfigured to supply outputs of 36 MHz each, which are perfect matches to the SFF SDR development platforms' add-on RF modules. (It is possible to customize outputs **CLK0**–**CLK2** for frequencies between 31.25 MHz and 350.00 MHz. Contact info@lyrtech.com for details.)

GPS time/position information is available through the Mini-ADACSync's GPIO-32 interface for DAQ time/position-stamping or navigation applications, for example. This interface perfectly matches the Lyrtech ADACMaster III module, which serves as the SFF SDR development platform's data conversion module.

Applications

The following are only a few of the applications where the Mini-ADACSync shines:

- Synchronization of system clocks
- Integration to clock distribution systems and data acquisition systems
- Synchronization of remote systems through a common GPS reference clock

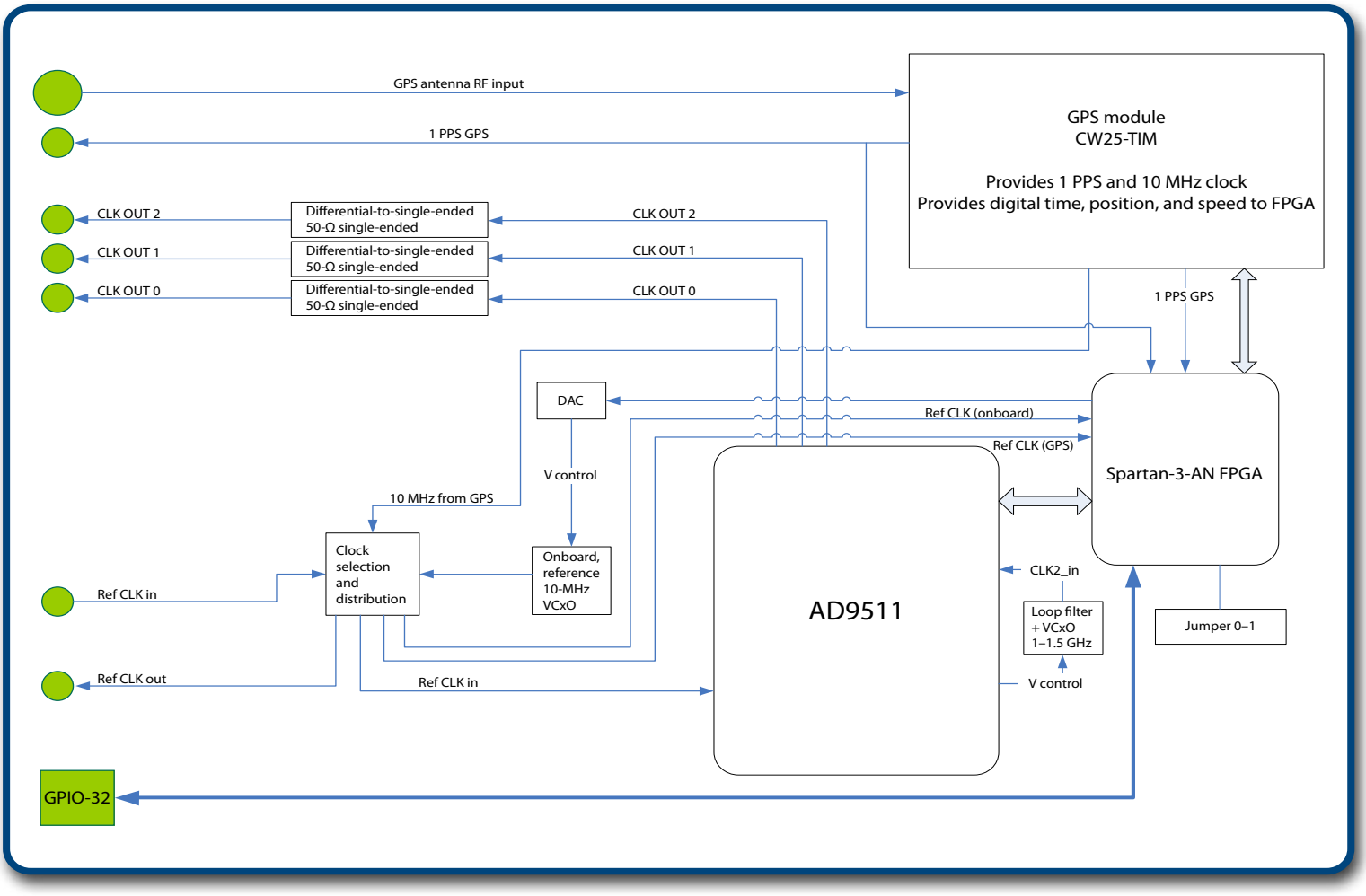
Specifications

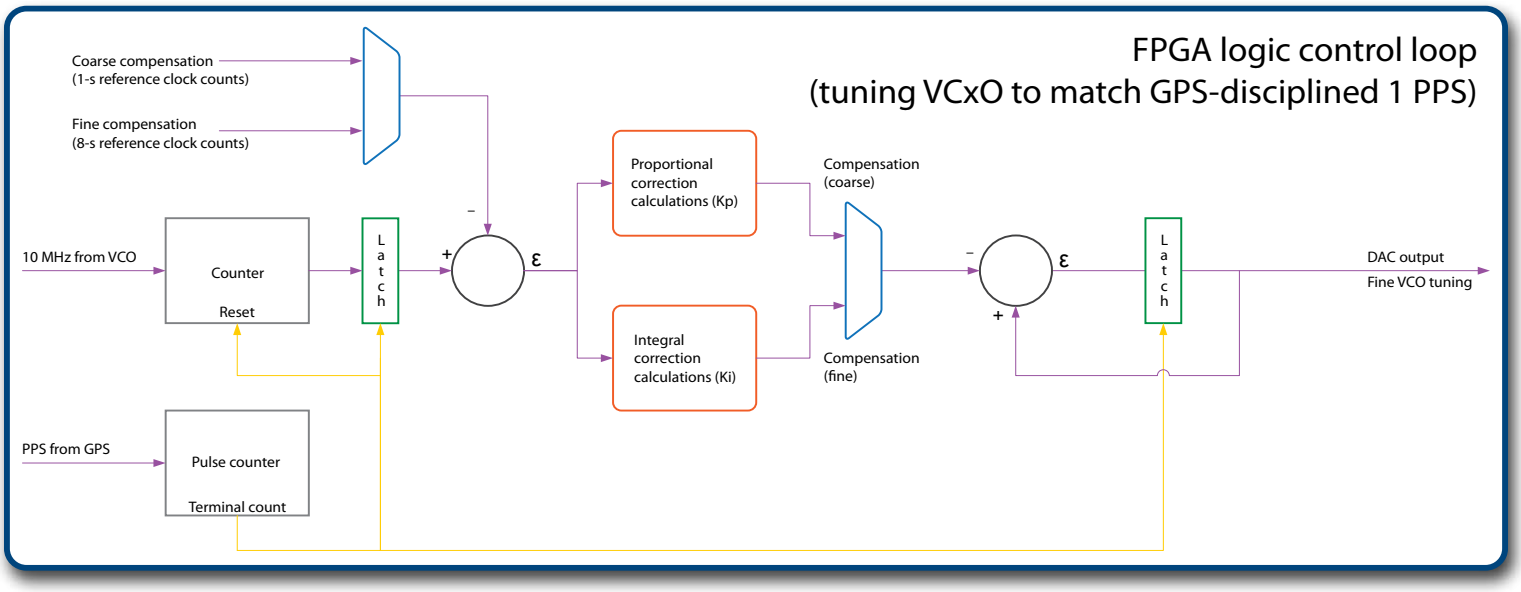
Output clocks	Buffered output clocks	3
	Independent clocks	3
	Output impedance	50 Ω
	Output type	Single-ended LVCMOS
	Connectors	SMA
	Clock generation	• CLK0=36 MHz • CLK1=36 MHz • CLK2=36 MHz It is possible to customize outputs CLK0–CLK2 for other frequencies between 31.25 MHz and 350.00 MHz. Contact info@lyrtech.com for details.
Input/Output reference clock	Input reference clock options	• Onboard VCxO • Onboard VCxO GPS disciplined • External
	Onboard VCxO frequency	10 MHz
	Onboard VCxO precision	• Less than 0.1 ppm matched to GPS reference • 2.5 ppm free running
	Onboard VCxO phase noise	• 10 Hz: –83 dBc/Hz • 100 Hz: –115 dBc/Hz • 1 kHz: –135 dBc/Hz • 10 kHz: –140 dBc/Hz
	Output reference clock	Same as selected reference clock
	Input/Output reference clock impedance	50 Ω
	Input/Output reference clock type	Single-ended LVCMOS (10 dBm)
	Input/Output reference clock connectors	SMA
	Input reference clock	10 MHz Depending on whether outputs CLK0–CLK2 are customized, this value can range from 1 MHz to 250 MHz. For customization, contact info@lyrtech.com.
GPS	Antenna localization	• Near a window (installation dependant) • Outdoors
	Required antenna specifications	3.3 V active antenna
	Antenna input connector	SMA
	Antenna input impedance	50 Ω
	PPS output connector	SMA
	PPS output impedance	50 Ω
	GPS readout information (GPIO-32)	• UTC time • UTC day • Latitude • Longitude • Altitude • Speed over ground • Course over ground
GPIO-32 interface	Interface	• 3.3 V • LVCMOS
	Connector	• 2×17 header • Pitch 0.05 in.

Optional accessories

The Mini-ADACSync can be purchased with or without a GPS antenna (and associated cabling). Discuss it with one of our specialists.

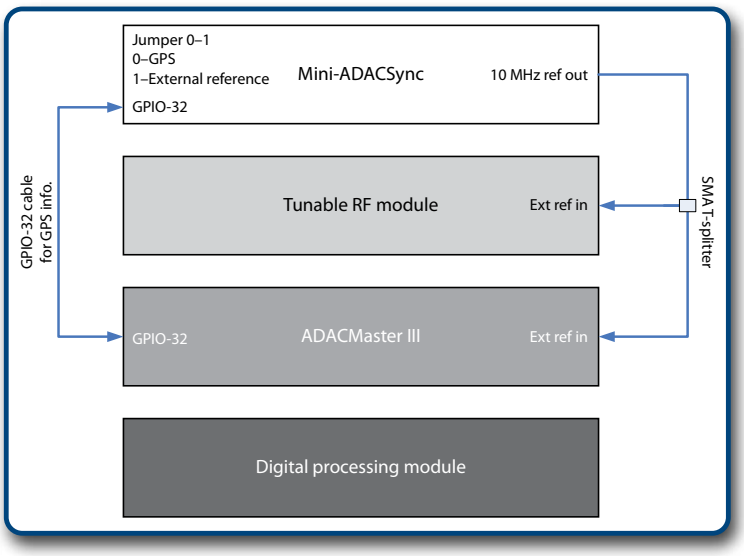
Block diagrams





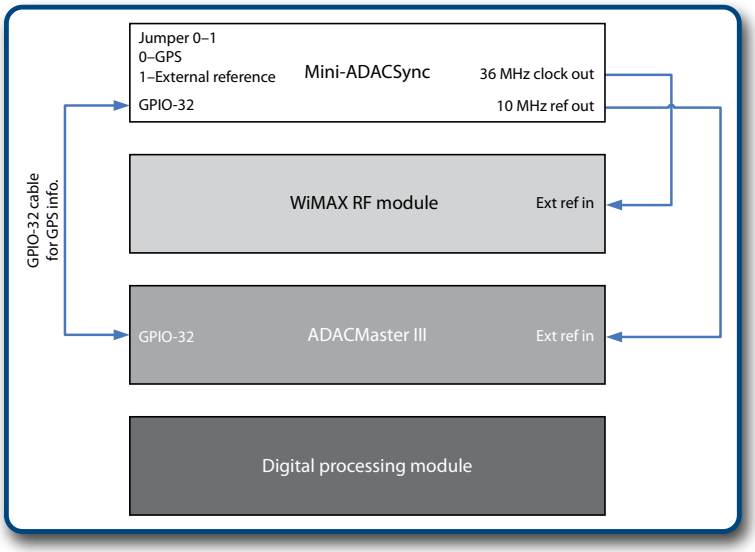
Typical Lyrtech system configuration examples

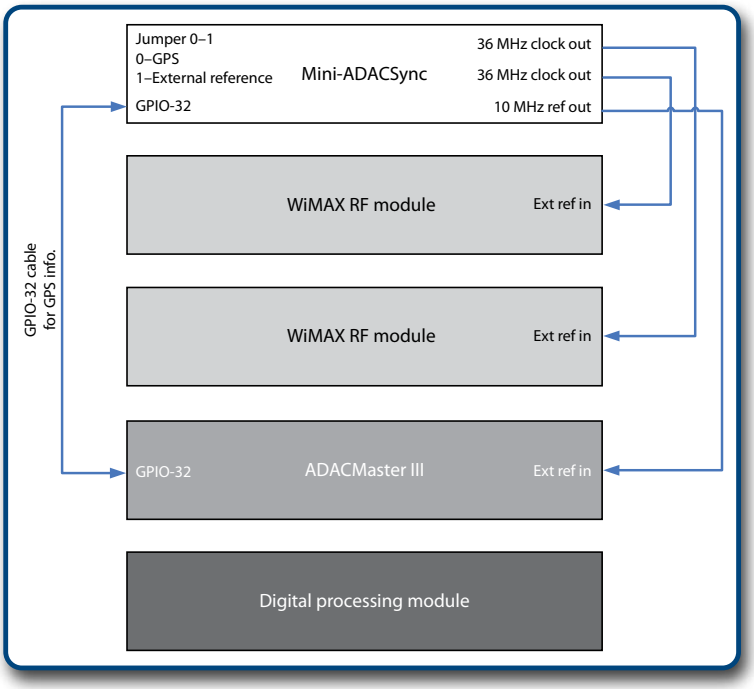
Tunable low/high-band SFF SDR development platform



WiMAX SFF SDR development platform

SISO configuration on the left, MIMO/dual-channel configuration on the right.





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