

Key Features

- Reduces jitter for clocks of 148.5MHz, 148.5/1.001MHz, 74.25MHz, 74.25/1.001MHz and 27MHz
- Output jitter less than 20ps for the 100kHz to 10MHz frequency band
- Automatic bypass mode for all other clock rates
- Loop bandwidth adjustable as low as 50kHz
- Output skew control
- Input selectable as differential or single-ended
- Both single-ended and differential outputs
- Uses the GO1555 VCO
- Small 6mm x 6mm 40-pin QFN package

Applications

High definition video systems. Digital video recording, playback, processing and display devices.

Description

The GS4915 provides a low jitter clock output when fed with an HD or SD video clock input. Other input clock frequencies between 12MHz and 165MHz can be automatically passed through to the GS4915 outputs.

An internal 2:1 MUX allows the user to select between a differential (LVDS) or single-ended (LVCMOS) input clock. Both a single-ended LVCMOS-compatible and an LVDS-compatible differential output are provided.

The GS4915 may operate in either auto or fixed frequency mode. In auto mode, the device will automatically clean the selected input clock if its frequency is found to be one of the supported SD or HD clock rates. In fixed mode, the user selects only one of these frequencies to be cleaned.

In addition, the device allows the user to select between auto or manual bypass operation. In autobypass mode, the GS4915 will automatically bypass its cleaning stage and pass the input clock signal directly to the output whenever the device is unlocked. In manual bypass mode, the input signal passes through directly to the output.

The GS4915 can optionally double the output frequency for 74.25MHz or 74.175MHz HD clock in order to provide optimal jitter performance of FPGA serializers.

The GS4915 also provides the user with a 2-state skew control. The output clocks produced by the device may be advanced by $\frac{1}{4}$ of an output PCLK period in order to accommodate downstream setup and hold requirements.

The GS4915 is designed to operate with the GO1555 VCO.

The GS4915 Clock Cleaner complements Semtech's GS4911B Clock and Timing Generator for implementing a video genlock solution. Whereas the GS4911B itself cleans low-frequency jitter, the GS4915 is designed to clean primarily the higher frequency jitter of clocks generated by the GS4911B.

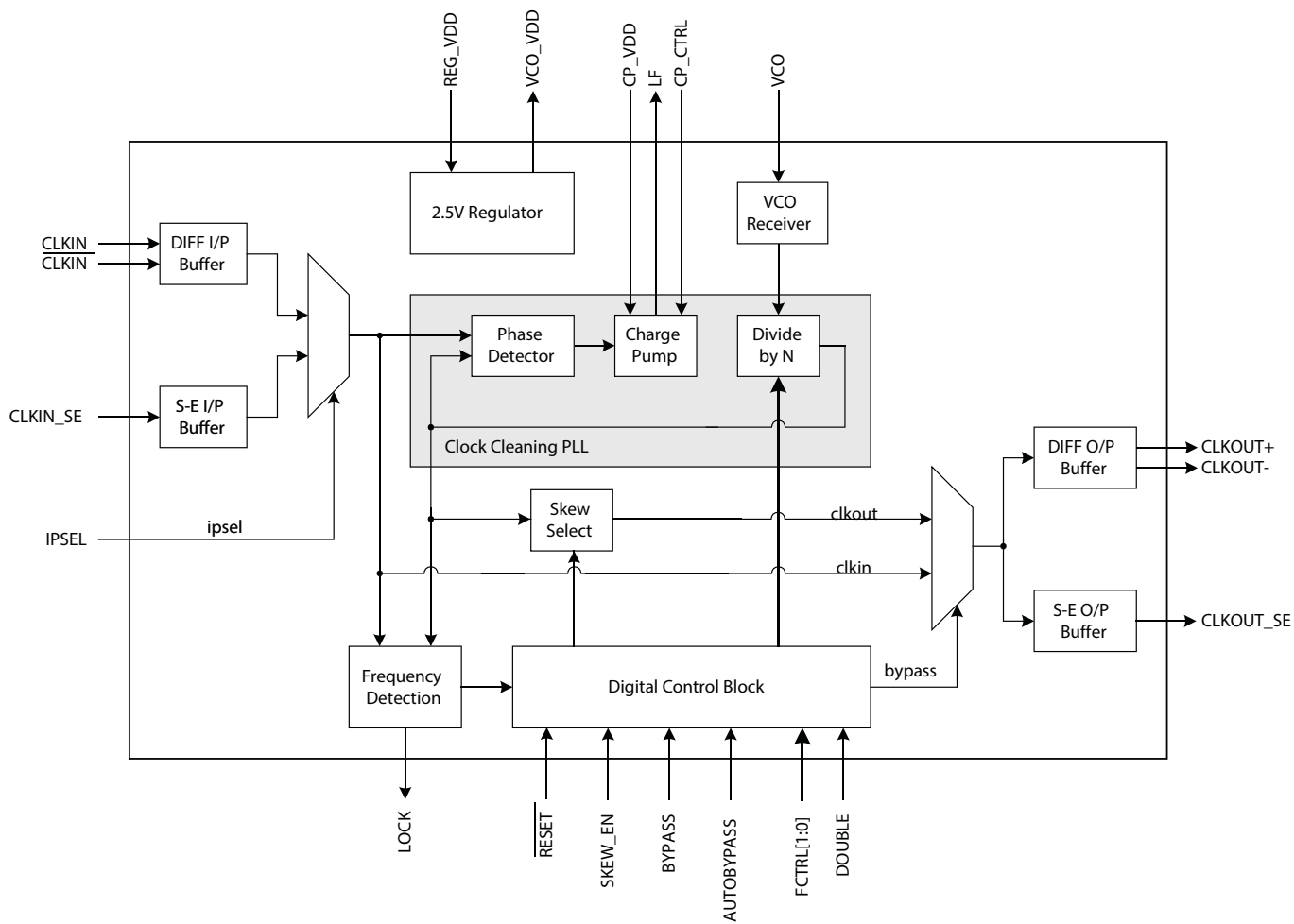


Figure A: GS4915 Functional Block Diagram



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