

An Attachable Fractional Divider Transforming an Integer-N PLL Into a Fractional-N PLL with SSC Capability

Abstract— PLLs are utilized in SoCs for automotive industry. In the industry, the system handles with satellite signals which are weak radio waves coming from space. Therefore, the output frequency of PLLs is carefully designed to avoid EMI. Recently, Global Navigation Satellite System (GNSS) is becoming more common and available frequency bands for clocks are getting narrow. That leads, in many products, replacement integer-N PLLs with fractional-N PLLs is needed to obtain smaller output frequency steps than reference frequency. The attachable fractional divider introduced in this talk transforms an integer-N PLL into a fractional-N PLL with only 0.35 p_{S_{RMS}} of integrated RMS jitter degradation.

Keywords— *fractional-N PLL, integer-N PLL, fractional divider, phase interpolator, electromagnetic interference, fractional spur, spread-spectrum clocking*