

TGEN6310/10B/08/04/02 Product Brief

1. Description

The TGEN63xx series (TGEN6310/ TGEN6310B/ TGEN6308/ TGEN6304/ TGEN6302) are high-performance and low-jitter clock generator which integrates two any-frequency PLLs for applications that needs to meet PCIe specification or other scenarios. Up to 10 ultra-low output clock's jitter of TGEN63xx series clock generator provides more jitter margin in increasingly complex system, particularly HPC, Storage service, Data Center and Compute Server.

External Crystal (XTAL) or Crystal-Oscillator (XO) provides reference clock which is stable and low-jitter for built-in PLL. The built-in PLLs can be configured or operate in integral multiplier or fractional multiplier mode independently, as well as Spread-Spectrum-Clock (SSC). Internal integral divider degrades the clock from PLL to an expected frequency, and deliver it to clock output driver. The TGEN63xx series support seven modes of outputs level described in corresponding section. Users can

program TGEN63xx easily with GUI to generate any frequency. Factory preprogrammed are also available based on integrated NVM.

2. Features

- PCIe Gen6 Common Clock (CC) 14fs RMS
- PCIe Gen5 Common Clock (CC) 20fs RMS
- Support PCIe CC/SRIS/SRNS Clock Architecture
- Highly Configurable Spread Spectrum Clock (SSC)
 - Modulation Depth: 0ppm - 5000ppm
 - Modulation Range: 30kHz - 33kHz
 - Spread Mode: Down Spread
- Reference Clock Input Frequency Range
 - Crystal: 25MHz - 54MHz
 - Single-Ended and Differential: 25MHz - 160MHz
- Supported Output Mode
 - Single-Ended: LVCMOS
 - Differential: LVDS, LVPECL, CML, HCSL
- Output Clock Frequency Range

TGEN6310/10B/08/04/02 Product Brief

- Single-Ended: 10MHz - 250MHz
- Differential: 10MHz - 1200MHz (HCSL: 10MHz - 400MHz)
- Wide Power Supply Range
 - VDD&VDDO: 1.8V /2.5V /3.3V
 - VDDA: 2.5V/ 3.3V
 - Maximal Power Dissipation: 1.3W
- I2C and SPI Serial Interface supported (Maximal frequency for I2C: 400kHz, SPI: 20MHz)
- Support Factory or User Defined One-Time-Program (OTP) based on embedded NVM
- Lead-Free & Fully RoHS Compliant
- Industrial Temperature Support(-40°C~85°C)
- Environment-friendly without Halogen and Antimony
- Package information
 - TGEN6310/10B/08: 64-QFN 9x9mm package
 - TGEN6304/02: 44-QFN 7x7mm package

3. Application

- Data Center
- X86 / Arm Server
- Hardware Accelerators
- Network Attach Storage
- Personal Computer

TGEN6310/10B/08/04/02 Product Brief

4. Functional Diagram

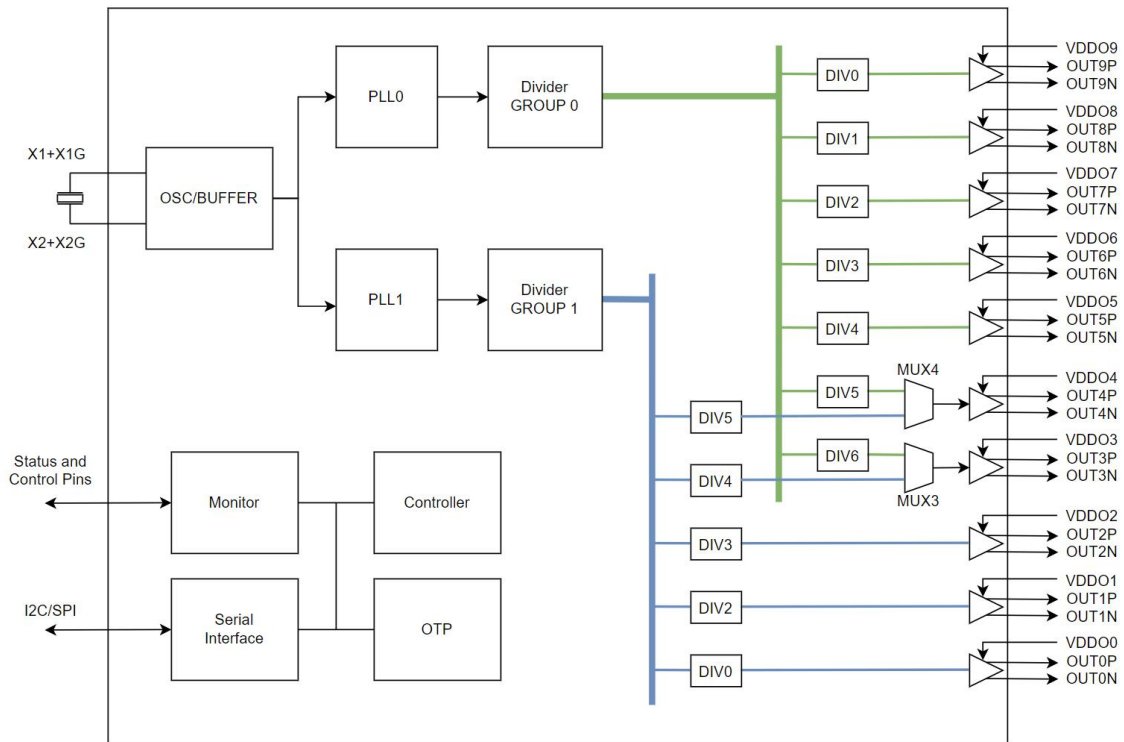


Figure 1 Basic Function Diagram of TEGN6310

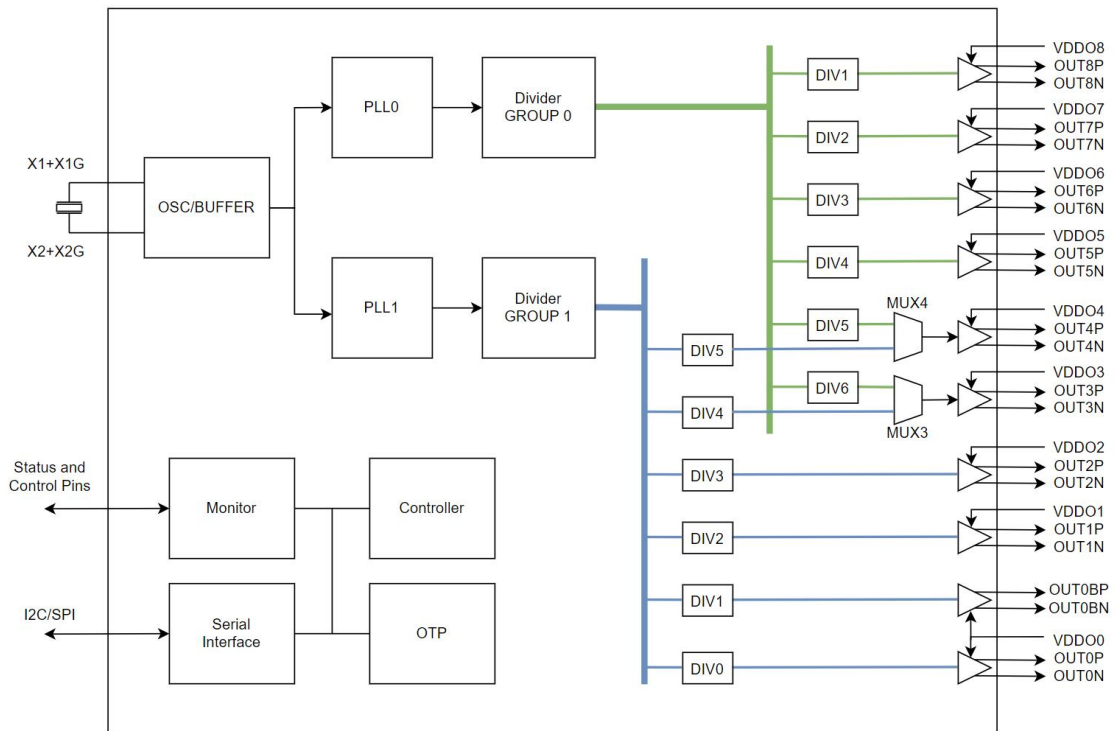


Figure 2 Basic Function Diagram of TEGN6310B

TGEN6310/10B/08/04/02 Product Brief

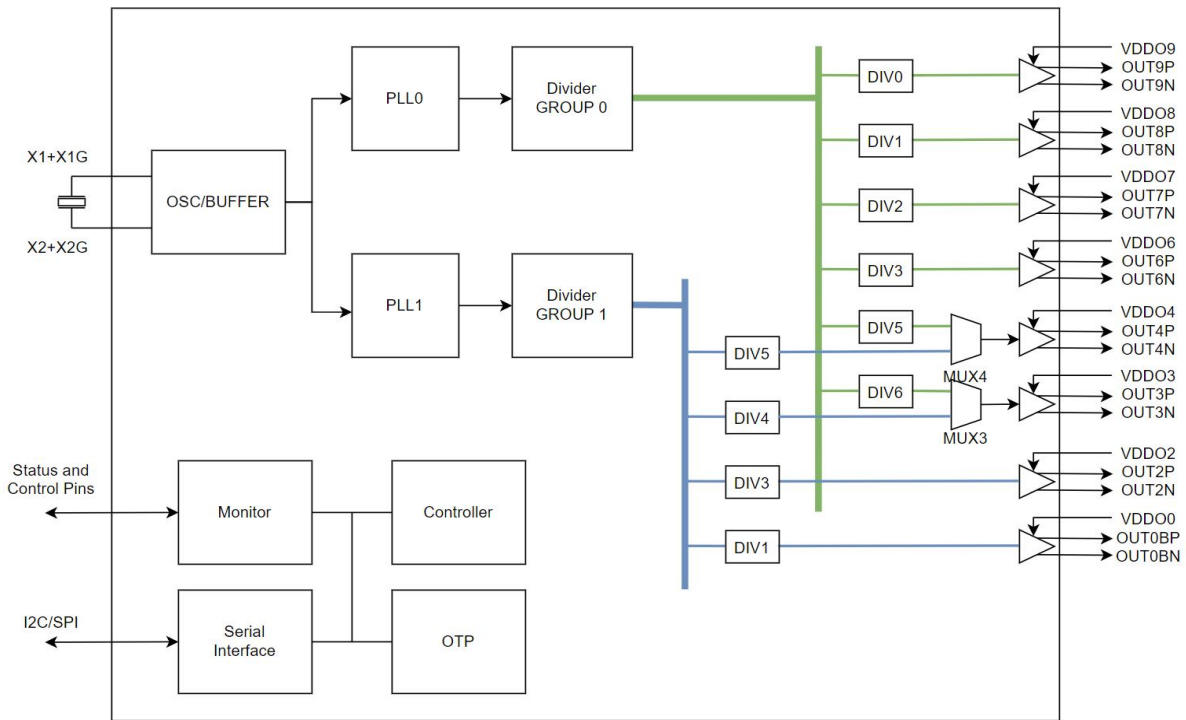


Figure 3 Basic Function Diagram of TEGN6308

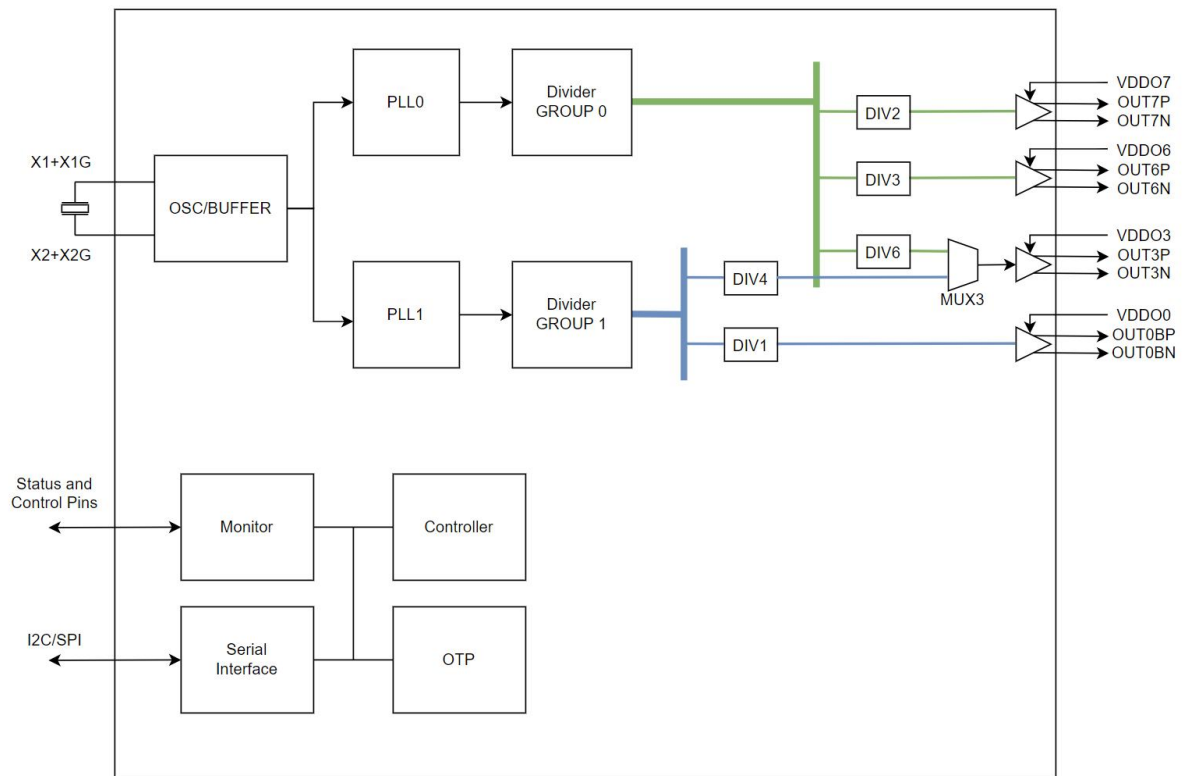


Figure 4 Basic Function Diagram of TEGN6304

TGEN6310/10B/08/04/02 Product Brief

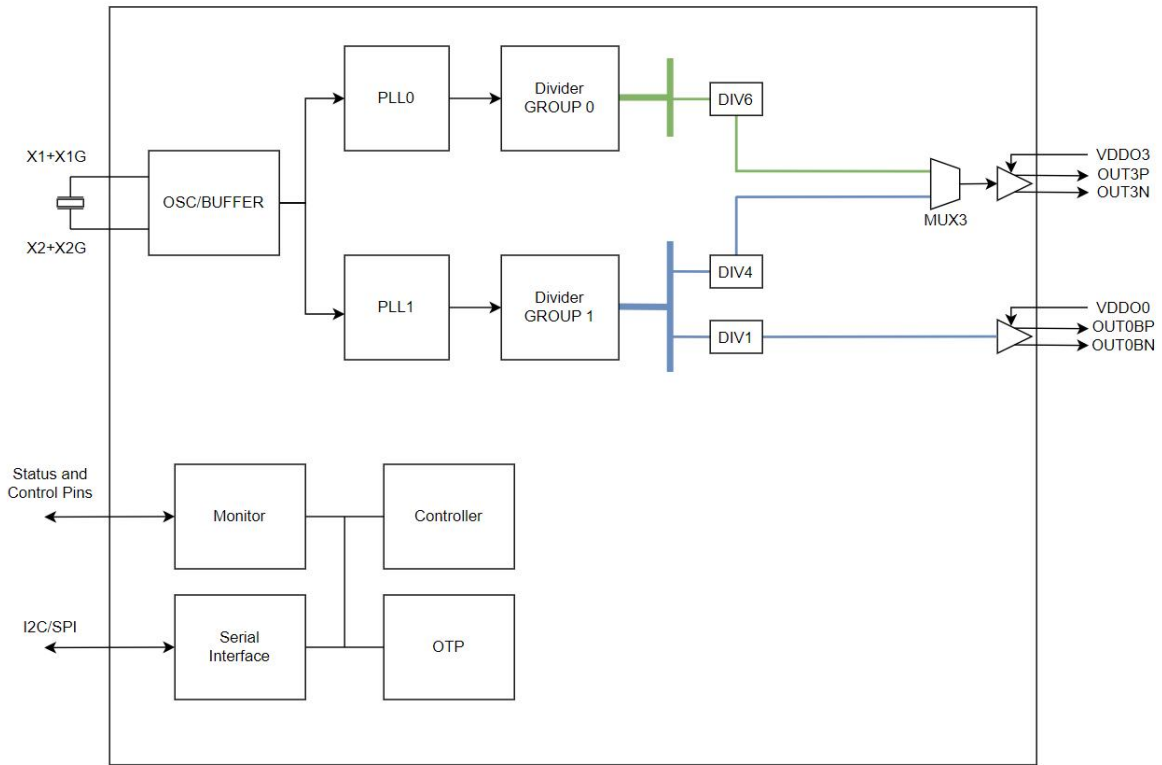


Figure 5 Basic Function Diagram of TEGN6302