A6B20G

6-bit, 20 GSPS
Analog to Digital Converter IP block

General Description

The A6B20G is a low-power, high-speed analog to digital converter (ADC) intellectual property (IP) design block. It is a FLASH-type ADC, with 6-bit resolution and a sampling rate of 20 giga samples per second (GSPS).

The ADC core has the highest bandwidth currently available, with a layout area of only 210 um x 470 um. It is a unique solution that provides an extremely high sampling rate, with a very low power consumption of only 331 mW.

It is the only IP core in this sampling rate class that is available with a high-speed input buffer, track and hold stage, and encoder -based full data rate output interface.

The cost-effective IP block has been designed and verified for the GF22FDX fabrication process with FDSOI technology to provide superior performance/power specifications.

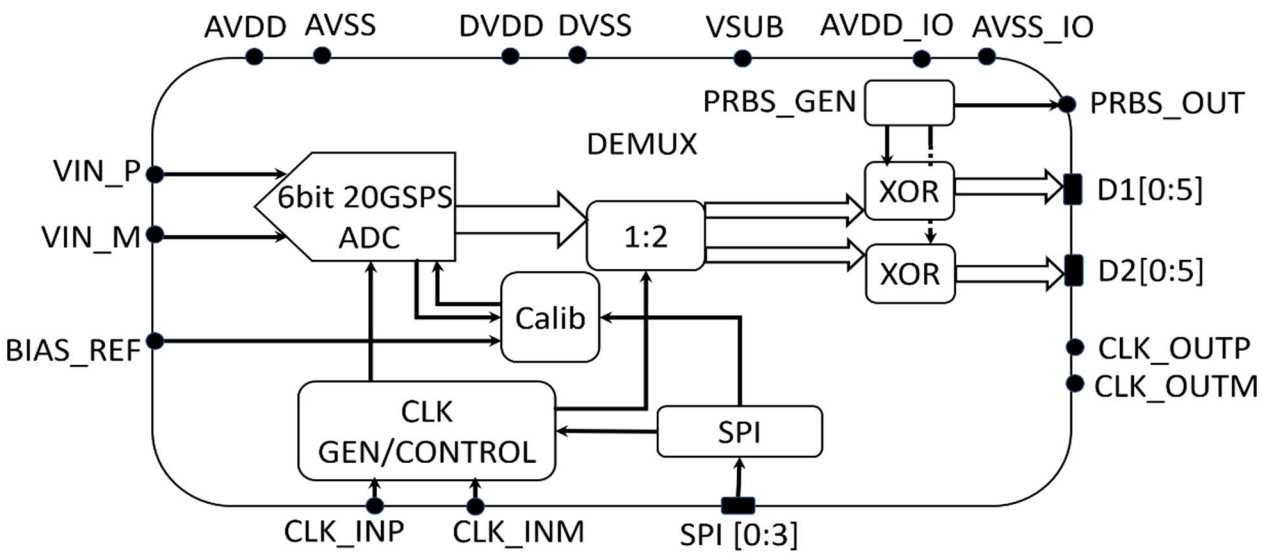
Key Features

- 6 bit resolution
  - 20 GSPS sampling rate
  - 25 GHz Input Bandwidth
  - 331 mW power
  - Static Performance:
    - DNL: ± 1 LSB
    - INL: ± 1.8 LSB
  - Dynamic Performance:
    - SFDR: 39 dBc
    - SNDR: 32 dB
    - ENOB: 5.0
  - Available as IP and Integrated Circuit
  - Radiation-tolerant design available: A6B20GRH

Applications

- High-speed test and measurement systems
- Communications and Networking
  - Wideband Communications
  - Serial data links
  - Fiber Optic Communications
  - 5G Applications
- Ultra Wideband Phased Arrays
- Radio astronomy

Functional Block Diagram



Specifications

Resolution (bits)	6
Sampling rate	20
SFDR (dBc)	39
ENOB	5.0
Input Bandwidth (GHz)	25
Power (mW)	331
FOM (fJ/conv)	49
INL (Integral Non-Linearity) (LSB)	± 1.8
DNL (Differential Non-Linearity) (LSB)	± 1
Architecture	Flash
Layout area (um x um)	210x470
Foundry	Global Foundries GF22FDX FDSOI
Node	22nm
Maturity	Silicon Validated

*Specifications subject to change

About Alphacore

Alphacore enables engineers to develop ultra-high-performance and ultra-low power microelectronic components and systems with our products and IP design services. Our robust designs serve the **defense**, **aerospace**, **automotive**, **communications**, and **scientific instrumentation** markets. Let us supply you with state-of-the-art designs to satisfy your product and system needs.

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