Offset Reduction Techniques in Highspeed Analog-To-Digital Converters [Analysis, Design and Tradeoffs /

Figueiredo, Pedro M.

Springer Netherlands,
2009

Monografía

Offset Reduction Techniques in High-Speed Analog-to-Digital Converters analyzes, describes the design, and presents test results of Analog-to-Digital Converters (ADCs) employing the three main high-speed architectures: flash, two-step flash and folding and interpolation. The advantages and limitations of each one are reviewed, and the techniques employed to improve their performance are discussed. Since the offset voltages of the constituting sub-blocks of these converters (pre-amplifiers, folding circuits and latched comparators) present the definitive linearity limitation, the offset is the fundamental design parameter in high-speed CMOS ADCs. Consequently, offset reduction techniques must be employed, in order to achieve high frequency operation with low power and layout area. Averaging and offset sampling are the most widely used, both being thoroughly characterized: the most exhaustive study ever performed about averaging in both pre-amplifier and folding stages is presented, covering the DC and transient responses, all mismatch sources, termination, and a fully automated design procedure; existing offset sampling methods are carefully reviewed, and two new techniques are disclosed that, combined, yield a (nearly) offset free comparator. Other relevant topics include kickback noise elimination in comparators, reference buffer design, a technique to compensate (certain) IR drops, details on the layout and floorplan of cascaded folding stages, and an improved scheme to select reference voltages in fine ADCs of two-step subranging converters. Special emphasis is given to the methods of guaranteeing specifications across process, temperature and supply voltage corners

Título: Offset Reduction Techniques in Highspeed Analog-To-Digital Converters Recurso electrónico-En línea] Analysis, Design and Tradeoffs by Pedro M. Figueiredo, JoÃo C. Vital

Editorial: Dordrecht Springer Netherlands 2009

Descripción física: digital

Tipo Audiovisual: Engineering Data transmission systems Systems engineering Engineering Circuits and Systems Input/Output and Data Communications

Mención de serie: Analog Circuits and Signal Processing Series

Documento fuente: Springer eBooks

Nota general: Engineering (Springer-11647)

Restricciones de acceso: Accesible sólo para usuarios de la UPV

Tipo recurso electrónico: Recurso a texto completo

Detalles del sistema: Forma de acceso: Web

ISBN: 9781402097164

Autores: Vital, JoÃo C.

Entidades: SpringerLink (Servicio en línea)

Enlace a formato físico adicional: Printed edition 9781402097157

Punto acceso adicional serie-Título: Analog Circuits and Signal Processing Series

---