

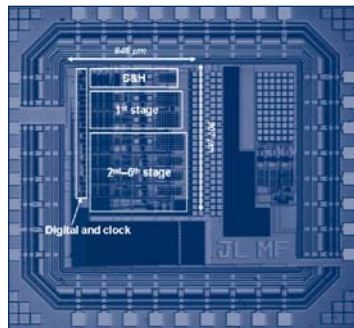
# EECS 511: Analog-Digital Interface Circuits

**Credits: 4**

**Prerequisite:** EECS 413 or equivalent

This course will cover most of the well-known analog and digital conversion schemes. These include the flash, folding, multi-step, and pipeline Nyquist-rate ADC architectures. Oversampling converters will also be discussed. The main focus will be on CMOS circuits, but some bipolar schemes will also be covered. (The emphasis is on designing circuits which can be built with state-of-the-art commercial processes.)

The course will begin with a review of mixed-signal design. Common building blocks, such as comparators and opamps will be examined in detail. However, students are expected to have a good knowledge of analog design fundamentals—i.e., feedback, small signal analysis, stability, etc.—and should also be familiar with Spice before taking this course. EECS 413 (or an equivalent) is a prerequisite. Practical design work is a significant part of this course. Students design and model complete converters. Design work will be done with the aid of Matlab, Composer, or Spectre.



Pipeline ADC developed in 511.



Instructor:

**Professor Michael P. Flynn** received his BE and MEngSc degrees from the National University of Ireland at Cork, and PhD degree from Carnegie Mellon University. He has worked at the National Microelectronics Research Centre, National Semiconductor, Texas Instruments, and Parthus Technologies. He was an adjunct faculty member at the National University of Ireland, Cork, from 1997 to 2001. Dr. Flynn joined the University of Michigan in 2001. His technical interests are in data conversion, gigabit serial transceivers, and RF circuits. In 2004, he received the NSF Early Career Award. He serves on the

Technical Program Committees of ISSCC and A-SSCC. He is a senior member of the IEEE, a member of Sigma Xi, and a Thrust Leader for Wireless Interfaces at University of Michigan's WIMS-NSF Engineering Research Center.