國立台灣大學技術行銷表

台大案號:_____(由產學組填寫)

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產品/技術名稱	迴路測試架構及方法
發明人/單位	黃炫倫、黃俊郎、林王安、康平穎
產品/技術說明	一種迴路測試架構，包含：電壓調整器、數位類比及類比數位轉換器。電壓調整器包括：包括電壓放大及電壓縮小電路之增益控制模組及位移控制模組。於數位類比測試模式，數位類比轉換器依序產生第一類比測試訊號，由增益控制模組放大電壓準位後，由類比數位轉換器依序轉換得到測量電壓值。於類比數位測試模式，數位類比轉換器產生類比測試訊號群組，由增益控制模組縮小電壓準位及位移控制模組位移電壓準位後，由類比數位轉換器依序轉換得到字碼對應。類比測試訊號群組分別對應類比數位轉換器之一刻度範圍。一種迴路測試方法亦在此被揭露。
應用範圍	類比數位及數位類比轉換器的測試
產品/技術優勢	1. 本技術所需的額外測試電路很小，並且不會干擾到 ADC/DAC 的正常工作效能。 2. 本技術不需要複雜的運算來進行效能分析。 3. 本技術中用到的電壓位移量與縮放倍率不需十分準確，因此非常適合實際使用。
市場潛力	引入本技術可大幅降低類比數位及數位類比轉換器測試成本。
產品/技術 智財權保護方式	

Marketing Abstract of NTU's Invention Disclosure

NTU's docket no:_____(由技轉室填寫)

TTO contact： Xuan-Lun Huang　　Tel：0921010539　　e-mail：f93921028@ntu.edu.tw

Title	Loopback test architecture and method
Inventor (s)	Xuan-Lun Huang, Jiun-Lang Huang, Wang-An Lin, and Ping-Ying Kang
Brief Description	A loopback test architecture and method are provided. The loopback test architecture includes a voltage adjuster, a DAC and an ADC. The voltage adjuster includes gain control module including a voltage scale-up circuit and a voltage scale-down circuit and an offset control module. During a DAC test mode, the DAC generates a series of first analog test signals to be scaled up by the voltage scale-up circuit. The ADC further converts the first analog test signals to obtain a plurality of voltage values. During an ADC test mode, the DAC generates a series of analog test signal groups to be scaled down and offset by the voltage scale-up circuit and the offset control module. The ADC further converts the analog test signal group to obtain a plurality of code hits, wherein each analog test signal group corresponds to a scale-range of the ADC.
Fields of Application	ADC (analog-to-digital converter) and DAC (digital-to-analog converter) testing
Advantages	1. The required design-for-test (DfT) circuitry is minimal and causes no interference to the data converter functionality. 2. No complex calculation is required. 3. The proposed technique is practical and robust. The scaling factors and the set of offset voltages need not be very accurate.
Market Potential	The data converter testing cost can be greatly reduced by the proposed technique.
IP Right(s)	