

京都大学ICTイノベーション2013 学内パネル展示 出展概要

タイトル

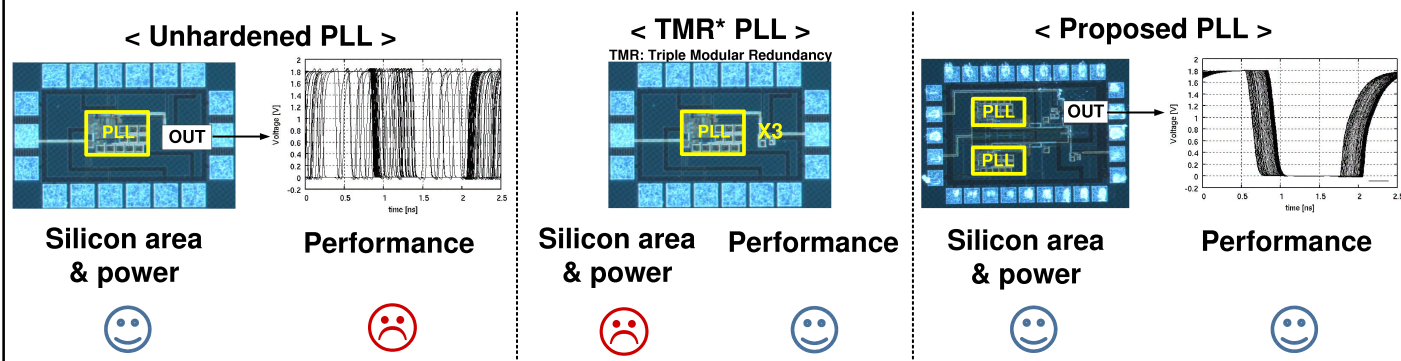
放射線耐性をもつPLL回路

Radiation-Hardened Phase Locked Loops (PLLs)

概要

PLLs in digital circuits are source of the clock signal. Perturbation on PLLs is crucial because change or lack of clock signal leads whole system malfunction. Radiation-strike is considered as one of the causes of PLL malfunctioning. Thus, importance of radiation-hardened PLL is increasing.

In this work, we have proposed **a radiation-hardened PLL (RHPLL) which mitigate penalties in silicon area and power consumption.** Following figure shows comparison of three types of PLLs in silicon area, power consumption and jitter of radiation-strike condition.



URL

産業界への展開例・適用分野

The proposed RHPLL is mainly required for space applications such as space shuttles, satellites because radiation level is high at over airplane altitude. Not only space applications but also high reliability digital circuits/systems that operate at ground level needs the proposed RHPLL to satisfy severe error-standard.

研究者

	氏名	専攻	研究室	役職・学年
展示担当者	SinNyoung KIM	通信情報システム	Onodera Lab.	博士3回生
	Akira TSUCHIYA	通信情報システム	Onodera Lab.	助教
	Hidetoshi ONODERA	通信情報システム	Onodera Lab.	教授