E410

RCNP EXPERIMENT E

PROPOSAL FOR EXPERIMENT AT RCNP

July 17, 2012

TITLE:
Ultra Low-power Circuits for Future Highly-reliable Embedded Systems.

SPOKESPERSON:

Full Name	Kazutoshi Kobayashi
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Title or Position	Professor
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EXPERIMENTAL GROUP:

K. Kobayashi	Graduate School of Sci. & Tech., Kyoto Inst. of Tech.	Professor
Y. Watanabe	Graduate School of Eng. Sci, Kyushu Univ.	Professor
M. Hashimoto	Graduate School of Info. Sci. & Tech., Osaka Univ.	Associate Professor
J. Furuta	Graduate School of Informatics, Kyoto University	Ph.D. Candidate (D2)
R. Harada	Graduate School of Info. Sci. & Tech., Osaka Univ.	Ph.D. Candidate (D2)
S. Abe	Graduate School of Eng. Sci, Kyushu Univ.	Ph.D. Candidate (D3)

RUNNING TIME:	Installation time without beam	.5 days(for each beam time)
	Test running time for experiment	.5 days
	Data runs	4 days
BEAM LINE:		RING Cyclotron : WN course
BEAM REQUIREMENTS:	Type of particle	proton
	Beam energy	392 MeV
	Beam intensity	$\leq 1\mu$A
BUDGET:	Experimental expenses	0 yen

TITLE:
Ultra Low-power Circuits for Future Highly-reliable Embedded

SPOKESPERSON: Kazutoshi Kobayashi

SUMMARY OF THE PROPOSAL

We are developing ultra low-power circuits for future highly-reliable embedded systems that operate with dry batteries as long as possible, or rather without battery by scavenging environmental energy. Our experiments expose 65-nm SOTB (Silicon on Thin BOX) chips at very-low-voltage power supply such as 0.1 V or 0.4 V. The goals of this experiment are 1) investigating the fundamental immunity of SOTB device since its immunity has been neither measured nor reported, and 2) validating existing techniques developed for bulk CMOS and SOI.