

# **SASEBO-R Quick Start Guide**

**[Version 1.0]**



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Research Center for Information Security,  
National Institute of Advanced Industrial Science and Technology

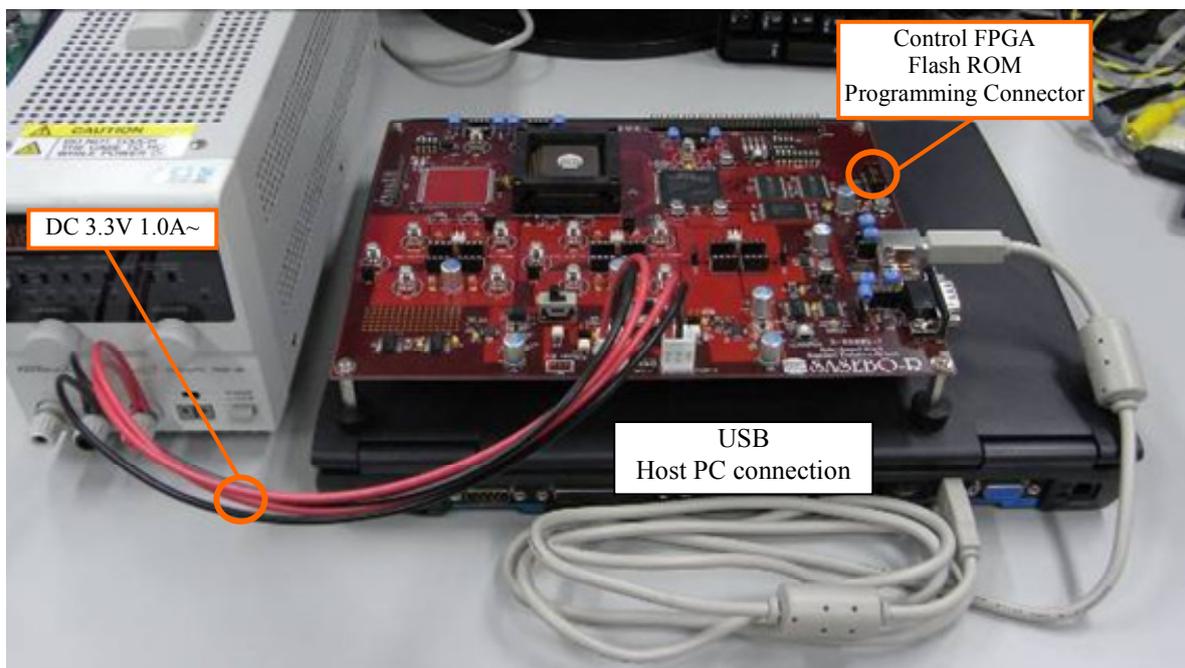
## 1. Equipment preparation

Before setting up the SASEBO-R instrumental environment and running its test program, have the following equipment available:

- (1) SASEBO-R (a parts-mounted print circuit board)
- (2) Power supply  
The SASEBO-R requires a power supply of 3.3 VDC at 1.5 Amps
- (3) Serial cable: Either RS-232 female-female 9-pin cable or USB cable  
The SASEBO-R uses a USB/RS-232 cable to communicate with the host PC.
- (4) Host PC  
Have a middle-range Windows XP/Vista/7 PC with USB ports as the host computer of SASEBO-GII.
- (5) Software (See Section 3)  
The instrumental environment requires Microsoft .Net Framework 3.5 and Xilinx ISE (WebPACK or Foundation, whichever works).
- (6) FPGA configuration cable  
Have either of the Xilinx Platform Cable USB, Platform Cable USB II, or Parallel Cable IV available.  
This cable is used to program the flash ROMs connected to the FPGAs.

## 2. Connections

Connect between SASEBO-R and the host PC with the USB cable.



### 3. Software installation

Download and install the following software:

- (1) Software for testing LSI on SASEBO-R: SASEBO\_LSI\_Checker\_1.0

<http://www.rcis.aist.go.jp/special/SASEBO/index-en.html>

(via introduction page in English)

<http://www.rcis.aist.go.jp/special/SASEBO/>

(via introduction page in Japanese)

- (2) Microsoft .Net Framework 3.5

<http://www.microsoft.com/downloads/details.aspx?FamilyID=333325fd-ae52-4e35-b531-508d977d32a6>

(English version)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=333325fd-ae52-4e35-b531-508d977d32a6&displaylang=ja>

(Japanese version)

- (3) Xilinx ISE WebPACK

[http://www.xilinx.com/ise/logic\\_design\\_prod/webpack.htm](http://www.xilinx.com/ise/logic_design_prod/webpack.htm)

(English version)

[http://japan.xilinx.com/ise/logic\\_design\\_prod/webpack.htm](http://japan.xilinx.com/ise/logic_design_prod/webpack.htm)

(Japanese version)

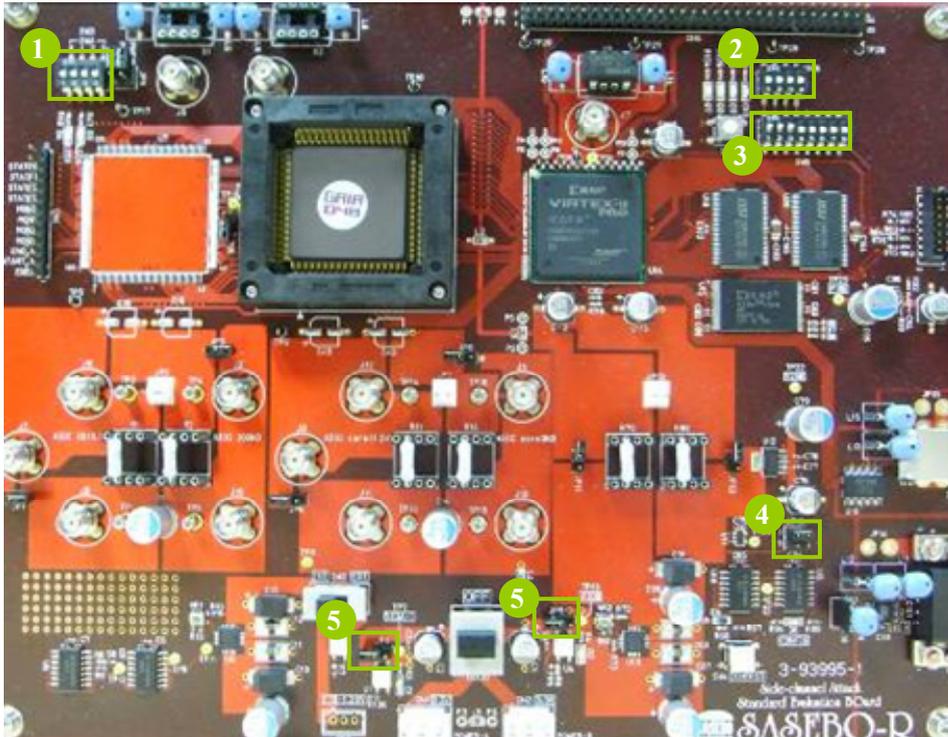
- (4) FTDI D2XX driver

<http://www.ftdichip.com/Drivers/D2XX.htm>

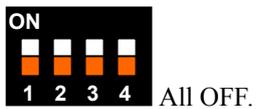
(D2XX driver)

## 4. Setting up SASEBO

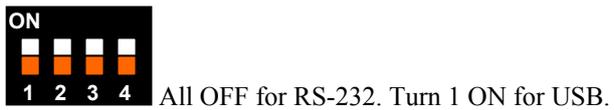
- DIP switch and jumper settings for the SASEBO prototype



- (1) JP1



- (2) JP2



- (3) SW5



- (4) JP10



Place a jumper on the upper pins(1,2).

- (5) JP4, JP5



Open.

## ➤ FPGA configuration

To reprogram the flash ROM (XCF16P) for the control FPGA, attach the configuration cable to CN5. For configuration, use the provided mcs file sasebo\_r\_ctrl.mcs.

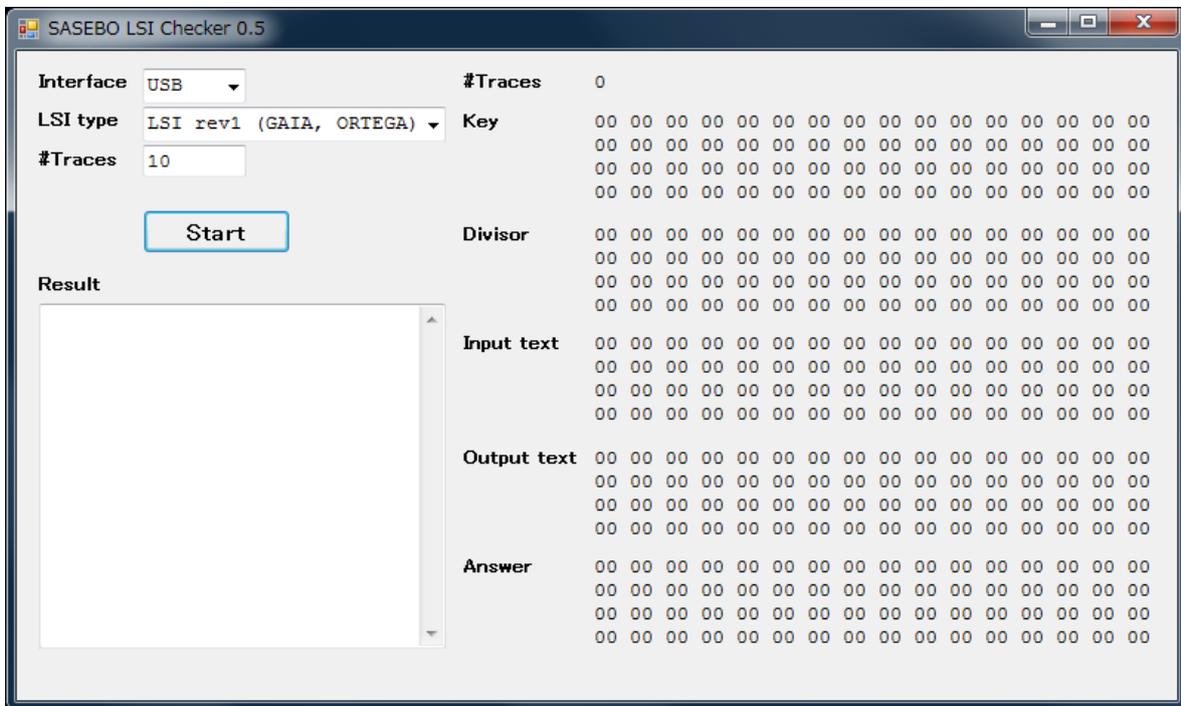
To configure the FPGA immediately after reprogramming of the flash ROM, cycle the power.

## 5. LSI test

Switch the power of SASEBO-R on and you should see LEDs D1, D2, and D6 turn on. If D1 and D2 do not light, it indicates a problem with the power supply. If D6 is off, it implies a power supply problem, SASEBO setting problem, or failure in reprogramming the flash ROM.

Set the Vcore voltage between TP14(Vcore) and TP16(GND) at **1.0 V** by adjusting the variable register VR1.

Make sure everything appears right so far, and then run the SASEBO\_LSI\_Checker software. The software will show the following screen so that you can assure the system works normally and see that the plaintext sent to LSI is correctly ciphered.



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\*4 The specifications of this product are subject to revision without notice.

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