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Programmable Filter Evaluation Kit

Analog, Digital & Mixed-Signal ICs, Modules, Subsystems & Instrumentation

User Manual

Software & Hardware Installation



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1. Introduction

This document provides the functionality of the HMC1044LP3E or HMC1045LP3E Evaluation Kit. The HMC1044LP3E or HMC1045LP3E Evaluation board is controlled via Serial Port Interface(SPI). The HMC1044LP3E or HMC1045LP3E Evaluation Kit also includes the PC compatible software with Graphical User Interface(GUI), and software drivers necessary for SPI control, allowing the user to read from and write to all the registers.

Note: For most up-to-date software download and information, please visit www.hittite.com.

2. HMC1044LP3E or HMC1045LP3E Evaluation Kit Contents

2.1 Hardware

Table 1. Evaluation Kit Contents

| Item | Quantity |
|---|----------|
| HMC1044LP3E or HMC1045LP3E Evaluation Board | 1 |
| USB Interface Board | 1 |
| 6' USB A Male to USB B Male Cable | 1 |
| CD ROM (Contains User Manual, HMC1044LP3E or HMC1045LP3E Schematic, and Filter evaluation software) | 1 |

2.2 Software

HMC1044LP3E or HMC1045LP3E Evaluation Software is used to enable communication between a PC and HMC1044LP3E or HMC1045LP3E Evaluation Board.

2.3 User Provided Equipment

In addition to the items provided in the Kit, the user must provide the following equipment to communicate with the HMC1044LP3E or HMC1045LP3E Evaluation Board.

- DC Power Supply
- DC Cables
- Computer (PC) with Standard USB ports, Windows XP® or later.
- Other test equipment used to generate input signals of the HMC1044LP3E or HMC1045LP3E.

3. Operating Environment

The HMC1044LP3E or HMC1045LP3E Evaluation Kit is designed for use in a laboratory setting at ambient room temperature (25 °C) and is not protected against moisture. The HMC1044LP3E or HMC1045LP3E Evaluation Board is rated at -40 °C to +85 °C. The USB Interface Board has an ESD rating of ±2500 V, however individual components may have a lower rating (check the product's data sheet for its specific ESD rating). Use appropriate ESD procedures and precautionary measures when handling all electronic hardware.

4. Hardware Setup

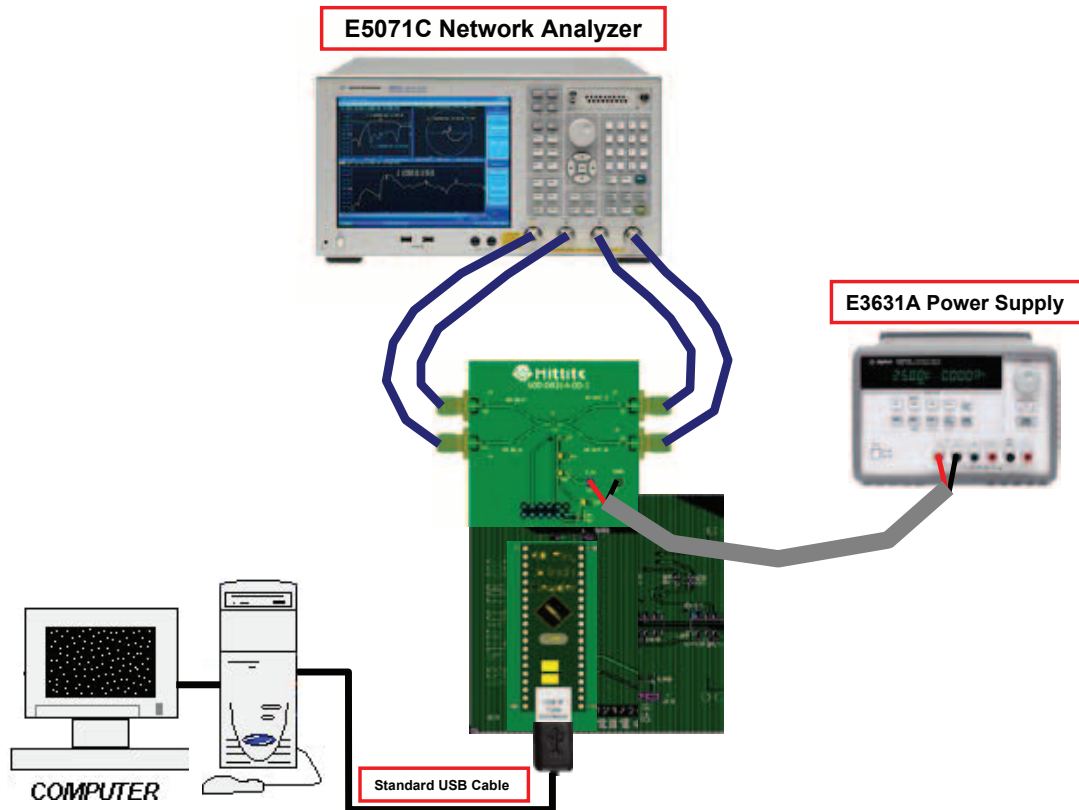


Figure 1. HMC1044LP3E Filter Evaluation Board Test Setup

Setup HMC1044LP3E hardware according to [Figure 1](#) and HMC1045LP3E hardware according to [Figure 2](#)

- Connect USB interface board to HMC1044LP3E or HMC1045LP3E Evaluation board
- Connect the provided USB cable to USB Interface board, and a PC.
- Apply +3.3 V to HMC1044LP3E or HMC1045LP3E Evaluation board. Supply current should be ~5 mA.

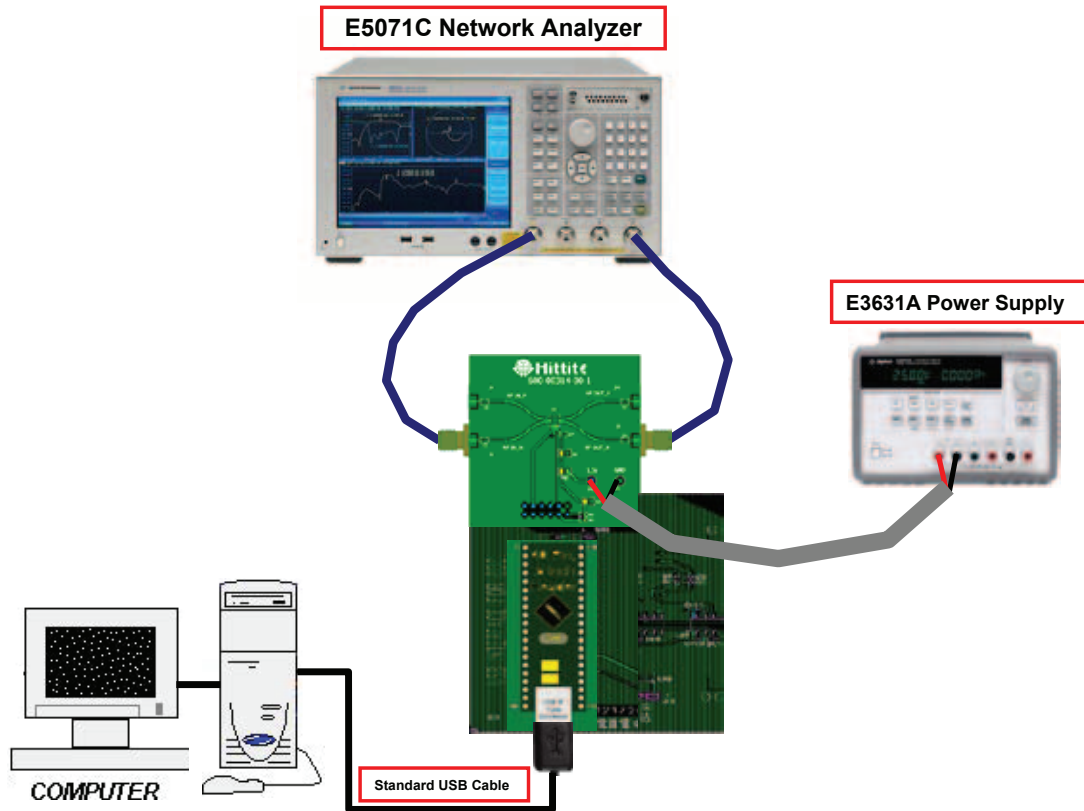


Figure 2. HMC1045LP3E Filter Evaluation Board Test Setup

5. Using the Filter Evaluation Software

1. Ensure that the USB interface hardware is connected to the evaluation board, and that the HMC1044LP3E or HMC1045LP3E Evaluation board is powered.
2. Double click on “Hittite Filter Evaluation Software Installer Vxxxx.exe” and follow the installation/uninstallation wizard.

Note: *Installation requires administrative privileges.*

3. Launch Filter Evaluation Software by selecting on “Hittite Filter Eval Software Vxxxx.exe” from the Program Files menu of your computer. The Filter product selection window should open. From the drop down list, select HMC1044LP3E or HMC1045LP3E, see [Figure 3](#) below

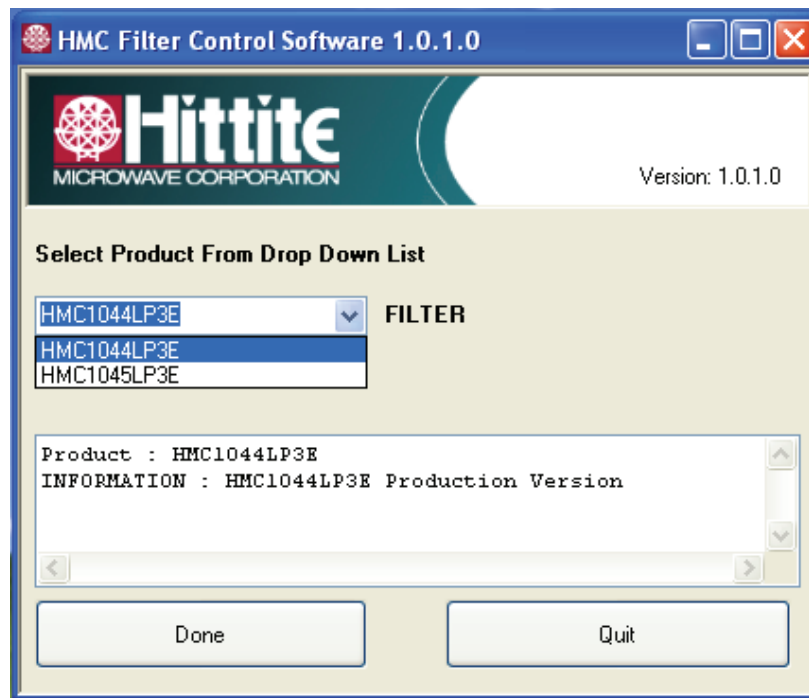


Figure 3. Filter Product Selection Window

Press “Done”, the HMC1044LP3E or HMC1045LP3E Main Control GUI shown in [Figure 4](#) will appear



Figure 4. Filter Main GUI

5.1 Filter Detailed GUI

Click on “Open GUI” from the Main GUI. The Detail Register GUI will appear, see [Figure 5](#).

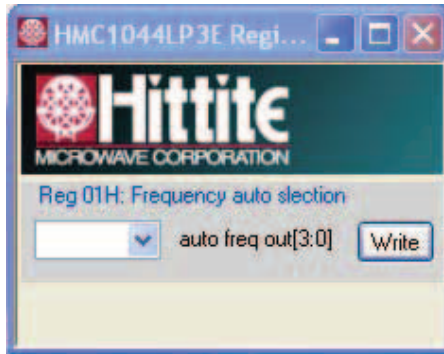


Figure 5. Filter Detail GUI

The Filter Detailed GUI [Figure 5](#) allows the user:

- Change Cutoff frequency by Reg 01H Frequency auto selection. HMC1044LP3E Reg 01H has 16 settings and HMC1045LP3E Reg 01H has 8 settings.
- Manual Control and fine tune of Cutoff frequency

5.2 Direct Register Access

- “Direct SPI Access” button in the ‘HMC1044LP3E or HMC1045LP3E Main GUI’ provides direct register read/write capability ([Figure 6](#)).

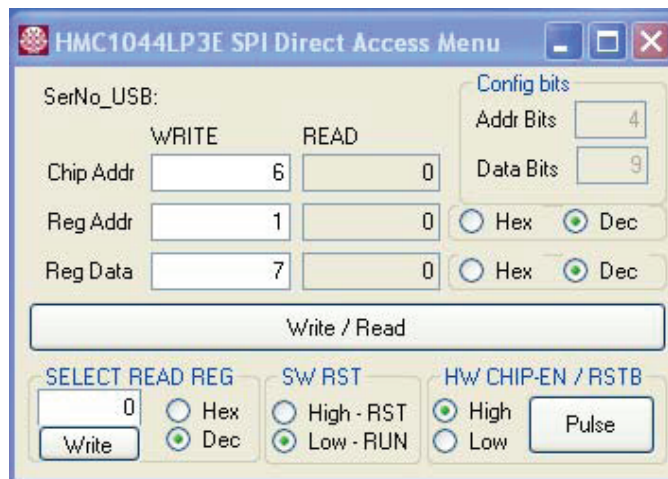


Figure 6. Direct SPI Access

6. Technical Support

Please contact apps-support@hittite.com for any questions. Hittite Microwave provides local direct support in many areas around the world. Please see the “Contact Us” page at www.hittite.com.