JTAG Test Diagnostic

ICT Viewer™

USER'S GUIDE

STARTEST Advanced HW Test Solutions

JTAGTEST Advanced HW Test Solutions

CUSTOMER INFORMATION

Contact technical support via email at *info@Start-Test.com*

www.Start-Test.com - www.JTAG-Test.ru

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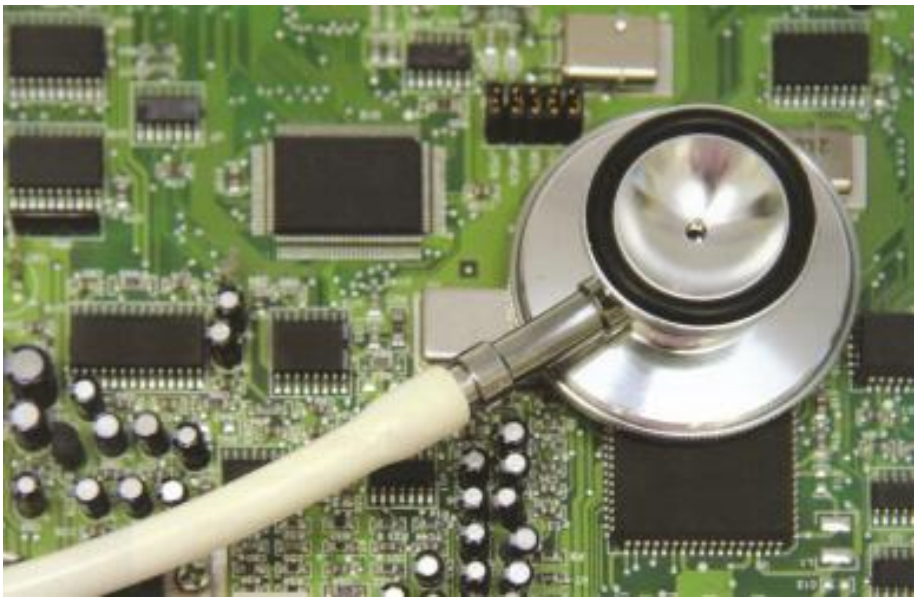
Contents



Chapter 1
Getting Started

This chapter provides basic information concerning the JTAG test diagnostic process, which includes the **ICT Viewer™** software tool (see also web site www.start-test.com/Products/JTAGManager.php). The chapter also discusses the **ICT Viewer™** installation and launching processes, as well as main parts of the SW package GUI.

1.1 About the ICT Viewer™ software tool

The **ICT Viewer™** is the sub-system of the **JTAG Manager™**, the StarTest software tool, which is the PC-based operational envelope and is intended for the JTAG test run on the electronic board manufacturing facilities (OEM) and/or in the R&D labs.

The **ICT Viewer™** is the graphical fault highlighting software package that gives the test operator access to a graphical view of the board-under-test (BUT) and integrates with any JTAG testing system. The JTAG test reports can be linked to the BUT layout view by clicking on a pin or a net in the JTAG test report. The **ICT Viewer™** highlights and pinpoints the location of a pin and/or a net in the BUT layout view, thus giving access to all of the available information about that pin, as well as showing the exact routing of the net connected to that pin. The production facility JTAG test operator can locate the suspected pin on the actual board being tested easily, and quickly inspect it for obvious defects.

The **ICT Viewer™** automates all processes of the BUT visualization with minimal intervention of production facility operator. The professional requirements from the production facility test operator skills are minimal. The **ICT Viewer™** contains an advanced exploration features allowing the production facility ICT test operator great flexibility in probing for optimum results. The exploration features include:

- Ability to search and highlight components, pins and nets
- Cross-probing between schematics, layouts, and information (the ICT test result) files
- Ability to search, highlight and locate components, nets, pins, and nails
- Customized color coding
- The **ICT** accepts input data (schematic, layout, and the ICT test result files) from a variety of sources. All relevant data contains in specifically designed **ICT Viewer™** Data Base that consists of the complete information and handling tools for the hardware (assembly) versions of each BUT. The **ICT Viewer™** have simple and friendly operator oriented GUI both for project and board.

With the **ICT Viewer™** usage many tasks such as finding specific nets, components and other items in the schematics or layouts become simple and straightforward, even for very complicated and tightly populated boards. The highly beneficial **ICT Viewer™** feature for an ICT production facility test operator is the simple board repair based upon the ICT diagnostic reports.

The **ICT Viewer™** is built as a unique and powerful graphical tool (see Fig. 1.1) for highlighting the elements in the Diagnostic Info pane ***A*** (the faulty device reference name and the faulty node number from the test result file), as well as info of the ICT Nails List in pane ***B*** (the ICT nail name and the type of the ICT pad), and for pinpointing them on the BUT schematics (pane ***C***) and on the BUT layout view (pane ***D***), on the both sides of a BUT.

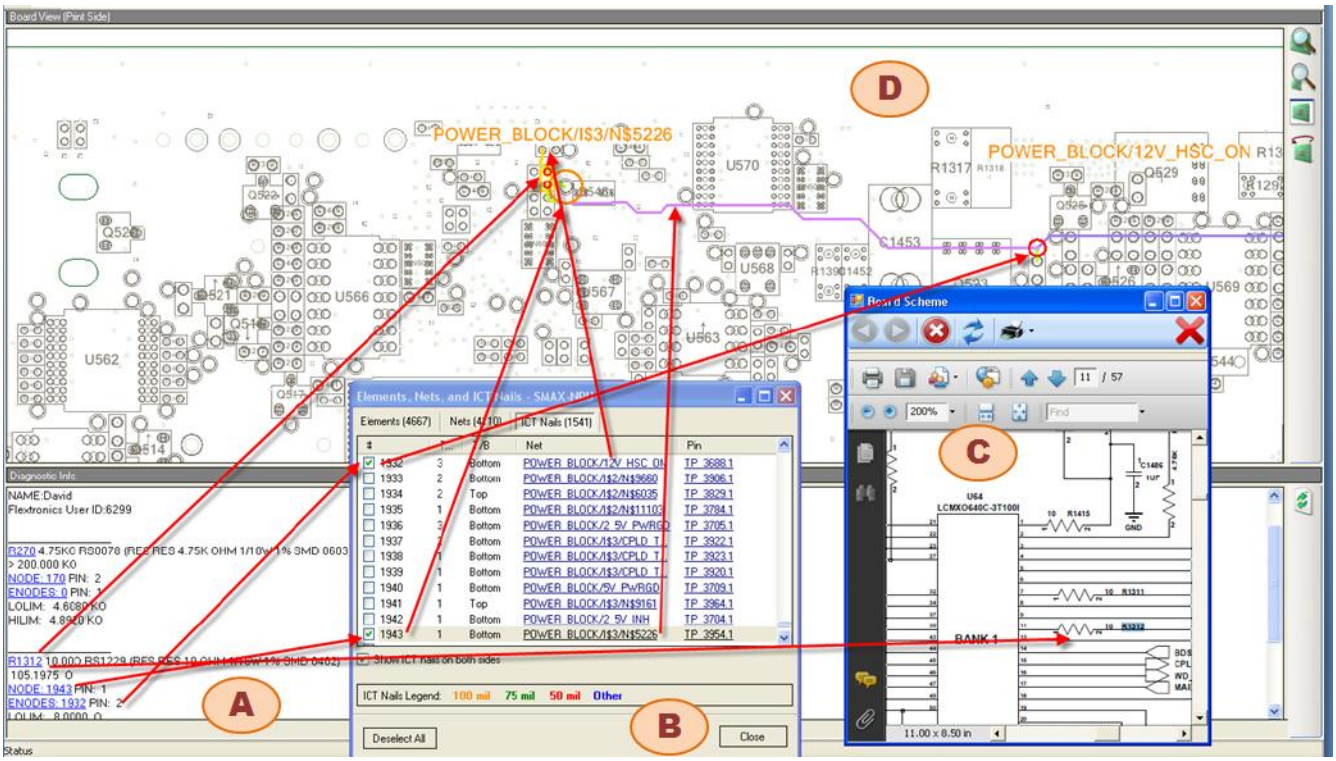


Fig. 1.1

The **ICT Viewer™** greatly facilitates the repair of faulty boards by showing the fault locations graphically both in the BUT layout and in the BUT schematics. By simply clicking on the net name or pin number which is displayed in the ICT diagnostic report, the production facility repair technician can find all instances of the faulty net(s) within the schematic circuit representation as well as on the layout of the physical board. The repair technician may choose to see both views at the same time in different panes, and can zoom in and out to see the fault location in greater detail.

1.2 Minimal HW and SW Requirements for the OFS Viewer Usage

- PC with OS Microsoft Windows XP or Windows 7
- Pentium-4 processor or better, 3 GHz is a good choice
- RAM 512 Mbyte
- 5 Gb of free HD space
- USB port

1.3 Installing the ICT Viewer

Launch  JTAG Manager Setup.exe file. The Wizard will display the following screen. If the Microsoft .NET Frameworks 4.0 is not installed on your PC, the JTAG Manager Installer will do it (recommended !).

Fig. 1-3

Click **Next>** button and follow the on-screen instructions to complete installation process. It will be automatically installed into the C:\Program Files (x86)\JTAG Manager destination folder. The required free disk space is about 6 Mbyte

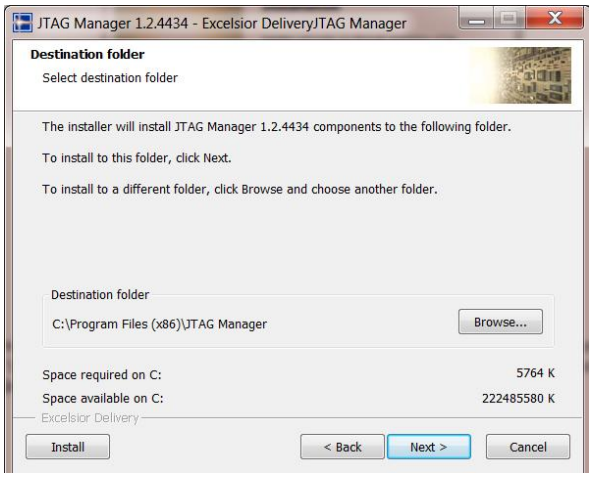


Fig. 1-4

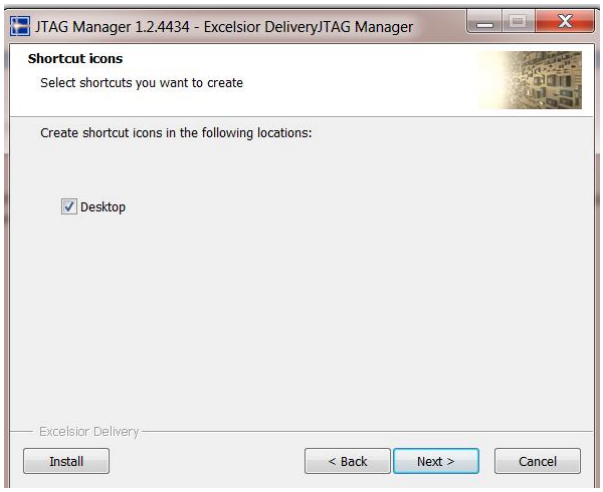


Fig. 1-5

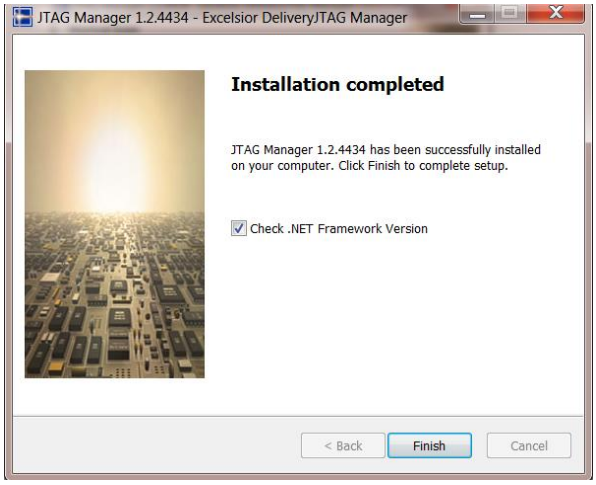


Fig. 1-6

If the installation is completed successfully, the Fig. 1.6 is displayed.

1.4 Licensing the ICT Viewer™

There are three possible ways to license the **ICT Viewer™** SW package usage:

- USB dongle
- the license file
- USB dongle with the license file (**TBD**)

1.5 ICT Viewer™

1.5.1 Double-click on the  icon to start the **JTAG Manager** session. The Login pane (Fig. 1-5.1) is not relevant for the **ICT Viewer™** so simply click OK.

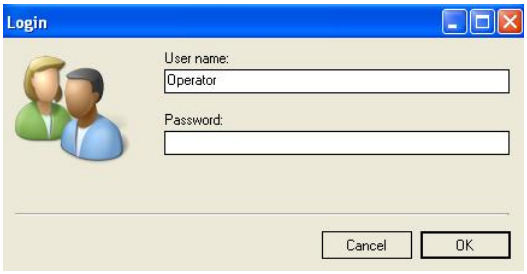


Fig. 1.5.1

1.5.2 The BUT graphical view picture should be prepared for the **ICT Viewer™** SW from the list of CAD file formats (see Fig. 1.5.2) by JTAG.TECT company as a special project file for each BUT. The user have to send to JTAG.TECT one of it's the CAD files (must!) and the schematic file in PDF format (optional). In response the JTAG.TECT company will send back the project file **project.ictv** specifically intended for user's BUT and user's JTAG platform.

JTAG Manager Input CAD files formats	
Layout Systems & Acceptable CAD ASCII files and directories	
Cadence Allegro	*.CAD, *.FAB, ODB++ directory
Mentor Graphics	Neutral, Trace, Geometric files or ODB++ directory
Pads (2005, 2007)	ASC or ODB++ directory
PCAD	PCA, PDF (PDiF) or ODB++ directory
Fabmaster FAZ file	

Fig. 1.5.2

1.5.3 The **ICT Viewer** project file ***.ictv** launching is to find the file through Upper Menu File (or Open) through conventional browser into the folder your computer.

Chapter 2
Main Elements of the ICT Viewer GUI

2.1 The GUI Language

There are two GUI languages available in the **ICT Viewer** current version: English and Russian (Fig. 2-1). When the **ICT Viewer** is installed first time the language corresponds to the Windows language. When a language is changed, the **ICT Viewer** software package have to be restarted to take effect.

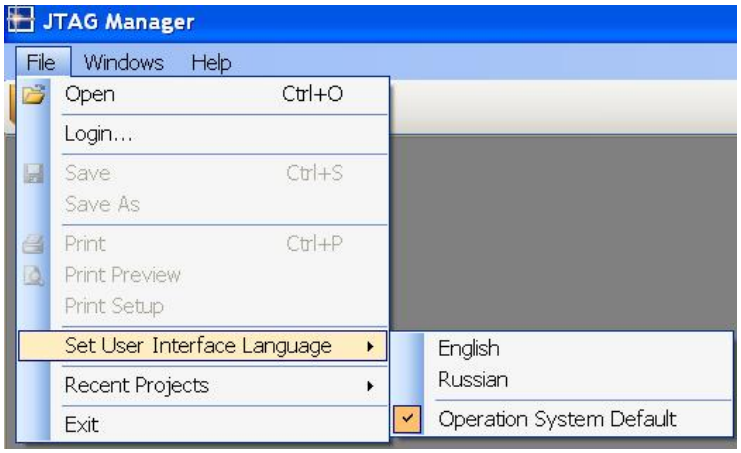


Fig. 2-1

2.2 User Guide

By pressing the upper menu StarTest On-line Support button the User Guide could be fully withdrawn to screen for operational use.

2.3 The StarTest On-line Support

The On-line support via the StarTest website (*www.start-test.com*) is available directly from the **ICT Viewer** menu (Fig. 2-2).

Fig. 2-2

2.4 *Rotate BUT Image*

In order to rotate the BUT image click the lower button as it is shown on the **Fig. 2-3.**

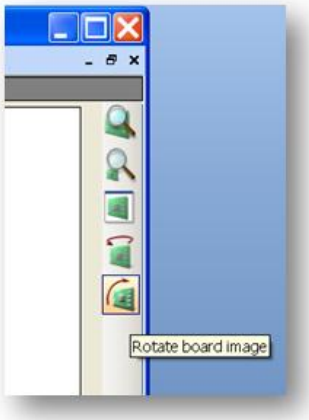


Fig. 2-3

2.5 *Flip BUT Image*

In order to flip the BUT image click the button as it is shown on the **Fig. 2-4**.

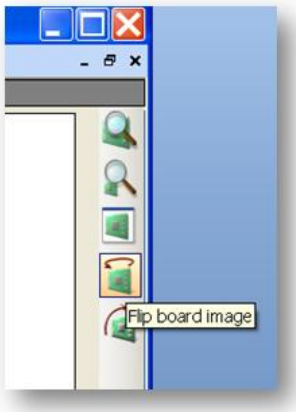


Fig. 2-4

2.6 *Fitting BUT Image in the Board View window*

In order to fit the BUT image in the Board View window click the button as it is shown on the **Fig. 2-5**.

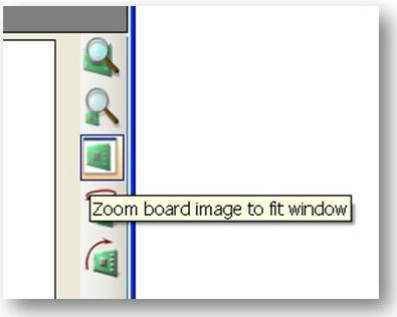


Fig. 2-5

2.7 *Zoom-out BUT Image in the Board View window*

In order to zoom-out the BUT image in the Board View window click the button as it is shown on the **Fig. 2-6**, or spin the mouth wheel.

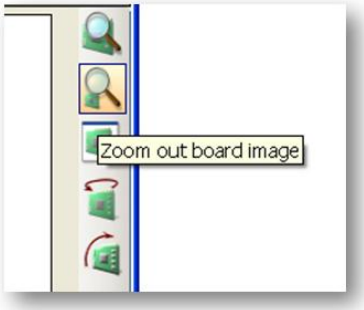


Fig. 2-6

2.8 *Zoom-in BUT Image in the Board View window*

In order to zoom-in the BUT image in the Board View window click the button as it is shown on the **Fig. 2-7**, or spin the mouth wheel.

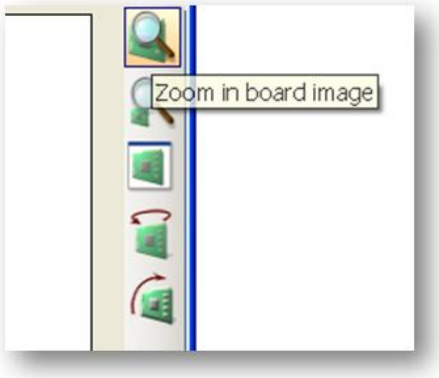


Fig. 2-7

Chapter 3
Examples of the ICT Viewer™ Package Usage

3.1 Open an ICT Viewer project

In order to open ICTV project click on **Files** menu, browse to find project directory, select **ICT Viewer Projects** in the **Files of type:** window and then select the project by click on one of appeared lines with JTAG Manager's icon as shown on the **Fig. 3-1.**

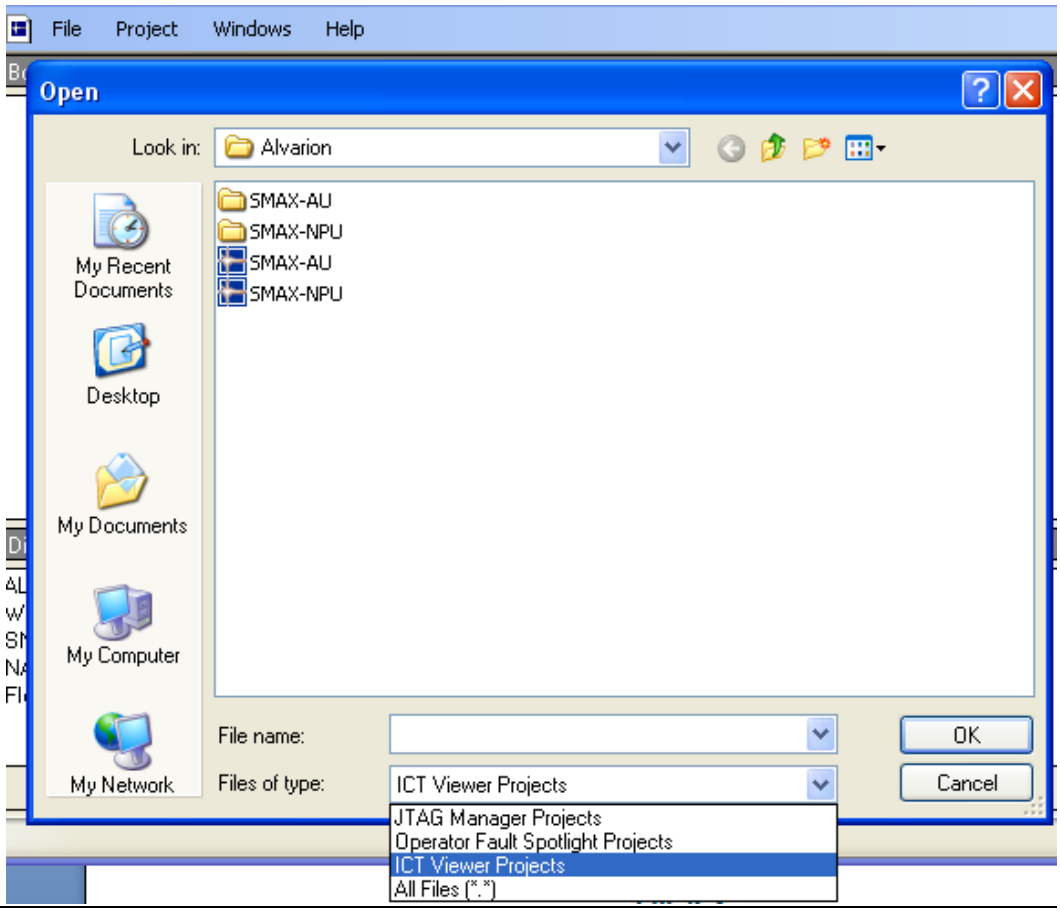


Fig. 3-1

3.2 BUT Serial Number select

In case of file Datalog.DAT (for the **Z18XX** tester) existing in the project directory, the ICT Viewer will ask to select BUT SN as shown on the **Fig. 3-2.** Select the SN by click one of SN appeared or by Bar Code Reader from the sticker on the board. In case of the test log information about selected BUT SN included into the Datalog.DAT file the ICTV will show it in the Diagnostic Info window like shown on the **Fig. 3-3.**

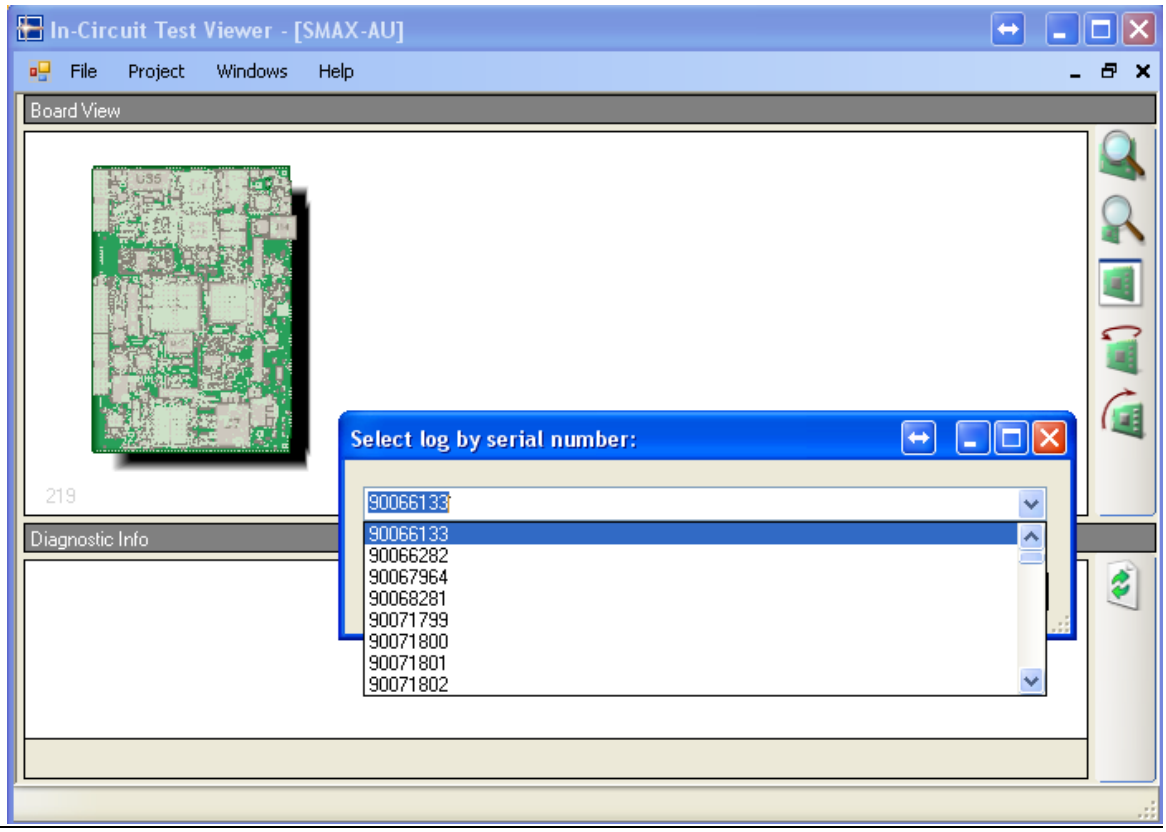

In-Circuit Test Viewer - [SMAX-AU]
File
Project
Windows
Help
Board View
Diagnostic Info
Select log by serial number:
90066133
90066133
90066282
90067964
90068281
90071799
90071800
90071801
90071802

Fig. 3-2

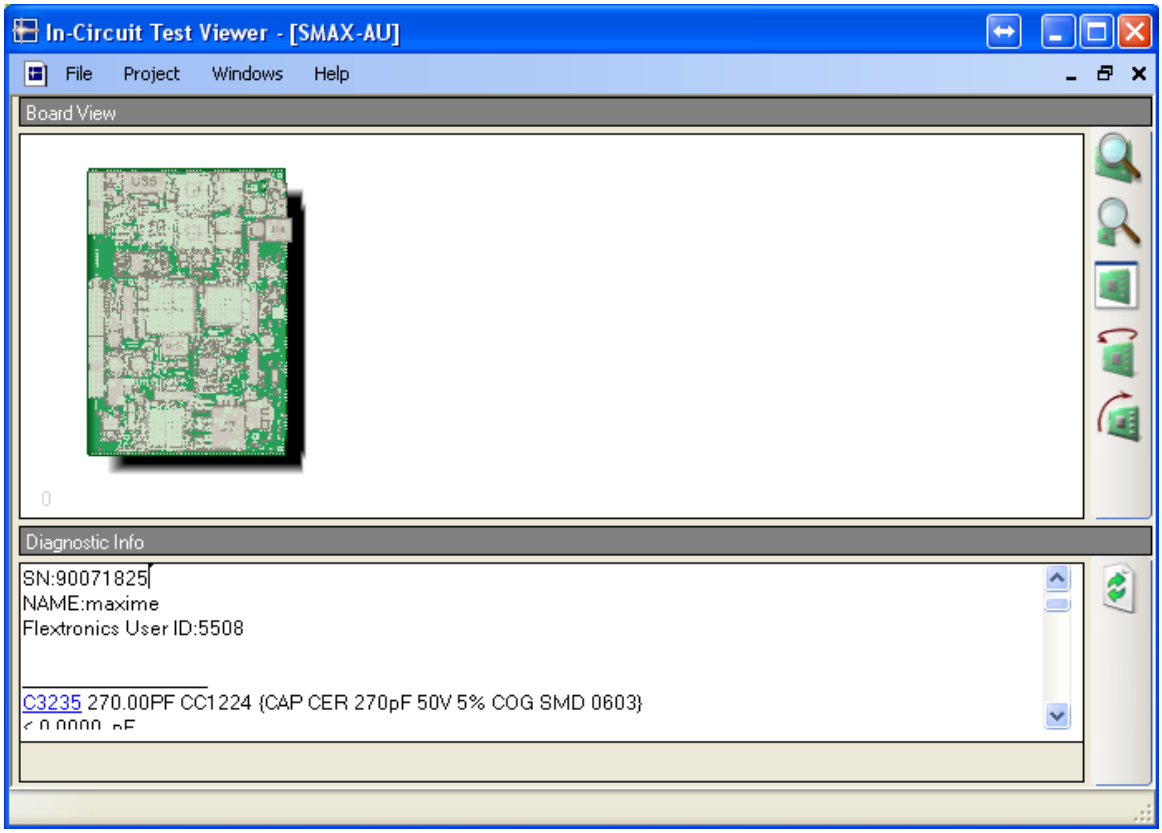

In-Circuit Test Viewer - [SMAX-AU]
File
Project
Windows
Help
Board View
Diagnostic Info
SN:90071825
NAME:maxime
Flextronics User ID:5508
C3235 270.00PF CC1224 {CAP CER 270pF 50V 5% COG SMD 0603}

Fig. 3-3

In order to select another BUT SN click on **Project** menu and then on **Select Log By Serial Number** tab or press **Ctrl+L** buttons on the keyboard as shown on the **Fig. 3-4.**

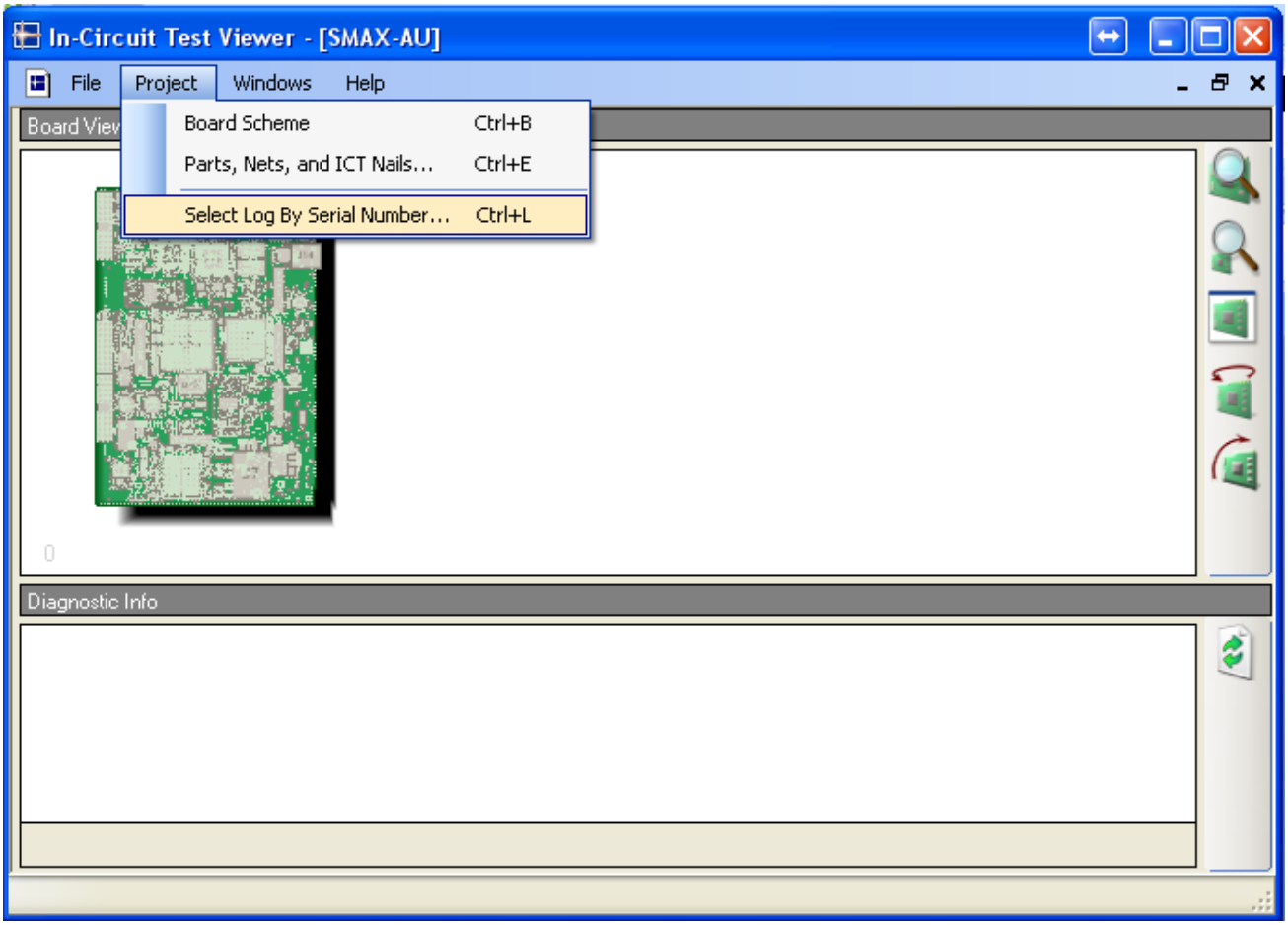


Fig. 3-4

3.3 Looking for failed Components and Nodes

After the BUT SN selected and the failure information appears in the **Diagnostic Info** window each Component's reference number and Node's number become to be a hyperlink and printed in blue text. Click on the blue Component's reference number launches quest of this component in the **Board View** window and automatically calls the board schematic PDF and quests the same component there. See the **Fig. 3-5**.

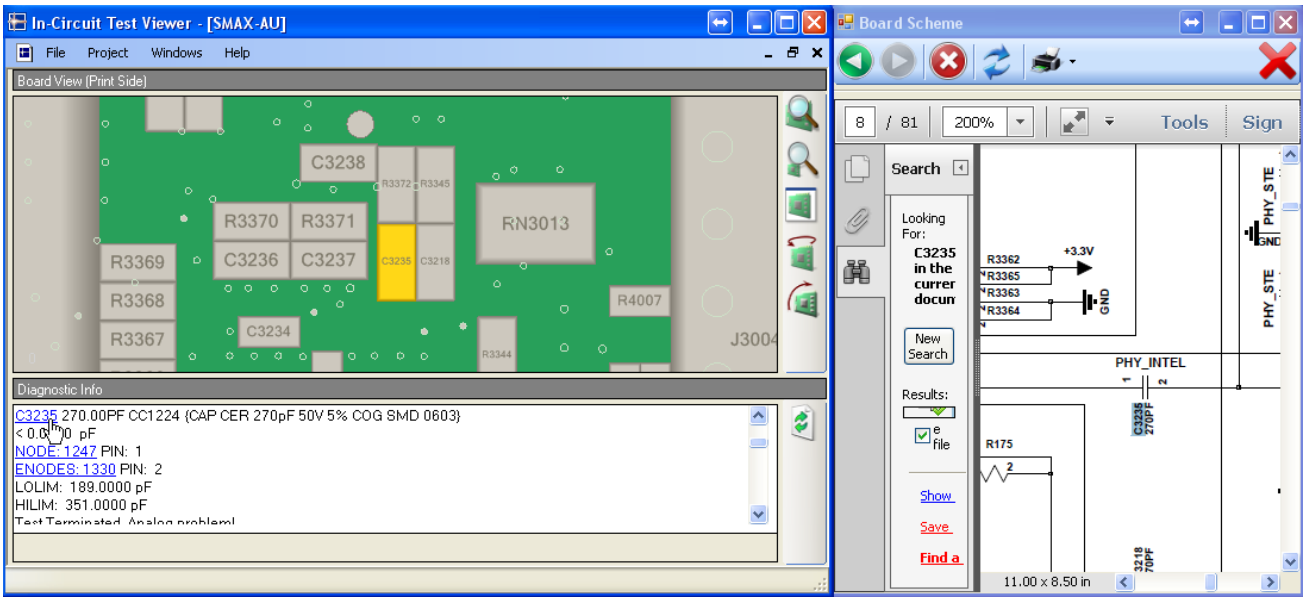


Fig. 3-5

The board schematic PDF also can be called by click on **Project** menu and then on **Board Scheme** tab or by pressing **Ctrl+B** buttons on the keyboard like shown on **Fig. 3-6**.

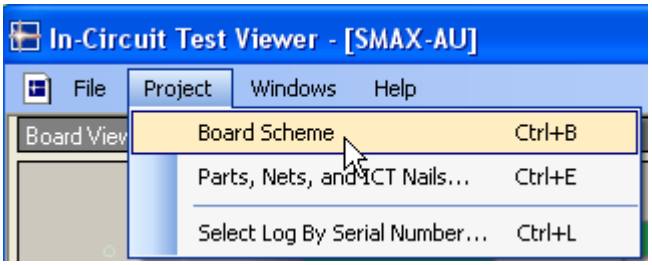


Fig. 3-6

Click on the blue Node number launches quest of this node placement in the **Board View** window as shown on the **Fig. 3-7**.

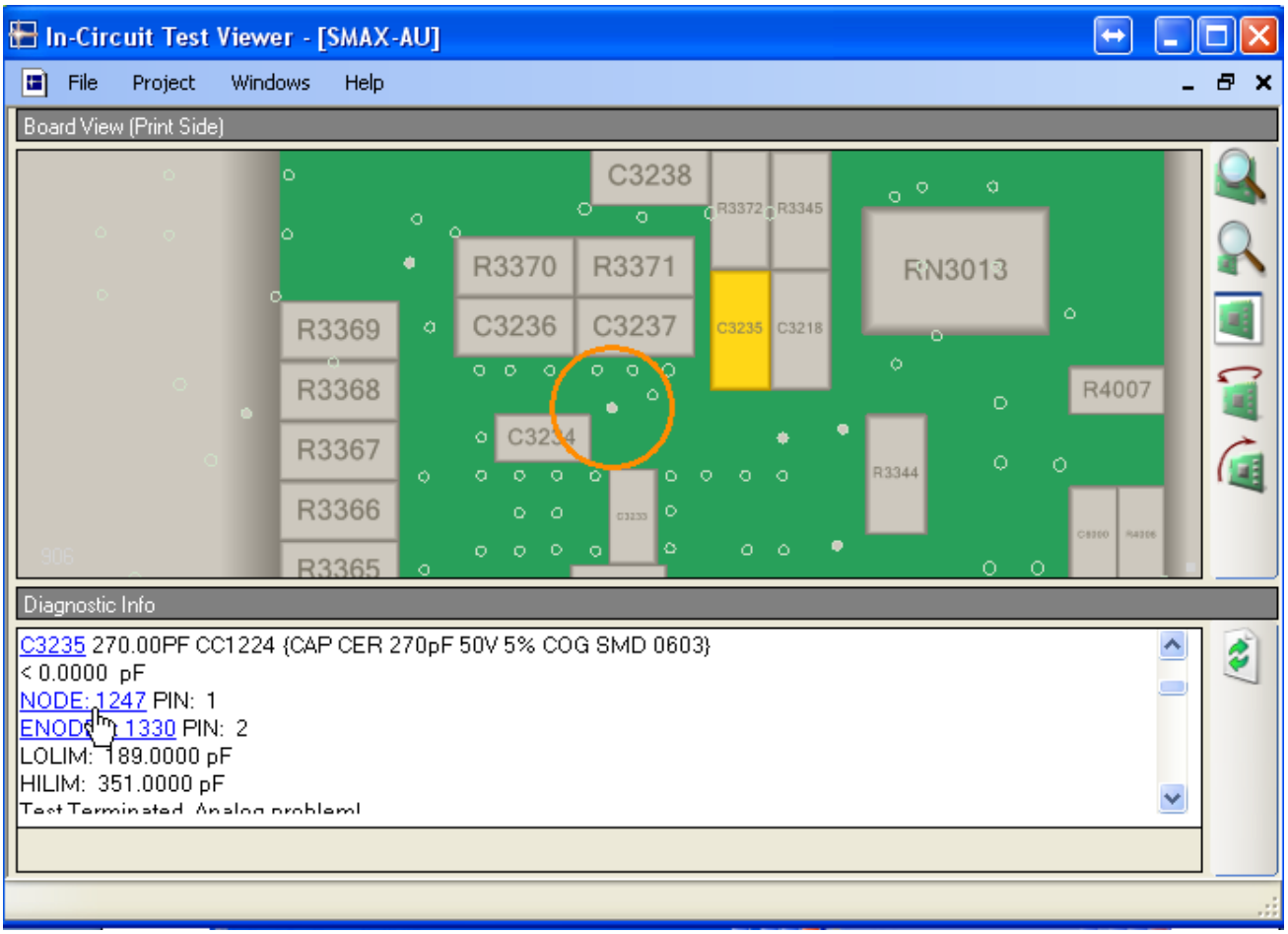


Fig. 3-7

3.4 Expanded failures search

In order to see failed component connections and on-board printed conductors call the BUT Parts, Nets, and ICT Nails database by click on **Project menu** and then on **Parts, Nets, and ICT Nails** tab or just push **Ctrl+E** buttons on the keyboard as shown on the Fig. 3-8.

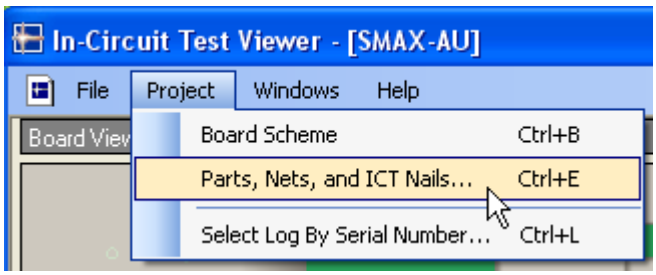


Fig. 3-8

The following window will appear. See the **Fig. 3-9**. Move the window to convenient place. Now, by click on **+** near the selected component, all leads of this component will appear. Select one of them as shown on the **Fig. 3-10**.

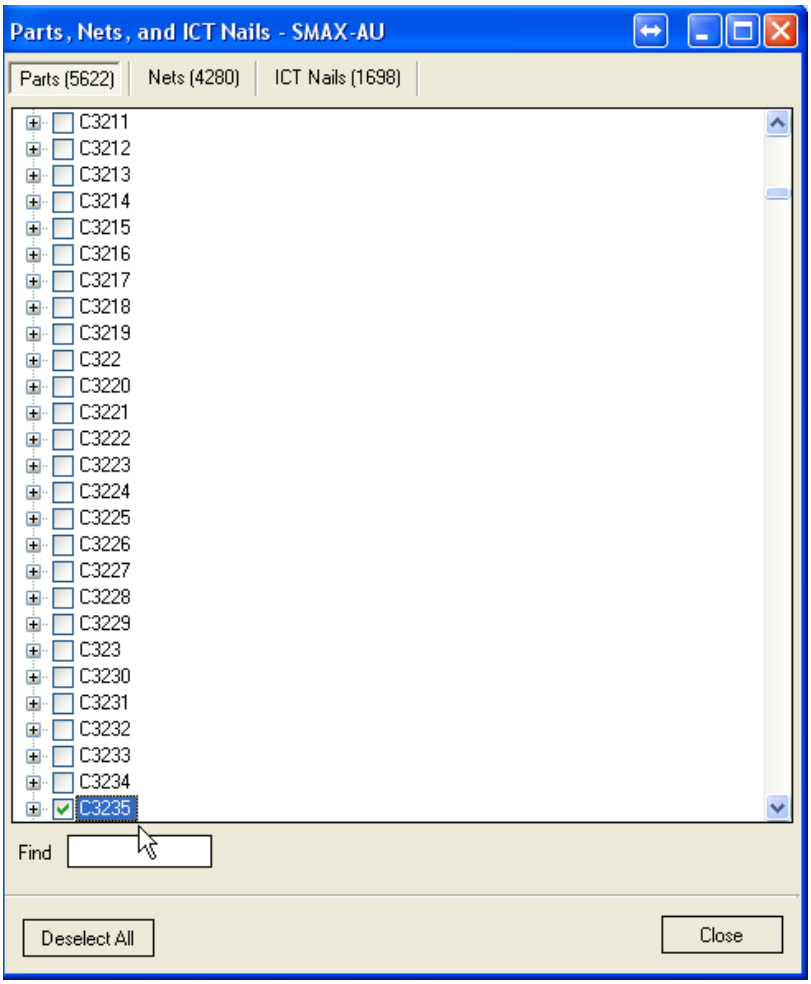


Fig. 3-9

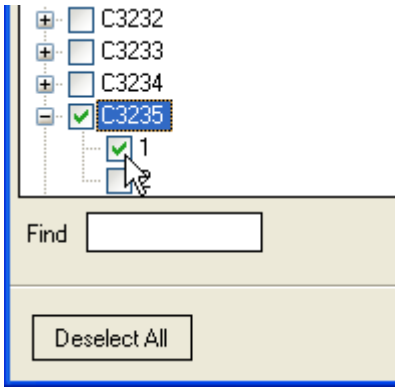


Fig. 3-10

Now click on **Nets** tab of the window. List of Nets will appear as shown on the **Fig. 3-11.**

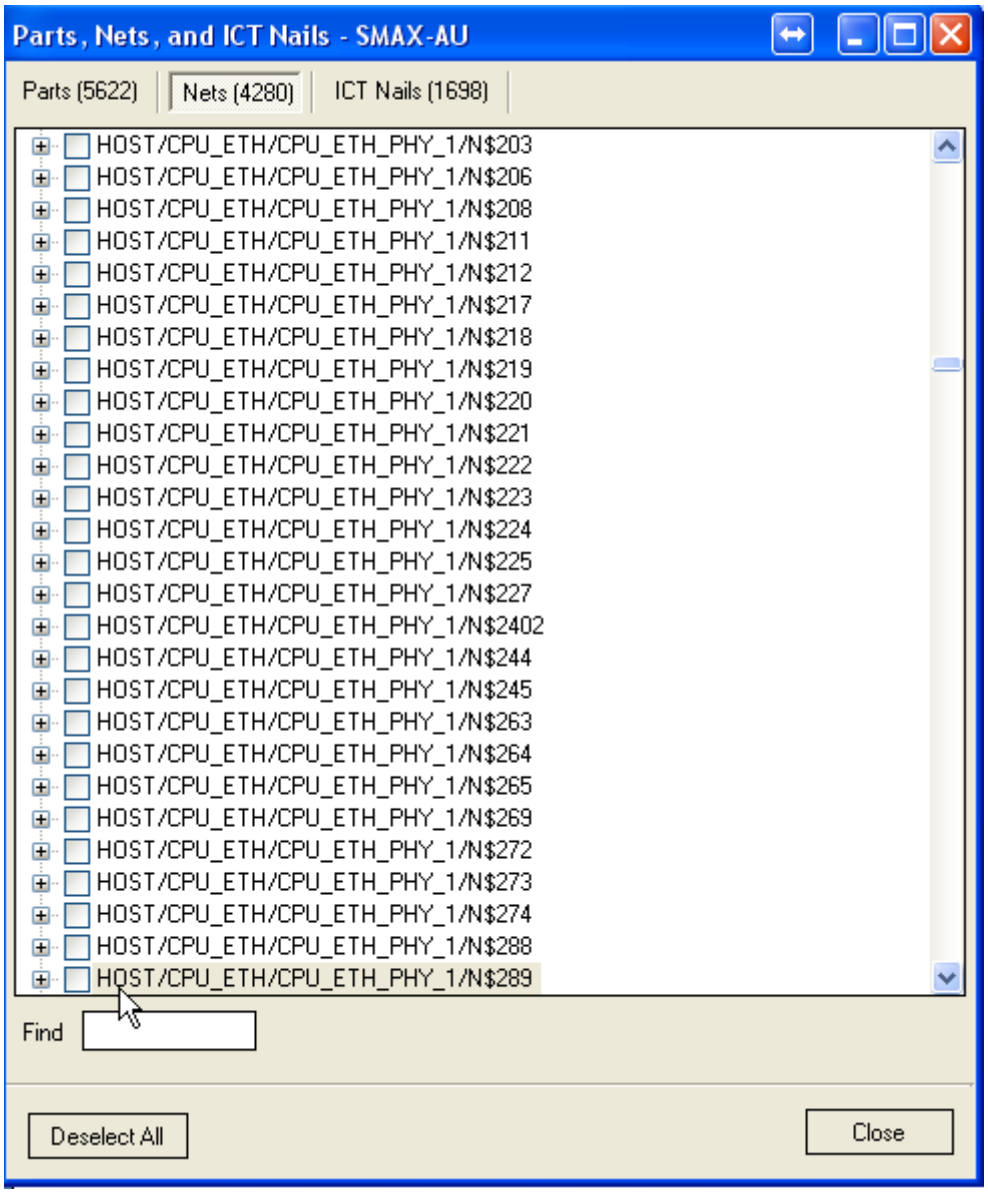


Fig. 3-11

Pay attention that one of nets is **Highlighted.** This Net has connection with selected Pin of selected Part. By select of this Net ICTV launches quest of the printed conductor in the **Board View** window and name of the net in schematic PDF window as shown on the **Fig. 3-12.**

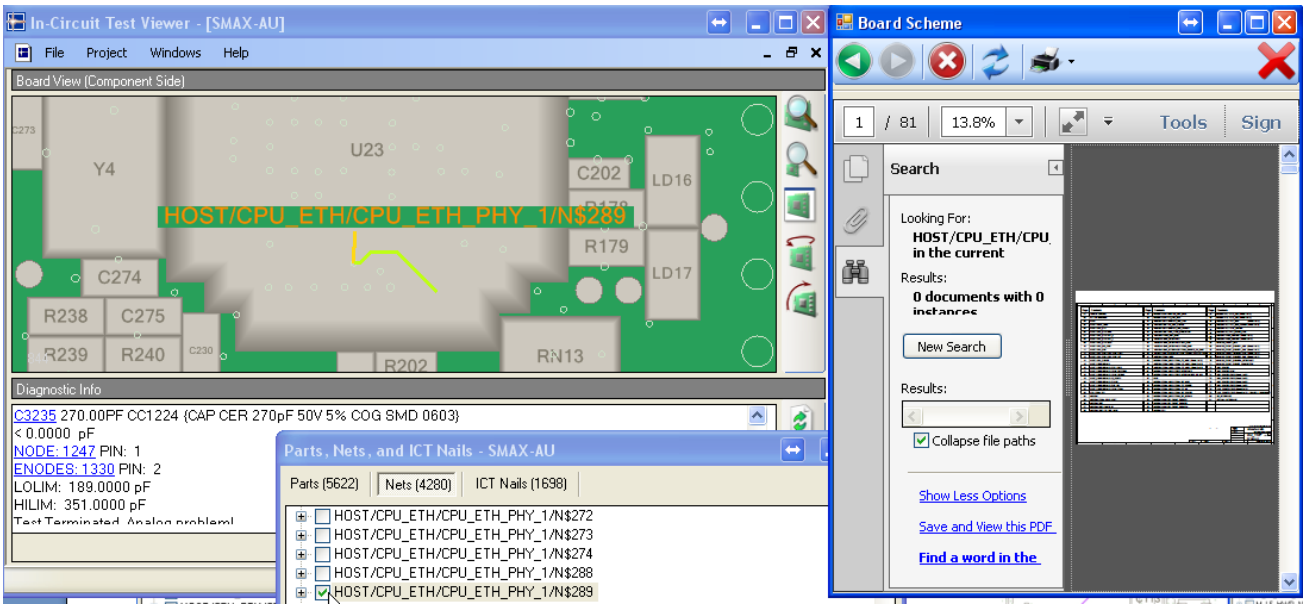


Fig. 3-12

Note that due to long hierarchical Net name and due to not all nets names mentioned in the PDF schematic the searched name can be not found in the PDF.
Now click on **+** near the selected Net name. All component's pins connected to selected Net will appear as shown on the **Fig. 3-13.**

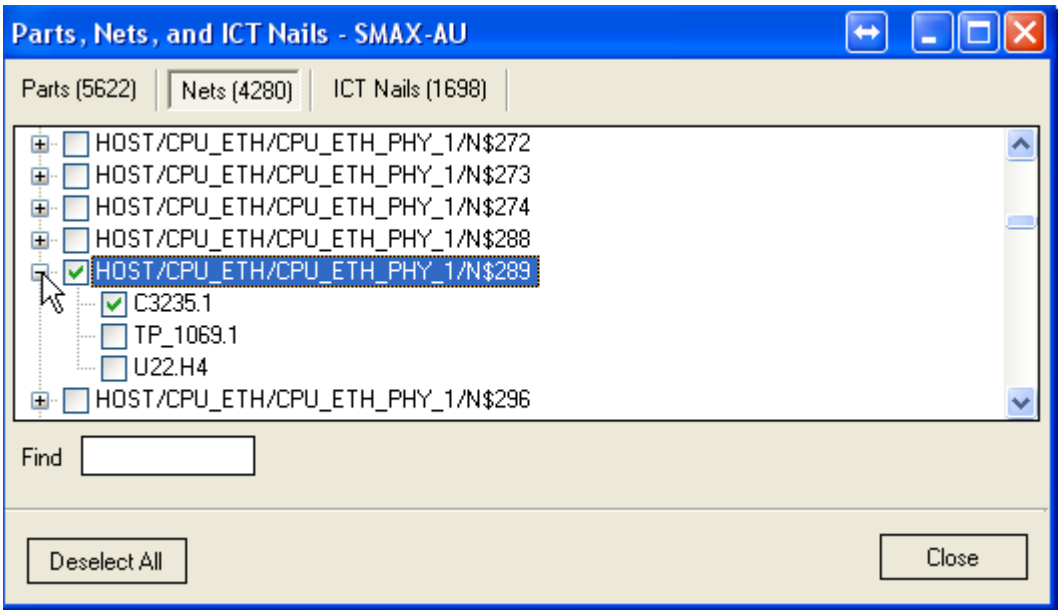


Fig. 3-13

Now selection of some pin here will cause to selected pins highlighting by red circle as shown on the **Fig. 3-14.**

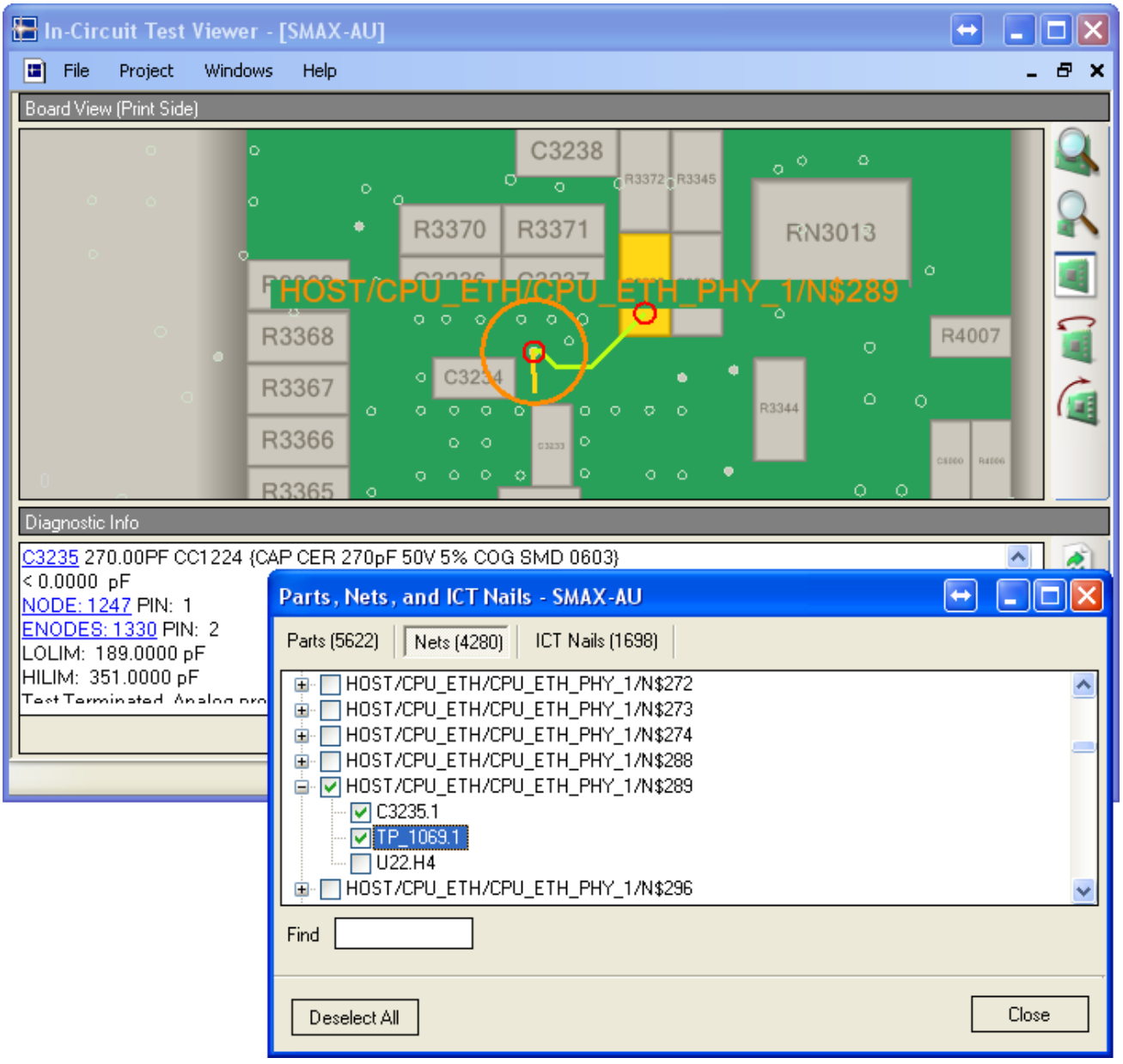


Fig. 3-14

Now clicking on **ICT Nails** tab will cause to Nails list window appearing with highlight on selected Nail belong to selected Net like shown in the **Fig. 3-15.**

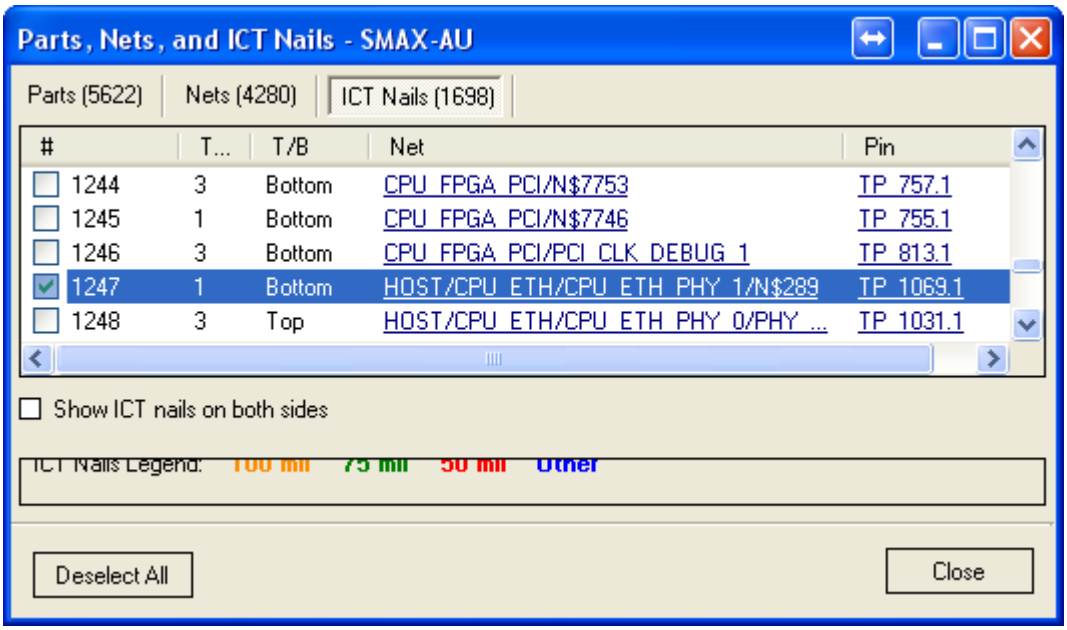


Fig. 3-15

In order to deselect all selections just click on **Deselect All** button in the **Parts, Nets, and ICT Nails** window or 

button in **Diagnostic Info** window.

3.5 Another way for the failure search

Search of a failed Part or Pin can be executed also in the opposite direction – from a Nail (Node) to a part by the following way.

Click on the blue failed Node in the **Diagnostic Info** window. It cause to highlighting the Node placement in the **Board View** window and selection of this Nail in the **ICT Nails** window as shown in the **Fig. 3-16.**

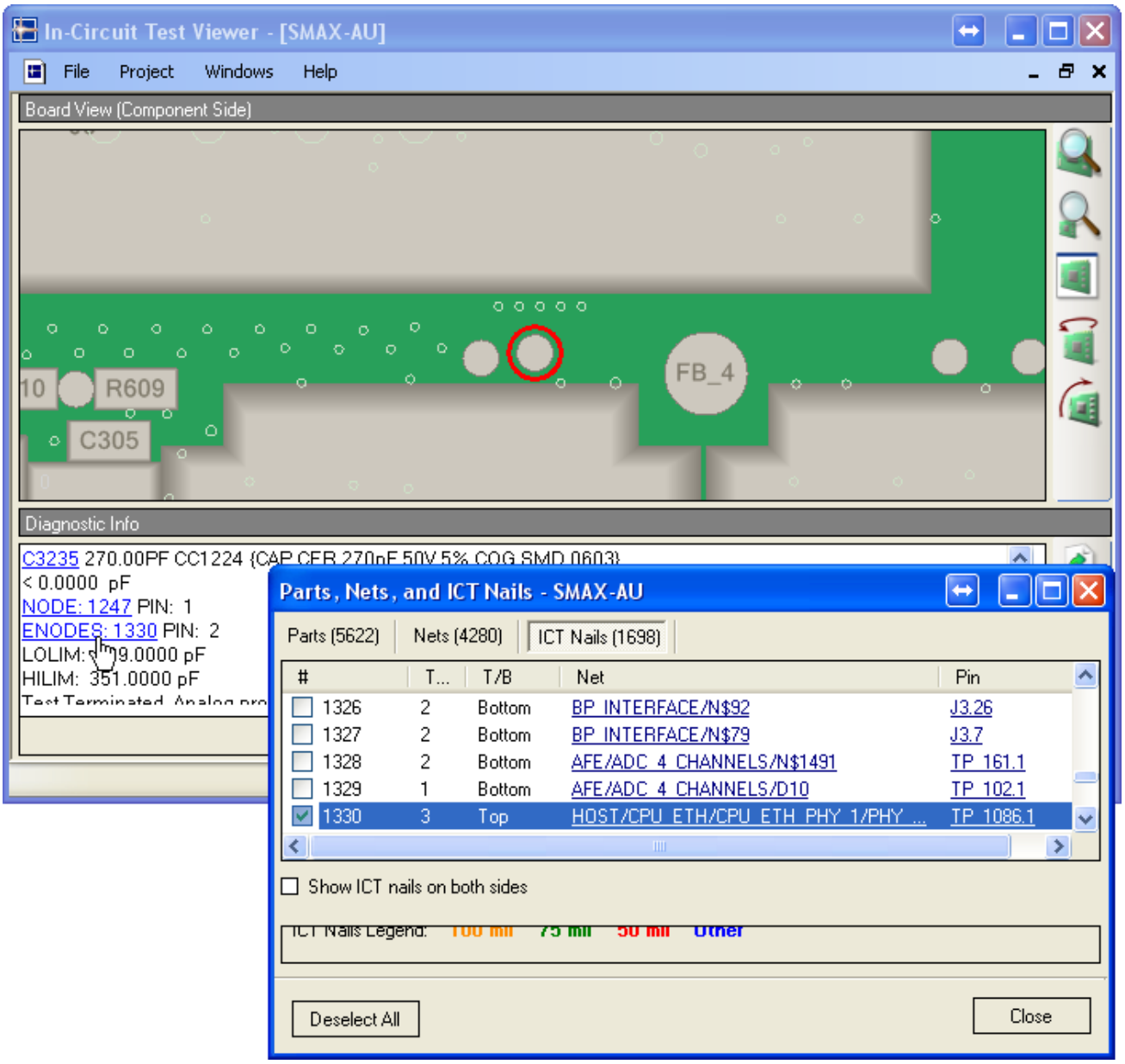


Fig. 3-16

Now click on highlighted Net and select it in the Nets window. The printed conductor will appear in the **Board View** window and all component's pins connected to it will appear in **Nets** window as shown in the **Fig. 3-17.**

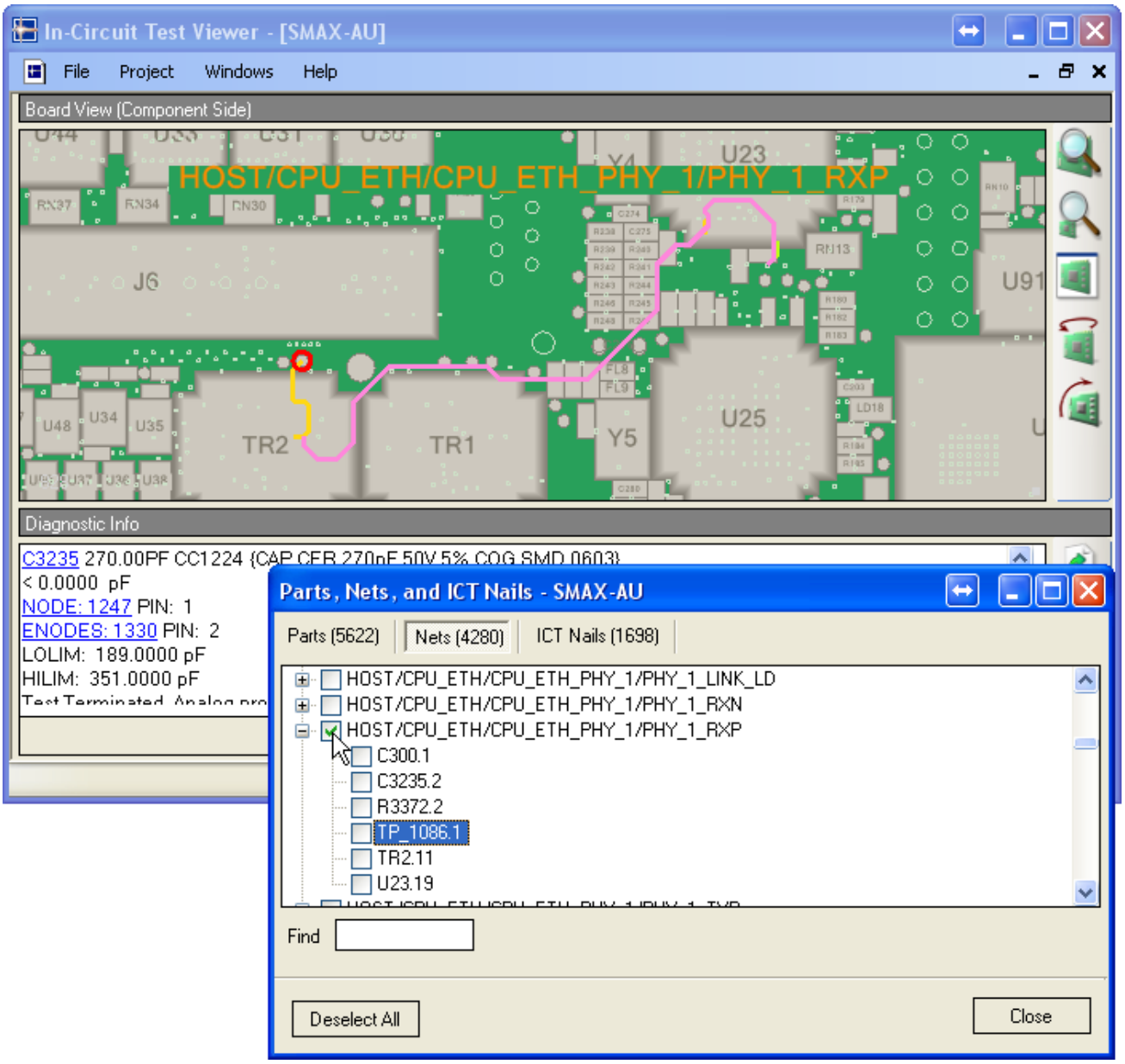


Fig. 3-17

In order to find searched net in the schematic PDF try to cut the Net name up to last hierarchical name as shown in the **Fig. 3-18.**

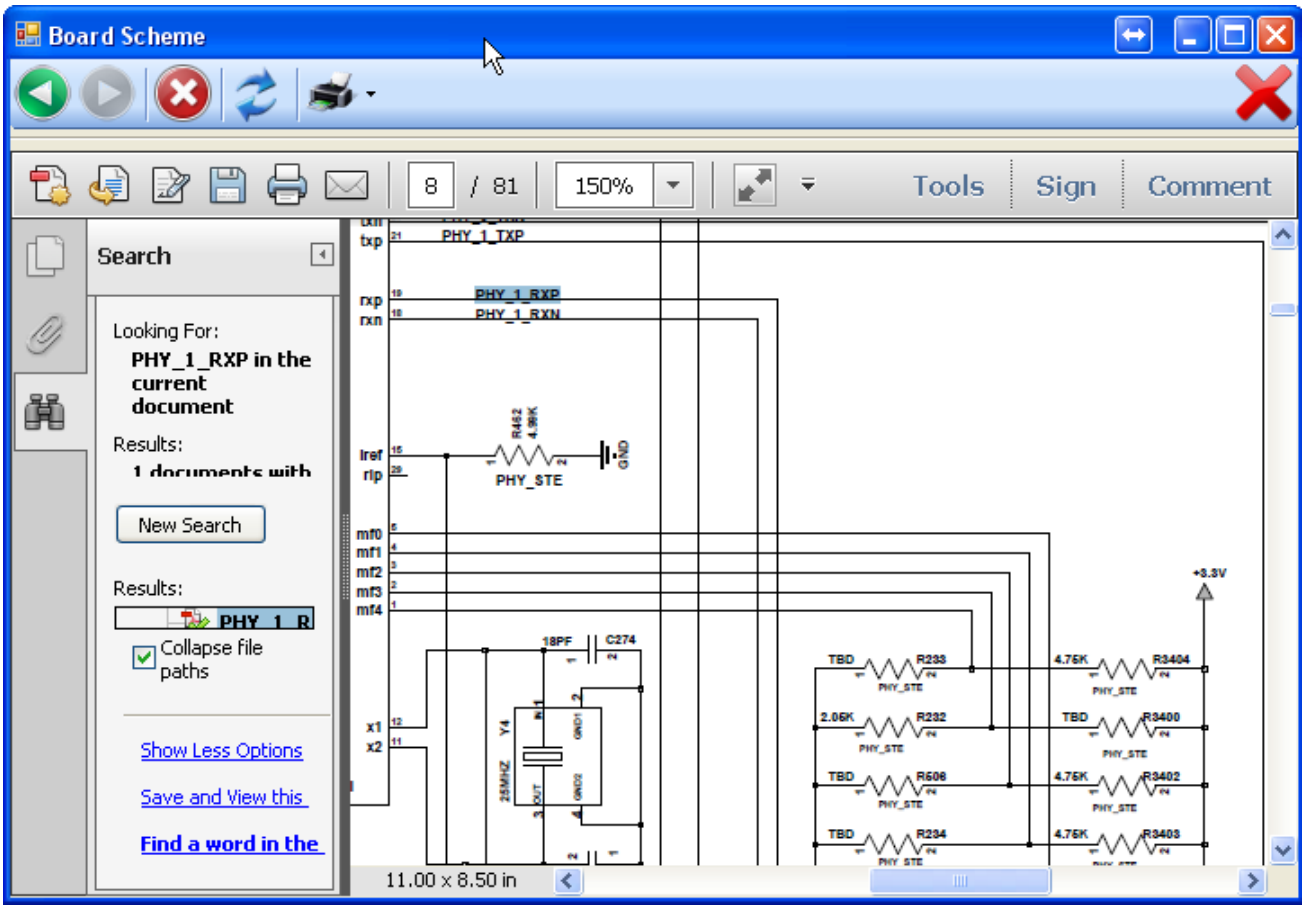


Fig. 3-18

Now by select some component's pin in the **Nets** window this pin will be highlighted by the red circle in the **Board View** window like shown in the Fig. 3-19.

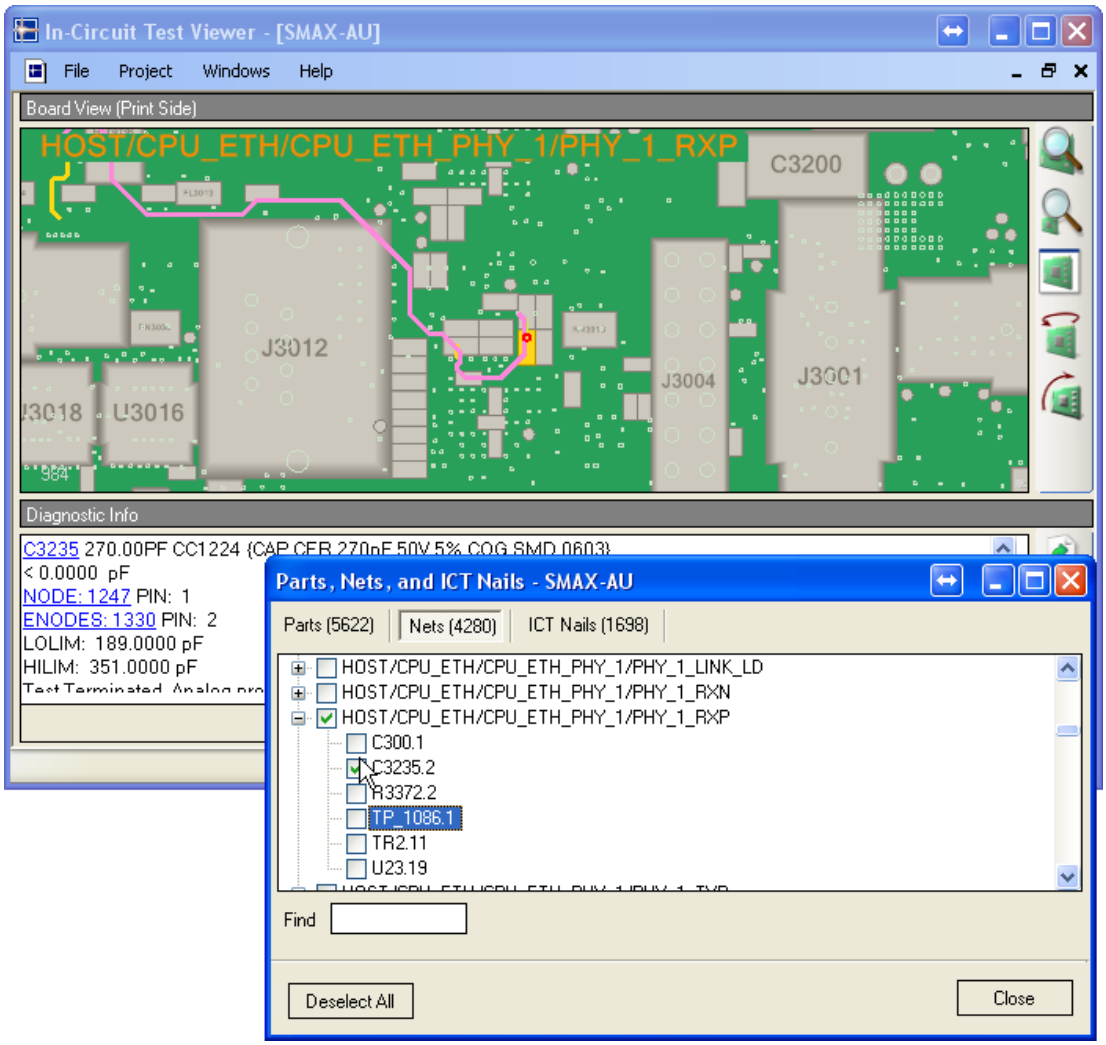


Fig. 3-19

Hope you'll enjoy using the ICT viewer!