

# PIXEL CMOS PROJECT

MIMOSTAR PROTOTYPE TEST BOARD

MIMOSTAR\_PCB2

Technical Documentation Version 0.1

## JTAG SOFTWARE

## GETTING STARTED

**Support:**

Web address: <http://ireswww.in2p3.fr/ires/recherche/capteurs/index.html>

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## Important Information

### Warranty:

The MIMOSTAR\_PCB2 test board is warranted against defects in material and workmanship for a period of one year from the date of shipment, as evidence by receipts or other documentation. IReS laboratory will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

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## Contents

Important Information.....	3
Contents.....	4
About this manual .....	5
Modifications Chronology.....	5
1. Getting Started.....	6
2. Software installation .....	7
3. Using the software .....	8
3. Overview of the functions.....	11

## About this manual

This is a short description for initiation of using the JTAG software for MIMOSTAR2.

## Modifications Chronology

VERSION	MODIFICATIONS	CHAPTERS
0.1	Creation of the document.	All

## 1. Getting Started

This document is a short description for initiation of using the JTAG software for MIMOSTAR2. All the necessary hardware installation should be done before the starting with this document.

The software is achieved with the WinZip program.

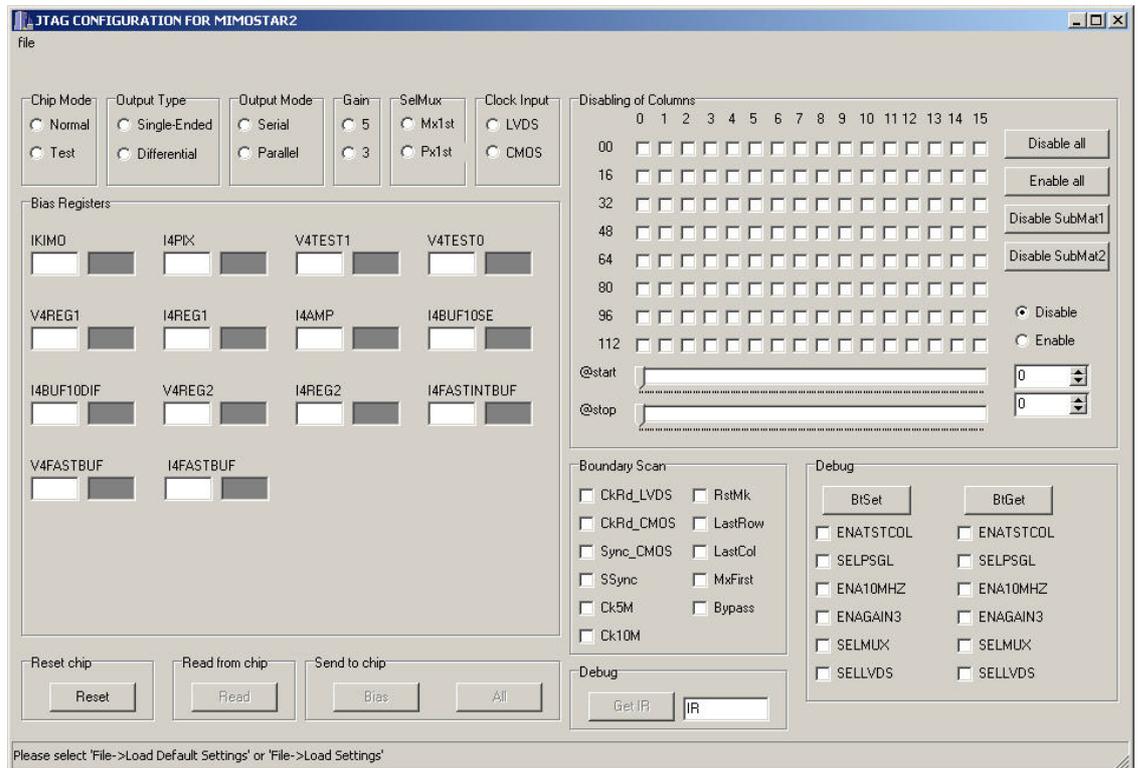
### MINIMUM SYSTEM REQUIREMENTS FOR PC

- Pentium IV, 2 GHz or faster
- Microsoft Windows XP
- 256 MB RAM min. (512 MB recommended)
- CD-ROM driver
- 100 MB free hard disk place for software installation
- AGP video card with 64MB video RAM

To use this software, the MIMOSTAR2\_PCB board should be connected to PC's parallel port and all the necessary power supplies should be connected and powered.

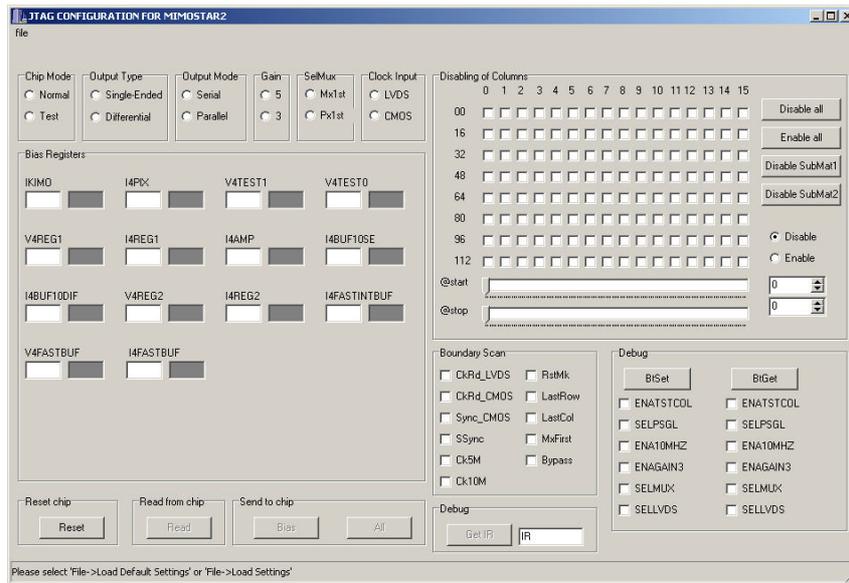
## 2. Software installation

1. All the files for the MIMOSTAR2 JTAG SOFTWARE are packed in a file **MIMOSTAR2\_JTAG.zip**. To start, create a directory **C:\MIMOSTAR2** and copy the file **MIMOSTAR2\_JTAG.zip** to the directory **C:\MIMOSTAR2**. Unzip **MIMOSTAR2\_JTAG.zip** file to this directory.
2. Copy the file **C:\MIMOSTAR2\MS2\_JTAG\porttalk.sys** in the directory **c:\windows\system32**.
3. Start the windows command interpreter (CMD.exe) .Execute the following command: **"regedit C:\MIMOSTAR2\MS2\_JTAG\portio\porttalk.reg"**. This procedure will enter the required keys into Windows registry and the driver starts automatically at next reboot.
4. Reboot the PC.
5. To start the MIMOSTAR2 JTAG SOFTWARE, double click the file **C:\MIMOSTAR2\MS2\_JTAG\MS2\_JTAG.bat**. Following windows should be shown on the screen.

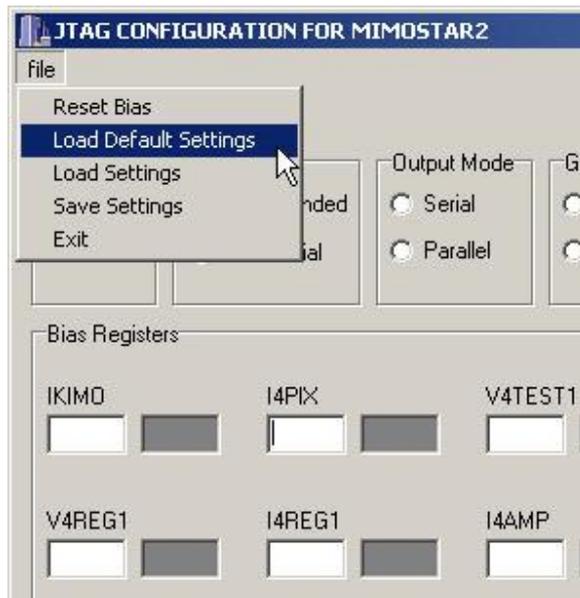


### 3. Using the software

- To start the MIMOSTAR2 JTAG SOFTWARE, double click the file **C:\MIMOSTAR2\MS2\_JTAG\MS2\_JTAG.bat**. Following windows should be shown on the screen.



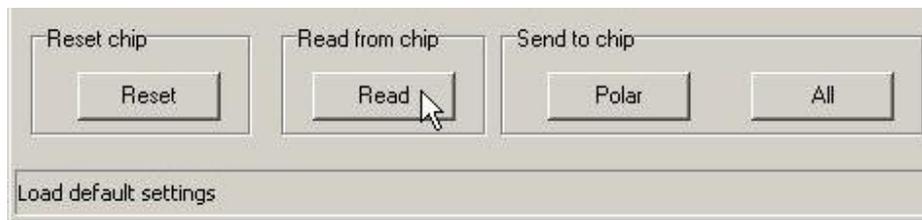
- Select Menu “File->Load Default Settings”. This command will load default parameter configuration for MIMOSTAR2 device (see the image below). The configuration files are in directory “C:\MIMOSTAR2\MS2\_JTAG\config\_files”.



- To update the parameters to the chip, please select a button “All” from the “Send to chip” group (see the image below).



- To read back the parameters from MIMOSTAR2, click the button “Read” from the “Read from chip” group (see the image below).



- If the configuration was successfully finished the readback values for DACs should be shown at the right-side of each parameter (see the image below).

The screenshot shows the main configuration window for MIMOSTAR2. It features various settings for Chip Mode, Output Type, Output Mode, Gain, SelMux, and Clock Input. A 'Disabling of Columns' section contains a grid of checkboxes for columns 0-15. The 'Bias Registers' section is the focus, showing parameters like IKIMQ, I4PIX, V4TEST1, V4TEST0, V4REG1, I4REG1, I4AMP, I4BUF10SE, I4BUF10DIF, V4REG2, I4REG2, I4FASTINTBUF, V4FASTBUF, and I4FASTBUF. Each parameter has a value field on the left and a readback value field on the right. For example, IKIMQ is 100 and its readback is 100. An arrow points to the readback value of V4FASTBUF, which is 92. At the bottom, there are buttons for 'Reset chip', 'Read from chip' (with 'Read' highlighted), 'Send to chip', 'Bias', and 'All'. A 'Debug' section includes 'Get IR' and a value of 17. The status bar at the bottom reads 'Readback all the parameters.'

Read back value from MIMOSTAR2 device

6. Disabling of Columns (disabling the column current sources for MIMOSTAR2 device) can be done by selecting the corresponding checkbox. For example, in a image below the column number 10 is disabled after the parameters are updated to the device.

Disabling of Columns

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
112	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									

@start

@stop

Buttons: Disable all, Enable all, Disable SubMat1, Disable SubMat2

Radio buttons:  Disable,  Enable

### 3. Overview of the functions

The screenshot shows the 'JTAG CONFIGURATION FOR MIMOSTAR2' software interface. Several sections are highlighted with red boxes and annotated with labels and arrows:

- Readout Mode Settings:** Located at the top left, containing radio buttons for Chip Mode (Normal, Test), Output Type (Single-Ended, Differential), Output Mode (Serial, Parallel), Gain (5, 3), SelMux (Mx1st, Px1st), and Clock Input (LVDS, CMOS).
- BIAS DAC Settings:** Located in the middle left, containing a grid of sliders for registers: IKIMO, I4PX, V4TEST1, V4TEST0, V4REG1, I4REG1, I4AMP, I4BUF10SE, I4BUF10DIF, V4REG2, I4REG2, I4FASTINTBUF, V4FASTBUF, and I4FASTBUF.
- Disabling/activating columns current sources:** Located at the top right, containing a grid of checkboxes for columns 0-15, with buttons for 'Disable all', 'Enable all', 'Disable SubMat1', and 'Disable SubMat2', and dropdowns for '@start' and '@stop'.
- Optional debugging functionalities (reserved usage):** Located at the bottom right, containing checkboxes for Boundary Scan (CkRd\_LVDS, CkRd\_CMOS, Sync\_CMOS, SSync, Ck5M, Ck10M, RatMk, LastFlow, LastCol, MxFirst, Bypass) and Debug (BISet, BIGet, ENATSTCOL, SELPSGL, ENA10MHZ, ENAGAIN3, SELMUX, SELLVDS).
- Device Reset:** Located at the bottom left, containing buttons for 'Reset chip', 'Read from chip', 'Send to chip', and 'All'.

At the bottom of the interface, there is a note: "Please select 'File->Load Default Settings' or 'File->Load Settings'".

Arrows from the labels point to the corresponding sections in the screenshot:

- Readout Mode Settings
- BIAS DAC Settings
- Device Reset
- Disabling/activating columns current sources
- Optional debugging functionalities (reserved usage)
- Read back Device Settings
- Write the DAC parameters to the device
- Write all the parameters to the device