

## Creating Atmel JAM/JBC File(s) for the ATF1500AS Device Family

It is possible to create and execute JAM™ and JBC™ files for the Atmel ATF1500AS Family of Devices. JAM is a programming and test-language developed and offered to users and vendors by Altera, and is used for embedded and In-System programming (ISP). The JAM language allows the user to execute one file (**.jam file**) that contains all the information necessary to execute any ISP operations on a single or a multiple Atmel device chain. Before this can be done certain steps must be followed. They are outlined in this application note.

The basic procedure to create an Atmel JAM/JBC file involves using the Atmel-ISP software to create an intermediate file called a Serial Vector Format (SVF) file. A JAM file is created from this file by using the SVF2JAM converter. A JAM file can then be executed by the JAM player using the ByteBlaster™ cable. Both the converter and player are available from Altera's JAM web site. Detailed instructions on how to create the SVF file using the Atmel-ISP software are described below.

### Creating JAM Files

1. Download **Atmel-ISP** (ATMISP) software available on the Atmel web site. On the home page, **www.atmel.com**, go to the **Products** section and click on **Programmable Logic Devices**. Click on the **Support Tools** link and you will find the "**ATMISP.ZIP**" file. This version is specific to the Win95, Win98 platform. You can unzip this file

onto a floppy disk and then proceed to install the software.

Atmel has a separate version of the software that supports the Win-NT platform. Contact Atmel-EPLD Applications if you need this version.

- Notes:
1. It is recommended that you download V2.99 or later of the software. If you already installed this version, please disregard this step.
  2. You will need a ByteBlaster cable to execute JAM files on Atmel devices.
2. You can now use the Atmel-ISP software to generate a Serial Vector Format (**SVF**) file. Run the Atmel-ISP software by double-clicking on the Atmel-ISP icon. This brings up the "Number of Devices in Chain" window. Here you can enter the number of devices in the chain and proceed to create the chain file with the appropriate ISP operation. You can refer to the **Help** file in the **Atmel-ISP** software for detailed instructions on setting up a chain file or for more information on any notices that appear in this application note. To open the Help file, select **Help Contents** from the Atmel-ISP software main menu.

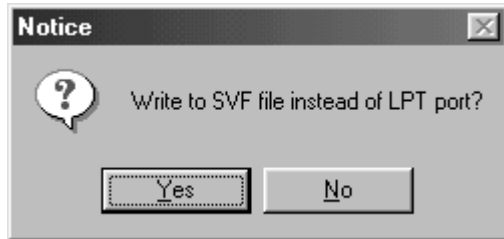


## ATF1500AS Device Family

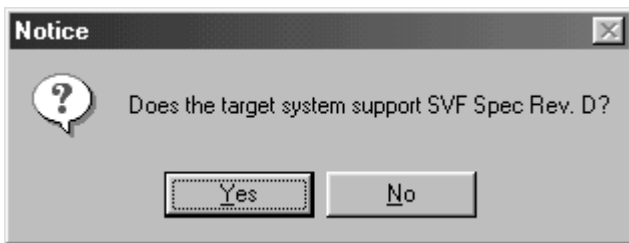
### Application Note



3. If you want to load an existing chain file, click once on the **File Open** menu item from the Atmel-ISP software main menu and read the chain file from the appropriate location. Once you have read the appropriate chain file, you are ready to create a SVF file.
4. Click once on the **Process** menu and select the **Options** command. This brings up a notice "Write to SVF File instead of LPT port". Select **YES**.



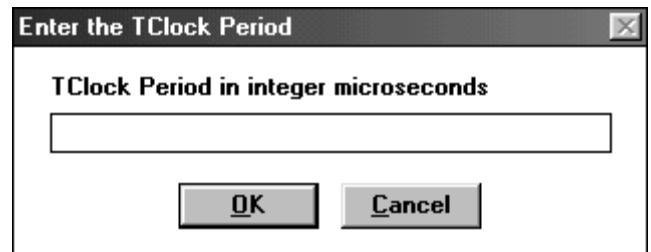
5. A new notice will appear asking "Does Target System support SVF Spec. Rev. D?" Select **YES**.



**Note:** If you are using version 1.2 or higher of the JAM player, select **YES** for the above option. This version is capable of executing a JAM file converted from Rev. D and higher SVF files. This is also the preferred version to convert for ATE programming support and is also suitable for higher (>1 MHz) TCK programming rates.

6. If you selected **NO** in the step above, the software will create a Rev. C SVF file. This version requires you to implement delays for programming operations by modeling them as a specific number of JTAG clock TCK periods. The period of the JTAG TCK is specified in milliseconds. Therefore, TCK clock rates <1 MHz are supported with this option. The notice "Enter the TClock Period" will appear. The software supports 1 microsecond increments for the TCK period. Enter an integer value only. For example, if you want to enter a 1 microsecond TCK period, enter "1" and select OK. If no value is entered, the software defaults to 1 microsecond.

The software will prompt you to enter the SVF file name to save your programming data into an SVF file. You can browse to specify the appropriate directory where you want the SVF file to be saved.



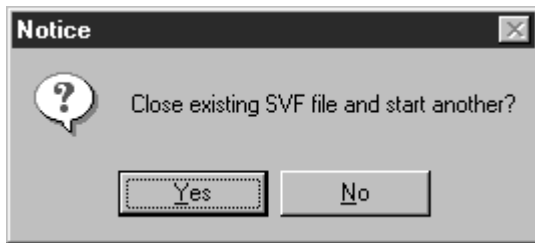
7. After you have specified the SVF file name, a notice will appear on the screen: "Use STATE\_RESETs in SVF file?" This prompt indicates whether you want to include Test-Logic-Reset JTAG states in the SVF programming file. If you are programming just **Atmel-ISP** devices in your JTAG HDWR chain, it is recommended that you select **YES**. If you are programming **non-Atmel ISP** devices in a mixed vendor JTAG chain, then select **NO**.



8. Click on the **Process Run** menu item from the Atmel-ISP main menu. This will create the SVF file. Then select **File.. Exit** to exit the software. You may see a notice prompting you to save the chain file. If you select **YES**, the software will save the chain configuration information and re-load when the software is run again. If you select **NO**, then you will have to re-enter the chain file information the next time you run the software.

Note: You must exit the ISP software each time you create an SVF file before it will be saved on your hard disk.

9. It is recommended that you create only one SVF file for each group of ISP operations you want to perform. If you edit the chain file and attempt to create a new SVF file while the software is still running, a notice "Close Existing SVF and Start Another?" will appear. Select **YES** at the prompt. If you select **NO**, the software will append your ISP operations to the existing chain file. This may not be what you are expecting.



10. Use the SVF2JAM converter to create the Atmel JAM file. This can then be used with the JAM player to program our devices.
11. If you are using version 2.x or higher of the SVF2JAM converter, make sure to specify the **-j1.1** option when converting the file. This creates JAM files that support the older non-STAPL command language set. Versions older than 2.x of the SVF2JAM converter do not have this option so you can use them without any options to convert JAM files.
12. Use the JAM player to execute the JAM file. *Atmel supports the ByteBlaster cable only. Make sure to use the **-p** option to specify your parallel port address in hexadecimal.*

## Creating JBC Files

JAM Byte Code (JBC) files are binary compressions of ASCII JAM files and can be used like JAM files except that they save memory space. The procedure to create these files is listed below.

1. Follow steps 1 through 11 above.
2. Download the JAM Byte Code Compiler and the JAM Byte Code from Altera's web site.
3. Install both programs by following the installation instructions.
4. Run the JAM Byte Code Compiler (JBC) program on the JAM file. No options need to be specified. The JBC program will display the checksum for the new JBC file once it has converted it.
5. Run the JAM Byte Code Player (JBCP) program on the JBC file. Use the same options as specified in step 12 above. *Make sure to use the **-p** option to specify your parallel port address in hexadecimal.* Atmel supports the ByteBlaster cable only.



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