

Conversion of Discontinued Programming Files (.DEF and .FUS) to Supported Format (.AFM)

With the current Actel programmers, Silicon Sculptor and Silicon Sculptor II, the software only supports .AFM file to program antifuse families. However, the old version of designer (3.1.1 and older) generates .DEF and .FUS files for programming. These .DEF and .FUS files will need to be converted to an .AFM file to be able to continue programming devices. This application note explains how to convert from .DEF and .FUS to .AFM.

Installing APSDOS

Go to www.actel.com/products/hardware/program_debug/activator and download the DOS version of the APSW software from the Actel website and install the APSW software. The download is a zip file, inside the zip file will be another zip file. Unzip the embedded zip file into a directory (i.e. c:\apsdos) and install from there. The install will create bin, data, and adm directories. After the install is complete, two environment variables will need to be modified.

Assuming a default installation:

- ALSDIR will need to be set to C:\apsdos
- PATH will need to include C:\apsdos\bin

Generating the .AFM file from the .DEF and .FUS Files

Once the software has been installed and the environment variables have been updated, navigate to the directory where the .DEF and .FUS files are saved.

Example: There is a design called des1.DEF and des1.FUS

At the command prompt type: `aps2 -gafm des1`

This will generate the des1.afm file in the same directory as the other files and will not alter the .DEF and .FUS files.

Cases where an error creating the .AFM file would be generated

1. The checksum needs to have four characters and will not create an .AFM file if there are less than four characters. The old Designer v3.1.1 software cuts off any leading zeros. To solve this, go into the .DEF and .FUS files and make sure there are four characters. If there are only three characters, most likely this results from there being a leading zero. Add the zeros at the beginning and save the .DEF and .FUS files. Then try to generate the .AFM file again.
2. The checksums in the .DEF and .FUS files must be the same because if they are not, they might not be from the same design and an .AFM file cannot be generated. Make sure both checksums match and that they are from the same design. If you are sure that both the .DEF and .FUS files are from the same design, the checksum that should be changed is the fuse checksum in the .DEF files because the .FUS file will have the correct checksum.

DEF file:

```
| HEADER
| .....
| VAR FUSCHECKSUM 9A13
| .....
| ENDHEADER
```

FUS File:

```
| HEADER
.....
| VAR FUSCHECKSUM 9A13
.....
| ENDHEADER
.....
;silicon signature customer data=0 (word 1, lsb 0)
;silicon signature checksum data=9a13 (word 2, lsb 0)
.....
```

3. DEF and .FUS files that are generated in UNIX will need to be converted to DOS format before an .AFM file can be created. Copy the files onto a UNIX machine and use the unix2dos command to convert the files. For example: unix2dos design.DEF design.DEF
4. The file names of the .DEF and .FUS files must be eight characters or less because this is a DOS based software. To fix this, change the name of both .DEF and .FUS files and make sure they are less than eight characters long.
5. If the .DEF and .FUS files do not have any checksum, APSDOS will automatically calculate the checksum for you.

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