

# Verrazano Programmable Device Instructions

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DA40004, Device labeling specification on [page 8](#).

## 1. Introduction

This document outlines the steps to program the various programmable hardware elements on Verrazano.

This document only covers details on how to program the parts in the lab and how to give manufacturing the diskettes to program the parts. The document does not cover any details of how manufacturing may program the parts.

The device used to program the parts is the ADVIN programmer in the lab. It is recommended that the users guide be used to better understand how to use the equipment.

## 2. Protocol DRAM controller (U27)

### 2.1 Advin programming (U27)

1. This image is contained in the appropriate subdirectory under `\\Crossroads\\source\\Verrazano\\hw\\programmables\\garner`. The appropriate subdirectory is named after the part number of the programmed device. This image file is called \*.pof which is an Altera image file.
2. The programmer should be initialized using the spM software module (first screen).
3. The 16v8 device should be selected using the Configure -> Device -> Altera -> EPC1 options.
4. The PLCC package type should be selected using the Configure -> Others -> Package type -> PLCC options.
5. The image file name should be specified using the File -> Name -> \*.pof where \*.pof is the file name of the image file.
6. The file should then be downloaded using the File -> Load options. The checksum should be displayed on the screen.
7. The part should then be programmed using the PAL (device) -> Program options.
8. The checksum should be verified to be correct after the programming took place.
9. The programmed part is labeled with the p/n. If there is enough room on the label, optionally include the date, the reference designator, and the checksum.

### 2.2 Manufacturing programming (U27)

1. The \*.pof file should be copied onto a diskette.
2. A README file should be created and copied onto the diskette. The README should contain information about the part (eg. Checksum, file name, part number)
3. The diskette should be labeled with the part number for the image file.

The image directory, i.e. the directory named for the part number of the programmed device, contains a Makefile that performs these steps using the command "make disk". In general, this make command is executed under Korn shell from the MKS toolkit.

### 3. Revision indicator PAL (U26)

#### 3.1 Advin programming (U26)

1. This image is contained in the appropriate subdirectory under \\Crossroads\source\Verrazano\hw\programmables\misc\_pal\U26. The appropriate subdirectory is named after the part number of the programmed device. This image file is called \*.j1 which is a jedec file.
2. The programmer should be initialized using the spGAL software module (first screen).
3. The 16v8 device should be selected using the Configure -> Device -> AMD -> PALCE16v8 options.
4. The DIP package type should be selected using the Configure -> Others -> Package type -> DIP options.
5. The image file name should be specified using the File -> Name -> \*.j1 where \*.j1 is the file name of the image file.
6. The file should then be downloaded using the File -> Load options. The checksum should be displayed on the screen.
7. The part should then be programmed using the PAL (device) -> Program options.
8. The checksum should be verified to be correct after the programming took place.
9. The programmed part is labeled with the p/n. If there is enough room on the label, optionally include the date, the reference designator, and the checksum.

#### 3.2 Manufacturing programming (U26)

1. The \*.j1 file should be copied onto a diskette.
2. A README file should be created and copied onto the diskette. The README should contain information about the part (eg. Checksum, file name, part number)
3. The diskette should be labeled with the part number for the image file.

The image directory, i.e. the directory named for the part number of the programmed device, contains a Makefile that performs these steps using the command "make disk". In general, this make command is executed under Korn shell from the MKS toolkit.

### 4. General PAL (U8)

#### 4.1 Advin programming (U8)

1. This image is contained in the appropriate subdirectory under \\Crossroads\source\Verrazano\hw\programmables\misc\_pal\U8. The appropriate subdirectory is named after the part number of the programmed device. This image file is called \*.j1 which is a jedec file.
2. The programmer should be initialized using the spGAL software module (first screen).
3. The 16v8 device should be selected using the Configure -> Device -> AMD -> PALCE16v8 options.
4. The DIP package type should be selected using the Configure -> Others -> Package type -> DIP options.

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