

NCTU - CS Digital System Lab.

LAB 09 – Merry Christmas _ VGA

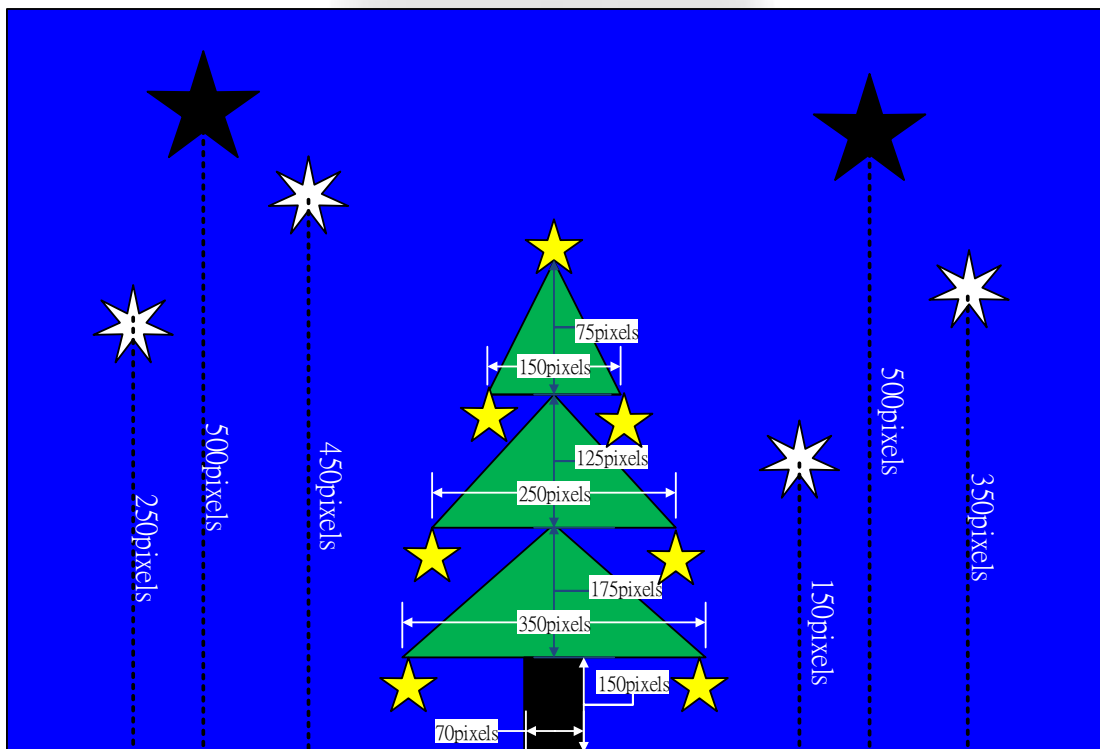
Data Preparation

Prepare following files by yourselves:

- A. Xmas.v
- B. Xmas.ucf

Design Description

Christmas is coming soon. In this lab, you should design Christmas card which is the same as the following figure, and show it on the screen.



Specifications

1. Top module name : Xmas.v
2. It is **asynchronous** reset
3. The yellow star should twinkle with **yellow and white** color **per half second**. Initially, it is yellow color.

4. The black star both should twinkle with **black, red and white** color **per half second**.
At the same time, the left one is moving $\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow\ldots$ for **5 pixels per half second** and the right one is moving $\leftarrow\rightarrow\rightarrow\leftarrow\leftarrow\ldots$ for **5 pixels per half second**. Initially, it is black color.
5. The height of small star is at least 10 pixels.
6. The largest stars are 70 pixels.
7. Snowflake should fall down. The fall rate is **5 pixels per half second**.
8. When snowflake falls down on the ground, it should back to their original height and falls down continuously.
9. The height of snowflake at least 10 pixels.

Grading Policy

Function Validity: 80%

Questions: 20%

Note

1. Name to the file name of .v file and .rar file before upload file on e3 platform:
VGA_0556123_陳小明.v
VGA_0556123_陳小明.rar