```
1   --CODE FOR BUTTERFLY
2   library IEEE;                                   --IMPORTING LIBRARY
3   use IEEE.STD_LOGIC_1164.ALL;
4   library work;                                   --USING FILES FROM WORK DIRECTORY
5   use work.dit_ifft_pkg.ALL;                      --USING PACKAGE DIT_IFFT_PKG FROM
    WORK DIRECTORY
6   ------------------------------------------------------------------------------------
    ----------------------------
7   entity butterfly is                             --ENTITY DECLARATION
8      port(
9         b1,b2 : in complex;                       --INPUTS OF BUTTERFLY STRUCTURE
10        w :in complex;                            --PHASE FACTOR
11        z1,z2 :out complex);                      --OUTPUTS OF LIBRARY
12  end butterfly;
13  ------------------------------------------------------------------------------------
    ----------------------------
14  architecture Behavioral of butterfly is         --ARCHITECTURE DECLARATION
15  begin
16  z1 <= add(b1,multi(b2,w));                      --BUTTERFLY EQUATION FOR ADDITION
17  z2 <= sub(b1,multi(b2,w));                      --BUTTERFLY EQUATION FOR SUBSTRACTION
18                                                  --AND ASSIGNING VALUE TO OUTPUT
19  end Behavioral;                                 --END OF ARCHITECTURE
```