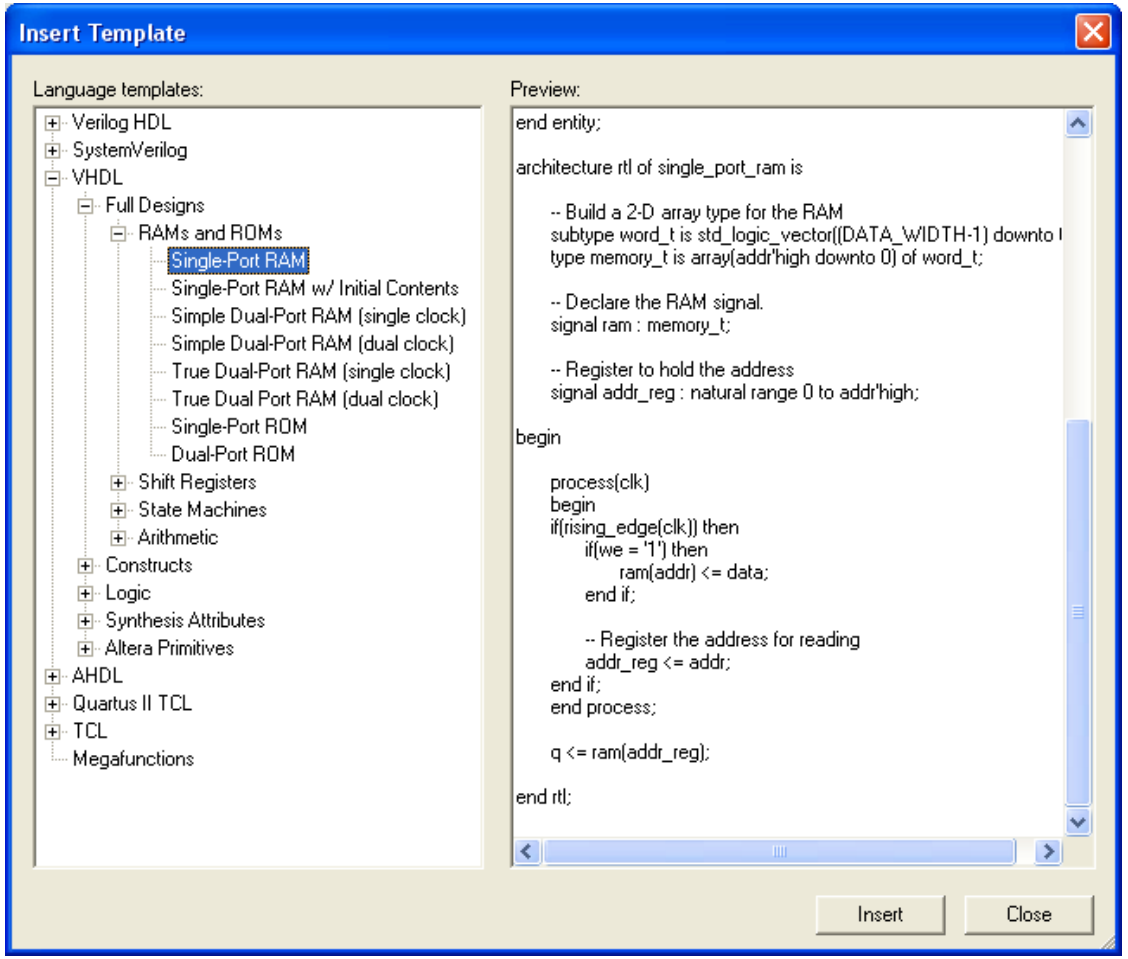
PLLs and Templates

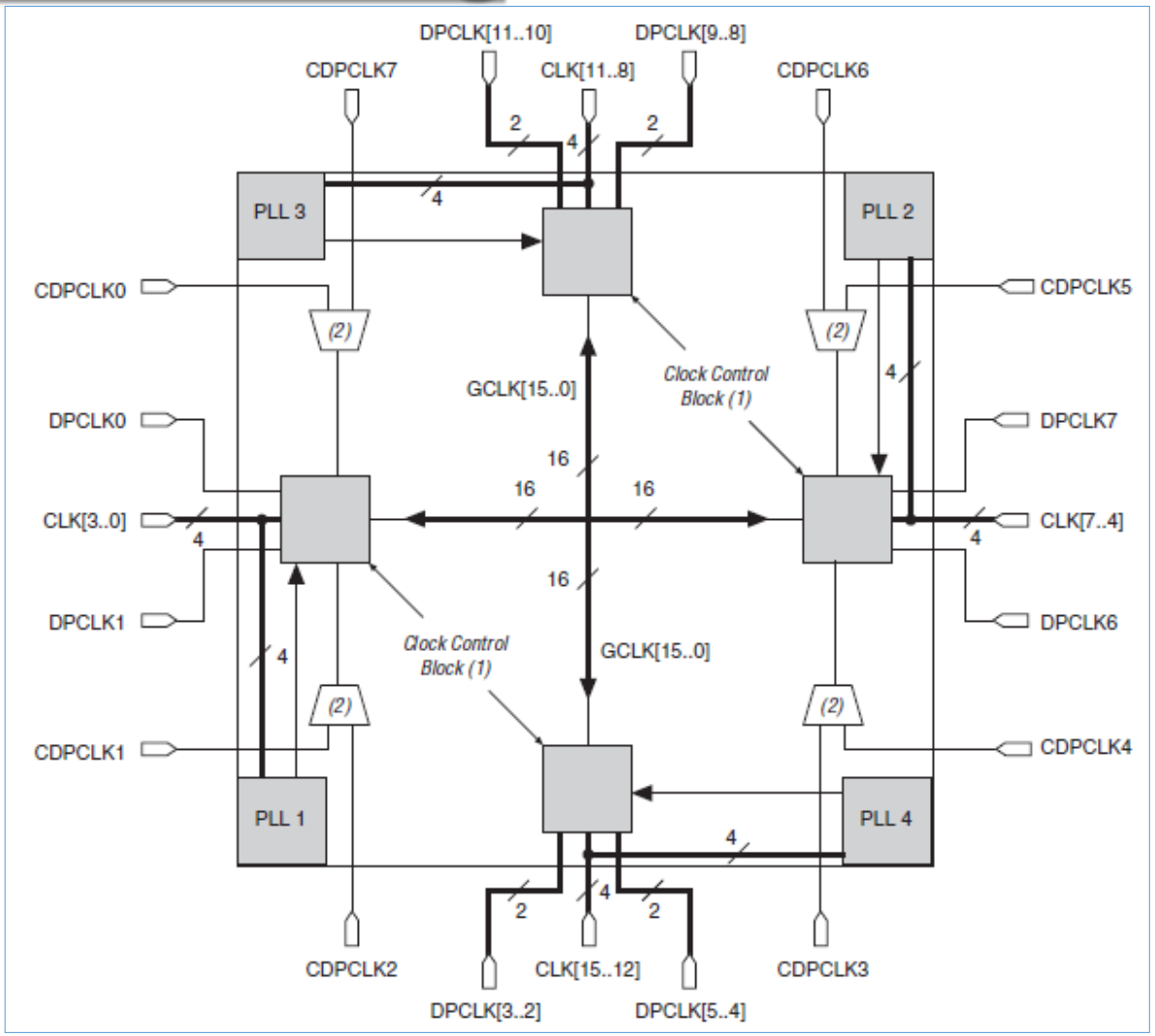
Hardware Templates

- While in VHDL file push  button on the left
- In a template window select the needed logic template

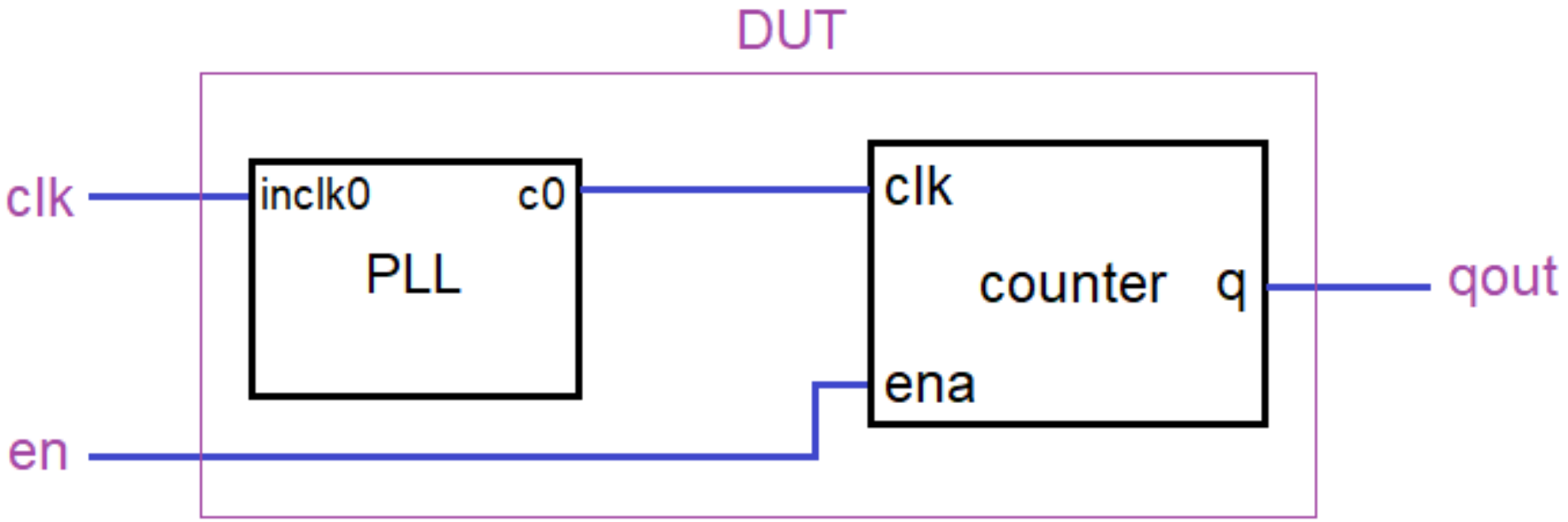


Cyclone II Clocking

- 16 Global Clocks
- 4 PLLs
- External Oscillator Must be used

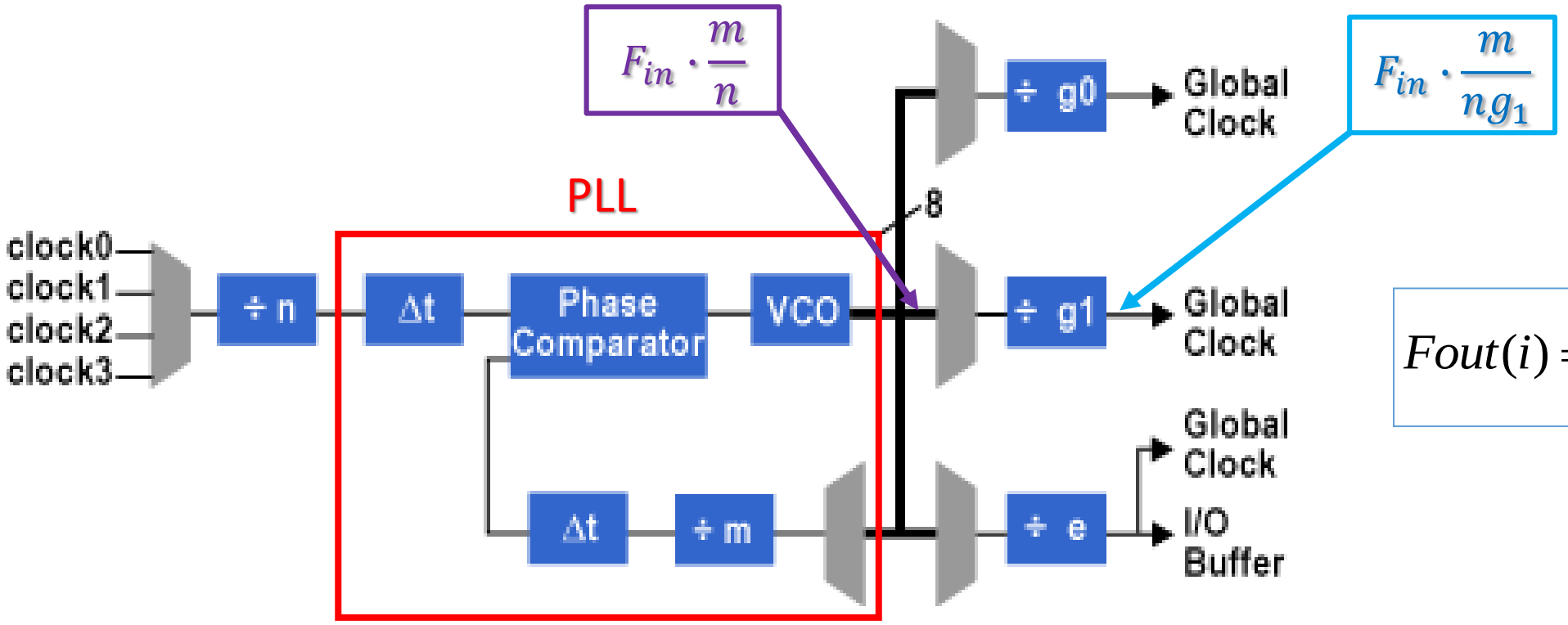


counter using PLL



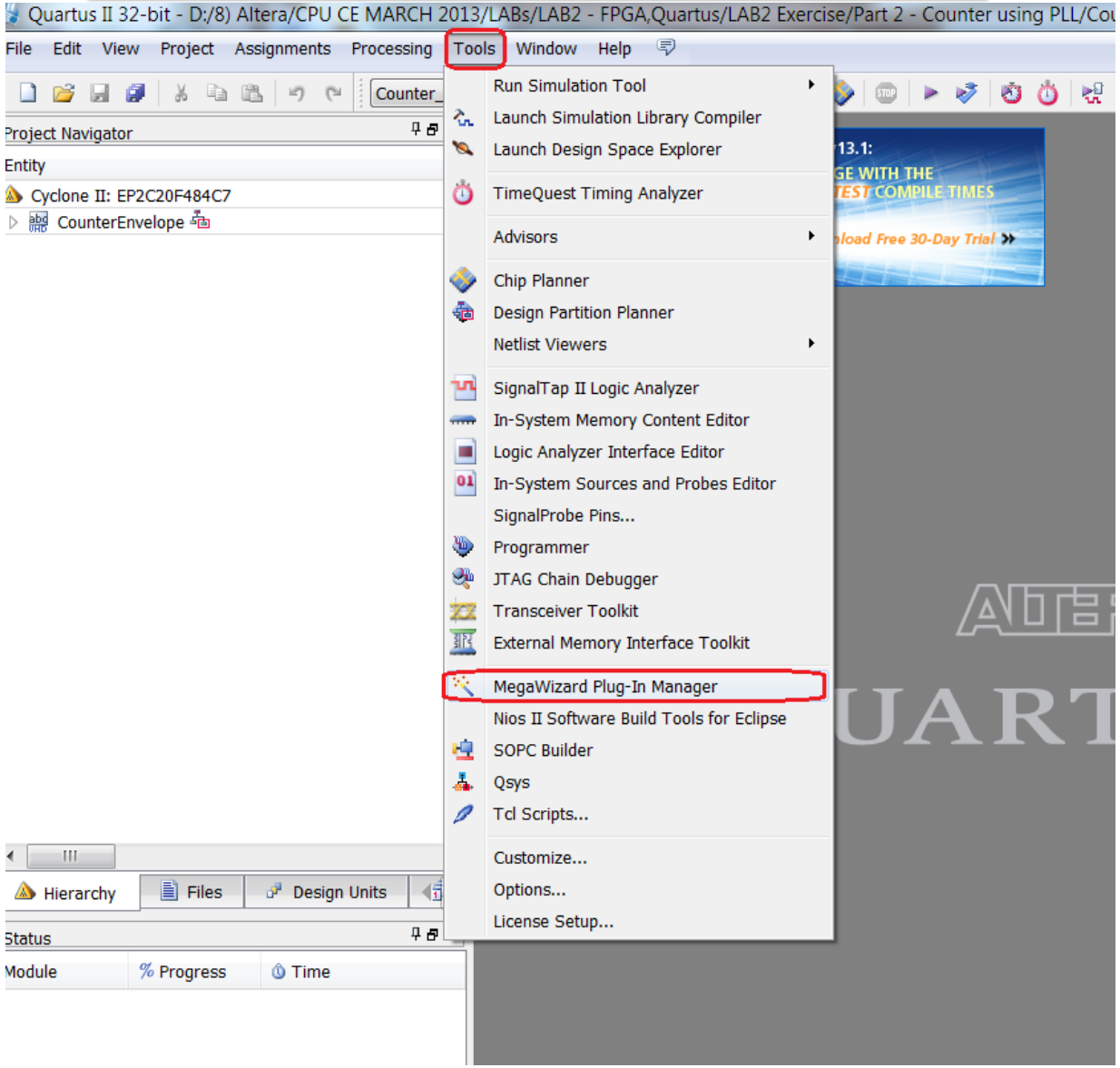
Cyclone II PLL Structure

- Enables division and multiplication of clocks
- 3 Outputs with different frequencies
- Input clock can be only from clock pin
- Different Phase shifts between outputs can be achieved

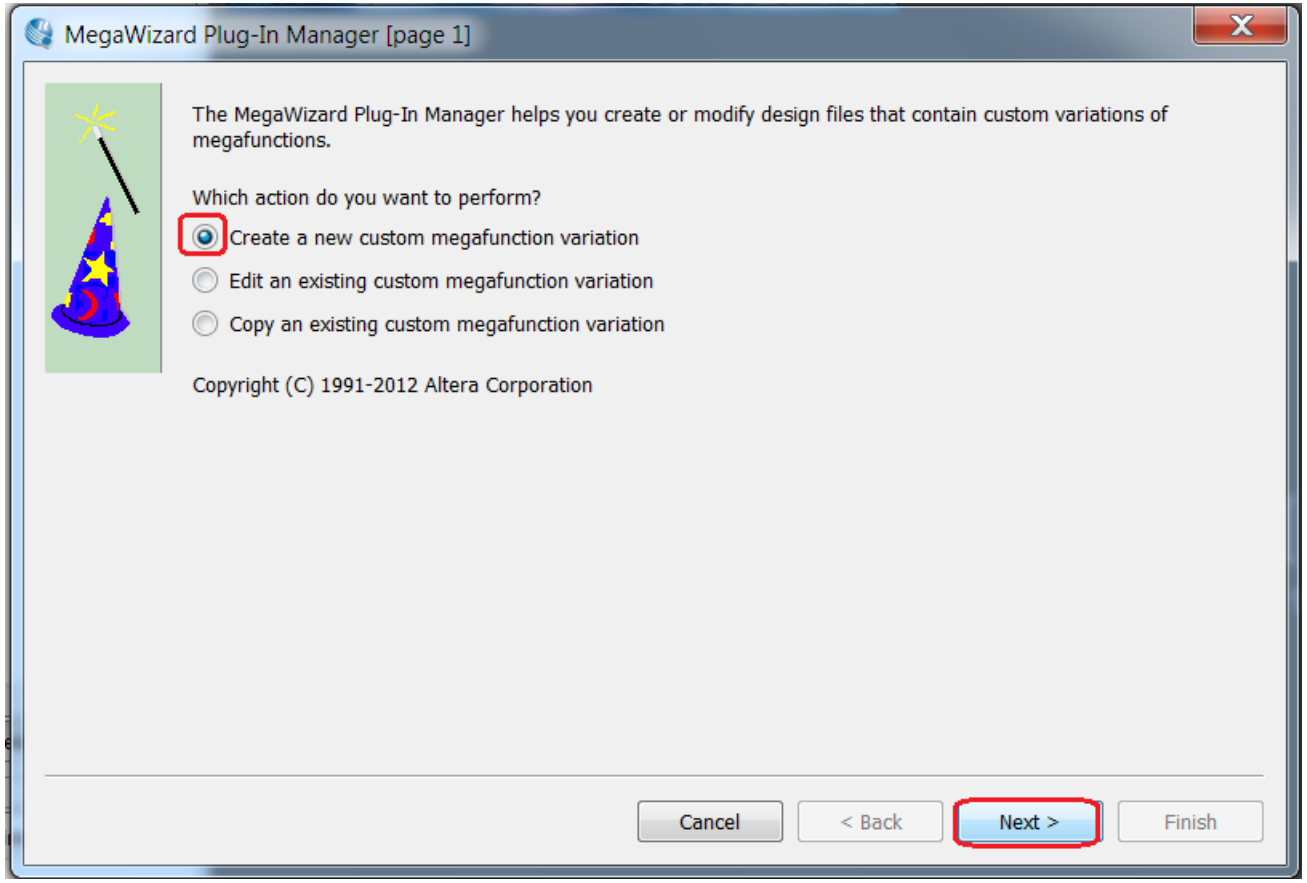


$$Fout(i) = Fin \frac{m}{n \cdot g(i)}$$

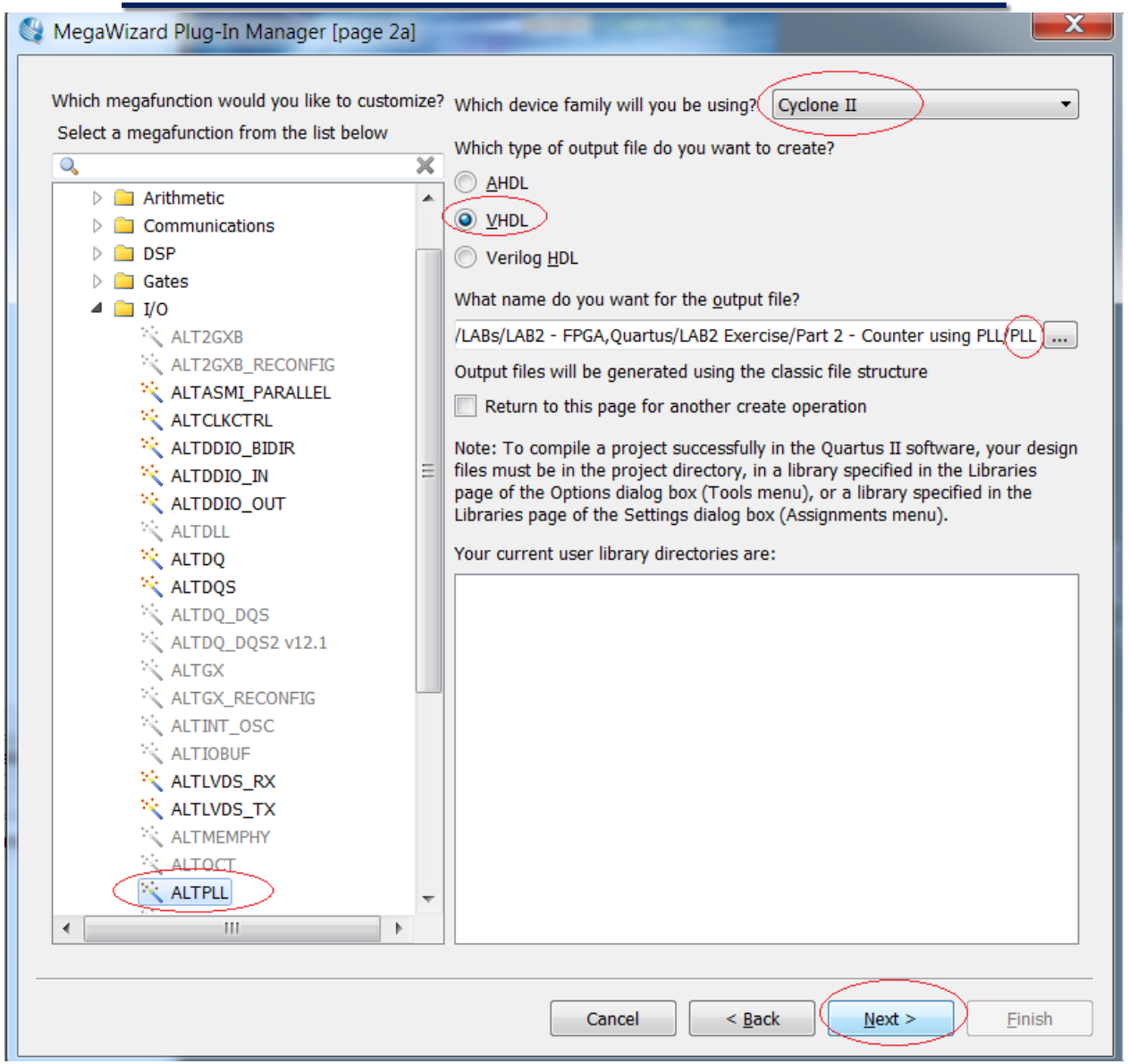
PLL Wizard – Phase 1



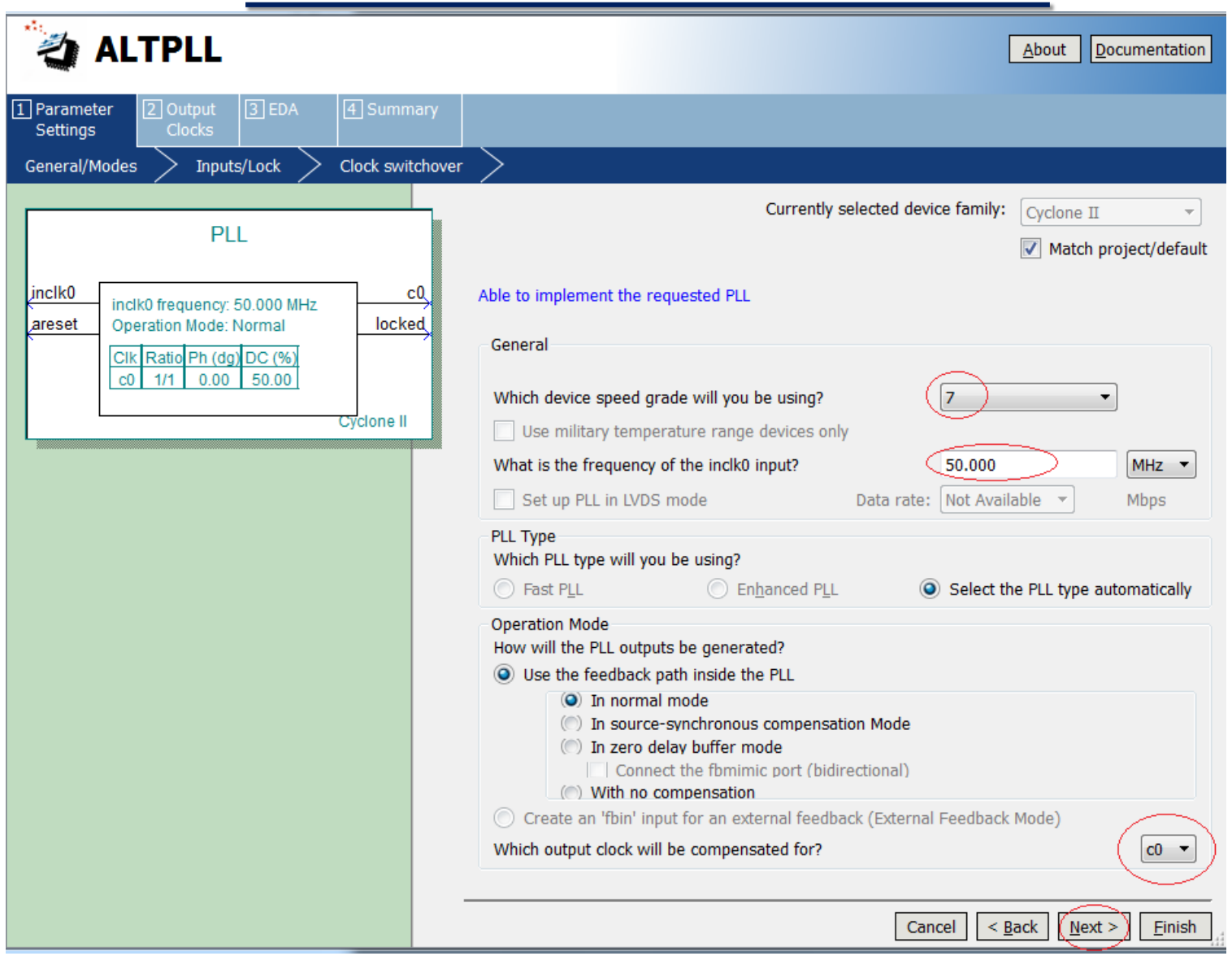
PLL Wizard – Phase 2



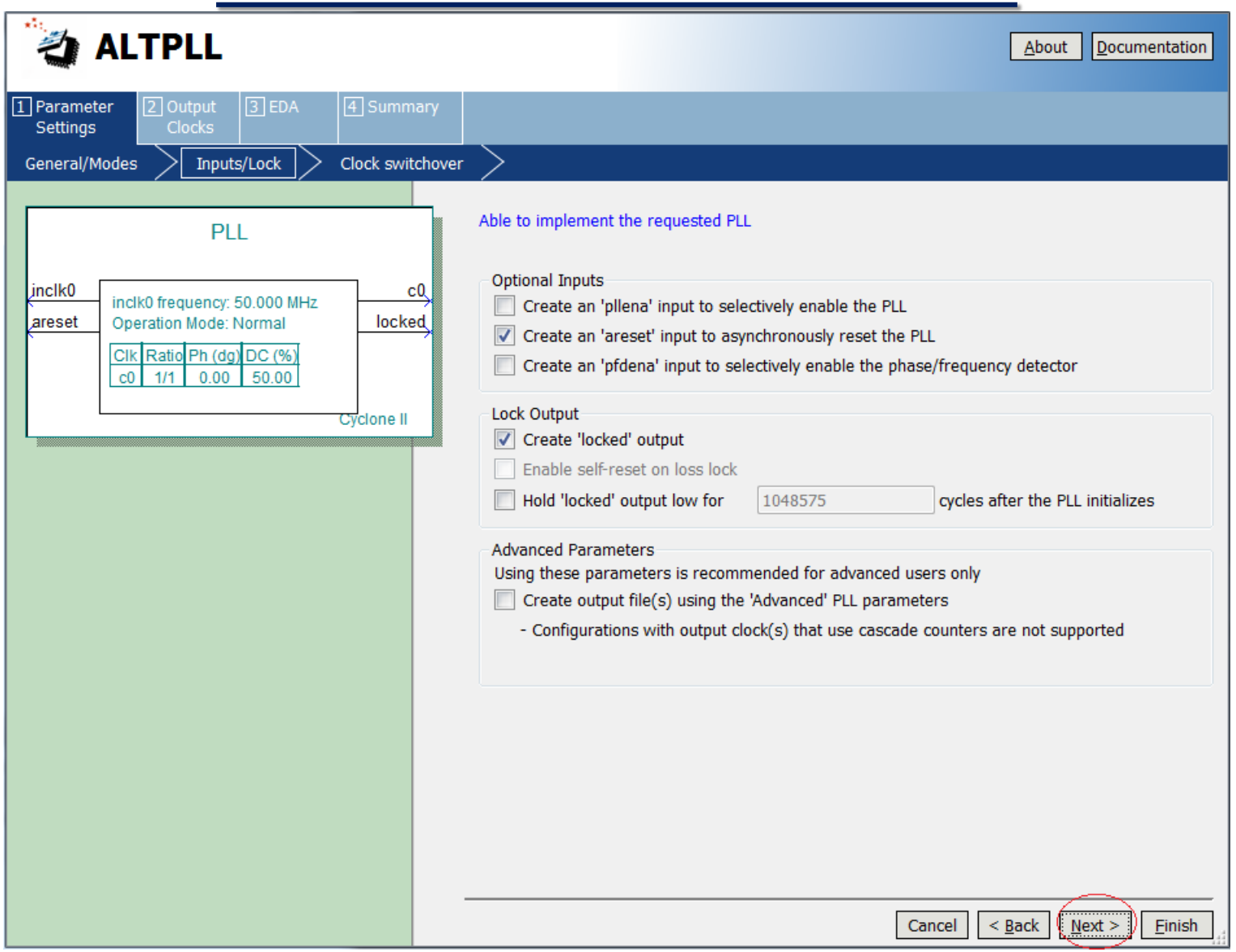
PLL Wizard – Phase 3



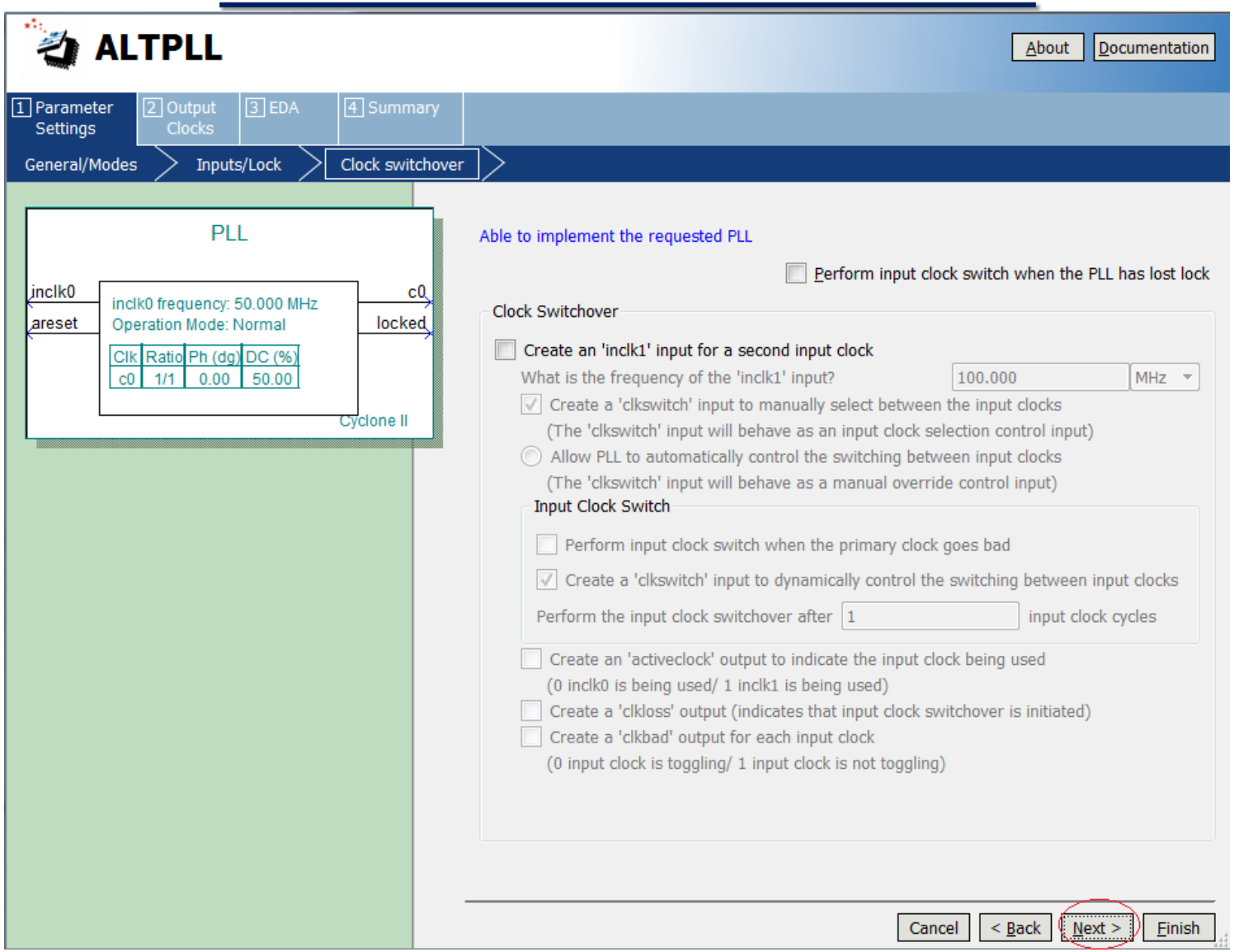
PLL Wizard – Phase 4



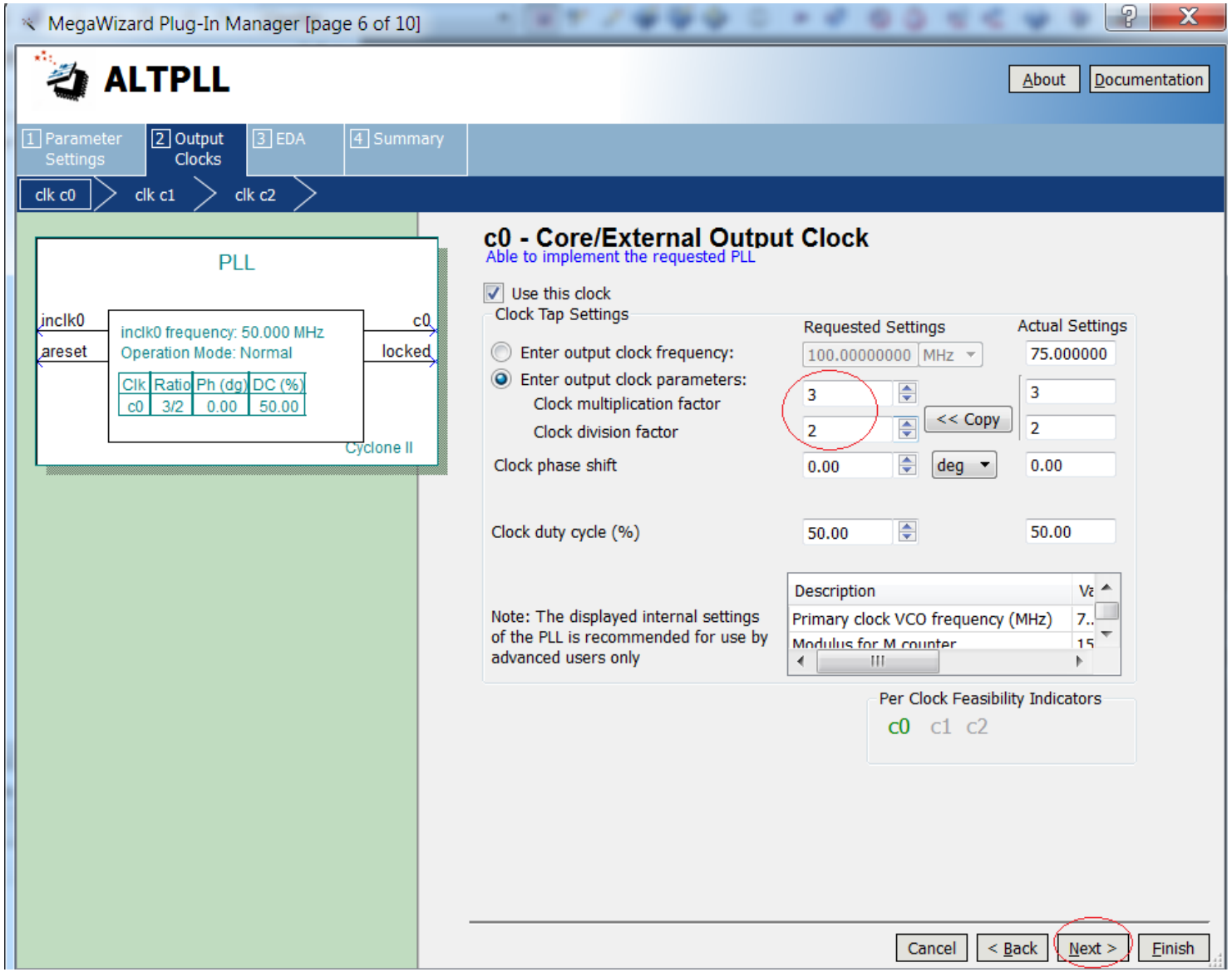
PLL Wizard – Phase 5



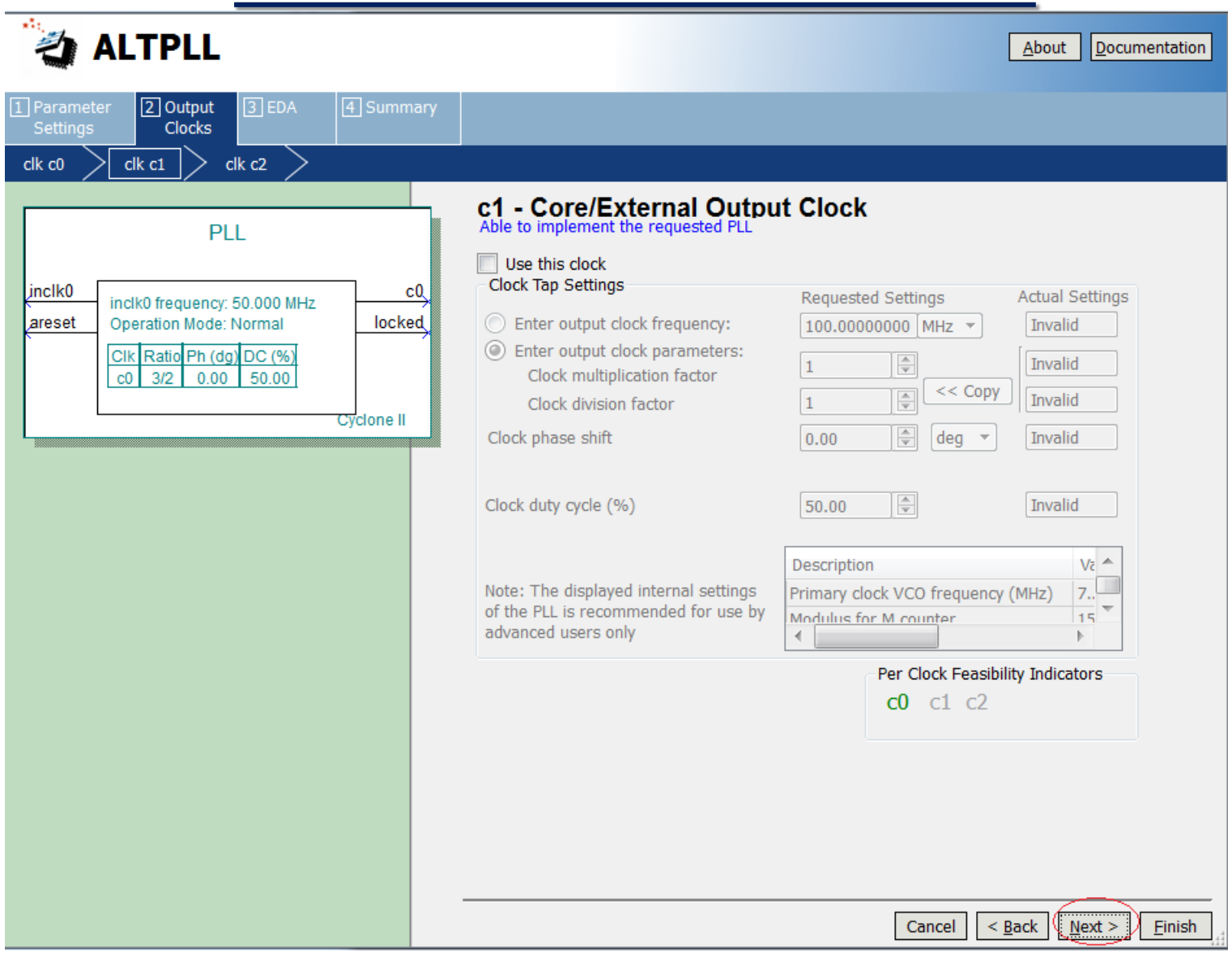
PLL Wizard – Phase 6



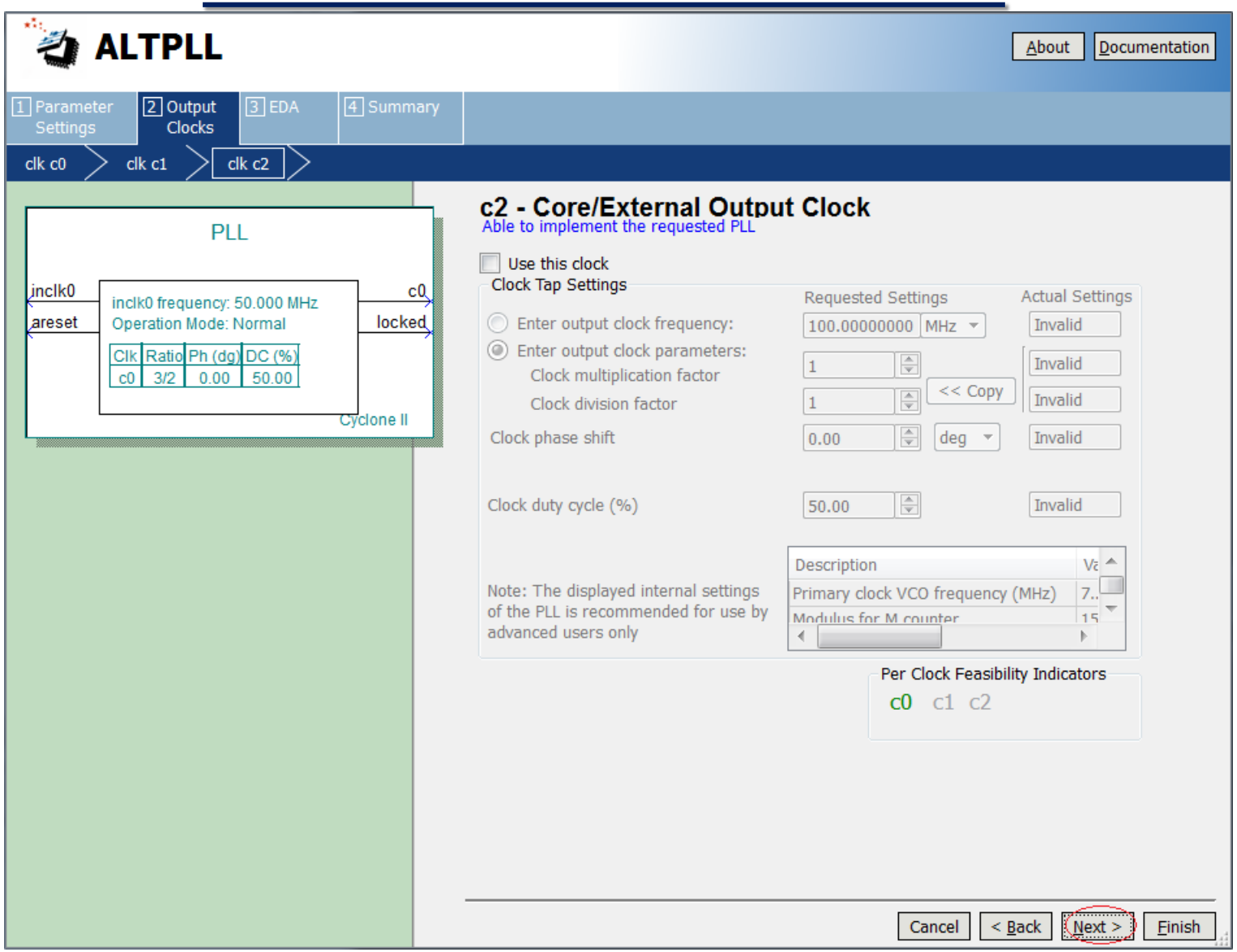
PLL Wizard – Phase 7



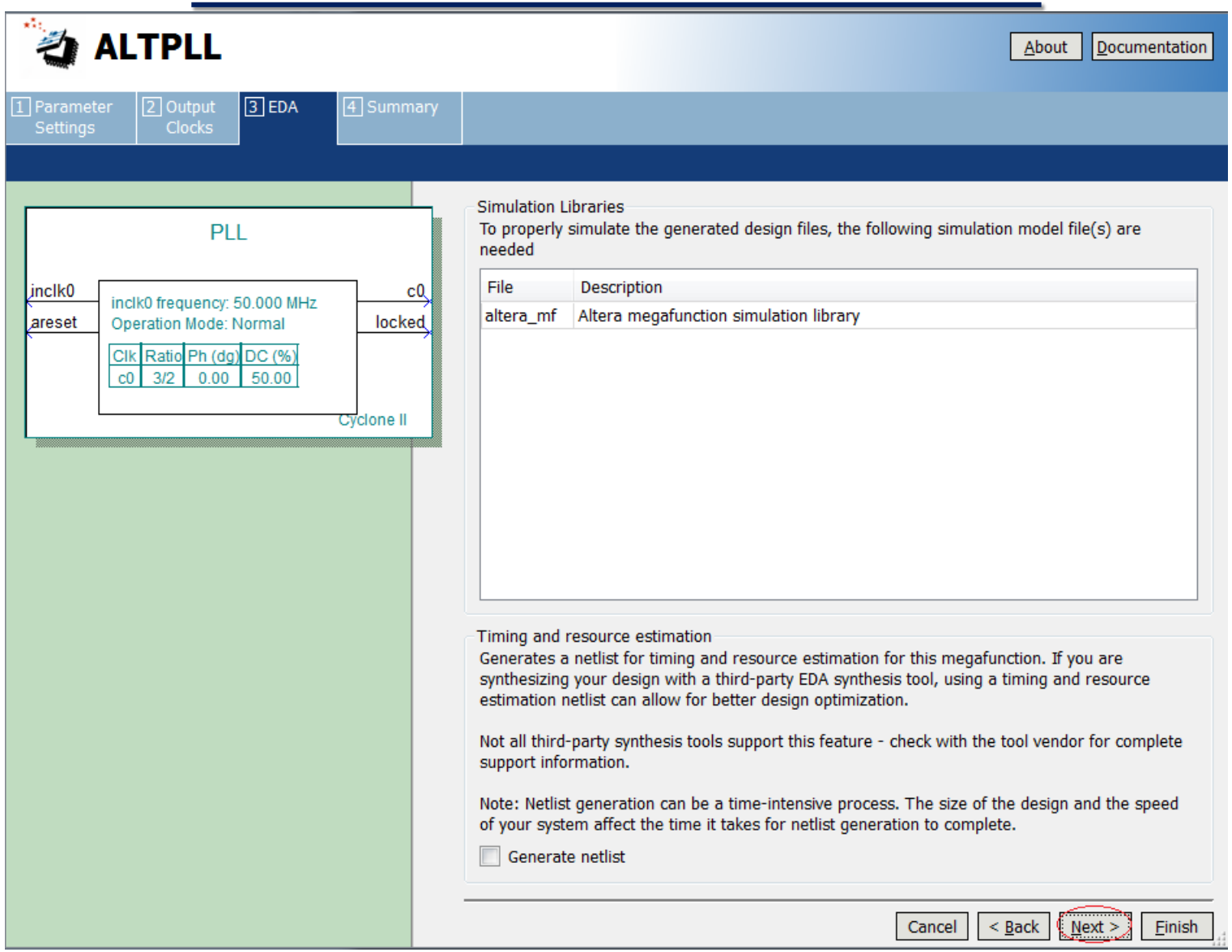
PLL Wizard – Phase 8



PLL Wizard – Phase 9



PLL Wizard – Phase 10



PLL Wizard – Phase 11