

Sl. No.	Assertion Labels	Signals	Scenarios	Description	Status
1	Write_Overflow	wfull, winc	Write increment (winc) asserted while FIFO is full (wfull).	Block write when FIFO is full to prevent data loss.	WORKING
2	Read_Underflow	rempty, rinc	Read increment (rinc) asserted while FIFO is empty (rempty).	Block read when FIFO is empty to prevent invalid data output.	WORKING
3	Full_Flag_Check	wfull, wptr, rptr	FIFO contains N (maximum) elements after a write.	Verify wfull is asserted when capacity is reached.	WORKING
4	Empty_Flag_Check	rempty, wptr, rptr	FIFO contains 0 elements after a read or reset.	Verify rempty is asserted when FIFO has no data.	WORKING