$F:/382\;Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/spi\_test\_system\_II/src/wave.asdb\;untitled.awc$ Signal name 200 400 600 800 1000 1200 1400 ns rst\_bar asserted (cpol, cpha, dord) combo tests for correct funcitonality beign. starting with (0,0,0) ı rst\_bar 0 (0,1,0) test begins лг clk 0 0 **™** cpol 0 **™** cpha dord 0 send\_asserted 0 **J** send **™** miso **™** mosi 1 sck idles at 0 sck idles at 0 **J** sck 0 **.** ss\_bar 1 data\_out is transformed from 00 to the value of data\_in **⊞ л** data\_... 00 00 C0 C8 ıır end s.. false 40 ns (x) period | 40 ns ⊞ (x) data\_in 1100... 11001010 rx shifter fsm begins 8 cycles of ph1 of rx\_shifter fsm. 1 for each bit of data ☐ prese... idle
☐ idle 8 cycles of ph1&ph2 of tx\_shifter fsm. allows SCK to have 8 periods tx shifter sck fsm begins ı prese... idle idle idle Cursor 1 0 fs

F:/382 Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/spi\_test\_system\_II/src/wave.asdb untitled.awc Signal name **.**rst\_bar 0 (1,0,0) test begins 0 лг clk **™** cpol 0 **Љ** cpha 0 dord 0 **J** send **™** miso 1 **™** mosi sck idles at 0 0 **J** sck .urss\_bar 1 data\_out shifted to equal data\_in data\_out shifted to equal data\_in **⊞ л** data\_... 00 C0 C8 CA C0 ∎ end\_s.. false (x) period 40 ns 40 ns ⊞ (x) data\_in 1100... 11001010 лг prese... idle idle л prese... idle idle idle Cursor 1

F:/382 Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/Spi\_test\_system\_II/src/wave.asdb untitled.awc 3200 3400 3600 3800 4000 4200 4400 ns Signal name **.**rst\_bar 0 (1,1,0) test begins (0,0,1) test begins 0 лг clk **™** cpol 0 **™** cpha 0 dord 0 **J** send **™** miso 1 **™** mosi sck idles at 1 sck idles at 1 0 **J** sck .urss\_bar 1 data\_out shifted to equal data\_in **⊞ л** data\_... 00 00 00 C8 0A **™** end\_s.. false (x) period 40 ns 40 ns ⊞ (x) data\_in 1100... 11001010 лг prese... idle idle idle л prese... idle idle idle Cursor 1

F:/382 Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/spi\_test\_system\_II/src/wave.asdb untitled.awc 4600 · · · · 4800 · · · · 5000 · · · · 5200 · · · · 5400 · · · · 5600 · · · · 5800 · · · · ns Signal name **.**rst\_bar 0 (0,1,1) test begins (1,0,1) te 0 лг clk **™** cpol 0 **Љ** cpha 0 dord 0 **J** send **™** miso 1 **™** mosi sck idles at 0 0 **J** sck .urss\_bar 1 data\_out shifted to equal data\_in data\_out shifted to equal data\_in **⊞ л** data\_... 00 X CA X 00  $\sqrt{\mathsf{CA}}$ r end\_s.. false (x) period 40 ns 40 ns ⊞ (x) data\_in 1100... 11001010 **™** prese... idle idle idle л prese... idle idle idle Cursor 1

F:/382 Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/Spi\_test\_system\_II/src/wave.asdb untitled.awc 6200 6400 6600 6800 7000 7200 7400 ns Signal name **.**rst\_bar 0 (1,1,1) test begins st begins лг clk 0 **™** cpol 0 **Љ** cpha 0 dord 0 **J** send **™** miso 1 **™** mosi sck idles at 0 sck idles at 1 0 **J** sck .urss\_bar 1 data\_out shifted to equal data\_in **⊞ л** data\_... 00 00 4A XCAX r end\_s.. false (x) period 40 ns 40 ns ⊞ (x) data\_in 1100... 11001010 лг prese... idle л prese... idle idle Cursor 1

 $F:/382\;Lab/lab09/Spi\_test\_system\_II/SPI\_test\_system\_II/spi\_test\_system\_II/src/wave.asdb\;untitled.awc$ Signal name 7600 7800 8000 8200 8400 8600 8800 ns **.**rst\_bar 0 лг clk 0 0 **™** cpol 0 **Љ** cpha 0 dord **™** send 0 **™** miso 1 1 **™** mosi лгsck 0 ...r ss\_bar 1 data\_out shifted to equal data\_in **⊞ л** data\_... 00 OA X 4A X CA X r end\_s.. false (x) period 40 ns 40 ns ⊞ (x) data\_in 1100... 11001010 **™** prese... idle idle л prese... idle idle Cursor 1