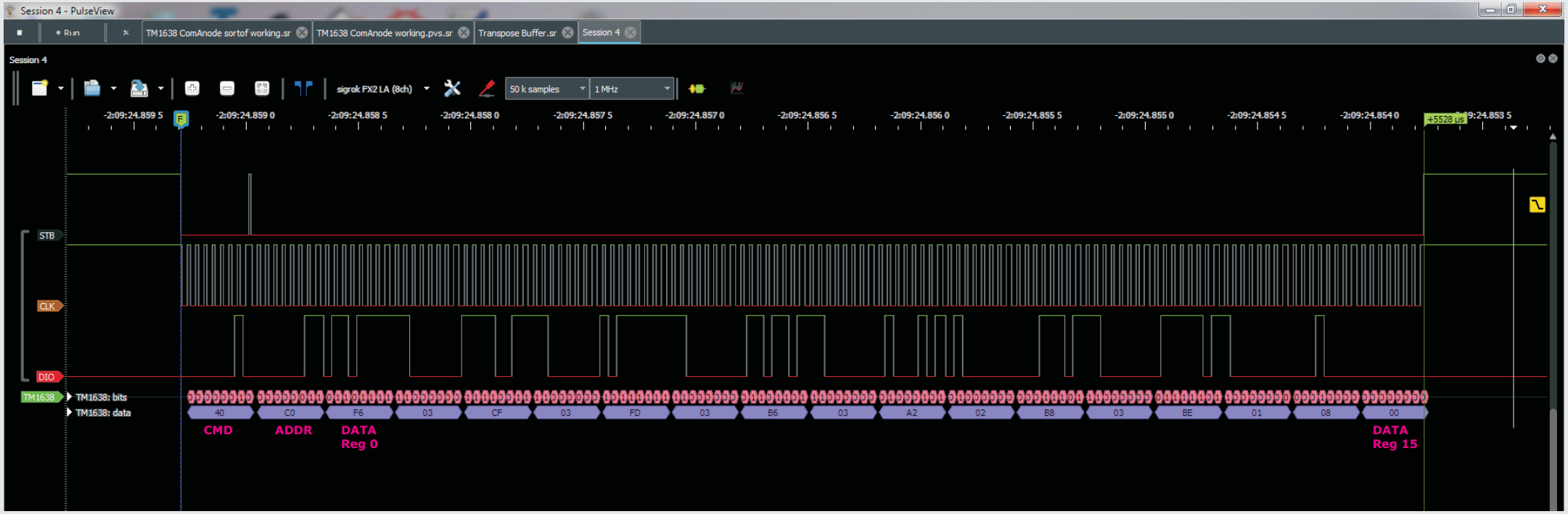
ToniG 2022-09-09

TM1638 Message

Display 10 digits "1234567890", start at C0 (Sequential address mode 0x40)

Notes:
Data is LSb first
Data latched on clock rising edge
Data valid when STB = Low



For 10 digits display, Common Anode 7-seg LED's are used, connected with Segment bus to the 8 Grid pins & Digit commons connected to 10 Segment pins.
This requires the segments to be transposed, ie. Digit 1 segments go into bit 0 of all even registers, Digit 2 segments go into bit 1 of all even registers... up to Digit 8

Digit 9 segments go into bit 0 of all odd registers, Digit 10 segments go into bit 1 of all odd registers (see Digit -> Register table page 2)

TM1638 with Common Anode display

Digit bits transposed

Program Code.

Disp Buffer Digits

Digit ->	1	2	3	4	5	6	7	8	9	10
bit 0 ->	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2
	3	3	3	3	3	3	3	3	3	3
	4	4	4	4	4	4	4	4	4	4
	5	5	5	5	5	5	5	5	5	5
	6	6	6	6	6	6	6	6	6	6
bit 7 ->	7	7	7	7	7	7	7	7	7	7

TM1638.

Display Registers *(showing where the buffer bits go)*

Addr ->	C0	C2	C4	C6	C8	CA	CC	CE
Digit 1	0	1	2	3	4	5	6	7
2	0	1	2	3	4	5	6	7
3	0	1	2	3	4	5	6	7
4	0	1	2	3	4	5	6	7
5	0	1	2	3	4	5	6	7
6	0	1	2	3	4	5	6	7
7	0	1	2	3	4	5	6	7
8	0	1	2	3	4	5	6	7

Addr ->	C1	C3	C5	C7	C9	CB	CD	CF
9	0	1	2	3	4	5	6	7
10	0	1	2	3	4	5	6	7
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-

```
#Ifdef Com_Anode
  Dim BitCnt, Tmp_2, AddrN, Rpt, RegPtr, RegBitIdx as byte
  Dim RegBuf(16+1) as Byte ' TM1638 register buffer for ComAnode display
   For BufIndx = 1 to 16 : RegBuf(BufIndx) = 0 : Next '  ClrRegbuf

'      get each bit from digit buffer byte & transpose to reg buffer bytes.
   For BufIndx = 1 to TM_DispLen    '< Digits to process
        If BufIndx < 9 then RegBitIdx = BufIndx -1 Else RegBitIdx = BufIndx -1 -8
        BitCnt = 0 ': Tmp_2 = 0
        Tmp_1 = DBuf(BufIndx)    '< each buf byte
      Repeat 8                  '< 8 bits to transpose
        If BufIndx < 9 then AddrN = (BitCnt*2) +1 Else AddrN = (BitCnt*2) +2 :
        Tmp_2 = RegBuf(AddrN)
        Tmp_2.RegBitIdx = Tmp_1.BitCnt     ' get each bit from digit buf byte
        RegBuf(AddrN) = Tmp_2
        BitCnt++
      End Repeat
   Next

'     Send reg buffer
      set TM1638_STB 0
        TM1638_WrVal (TMcmd1) ' Seq. address mode 40h
      set TM1638_STB 1
        Wait TMdly us

      set TM1638_STB 0
        TM1638_WrVal TMaddr               ' C0h First Reg addr
   For BufIndx = 1 to 16                  ' send all registers
        TM1638_WrVal (RegBuf(BufIndx))     ' Digit data
   Next
      set TM1638_STB 1
        Wait TMdly us

 #endif
```