PE24103 MTP Programming

1. Enter Master Test mode to enable full I2C access
   1. Write 0xA596 to the MASTER\_TEST register at address 0x03FD.
   2. Optionally read the MASTER\_TEST register. We should get 0x0001 if we have successfully entered the master test mode. None of the following steps will work until we are in master test mode.
2. Read 16-bytes of data from the MTP to see what values the MTP currently holds in the PAGE of interest. The PAGE of 16-bytes of interest would start at address 0x00F0.
   1. Read 2 bytes from address 0x00F0 and store the value
   2. Read 2 bytes from address 0x00F2 and store the value
   3. Read 2 bytes from address 0x00F4 and store the value
   4. Read 2 bytes from address 0x00F6 and store the value
   5. Read 2 bytes from address 0x00F8 and store the value
   6. Read 2 bytes from address 0x00FA and store the value
   7. Read 2 bytes from address 0x00FC and store the value
   8. Read 2 bytes from address 0x00FE and store the value
3. Merge the new value we want for the byte/word at address 0x00FC with the values we just read.
4. Erase the 16-bytes of data starting at address 0x00F0.
   1. Write 0x00F0 to the MTP\_PA register at address 0x03D3
   2. Write 0xF022 to the MTP\_CTRL0 register at address 0x03D1 – this will trigger the PAGE erase.
   3. Wait 20ms for the erase to happen. If I2C is fast enough, there is a status register which could optionally be read.
5. Optionally, we could read MTP values in the address range 0x00F0 to 0x00FE. All values should read as 0xFFFF.
6. Load up the 16-bytes of data which we want to program into the MTP. Most of these values will be the same as we read except for the byte/word at address 0x00FC
   1. Write the 2 bytes which will be stored to MTP address 0x00F0 & 0x00F1 to the NVM\_PAGE00\_DATA register at address 0x03D8
   2. Write the 2 bytes which will be stored to MTP address 0x00F2 & 0x00F3 to the NVM\_PAGE01\_DATA register at address 0x03D9
   3. Write the 2 bytes which will be stored to MTP address 0x00F4 & 0x00F5 to the NVM\_PAGE02\_DATA register at address 0x03DA
   4. Write the 2 bytes which will be stored to MTP address 0x00F6 & 0x00F7 to the NVM\_PAGE03\_DATA register at address 0x03DB
   5. Write the 2 bytes which will be stored to MTP address 0x00F8 & 0x00F9 to the NVM\_PAGE04\_DATA register at address 0x03DC
   6. Write the 2 bytes which will be stored to MTP address 0x00FA & 0x00FB to the NVM\_PAGE05\_DATA register at address 0x03DD
   7. **Write the 2 bytes which will be stored to MTP address 0x00FC & 0x00FD to the NVM\_PAGE06\_DATA register at address 0x03DE**
   8. Write the 2 bytes which will be stored to MTP address 0x00FE & 0x00FF to the NVM\_PAGE07\_DATA register at address 0x03DF
7. Program the 16-bytes of data starting at address 0x00F0.
   1. Write 0x00F0 to the MTP\_PA register at address 0x03D3
   2. Write 0xC012 to the MTP\_CTRL0 register at address 0x03D1 – this will trigger the PAGE program.
   3. Wait 20ms for the programming to happen. If I2C is fast enough, there is a status register which could optionally be read
8. Optionally read back the MTP values in the address range 0x00F0 to 0x00FE to make sure they have the expected values.