Crystal King Co., Ltd.

DDR5 SPD Programmer

User Manual
Revision – 1.0

Support Windows 11/10/8/7/XP

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Technical support hot-line	(Domestic)	: 02-2773-9595
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__Warranty__

All components used in CK product are of the highest commercial grade available. Furthermore, each product is subjected to a very rigid test program during and after assembly and prior to shipment. Nevertheless, as with all components and equipment, there could be a certain small percentage of failure.

CK Co., Ltd. warrants for a period of one (1) year from the date of purchase by the original customer, all products manufactured by it, to be free under normal use and service from defects of material and workmanship. During this period, if the product unit is determined to be defective, return it to your original place of purchase. They will promptly, at their option, repair or replace the defective unit.

This warranty shall not apply to any consumable parts beyond its expected usable life cycle specified in the specification section. This warranty shall not apply to any product, which has been repaired or altered in any manner by anyone other than CK Co., Ltd., or products, which have been connected, installed, used or otherwise adjusted other than in accordance with written instructions furnished by CK Co., Ltd.

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Implied warranties, including, without limitation, warranties of merchantability or fitness, are expressly limited in duration to the one- (1) year specified above. Certain terms and conditions of the warranty may not apply where local laws prevail.

Chapter One – Introduction

Crystal King DDR5 SPD Programmer is a windows-based device, specifically designed for memory manufacturers, memory distributors, PC & Servers computer manufacturers and engineering laboratories.

Device Description

Mini USB Type-B Port
(Connects directly to PC USB port for programming)

DIMM sockets
(288pin UDIMM / RDIMM)

Refresh button
(For detecting correctly DIMMs)
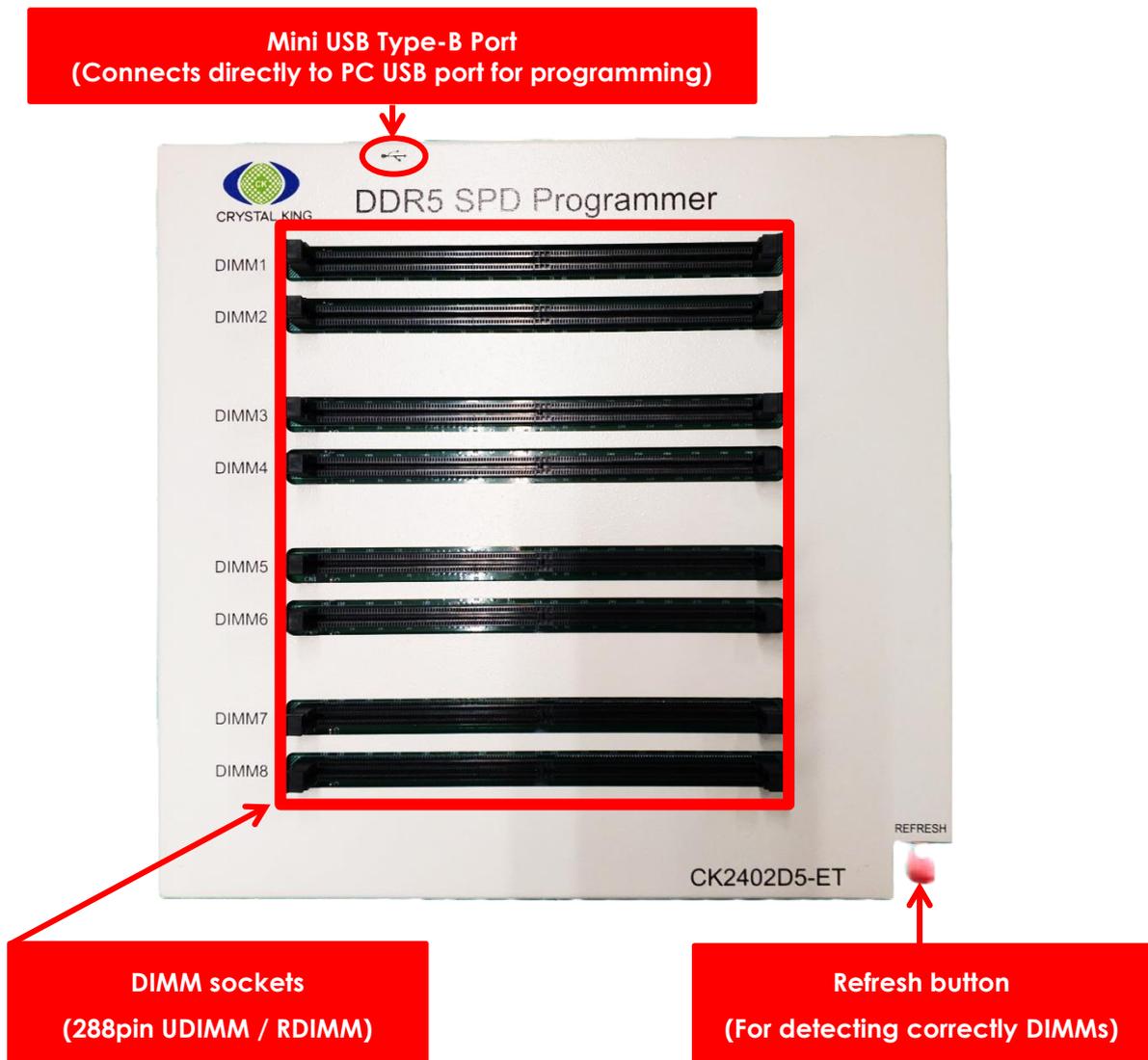
For DDR5 SODIMM programming, contact CK for DDR5 SODIMM converter sold separately

Accessories
1. Mini Type-B USB cable
2. USB security key (necessary for running the program)

Chapter Two – Installation Setup

Unpacking and Inspection

Every precaution has been taken to ensure that the product reaches you in fully operational condition. If there are any damaged to the packaging, or to the product, it should be returned to the shipper and CK Co., Ltd. should be notified immediately. Upon unpacking, inspect the unit for any obvious physical damage, especially connectors. If any damage is evident, return it to CK Co., Ltd. or to any authorized CK representative for repair or replacement. Please keep carton box, foam packaging material and plastic bags in the event that the unit has to be returned to CK.

PC Software Installation

Installation of the CK DDR5 SPD Tool is both easy and simple. Anyone who can install a USB Printer or a USB Flash Memory Card should be able to install the CK DDR5 SPD Tool software.

Start up the computer and boot into any Microsoft Windows. Log-on into a user account, which has "administrative privileges" for the software installation. Insert the CK DDR5 SPD USB key into USB port.

Step 1: Manually run the CK DDR5 SPD Tool installer.

SPD_Tool_v5.0.0.2_Setup
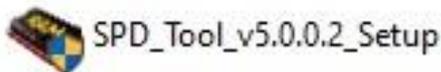
Step 2: The Crystal King DDR5 SPD Tool software Setup screen will appear. Click on next to continue. The SPD Tool installation wizard will prompt you to install and change folder if necessary. Click next to accept default setting.

Specify directory to install SPD software
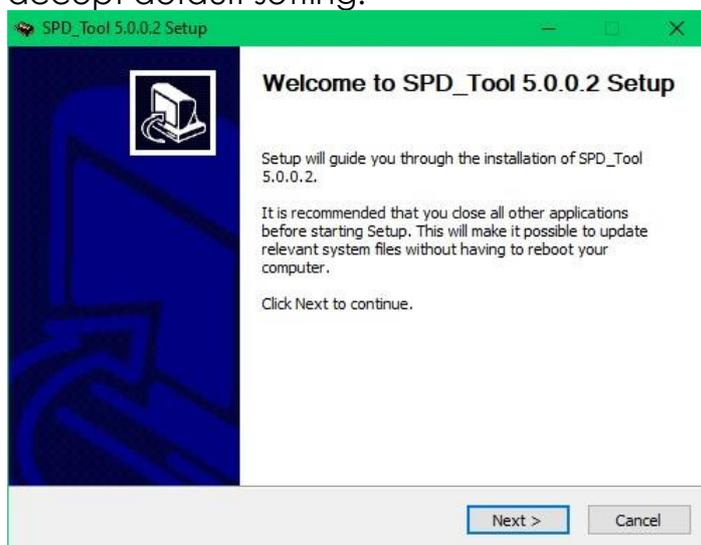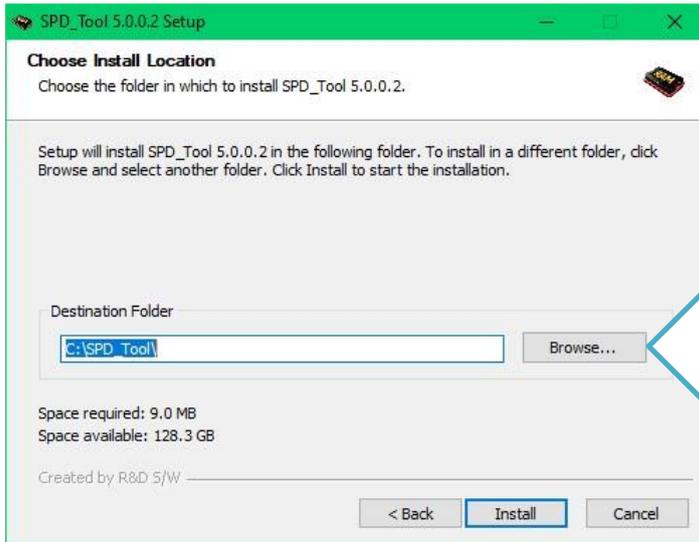
Step 3: The SPD Tool software will be created under the C:\SPD_Tool\ directory as default. A short cut to the SPD Tool icon will be created on the PC desktop. To run the SPD Software program, just simply click on the icon.

SPD Tool Icon

SPD Tool program installation complete
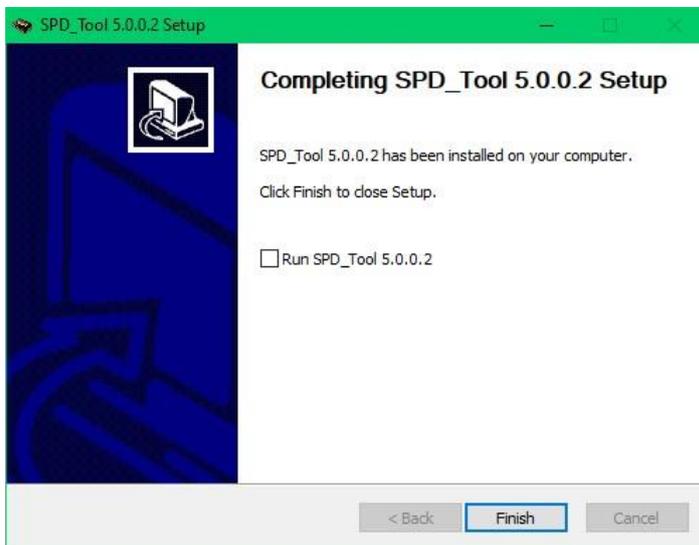
Hardware Setup

Before running SPD Tool program, remember to have the USB security key always inserted into USB port during operation and connect the device with Type-B USB cable to PC. Then, Crystal King DDR5 SPD programmer is ready to work for you.

Chapter Three – Features

Interface and Functions
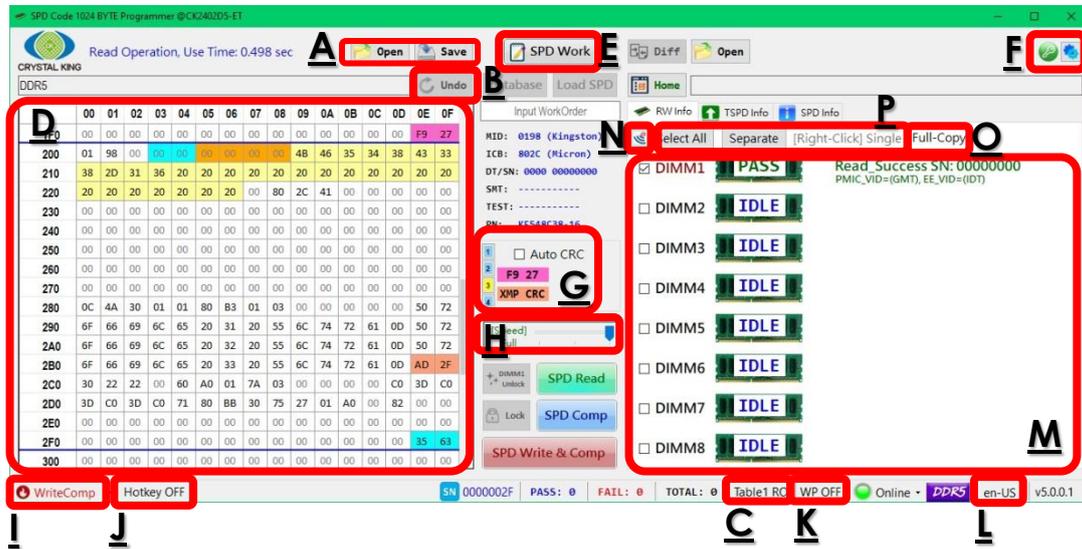
A - Load / Save SPD code.

B - Undo changes.

C - Table1 Read-Only / Write-Enable switch.

D - Table1: display and edit current SPD code.

    (a) Mouse operations: select, right-click menu, double-click to edit…etc.

    (b) Cursor: auto-display the relevant information when stopping over each byte.

(a)

(b)

E - SPD Work: define serial number, MFG year and week…etc.

Select preview to confirm the values:

F - Write Protect and File Directory settings.

G - Auto CRC On / Off.
H - Processing speed: Normal / High / Full.

I - Mode: QA / Write & Compare.
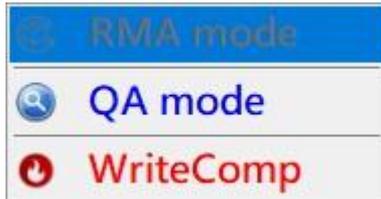
*RMA mode is under development.

J - Hotkey setting: set SPACE key as SPD Write & Comp .
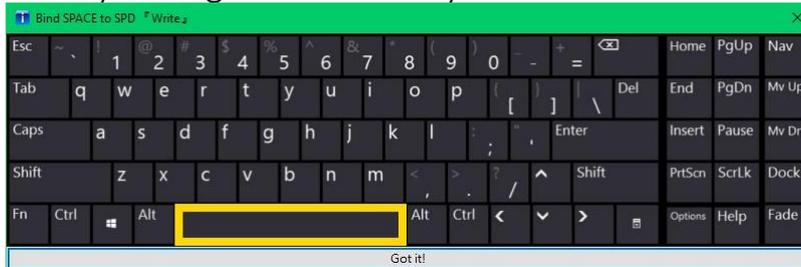
K - SPD write protect On / Off.
L - Interface language: Traditional Chinese / English.
M - Table2: status display, result and info of 8 DIMMs, SPD code for comparing with Table1.
N - Auto-detect and select DIMMs for programming.
O - 3 ways to manually select DIMM: Select / Unselect All, Separate (select even or odd DIMMs), or Right-click to select single DIMM.
P - Full-Copy SPD code: ignore SN and MFG year / week.
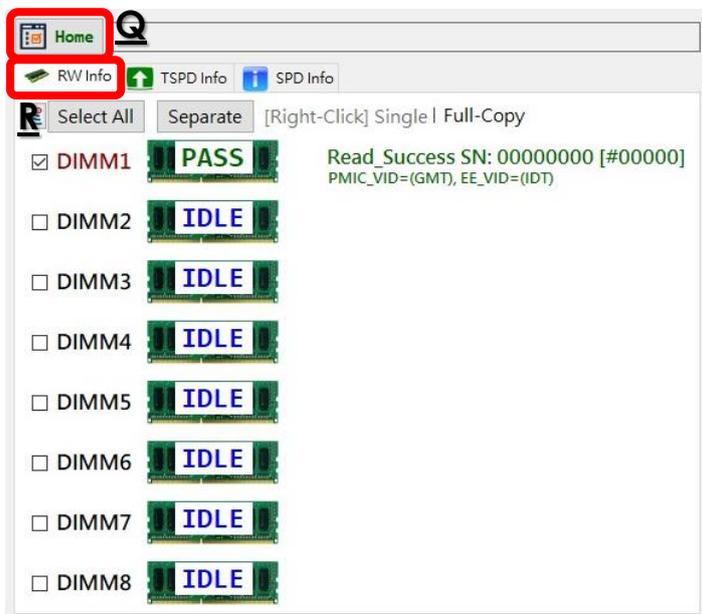
Q - Home: back to RW Info page in Table2.
R - RW Info page: display all task results of each DIMM.
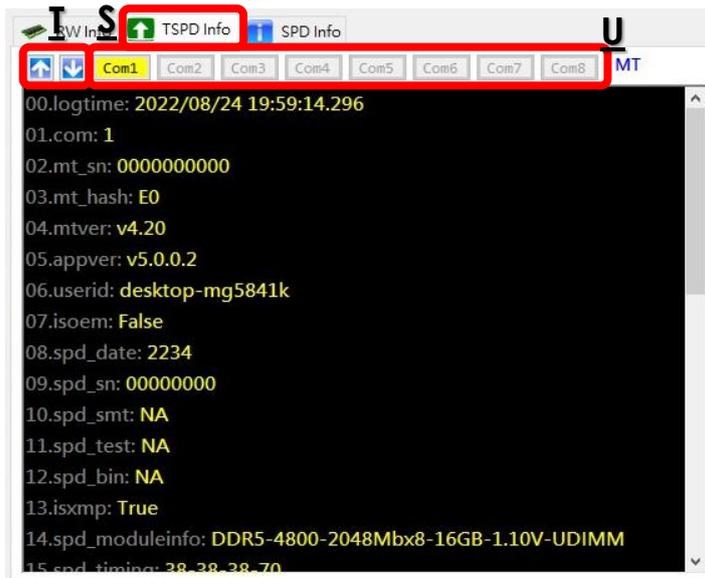
S - TSPD Info displays the task log of each DIMM.

T - Page Up / down.

U - To select DIMM separately from 1 to 8 for relevant task information.
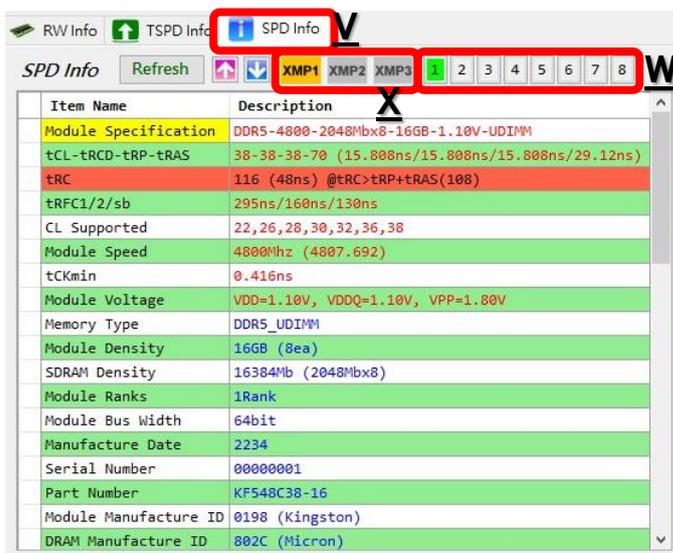
V - SPD Info: display all relevant information of current SPD code (last read or loaded) in Table1.

W - Select DIMM1 to DIMM8.

X - XMP profiles.

Chapter Four – Operations

Modes

SPD Tool program provides two modes for production which have different functions to operate:

1. Write & Comp mode
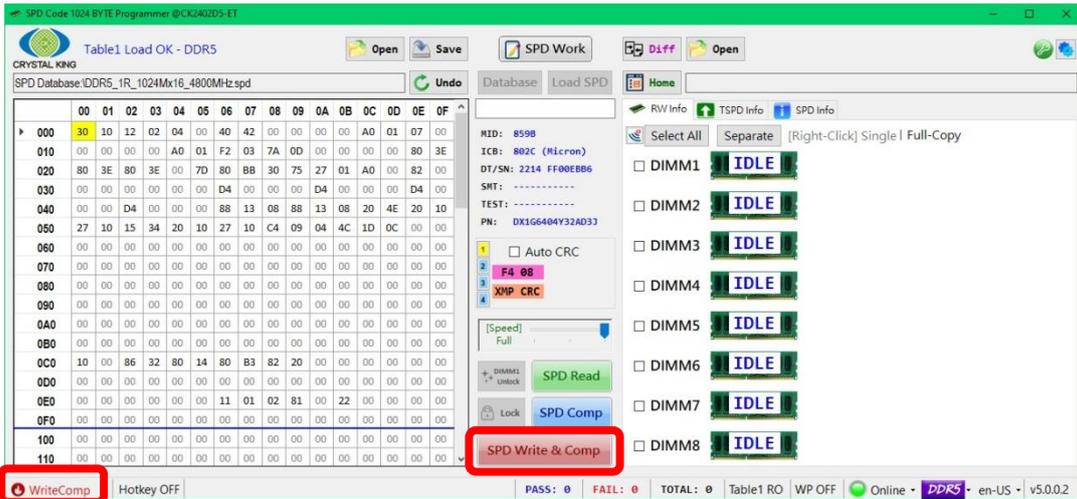
Under Write & Comp mode, all functions are accessible without any restrictions. The program will execute SPD code writing and comparing at the same time.

2. QA mode

 *4 modes for checking date and serial number.
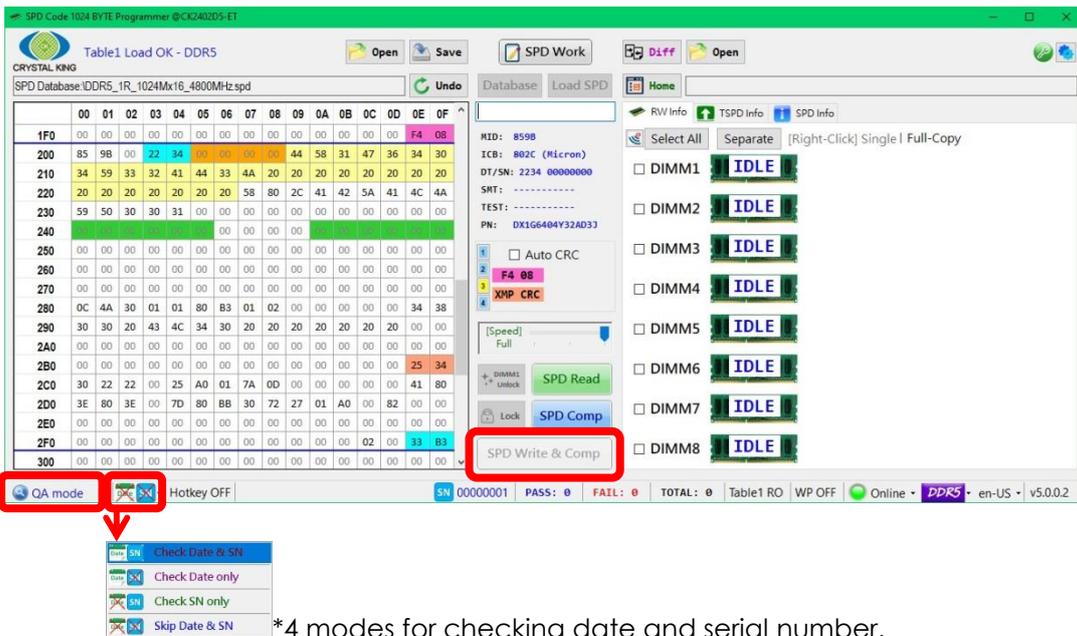
Under QA mode, ![SPD Write & Comp] is restricted while Check Date & SN will be accessible.

Load and Read SPD Code

SPD Tool provides two ways to get SPD code: 1) load from file or 2) read from module (EEPROM).

1. Load SPD from file
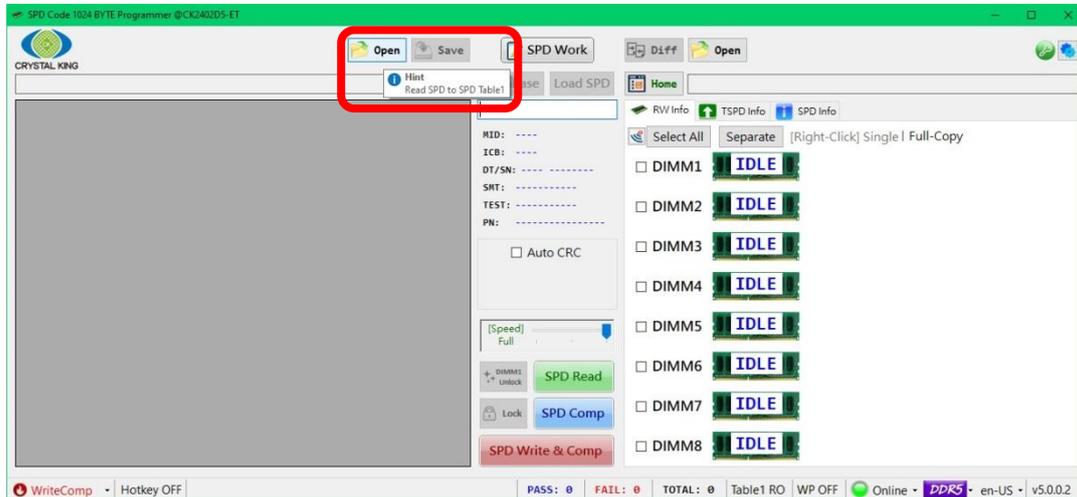
*Currently supported file format: .spd and .txt

Here will be displayed all messages regarding user's operation, including elapsed time.
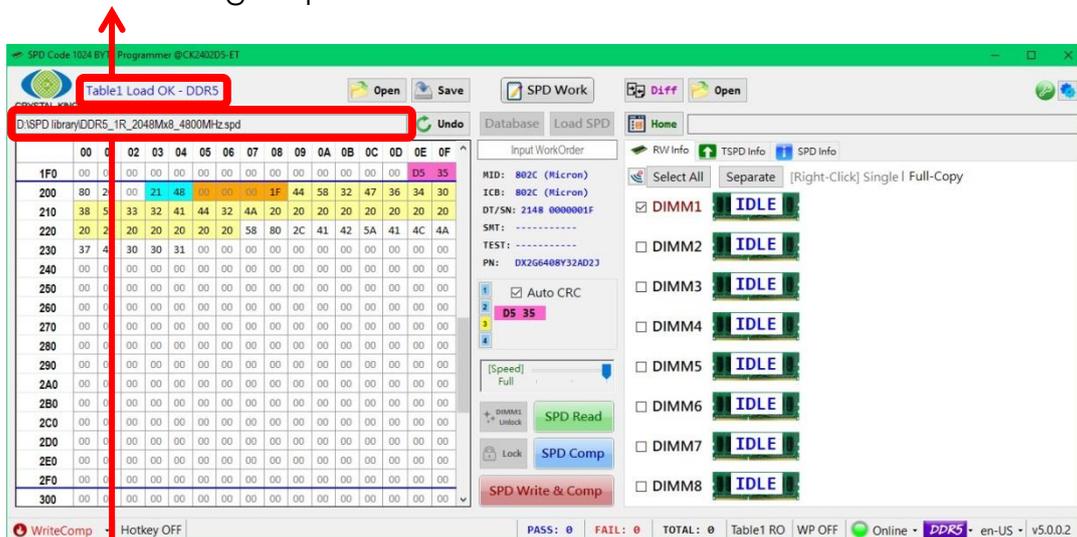
The file source path will be indicated in this column.

2. Read from module (EEPROM)
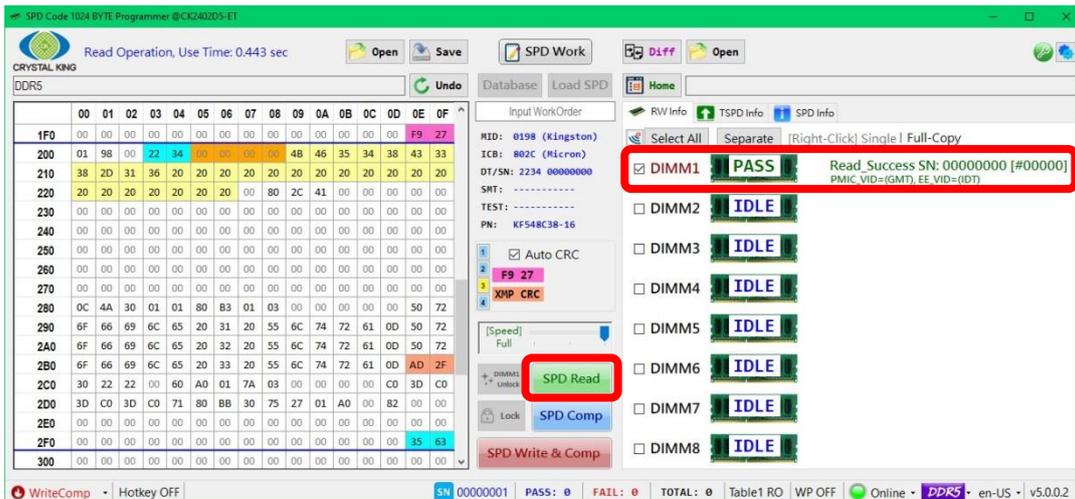
Step 1: Insert properly memory module or test fixture with EEPROM into the DIMM connector of SPD programmer.

Step 2: Click on `SPD Read`, and then the result will be displayed in Table2 as figure above.

SPD Code Programming
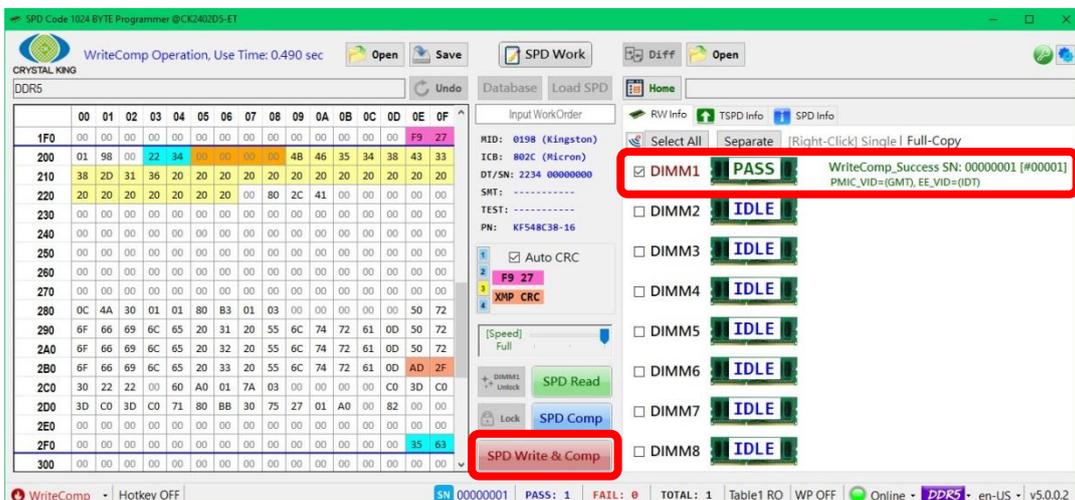
Step 1: Insert properly memory module or test fixture with EEPROM into the DIMM connector of SPD programmer.

Step 2: Load SPD code from file or read from module (EEPROM).

Step 3: Click on `SPD Write & Comp`. If the result is successful, it will show PASS on the icon.

Write Protect

SPD Tool can run SPD code programming with write protect settings.

1. Set Write Protect
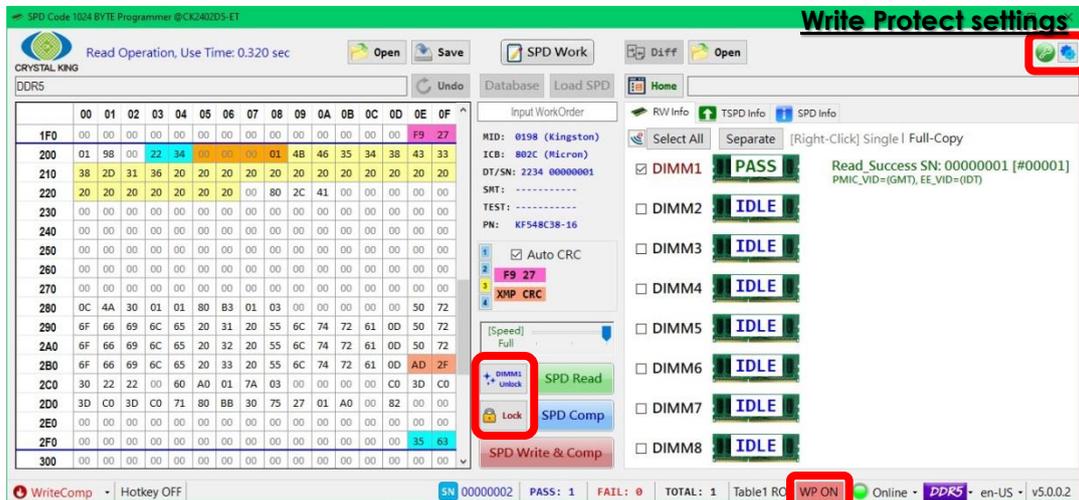
Step 1: Turn on WP. Then and will be accessible. Remember to check the write protect settings.

Step 2: To set WP to module, click on . If the processing is successful, the result will be display as below in Table2.

2. Unset Write Protect

Only DIMM1 can unlock SPD code write protect. Click DIMM1 Unlock, and then it will show:

SPD Code Editing

SPD Tool is able to edit SPD code and save the data modified to file.
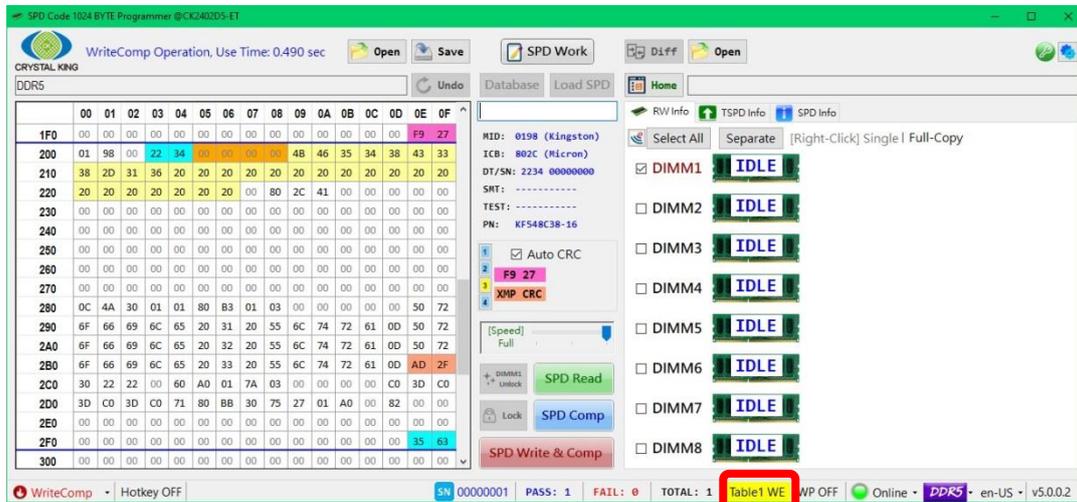
Step 1: Turn on Table1 WE (Write Enable).

Step 2: Double-click or press Enter to access the byte to edit displayed in Table1.

Step 3: The changes can be saved to file by clicking on [Save] or written directly to module(s).
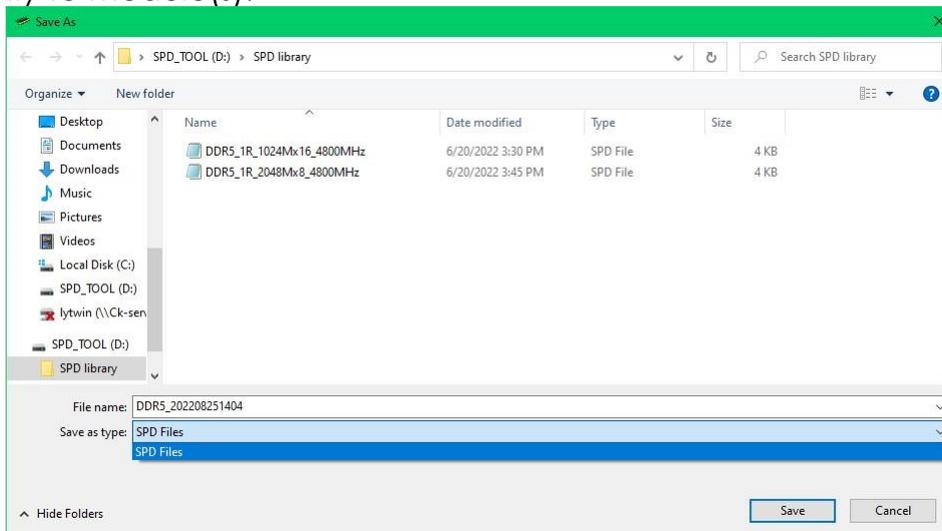
Compare

SPD Tool can compare SPD: 1) code from source with code in the current module on DIMM, 2) code from module with code from file, 3) code from file with code from file.

1. Compare SPD code from source (file or module) with code in the current module
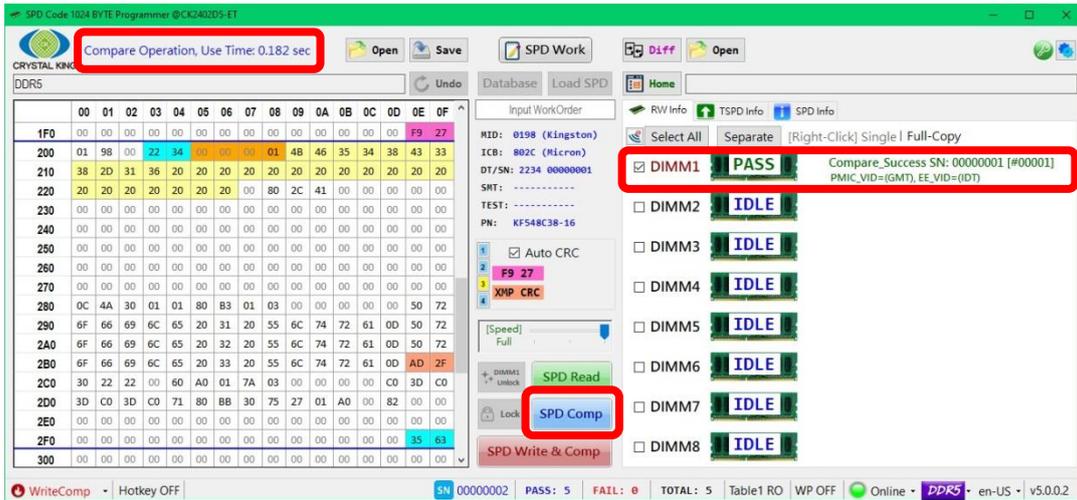
Get ready the SPD code in Table1 and the module on DIMM, and then click on [SPD Comp]. It will immediately show the result as the figure above.

ATTENTION: [SPD Comp] will only compare code from file with code in module.

If there are differences, it will diplay as below:
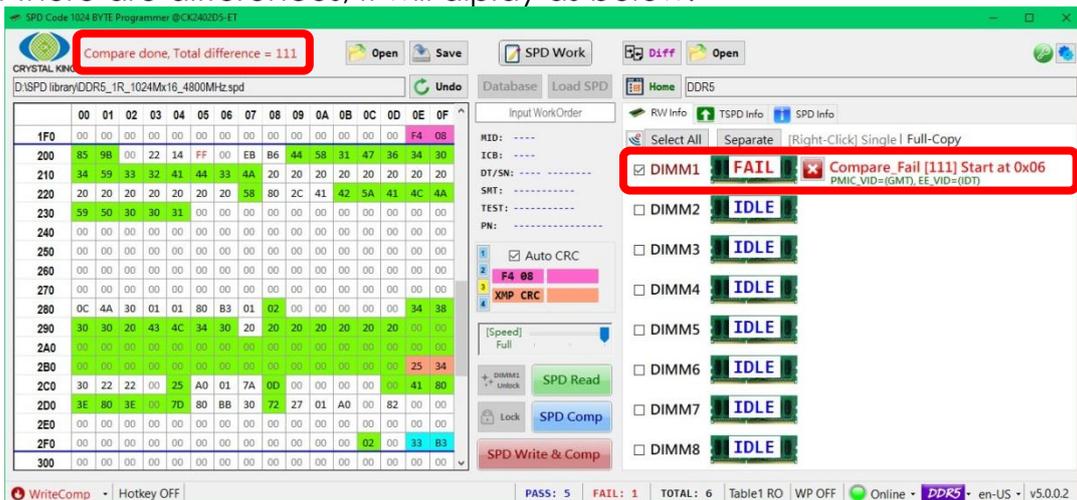
*Click on [X] , and Table2 will jump from RW Info to TSPD Info, showing all different bytes:
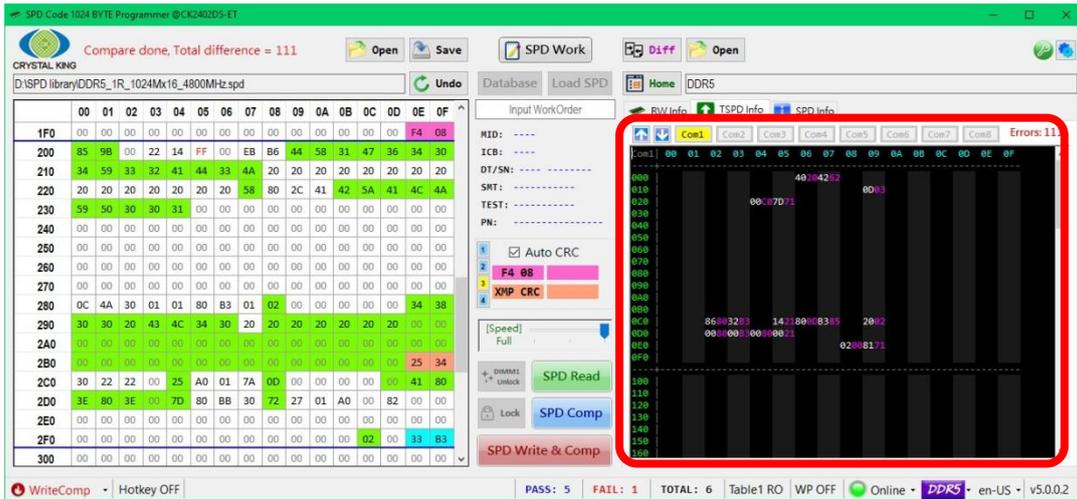
*The bytes in violet from Table2 have different values comparing to those in white from Table1.

2. Compare SPD code from module with code from file
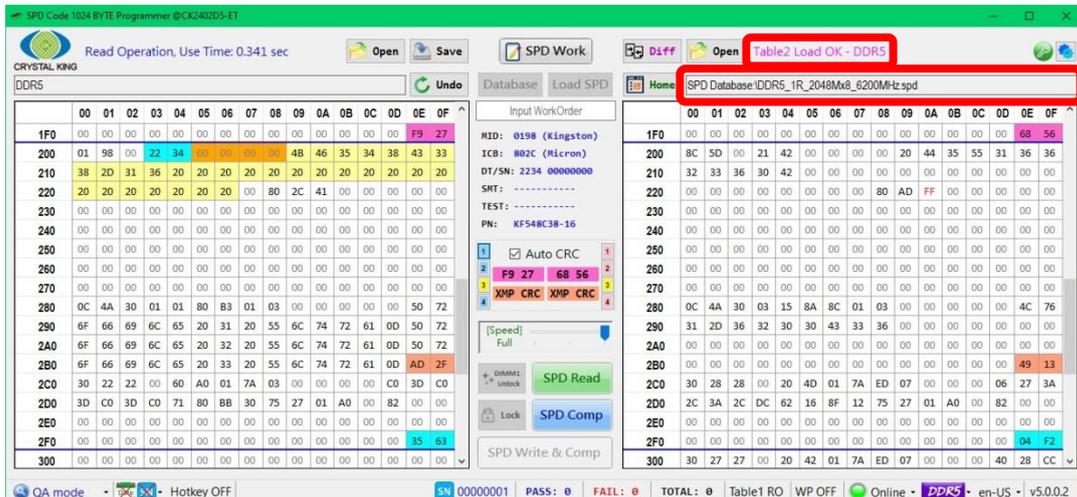
Step 1: Read SPD code from module in Table1 and load code in Table2, then [Diff] will be enable.

Step 2: Click on [Diff] , it will display as the figure below:
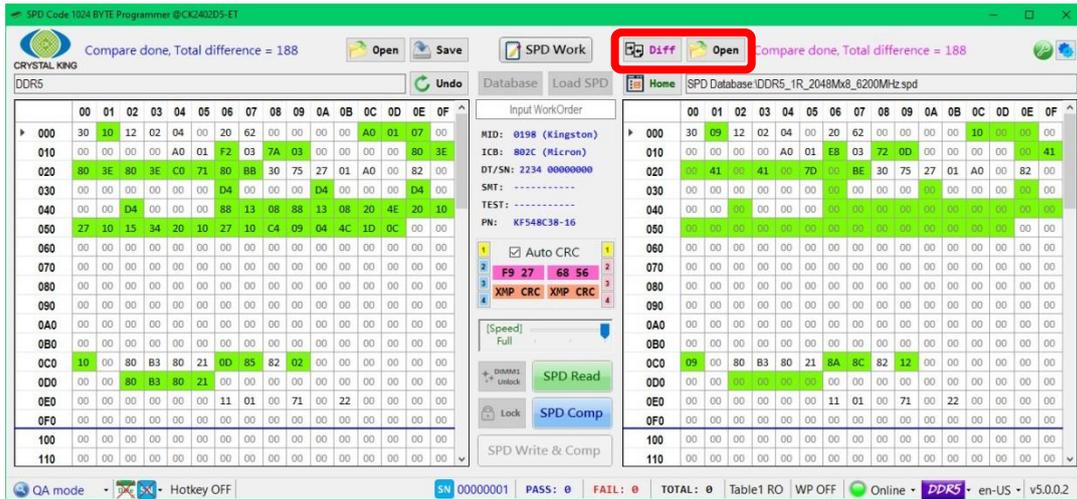
*The bytes in green color from Table1 and Table2 indicate the differences between the two codes. For example, in the figure above, these two codes have total of 188 different bytes.

3. Compare SPD code from file with code from file
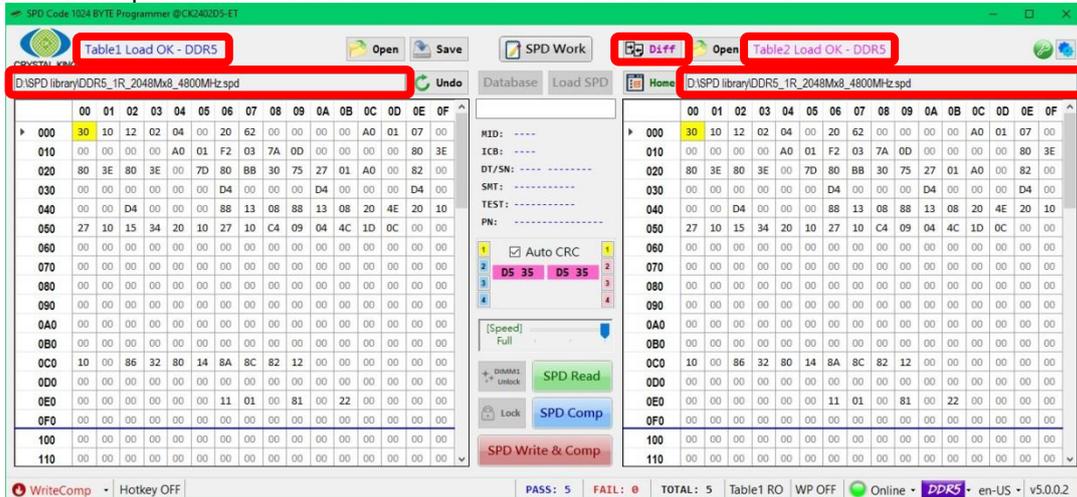
Step 1: Load SPD codes both in Table1 and Table2.

Step 2: Click on ⊞ Diff to display all different bytes.

Chapter Five – Troubleshooting

Q1: I insert the memory module into the DIMM connector but fail to detect it, why is that?

First, check if the memory module is properly inserted or the DIMM connector is damaged and then press the red **Refresh Button** once on the device and try to detect again.

Q2: Why is the information displayed in SPD Info with text in violet?

That indicates the information is read directly from PMIC, not from EEPROM (SPD code).

Q3: Why is the information displayed in SPD Info with text in red?

That indicates the information is from XMP profile.

Q4: Why does the description in SPD info have column filled in red?

It indicates that the value is not supported or wrong.

Q5: How can I check serial number in decimal format?

Please refer to the below figure:

Q6: DIMM connector is broken, how can I replace it?

Please contact CK Co., Ltd. technical support hot line or its authorized representative.