

DDR5 SPD Programmer



User Manual Revision – 1.0

Support Windows 11/10/8/7/XP

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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.

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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



*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.

<u>Step 1</u>: Manually run the CK DDR5 SPD Tool installer.



<u>Step 2</u>: 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.

SPD_Tool 5.0.0.2 Setup	- D X
	Welcome to SPD_Tool 5.0.0.2 Setup
	Setup will guide you through the installation of SPD_Tool 5.0.0.2.
	It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
	Click Next to continue.
100	
1 and the second	
	Next > Cancel

e Install Location	
as the folder in which to install SPD. Tool E. 0. 0. 2	A
o will install SPD_Tool 5.0.0.2 in the following folder. To install in a different	t folder, click
se and select another folder. Click Install to start the installation.	
	1
stination Folder	
:\SPD_Tool\ Brow	install SPD software
e required: 9.0 MB	
e available: 128.3 GB	
ted by R&D S/W	

<u>Step 3</u>: 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.



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

5															C	Undo	tabase Load SPD
١.	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	Input WorkOrder RW Info 👔 TSPD Info
FO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F9	27	MID: 0198 (Kingston)
200	01	98	00	00	00	00	00	00	00	4B	46	35	34	38	43	33	ICB: 802C (Micron)
210	38	2D	31	36	20	20	20	20	20	20	20	20	20	20	20	20	DT/SN: 0000 00000000 M DIMINI PASS PARA SUCCESS SN. 00000000 PMIC_VID=(GMT), EE_VID=(IDT)
220	20	20	20	20	20	20	20	00	80	2C	41	00	00	00	00	00	
230	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
240	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	70	
080	65	4A	50	60	65	20	21	20	03	60	74	72	61	00	50	72	
290	6F	66	69	60	65	20	31	20	55	60	74	72	61	00	50	72	
RO	6F	66	69	60	65	20	32	20	55	60	74	72	61	00	AD	72 2F	
200	30	22	22	00	60	AO	01	74	03	00	00	00	00	CO	3D	CO	+ DIMMS SPD Read
200	3D	CO	3D	CO	71	80	BB	30	75	27	01	AO	00	82	00	00	
2E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Lock SPD Comp
2F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	35	63	
300	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	-SPD Write & Comp
		Υ.	_													-	

- 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.



		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	'
۲	1F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	23	75	
	200	80	2C	0F	20	4	DD	R5 SI	ORAN	I SPD		14	43	38	43	31	30	
	210	38	34	53	31	5	Byt	e517	(0x20	5)		7	20	20	20	20	20	
	220	20	20	20	20	2	- Mc	dula	Caria	Nue	har	1	44	50	41	51	32	
	230	39	42	30	30	3	SN	=2A0	4099	В	1001	0	00	00	00	00	00	
	240	00	00	00	00	00						00	00	00	00	00	00	
	250	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	260	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	270	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	280	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	290	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	2F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	300	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	

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

SEDWOIK			1
[SN1] Machine(4) :	0000	🗌 Auto 🗌 Skip)
[SN2] Stream(4) :	0001	SN=00000001	
[WO] SMT(11) :		🗹 Skip)
[WO] TEST(11) :		🖂 Skip	
[MFG] Year(2) :	22	🖂 Auto 🗌 Skip	,
[MFG] Week(2) :	34	DT=2234	
Press Confirm to do dat	a check	☑ Preview	
		ОК	
			_

Select preview to confirm the values:



F - Write Protect and File Directory settings.

Current SPD File Directory			
C:\Users\CK-1\Desktop			
New SPD File Directory			Directory Replacement
			Į
rite Protect			
	User Define	Block All	Clear All
o bendan			
☑ Block 0 (0x00 ~ 0x3F)	☑ Block 4 (0x100 ~ 0x13F)	☑ Block 8 (0x200 ~ 0x23F)	☑ Block 12 (0x300 ~ 0x33F
☑ Block 1 (0x40 ~ 0x7F)	☑ Block 5 (0x140 ~ 0x17F)	☑ Block 9 (0x240 ~ 0x27F)	☑ Block 13 (0x340 ~ 0x37F)
☑ Block 2 (0x80 ~ 0xBF)	☑ Block 6 (0x180 ~ 0x1BF)	☑ Block 10 (0x280 ~ 0x2BF)	☑ Block 14 (0x380 ~ 0x3BF
☑ Block 3 (0xC0 ~ 0xFF)	☑ Block 7 (0x1C0 ~ 0x1FF)	☑ Block 11 (0x2C0 ~ 0x2FF)	☑ Block 15 (0x3C0 ~ 0x3FF)
Block ID: F	F	F	F

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

I - Mode: QA / Write & Compare.



*RMA mode is under development.

- SPD Write & Comp J - Hotkey setting: set SPACE key as PgUp × lome 3 Tab PaDn My Up w u 0 р End Caps k Pause My Dr Ente d g h sert j ScrLk Dock Shift PrtScn n m Fade Ctrl Alt Help =
- 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.

IN In SPD Info	
Com1. Com2. Com3. Com4. Com5. Com6. Com7. Com8. MT	
00.logtime: 2022/08/24 19:59:14.296	^
01.com: 1	
02.mt_sn: 000000000	
03.mt_hash: E0	
04.mtver: v4.20	
05.appver: v5.0.0.2	
06.userid: desktop-mg5841k	
07.isoem: False	
08.spd_date: 2234	
09.spd_sn: 00000000	
10.spd_smt: NA	
11.spd_test: NA	
12.spd_bin: NA	
13.isxmp: True	
14.spd_moduleinfo: DDR5-4800-2048Mbx8-16GB-1.10V-UDIMM	
15 and timing: 28-38-38-70	×

- **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.

D Info Refresh	XMP1 XMP2 XMP3 1 2 3 4 5 6 7 8	VV										
Item Name	Description X	^										
Module Specification	DDR5-4800-2048Mbx8-16GB-1.10V-UDIMM											
CL-tRCD-tRP-tRAS	38-38-38-70 (15.808ns/15.808ns/15.808ns/29.12ns)											
RC	116 (48ns) @tRC>tRP+tRAS(108)											
RFC1/2/sb	295ns/160ns/130ns											
L Supported	22,26,28,30,32,36,38											
odule Speed	4800Mhz (4807.692)											
CKmin	0.416ns											
odule Voltage	VDD=1.10V, VDDQ=1.10V, VPP=1.80V											
lemory Type	DDR5_UDIMM											
odule Density	16GB (8ea)											
DRAM Density	16384Mb (2048Mbx8)											
odule Ranks	1Rank											
Nodule Bus Width	64bit											
Nanufacture Date	2234											
Gerial Number	00000001											
Part Number	KF548C38-16											
Aodule Manufacture ID	0198 (Kingston)											
DRAM Manufacture ID	802C (Micron)	Y										

- 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

<u>Modes</u>

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

1. Write & Comp mode

Databa	se:\D	DR5_	1R_1	024N	1x16_	4800	MHz	spd	-	_	_	-	_		C	Undo	Database Load SPD	Home
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	OE	0F ^		RW Info TSPD Info TSPD Info
000	30	10	12	02	04	00	40	42	00	00	00	00	AO	01	07	00	MID: 8598	Select All Separate [Right-Click] Single Full-Copy
010	00	00	00	00	AO	01	F2	03	7A	0D	00	00	00	00	80	3E	ICB: 802C (Micron)	
020	80	3E	80	3E	00	7D	80	BB	30	75	27	01	A0	00	82	00	DT/SN: 2214 FF00EBB6	
030	00	00	00	00	00	00	D4	00	00	00	D4	00	00	00	D4	00	SMT:	
040	00	00	D4	00	00	00	88	13	08	88	13	08	20	4E	20	10	TEST:	
050	27	10	15	34	20	10	27	10	C4	09	04	4C	1D	0C	00	00	PN: DX1G6404Y32AD33	
060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1 Auto CRC	
070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F4 08	
080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CRC	
090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
0A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	[Speed]	
0B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Full	
000	10	00	86	32	80	14	80	B3	82	20	00	00	00	00	00	00	+ DIMM1 CDD D	
0D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	T+ Unlock SPD Read	
0E0	00	00	00	00	00	00	11	01	02	81	00	22	00	00	00	00	G Lash CBD Comp	
0F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Comp	Section of the sectio
100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	COD WIN O Com	

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

PD Datah	ase:\D	DR5	1R 1	0241	Ax16	4800	MHz	spd				-		-	C	Undo	Database Load SPD	Home
	00	01	02	02	0.4	05	06	07	0.9	00	0.0	0.0	00	00	0E	05 0		RWInfo TSDD Info E SDD Info
450	00	00	02	00	04	00	00	00	00	00	00	00	00	00	EA	02		
200	85	98	00	22	34	00	00	00	00	44	58	31	47	36	34	30	MID: 8596	Select All Separate [Right-Click] Single Full-Copy
210	34	59	33	32	41	44	33	44	20	20	20	20	20	20	20	20	DT/SN: 2234 00000000	
220	20	20	20	20	20	20	20	58	80	20	41	42	5A	41	40	4A	SMT:	Contraction of the second se
230	59	50	30	30	31	00	00	00	00	00	00	00	00	00	00	00	TEST:	
240	00	-	10	1.00	-		00	00	00	00	66	100	10	90	10	100	PN: DX1G6404Y32AD33	Protocol and Pro
250	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
260	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F4 98	
270	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CRC	
280	0C	4A	30	01	01	80	B3	01	02	00	00	00	00	00	34	38		
290	30	30	20	43	4C	34	30	20	20	20	20	20	20	20	00	00	[Speed]	
2A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Full	
2B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	25	34	+ DIMME COD Dead	
2C0	30	22	22	00	25	A0	01	7A	0D	00	00	00	00	00	41	80	T+ Unlock SPD Read	
2D0	3E	80	3E	00	7D	80	BB	30	72	27	01	A0	00	82	00	00	A Lock SPD Comp	
2E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.00	E and one comp	
2F0	00	00	00	00	00	00	00	00	00	00	00	00	02	00	33	B 3	SPD Write & Comp	
300	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
QA m	ode		X	×	Ho	tkey	OFF									SN 0	0000001 PASS: 0 FAI	L: 0 TOTAL: 0 Table1 RO WP OFF 🜍 Online • DDR5 • en-US • v5.0.
		1	1															
				-		-												
		•	ate SN	C)	песк	Date	9 62 5	IN.										
		0	ato 🗙	C	heck	Date	e only	Ý										
		3	SN SN	C	heck	SN d	only											
		-		l ci	cin D	ato 8	2. CM		*		~~	~ ~			f a			ha ana al a a starl na maala a s

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

А



*Currently supported file format: .spd and .txt

Here will be displayed all messages regarding user's operation, including elapsed time.

	la	ible	1 Loa	id O	K - [DR:	5					C	0	pen		Save	SPD Work	
PD libra	ry\DDF	R5_1	IR_20	48Mx	8_48	DOW	-lz.spc	1							Ċ	Undo	Database Load SPD III Home	
	00	C	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F ^	Input WorkOrder 🛛 🛹 RW Info 👔 TSPD Info 📋 SPD Info	
1F0	00	0	00	00	00	00	00	00	00	00	00	00	00	00	D5	35	MID: 802C (Micron) Celect All Separate [Right-Click] Single Full-Copy	
200	80	2	00	21	48				1F	44	58	32	47	36	34	30	ICB: 802C (Micron)	
210	38	5	33	32	41	44	32	4A	20	20	20	20	20	20	20	20	DT/SN: 2148 0000001F	
220	20	2	20	20	20	20	20	58	80	2C	41	42	5A	41	4C	4A	SMT:	
230	37	4	30	30	31	00	00	00	00	00	00	00	00	00	00	00		
240	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN: UX2G6408Y3ZAUZ3	
250	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC DIMM3 DILLE	
260	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 D5 35	
270	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
280	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
290	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	[Speed] DIMM5 III DLE	
2A0	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Full	
2B0	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	+ DIMMS SPD Read	
2C0	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	* Unlock	
200	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
2E0	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
210	00	0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Write & Comp DIMM8 III IDLE	
300	00	U	00	00	00	00	00	00	00	00	00	00	00	00	00	00 ¥		

The file source path will be indicated in this column.

2. Read from module (EEPROM)

STAL KI	K IG	ead	Oper	ratio	n, Us	se II	me:	0.44	3 sec	2			0	pen		Save	SPD Work	Ciej Ditt Open
15															C	Undo	Database Load SPD	Home
	00	01	02	03	04	05	06	07	80	09	0A	0B	0C	0D	0E	OF ^	Input WorkOrder	🛷 RW Info 🛛 TSPD Info 📑 SPD Info
1F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F9	27	MID: 0198 (Kingston)	Select All Separate [Right-Click] Single Full-Copy
200	01	98	00	22	34					4B	46	35	34	38	43	33	ICB: 802C (Micron)	
210	38	2D	31	36	20	20	20	20	20	20	20	20	20	20	20	20	DT/SN: 2234 00000000	PMIC VID=(GMT) EE VID=(IDT)
220	20	20	20	20	20	20	20	00	80	2C	41	00	00	00	00	00	SMT:	TOLE
230	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	TEST:	
40	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN: KF548C38-16	
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
260	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F9 27	
270	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	XMP CRC	
80	0C	4A	30	01	01	80	B3	01	03	00	00	00	00	00	50	72		
90	6F	66	69	6C	65	20	31	20	55	6C	74	72	61	0D	50	72	[Speed]	
AO	6F	66	69	6C	65	20	32	20	55	6C	74	72	61	0D	50	72	Full	
B0	6F	66	69	6C	65	20	33	20	55	6C	74	72	61	OD	AD	2F	+ DIMMI SPD Read	
C0	30	22	22	00	60	A0	01	7A	03	00	00	00	00	C0	3D	CO	+* Unlock	
2D0	3D	CO	3D	CO	71	80	BB	30	75	27	01	A0	00	82	00	00	C Lock SPD Comp	
EO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	60		
21-0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	35	03	SPD Write & Comp	

<u>Step 1</u>: Insert properly memory module or test fixture with EEPROM into the DIMM connector of SPD programmer.

<u>Step 2</u>: Click on and then the result will be displayed in Table2 as figure above.

SPD Code Programming



<u>Step 1</u>: Insert properly memory module or test fixture with EEPROM into the DIMM connector of SPD programmer.

<u>Step 2</u>: Load SPD code from file or read from module (EEPROM).

<u>Step 3</u>: Click on <u>SPD Write & Comp</u>. 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

5		_												1	C	Undo	Database Load SPD	Home
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F ^	Input WorkOrder	RW Info TSPD Info 📑 SPD Info
1F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F9	27	MID: 0198 (Kingston)	Select All Separate [Right-Click] Single Full-Copy
200	01	98	00	22	34				01	4B	46	35	34	38	43	33	ICB: 802C (Micron)	
210	38	2D	31	36	20	20	20	20	20	20	20	20	20	20	20	20	DT/SN: 2234 00000001	DIMM1 PASS Read_Success SN: 00000001 [#000
220	20	20	20	20	20	20	20	00	80	2C	41	00	00	00	00	00	SMT:	
230	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	TEST:	
240	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN: KF548C38-16	
250	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
260	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F9 27	
270	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CRC	
280	0C	4A	30	01	01	80	B3	01	03	00	00	00	00	00	50	72		
290	6F	66	69	6C	65	20	31	20	55	6C	74	72	61	0D	50	72	[Speed]	
2A0	6F	66	69	6C	65	20	32	20	55	6C	74	72	61	0D	50	72	Full	Support and the support of the suppo
2B0	6F	66	69	6C	65	20	33	20	55	6C	74	72	61	0D	AD	2F		
2C0	30	22	22	00	60	A0	01	7A	03	00	00	00	00	C0	3D	CO	SPD Read	Section and the section of the secti
2D0	3D	CO	3D	C0	71	80	BB	30	75	27	01	A0	00	82	00	00	O	
2E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Look SPD Comp	
2F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	35	63	COD Marine & Comp	
300	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00 🗸	SPD write & Comp	

<u>Step 1</u>: Turn on WP. Then and will be accessible. Remember to check the write protect settings.

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

Select All Separate [Right-Click] Single | Full-Copy Read_Success SN: 00000000 [#00000] [WP Lock] Success

2. Unset Write Protect

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

Select All Separate [Right-Click] Single | Full-Copy



Read_Success SN: 00000000 [#00000] [WP Unlock] Success

SPD Code Editing

SPD Tool is able to edit SPD code and save the data modified to file.

AL KIN	3	inco	-om	P OF	i ai	1011,	USE		0.0.4	50 3	ec.	C	0	Pell		Joave	JI SPD WORK	
															C	Undo	Database Load SP	Home Home
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	OF '	^	🛹 RW Info 🛐 TSPD Info 📑 SPD Info
FO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F9	27	MID: 0198 (Kingston)	Select All Separate [Right-Click] Single Full-Copy
00	01	98	00	22	34					4B	46	35	34	38	43	33	ICB: 802C (Micron)	
10	38	2D	31	36	20	20	20	20	20	20	20	20	20	20	20	20	DT/SN: 2234 00000000	
20	20	20	20	20	20	20	20	00	80	2C	41	00	00	00	00	00	SMT:	
30	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	TEST:	
40	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN: KF548C38-16	
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F9 27	
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CRC	
80	0C	4A	30	01	01	80	B3	01	03	00	00	00	00	00	50	72		
90	6F	66	69	6C	65	20	31	20	55	6C	74	72	61	0D	50	72	[Speed]	
A0	6F	66	69	6C	65	20	32	20	55	6C	74	72	61	0D	50	72	Full	Contracting of the Contraction of Contraction
B0	6F	66	69	6C	65	20	33	20	55	6C	74	72	61	0D	AD	2F	A DIMMI	
CO	30	22	22	00	60	A0	01	7A	03	00	00	00	00	C0	3D	C0	T+ Unlock SPD Read	
DO	3D	C0	3D	C0	71	80	BB	30	75	27	01	A0	00	82	00	00	CDD Com	
E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	I LOCK SPD COM	
FO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	35	63	CDD Write & Com	
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD write & Comp	

Step 1: Turn on Table1 WE (Write Enable).

<u>Step 2</u>: Double-click or press Enter to access the byte to edit displayed in Table 1.

<u>Step 3</u>: The changes can be saved to file by clicking on save or written directly to module(s).

Save As					×
$\leftarrow \rightarrow \sim \uparrow$	→ SPD_TOOL (D:) → SPD library		~	ر الم	SPD library
Organize 👻 New	w folder				8== - ?
 Desktop Documents Downloads Music Pictures Videos Local Disk (C;) SPD_TOOL (D:) SPD_TOOL (D:) SPD_TOOL (D:) SPD_TOOL (D:) 	 Name DDR5_1R_1024Mx16_4800MHz DDR5_1R_2048Mx8_4800MHz DDR5_1R_2048Mx8_4800MHz) 	Date modified 6/20/2022 3:30 PM 6/20/2022 3:45 PM	Type SPD File SPD File	Size 4 KB 4 KB	
File name: Save as type:	DDR5_202208251404 SPD Files SPD Files				~
∧ Hide Folders				Save	Cancel

<u>Compare</u>

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

STAL KI	ic C	omp	aret	oper	atio	n, Us	se m	me: (J.10.	z sec		C	0	pen	<u> </u>	Save	SPD WORK	
R5															C	Undo	Database Load SPD	Home
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F ^	Input WorkOrder	🛷 RW Info 🛛 TSPD Info 📋 SPD Info
1F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F9	27	MID: 0198 (Kingston)	Select All Separate [Right-Click] Single Full-Copy
200	01	98	00	22	34				01	4B	46	35	34	38	43	33	ICB: 802C (Micron)	Compare Suscers SNI 0000001 [#0000]
210	38	2D	31	36	20	20	20	20	20	20	20	20	20	20	20	20	DT/5N: 2234 00000001	DIMM1 PASS PMIC_VID=(GMT), EE_VID=(IDT)
220	20	20	20	20	20	20	20	00	80	2C	41	00	00	00	00	00	SMT:	THE
230	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	TEST:	
240	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN: KF548C38-16	TOL 5
250	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
260	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F9 27	
270	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CRC	
280	0C	4A	30	01	01	80	B3	01	03	00	00	00	00	00	50	72		
290	6F	66	69	6C	65	20	31	20	55	6C	74	72	61	0D	50	72	[Speed]	
2A0	6F	66	69	6C	65	20	32	20	55	6C	74	72	61	OD	50	72	Full	
280	6F	66	69	6C	65	20	33	20	55	6C	74	/2	61	OD	AD	21	+, DIMM1 SPD Read	
200	30	22	22	00	00	A0	01	7A	03	00	00	00	00	00	3D	00	1. Dillock	
200	30	00	3D	00	/1	80	BB	30	15	2/	01	AU	00	82	00	00	Cock SPD Comp	
250	00	00	00	00	00	00	00	00	00	00	00	00	00	00	25	62		
210	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Write & Comp	

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:

AL KIN	C.	_	_		_	_	_		_	_				_				
D libra	ry\DD	R5_1	R_10	24Mx	16_4	800N	1Hz.sp	pd							C	Undo	• Database Load SPD	Home DDR5
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	OF ^	Input WorkOrder	🛹 RW Info 🚹 TSPD Info 🚺 SPD Info
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F4	08	MID:	Select All Separate [Right-Click] Single Full-Copy
00	85	9B	00	22	14	FF	00	EB	B6	44	58	31	47	36	34	30	ICB:	
10	34	59	33	32	41	44	33	4A	20	20	20	20	20	20	20	20	DT/SN:	M DIMMI FAIL PMIC_VID=(GMT), EE_VID=(IDT)
20	20	20	20	20	20	20	20	58	80	2C	41	42	5A	41	4C	4A	SMT:	
30	59	50	30	30	31	00	00	00	00	00	00	00	00	00	00	00	PN:	
40	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Auto CRC	
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F4 08	
80	OC	44	30	01	01	80	B3	01	02	00	00	00	00	00	34	38	XMP CRC	
90	30	30	20	43	4C	34	30	20	20	20	20	20	20	20			[Speed]	
A0	00	00		00	00	00		00	00		00	00		00		00	Full	
B0	00		00	00	00	00	00	00		00	00	00	00		25	34		
CO	30	22	22	00	25	A0	01	7A	0D	00	00	00	00	00	41	80	SPD Read	
DO	3E	80	3E	00	7D	80	BB	30	72	27	01	A0	00	82	00	00	CDD Comp	
E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Comp	Supported Statement of Statements
FO	00	00	00	00	00	00	00	00	00	00	00	00	02	00	33	B 3	SPD Write & Comp	
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00 🖌	~	

*Click on¹, and Table2 will jump from RW Info to TSPD Info, showing all different bytes:

TAL KIN	IG																			1	
D libra	ryIDDI	R5_1	R_10	24Mx	16_4	800N	Hz.sp	d							C	Undo	Databas	e Load SPD	Home	DDR5	
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F '	Input	WorkOrder	🗩 RW In	fo 🚺 TSPD	Info 📑 SPD Info
IF0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F4	08	MID:	-		Com1 Com2	Com3 Com4 Com5 Com5 Com7 Com8 Errors:
200	85	9B	00	22	14	FF	00	EB	B6	44	58	31	47	36	34	30	ICB:	-	00 [1m0]	01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
210	34	59	33	32	41	44	33	4A	20	20	20	20	20	20	20	20	DT/SN:		000		40204262
20	20	20	20	20	20	20	20	58	80	2C	41	42	5A	41	4C	4A	SMT:		010		6D@3
30	59	50	30	30	31	00	00	00	00	00	00	00	00	00	00	00	TEST:		030		00_07D7L
40	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	PN:		848		
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		uto CRC	060		
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 F4 08		070 080		
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 XMP CF	c	898		
80	0C	4A	30	01	01	80	B3	01	02	00	00	00	00	00	34	38			080		
90	30	30	20	43	4C	34	30	20	20	20	20	20	20	20			[Speed]		606 606	86883283 00380083	3 14218000B385 2002 300300021
AO	00				00	00						00					Full	· · · ·	050		02008171
B0	00	00	00	00		00	00	00		00	00	00	00		25	34	+ DIMM1	SPD Read			
C0	30	22	22	00	25	A0	01	7A	OD	00	00	00	00	00	41	80	+* Unlock	Si Di Keau	100		
DO	3E	80	3E	00	7D	80	BB	30	72	27	01	A0	00	82	00	00	C Lock	SPD Comp	120		
EO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	(1) (1) (1)	and another	140		
FO	00	00	00	00	00	00	00	00	00	00	00	00	02	00	33	83	SPD W/	ite & Comp	150		

*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 will be enable.

<u>Step 2</u>: Click on ^{Eg piff}, it will display as the figure below:

TAL KP	G	omp	are o	done	, Tot	al d	iffer	ence	= 18	38		P	0	pen	2	Save	SPD Work	89	Diff	P	Op	en	Con	npar	e do	ne, 1	otal	diffe	erend	ce =	188			(E
5															C	Undo	Database Load SPD		Home	SPE) Data	base	DDF	25_18	R_204	18Mx	8_620	OMH	z.spd						
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F ^	Input WorkOrder			00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	(
000	30	10	12	02	04	00	20	62	00	00	00	00	AO	01	07	00	MID: 0198 (Kingston)		000	30	09	12	02	04	00	20	62	00	00	00	00	10	00	00	C
10	00	00	00	00	AO	01	F2	03	7A	03	00	00	00	00	80	3E	ICB: 802C (Micron)		010	00	00	00	00	AO	01	E8	03	72	0D	00	00	00	00	00	
20	80	3E	80	3E	CO	71	80	BB	30	75	27	01	AO	00	82	00	DT/SN: 2234 00000000		020		41	00	41	00	7D	00	BE	30	75	27	01	AO	00	82	
30	00	00	00	00	00	00	D4	00	00	00	D4	00	00	00	D4	00	SMT:		030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
40	00	00	D4	00	00	00	88	13	08	88	13	08	20	4E	20	10	TEST:		040	00	00	00	00	00	00		00	00	00	00	00	00	60	00	
50	27	10	15	34	20	10	27	10	C4	09	04	4C	1D	0C	00	00	PN: KF548C38-16		050			00	00	00	00	00	00	00		00	00	00	00	00	Γ
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1 Auto CRC 1		060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	T
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 59 27 58 56 2		070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	T
80	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3 YMP CRC YMP CRC 3		080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	T
90	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	A APP CHC APP CHC 4		090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	T
A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	[Speed]		0A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Ī
B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Full		0B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Ī
CO	10	00	80	B 3	80	21	0D	85	82	02	00	00	00	00	00	00	Contraction (Contraction of the		000	09	00	80	B 3	80	21	8A	8C	82	12	00	00	00	00	00	
DO	00	00	80	B 3	80	21	00	00	00	00	00	00	00	00	00	00	Unlock SPD Read		000	00	00	00	00	00		00	00	00	00	00	00	00	00	00	Ī
E0	00	00	00	00	00	00	11	01	00	71	00	22	00	00	00	00			0E0	00	00	00	00	00	00	11	01	00	71	00	22	00	00	00	1
FO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Lock SPD Comp		0F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1
10	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00 -	SPD Write & Comp		110	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1

*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

TAL KR	Tá	able1	Loa	d O	K - D	DR:	5					P	0	pen	2	Save	SPD Work	Dif) Op	en	Tabl	le2 L	oad	OK -	DDI	R5						- 1	0
PD libra	iry\DD	R5_1	R_20	48Mx	8_48	OOMH	-lz.spo	i							C	Undo	Database Load SPD	Hom	D:V	SPD I	braryl	DDR	5_1R	2048	BMx8_	4800	MHz.s	spd						
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F ^			00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0
000	30	10	12	02	04	00	20	62	00	00	00	00	AO	01	07	00	MID:	► 000	30	10	12	02	04	00	20	62	00	00	00	00	AO	01	07	00
010	00	00	00	00	AO	01	F2	03	7A	0D	00	00	00	00	80	3E	ICB:	010	00	00	00	00	A0	01	F2	03	7A	0D	00	00	00	00	80	38
020	80	3E	80	3E	00	7D	80	BB	30	75	27	01	A0	00	82	00	DT/5N:	020	80	3E	80	3E	00	7D	80	BB	30	75	27	01	A0	00	82	00
030	00	00	00	00	00	00	D4	00	00	00	D4	00	00	00	D4	00	SMT:	030	00	00	00	00	00	00	D4	00	00	00	D4	00	00	00	D4	0
040	00	00	D4	00	00	00	88	13	08	88	13	08	20	4E	20	10	TEST:	040	00	00	D4	00	00	00	88	13	08	88	13	08	20	4E	20	1
050	27	10	15	34	20	10	27	10	C4	09	04	4C	1D	0C	00	00	PN:	050	27	10	15	34	20	10	27	10	C4	09	04	4C	1D	0C	00	0
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1 Auto CRC 1	060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	(
070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	2 D5 35 D5 35 2	070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	3	080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	(
090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	4	090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	(
0A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	[Speed]	0A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	(
DB0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Full	0B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
000	10	00	86	32	80	14	8A	8C	82	12	00	00	00	00	00	00		000	10	00	86	32	80	14	8A	8C	82	12	00	00	00	00	00	0
DO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Read	0D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
DE0	00	00	00	00	00	00	11	01	00	81	00	22	00	00	00	00	6	0E0	00	00	00	00	00	00	11	01	00	81	00	22	00	00	00	0
DF0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	SPD Comp	0F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	COD MAIN D. Comm	100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
110	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00 🗸	SPD write & Comp	110	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0

<u>Step 1</u>: Load SPD codes both in Table1 and Table2.
 <u>Step 2</u>: Click on ^B ^{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?

Item Name	Description
Module Specification	DDR5-4800-2048Mbx8-16GB-1.10V-UDIMM
tCL-tRCD-tRP-tRAS	38-38-38-70 (15.808ns/15.808ns/15.808ns/29.12ns)
tRC	116 (48ns) @tRC>tRP+tRAS(108)
tRFC1/2/sb	295ns/160ns/130ns
CL Supported	22, 26, 28, 30, 32, 36, 38
Module Speed	4800Mhz (4807.692)
tCKmin	0.416ns
Module Voltage	VDD=1.10V, VDDQ=1.10V, VPP=1.80V
Memory Type	DDR5_UDIMM
Module Density	16GB (8ea)
SDRAM Density	16384Mb (2048Mbx8)
Module Ranks	1Rank
Module Bus Width	64bit
Manufacture Date	2234
Serial Number	0000001
Part Number	KF548C38-16
Module Manufacture II	0198 (Kingston)
DRAM Manufacture ID	802C (Micron)

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.