

## **FEATURE OVERVIEW:**

### **PCB INFORMATION:**

- Board size: 2661 x 1181 mil.
- Thickness: 40 ±4 mil.
- Panel: 6 pieces PCB per panel.
- 8-layer board.
- Impedance: 45/55/60 Ohm ±±10% (Single-ended), 88 Ohm ± 15% (differential).
- Pin count: 204 PIN.

### **IC INFORMATION:**

- 64MBx8,  
ELPIDA, 9.80 x 10.80 mm,  
SAMSUNG, 10.00 x 11.50 mm,  
1.5V, 8K Refresh, FBGA, 78(78+0) Ball, 4 Banks DDRIII SDRAM based.
- 128MBx8,  
ELPIDA, 8.60 x 13.00 mm,  
HYNIX, 10.00 x 14.40 mm,  
MICRON, 9.00 x 11.50 mm,  
SAMSUNG, 9.00 x 11.00 mm,  
1.5V, 8K Refresh, FBGA, 82(78+4) Ball, 8 Banks DDRIII SDRAM based.
- 256MBx8,  
(MAX) 10.70 x 14.60 mm,  
1.5V, 8K Refresh, FBGA, 82(78+4) Ball, 8 Banks DDRIII SDRAM based.

### **MODULE INFORMATION:**

- PC3-8500 and PC3-10660 and PC3-12800 DDRIII SDRAM UNBUFFERED SO DIMM 204-PIN
- Assembled DIMM capacity: 1024MB, 2048MB, 4096MB.
- Non-ECC DIMM organizations: 128MBx64, 256MBx64, 512MBx64.
- For PC3-8500 and PC3-10660 and PC3-12800 system.

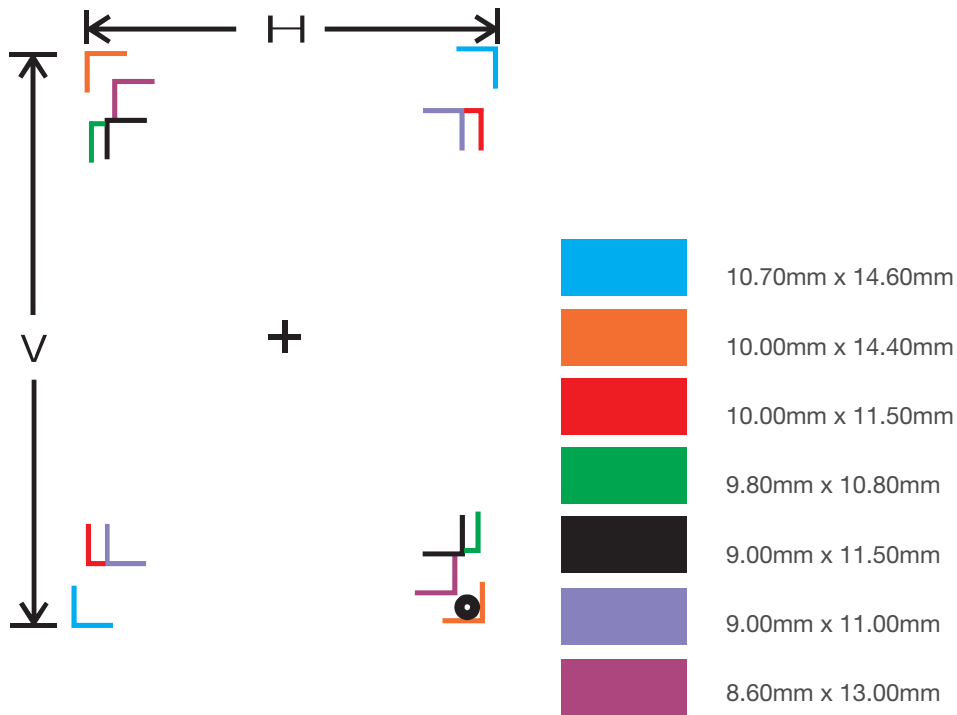
### **STENCIL INFORMATION:**

- Top Side Stencil: B83SRCF 1.00 F2
- Bottom Side Stencil: B83SRCF 1.00 F2

**X8 DEVICE BALL PATTERN**

	1	2	3		7	8	9	
NC	VSS	VDD	NC	A	NU/ TDQS#	VSS	VDD	NC
	VSS	VSSQ	DQ0	B	DM/ TDQS	VSSQ	VDDQ	
	VDDQ	DQ2	DQS	C	DQ1	DQ3	VSSQ	
	VSSQ	DQ6	DQS#	D	VDD	VSS	VSSQ	
	VREFDQ	VDDQ	DQ4	E	DQ7	DQ5	VDDQ	
	NC	VSS	RAS#	F	CK	VSS	NC	
	ODT	VDD	CAS#	G	CK#	VDD	CKE	
	NC	CS#	WE#	H	A10/AP	ZQ	NC	
	VSS	BA0	BA2	J	A15.NC	VREFDQ	VSS	
	VDD	A3	A0	K	A12/BC#	BA1	VDD	
	VSS	A5	A2	L	A1	A4	VSS	
	VDD	A7	A9	M	A11	A6	VDD	
NC	VSS	RESET#	A13	N	A14	A8	VSS	NC

**X8 DEVICE IC OUTLINE**

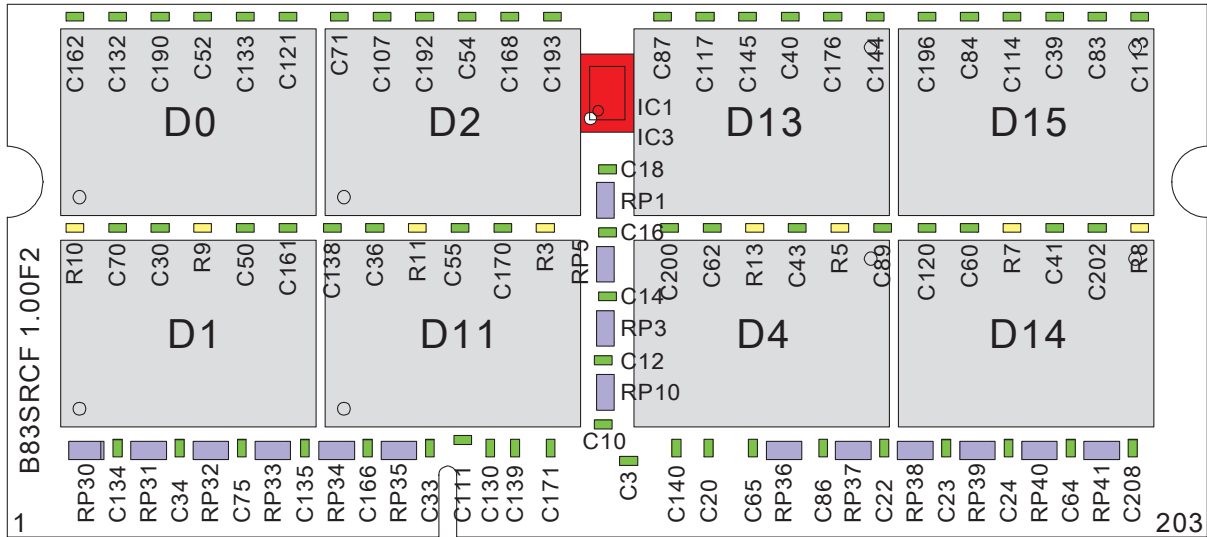


**128MBx64, 1024MB, by 64MBx8 DDRIII SDRAM, 2-RANK, WITHOUT ECC;  
256MBx64, 2048MB, by 128MBx8 DDRIII SDRAM, 2-RANK, WITHOUT ECC;  
512MBx64, 4096MB, by 256MBx8 DDRIII SDRAM, 2-RANK, WITHOUT ECC;**

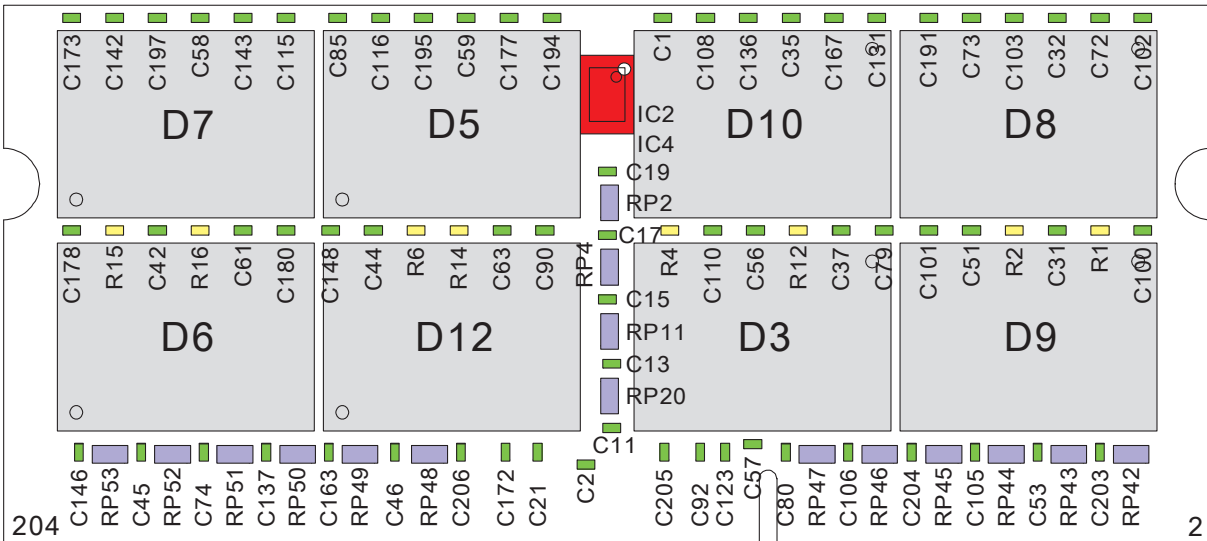
Item#	Q'ty	Reference		Parts
		TOP	BOTTOM	
1	16	D0~D2, D4, D11, D13~D15	D3, D5~D10, D12	<p>DDRIII SDRAM 64MBx8, ELPIDA, 9.80 x 10.80 mm, SAMSUNG, 10.00 x 11.50 mm, 1.5V, 8K Refresh, FBGA, 78(78+0) Ball, 8 Banks DDRIII SDRAM based.</p> <p>128MBx8, ELPIDA, 8.60 x 13.00 mm, HYNIX, 10.00 x 14.40 mm, MICRON, 9.00 x 11.50 mm, SAMSUNG, 9.00 x 11.00 mm, 1.5V, 8K Refresh, FBGA, 82(78+4) Ball, 8 Banks DDRIII SDRAM based.</p> <p>256MBx8, (MAX) 10.70 x 14.60 mm, 1.5V, 8K Refresh, FBGA, 82(78+4) Ball, 8 Banks DDRIII SDRAM based.</p>
2	1		IC2 or IC4	<p>IC4: EEPROM TSSOP-8 PIN(4.40 mm) Package MICROCHIPS 24LC02B-I/ST, MICRONHIPS 34LC02I/ST, CATALYST CAT34C02YI-GT5, ST M34C02-RDW6TP, SEIKO S-24C02A0I-T8T1GE, SEIKO S-34C02A0I-T8T1GE.</p> <p>IC2: EEPROM 2.00 x3.00 mm TDFN-8 (MLP) Package MICROCHIPS 24LC02B-I/MC, CATALYST CAT34C02VP2I-GT4, ST M34C02-RMB6TP, SEIKO S-34C02A0I-X8T3S.</p>
3	1	IC1 or IC3		<p>IC3: Temperature Sensor TSSOP-8 PIN(4.40 mm) IC MICROCHIPS MCP9805T-BE/ST, ST TS424E02CDW6F,</p> <p>IC1: Temperature Sensor 2.00 x 3.00 mm TDFN-8 (MLP) Package MICROCHIPS MCP9805T-BE/MC, CATALYST 34TS02VP2I-GT4, ST STTS424CDA3F,</p>
4	2	C3	C2	Capacitor, 3.3 pF, ± 0.25pF, NPO, 0402 size, 50V.
5	15	C190, C192, C193, C196, C200, C202, C208	C191, C194, C195, C197, C203~C206	Capacitor, 2.2 nF, + 80%-20%, Y5V, 0402 size, 16V.
6	16	C70, C71, C75, C83, C84, C86, C87, C89	C72~C74, C79, C80, C85, C90, C92	Capacitor, 22 nF, + 80%-20%, Y5V, 0402 size, 16V.

7	66	C10, C12, C14, C16, C18, C20, C22, C23, C24, C30, C33, C34, C36, C39~C41, C43, C50, C52, C54, C55, C60, C62, C64, C65, C107, C111, C113, C114, C117, C120, C121	C1, C11, C13, C15, C17, C19, C21, C31, C32, C35, C37, C42, C44, C45, C46, C51, C53, C56~C59, C61, C63, C100~C103, C105, C106, C108, C110, C115, C116, C123	Capacitor, 100nF, + 80%-20%, Y5V, 0402 size, 16V.
8	17	C130, C132~C135, C138~C140, C144, C145	C131, C136, C137, C142, C143, C146, C148	Capacitor, 220nF, + 80%-20%, Y5V, 0402 size, 16V.
9	14	C161, C162, C166, C168, C170, C171, C176	C163, C167, C172, C173, C177, C178, C180	Capacitor, 220nF, + 80%-20%, Y5V, 0402 size, 16V.
10	16	R3, R5, R7~R11, R13	R1, R2, R4, R6, R12, R14~R16	Resistor, 240 Ohm, ± 1%, 1/16W, 0402 size.
11	24	RP30~RP41	RP42~RP53	Resistor Array, 15 Ohm, ± 5%, 1/16W, 0402 8P4R size, (R-PACK)
12	1		RP20	Resistor Array, 30 Ohm, ± 5%, 1/16W, 0402 8P4R size, (R-PACK)
13	7	RP1, RP3, RP5, RP10	RP2, RP4, RP11	Resistor Array, 36 Ohm, ± 5%, 1/16W, 0402 8P4R size, (R-PACK)
14	1			P.C.B B83SRCF1.00F2, 2661 x 1181 mil, 6 PCS/PNL

**TOP SIDE 2-RANK WITHOUT ECC**



**BOTTOM SIDE 2-RANK WITHOUT ECC**



**UNBUFFERED DDRIII SDRAM DIMM MODULE 512M/1024M BYTE  
(MODULE SIZE BY 64MBx64, 128MBx64)  
BY 64MBx8, 128MBx8 DDRIII SDRAM CHIPS**

**COMPONENTS#:**

Item#	64MBx8 DDRIII SDRAM	128MBx8 DDRIII SDRAM	256MBx8 DDRIII SDRAM
MODULE SIZE	1024MB 128MBx64	2048MB 256MBx64	44096MB 512MBx6
DDR III SDRAM	D0~D15 16 pieces	D0~D15 16 pieces	D0~D15 16 pieces
EEPROM	IC2 o IC4 1 piece	IC2 o IC4 1 piece	IC2 o IC4 1 piece
Temperature Sensor	IC1 or IC3 1 piece	IC1 or IC3 1 piece	IC1 or IC3 1 piece
Capacitor, 3.3pF, 0402	C2, C3 2 pieces	C2, C3 2 pieces	C2, C3 2 pieces
Capacitor, 2.2nF, 0402	C190~C197, C200, C202~C206, C208, 15 pieces	C190~C197, C200, C202~C206, C208, 15 pieces	C190~C197, C200, C202~C206, C208, 15 pieces
Capacitor, 22nF, 0402	C70~C75, C79, C80, C83~C87, C89, C90, C92 16 pieces	C70~C75, C79, C80, C83~C87, C89, C90, C92 16 pieces	C70~C75, C79, C80, C83~C87, C89, C90, C92 16 pieces
Capacitor, 100nF, 0402	C1, C10~C24, C30~C37, C39~C46, C50~C65, C100~C103, C105~C108, C110, C111, C113~C117, C120, C121, C123 66 pieces	C1, C10~C24, C30~C37, C39~C46, C50~C65, C100~C103, C105~C108, C110, C111, C113~C117, C120, C121, C123 66 pieces	C1, C10~C24, C30~C37, C39~C46, C50~C65, C100~C103, C105~C108, C110, C111, C113~C117, C120, C121, C123 66 pieces
Capacitor, 220nF, 0402	C130~C140, C142~C146, C148 17 pieces	C130~C140, C142~C146, C148 17 pieces	C130~C140, C142~C146, C148 17 pieces
Capacitor, 1.0uF, 0402	C161~C163, C166~C168, C170, C171, C172, C173, C176~C178, C180 14 pieces	C161~C163, C166~C168, C170, C171, C172, C173, C176~C178, C180 14 pieces	C161~C163, C166~C168, C170, C171, C172, C173, C176~C178, C180 14 pieces
Resistor, 240 Ohm, 0402	R1~R16 14 pieces	R1~R16 14 pieces	R1~R16 14 pieces
Resistor, Array 8P4R, 15 Ohm, 0402	RP30~RP53 24 pieces	RP30~RP53 24 pieces	RP30~RP53 24 pieces
Resistor, Array 8P4R, 30 Ohm, 0402	RP20 1 piece	RP20 1 piece	RP20 1 piece
Resistor, Array 8P4R, 36 Ohm, 0402	RP1~RP5, RP10, RP11 7 pieces	RP1~RP5, RP10, RP11 7 pieces	RP1~RP5, RP10, RP11 7 pieces
PCB	1 piece	1 piece	1 piece

**B83SRCF 1.00F2 1<sup>ST</sup> DQ MAP:**

Description: DDRIII SDRAM, Double-Ranks, x8-FBGA 82-based, x64  
Unbufferd, 204-pin SODIMM 1.0

Module Pin No.	Module DQ	Damping RES.	IC No.	IC DQ	Module Pin No.	Module DQ	Damping RES.	IC No.	IC DQ
5	0	RP30.6-RP30.3	D0	2	21	8	RP31.7-RP31.2	D1	3
7	1	RP30.7-RP30.2		4	23	9	RP31.8-RP31.1		7
15	2	RP31.5-RP31.4		1	33	10	RP32.7-RP32.2		0
17	3	RP31.6-RP31.3		3	35	11	RP32.8-RP32.1		2
4	4	RP42.8-RP42.1		6	22	12	RP43.6-RP43.3		5
6	5	RP42.7-RP42.2		0	24	13	RP43.5-RP43.4		1
16	6	RP43.8-RP43.1		7	34	14	RP44.6-RP44.3		4
18	7	RP43.7-RP43.2		5	36	15	RP44.5-RP44.4		6
39	16	RP33.5-RP33.4	D2	2	57	24	RP34.7-RP34.2	D3	3
41	17	RP33.6-RP33.3		4	59	25	RP34.8-RP34.1		7
51	18	RP34.5-RP34.4		1	67	26	RP35.6-RP35.3		0
53	19	RP34.6-RP34.3		3	69	27	RP35.6-RP35.3		2
40	20	RP45.8-RP45.1		6	56	28	RP46.6-RP46.3		5
42	21	RP45.7-RP45.2		0	58	29	RP46.5-RP46.4		1
50	22	RP46.8-RP46.1		7	68	30	RP47.6-RP47.3		4
52	23	RP46.7-RP46.2		5	70	31	RP47.5-RP47.4		6
129	32	RP36.5-RP36.4	D4	2	147	40	RP37.7-RP37.2	D5	3
131	33	RP36.6-RP36.3		4	149	41	RP37.8-RP37.1		7
141	34	RP37.5-RP37.4		1	157	42	RP38.6-RP38.3		0
143	35	RP37.6-RP37.3		3	159	43	RP38.8-RP38.1		2
130	36	RP48.8-RP48.1		6	146	44	RP49.6-RP49.3		5
132	37	RP48.6-RP48.3		0	148	45	RP49.5-RP49.4		1
140	38	RP49.8-RP49.1		7	158	46	RP50.6-RP50.3		4
142	39	RP49.7-RP49.2		5	160	47	RP50.5-RP50.4		6
163	48	RP39.5-RP39.4	D6	2	181	56	RP40.7-RP40.2	D7	3
165	49	RP39.6-RP39.3		4	183	57	RP40.8-RP40.1		7
175	50	RP40.5-RP40.4		1	191	58	RP41.7-RP41.2		0
177	51	RP40.6-RP40.3		3	193	59	RP41.8-RP41.1		2
164	52	RP51.8-RP51.1		6	180	60	RP52.6-RP52.3		5
166	53	RP51.7-RP51.2		0	182	61	RP52.5-RP52.4		1
174	54	RP52.8-RP52.1		7	192	62	RP53.6-RP53.3		4
176	55	RP52.7-RP52.2		5	194	63	RP53.5-RP53.4		6



**B83SRCF 1.00F2 1<sup>ST</sup> DQ MAP:**

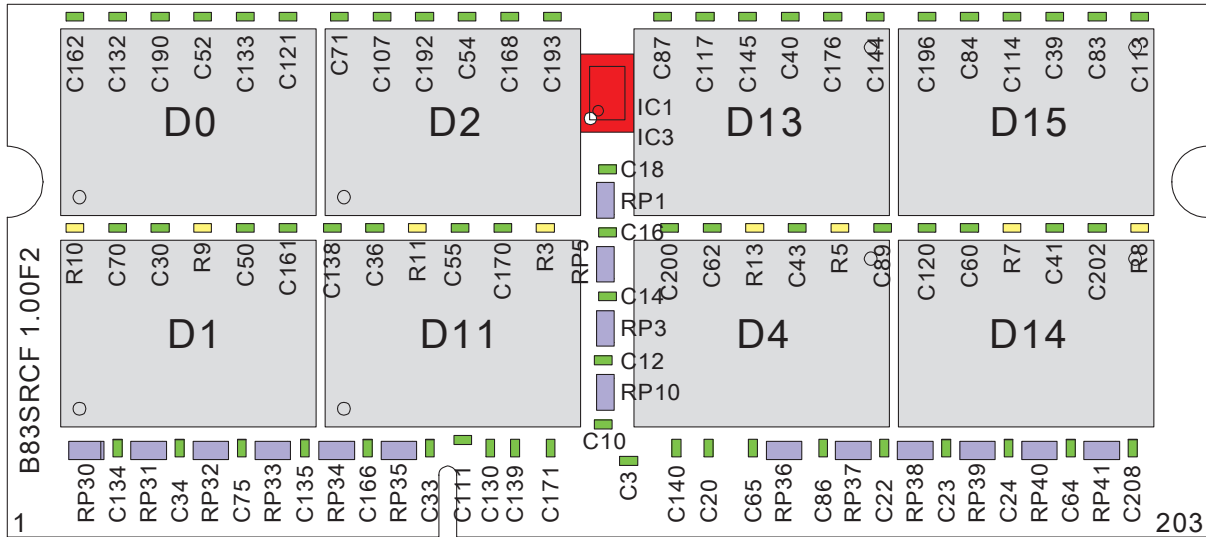
Description: DDRIII SDRAM, Double-Ranks, x8-FBGA 82-based, x64  
Unbufferd, 204-pin SODIMM 1.0

Module Pin No.	Module DQ	Damping RES.	IC No.	IC DQ	Module Pin No.	Module DQ	Damping RES.	IC No.	IC DQ
5	0	RP30.6-RP30.3	D8	2	21	8	RP31.7-RP31.2	D9	3
7	1	RP30.7-RP30.2		4	23	9	RP31.8-RP31.1		7
15	2	RP31.5-RP31.4		1	33	10	RP32.7-RP32.2		0
17	3	RP31.6-RP31.3		3	35	11	RP32.8-RP32.1		2
4	4	RP42.8-RP42.1		6	22	12	RP43.6-RP43.3		5
6	5	RP42.7-RP42.2		0	24	13	RP43.5-RP43.4		1
16	6	RP43.8-RP43.1		7	34	14	RP44.6-RP44.3		4
18	7	RP43.7-RP43.2		5	36	15	RP44.5-RP44.4		6
39	16	RP33.5-RP33.4	D10	2	57	24	RP34.7-RP34.2	D11	3
41	17	RP33.6-RP33.3		4	59	25	RP34.8-RP34.1		7
51	18	RP34.5-RP34.4		1	67	26	RP35.6-RP35.3		0
53	19	RP34.6-RP34.3		3	69	27	RP35.6-RP35.3		2
40	20	RP45.8-RP45.1		6	56	28	RP46.6-RP46.3		5
42	21	RP45.7-RP45.2		0	58	29	RP46.5-RP46.4		1
50	22	RP46.8-RP46.1		7	68	30	RP47.6-RP47.3		4
52	23	RP46.7-RP46.2		5	70	31	RP47.5-RP47.4		6
129	32	RP36.5-RP36.4	D12	2	147	40	RP37.7-RP37.2	D13	3
131	33	RP36.6-RP36.3		4	149	41	RP37.8-RP37.1		7
141	34	RP37.5-RP37.4		1	157	42	RP38.6-RP38.3		0
143	35	RP37.6-RP37.3		3	159	43	RP38.8-RP38.1		2
130	36	RP48.8-RP48.1		6	146	44	RP49.6-RP49.3		5
132	37	RP48.6-RP48.3		0	148	45	RP49.5-RP49.4		1
140	38	RP49.8-RP49.1		7	158	46	RP50.6-RP50.3		4
142	39	RP49.7-RP49.2		5	160	47	RP50.5-RP50.4		6
163	48	RP39.5-RP39.4	D14	2	181	56	RP40.7-RP40.2	D15	3
165	49	RP39.6-RP39.3		4	183	57	RP40.8-RP40.1		7
175	50	RP40.5-RP40.4		1	191	58	RP41.7-RP41.2		0
177	51	RP40.6-RP40.3		3	193	59	RP41.8-RP41.1		2
164	52	RP51.8-RP51.1		6	180	60	RP52.6-RP52.3		5
166	53	RP51.7-RP51.2		0	182	61	RP52.5-RP52.4		1
174	54	RP52.8-RP52.1		7	192	62	RP53.6-RP53.3		4
176	55	RP52.7-RP52.2		5	194	63	RP53.5-RP53.4		6

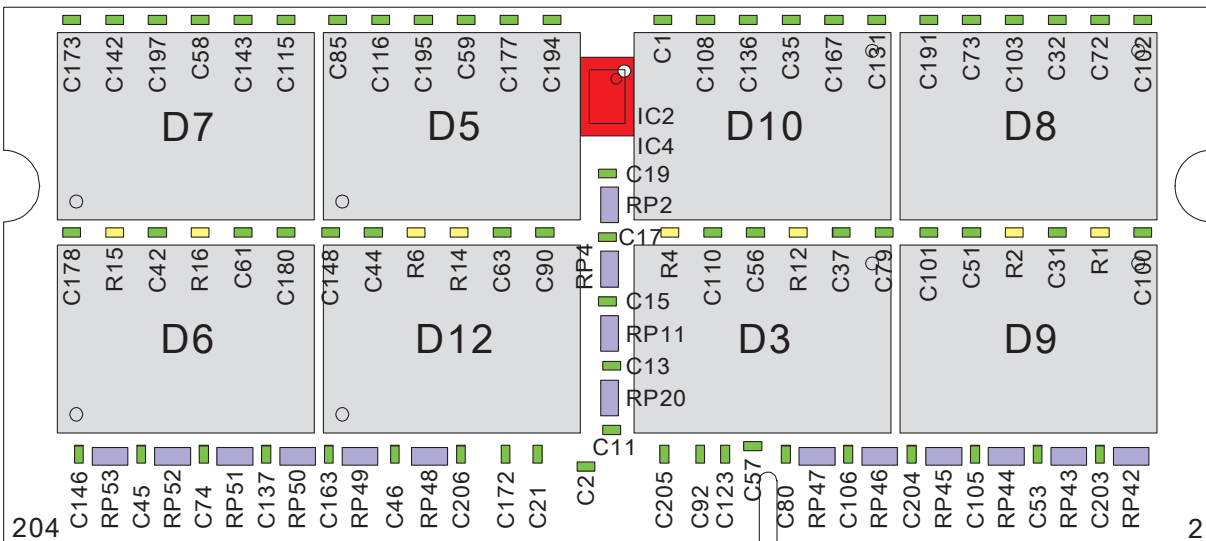
First check the SPD data and EEPROM. Then check the following components for other problem.

	<b>Clock loading</b>	<b>Boot failure</b>
2-RANK	R1~R16, C2, C3	SPD data, IC2 O IC4

**TOP SIDE 2-RANK WITHOUT ECC**



**BOTTOM SIDE 2-RANK WITHOUT ECC**



**PART NUMBER DECODER**

