

## KZT-Alcor Pinout

### Alcor USB-Flash Adapter Pinout

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1																	1
2				3,48	GND	3,48	GND	Hole	3,48	GND	3,48	GND	3,48				2
3			GND	3,48	GND	3,47	3,47			3,48	Hole	0	0	0			3
4		3,48	GND			3,48	3,48			GND	GND	GND	GND	GND	3,48		4
5		3,49	GND			3,1	3,47			GND	3,48		GND	GND			5
6		GND	GND	3,49	GND	3,48	3,47			GND	3,1		GND	GND	GND		6
7		3,48	GND	3,3	GND					3,48	3,48	3,48		GND	3,49		7
8		3,49	GND	3,48	GND	0	0			0		3,48	0	GND			8
9		Hole	Hole	Hole	3,48	3,48	0					0	0	GND	GND		9
10		3,84	GND	GND	3,48	3,48	3,49			3,48		3,48		GND	3,49		10
11			GND		3,48	3,48	3,49			3,49	3,49	3,49		GND	3,3		11
12		3,49	GND		3,48	3,48	3,49			3,48	3,48	3,35		0,91			12
13		3,49	GND		3,48		3,48			3,48	3,48	3,48	GND	GND	3,48		13
14		GND	GND		3,48						3,48	3,48	GND	Hole	Hole		14
15		0	GND		3,48	0	0			0	0	GND	3,48	GND	3,48		15
16		3,48	GND		3,48	3,48	3,48			0	0	GND	3,48	GND	3,48		16
17		GND	GND	GND		3,47	GND			3,48	3	GND	3,49	GND	GND		17
18			GND	GND		3,47	GND			3,48	3,47	Hole		GND	3,48		18
19		3,48	GND	GND	GND	GND	GND			3,48	3,48	Hole	Hole	GND	3,48		19
20			Hole			GND	3,48			3,48	3,47	GND	3,48	GND			20
21				3,49	GND	3,48	GND	Hole		0	GND	3,48	GND	3,49			21
22																	22

KZT	Samsung	
3,48V	1,83V	VCCQ, Volt power rail, all connected together on the PCB
3,48V	2,96V	VCC, Power-Rail, all connected together on the PCB
0V	12V	VPP, Power-Rail for programming the flash, all connected together on the PCB
		Yellow: this pin is connected to the same pin of another flash chip
		e.g. Power-Lines are usually connected the same way (yellow)
		e.g. Chip-Select lines are connected differently (gray)

#### Relevant Findings:

The voltages provided by the PCB are very different. VCCQ is too high, VCC is too high, VPP is too lo



## Symmetry

SAMSUNG K9CHGY8S5M-CCK0 Pinout

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1																	1
2				1,84	GND	1,83	GND	0,91	2,95	GND	2,95	GND	2,95				2
3			GND	2,96	GND	XXX	0,9			1,84	GND			12,3			3
4		2,96	GND	XXX	XXX	XXX	0,9			GND	GND	GND	GND	GND	2,96		4
5		1,83	GND			0,59	0,9			GND	1,83		GND	GND			5
6		GND	GND	1,83	GND	0,58	0,89			GND	1,83		GND	GND	GND		6
7		1,83	GND	2,96	GND					1,84	1,83	1,83		GND	2,96		7
8		2,96	GND	1,83	GND	1,83	1,82					1,83		GND	XXX		8
9		1,83	1,84	GND	0,58	0,57	1,83					1,84	0,2	GND	GND		9
10		1,83	GND	GND	0,57	0,59	1,83			1,83		1,84		GND	2,95		10
11			GND?		0,6	0,59	1,83			1,83	0,89	0,97		GND	1,83		11
12		1,84	GND		0,59	0,59	1,83			1,83	0,9	0,97		0,91			12
13		2,96	GND		1,83					1,83	0,91	0,95	GND	GND	1,84		13
14		GND	GND		1,83						0,91	0,94	GND	1,82	1,84		14
15		2,95	GND		1,83					1,82	1,82	GND	1,84	GND	2,96		15
16		2,96	GND		1,83	1,83	1,84					GND	2,96	GND	1,84		16
17		GND	GND	GND		1,84	GND			0,87	0,87	GND	1,84	GND	GND		17
18			GND	GND		1,83	GND			0,87	0,9	0,2		GND	1,83		18
19		2,95	GND	GND	GND	GND	GND			0,87	0,89	0,1	0,19	GND	2,96		19
20			12,3			GND	1,83			0,88	0,87	GND	2,96	GND			20
21				2,95	GND	2,96	GND	2,96	0,91	GND	1,83	GND	1,84				21
22																	22

**Yellow:** this pin is connected to the same pin of another flash chip

e.g. Power-Lines are usually connected the same way (yellow)

e.g. Chip-Select lines are connected differently (gray)

**1,83-1,84 Volt power rail, all connected together on the PCB**

**2,96 Volt Power-Rail, all connected together on the PCB**

**12 Volt Power-Rail, all connected together on the PCB**

## Symmetry

symmetric A  
symmetric B  
XXX C  
D  
E  
F  
G  
H  
J  
K  
L  
M  
N  
P  
R  
T  
U  
V  
W  
Y  
AA  
AB

## K9CHGY8S5M-CCK0 Pinout\_2

SAMSUNG K9CHGY8S5M-CCK0 Pinout

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1																	1
2				1,84	GND	1,83	GND	0,91	2,95	GND	2,95	GND	2,95				2
3			GND	2,96	GND			0,9			1,84	GND			12,3		3
4		2,96	GND					0,9			GND	GND	GND	GND	GND	2,96	4
5		1,83	GND			0,59	0,9			GND	1,83		GND	GND			5
6		GND	GND	1,83	GND	0,58	0,89			GND	1,83		GND	GND	GND		6
7		1,83	GND	2,96	GND					1,84	1,83	1,83		GND	2,96		7
8		2,96	GND	1,83	GND	1,83	1,82					1,83		GND			8
9		1,83	1,84	GND	0,58	0,57	1,83					1,84	0,2	GND	GND		9
10		1,83	GND	GND	0,57	0,59	1,83			1,83		1,84		GND	2,95		10
11			GND		0,6	0,59	1,83			1,83	0,89	0,97		GND	1,83		11
12		1,84	GND		0,59	0,59	1,83			1,83	0,9	0,97		0,91			12
13		2,96	GND		1,83					1,83	0,91	0,95	GND	GND	1,84		13
14		GND	GND		1,83						0,91	0,94	GND	1,82	1,84		14
15		2,95	GND		1,83					1,82	1,82	GND	1,84	GND	2,96		15
16		2,96	GND		1,83	1,83	1,84					GND	2,96	GND	1,84		16
17		GND	GND	GND		1,84	GND			0,87	0,87	GND	1,84	GND	GND		17
18			GND	GND		1,83	GND			0,87	0,9	0,2		GND	1,83		18
19		2,95	GND	GND	GND	GND	GND			0,87	0,89	0,1	0,19	GND	2,96		19
20			12,3			GND	1,83			0,88	0,87	GND	2,96	GND			20
21				2,95	GND	2,96	GND	2,96	0,91	GND	1,83	GND	1,84				21
22																	22

**Yellow:** this pin is connected to the same pin of another flash chip

e.g. Power-Lines are usually connected the same way (yellow)

e.g. Chip-Select lines are connected differently (gray)

**1,83-1,84 Volt power rail, all connected together on the PCB**

**2,96 Volt Power-Rail, all connected together on the PCB**

**12 Volt Power-Rail, all connected together on the PCB**

### Relevant Findings:

R/B0\_2\_n and R/B0\_0\_n are connected on the PCB

R/B0\_3\_n and R/B0\_1\_n are connected on the PCB

## ONFI\_3\_2

ONFI 3.2 Standard: BGA-316 ball 16 CE\_n assignments for quad 8-bit data access

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
A1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	A1
B2	NC	NC	NC	VCCQ	VSS	VCCQ	VSS	VREFC	VCC	VSS	VCC	VSS	VCC	NC	NC	NC	B2
C3	NC	NC	VSS	VCC	VSS	DQ7_2	DQ7_0			VCCQ	VSS	Eni or	Eno or	VPP	NC	NC	C3
D4	NC	VCC	VSS	VSP	VSP	DQ6_2	DQ6_0			VSS	VSS	VSS	VSS	VSS	VCC	NC	D4
E5	NC	VCCQ	VSS	VSP	VSP	DQ5_2	DQ5_0			VSS	R/B0_2	VSP	VSS	VSS	RFU	NC	E5
F6	NC	VSS	VSS	VCCQ	VSS	DQ4_2	DQ4_0			VSS	R/B0_0	VSP	VSS	VSS	VSS	NC	F6
G7	NC	VCCQ	VSS	VCC	VSS	DQS_2	DQS_0			WP_0	WP_2	CE1_2	CE3_2	VSS	VCC	NC	G7
H8	NC	VCC	VSS	VCCQ	VSS	DQS_2	DQS_0_c			CLE_0	CLE_2	CE1_0	CE3_0	VSS	RFU	NC	H8
J9	NC	VSP	VSP	VSS	DQ3_2	DQ3_0	RE_2_c			RE_0_c	ALE_2	CE0_2	CE2_2	VSS	VSS	NC	J9
K10	NC	VCCQ	VSS	VSS	DQ2_2	DQ2_0	RE_2_n or W/R_2_n			RE_0	ALE_0	CE0_0	CE2_0	VSS	VCC	NC	K10
L11	NC	VDDi	VREFC	VSP	DQ1_2	DQ1_0	WE_2_n or CK_2			WE_0	DQ0_1	DQ0_3	VSP	VSS	VCCQ	NC	L11
M12	NC	VCCQ	VSS	VSP	DQ0_2	DQ0_0	WE_1_n or CK_1			WE_3	DQ1_1	DQ1_3	VSP	VREFC	VDDi	NC	M12
N13	NC	VCC	VSS	CE2_1	CE0_1	ALE_1	RE_1_n or W/R_1_n			RE_3	DQ2_1	DQ2_3	VSS	VSS	VCCQ	NC	N13
P14	NC	VSS	VSS	CE2_3	CE0_3	ALE_3	RE_1_c			RE_3_c	DQ3_1	DQ3_3	VSS	VSP	VSP	NC	P14
R15	NC	RFU	VSS	CE3_1	CE1_1	CLE_3	CLE_1			DQS_1	DQS_3	VSS	VCCQ	VSS	VCC	NC	R15
T16	NC	VCC	VSS	CE3_3	CE1_3	WP_3	WP_1_n			DQS_1	DQS_3	VSS	VCC	VSS	VCCQ	NC	T16
U17	NC	VSS	VSS	VSS	VSP	R/B0_1	VSS			DQ5_1	DQ4_3	VSS	VCCQ	VSS	VSS	NC	U17
V18	NC	RFU	VSS	VSS	VSP	R/B0_3	VSS			DQ5_1	DQ5_3	VSP	VSP	VSS	VCCQ	NC	V18
W19	NC	VCC	VSS	VSS	VSS	VSS	VSS			DQ6_1	DQ6_3	VSP	VSP	VSS	VCC	NC	W19
Y20	NC	NC	VPP	RFU	RFU	VSS	VCCQ			DQ7_1	DQ7_3	VSS	VCC	VSS	NC	NC	Y20
AA21	NC	NC	NC	VCC	VSS	VCC	GND	VCC	VREFC	VSS	VCCQ	VSS	VCCQ	NC	NC	NC	AA21
AB22	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	AB22

**Yellow: this pin is connected to the same pin of another flash chip**

e.g. Power-Lines are usually connected the same way (yellow)

e.g. Chip-Select lines are connected differently (gray)

VCCQ	1,83-1,84 Volt power rail, all connected together on the PCB		
VCC	2,96 Volt Power-Rail, all connected together on the PCB		
VPP	12 Volt Power-Rail, all connected together on the PCB		
VSS	0 Volt GND		
VREFQ	0,91 V Voltage Reference		
VSP			
VDDi	ASIC Voltage Control		2
DQ_a_b	A=0,1,2,3,4,B=0,1,2,3		32
DQS_x	X=0,2      c_0		8
R/B_x_n	Output      X=0      N=0,2	Ready/Busy	4
RE_x_n	Input      X=0,2	Read Enable (True)	4
RE_x_c	Input      X=0,2	Read Enable Complement	4
W/R_x_n	Input      X=2	Write/Read Direction	4
<b>CE_x_n</b>	<b>Input      X=0,1,2,3      N=0,1,2,3</b>	<b>Chip Enable</b>	<b>16</b>
CLE_x	Input      X=0,2	Command Latch Enable	4
ALE_x	Input      X=0,2	Address Latch Enable	4
WE_x_n	Input      X=0,1,2,3	Write Enable	4
CLK_x	Input	Clock	
WP_x_n	Input      X=0,2	Write Protect	4
Eni		Enumeration input	
Enu		Enumeration output	
NC	Not Connected		
RFU	Reserved for Future Use		
CK_x	X=1,3		

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1  
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