

Tsi110 Ballmap (Document number 80E5000\_PN002\_04)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32					
A	1	NOBALL	SD_DQ05	SD_DQ06	SD_CLK_N3	SD_CLK_N2	SD_CLK_P2	SD_DQ04	SD_DQ06	SD_DQ06	SD_DQ6_P14	SD_DQ6_N11	SD_DQ03	SD_DQ02	SD_DQ03	SD_CLK_N3	SD_CLK_P8	SD_CLK_P9	SD_CLK_N5	SD_DQ06	SD_DQ06	SD_DQ6_P11	SD_DQ6_N11	SD_DQ6_P11	SD_DQ16	SD_DQ03	SD_CLK_N4	SD_CLK_N1	SD_DQ02	SD_DQ02	SD_DQ6	SD_DQ6_N3	VSS_IO				
B	2	SD_DQ6_P18	SD_DQ07	VSS_IO	NC	SD_CLK_P8	VSS_IO	SD_DQ05	SD_DQ09	VSS_IO	SD_DQ6_N4	SD_DQ6_P14	VSS_IO	SD_DQ07	SD_CLK_P8	VSS_IO	SD_CLK_P8	SD_CLK_P8	SD_CLK_N5	VSS_IO	SD_DQ05	VSS_IO	SD_DQ07	SD_DQ07	VSS_IO	SD_CLK_P4	SD_CLK_P1	VSS_IO	SD_DQ07	SD_DQ6_P9	VSS_IO	SD_DQ6_N8					
C	3	VSS_IO	SD_DQ6_N5	SD_DQ08	VDD_SD	SD_DQ04	SD_DQ6_N5	VDD_SD	SD_DQ05	SD_DQ43	VDD_SD	SD_DQ6_N5	SD_DQ6_P14	VDD_SD	NC	NC	VDD_SD	NC	SD_DQ06	VDD_SD	SD_DQ6_N13	NC	VDD_SD	SD_DQ11	SD_DQ15	VDD_SD	NC	VDD_SD	NC	SD_DQ6_P8	SD_DQ11						
D	4	SD_DQ6_P7	SD_DQ6_N5	SD_DQ08	SD_DQ01	SD_DQ09	SD_DQ6_P8	SD_DQ6_P18	SD_DQ46	SD_DQ03	SD_DQ47	SD_DQ6_P5	SD_DQ6_N14	SD_DQ48	SD_DQ44	NC	NC	NC	NC	SD_DQ01	SD_DQ6_P5	SD_DQ6_P15	SD_DQ05	SD_DQ09	SD_DQ10	SD_DQ14	SD_DQ6_N1	SD_DQ6_P16	SD_DQ8	NC	SD_DQ8	SD_DQ8					
E	5	SD_DQ03	SD_DQ06	VSS_IO	NC	SD_DQ04	VSS_IO	SD_DQ6_N11	SD_DQ44	VSS_IO	SD_DQ42	SD_DQ44	VSS_IO	SD_DQ41	SD_DQ44	VSS_IO	NC	NC	NC	VSS_IO	SD_DQ04	SD_DQ6_N5	VSS_IO	SD_DQ04	SD_DQ08	VSS_IO	SD_DQ6_P11	SD_DQ6_N10	VDD_SD	SD_DQ13	VSS_IO	SD_DQ41	CG_PB_SELECT				
F	6	SD_DQ09	VSS_IO	NC	NC	NC	NC	SD_DQ13	NC	SD_CS01	VDD_SD	SD_DQ10	NC	VDD_SD	SD_RA5A	NC	SD_DLL_TEST0	VDD_SD	SD_DLL_TEST1	SD_DQ07	SD_A8	VDD_SD	SD_VREF1	SD_BA2	VDD_SD	NC	SD_CLKEN1	VSS_IO	SD_DQ01	SD_DQ12	PB_A33	PB_R37c	CG_REF				
G	7	HLP_AD0	HLP_AD1	SD_I2C_CLK	SD_I2C_SD	HLP_AD0	HLP_AD0	VSS_IO	SD_DQ11	SD_CS03	SD_A13	SD_DQ12	SD_CA5a	SD_WEa	SD_CS03	SD_A10	SD_A0	SD_A2	SD_A1	SD_A4	SD_A0	SD_A0	SD_A1	SD_A14	SD_A15	SD_CLKEN3	VDD_SD	NC	VSS_IO	SD_SELECT	NC	VSS_IO	SD_SELECT				
H	8	HLP_AD2	HLP_AD3	HLP_AD4	VSS_IO	HLP_AD5	HLP_AD6	HLP_AD7	NC	VSS_IO	VDD_SD	VDD_SD	SD_VREF0	VSS_IO	SD_CS02	SD_BA0	SD_BA1	VSS_IO	SD_A3	SD_A5	VSS_IO	SD_A7	SD_A12	VDD_SD	VDD_SD	VSS_IO	PB_A04	VDD_P8	CG_SELECT	CG_SELECT	VDD_P8	CG_PB_CLK0	CG_PB_CLK0				
J	9	KEN_PLL_AVDD	KEN_PLL_AVSS	HLP_AD10	HLP_AD11	HLP_AD12	HLP_AD13	HLP_AD14	HLP_AD15	VDD_PC	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	VDD_SD	VSS_IO	PB_A05	PB_A10	PB_A32	PB_A0	PB_T02c	NC	SD_SELECT	NC				
K	10	HLP_AD16	VSS_IO	HLP_AD17	HLP_AD18	HLP_AD19	HLP_AD20	VSS_IO	HLP_AD21	VDD_PC	VDD_PC	VSS_IO	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VDD_SD	VSS_IO	VDD_P8	PB_T13	PB_A8	PB_A8	VSS_IO	KEN_PLL_AVDD	KEN_PLL_AVSS	VSS_IO	PB_A4			
L	11	HLP_AD22	HLP_AD23	HLP_AD24	HLP_AD25	VSS_IO	HLP_AD26	HLP_AD27	HLP_AD28	VDD_PC	VDD_PC	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VDD_P8	VDD_P8	RESERVED01	PB_T11	VDD_P8	PB_T03	PB_T04	VDD_P8	SD_PLL_AVDD	SD_PLL_AVSS		
M	12	HLP_WEa	HLP_CS0	HLP_CS0	HLP_CS0	HLP_LE	HLP_AD00	HLP_AD00	HLP_AD01	VDD_PC	VDD_PC	VSS_IO	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_INT0	PB_INT0	PB_INT0	PB_A2	PB_PLL_AVSS	PB_PLL_AVDD	PB_T02c	SD_SYSCLK		
N	13	HLP_CS01	VSS_IO	HLP_RDYb	HLP_OEN	GPIO0	GPIO1	VSS_IO	U_1_RX	VDD_PC	VDD_PC	VSS_IO	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	RESERVED05	NC	VSS_IO	PB_B00	RESERVED16	VSS_IO	RESERVED05		
P	14	JTAG_TDO	JTAG_TDI	GPIO2	VSS_IO	GPIO3	GPIO4	GPIO5	U_0_RX	VDD_PC	VDD_PC	VSS_IO	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	RESERVED17	PB_T02b	VDD_P8	PB_T02	NC	VDD_P8	PB_T05b	PB_SYSCLK		
R	15	TEST_TM1	JTAG_TCK	GPIO6	INT0	GPIO7	GPIO8	GPIO9	U_1_TX	VDD_PC	VDD_PC	VSS_IO	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_GAK0	PB_A14	PB_A23	PB_G0a	PB_A7	PB_A0	RESERVED18	RESERVED1			
T	16	TEST_TM3	VSS_IO	JTAG_TRSTb	GPIO10	GPIO11	INT2	VSS_IO	U_0_TX	VDD_PC	VDD_PC	VSS_IO	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_A24	PB_A16	PB_A3	VSS_IO	PB_A1	PB_A12	VSS_IO	PB_INT0		
U	17	TEST_TM2	JTAG_TMS	TEST_ON	INT1	VSS_IO	GPIO12	GPIO13	I2C_SCLK	VDD_PC	VDD_PC	VSS_IO	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_T0	VDD_P8	PB_A21	PB_DB00	VDD_P8	PB_A20	PB_TAa		
V	18	TEST_TM0	TEST_BDR_CT	OCK_RSTb	GPIO14	GPIO15	INT3	NC	I2C_SD	VDD_PC	VDD_PC	VSS_IO	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_T0A	PB_A22	PB_A16	NC	PB_B00	PB_A5	PB_A13	PB_RST0D		
W	19	E_MD0	VSS_IO	E_MD0	E_1_TC09	E_0_TC09	E_0_TC08	VSS_IO	E_0_TC07	VDD_PC	VDD_PC	VSS_IO	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_A11	PB_AA0	RESERVED03	VSS_IO	RESERVED03	NC	VSS_IO	PB_ARTR0			
Y	20	E_REF125	E_1_TC07	E_1_TC08	VSS_IO	E_0_TC08	E_0_TC09	E_0_TC09	E_0_TC09	VDD_PC	VDD_PC	VSS_IO	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_A27	PB_A28	PB_A30	PB_DB00	NC	PB_A17	PB_A28	NC		
AA	21	E_1_TC08	E_1_TC08	E_1_TC04	E_1_TC03	E_0_TC02	E_0_TC01	E_0_TC08	E_0_T0X4	VDD_PC	VDD_PC	VSS_IO	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	VDD	VSS	PB_A19	VDD_P8	NC	PB_DB00	VDD_P8	PB_A15	PB_A29		
AB	22	E_1_T0X4	VSS_IO	E_1_TC01	E_1_TC03	E_0_PC04	RBE_0_P8Bb_PAS	VSS_IO	E_0_EDM07	VDD_PC	VDD_PC	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VSS_IO	VDD_P8	VSS_IO	PB_D09	RESERVED02	RESERVED02	VSS_IO	RESERVED04	PB_A25	VSS_IO	PB_A31		
AC	23	E_1_TC02	E_1_PC03	RBE_0_P8Bb_PAS	RBE_0_P8Bb_PAS	VSS_IO	E_0_P8Bb	E_0_RXCLK	E_0_RXCLK	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VSS_IO	VDD_P8	VSS_IO	VDD_P8	VDD_P8	PB_D33	PB_D07	PB_D19	PB_D34	PB_D35	PB_D56	RESERVED07	RESERVED09	
AD	24	E_GTKLX0	E_1_EWRAP	VSS_IO	E_0_PC03	E_0_R0G1	E_0_R0G1	E_0_R0G3	VSS_IO	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VDD_PC	VSS_IO	VDD_P8	VDD_P8	VDD_P8	VSS_IO	PB_D58	RESERVED05	VDD_P8	PB_D23	PB_D26	VDD_P8	PB_D32	PB_D54		
AE	25	E_1_ECMD0	E_1_R0G0	E_1_P8Bb	E_0_EWRAP	E_0_R0G4	E_0_R0G5	E_0_R0G6	PCL_AD26	PCL_AD23	PCL_AD16	PCL_DEVSEL	PCL_MMEN	PCL_AD9	PCL_CBE0	PCL_AD50	PCL_AD57	PCL_AD55	PCL_AD44	PCL_AD38	WRUP_PCL_H0	NC	RESERVED04	RESERVED09	VDD_P8	PB_D60	PB_D57	RESERVED03	VSS_IO	PB_D18	RESERVED03	VSS_IO	PB_D36				
AF	26	E_1_RXCLK	VSS_IO	E_1_R0G1	VSS_IO	E_0_R0G7	E_0_R0G8	VSS_IO	PCL_AD27	PCL_AD21	VSS_IO	PCL_STOP	PCL_AD11	VSS_IO	PCL_CBE0	PCL_AD51	VSS_IO	PCL_AD45	VSS_IO	PCL_AD34	NC	VSS_IO	RIU	PB_D31	VSS_IO	PB_D30	PB_D07	PB_D15	PB_D14	PB_D20	PB_D29	PB_D62					
AG	27	E_1_R0G2	E_1_R0G3	E_1_R0G4	E_1_R0G5	E_0_R0G6	PCL_RE03	PCL_AD31	PCL_AD28	PCL_AD22	PCL_CBE02	PCL_PERRA	PCL_AD12	PCL_AD9	PCL_CBE0	PCL_AD52	PCL_AD56	PCL_AD48	PCL_AD36	PCL_AD35	PB_SENSE	RESERVED06	VDD_P8	PB_D59	PCL_D27	PB_D38	VDD_P8	PB_D08	PB_D11	VDD_P8	PB_D17	PB_D22					
AH	28	E_GTKLX1	E_1_R0G0	E_1_R0G7	PCL_SENSE	PCL_GNT03	PCL_REQ03	PCL_ES	VSS_IO	PCL_AD23	PCL_FRAME	PCL_SERRA	PCL_PAR	PCL_AD7	VSS_IO	PCL_AD28	PCL_CBE04	PCL_AD53	PCL_AD47	PCL_AD40	VSS_IO	RESERVED07	RESERVED08	RESERVED09	PB_D63	PB_D61	PB_D52	PB_D53	VSS_IO	PB_D12	PB_D10	VSS_IO	PB_D16				
AJ	29	E_1_R0G0	VSS_IO	PCL_INT0	PCL_P0CA0	VSS_IO	PCL_GNT07	PCL_REQ08	PCL_AD29	PCL_AD24	PCL_AD17	VSS_IO	PCL_CBE01	PCL_AD8	PCL_AD1	PCL_AD2	PCL_P0A4	VSS_IO	PCL_AD43	PCL_AD41	PCL_AD36	PCL_CLK	RESERVED10	RESERVED11	VSS_IO	PB_D25	VSS_IO	PB_D48	PB_D51	PB_D0	PB_D2	PB_D0	PB_D0	PB_D0			
AK	30	E_1_R0G0	PCL_RST0R	PCL_P0CA0	PCL_INTA	PCL_GNT02	PCL_GNT06	PCL_REQ08	PCL_REQ11	PCL_CBE03	PCL_AD18	PCL_ENAMA	PCL_AD13	PCL_AD9	PCL_AD2	PCL_AD44	PCL_AD58	PCL_AD54	PCL_AD48	PCL_AD42	PCL_AD37	PCL_AD32	RESERVED12	VDD_P8	PB_D24	PB_D28	PB_D46	VDD_P8	PB_D45	PB_D50	VDD_P8	PB_D11	PB_D13				
AL	31	PCL_RSTb	PCL_INTD	PCL_LE0	VSS_IO	PCL_GNT01	PCL_GNT05	VSS_IO	PCL_PME	PCL_DSEL	VSS_IO	PCL_IRDY	PCL_AD14	VSS_IO	PCL_AD1	PCL_RE06A	VSS_IO	PCL_AD55	CG_PCL_CLK0	CG_PCL_CLK0	VSS_IO	PCL_AD43	PCL_PLL_AVSS	VSS_IO	RESERVED13	RESERVED14	VSS_IO	PB_D21	PB_D47	VSS_IO	PB_D42	PB_D55	VSS_IO	PB_D01			
AM	32	VSS_IO	PCL_HEALTH	PCL_H0A4EN	PCL_INTB	PCL_REQ07	PCL_GNT04	PCL_REQ04	PCL_AD33	PCL_AD25	PCL_AD19	PCL_TRDY	PCL_AD15	PCL_AD10	PCL_AD4	PCL_AD3	PCL_CBE07	CG_PCL_CLK0	CG_PCL_CLK0	PCL_AD56	PCL_PLL_AVDD	RESERVED15	RESERVED16	PB_D45	PB_D41	VDD_P8	PB_D46	PB_D44	PB_D50	PB_D40	PB_D4	VSS_IO					

Copyright © October 2009 Integrated Device Technology. All rights reserved. Published in Canada.

Integrated Device Technology, Inc. reserves the right to make changes to its products or specifications at any time, without notice, in order to improve design or performance and to supply the best possible product. IDT does not assume any responsibility for use of any circuitry described other than the circuitry embodied in an IDT product. The Company makes no representations that circuitry described herein is free from patent infringement or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent, patent rights or other rights, of Integrated Device Technology, Inc.

**Revision History**  
 80E5000\_PN002\_04, Formal, October 2009. This version was rebranded as IDT. It does not include any technical changes.