

MIC-760CB

Engineering Specification

Revision 0.1

MOTION INDUSTRY CO.,LTD

Document History

Date	Document file	Revision	Author	Description
08 / 11 / 2005	MIC-760CB-001	0.1	Vincent.L	Initial draft

Reviewers

Function	Reviewer Name
Product Manager	Vincent Liao
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Introduction

MIC-760CB is a carrier board for MIC760EM CPU Module connected with two 220-pin connectors. MIC-760CB also needs an I/O board named MIC-760IO to support I/O functions. Key features include:

- Rich complement of contemporary high bandwidth serial interfaces, including PCI Express, Serial ATA, USB 2.0, and Gigabit Ethernet.

- LPC options preserved for easy interface to range of peripherals

- Extended power-management capabilities

- Robust thermal and mechanical concept

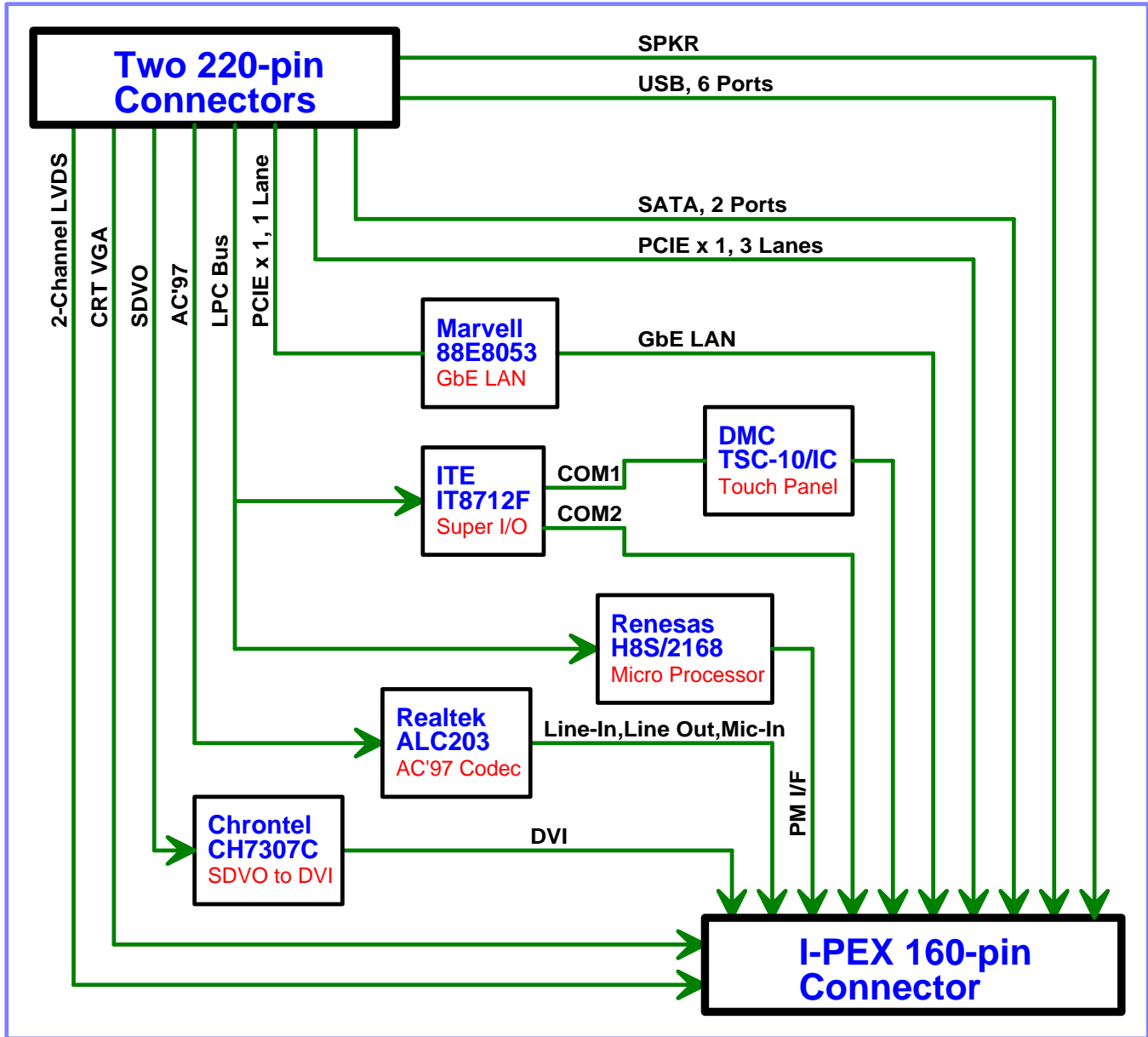
- Cost-effective design

- Legacy-free design
- Small board size

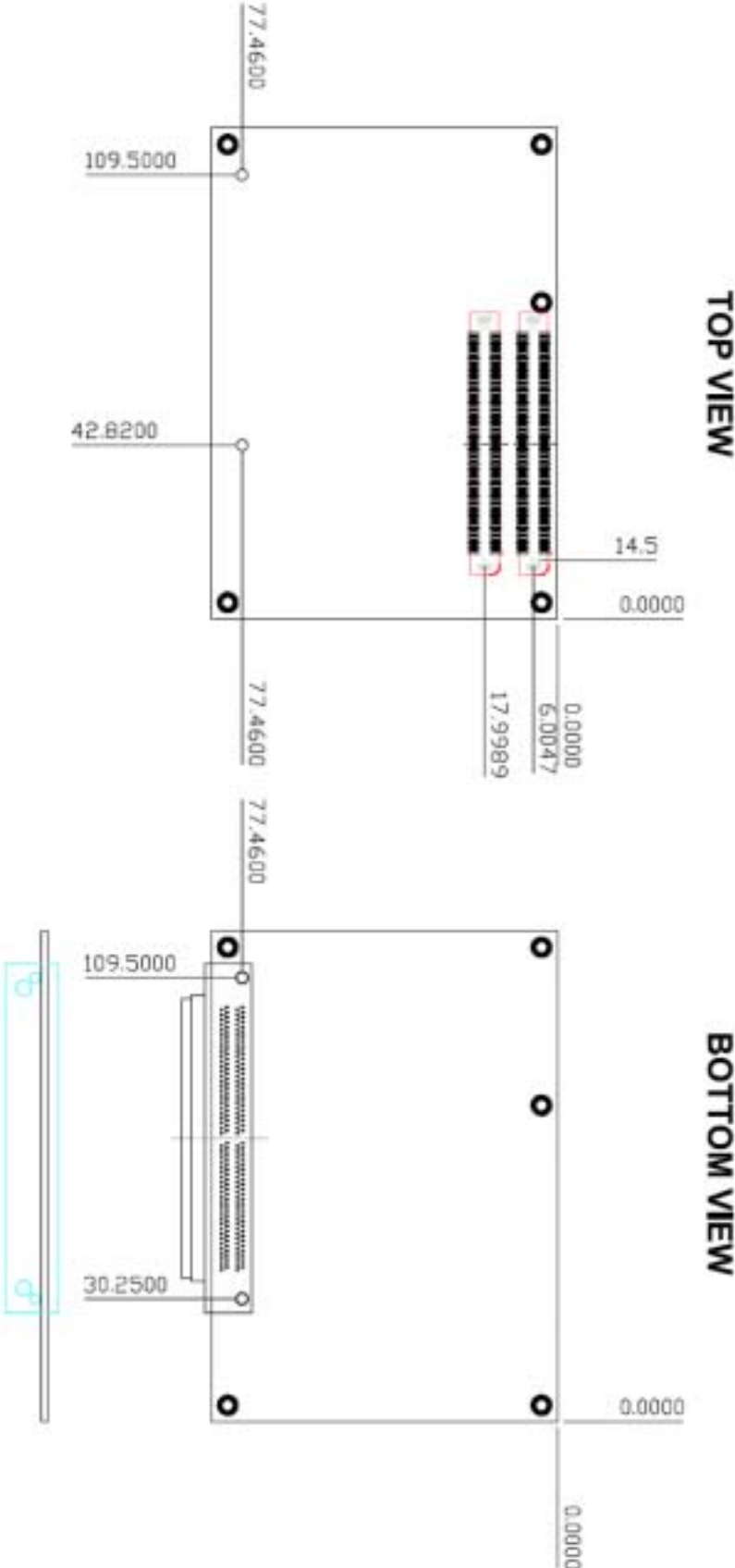
1.1 Overview

MIC-760CB is a 6-layer PCB and offer two 220-pin board-to-board connectors connect with module, one 160-pin board-to-board connector with I/O board.

1.2 Block Diagram

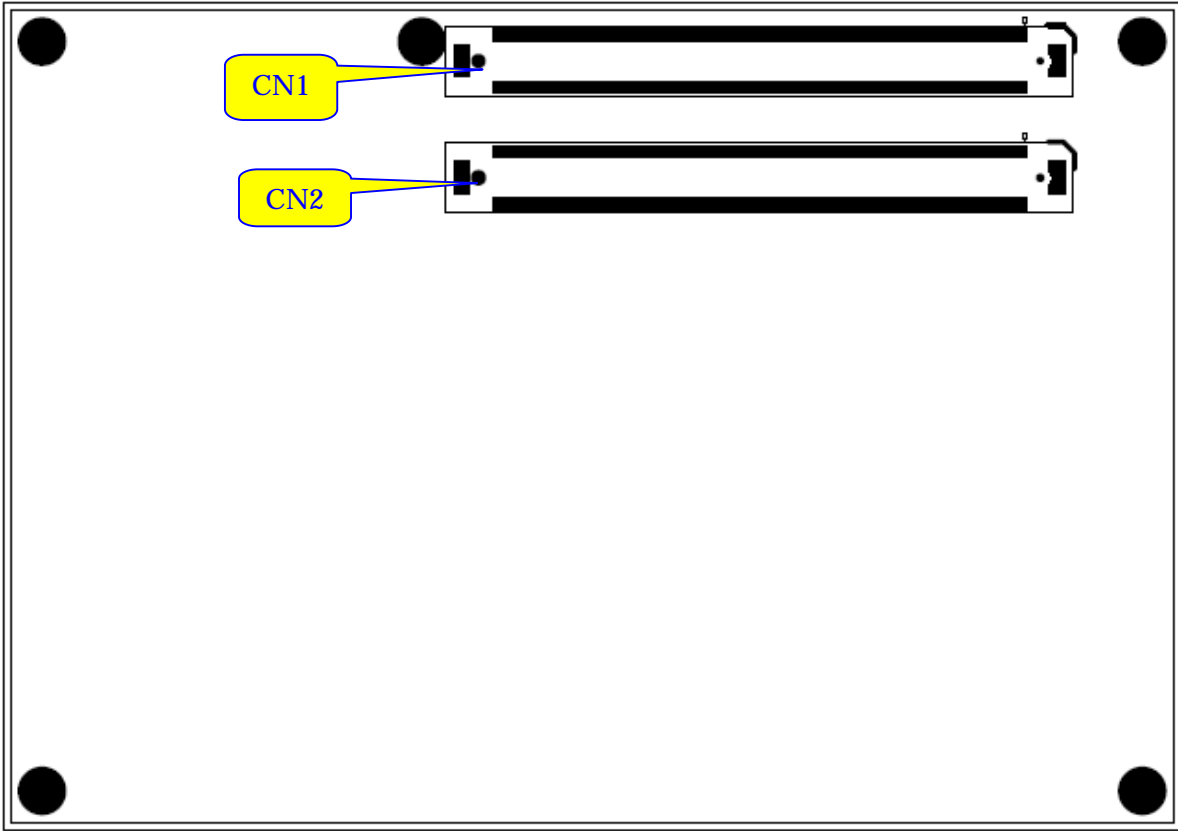


Mechanical Drawing

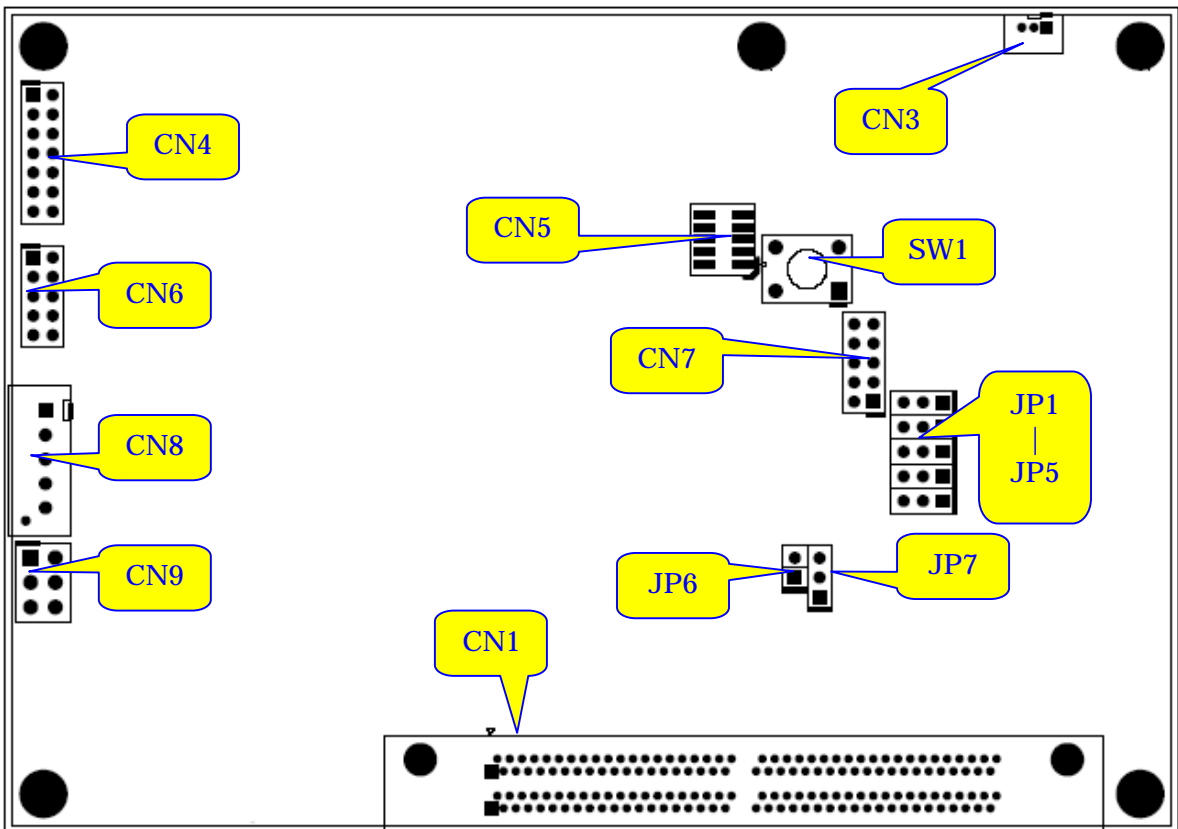


PCB Placement

Top side



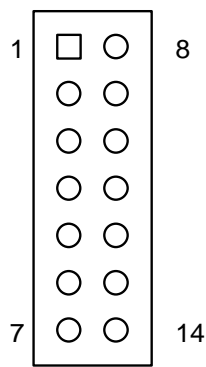
Bottom side



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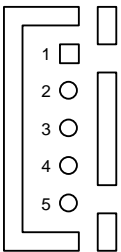
Connectors

CN4 VGA CRT Pin Header



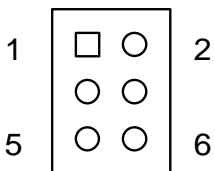
Signal Name	Pin	Pin	Signal Name
VCC	1	8	DDC_DAT
GND	2	9	DDC_CLK
GND	3	10	R
GND	4	11	G
VCC	5	12	B
GND	6	13	HSYNC
GND	7	14	VSYNC

CN8 USB Pin Header



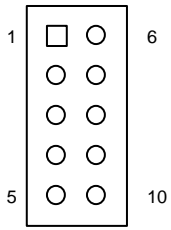
Pin	Signal
1	+5V
2	USB-
3	USB+
4	Ground
5	Ground

CN9 KB/MS Pin Header



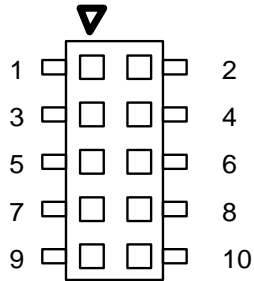
Pin	Signal Name
1	Keyboard Data
2	Keyboard Clock
3	Mouse Data
4	Mouse Clock
5	Power
6	Ground

CN6 COM Port Pin Header



Pin	Signal
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10	NC

CN5 LPC Debug Connector



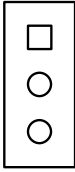
(Female)

Pin	Signal	Pin	Signal
1	+3.3V	2	Ground
3	EXTFWH#	4	LPC_LAD3
5	LRESET	6	LPC_LAD2
7	LCLK	8	LPC_LAD1
9	LFRAME	10	LPC_LAD0

CN7 H8 Signals Pin Header

Pin	Signal	Pin	Signal
1	I2C_BUS0_SDA	2	COM1_EN_SW
3	I2C_BUS0_SCL	4	COM1_CTS
5	I2C_BUS_INT	6	COM1_RTS
7	GND	8	COM1_TXD
9	GND	10	COM1_RXD

JP7 H8 PRG Pin Header



Pin	Signal
1	PRG_TXD
2	PRG_RXD
3	GND

CN1, CN2 220-pin B2B Connectors

Row A		Row B		Row C		Row D	
No.	Pin Name	No.	Pin Name	No.	Pin Name	No.	Pin Name
A1	GND (FIXED)	B1	GND (FIXED)	C1	GND (FIXED)	D1	GND (FIXED)
A2	3.3V	B2	RTCST#	C2	IDE_D7	D2	IDE_D5
A3	3.3V	B3	LPC_FRAME#	C3	IDE_D6	D3	IDE_D10
A4	3.3V	B4	LPC_AD0	C4	IDE_D3	D4	IDE_D11
A5	3.3V	B5	LPC_AD1	C5	IDE_D15	D5	IDE_D12
A6	3.3V	B6	LPC_AD2	C6	IDE_D8	D6	IDE_D4
A7	3.3V	B7	LPC_AD3	C7	IDE_D9	D7	IDE_D0
A8	3.3V	B8	LPC_DRQ0#	C8	IDE_D2	D8	IDE_REQ#
A9	3.3V	B9	LPC_DRQ1#	C9	IDE_D13	D9	IDE_IOW#
A10	3.3V	B10	LPC_CLK	C10	IDE_D1	D10	IDE_ACK#
A11	GND (FIXED)	B11	GND (FIXED)	C11	GND (FIXED)	D11	GND (FIXED)
A12	3.3V	B12	PWRBTN#	C12	IDE_D14	D12	IDE_IRQ
A13	2.5V ²	B13	SMB_CK ³	C13	IDE_IORDY	D13	IDE_A0
A14	2.5V ²	B14	SMB_DAT ³	C14	IDE_IOR#	D14	IDE_A1
A15	SUS_S3#	B15	SMB_ALERT#	C15	PCI_PME#	D15	IDE_A2
A16	SATA0_TX+	B16	SATA1_TX+	C16	PCI_GNT2#	D16	IDE_CS1#
A17	SATA0_TX-	B17	SATA1_TX-	C17	PCI_REQ2#	D17	IDE_CS3#
A18	SUS_S4#	B18	SUS_STAT#	C18	PCI_GNT1#	D18	IDE_RESET#
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCI_REQ1#	D19	PCI_GNT3#
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCI_GNT0#	D20	PCI_REQ3#
A21	GND (FIXED)	B21	GND (FIXED)	C21	GND (FIXED)	D21	GND (FIXED)
A22	CLK_PCIE_RSV2	B22	SUSCLK	C22	PCI_REQ0#	D22	PCI_AD1
A23	CLK_PCIE_RSV2#	B23	SATA3_TX- ¹	C23	PCI_RESET#	D23	PCI_AD3
A24	SUS_S5#	B24	PWR_OK	C24	PCI_AD0	D24	PCI_AD5
A25	SMI_HW#	B25	CLK33_RSV1	C25	PCI_AD2	D25	PCI_AD7
A26	WDT_SMI#	B26	CLK33_RSV2	C26	PCI_AD4	D26	PCI_C/BE0#
A27	BATLOW#	B27	WDT	C27	PCI_AD6	D27	PCI_AD9
A28	ATA_ACT#	B28	AC_SDIN2	C28	PCI_AD8	D28	PCI_AD11
A29	AC_SYNC	B29	AC_SDIN1	C29	PCI_AD10	D29	PCI_AD13
A30	AC_RST#	B30	AC_SDIN0	C30	PCI_AD12	D30	PCI_AD15
A31	GND (FIXED)	B31	GND (FIXED)	C31	GND (FIXED)	D31	GND (FIXED)
A32	AC_BITCLK	B32	SPKR	C32	PCI_AD14	D32	PCI_PAR
A33	AC_SDOUT	B33	CLK_14M	C33	PCI_C/BE1#	D33	PCI_SERR#
A34	BIOS_DISABLE#	B34	CLK_48M	C34	PCI_PERR#	D34	PCI_STOP#
A35	THRMTRIP#	B35	THRM#	C35	PCI_LOCK#	D35	PCI_TRDY#
A36	USB6-	B36	USB7-	C36	PCI_DEVSEL#	D36	PCI_FRAME#
A37	USB6+	B37	USB7+	C37	PCI_IRDY#	D37	PCI_AD16

Row A		Row B		Row C		Row D	
A38	USB_6_OC#	B38	USB_4_OC#	C38	PCI_C/BE2#	D38	PCI_AD18
A39	USB4-	B39	USB5-	C39	PCI_AD17	D39	PCI_AD20
A40	USB4+	B40	USB5+	C40	PCI_AD19	D40	PCI_AD22
A41	GND (FIXED)	B41	GND (FIXED)	C41	GND (FIXED)	D41	GND (FIXED)
A42	USB2-	B42	USB3-	C42	PCI_AD21	D42	PCI_AD24
A43	USB2+	B43	USB3+	C43	PCI_AD23	D43	PCI_AD26
A44	USB_2_OC#	B44	USB_0_OC#	C44	PCI_C/BE3#	D44	PCI_AD28
A45	USB0-	B45	USB1-	C45	PCI_AD25	D45	PCI_AD30
A46	USB0+	B46	USB1+	C46	PCI_AD27	D46	PCI_IRQC#
A47	VCC_RTC	B47	EXCD1_PERST#	C47	PCI_AD29	D47	PCI_IRQD#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	PCI_AD31	D48	PCI_CLKRUN#
A49	EXCD0_CPPE#	B49	SYS_RESET#	C49	PCI_IRQA#	D49	PCI_M66EN#
A50	LPC_SERIRQ	B50	CB_RESET#	C50	PCI_IRQB#	D50	PCI_CLK
A51	GND (FIXED)	B51	GND (FIXED)	C51	GND (FIXED)	D51	GND (FIXED)
A52	USB_7_OC#	B52	USB_5_OC#	C52	PEG_RX0+	D52	PEG_TX0+
A53	USB_3_OC#	B53	USB_1_OC#	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPI0	B54	GPO1	C54	RSVD ¹	D54	PEG_LANE_RV#
A55	CLK_PCIE_RSV1	B55	PM_EXTTS#0	C55	PEG_RX1+	D55	PEG_TX1+
A56	CLK_PCIE_RSV1#	B56	1.5V	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	RSVD ¹	D57	RSVD ¹
A58	PCIE3_TX+ ²	B58	PCIE3_RX+ ²	C58	PEG_RX2+	D58	PEG_TX2+
A59	PCIE3_TX- ²	B59	PCIE3_RX- ²	C59	PEG_RX2-	D59	PEG_TX2-
A60	GND (FIXED)	B60	GND (FIXED)	C60	GND (FIXED)	D60	GND (FIXED)
A61	PCIE2_TX+	B61	PCIE2_RX+	C61	PEG_RX3+	D61	PEG_TX3+
A62	PCIE2_TX-	B62	PCIE2_RX-	C62	PEG_RX3-	D62	PEG_TX3-
A63	GPI1	B63	GPO3	C63	RSVD ¹	D63	RSVD ¹
A64	PCIE1_TX+	B64	PCIE1_RX+	C64	RSVD ¹	D64	RSVD ¹
A65	PCIE1_TX-	B65	PCIE1_RX-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD ¹	D67	GND
A68	PCIE0_TX+	B68	PCIE0_RX+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE0_TX-	B69	PCIE0_RX-	C69	PEG_RX5-	D69	PEG_TX5-
A70	GND (FIXED)	B70	GND (FIXED)	C70	GND (FIXED)	D70	GND (FIXED)
A71	LVDS_A0+	B71	LVDS_B0+	C71	PEG_RX6+	D71	PEG_TX6+
A72	LVDS_A0-	B72	LVDS_B0-	C72	PEG_RX6-	D72	PEG_TX6-
A73	LVDS_A1+	B73	LVDS_B1+	C73	SDVO_DATA	D73	SDVO_CLK
A74	LVDS_A1-	B74	LVDS_B1-	C74	PEG_RX7+	D74	PEG_TX7+
A75	LVDS_A2+	B75	LVDS_B2+	C75	PEG_RX7-	D75	PEG_TX7-
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	VTT_1.05V	C77	RSVD ¹	D77	IDE_CBLID#
A78	THERMDC	B78	1.8V	C78	PEG_RX8+	D78	PEG_TX8+
A79	THERMDA	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND (FIXED)	B80	GND (FIXED)	C80	GND (FIXED)	D80	GND (FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_A_CK-	B82	LVDS_B_CK-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL	C83	RSVD ¹	D83	RSVD ¹
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_SBY	C85	PEG_RX10+	D85	PEG_TX10+
A86	KBD_RST#	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	KBD_A20GATE	B87	VCC_5V_SBY	C87	GND	D87	GND

Row A		Row B		Row C		Row D	
A88	PCIE_CK_REF+	B88	VCORE	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE_CK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND (FIXED)	B90	GND (FIXED)	C90	GND (FIXED)	D90	GND (FIXED)
A91	3.3VSB	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	3.3VSB	B92	VGA_BLU	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	3.3VSB	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	3.3VSB	B95	VGA_I2C_CK	C95	PEG_RX13-	D95	PEG_TX13-
A96	GND	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	VCC_5V	B97	TV_DAC_A	C97	RSVD ¹	D97	PEG_ENABLE#
A98	VCC_5V	B98	TV_DAC_B	C98	PEG_RX14+	D98	PEG_TX14+
A99	VCC_5V	B99	TV_DAC_C	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND (FIXED)	B100	GND (FIXED)	C100	GND (FIXED)	D100	GND (FIXED)
A101	VCC_5V	B101	VCC_5V	C101	PEG_RX15+	D101	PEG_TX15+
A102	VCC_5V	B102	VCC_5V	C102	PEG_RX15-	D102	PEG_TX15-
A103	VCC_5V	B103	VCC_5V	C103	GND	D103	GND
A104	VCC_5V	B104	VCC_5V	C104	VCC_5V	D104	VCC_5V
A105	VCC_5V	B105	VCC_5V	C105	VCC_5V	D105	VCC_5V
A106	VCC_5V	B106	VCC_5V	C106	VCC_5V	D106	VCC_5V
A107	VCC_5V	B107	VCC_5V	C107	VCC_5V	D107	VCC_5V
A108	VCC_5V	B108	VCC_5V	C108	VCC_5V	D108	VCC_5V
A109	VCC_5V	B109	VCC_5V	C109	VCC_5V	D109	VCC_5V
A110	GND (FIXED)	B110	GND (FIXED)	C110	GND (FIXED)	D110	GND (FIXED)

1. These pins are NC on MIC-760EM.
2. Pin A13 & A14 are input pins offer 1A max of 2.5V input. Other power pins are output pins.

CN11 160-pin B2B Connectors

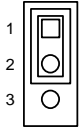
Row A		Row B	
No.	Pin Name	No.	Pin Name
A1	GBE0_MDI0+	B1	GND
A2	GBE0_MDI0-	B2	TDC2P
A3	LAN_2.5V	B3	TDC2N
A4	GND	B4	GND
A5	GBE0_MDI1+	B5	TDC1P
A6	GBE0_MDI1-	B6	TDC1N
A7	GND	B7	CH_HPDET
A8	GBE0_MDI2+	B8	TDC0P
A9	GBE0_MDI2-	B9	TDC0N
A10	GND	B10	GND
A11	GBE0_MDI3+	B11	TCLP
A12	GBE0_MDI3-	B12	TCLN
A13	GND	B13	GND
A14	SATA1_TXP	B14	PSONJ
A15	SATA1_TXN	B15	DDC_CLK
A16	GND	B16	DDC_DAT
A17	SATA1_RXP	B17	RST_BTN_IPEX
A18	SATA1_RXN	B18	PWR_BTN_IPEX
A19	GND	B19	CB_RESETJ
A20	SATA0_TXP	B20	GND
A21	SATA0_TXN	B21	MICIN
A22	GND	B22	LINR
A23	SATA0_RXP	B23	LINL
A24	SATA0_RXN	B24	LOUTR
A25	GND	B25	LOUTL
A26	USB5N	B26	AG
A27	USB5P	B27	AI4
A28	USB_OVCJ	B28	AI5
A29	USB4N	B29	GND
A30	USB4P	B30	LVDS_SMDAT
A31	GND	B31	LVDS_SMCLK
A32	USB3N	B32	SMB_ALERT
A33	USB3P	B33	SMB_DAT
A34	LVDS_VDD_EN	B34	SMB_CLK
A35	USB2N	B35	AO0_BL_ADJ
A36	USB2P	B36	AO1_FAN_CTRL
A37	GND	B37	GND
A38	USB1N	B38	USB0N
A39	USB1P	B39	USB0P
A40	LVDS_BL_EN	B40	GND
A41	PCIE2_RXP	B41	PCIE_REFCLK1N
A42	PCIE2_RXN	B42	PCIE_REFCLK1P
A43	GND	B43	GND
A44	PCIE2_TXP	B44	VBAT
A45	PCIE2_TXN	B45	BUZZER
A46	GND	B46	WAKE0J

Row A		Row B	
A47	PCIE1_RXP	B47	TP_YU
A48	PCIE1_RXN	B48	TP_YD
A49	GND	B49	TP_XL
A50	PCIE1_TXP	B50	TP_XR
A51	PCIE1_TXN	B51	GND
A52	GND	B52	MP_DO1
A53	PCIE0_RXP	B53	MP_DO2
A54	PCIE0_RXN	B54	MP_DO3
A55	GND	B55	MP_DO4
A56	PCIE0_TXP	B56	MP_DO5
A57	PCIE0_TXN	B57	MP_DO6
A58	GND	B58	MP_DO7
A59	LVDS_BCKN	B59	GND
A60	LVDS_BCKP	B60	MP_WDTO
A61	GND	B61	MP_DI0
A62	LVDS_B2N	B62	MP_DI1
A63	LVDS_B2P	B63	MP_DI2
A64	LVDS_B1N	B64	MP_DI4
A65	LVDS_B1P	B65	MP_DI5
A66	GND	B66	MP_DI6
A67	LVDS_B0N	B67	MP_DI7
A68	LVDS_B0P	B68	GND
A69	LVDS_BL_CTL	B69	+12V
A70	GND	B70	+12V
A71	LVDS_A0P	B71	+12V
A72	LVDS_A0N	B72	+12V
A73	LVDS_A1P	B73	+12V
A74	LVDS_A1N	B74	+12V
A75	GND	B75	+12V
A76	LVDS_A2P	B76	+12V
A77	LVDS_A2N	B77	+12V
A78	GND	B78	+12V
A79	LVDS_ACKP	B79	+12V
A80	LVDS_ACKN	B80	+12V

3

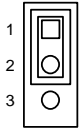
Jumpers

JP1 H8 signal MD0



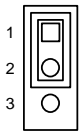
Jumper	Status
1-2	High
2-3	Low

JP2 H8 signal MD1



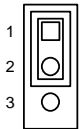
Jumper	Status
1-2	High
2-3	Low

JP3 H8 signal MD2



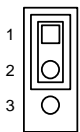
Jumper	Status
1-2	High
2-3	Low

JP4 H8 signal FWE



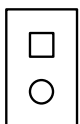
Jumper	Status
1-2	High
2-3	Low

JP5 H8 signal NMI



Jumper	Status
1-2	High
2-3	Low

JP6 Power Mode Selection



Jumper	Status
Short	ATX Mode
Open	AT Mode