

Base Board for COM Express Type 6 modules

ICE-DB-T6 Quick Installation Guide

Version 1.0

Oct. 23, 2012

Package Contents

ICE-DB-T6 package includes the following items:

- 1 x ICE-DB-T6 COM Express Base Board
- 2 x SATA Cable
- 1 x Dual Ports RS-232 Cable
- 1 x Mini Jumper Pack
- 1 x QIG (Quick Installation Guide)



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Specifications

- Form Factor
ATX form factor baseboard
- CPU
Supports COM Express Compact / Basic module using connector pin out Type 6
- Display Interfaces
1 x 18/24-bit single/dual-channel LVDS
1 x VGA
3 x DisplayPort (2 x real connectors, 1 x pin header)
- Super I/O
W83627DHG
- Audio
Realtek ALC892 HD audio codec (Line-in, Line-out, Mic)
- Expansions
1 x PCIe x16 6 x PCIe x1
2 x PCIe Mini (with USB) 1 x LPC
- Internal I/O Interface
4 x SATA port
2 x RS-232 from COM Express (only TX, RX and GND)
2 x RS-232 from SIO 1 x PS2 KB/MS
2 x USB 2.0 1 x SD
- Rear IO
1 x VGA 4 x USB 3.0
1 x RJ-45 3 x DisplayPort
1 x Audio jack (Line-in, Line-out, Mic)
- Front Audio
2 x 5-pin header
- TPM
2 x 10-pin header
- 80 port
2 x 7 segment display

- Front Panel
 - 1 x Front panel connector (power LED, HDD LED, speaker/buzzer, power button, reset button)
- I2C
 - 1 x 4-pin wafer
- SMBus
 - 1 x 4 pin wafer
- Watchdog Timer
 - Software programmable supports 1~255 sec. system reset
- GPIO
 - 8-bit GPIO (GPIO from iwDD co-lay SDIO)
- Power Supply
 - ATX/AT power supply
- Fan Connector
 - 1 x 4-pin / 1 x 3-pin CPU module fan connector
 - 1 x 3-pin system fan connector by SIO
- Operating Temperature
 - 10°C ~ 60°C
- Operating Humidity
 - 5% ~ 95%, non-condensing
- Dimensions
 - 304.8 mm x 243.8 mm (12" x 9.6")

Ordering Information

ICE-DB-9S-R10: Base Board for COM Express Type 2 modules

19800-000082-RS: RS-232/422/485 cable

32100-088600-RS: SATA Power cable

Table of Jumper setting

LABEL	FUNCTION
JP3	CMOS state setting
J_VLVDS1	LVDS1 Voltage Selection
JP2	Second BIOS setting
JP1	PCI Express Graphics setting
JP6	ATX & AT Power Mode Setting
JP5	Auto Power Button
JP4	DVDD_IO Voltage Selection

• JP3 : Clear CMOS Setup

JP3	DESCRIPTION
Short 1-2	Keep CMOS Setup(default) (Normal Operation)
Short 2-3	Clear CMOS Setup

• J_VLVDS1 : LVDS Voltage Selection

J_VLVDS1	DESCRIPTION
1-2	+3.3V LVDS (default)
2-3	+5V LVDS

•JP2 : Second BIOS setting

JP2	DESCRIPTION
Short 1-2	Enable (default)
Short 2-3	Disable

• **JP1 : PCI Express Graphics setting**

JP1	DESCRIPTION
Short 1-2	Disable (default)
Short 2-3	Enable

• **JP6 : AT Power Mode Setting**

PIN NO.	DESCRIPTION
Short 1-2	ATX Power Mode (default)
Short 3-4	AT Power Mode

• **JP5 : Auto Power Button setting**

JP5	DESCRIPTION
Short	Enable (default)
Open	Disable

• **JP4 : DVDD_IO Voltage Selection**

JP4	DESCRIPTION
1-2	+1.5V (default)
2-3	+3.3V

Table of Connectors

LABEL	FUNCTION
VGA1	VGA 15-pin Female Connector
USB_CON1	External 2 Port USB Connector
CN2	LAN and USB Port Connector
KB_MS1	KEYBOARD & MOUSE Connectors
COM1 COM2	Internal Serial Port Connectors
USB1	Internal 2 Port USB Connectors
AUDIO1	Extend Audio Module Connector
AUDIO2	Internal Audio Connector
CN3	Front Audio Connector
S_ATA1, S_ATA2, S_ATA3, S_ATA4	Serial ATA Connectors
CPU_FAN1	CPU Fan Connector
FNA1 FNA2	System Fan Connector
M_PCIE1 M_PCIE2	PCI-E Mini Card
INVERTER1	LVDS Panel Backlight +12V Power Source
LVDS1	LVDS Panel Connector
F_PANEL1	PWR & RST Buttons and Indicators
PWR1	ATX Power Source Connector (+12V, 5VSB)
PWR2	+12V Power Source Connector
CN1	Trusted Platform Module (TPM)
SMBUS_1	SMBUS Connector
I2C_1	I2C BUS Connector
CN4	COM Express GP I/O Connector
COMEXPRESS1 COMEXPRESS2	COM Express connector AB & CD

• **VGA1 : 15-pin Female Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

• **USB_CON1: USB Connector**

CN26			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	VCC
2	DATA-	6	DATA-
3	DATA+	7	DATA+
4	GND	8	GND

• **CN2: RJ45 LAN and USB Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3.	MDIA2-	7	MDIA0-
4.	MDIA1-	8	MDIA0+

• **KB_MS1(Purple): 6-pin Mini-DIN Keyboard Connector**

PIN NO.	DESCRIPTION
1	Keyboard Data
2	NC
3	GND
4	VCC
5	Keyboard Clock
6	NC

● **KB_MS1(Green): 6-pin Mini-DIN Mouse Connector**

PIN NO.	DESCRIPTION
1	Mouse Data
2	NC
3	GND
4	VCC
5	Mouse Clock
6	NC

● **COM1、COM2: Internal Serial Port Connectors**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	DATA SET READY (DSR)
3	RECEIVE DATA (RXD)
4	REQUEST TO SEND (RTS)
5	TRANSMIT DATA (TXD)
6	CLEAR TO SEND (CTS)
7	DATA TERMINAL READY (DTR)
8	RING INDICATOR (RI)
9	GND (GND)
10	N/C

● **USB1: Internal USB Connector(CB-USB02-RS(Bracket))**

USB01, USB23, USB45			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

● **Extend Audio Module Connector**

AUDIO1	
PIN NO.	DESCRIPTION
Line-in	CD/DVD or other audio source input port
Line-out	Connect this port to headphone or speaker
Microphone	Connect this port to microphone

● **AUDIO2 : Internal Audio Connectors**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LET-OUT	6	SURR-L
2	CEN-OUT	7	SIDESURR-R
3	CEN-JD	8	SIDESURR-L
4	SURR-JD	9	SIDESURR-JD
5	SURR-R	10	GND

● **CN3 : Front Audio Connector(033F051-00-101-RS)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MIC_L	2	GND
3	MIC_R	4	Audio Detect
5.	LINE2-R	6	GND
7	Jack Detection	8	N/C
9	LINE2-L	10	GND

● **SATA1 、 SATA2 、 SATA3 & SATA4 : Serial ATA Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

● **CPU_FAN1 : CPU Fan Connector**

PIN NO.	DESCRIPTION
1	Ground
2	+12V
3	FANIO1
4	PWM

● **FAN1 、 FAN2 : CPU Fan Connector**

PIN NO.	DESCRIPTION
1	GND
2	+12V (PWM)
3	FANIO1

● **M_PCIE1,M_PCIE2: PCI-E Mini Card Connector**

PCI-E Mini Card Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	CLKREQ#	8	LFRAME#
9	GND	10	LAD3
11	CLK-	12	LAD2
13	CLK+	14	LAD1
15	GND	16	LAD0
17	PCIRST#	18	GND
19	LPC	20	VCC3
21	GND	22	PCIRST#
23	PERN2	24	3VDual
25	PERP2	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN2	32	SMBDATA
33	PETP2	34	GND
35	GND	36	USBD-
37	N/C	38	USBD+
39	N/C	40	GND
41	N/C	42	N/C
43	N/C	44	RF_LINK#
45	N/C	46	BLUELED#
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	VCC3

● **INVERTER1 : 5-pin Header Inverter Connector**

PIN NO.	DESCRIPTION
1	LCD_BKLTCTL
2	GND
3	+12V
4	GND
5	BACKLIGHT ENABLE

●**LVDS1: LVDS Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND1	2	GND2
3	A_Y0	4	A_Y0#
5	A_Y1	6	A_Y1#
7	A_Y2	8	A_Y2#
9	A_CK	10	A_CK#
11	NC	12	NC
13	GND3	14	GND4
15	B_Y0	16	B_Y0#
17	B_Y1	18	B_Y1#
19	B_Y2	20	B_Y2#
21	B_CK	22	B_CK#
23	NC	24	NC
25	GND5	26	GND6
27	VCC_LCD	28	VCC_LCD
29	VCC_LCD	30	VCC_LCD

●**PWR1: +12V MAIN POWER Connector**

PWR1: ATX Power Connector			
Pin	Description	Pin	Description
1	NC	11	NC
2	NC	12	NC
3	GND	13	GND
4	NC	14	PS-ON
5	GND	15	GND
6	NC	16	GND
7	GND	17	GND
8	NC	18	NC
9	+5VSB	19	NC
10	+12Vdc	20	NC

● **PWR2 : +12V MAIN POWER Connector**

ATX 12V1			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

● **F_PANEL1 : PWR & RST Buttons and Indicators panel**

	PIN	DESCRIPTION	PIN	DESCRIPTION	
Power LED	1	+5V	2	VCC	Speaker
	3	N/C	4	N/C	
	5	GND	6	N/C	
PWRBTN	7	PWRBTN+	8	Speaker	RESET
	9	PWRBTN-	10	N/C	
HDDLED	11	VCC	12	Reset-	
	13	HDLED-	14	GND	

● **CN1: Trusted Platform Module connector**

Trusted Platform Module connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FWHPCLK	2	GND
3	LFRAME#	4	KEY
5	PCIRST#	6	VCC
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	SMBCLK	14	SMBDATA
15	3VDUAL	16	SERIRQ
17	GND	18	CLKRUN#
19	LPCPD#	20	LDRQ#

● **SMBUS_1 : 4-pin Header SMBUS Connector**

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	SMBUS CLOCK
3	SMBUS DATA
4	GND

● **I2C_1 : 4-pin Header I2C BUS Connector**

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	I2C CLOCK
3	I2C DATA
4	GND

• **CN4 : COM Express GPIO Input / Output Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	GPI 0	4	GPO 0
5	GPI 1	6	GPO 1
7	GPI 2	8	GPO 2
9	GPI 3	10	GPO 3

• **COMEXPRESS2 : COM Express Connector AB**

Pin	Signal	Pin	Signal
A1	GND	B1	GND
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND	B11	GND
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND	B21	GND
A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1

A30	AC_RST#	B30	AC_SDIN0
A31	GND	B31	GND
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOOUT	B33	I2C_CK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND	B41	GND
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND	B51	GND
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPI0	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND	B60	GND
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND	B70	GND
A71	LVDS_A0+	B71	LVDS_B0+

A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND	B80	GND
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	5VSB
A85	GPI3	B85	5VSB
A86	RSVD	B86	5VSB
A87	RSVD	B87	5VSB
A88	PCIE0_CK_REF+	B88	BIOS_DIS1#
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND	B90	GND
A91	SPI_POWER	B91	VGA_GRN
A92	SPI_MISO	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC
A94	SPI_CLK	B94	VGA_VSYNC
A95	SPI_MOSI	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	TYPE10#	B97	SPI_CS#
A98	RS1_TX	B98	RSVD
A99	RS1_RX	B99	RSVD
A100	GND	B100	GND
A101	RS2_TX	B101	FAN_PWMOUT
A102	RS2_RX	B102	FAN_TACHIN
A103	LID#	B103	SLEEP#
A104	+V12	B104	+V12
A105	+V12	B105	+V12
A106	+V12	B106	+V12
A107	+V12	B107	+V12
A108	+V12	B108	+V12
A109	+V12	B109	+V12
A110	GND	B110	GND

• **COMEXPRESS1 : COM Express Connector CD**

Pin	Signal	Pin	Signal
C1	GND	D1	GND
C2	GND	D2	GND
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	
C5	GND	D5	GND
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND	D8	GND
C9	USB_SSRX2-	D9	USB_SSTX2-
C10	USB_SSRX2+	D10	USB_SSTX2+
C11	GND	D11	GND
C12	USB_SSRX3-	D12	USB_SSTX3-
C13	USB_SSRX3+	D13	USB_SSTX3+
C14	GND	D14	GND
C15	DDI1_PAIR6+	D15	DDI1_AUX+
C16	DDI1_PAIR6-	D16	DDI1_AUX-
C17	RSVD	D17	RSVD
C18	RSVD	D18	RSVD
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND	D21	GND
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-
C24	DDI1_PHD	D24	RSVD
C25	DDI1_PAIR4+	D25	RSVD
C26	DDI1_PAIR4-	D26	DDI1_PAIR0+
C27	RSVD	D27	DDI1_PAIR0-
C28	RSVD	D28	RSVD
C29	DDI1_PAIR5+	D29	DDI1_PAIR1+
C30	DDI1_PAIR5-	D30	DDI1_PAIR1-
C31	GND	D31	GND
C32	DDI2_AUX+	D32	DDI1_PAIR2+
C33	DDI2_AUX-	D33	DDI1_PAIR2-
C34	DDI2_CTRLCLK	D34	DDI2_CTRLDATA
C35	RSVD	D35	RSVD
C36	DDI3_AUX+	D36	DDI1_PAIR3+
C37	DDI3_AUX-	D37	DDI1_PAIR3-
C38	DDI3_CTRLCLK	D38	DDI3CTRLDATA
C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
C40	DDI3_PAIR0-	D40	DDI2_PAIR0-

C41	GND	D41	GND
C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
C44	DDI3_PHD	D44	DDI2_PHD
C45	RSVD	D45	RSVD
C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
C48	RSVD	D48	RSVD
C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
C51	GND	D51	GND
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#	D54	PEG_LANE_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND	D60	GND
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND	D70	GND
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	DDI1_CTRLDATA	D73	DDI1CTRLCLK
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PEG_RX8+	D78	PEG_TX8+
C79	PEG_RX8-	D79	PEG_TX8-
C80	GND	D80	GND
C81	PEG_RX9+	D81	PEG_TX9+
C82	PEG_RX9-	D82	PEG_TX9-

C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PEG_RX10+	D85	PEG_TX10+
C86	PEG_RX10-	D86	PEG_TX10-
C87	GND	D87	GND
C88	PEG_RX11+	D88	PEG_TX11+
C89	PEG_RX11-	D89	PEG_TX11-
C90	GND	D90	GND
C91	PEG_RX12+	D91	PEG_TX12+
C92	PEG_RX12-	D92	PEG_TX12-
C93	GND	D93	GND
C94	PEG_RX13+	D94	PEG_TX13+
C95	PEG_RX13-	D95	PEG_TX13-
C96	GND	D96	GND
C97	RSVD	D97	PEG_ENABLE#
C98	PEG_RX14+	D98	PEG_TX14+
C99	PEG_RX14-	D99	PEG_TX14-
C100	GND	D100	GND
C101	PEG_RX15+	D101	PEG_TX15+
C102	PEG_RX15-	D102	PEG_TX15-
C103	GND	D103	GND
C104	+V12	D104	+V12
C105	+V12	D105	+V12
C106	+V12	D106	+V12
C107	+V12	D107	+V12
C108	+V12	D108	+V12
C109	+V12	D109	+V12
C110	GND	D110	GND

Board Layout: Dimensions (Unit: mm)

