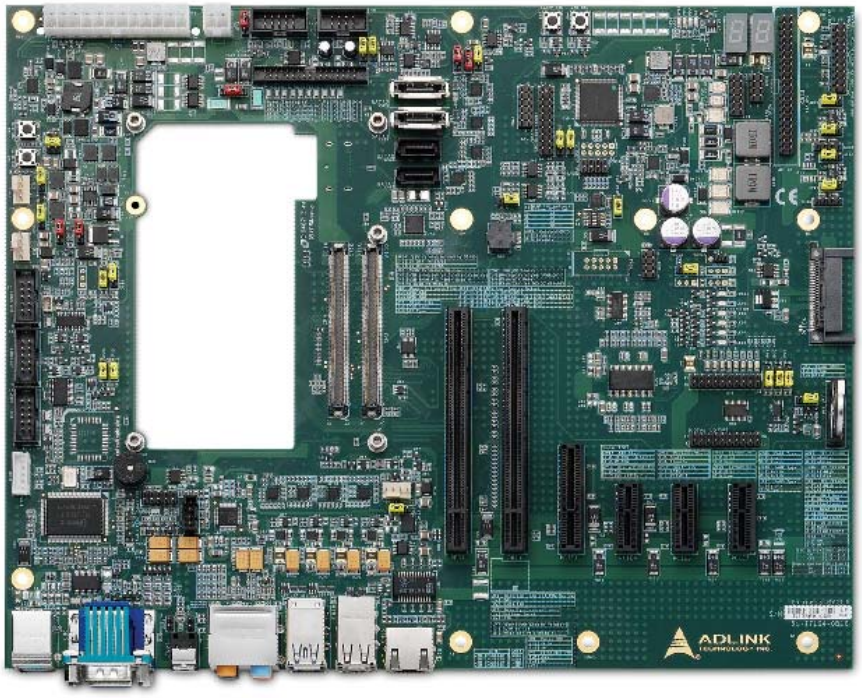
COM Express

Express-BASE6

User's Manual



Manual Revision: 2.01

Revision Date: September 11, 2013

Part Number: 50-1J035-1010

ADLINK TECHNOLOGY INC.

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Revision History

Release	Date	Change
2.00	2012/6/25	Initial release
2.01	2013/09/11	Update to B1 PCB version (COM.0 Rev.2.1, W83627DHG-PT SIO)

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Preface

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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



Additional information, aids, and tips that help users perform tasks.



Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.



Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Introduction

The COM Express approach of custom carrier combined with off the shelf system cores is an excellent solution when you need to customize but lack the time or quantity for a complete redesign. It fits most system integration projects with production volumes from 500 to 10,000 pcs per year. The COM Express concept has a great many advantages over full custom designs, it reduces engineering complexity, lowers the threshold for total project quantity and last but not least brings your product to the market in no time. The average time to design a carrier board is less than half the time of a full custom OEM board.

Express-BASE6 is a standard ATX size carrier board. Together with the COM Express Type 6 module of your choice and off the shelf add-on cards you can quickly emulate the functionality of your desired end product for software development and hardware verification.

To build a functional prototype of your target system you will need:

- COM Express Type 6 module
- Express-BASE6 carrier board
- PCI Express add on cards
- SATA storage or Flash disk solution

The Express-BASE6 is compatible with Basic and Compact form factor Type 6 pinout COM Express modules and accommodates up to three PCI Express x1 slots, one PCI Express x4 slot, one PCI Express Graphics x16 slot and one ExpressCard slot.

The Express-BASE6 is based on the PICMG COM Express (COM.0 Rev. 2.1) specification and ifollows the PICMG COM Express Carrier Design Guide (CDG) where possible. (see *6.3 Carrier Board Design* on page 12).

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2 Special Features

2.1 Primary LPC based Super I/O

COM Express modules do not have a Super I/O chip onboard as this is considered legacy. Consequently, a Super I/O is placed on the carrier board as an optional item. The Express-BASE6 uses a Winbond W83627DHG-PT supporting COM and PS/2 Keyboard and Mouse. The Winbond W83627DHG-PT supports a -40°C to 85°C temperature range and is pin compatible with the W83627DHG-P.

2.2 Secondary BIOS

The Express-BASE6 supports the Serial Peripheral Interface (SPI) for COM.0 Rev. 2.0 modules. Selection of active BIOS can be made by jumper settings. The location of the secondary BIOS is U55 (see 3. Component Location).

2.3 Integrated Debug Port with Single Step Execution

In addition to a two-digit POST code display, the board also provides a four-digit address display. By jumper selection the board can be switched into single step BIOS execution mode. Steps are executed using a manually operated onboard mini switch.

2.4 Onboard Audio

The Express-BASE6 has a Realtek ALC886 audio codec onboard. Audio I/O is provided by a six-jack connector.

2.5 Information LEDs

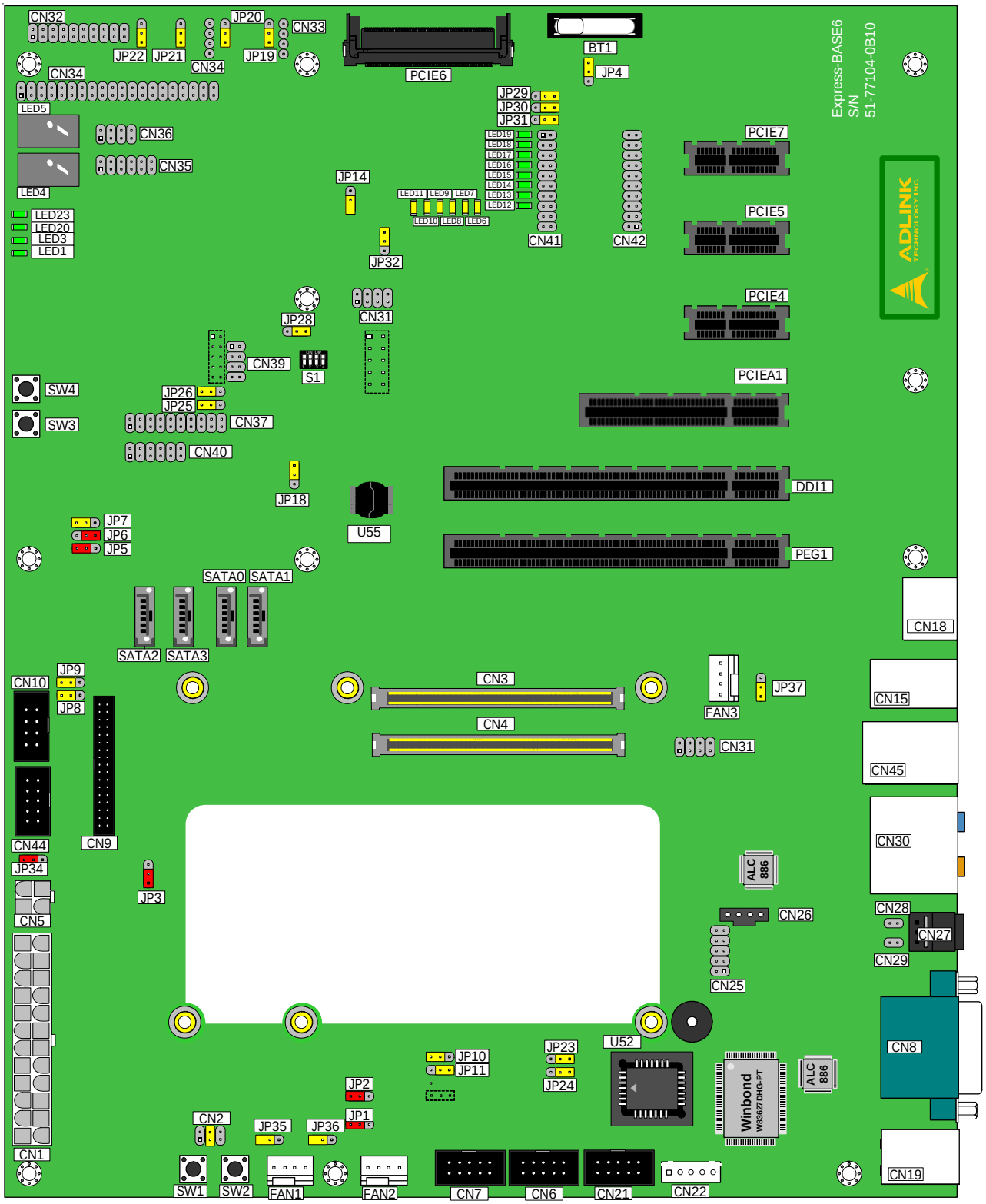
General information is obtained through signaling LEDs for HDD, Power and Watchdog status. Additionally the Express-BASE6 gives information about module types being plug into the board. See *8.2 Module Type Display* on page 35 and *8.3 POST & Indicator LEDs* on page 36.

2.6 Power, Reset, Lid and Sleep Switches

The Express-BASE6 is equipped four mini switches (SW1~4) for ATX Power, Reset, and COM.0 Rev.2.0 specified "Lid" and "Sleep" functions.

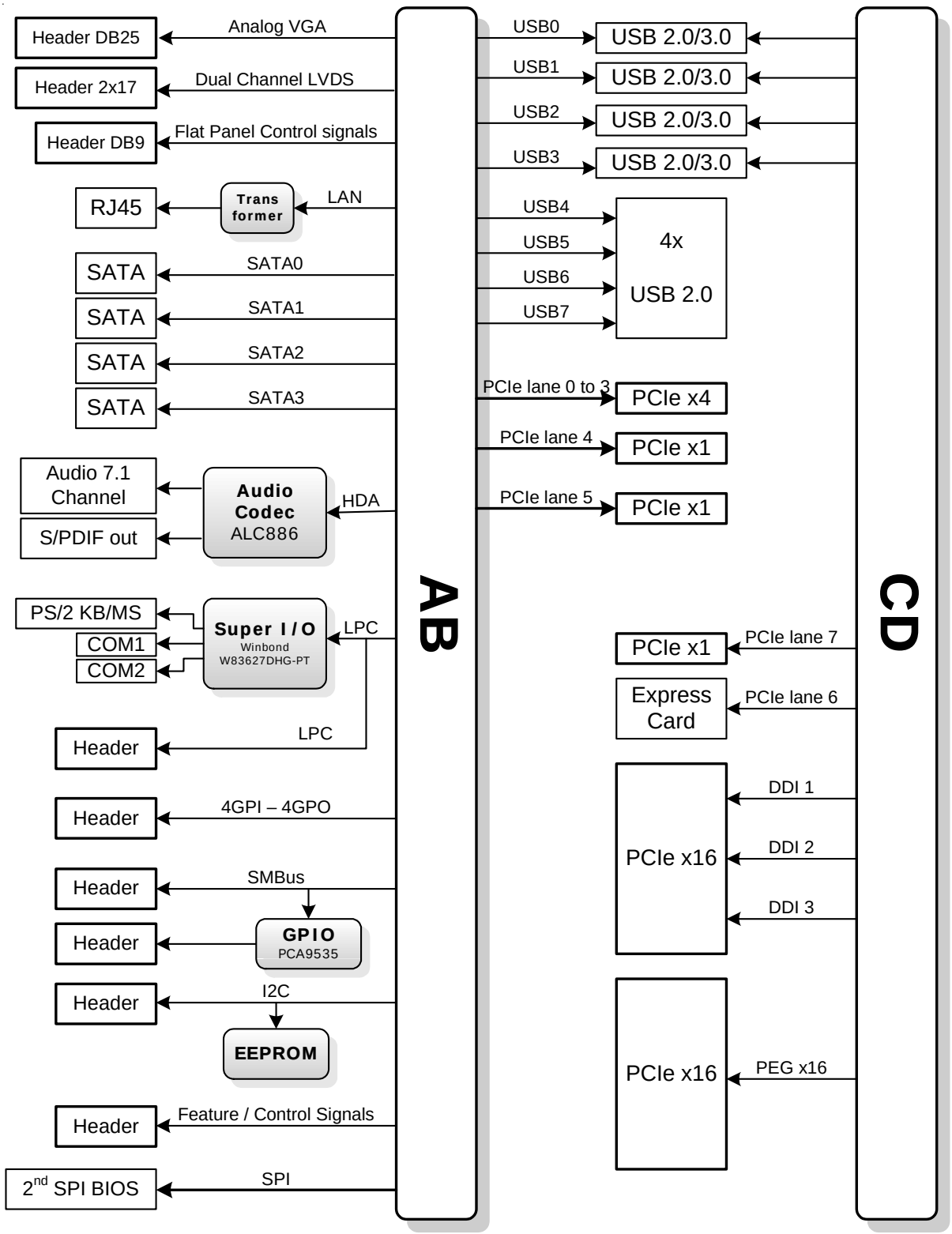
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3 Component Location



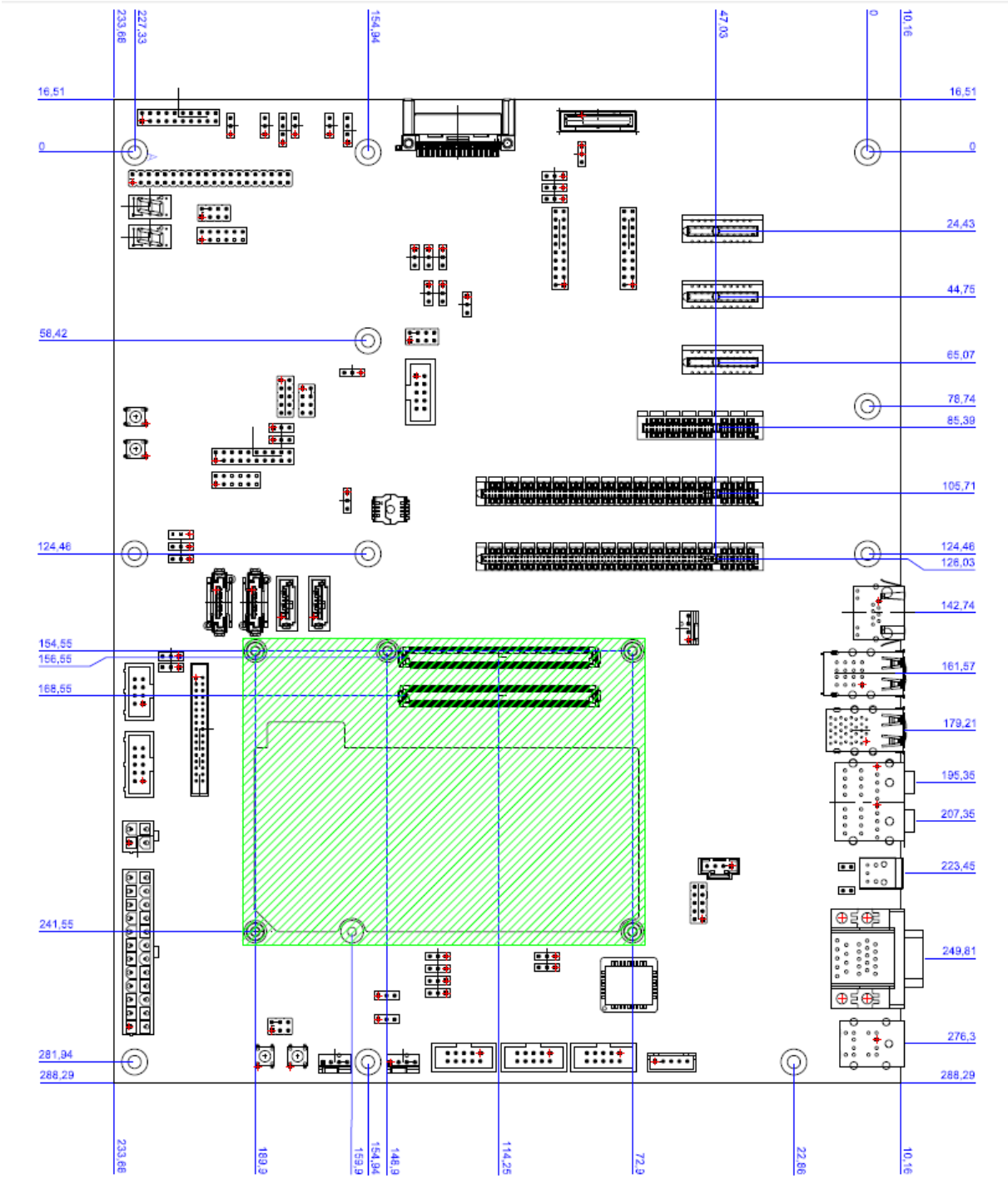
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4 Function Block Diagram



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5 Mechanical Dimensions



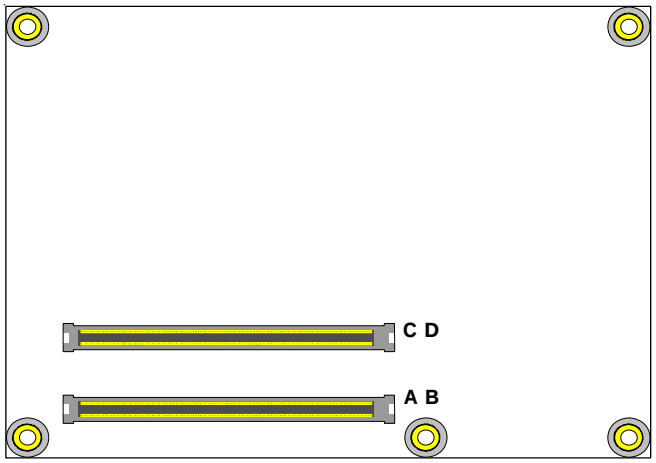
All ⌀ tolerances ±0,05mm
Other tolerances ±0,2mm

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6 Connectors and Pin-outs

6.1 Carrier Board Signals - Type 6

AB Connector
1 Gigabit Ethernet port
LPC interface
4 Serial ATA channels
High Definition Audio
8 USB 2.0 ports
COM1/2 from SIO
6 PCI Express Lanes x1
Dual 24-bit LVDS channels
Analog VGA
8 GPIO pins
SMBus and I²C bus
+12V primary power input
+5V standby and 3V RTC
Smart fan



CD Connector
USB 3.0 support, extended signaling on four of eight USB 2.0 ports
2 PCI Express x1 lanes
1 PCI Express x16
+12V primary power input
3 Digital Display Interfaces (DDI) supporting SDVO/HDMI/ DVI/DisplayPort output

6.2 Connector and Pinout Compatibility

Connectors positions and pinouts comply with pinout and signal descriptions in the “PICMG® COM.0 - COM Express Module Base specification, Revision 2”. This document includes: description of pinouts, signal descriptions and mechanical characteristics of the COM Express specification. The Express-BASE6 is compatible with COM Express modules in **Basic and Compact form factor, Type 6 pinout, COM.0 Rev. 2.1**.

6.3 Carrier Board Design

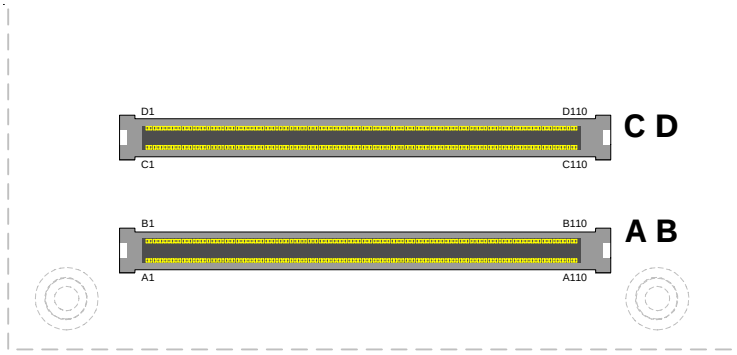
The Express-BASE6 follows the PICMG COM Express Carrier Design Guide (CDG) where possible. However, the CDG was written for COM Express Type 2 modules and currently does not cover areas such as USB 3.0 or the newly introduced DDI channels on the new pinout of the Type 6 CD connector. So while the CDG is still a valuable design tool, be forewarned where signals specific to Type 6 modules are concerned. The Express-BASE6 design and schematics are fully verified, and we recommend that you follow them as a reference for your carrier board design.

Express-BASE6 Schematics and Mechanical files as well as the CDG for Type 2 modules can be downloaded from the ADLINK Express-BASE6 product webpage:
http://www.adlinktech.com/PD/web/PD_detail.php?cKind=&pid=1074

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6.4 COM Express Board-to-Board Connectors

Signals and Pinout for:
COM Express Type 6.



	Row A		Row B		Row C		Row D
Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
A1	GND(FIXED)	B1	GND(FIXED)	C1	GND(FIXED)	D1	GND(FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#	C2	GND	D2	GND
A3	GBE0_MDI3+	B3	LPC_FRAME#	C3	USB_SSRX0-	D3	USB_SSTX0-
A4	GBE0_LINK100#	B4	LPC_AD0	C4	USB_SSRX0+	D4	USB_SSTX0+
A5	GBE0_LINK1000#	B5	LPC_AD1	C5	GND	D5	GND
A6	GBE0_MDI2-	B6	LPC_AD2	C6	USB_SSRX1-	D6	USB_SSTX1-
A7	GBE0_MDI2+	B7	LPC_AD3	C7	USB_SSRX1+	D7	USB_SSTX1+
A8	GBE0_LINK#	B8	LPC_DRQ0#	C8	GND	D8	GND
A9	GBE0_MDI1-	B9	LPC_DRQ1#	C9	USB_SSRX2-	D9	USB_SSTX2-
A10	GBE0_MDI1+	B10	LPC_CLK	C10	USB_SSRX2+	D10	USB_SSTX2+
A11	GND(FIXED)	B11	GND(FIXED)	C11	GND(FIXED)	D11	GND(FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	USB_SSRX3-	D12	USB_SSTX3-
A13	GBE0_MDI0+	B13	SMB_CK	C13	USB_SSRX3+	D13	USB_SSTX3+
A14	GBE0_CTREF	B14	SMB_DAT	C14	GND	D14	GND
A15	SUS_S3#	B15	SMB_ALERT#	C15	DDI1_PAIR6+	D15	DDI1_CTRLCLK_AUX+
A16	SATA0_TX+	B16	SATA1_TX+	C16	DDI1_PAIR6-	D16	DDI1_CTRLDATA_AUX-
A17	SATA0_TX-	B17	SATA1_TX-	C17	RSVD	D17	RSVD
A18	SUS_S4#	B18	SUS_STAT#	C18	RSVD	D18	RSVD
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCIE_RX6+	D19	PCIE_TX6+
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCIE_RX6-	D20	PCIE_TX6-
A21	GND(FIXED)	B21	GND(FIXED)	C21	GND(FIXED)	D21	GND(FIXED)
A22	SATA2_TX+	B22	SATA3_TX+	C22	PCIE_RX7+	D22	PCIE_TX7+
A23	SATA2_TX-	B23	SATA3_TX-	C23	PCIE_RX7-	D23	PCIE_TX7-
A24	SUS_S5#	B24	PWR_OK	C24	DDI1_HPD	D24	RSVD
A25	SATA2_RX+	B25	SATA3_RX+	C25	DDI1_PAIR4+	D25	RSVD
A26	SATA2_RX-	B26	SATA3_RX-	C26	DDI1_PAIR4-	D26	DDI1_PAIR0+
A27	BATLOW#	B27	WDT	C27	RSVD	D27	DDI1_PAIR0-
A28	(S)ATA_ACT#	**B28**	AC/HDA_SDIN2	C28	RSVD	D28	RSVD
A29	AC/HDA_SYNC	**B29**	AC/HDA_SDIN1	C29	DDI1_PAIR5+	D29	DDI1_PAIR1+
A30	AC/HDA_RST#	**B30**	AC/HDA_SDIN0	C30	DDI1_PAIR5-	D30	DDI1_PAIR1-
A31	GND(FIXED)	B31	GND(FIXED)	C31	GND(FIXED)	D31	GND(FIXED)
A32	AC/HDA_BITCLK	B32	SPKR	C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
A33	AC/HDA_SDOUT	B33	I2C_CK	C33	DDI2_CTRLDATA_AUX-	D33	DDI1_PAIR2-
A34	BIOS_DIS0#	B34	I2C_DAT	C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
A35	THRMTRIP#	B35	THRM#	C35	RSVD	D35	RSVD
A36	USB6-	B36	USB7-	C36	DDI3_CTRLCLK_AUX+	D36	DDI1_PAIR3+
A37	USB6+	B37	USB7+	C37	DDI3_CTRLDATA_AUX-	D37	DDI1_PAIR3-
A38	USB_6_7_OC#	B38	USB_4_5_OC#	C38	DDI3_DDC_AUX_SEL	D38	RSVD
A39	USB4-	B39	USB5-	C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
A40	USB4+	B40	USB5+	C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
A41	GND(FIXED)	B41	GND(FIXED)	C41	GND(FIXED)	D41	GND(FIXED)
A42	USB2-	B42	USB3-	C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
A43	USB2+	B43	USB3+	C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	DDI3_HPD	D44	DDI2_HPD
A45	USB0-	B45	USB1-	C45	RSVD	D45	RSVD
A46	USB0+	B46	USB1+	C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
A47	VCC_RTC	B47	EXCD1_PERST#	C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	RSVD	D48	RSVD
A49	EXCD0_CPPE#	B49	SYS_RESET#	C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
A50	LPC_SERIRQ	B50	CB_RESET#	C50	DDI3_PAIR3-	D50	DDI2_PAIR3-

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COM Express Board-to-Board Connectors (cont'd):

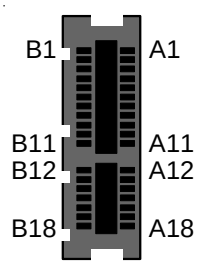
	Row A		Row B		Row C		Row D
A51	GND(FIXED)	B51	GND(FIXED)	C51	GND(FIXED)	D51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+	C52	PEG_RX0+	D52	PEG_TX0+
A53	PCIE_TX5-	B53	PCIE_RX5-	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPI0	B54	GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TX4+	B55	PCIE_RX4+	C55	PEG_RX1+	D55	PEG_TX1+
A56	PCIE_TX4-	B56	PCIE_RX4-	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TX3+	B58	PCIE_RX3+	C58	PEG_RX2+	D58	PEG_TX2+
A59	PCIE_TX3-	B59	PCIE_RX3-	C59	PEG_RX2-	D59	PEG_TX2-
A60	GND(FIXED)	B60	GND(FIXED)	C60	GND(FIXED)	D60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+	C61	PEG_RX3+	D61	PEG_TX3+
A62	PCIE_TX2-	B62	PCIE_RX2-	C62	PEG_RX3-	D62	PEG_TX3-
A63	GPI1	B63	GPO3	C63	RSVD	D63	RSVD
A64	PCIE_TX1+	B64	PCIE_RX1+	C64	RSVD	D64	RSVD
A65	PCIE_TX1-	B65	PCIE_RX1-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD	D67	GND
A68	PCIE_TX0+	B68	PCIE_RX0+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE_TX0-	B69	PCIE_RX0-	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	GND	D73	GND
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	LVDS_B3+	C77	RSVD	D77	RSVD
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	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	TPM_PP	D83	RSVD
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	RSVD	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	RSVD	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE_CLK_REF+	**B88**	BIOS_DIS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE_CLK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND(FIXED)	B90	GND(FIXED)	C90	GND(FIXED)	D90	GND(FIXED)
A91	SPI_POWER	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	SPI_MISO	B92	VGA_BLU	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	SPI_MOSI	B95	VGA_I2C_CK	C95	PEG_RX13-	D95	PEG_TX13-
A96	TPM_PP	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	TYPE10#	**B97**	SPI_CS#	C97	RSVD	D97	RSVD
A98	SER0_TX	**B98**	RSVD	C98	PEG_RX14+	D98	PEG_TX14+
A99	SER0_RX	**B99**	RSVD	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND(FIXED)	B100	GND(FIXED)	C100	GND(FIXED)	D100	GND(FIXED)
A101	SER1_TX	**B101**	FAN_PWMOUT	C101	PEG_RX15+	D101	PEG_TX15+
A102	SER1_RX	**B102**	FAN_TACHIN	C102	PEG_RX15-	D102	PEG_TX15-
A103	LID#	**B103**	SLEEP#	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND(FIXED)	B110	GND(FIXED)	C110	GND(FIXED)	D110	GND(FIXED)

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6.5 PCI Express Slots

PCI Express x1:

PCIE4
PCIE5
PCIE7
(from corresponding PCIE*n* signals on AB connector)



Pin	Signal	Pin	Signal
B1	+ 12V	A1	NC
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CK	A5	TCK
B6	SMB_DAT	A6	TDI
B7	GND	A7	NC
B8	+ 3.3V	A8	TMS
B9	TRST#	A9	+ 3.3V
B10	+3.3VSB	A10	+ 3.3V
B11	WAKE#	A11	PERST#
B12	NC	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	NC	A17	PERn0
B18	GND	A18	GND

PCIE6:

ExpressCard - PCIe only
(from PCIE6 signal on AB connector)

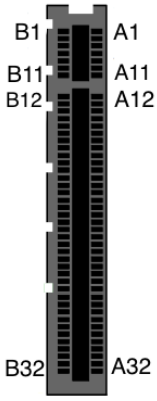


Pin	Signal	Pin	Signal
1	GND	14	+3.3V
2	TP23	15	+3.3V
3	TP24	16	CLKREQ#
4	CPUSB#	17	CPPE#
5	RESERVED	18	REFCLK-
6	RESERVED	19	REFCLK+
7	SMB_CK	20	GND
8	SMB_DAT	21	PERn0
9	+1.5V	22	PERp0
10	+1.5V	23	GND
11	WAKE#	24	PETn0
12	+3.3VSB	25	PETp0
13	PERST#	26	GND

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PCIE x4

(from PCIE0~3 signals on AB connector)



Pin	Signal	Pin	Signal
B1	+ 12V	A1	NC
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CK	A5	TCK
B6	SMB_DAT	A6	TDI
B7	GND	A7	NC
B8	+ 3.3V	A8	TMS
B9	TRST#	A9	+ 3.3V
B10	+3.3VSB	A10	+ 3.3V
B11	WAKE#	A11	PERST#
B12	NC	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	RSVD	A17	PERn0
B18	GND	A18	GND
B19	PETp1	A19	NC
B20	PETn1	A20	GND
B21	GND	A21	PERp1
B22	GND	A22	PERn1
B23	PETp2	A23	GND
B24	PETn2	A24	GND
B25	GND	A25	PERp2
B26	GND	A26	PERn2
B27	PETp3	A27	GND
B28	PETn3	A28	GND
B29	GND	A29	PERp3
B30	NC	A30	PERn3
B31	RSVD	A31	GND
B32	GND	A32	NC

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PEG1: PCI Express x16



Pin	Signal	Pin	Signal
B1	+ 12V	A1	NC
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CK	A5	TCK
B6	SMB_DAT	A6	TDI
B7	GND	A7	NC
B8	+ 3.3V	A8	TMS
B9	TRST#	A9	+ 3.3V
B10	+3.3VSB	A10	+ 3.3V
B11	WAKE#	A11	PERST#
B12	NC	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	RSVD	A17	PERn0
B18	GND	A18	GND
B19	PETp1	A19	NC
B20	PETn1	A20	GND
B21	GND	A21	PERp1
B22	GND	A22	PERn1
B23	PETp2	A23	GND
B24	PETn2	A24	GND
B25	GND	A25	PERp2
B26	GND	A26	PERn2
B27	PETp3	A27	GND
B28	PETn3	A28	GND
B29	GND	A29	PERp3
B30	NC	A30	PERn3
B31	RSVD	A31	GND
B32	GND	A32	NC
B33	PETp4	A33	NC
B34	PETn4	A34	GND
B35	GND	A35	PERp4
B36	GND	A36	PERn4
B37	PETp5	A37	GND
B38	PETn5	A38	GND
B39	GND	A39	PERp5
B40	GND	A40	PERn5
B41	PETp6	A41	GND

Pin	Signal	Pin	Signal
B42	PETn6	A42	GND
B43	GND	A43	PERp6
B44	GND	A44	PERn6
B45	PETp7	A45	GND
B46	PETn7	A46	GND
B47	GND	A47	PERp7
B48	NC	A48	PERn7
B49	GND	A49	GND
B50	PETp8	A50	NC
B51	PETn8	A51	GND
B52	GND	A52	PERp8
B53	GND	A53	PERn8
B54	PETp9	A54	GND
B55	PETn9	A55	GND
B56	GND	A56	PERp9
B57	GND	A57	PERn9
B58	PETp10	A58	GND
B59	PETn10	A59	GND
B60	GND	A60	PERp10
B61	GND	A61	PERn10
B62	PETp11	A62	GND
B63	PETn11	A63	GND
B64	GND	A64	PERp11
B65	GND	A65	PERn11
B66	PETp12	A66	GND
B67	PETn12	A67	GND
B68	GND	A68	PERp12
B69	GND	A69	PERn12
B70	PETp13	A70	GND
B71	PETn13	A71	GND
B72	GND	A72	PERp13
B73	GND	A73	PERn13
B74	PETp14	A74	GND
B75	PETn14	A75	GND
B76	GND	A76	PERp14
B77	GND	A77	PERn14
B78	PETp15	A78	GND
B79	PETn15	A79	GND
B80	GND	A80	PERp15
B81	NC	A81	PERn15
B82	NC	A82	GND

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6.6 Digital Display Interface

DDI1: DDI 1~3/SDVO Signals

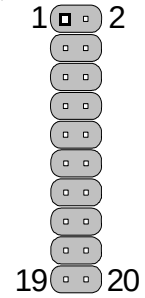


Pin	Signal	Pin	Signal
B1	+ 12V	A1	HDMIC_CK
B2	+ 12V	A2	+ 12V
B3	RSVD	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CK	A5	NC
B6	SMB_DAT	A6	NC
B7	GND	A7	NC
B8	+ 3.3V	A8	NC
B9	NC	A9	+ 3.3V
B10	+3.3VSB	A10	+ 3.3V
B11	WAKE#	A11	PERST#
B12	NC	A12	GND
B13	GND	A13	NC
B14	DDI1_PR-P0 / SDVOB_RED+	A14	NC
B15	DDI1_PR-N0 / SDVOB_RED-	A15	GND
B16	GND	A16	DDI1_PR-P5 / SDVO_TVCLKIN+
B17	DDI1_CLK / SDVO_CLK	A17	DDI1_PR-N5 / SDVO_TVCLKIN-
B18	GND	A18	GND
B19	DDI1_PR-P1 / SDVOB_GRN+	A19	NC
B20	DDI1_PR-N1 / SDVOB_GRN-	A20	GND
B21	GND	A21	DDI1_PR-P4 / SDVOB_INT+
B22	GND	A22	DDI1_PR-N4 / SDVOB_INT-
B23	DDI1_PR-P2 / SDVOB_BLU+	A23	GND
B24	DDI1_PR-N2 / SDVOB_BLU-	A24	GND
B25	GND	A25	DDI1_PR-P6 / SDVO_FLDSTALL+
B26	GND	A26	DDI1_PR-N6 / SDVO_FLDSTALL-
B27	DDI1_PR-P3 / SDVOB_CK+	A27	GND
B28	DDI1_PR-N3 / SDVOB_CK-	A28	GND
B29	GND	A29	DDI1_HPD
B30	NC	A30	DDI1_DDC_AUX
B31	DDI1_DAT / SDVO_DAT	A31	GND
B32	GND	A32	NC
B33	DDI2_PR-P0	A33	NC
B34	DDI2_PR-N0	A34	GND
B35	GND	A35	NC
B36	GND	A36	NC
B37	DDI2_PR-P1	A37	GND
B38	DDI2_PR-N1	A38	GND
B39	GND	A39	NC
B40	GND	A40	NC
B41	DDI2_PR-P2	A41	GND
B42	DDI2_PR-N2	A42	GND
B43	GND	A43	DDI2_CTRLCLK_AUXP
B44	GND	A44	DDI2_CTRLDAT_AUXN
B45	DDI2_PR-P3	A45	GND
B46	DDI2_PR-N3	A46	GND
B47	GND	A47	DDI2_HPD
B48	NC	A48	DDI2_DDC_AUX
B49	GND	A49	GND
B50	DDI3_PR-P0	A50	NC
B51	DDI3_PR-N0	A51	GND
B52	GND	A52	HDMID_CK
B53	GND	A53	HDMID_DT
B54	DDI3_PR-P1	A54	GND
B55	DDI3_PR-N1	A55	GND
B56	GND	A56	NC
B57	GND	A57	NC
B58	DDI3_PR-P2	A58	GND
B59	DDI3_PR-N2	A59	GND
B60	GND	A60	DDI3_CTRLCLK_AUXP
B61	GND	A61	DDI3_CTRLCLK_AUXN
B62	DDI3_PR-P3	A62	GND
B63	DDI3_PR-N3	A63	GND
B64	GND	A64	DDI3_HPD
B65	GND	A65	DDI3_DDC_AUX
B66	NC	A66	GND
B67	NC	A67	GND
B68	GND	A68	NC
B69	GND	A69	NC
B70	NC	A70	GND
B71	NC	A71	GND
B72	GND	A72	NC
B73	GND	A73	NC
B74	NC	A74	GND
B75	NC	A75	GND
B76	GND	A76	NC
B77	GND	A77	NC
B78	NC	A78	GND
B79	NC	A79	GND
B80	GND	A80	NC
B81	HDMIC_DT	A81	NC
B82	NC	A82	GND

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6.7 LPC Debug

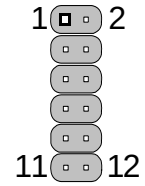
CN37: LPC Debug header



Pin	Signal	Pin	Signal
1	LPC_CLK	2	GND
3	LPC_FRAME#	4	KEY
5	LPC_RST#	6	+ 5V
7	LPC_AD3	8	LPC_AD2
9	+ 3.3V	10	L_AD1
11	LPC_AD0	12	GND
13	SMB_CK	14	SMB_DAT
15	SPD_A1 (See JP3)	16	SPD_A0 (See JP4)
17	GND	18	LPC_SERIRQ
19	KBRST#	20	A20GATE#

CN40: LPC Test Connector

(compatible with ADLINK LPC Debug Card)

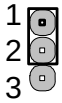


Pin	Signal	Pin	Signal
1	LPC_DRQ0#	2	LPC_AD0
3	LPC_DRQ1#	4	LPC_AD1
5	LPC_SERIRQ	6	LPC_AD2
7	LPC_FRAME#	8	LPC_AD3
9	LPC_RST#	10	GND
11	LPC_CLK	12	GND

External LPC EEPROM Address Selection

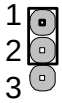
JP25 & JP26 configure the address of the external EEPROM connected to the LPC Debug header (CN37)

JP6: EEPROM Address A0 Selection



Jumper	Status	
1-2	High "1"	<<<<
2-3	Low "0"	

JP5: EEPROM Address A1 Selection



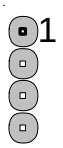
Jumper	Status	
1-2	High "1"	<<<<
2-3	Low "0"	

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Note: <<<< indicates default setting

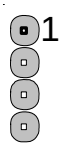
6.8 I²C and SMB Bus (for user access)

CN33: I²C Bus



Pin	Signal
1	+5V
2	I2C_DAT
3	I2C_CK
4	GND

CN34: SMB Bus

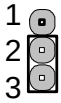


Pin	Signal
1	+5V
2	SMB_DAT
3	SMB_CK
4	GND

I2C/SMBus Buffers

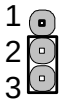
These buffers settings are for isolation of the I2C and SMBus - test feature only.
ON: I2C/SMBus passes through LTC4300A-2 Buffer
OFF: Bypass Buffer

JP19: I²C BUFFER (data)



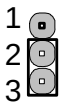
Jumper	Status	
1-2	ON	
2-3	OFF	<<<<

JP20: I²C BUFFER (clock)



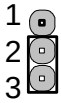
Jumper	Status	
1-2	ON	
2-3	OFF	<<<<

JP21: SMBus BUFFER (data)



Jumper	Status	
1-2	ON	
2-3	OFF	<<<<

JP22: SMBus BUFFER (clock)



Jumper	Status	
1-2	ON	
2-3	OFF	<<<<

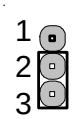
Note: <<<< indicates default setting

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I²C EEPROM Address Selection

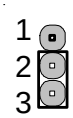
JP29 to JP31 configure the address of the A0, A1 and A2 bits of the I2C EEPROM

JP29: I²C EEPROM A0



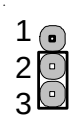
Jumper	Status
1-2	A0_HIGH "1"
2-3	A0_LOW "0" <<<<

JP30: I²C EEPROM A1



Jumper	Status
1-2	A1_HIGH "1"
2-3	A1_LOW "0" <<<<

JP31: I²C EEPROM A2



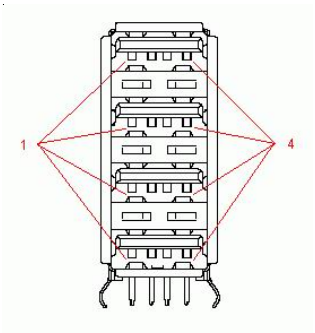
Jumper	Status
1-2	A2_HIGH "1"
2-3	A2_LOW "0" <<<<

Note: <<<< indicates default setting

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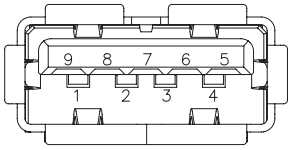
6.9 USB and LAN

CN15: USB x4 Connector



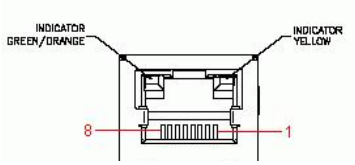
Pin	Signal
1	+5V
2	USB-
3	USB+
4	Ground

CN45: USB 3.0 x4 Connector



Pin	Signal
1	USB3.0_P5VA
2	USB2_CMAN
3	USB2_CMAP
4	GND
5	USB3A_CMRXN
6	USB3A_CMRXP
7	GND
8	USB3A_CMTXN
9	USB3A_CMTXP

CN18: RJ-45 GbE

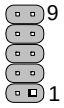


Pin	Signal
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD

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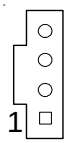
6.10 Audio

CN25: HD Audio Panel I/O



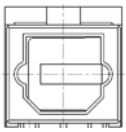
Pin	Signal	Pin	Signal
1	MIC-In-L	2	AGND
3	MIC-In-R	4	ACZ Detect
5	Line-In-R	6	MIC-In Detect
7	Front I/O Sense	8	Key
9	Line-In-L	10	Line-In Detect

CN26: CD Audio-out Connector



Pin	Signal
1	LINR
2	AGND
3	AGND
4	LINL

CN27: S/PDIF Output Jack (optical)



CN28: S/PDIF Output Header



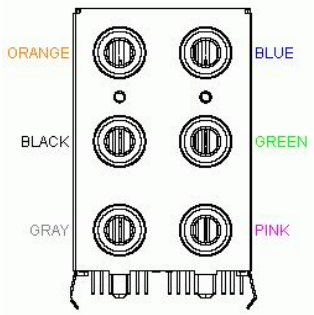
Pin	Signal	Pin	Signal
1	SPDIF-Out	2	GND

CN29: S/PDIF Input Header



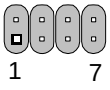
Pin	Signal	Pin	Signal
1	SPDIF-In	2	GND

CN30: Six-in-One Audio Phone Jack



Color	Signal
BLUE	Line-In
GREEN	Line-Out
PINK	MIC-In
ORANGE	Center/Subwoofer
BLACK	Rear Speaker Out
GRAY	Side Speaker Out

CN31: AC'97 Pin Header

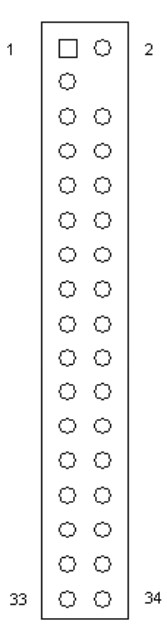


Pin	Signal	Pin	Signal
1	GND	2	AC_SYNC
3	AC_SDOUT	4	AC_RST#
5	AC_BITCLK	6	GND
7	AC_SDIN0	8	NC

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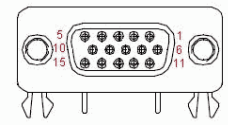
6.11 VGA, LVDS

CN9: LVDS Flat Panel Connector



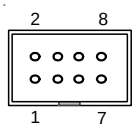
Pin	Signal	Pin	Signal
1	LVDS_I2C_DAT	2	LVDS_I2C_CK
3	N.C	4	N.C
5	GND	6	LVDS_A0-
7	LVDS_A0+	8	LVDS_VDD_EN
9	LVDS_A1-	10	LVDS_A1+
11	LVDS_BKLT_EN	12	LVDS_A2+
13	LVDS_A2-	14	N.C
15	LVDS_A_CK-	16	LVDS_A_CK+
17	N.C	18	LVDS_A3+
19	LVDS_A3-	20	GND
21	LVDS_B0-	22	LVDS_B0+
23	GND	24	LVDS_B1-
25	LVDS_B1+	26	GND
27	LVDS_B2-	28	LVDS_B2+
29	GND	30	LVDS_B_CK+
31	LVDS_B_CK-	32	N.C
33	LVDS_B3+	34	LVDS_B3-

CN8A: VGA



Pin	Signal	Pin	Signal
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	DDC Power	12	DDC2B Data
13	HSYNC	14	Vsync
15	DDC2B clock		

CN10: Backlight Control



Pin	Signal	Pin	Signal
1	GND	2	Panel PWR
3	Backlight CTRL	4	GND
5	Backlight Enable	6	GND
7	NC	8	Backlight PWR

NOTE: See *6.12 LVDS Jumper Settings* for Panel Power Voltage (JP6), Backlight Power Voltage (JP5) and other LVDS jumper settings.

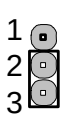
CAUTION: To avoid damage to the display panel, be sure to set the Panel Power Voltage (JP6) and Backlight Power Voltage (JP5) to the correct values for your display.

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6.12 LVDS Jumper Settings

JP5: Backlight Power Voltage

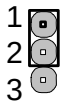
Selects the Backlight Power voltage on CNY8 Backlight Control pin header (pin 8).



Jumper	Status	
1-2	+ 12V	
2-3	+ 5V	<<<<

JP6: Panel Power Voltage

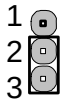
Selects the Panel Power voltage on CNY8 Backlight Control pin header (pin 2).



Jumper	Status	
1-2	+ 3.3V	<<<<
2-3	+ 5V	

JP7: Backlight Enable Signal Type

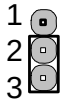
Sets the *Backlight Enable Signal* to "Normal" or "Inverse" type.



Jumper	Status	
1-2	Inverse	
2-3	Normal	<<<<

JP8: Brightness Control

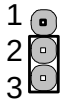
Sets the Panel Brightness Control (CNY8 pin 3: *Backlight CTRL*) to *Voltage Level* or *PWM* . When set to *Voltage Level*, the *Backlight CTRL* signal can be varied from 0~5V in 0.5V increments.



Jumper	Status	
1-2	Voltage Level	
2-3	PWM	<<<<

JP9: Brightness PWM Source

Sets the Panel Brightness PWM Source to *GPU* or *LVDS I2C*. When Brightness PWM Source is set to LVDS I2C, the user will be able to use the AIDI Library ***AidiVgaSetBacklight*** command to control the PWM pulse to the panel backlight.



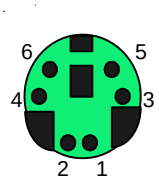
Jumper	Status	
1-2	GPU	
2-3	LVDS I2C	<<<<

Note: <<<< indicates default setting

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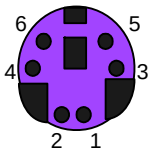
6.13 Keyboard & Mouse

CN19: Mouse (top)



Pin	Signal
1	MSDAT
2	NC
3	GND
4	KB5V
5	MSCLK
6	NC

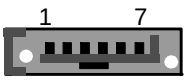
Keyboard (bottom)



Pin	Signal
1	KBDAT
2	NC
3	GND
4	KB5V
5	KBCLK
6	NC

6.14 Storage: SATA

CN11/12/13/14: SATA



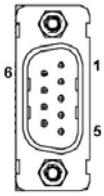
Pin	Signal	Pin	Signal
1	GND	2	Tx+
3	Tx-	4	GND
5	Rx-	6	Rx+
7	GND		

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6.15 Serial and IrDA Ports

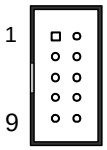
Serial Ports from Super I/O

***CN8B: COM1** (DB9)*



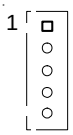
Pin	Signal	Pin	Signal
6	DSR	1	DCD#
7	RTS#	2	RXD
8	CTS#	3	TXD
9	RI#	4	DTR#
		5	GND

***CN21: COM2** (header)*



Pin	Signal	Pin	Signal
1	DCD#	2	DSR
3	RXD	4	RTS#
5	TXD	6	CTS#
7	DTR#	8	RI#
9	GND	10	NC

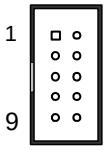
CN22: IrDA Connector



Pin	Signal
1	+5V
2	No connect
3	IrRXD
4	Ground
5	IrTXD

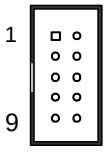
Serial Ports from Module

***CN6: COM0** (header)*



Pin	Signal	Pin	Signal
1	NC	2	NC
3	SER0_RX	4	NC
5	SER0_TX	6	NC
7	NC	8	NC
9	GND	10	NC

***CN7: COM1** (header)*



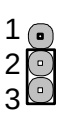
Pin	Signal	Pin	Signal
1	NC	2	NC
3	SER1_RX	4	NC
5	SER1_TX	6	NC
7	NC	8	NC
9	GND	10	NC

NOTE: CN6 and CN7 are the General Purpose Serial Interface ports from the module, new for COM.0 Rev. 2.

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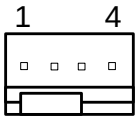
6.16 Fan Connectors

JP35, JP36, JP37:



Jumper	Status
1-2	4-pin
2-3	3-pin

FAN1-3: 12V Fan Power



Pin	Signal
1	GND
2	Fan Power 12 V
3	Fan Speed Sense
4	Fan Speed Control (PWM)

FAN4: 5V Fan Power



Pin	Signal
1	Fan Power 5V
2	GND
3	Fan Speed Sense

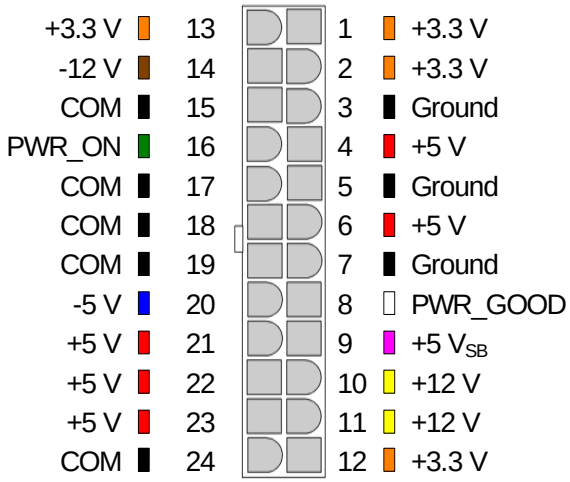
NOTE: FAN3 PWM is controlled by the module (B101: FAN_PWMOUT, B102: FAN_TACHIN). The "sense" and "speed" signals of FAN1/2/4 are connected to the Super IO.

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6.17 Power Connectors

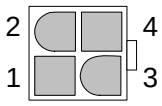
CN1: ATX 24-pin Power Connector

Connect the ATX 24-pin (or 20-pin) connector to supply power to the Express-BASE6 carrier.



CN5: ATX 12V 4-pin Connector

Connect the ATX 12V 4-pin connector to supply power to the COM Express module.



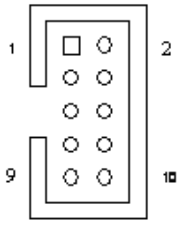
Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

NOTE: All 12V power for the COM Express module is provided by the ATX 12V 4-pin connector. The system will not power up if CN42 is not connected to the power supply.

CAUTION: To avoid damage to the carrier board and installed components, be sure to connect the ATX power supply to the correctly connectors. See *8.5 ATX Power Connectors* on page 37 for detailed information.

CN44: Smart Battery

Connects to Smart Battery module

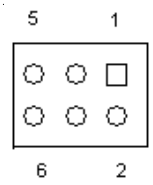


Pin	Signal	Pin	Signal
1	I2C_CK	6	SUS_S45#
2	I2C_DAT	7	+12V
3	PWRBTN#	8	+5VSB
4	BATLOW#	9	SUS_STAT#
5	PS_ON#	10	GND

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6.18 Power Jumper Settings

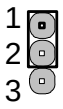
CN2: PWR_OK Config



Jumper	Status	
1-2	Add 3.3V Pullup with 10K to signal PWR_OK	
3-4	Connect PWRGOOD of ATX power supply	<<<<
5-6	Connect PWRGOOD of onboard DCDC regulator	

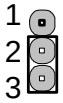
JP1: AT/ATX MODE

In AT mode, JPY1 shorts PS_ON# to ground directly to force power on. See *8.6 AT Power Mode* on p. 38.



Jumper	Status	
1-2	ATX Mode	<<<<
2-3	AT Mode	

JP2: PS_ON# Signal Source

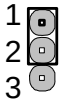


Jumper	Status	
1-2	SUS_S3#	<<<<
2-3	SUS_S5#	

All ADLINK modules support S3 mode and consecutive power down of ATX power supply. For modules that connect the S3 signal, PS_ON# should always be set to SUS_S3# as source (even when S3 mode is disabled in the BIOS). For modules that do not bring out the S3 signal, PS_ON# should be set to SUS_S5# as source.

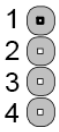
JP3: AT Power 5V Setting

With an AT power supply is connected to the Express-BASE6, JP3 can be used to provide 5VSB to the COM module from the carrier board.



Jumper	Status	
1-2	AT without P5V	<<<<
2-3	AT with P5V	

JP3: 5VSB to Module Source



Jumper	Status
1-2	5VSB produced on carrier from Vcc
2-3	5VSB from ATX power supply
3-4	No 5VSB from module

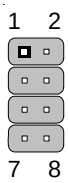
Note: <<<< indicates default setting

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6.19 Other Connectors

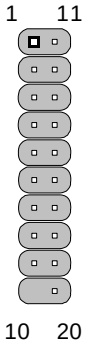
CN36/CN39: GPIO Headers

GPIOs of CN36 come from the COM Express module. GPIOs of CN36 come from Express-BASE6.



Pin	Signal	Pin	Signal
1	GPI0	2	GPO0
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3

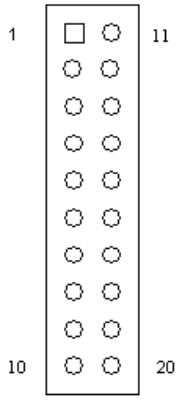
CN32: Miscellaneous Connector



Pin	Signal	Pin	Signal
1	Power_LED	11	BUZZER
2	WDT_LED	12	NC
3	GND	13	NC
4	NC	14	+5V
5	GND	15	SYS_RESET
6	GND	16	GND
7	NC	17	ATA_ACT
8	PS_ON	18	+3.3V
9	5V STB	19	PWR_BTN
10	SIO_PME	20	GND

CN41/42: Digital I/O

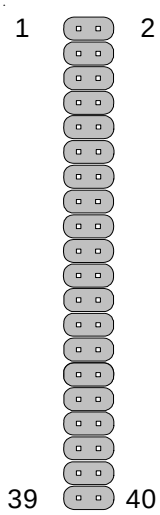
The Express-BASE6 provides GPIO expansion for I²C applications via a Phillips PCA955 with 16-bit I²C I/O port and interrupt (for CN41 n=0, for CN42 n=1). See 8.4 *Digital I/O LEDs* on p. 36 for CN41 LED descriptions.



Pin	Signal	Pin	Signal
1	I/O n.0	11	GND
2	I/O n.1	12	GND
3	I/O n.2	13	GND
4	I/O n.3	14	GND
5	I/O n.4	15	GND
6	I/O n.5	16	GND
7	I/O n.6	17	GND
8	I/O n.7	18	GND
9	INT#	19	BATLOW#
10	3V3	20	+3.3V

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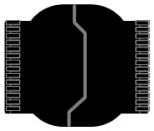
CN43: Feature Connector



Pin	Signal	Pin	Signal
1	+5V	2	+5VSB
3	+5V	4	Hard Disk Activity
5	I2C_DAT	6	SMBCLK_SB
7	I2C_CK	8	SMBDATA_SB
9	Internal use	10	GPO0
11	Internal use	12	GPO1
13	PS_ON#	14	GPO2
15	SUS_S3#	16	GPO3
17	GND	18	GND
19	THRMTRIP#	20	SMBALRT#
21	GPI1	22	SUS_S4#
23	SUS_STAT#	24	GPI0
25	GPI2	26	SUS_S5#
27	WDTRIG	28	THRM#
29	GPI3	30	PCI_M66EN
31	BATLOW#	32	WAKE1#
33	PEG_ENABLE#	34	PEG_LANE_RV#
35	KBINH#	36	SYS_RESET#
37	GND	38	GND
39	PWBTN#	40	PWR_OK

U55: Secondary SPI BIOS Socket

See JP23/JP24 BIOS Selection Jumpers on page 32 and *7.1 SPI Secondary BIOS* on page 34 for detailed information.



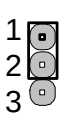
Pin	Signal
1	CS#
2	DO
3	WP#
4	GND
5	DI
6	CLK
7	HOLD#
8	+3.3V

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6.20 Other Jumper Settings

JP4: Clear CMOS

To clear CMOS, shut down the power and short pins 2 and 3 (shorts VBAT to ground).

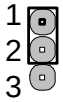


Jumper	Status	
1-2	Normal	<<<<
2-3	Clear CMOS	

JP17: RSVD

JP18: Super I/O

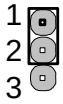
Enables/disables the Super IO. By default, the Express-BASE6 enables the onboard W83627DHG-PT Super I/O. To disable the Onboard Super I/O, short pins 2-3 of Jumper JP18.



Jumper	Status	
1-2	Enable	<<<<
2-3	Disable	

JP23/24: BIOS Selection

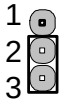
See *7.1 SPI Secondary BIOS* on page 34 for a detailed description.



JP23	JP24	Status	
1-2	1-2	Module BIOS	<<<<
2-3	1-2	Reserved	
1-2	2-3	Carrier SPI BIOS	
2-3	2-3	Reserved	

JP32: TPM Signal Jumper

Configuring the jumper to "ON" pulls the TPM signal high and "OFF" does nothing to the TPM signal. Dependent upon module's design for the TPM signal.



Jumper	Status	
1-2	ON	
2-3	OFF	<<<<

Note: <<<< indicates default setting

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7 Secondary BIOS

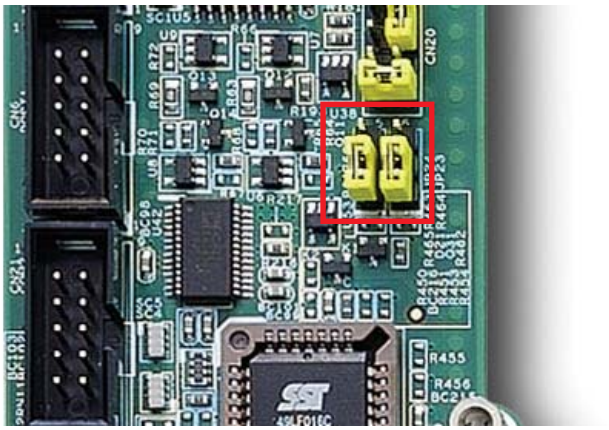
The Express-BASE6 supports Secondary BIOS using Serial Peripheral Interface (SPI) for COM.0 Rev. 2.0 modules. Secondary BIOS solutions can be used as an alternative to the on-module BIOS and provide support for the following:

- Testing new BIOS versions
- Development of firmware modifications
- Recovery if soldered BIOS on module is corrupted

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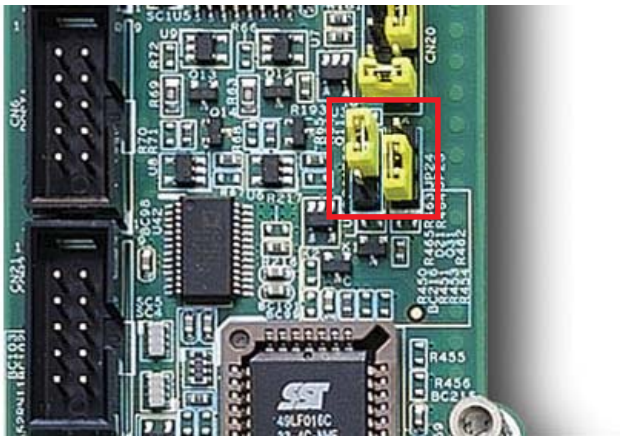
7.1 SPI Secondary BIOS

SPI is supported by PICMG COM.0 Rev. 2.0 to provide a Secondary BIOS for COM Express Rev 2.0 modules that support a SPI Secondary BIOS.



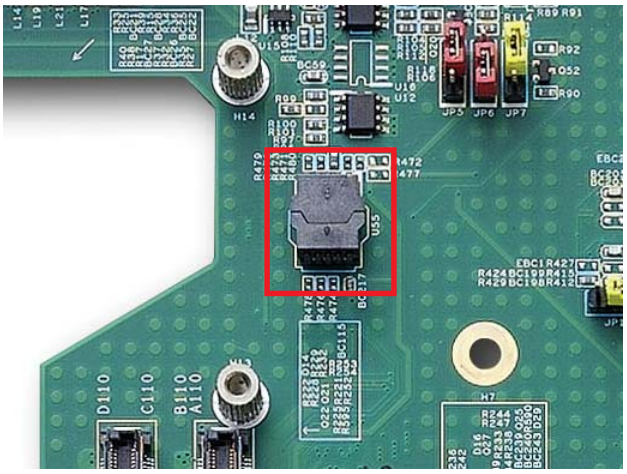
To use the BIOS on the module:

- ▶ Short pins 1-2 on both JP23 and JP24.



To use the SPI BIOS on the carrier board:

- ▶ Short pins 1-2 on JP23, pins 2-3 on JP24.

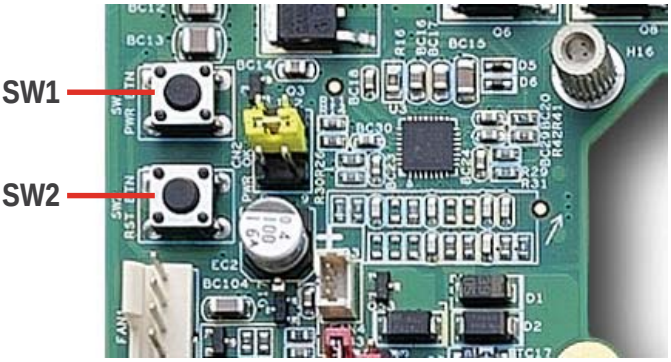


Open the SPI BIOS socket and insert the secondary BIOS flash chip.

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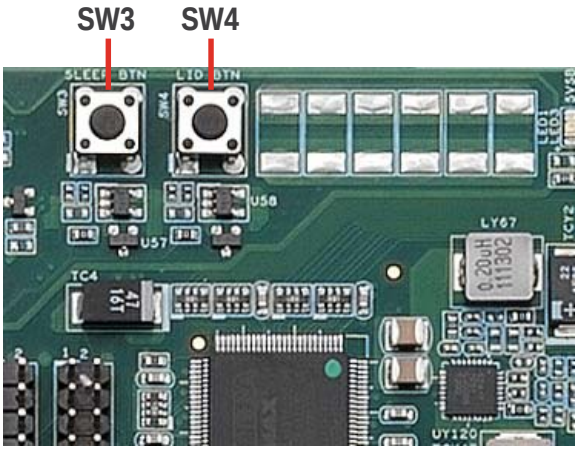
8 Switches, POST, LEDs & Power

8.1 Mini Switches (SW1~4)



There are two mini switches at the top left corner of the board.

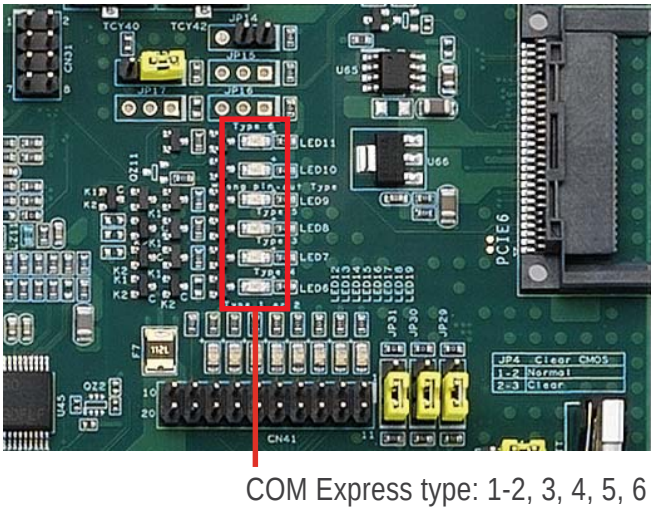
The **SW1** switch is the **ATX Power Button**.
The **SW2** switch is the **Reset Button**.



At the top edge of the board are two more switches.

The **SW3** switch is the **Sleep Button** and the **SW4** switch is the **Lid Button**. Both buttons support Type 6 modules for ACPI power management behavior settings in an OS environment.

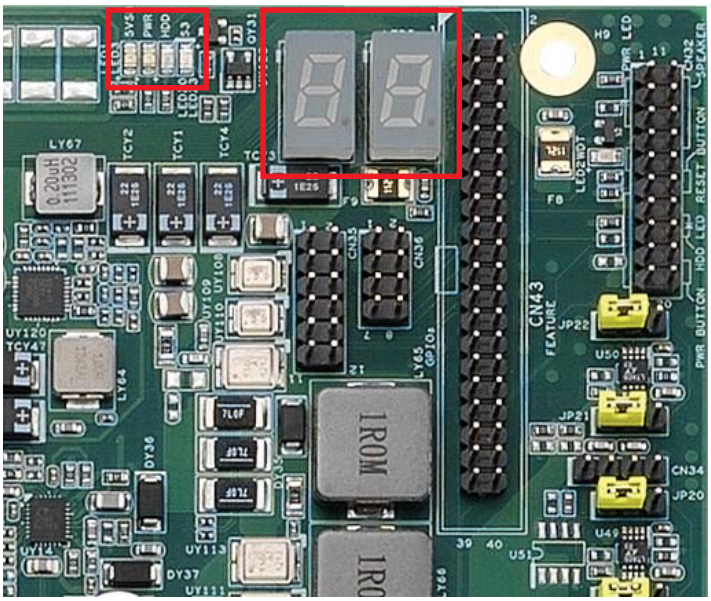
8.2 Module Type Display



To the left of the Express Card socket , 6 mini LEDs (LED6 ~11) indicate the **type of COM Express** module installed on the Express-BASE6.

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8.3 POST & Indicator LEDs



An LPC based POST display is added for debugging. The two LEDs shows the actual **POST data**.

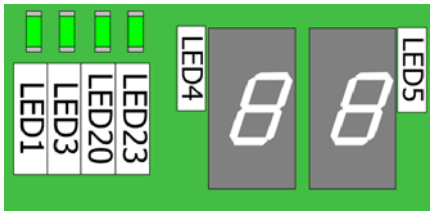
A row of mini LEDs to the left of the POST display indicates the following:

LED1 **5Vsb**: ATX power attached on standby or active

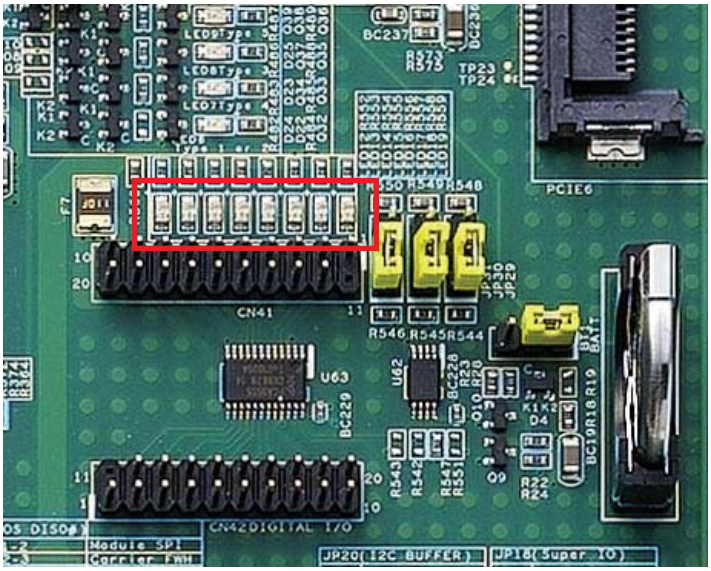
LED3 **PWR**: Indicates power on

LED20 **HDD**: Indicates hard drive activity

LED23 **S3**: Indicates S3 status



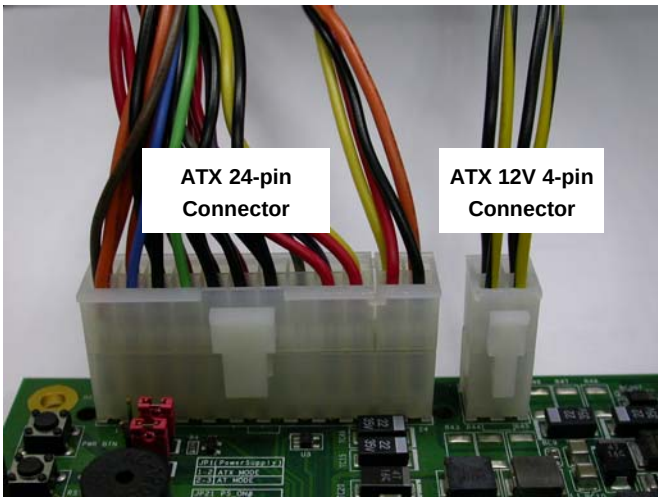
8.4 Digital I/O LEDs



LED12 - LED19 are indicators for the Digital I/O connector CN41. When the I/O signal is high, the LED will light. The **I/O 0** signal corresponds to LED19, and the **I/O 7** signal corresponds to LED12.

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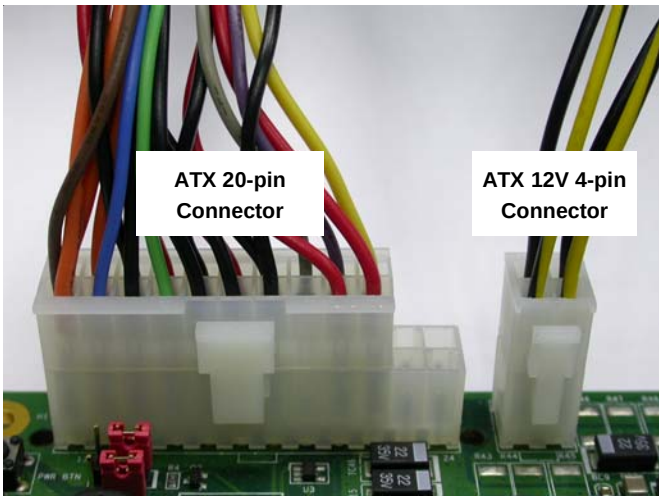
8.5 ATX Power Connectors



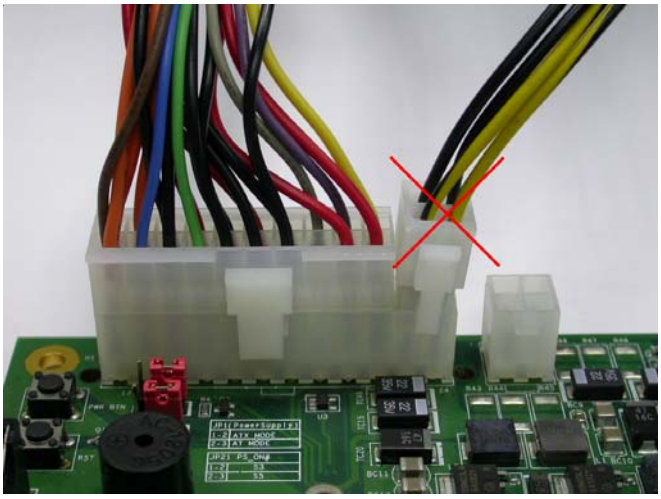
The Express-BASE6 has one **ATX 24-pin connector** to supply power to the carrier board and one **ATX 12V 4-pin connector** to supply power to the COM Express module.

NOTE: The system will not power on unless an ATX 12V 4-pin connector is connected.

If your power supply has a **24-pin ATX connector**, then attach the connectors as shown.



If your power supply has a **20-pin ATX connector**, then attach the connectors as shown.

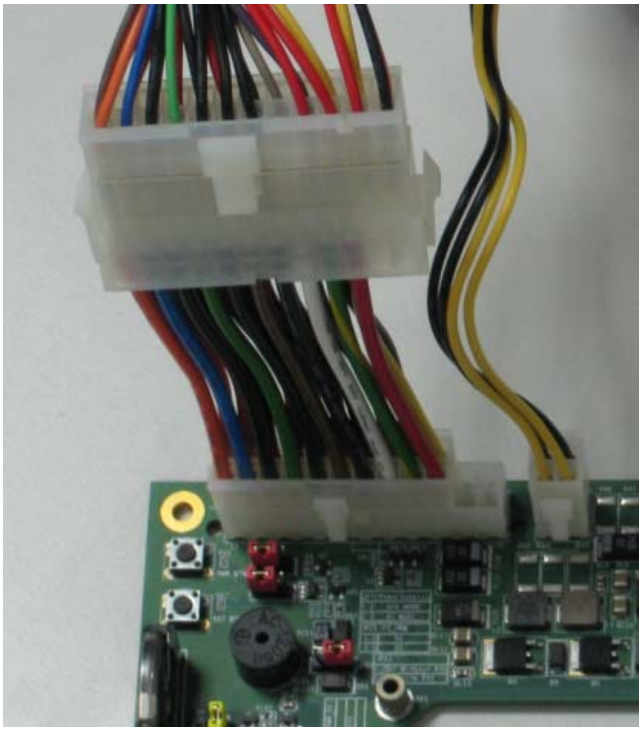


CAUTION: **DO NOT** plug the ATX 12V 4-pin connector into the ATX 24-pin power connector.

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8.6 AT Power Mode

To operate the system in AT Mode with an ATX power supply, use the AT mode PSU converter cable (no 5Vsb) to connect the ATX 20/24-pin power connector to the carrier board as shown.



Set the ATX/AT Mode jumper JP1 to *AT Mode* as described in *6.17 Power Jumper Settings*.

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Important Safety Instructions

For user safety, please read and follow all instructions, **warnings**, **cautions**, and **notes** marked in this manual and on the associated equipment before handling/operating the equipment.

- Read these safety instructions carefully.
- Keep this user's manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment:

  - Turn off power and unplug any power cords/cables.

- To avoid electrical shock and/or damage to equipment:

  - Keep equipment away from water or liquid sources;
  - Keep equipment away from high heat or high humidity;
  - Keep equipment properly ventilated (do not block or cover ventilation openings);
  - Make sure to use recommended voltage and power source settings;
  - Always install and operate equipment near an easily accessible electrical socket-outlet;
  - Secure the power cord (do not place any object on/over the power cord);
  - Only install/attach and operate equipment on stable surfaces and/or recommended mountings; and,
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.

- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.
- A Lithium-type battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

- Equipment must be serviced by authorized technicians when:

  - The power cord or plug is damaged;
  - Liquid has penetrated the equipment;
  - It has been exposed to high humidity/moisture;
  - It is not functioning or does not function according to the user's manual;
  - It has been dropped and/or damaged; and/or,
  - It has an obvious sign of breakage.

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Getting Service

Contact us should you require any service or assistance.

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