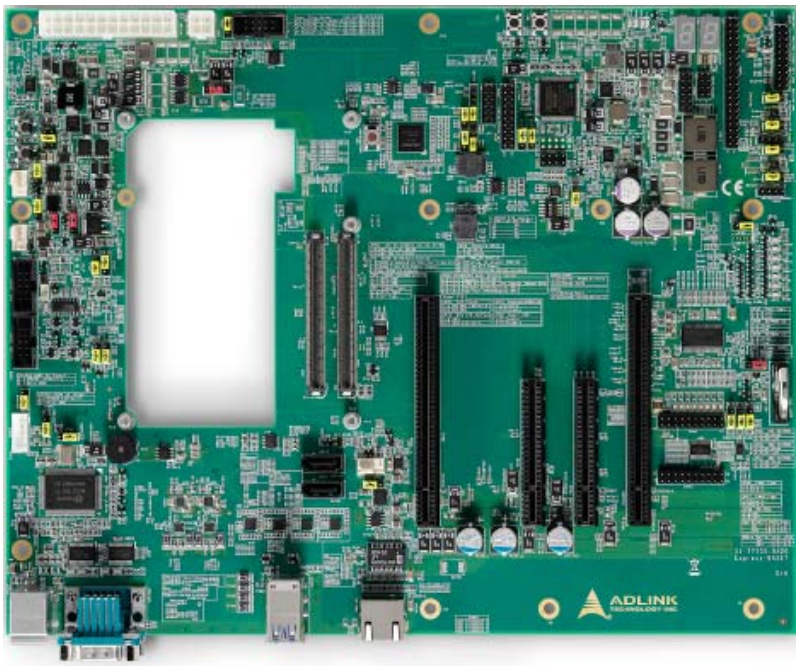
Express-BASE7

User's Manual

COM Express Type 7 Reference Carrier Board in ATX Form Factor



COM Express®

Manual Rev.: 1.1
Revision Date: September 1, 2017
Part Number: 50-1J084-1010

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Preface

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Revision History

Revision	Description	Date	By
1.0	Initial release	2017-06-29	JC
1.1	Correct PCIe lanes on Functional Diagram	2017-09-01	JC

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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.

The Express-BASE7 is a standard ATX size carrier board. Together with the COM Express Type 7 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 7 module
- Express-BASE7 carrier board
- 10GbE Ethernet Add-on Card (2 options available)
  - SFP+ Card (10GBASE-KR to 10G SFP+ signal, optical fiber type)
  - BASE-T Card (10GBASE-KR to 10GBASE-T signal, copper type)
- SATA drive storage or flash disk solution

The Express-BASE7 is compatible with Basic and Compact form factor Type 7 pinout COM Express modules and features one PCI Express x16 slot with proprietary pinout for inserting a 10GbE Ethernet Add-on Card (supports up to four 10G signals, dependent on COM Express module specifications), one PCI Express x16 slot, and two PCI Express x8 slots.

The Express-BASE7 is based on the PICMG COM Express (COM.0 Rev. 3.0) specification.

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2. Special Features

2.1. Core System

The Express-BASE7 features a PCI Express x16 slot with propiertary pinout for COM Rev. 3.0 Type 7 modules. This slot can route up to four 10GBASE-KR signals from the COM Express Type 7 module to a 10GbE Ethernet Add-on Card with up to four SFP+ signals or four 10GBASE-T ports.

Two optional 10GbE Ethernet Add-on Cards are available for prototyping:

- **SFP+ Card:** converts up to four 10GBASE-KR signals to four SFP+ signals through high-end optical fiber PHY.
- **BASE-T Card:** converts up to four 10GBASE-KR signals to four 10GBASE-T signals through high-end copper PHY.

2.2. 32x PCI Express Lanes

The Express-BASE7 features one PCI Express x16 slot and two PCI Express x8 slots for peripheral expansion such as data acquisition cards. PCI Express speed support depends on the COM Express module.

2.3. NC-SI and IPMI BMC

The Express-BASE7 is equipped with a IPMI BMC (MiniBMC) that connects to an Ethernet controller through NC-SI for remote management functions such as checking the power state and monitoring voltage (12V, 5V, 3.3V), powering on/off and resetting the module and using Serial over LAN. In addition, local management is supported through a KCS interface.

Note: MiniBMC feature supported by project basis.

2.4. 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-BASE7 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.

2.5. Secondary BIOS

The Express-BASE7 supports the Serial Peripheral Interface (SPI) for COM Rev. 3.0 Type 7 modules. Selection of active BIOS can be made by jumper settings. The location of the secondary BIOS is U55 (see 3. Component Locations).

2.6. 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.

2.7. Information LEDs

General information is obtained through signaling LEDs for HDD, Power and Watchdog status. Additionally, the Express-BASE7 gives information about the type of module plugged into the board. See 8.2 Module Type Display and 8.3 POST & Indicator LEDs.

2.8. Power, Reset, Lid and Sleep Switches

The Express-BASE7 is equipped with four mini switches (S1-S4) for ATX power, Reset and COM.0 Rev.3.0 specified "Lid" and "Sleep" functions.

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3. Component Locations

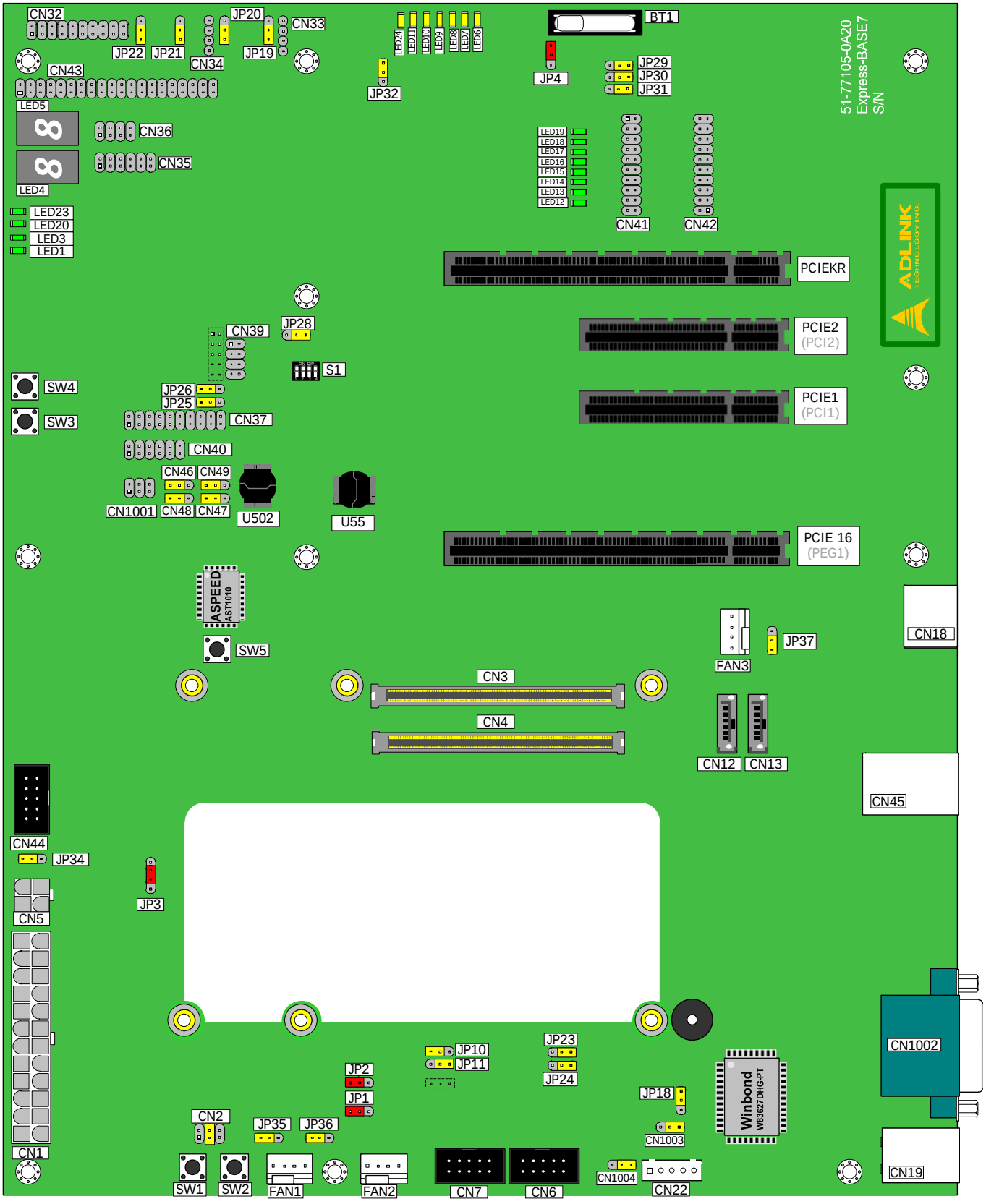

Figure 1: Express-BASE7 Component Locations

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4. Functional Diagram

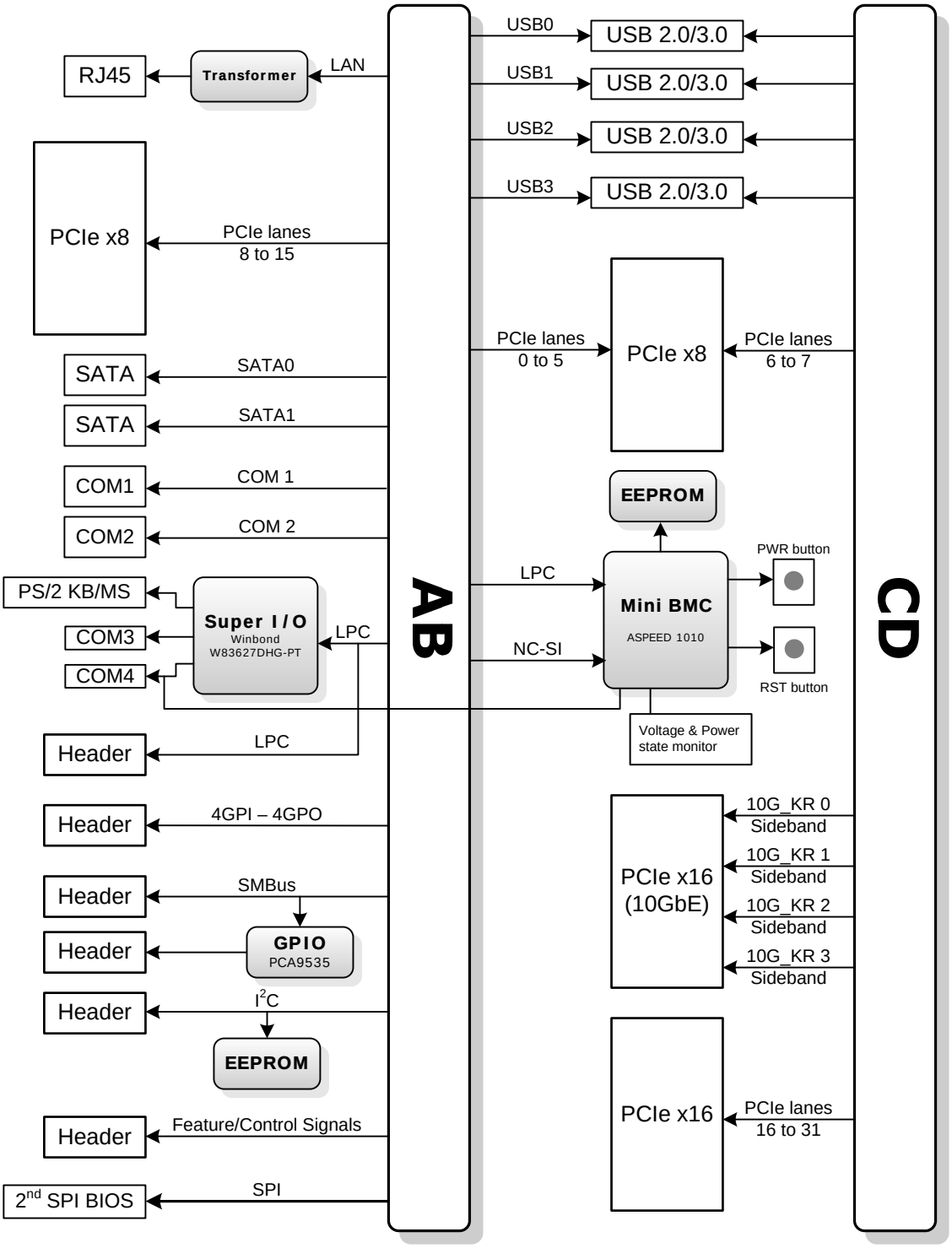

Figure 2: Express-BASE7 Functional Block Diagram

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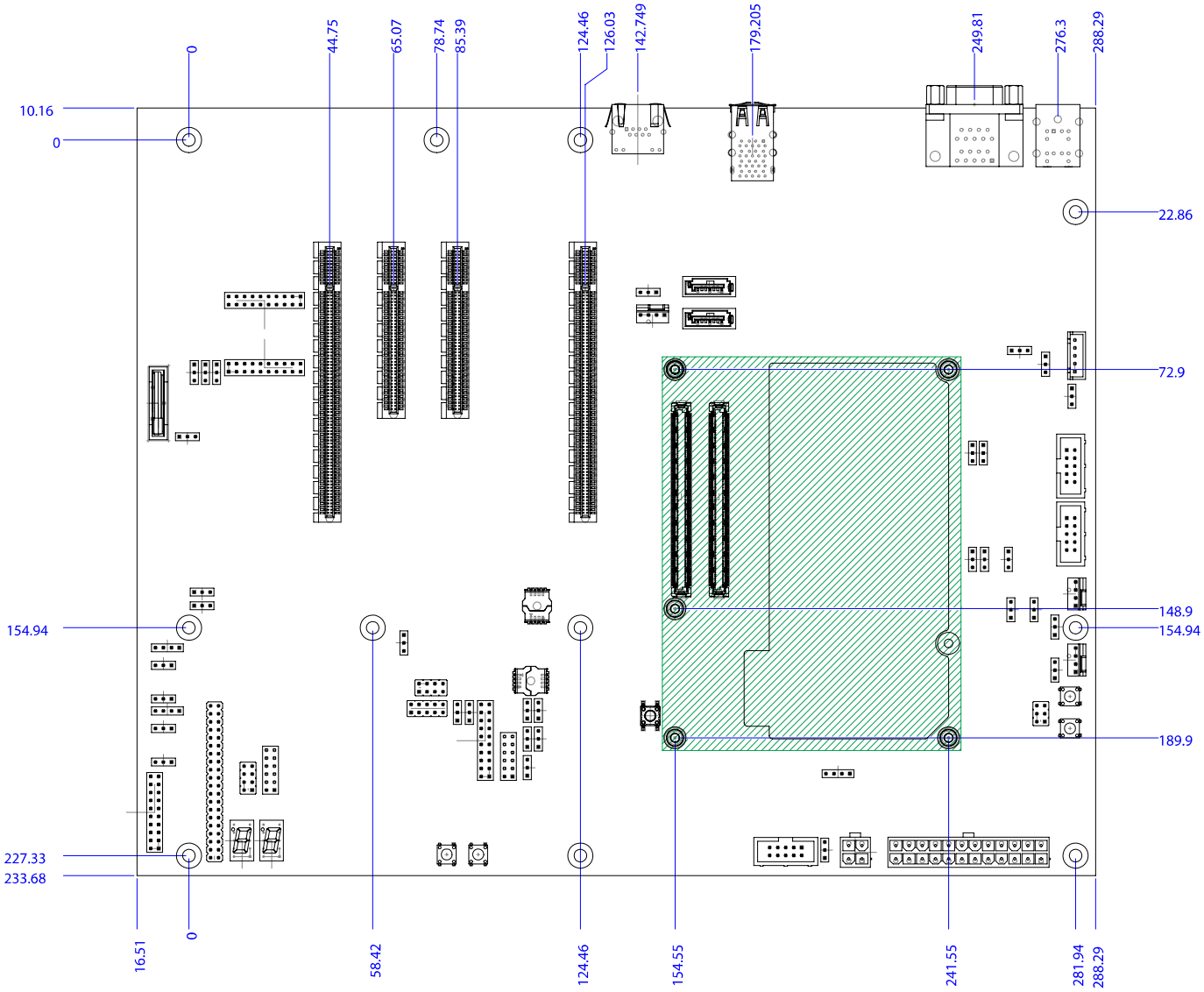
5. Mechanical Drawing



All dimensions are shown in millimeters. Tolerances should be ± 0.25mm, unless otherwise noted.
The tolerances on the module connector locating peg holes (dimensions [16.50, 6.00] and [16.50, 18.00]) should be ± 0.10mm.

Figure 3: Express-BASE7 Mechanical Drawing

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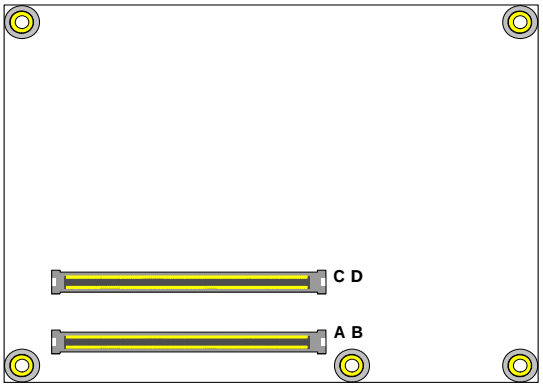
6. Connectors, Pinouts and Jumpers

6.1. Carrier Board Signals – Type 7

AB Connector
1 Gigibit Ethernet Port
LPC / eSPI Interface
2 Serial ATA Channels
PCI Express Lanes 0-5
PCI Express Lanes 8-15
4 USB Ports
NCSI
8 GPIO, COM 1/2
SMBus and I^2C Bus
+12V Primary Power Input
+5V Standby and 3V RTC
Smart Fan



CD Connector
USB 3.0 Support, extended signaling on four USB 2.0 ports
PCI Express Lanes 6-7
4 10GBASE-KR Interfaces & Sideband Siganls
PCI Express lanes 16-31
+12V Primary Power Input

6.2. Connector and Pinout Compatibility

Connector positions and pinouts comply with pinout and signal descriptions in the “PICMG® COM.0 - COM Express Module Base specification, Revision 3.0”. This document includes: description of pinouts, signal descriptions and mechanical characteristics of the COM Express specification. The Express-BASE7 is compatible with COM Express modules in **Basic and Compact size form factor, Type 7 pinout, COM.0 Rev. 3.0**.

6.3. Carrier Board Design

The Express-BASE7 design and schematics are verified for use as a reference. Express-BASE7 Schematics and Mechanical files can be downloaded from the ADLINK Express-BASE7 product webpage.

http://www.adlinktech.com/PD/web/PD_detail.php?cKind=&pid=1659

6.4. COM Express Board-to-Board Connectors

Signals and Pinout for
COM Express Type 7

The Express-BASE7 is a Type 7 module supporting up to 32 PCIe lanes and 10G Ethernet on the CD connector and NC-SI on the AB connector. In the table below, all standard pins of the COM Express specification are described, including those not supported on the Express-BASE7.

Table 1: Express-BASE7 AB/CD Pin Definitions

	Row A		Row B		Row C		Row D
Pin	**Name**	**Pin**	**Name**	**Pin**	**Name**	**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# /ESPI_CS0#	**C3**	USB_SSRX0-	**D3**	USB_SSTX0-
A4	GBE0_LINK100#	**B4**	LPC_AD0 /ESPI_IO_0	**C4**	USB_SSRX0+	**D4**	USB_SSTX0+
A5	GBE0_LINK1000#	**B5**	LPC_AD1 /ESPI_IO_1	**C5**	GND	**D5**	GND
A6	GBE0_MDI2-	**B6**	LPC_AD2 /ESPI_IO_2	**C6**	USB_SSRX1-	**D6**	USB_SSTX1-
A7	GBE0_MDI2+	**B7**	LPC_AD3 /ESPI_IO_3	**C7**	USB_SSRX1+	**D7**	USB_SSTX1+
A8	GBE0_LINK#	**B8**	LPC_DRQ0# /ESPI_ALERT0#	**C8**	GND	**D8**	GND
A9	GBE0_MDI1-	**B9**	LPC_DRQ1# /ESPI_ALERT1#	**C9**	USB_SSRX2-	**D9**	USB_SSTX2-
A10	GBE0_MDI1+	**B10**	LPC_CLK /ESPI_CK	**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**	10G_PHY_MDC_SCL3	**D15**	10G_PHY_MDIO_SDA3
A16	SATA0_TX+	**B16**	SATA1_TX+	**C16**	10G_PHY_MDC_SCL2	**D16**	10G_PHY_MDIO_SDA2
A17	SATA0_TX-	**B17**	SATA1_TX-	**C17**	10G_SDP2	**D17**	10G_SDP3
A18	SUS_S4#	**B18**	SUS_STAT# /ESPI_RESET#	**C18**	GND	**D18**	GND
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	PCIE_TX15+	**B22**	PCIE_RX15+	**C22**	PCIE_RX7+	**D22**	PCIE_TX7+
A23	PCIE_TX15-	**B23**	PCIE_RX15-	**C23**	PCIE_RX7-	**D23**	PCIE_TX7-
A24	SUS_S5#	**B24**	PWR_OK	**C24**	10G_INT2	**D24**	10G_INT3
A25	PCIE_TX14+	**B25**	PCIE_RX14+	**C25**	GND	**D25**	GND

	Row A		Row B		Row C		Row D
Pin	**Name**	**Pin**	**Name**	**Pin**	**Name**	**Pin**	**Name**
A26	PCIE_TX14-	**B26**	PCIE_RX14-	**C26**	10G_KR_RX3+	**D26**	10G_KR_TX3+
A27	BATLOW#	**B27**	WDT	**C27**	10G_KR_RX3-	**D27**	10G_KR_TX3-
A28	(S)ATA_ACT#	**B28**	RSVD	**C28**	GND	**D28**	GND
A29	RSVD	**B29**	RSVD	**C29**	10G_KR_RX2+	**D29**	10G_KR_TX2+
A30	RSVD	**B30**	RSVD	**C30**	10G_KR_RX2-	**D30**	10G_KR_TX2-
A31	GND (fixed)	**B31**	GND (fixed)	**C31**	GND (fixed)	**D31**	GND (fixed)
A32	RSVD	**B32**	SPKR	**C32**	10G_SFP_SDA3	**D32**	10G_SFP_SCL3
A33	RSVD	**B33**	I2C_CK	**C33**	10G_SFP_SDA2	**D33**	10G_SFP_SCL2
A34	BIOS_DIS0# /ESPI_SAFS	**B34**	I2C_DAT	**C34**	10G_PHY_RST_23	**D34**	10G_PHY_CAP_23
A35	THRMTRIP#	**B35**	THRM#	**C35**	10G_PHY_RST_01	**D35**	10G_PHY_CAP_01
A36	PCIE_TX13+	**B36**	PCIE_RX13+	**C36**	10G_LED_SDA	**D36**	RSVD
A37	PCIE_TX13-	**B37**	PCIE_RX13-	**C37**	10G_LED_SCL	**D37**	RSVD
A38	GND	**B38**	GND	**C38**	10G_SFP_SDA1	**D38**	10G_SFP_SCL1
A39	PCIE_TX12+	**B39**	PCIE_RX12+	**C39**	10G_SFP_SDA0	**D39**	10G_SFP_SCL0
A40	PCIE_TX12-	**B40**	PCIE_RX12-	**C40**	10G_SDP0	**D40**	10G_SDP1
A41	GND (fixed)	**B41**	GND (fixed)	**C41**	GND (fixed)	**D41**	GND (fixed)
A42	USB2-	**B42**	USB3-	**C42**	10G_KR_RX1+	**D42**	10G_KR_TX1+
A43	USB2+	**B43**	USB3+	**C43**	10G_KR_RX1-	**D43**	10G_KR_TX1-
A44	USB_2_3_OC#	**B44**	USB_0_1_OC#	**C44**	GND	**D44**	GND
A45	USB0-	**B45**	USB1-	**C45**	10G_PHY_MDC_SCL1	**D45**	10G_PHY_MDIO_SDA1
A46	USB0+	**B46**	USB1+	**C46**	10G_PHY_MDC_SCL0	**D46**	10G_PHY_MDIO_SDA0
A47	VCC_RTC	**B47**	ESPI_EN	**C47**	10G_INT0	**D47**	10G_INT1
A48	RSVD	**B48**	USB0_HOST_PRSNT	**C48**	GND	**D48**	GND
A49	GBE0_SDP	**B49**	SYS_RESET#	**C49**	10G_KR_RX0+	**D49**	10G_KR_TX0+
A50	LPC_SERIRQ /ESPI_CS1#	**B50**	CB_RESET#	**C50**	10G_KR_RX0-	**D50**	10G_KR_TX0-
A51	GND (fixed)	**B51**	GND (fixed)	**C51**	GND (fixed)	**D51**	GND (fixed)
A52	PCIE_TX5+	**B52**	PCIE_RX5+	**C52**	PCIE_RX16+	**D52**	PCIE_TX16+
A53	PCIE_TX5-	**B53**	PCIE_RX5-	**C53**	PCIE_RX16-	**D53**	PCIE_TX16-
A54	GPI0	**B54**	GPO1	**C54**	TYPE0#	**D54**	RSVD
A55	PCIE_TX4+	**B55**	PCIE_RX4+	**C55**	PCIE_RX17+	**D55**	PCIE_TX17+
A56	PCIE_TX4-	**B56**	PCIE_RX4-	**C56**	PCIE_RX17-	**D56**	PCIE_TX17-
A57	GND	**B57**	GPO2	**C57**	TYPE1#	**D57**	TYPE2#
A58	PCIE_TX3+	**B58**	PCIE_RX3+	**C58**	PCIE_RX18+	**D58**	PCIE_TX18+
A59	PCIE_TX3-	**B59**	PCIE_RX3-	**C59**	PCIE_RX18-	**D59**	PCIE_TX18-
A60	GND (fixed)	**B60**	GND (fixed)	**C60**	GND (fixed)	**D60**	GND (fixed)
A61	PCIE_TX2+	**B61**	PCIE_RX2+	**C61**	PCIE_RX19+	**D61**	PCIE_TX19+
A62	PCIE_TX2-	**B62**	PCIE_RX2-	**C62**	PCIE_RX19-	**D62**	PCIE_TX19-
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**	PCIE_RX20+	**D65**	PCIE_TX20+
A66	GND	**B66**	WAKE0#	**C66**	PCIE_RX20-	**D66**	PCIE_TX20-
A67	GPI2	**B67**	WAKE1#	**C67**	RSVD	**D67**	GND
A68	PCIE_TX0+	**B68**	PCIE_RX0+	**C68**	PCIE_RX21+	**D68**	PCIE_TX21+
A69	PCIE_TX0-	**B69**	PCIE_RX0-	**C69**	PCIE_RX21-	**D69**	PCIE_TX21-
A70	GND (fixed)	**B70**	GND (fixed)	**C70**	GND (fixed)	**D70**	GND (fixed)

	Row A		Row B		Row C		Row D
Pin	**Name**	**Pin**	**Name**	**Pin**	**Name**	**Pin**	**Name**
A71	PCIE_TX8+	**B71**	PCIE_RX8+	**C71**	PCIE_RX22+	**D71**	PCIE_TX22+
A72	PCIE_TX8-	**B72**	PCIE_RX8-	**C72**	PCIE_RX22-	**D72**	PCIE_TX22-
A73	GND	**B73**	GND	**C73**	GND	**D73**	GND
A74	PCIE_TX9+	**B74**	PCIE_RX9+	**C74**	PCIE_RX23+	**D74**	PCIE_TX23+
A75	PCIE_TX9-	**B75**	PCIE_RX9-	**C75**	PCIE_RX23-	**D75**	PCIE_TX23-
A76	GND	**B76**	GND	**C76**	GND	**D76**	GND
A77	PCIE_TX10+	**B77**	PCIE_RX10+	**C77**	RSVD	**D77**	RSVD
A78	PCIE_TX10-	**B78**	PCIE_RX10-	**C78**	PCIE_RX24+	**D78**	PCIE_TX24+
A79	GND	**B79**	GND	**C79**	PCIE_RX24-	**D79**	PCIE_TX24-
A80	GND (fixed)	**B80**	GND (fixed)	**C80**	GND (fixed)	**D80**	GND (fixed)
A81	PCIE_TX11+	**B81**	PCIE_RX11+	**C81**	PCIE_RX25+	**D81**	PCIE_TX25
A82	PCIE_TX11-	**B82**	PCIE_RX11-	**C82**	PCIE_RX25-	**D82**	PCIE_TX25-
A83	GND	**B83**	GND	**C83**	RSVD	**D83**	RSVD
A84	NCSI_TX_EN	**B84**	VCC_5V_SBY	**C84**	GND	**D84**	GND
A85	GPI3	**B85**	VCC_5V_SBY	**C85**	PCIE_RX26+	**D85**	PCIE_TX26+
A86	RSVD	**B86**	VCC_5V_SBY	**C86**	PCIE_RX26-	**D86**	PCIE_TX26-
A87	RSVD	**B87**	VCC_5V_SBY	**C87**	GND	**D87**	GND
A88	PCIE0_CK_REF+	**B88**	BIOS_DIS1#	**C88**	PCIE_RX27+	**D88**	PCIE_TX27+
A89	PCIE0_CK_REF-	**B89**	NSCI_RX_ER	**C89**	PCIE_RX27-	**D89**	PCIE_TX27-
A90	GND (fixed)	**B90**	GND (fixed)	**C90**	GND (fixed)	**D90**	GND (fixed)
A91	SPI_POWER	**B91**	NCSI_CLK_IN	**C91**	PCIE_RX28+	**D91**	PCIE_TX28+
A92	SPI_MISO	**B92**	NCSI_RXD1	**C92**	PCIE_RX28-	**D92**	PCIE_TX28-
A93	GPO0	**B93**	NCSI_RXD0	**C93**	GND	**D93**	GND
A94	SPI_CLK	**B94**	NCSI_CRS_DV	**C94**	PCIE_RX29+	**D94**	PCIE_TX29+
A95	SPI_MOSI	**B95**	NCSI_TXD1	**C95**	PCIE_RX29-	**D95**	PCIE_TX29-
A96	TPM_PP	**B96**	NCSI_TXD0	**C96**	GND	**D96**	GND
A97	TYPE10#	**B97**	SPI_CS#	**C97**	RSVD	**D97**	RSVD
A98	SER0_TX / CAN_TX	**B98**	NCSI_ARB_IN	**C98**	PCIE_RX30+	**D98**	PCIE_TX30+
A99	SER0_RX / CAN_RX	**B99**	NCSI_ARB_OUT	**C99**	PCIE_RX30-	**D99**	PCIE_TX30-
A100	GND (fixed)	**B100**	GND (fixed)	**C100**	GND (fixed)	**D100**	GND (fixed)
A101	SER1_TX	**B101**	FAN_PWMOUT	**C101**	PCIE_RX31+	**D101**	PCIE_TX31+
A102	SER1_RX	**B102**	FAN_TACHIN	**C102**	PCIE_RX31-	**D102**	PCIE_TX31-
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)

Note: The Express-BASE7 supports LPC bus only.

6.5. 10GbE Slot

PCIEKR:

Insert the 10GbE Add-on Card into PCI Express x16 slot (proprietary pinout)

Two available 10GbE Add-on Cards:

- SFP+ Card (10GBASE-KR to 10G SFP+ signal, optical fiber type)
- BASE-T Card (10GBASE-KR to 10GBASE-T signal, copper type)

Pin	Signal	Pin	Signal
B1	+ 12V	A1	NC
B2	+ 12V	A2	+ 12V
B3	+ 12V	A3	+ 12V
B4	GND	A4	GND
B5	10G_SFP_SDA2	A5	10G_SFP_SDA3
B6	10G_SFP_SCL2	A6	10G_SFP_SCL3
B7	GND	A7	GND
B8	10G_SFP_SDA0	A8	10G_SFP_SDA1
B9	10G_SFP_SCL0	A9	10G_SFP_SCL1
B10	+ 3.3VSB	A10	NC
B11	+ 3.3VSB	A11	NC
B12	NC	A12	GND
B13	+ 5VSB	A13	NC
B14	+ 5VSB	A14	NC
B15	NC	A15	NC
B16	10G_INT1	A16	10G_INT3
B17	10G_INT0	A17	10G_INT2
B18	GND	A18	GND
B19	10G_PHY_MDIO_SDA3	A19	NC
B20	10G_PHY_MDC_SCL3	A20	GND
B21	GND	A21	10G_PHY_MDIO_SDA2
B22	GND	A22	10G_PHY_MDC_SCL2
B23	10G_KR_RX3_P	A23	GND
B24	10G_KR_RX3_N	A24	GND
B25	GND	A25	10G_KR_TX3_P
B26	GND	A26	10G_KR_TX3_N

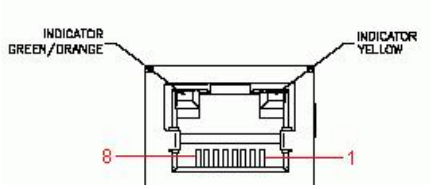
Pin	Signal	Pin	Signal
B27	10G_KR_RX2_P	A27	GND
B28	10G_KR_RX2_N	A28	GND
B29	GND	A29	10G_KR_TX2_P
B30	10G_PHY_RST_23	A30	10G_KR_TX2_N
B31	10G_PHY_RST_01	A31	GND
B32	GND	A32	10G_LED_SDA
B33	10G_KR_RX1_P	A33	10G_LED_SCL
B34	10G_KR_RX1_N	A34	GND
B35	GND	A35	10G_KR_TX1_P
B36	GND	A36	10G_KR_TX1_N
B37	10G_PHY_MDIO_SDA1	A37	GND
B38	10G_PHY_MDC_SCL1	A38	GND
B39	GND	A39	10G_PHY_MDIO_SDA0
B40	GND	A40	10G_PHY_MDC_SCL0
B41	10G_KR_RX0_P	A41	GND
B42	10G_KR_RX0_N	A42	GND
B43	GND	A43	10G_KR_TX0_P
B44	GND	A44	10G_KR_TX0_N
B45	10G_SDP3	A45	GND
B46	10G_SDP2	A46	GND
B47	GND	A47	10G_PHY_CAP_23
B48	10G_SDP1	A48	10G_PHY_CAP_01
B49	GND	A49	GND
B50	NC	A50	10G_SDP0
B51	NC	A51	GND
B52	GND	A52	NC
B53	GND	A53	NC
B54	NC	A54	GND
B55	NC	A55	GND
B56	GND	A56	NC
B57	GND	A57	NC
B58	NC	A58	GND
B59	NC	A59	GND
B60	GND	A60	NC
B61	GND	A61	NC

Pin	Signal	Pin	Signal
B62	NC	A62	GND
B63	NC	A63	GND
B64	GND	A64	NC
B65	GND	A65	NC
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	NC	A81	NC
B82	NC	A82	GND

6.6. GbE

CN18: RJ-45 GbE

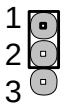
Pin	Signal
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-



6.7. MiniBMC

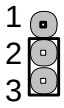
CN46/47/48: MiniBMC Mode Selection

Jumper	Status
1-2	Normal Mode <<<<
2-3	Debug Mode



CN49: MiniBMC Mode Selection

Enable Debug Mode of MiniBMC for FW Development through CN46/47/48/49 selection



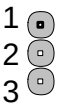
Jumper	Status
1-2	Debug Mode
2-3	Normal Mode <<<<

Note: <<<< indicates default setting

CN1001: Communication Port

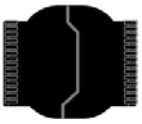
Send out debug message for FW development

Pin	Signal
1	UART0_RXD
2	UART0_TXD
3	GND



U502: MiniBMC SPI Socket

EEPROM dedicated for storing MiniBMC FW



Pin	Signal
1	IPMC_SPICS0
2	IPMC_SPIMISO
3	IPMC_WP-L
4	GND
5	IPMC_SPIMOSI
6	IPMC_SPICK
7	IPMC_HOLD-L
8	+ 3.3V

Note: MiniBMC feature supported by project basis.

6.8. PCI Express Slots

PCI Express x8

PCIE 1: from PCIe 0-7

Pin	Signal	Pin	Signal
B1	+ 12V	A1	GND
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CLK	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	WAKE0#	A11	RST_PCIE
B12	NC	A12	GND
B13	GND	A13	REFCLKP
B14	PCIE0_TXP	A14	REFCLKN
B15	PCIE0_TXN	A15	GND
B16	GND	A16	PCIE0_RXP
B17	NC	A17	PCIE0_RXN
B18	GND	A18	GND
B19	PCIE1_TXP	A19	NC
B20	PCIE1_TXN	A20	GND
B21	GND	A21	PCIE1_RXP
B22	GND	A22	PCIE1_RXN
B23	PCIE2_TXP	A23	GND
B24	PCIE2_TXN	A24	GND
B25	GND	A25	PCIE2_RXP
B26	GND	A26	PCIE2_RXN
B27	PCIE3_TXP	A27	GND
B28	PCIE3_TXN	A28	GND
B29	GND	A29	PCIE3_RXP
B30	NC	A30	PCIE3_RXN
B31	NC	A31	GND

Pin	Signal	Pin	Signal
B32	GND	A32	NC
B33	PCIE4_TXP	A33	NC
B34	PCIE4_TXN	A34	GND
B35	GND	A35	PCIE4_RXP
B36	GND	A36	PCIE4_RXN
B37	PCIE5_TXP	A37	GND
B38	PCIE5_TXN	A38	GND
B39	GND	A39	PCIE5_RXP
B40	GND	A40	PCIE5_RXN
B41	PCIE6_TXP	A41	GND
B42	PCIE6_TXN	A42	GND
B43	GND	A43	PCIE6_RXP
B44	GND	A44	PCIE6_RXN
B45	PCIE7_TXP	A45	GND
B46	PCIE7_TXN	A46	GND
B47	GND	A47	PCIE7_RXP
B48	NC	A48	PCIE7_RXN
B49	GND	A49	GND

PCIE 2: from PCIe 8-15

Pin	Signal	Pin	Signal
B1	+ 12V	A1	GND
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CLK	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	WAKE0#	A11	RST_PCIE
B12	NC	A12	GND
B13	GND	A13	REFCLKP
B14	PCIE8_TXP	A14	REFCLKN

Pin	Signal	Pin	Signal
B15	PCIE8_TXN	A15	GND
B16	GND	A16	PCIE8_RXP
B17	NC	A17	PCIE8_RXN
B18	GND	A18	GND
B19	PCIE9_TXP	A19	NC
B20	PCIE9_TXN	A20	GND
B21	GND	A21	PCIE9_RXP
B22	GND	A22	PCIE9_RXN
B23	PCIE10_TXP	A23	GND
B24	PCIE10_TXN	A24	GND
B25	GND	A25	PCIE10_RXP
B26	GND	A26	PCIE10_RXN
B27	PCIE11_TXP	A27	GND
B28	PCIE11_TXN	A28	GND
B29	GND	A29	PCIE11_RXP
B30	NC	A30	PCIE11_RXN
B31	NC	A31	GND
B32	GND	A32	NC
B33	PCIE12_TXP	A33	NC
B34	PCIE12_TXN	A34	GND
B35	GND	A35	PCIE12_RXP
B36	GND	A36	PCIE12_RXN
B37	PCIE13_TXP	A37	GND
B38	PCIE13_TXN	A38	GND
B39	GND	A39	PCIE13_RXP
B40	GND	A40	PCIE13_RXN
B41	PCIE14_TXP	A41	GND
B42	PCIE14_TXN	A42	GND
B43	GND	A43	PCIE14_RXP
B44	GND	A44	PCIE14_RXN
B45	PCIE15_TXP	A45	GND
B46	PCIE15_TXN	A46	GND
B47	GND	A47	PCIE15_RXP
B48	NC	A48	PCIE15_RXN
B49	GND	A49	GND

PCI Express x16

PCIE 16: from PCIe 15-31

Pin	Signal	Pin	Signal
B1	+ 12V	A1	NC
B2	+ 12V	A2	+ 12V
B3	NC	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CLK	A5	TCK
B6	SMB_DAT	A6	TDI
B7	GND	A7	NC
B8	NC	A8	TMS
B9	TRST#	A9	+ 3.3V
B10	+ 3.3VSB	A10	+ 3.3V
B11	WAKE0#	A11	RST_PCIE
B12	NC	A12	GND
B13	GND	A13	REFCLKP
B14	PCIE16_TXP	A14	REFCLKN
B15	PCIE16_TXN	A15	GND
B16	GND	A16	PCIE16_RXP
B17	NC	A17	PCIE16_RXN
B18	GND	A18	GND
B19	PCIE17_TXP	A19	NC
B20	PCIE17_TXN	A20	GND
B21	GND	A21	PCIE17_RXP
B22	GND	A22	PCIE17_RXN
B23	PCIE18_TXP	A23	GND
B24	PCIE18_TXN	A24	GND
B25	GND	A25	PCIE18_RXP
B26	GND	A26	PCIE18_RXN
B27	PCIE19_TXP	A27	GND
B28	PCIE19_TXN	A28	GND
B29	GND	A29	PCIE19_RXP
B30	NC	A30	PCIE19_RXN
B31	NC	A31	GND
B32	GND	A32	NC
B33	PCIE20_TXP	A33	NC

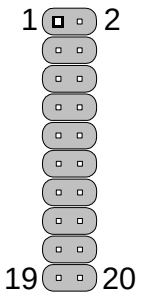
Pin	Signal	Pin	Signal
B34	PCIE20_TXN	A34	GND
B35	GND	A35	PCIE20_RXP
B36	GND	A36	PCIE20_RXN
B37	PCIE21_TXP	A37	GND
B38	PCIE21_TXN	A38	GND
B39	GND	A39	PCIE21_RXP
B40	GND	A40	PCIE21_RXN
B41	PCIE22_TXP	A41	GND
B42	PCIE22_TXN	A42	GND
B43	GND	A43	PCIE20_RXP
B44	GND	A44	PCIE20_RXN
B45	PCIE23_TXP	A45	GND
B46	PCIE23_TXN	A46	GND
B47	GND	A47	PCIE23_RXP
B48	NC	A48	PCIE23_RXN
B49	GND	A49	GND
B50	PCIE24_TXP	A50	NC
B51	PCIE24_TXN	A51	GND
B52	GND	A52	PCIE24_RXP
B53	GND	A53	PCIE24_RXN
B54	PCIE25_TXP	A54	GND
B55	PCIE25_TXN	A55	GND
B56	GND	A56	PCIE25_RXP
B57	GND	A57	PCIE25_RXN
B58	PCIE26_TXP	A58	GND
B59	PCIE26_TXN	A59	GND
B60	GND	A60	PCIE26_RXP
B61	GND	A61	PCIE26_RXN
B62	PCIE27_TXP	A62	GND
B63	PCIE27_TXN	A63	GND
B64	GND	A64	PCIE27_RXP
B65	GND	A65	PCIE27_RXN
B66	PCIE28_TXP	A66	GND
B67	PCIE28_TXN	A67	GND
B68	GND	A68	PCIE28_RXP
B69	GND	A69	PCIE28_RXN

Pin	Signal	Pin	Signal
B70	PCIE29_TXP	A70	GND
B71	PCIE29_TXN	A71	GND
B72	GND	A72	PCIE29_RXP
B73	GND	A73	PCIE29_RXN
B74	PCIE30_TXP	A74	GND
B75	PCIE30_TXN	A75	GND
B76	GND	A76	PCIE30_RXP
B77	GND	A77	PCIE30_RXN
B78	PCIE31_TXP	A78	GND
B79	PCIE31_TXN	A79	GND
B80	GND	A80	PCIE31_RXP
B81	NC	A81	PCIE31_RXN
B82	NC	A82	GND

6.9. LPC Debug

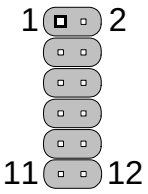
CN37: LPC Debug Header

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	+ 3.3VSB	10	LPC_AD1
11	LPC_AD0	12	GND
13	SMB_CK	14	SMB_DAT
15	SPD_A1 (see JP25)	16	SPD_A0 (see JP26)
17	GND	18	LPC_SERIRQ
19	NC	20	NC



CN40: LPC Test Connector

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

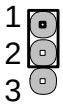


JP26/25: External LPC EEPROM Address Selection

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

JP26: EEPROM Address A0 Selection
JP25: EEPROM Address A1 Selection

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

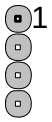


Note: <<<< indicates default setting

6.10. I²C and SMB Bus (for user access)

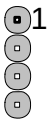
CN33: I2C Bus

Pin	Signal
1	+ 3.3V
2	I2C_DAT
3	I2C_CK
4	GND



CN34: SMBus

Pin	Signal
1	+ 3.3V
2	SMB_DAT
3	SMB_CK
4	GND



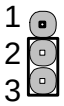
JP19-21: I2C/SMBus Buffers

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: I^2C BUFFER [data]
JP20: I^2C BUFFER [clock]
JP21: SMB Bus BUFFER [data]
JP22: SMB Bus BUFFER [clock]

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

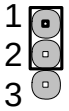


JP29-31: I2C EEPROM Address Selection

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

JP29: I2C EEPROM A0
JP30: I2C EEPROM A1
JP31: I2C EEPROM A2

Jumper	Status
1-2	A0_High "1" <<<<
2-3	A0_Low "0"

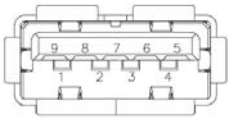


Note: <<<< indicates default setting

6.11. USB

CN45: USB 3.0 x4 Connector

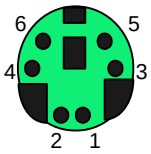
Pin	Signal
1	USB3.0_P5VA
2	USB2_CMAN
3	USB2_CMAP
4	GND
5	USB3A_CMRXN
6	USB3A_CMRXP
7	GND
8	USB3A_CMTXN
9	USB3A_CMTXP



6.12. Keyboard & Mouse

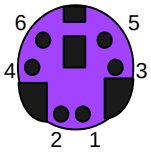
CN19: Mouse [top]

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



Keyboard [bottom]

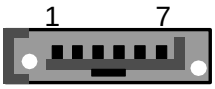
Pin	Signal
1	KBDAT
2	NC
3	GND
4	KB5V
5	KBCLK
6	NC



6.13. SATA

CN12/13: SATA

Pin	Signal	Pin	Signal
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND	A4	

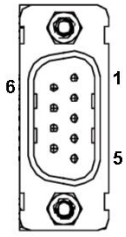


6.14. Serial Ports

CN1002: Serial Ports from Super I/O

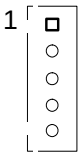
COM 3 [DB9] [top]
COM4 [DB9] [bottom]

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



CN22: IrDA Connector

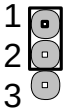
Pin	Signal
1	+ 5V
2	NC
3	IrRXD
4	GND
5	IrTXD



JP18: Super I/O

Enable/Disable the Super I/O. By default, the Express-BASE7 enables the onboard W83627DHG-PT Super I/O. To disable the onboard Super I/O, short pins 2-3 of jumper JP18

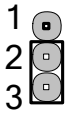
Jumper	Status
1-2	ENABLE <<<<
2-3	DISABLE



JP10: Super I/O IO Address

Selection of address of Super I/O

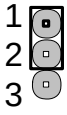
Jumper	Status
1-2	4Eh
2-3	2Eh <<<<



JP11: Super I/O Clock

Selection of clock of Super I/O

Jumper	Status
1-2	48 MHz <<<<
2-3	24 MHz



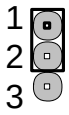
Note: <<<< indicates default setting

CN1003/1004: Enable of Serial Over LAN

Enable Serial Over LAN through CN1003, CN1004 Connect serial signals from Super I/O (on carrier) to MiniBMC. By default, the serial signals from Super I/O connect to CN1002 connector.

CN1003: TX setting
CN1004: RX setting

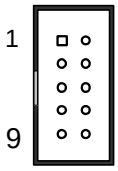
Jumper	Status
1-2	RS232 <<<<
2-3	MiniBMC



CN6-7: Serial Ports from COM Express Module

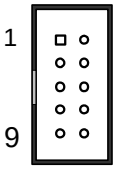
CN6: COM 1 [header]
Source from SER0

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: COM 2 [header]
Source from SER1

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



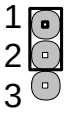
Note: CN6 and CN7 are the General Purpose Serial Interface ports from module.

Note: <<<< indicates default setting

6.15. Fan Connectors

JP35, JP36, JP37

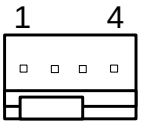
Jumper	Status
1-2	4-pin <<<<
2-3	3-pin



Note: <<<< indicates default setting

FAN1-3: 12V Fan Power

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

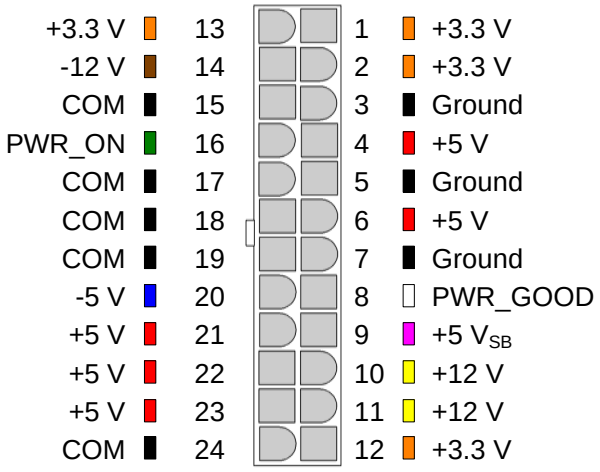


Note: FAN3 PWM is controlled by the module (B101: FAN_PWMOUT, B102: FAN_TACHIN). The “sense” and “speed” signals of FAN 1/2 are connected to the Super I/O.

6.16. Power Connectors

CN1: ATX 24-pin Power Connector

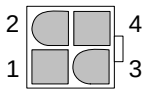
Connect the ATX 24-pin (or 20-pin) connector to supply power to Express-BASE7 carrier.



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



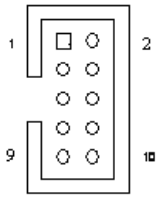
Note: All 12V power for the COM Express module is provided by the ATX 12V 4-pin connector.

Note: 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 for detail information.

CN44: Smart Battery

Connect to Smart Battery module (TBD).

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

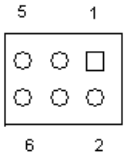


6.17. Power Jumper Settings

CN2: PWR_OK Config

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

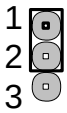
Jumper	Status
1-2	Add 3.3V Pullup with 10K to signal PWR_OK
3-4	Connect PWRGOOD of ATX power supply <<<<
5-6	Connect PWRGOOD of onboard DCDC regulator



JP1: AT/ATX Mode

In AT mode, JP1 shorts PS_ON# to ground directly to force power on. See 8.6 AT Power Mode.

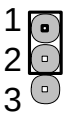
Jumper	Status
1-2	ATX Mode <<<<
2-3	AT Mode



JP2: PS_ON# Signal Source

For modules that connect the S3 signal, PS_ON# should always be set to SUS_S3# as source (even when S3 mode is disable in BIOS) For modules that do not bring out the S3 signal, PS_ON# should be set to SUS_S5# as source.

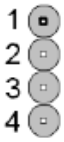
Jumper	Status
1-2	SUS_S3# <<<<
2-3	SUS_S5#



JP3: 5VSB to Module Source

With an AT power supply is connected to the Express-BASE7, JP3 can be used to provide 5VSB to the COM Express module from the carrier board

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

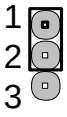


JP34: 12V to Module during S3/S5

JP1-2 indicates no 12V to module at S3/S5 mode.

JP2-3 indicates there's always 12V input to module no matter the state of module.

Jumper	Status
1-2	12V OFF in S3/S5 <<<<
2-3	12V ON in S3/S4



Note: <<<< indicates default setting

Power Strategies

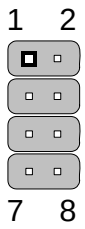
Power Strategies	JP1	JP2	JP3	JP34
ATX PSU / ATX to COM Express module	1-2	1-2	2-3	1-2
ATX PSU / AT to COM Express module	2-3	1-2	3-4	2-3
AT PSU / ATX to COM Express module	1-2	1-2	1-2	1-2
AT PSU / AT to COM Express module	2-3	1-2	3-4	2-3

6.18. Other Connectors

CN36/CN39: GPIO Headers

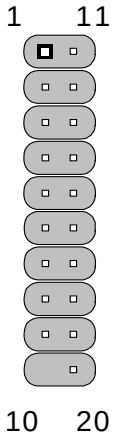
GPIOs of CN36 come from the COM Express module. GPIOs to CN39 come from Express-BASE7.

Pin	Signal	Pin	Signal
1	GPI0	2	GPO1
3	GPI1	4	GPO2
5	GPI2	6	GPO3
7	GPI3	8	GPO4



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	+ 5VSB	19	PWR_BTN
10	SIO_PME	20	GND

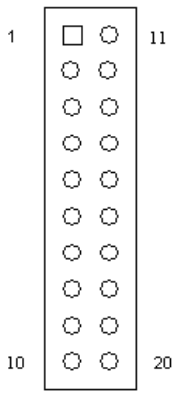


Note: <<<< indicates default setting

CN41/42: Digital I/O

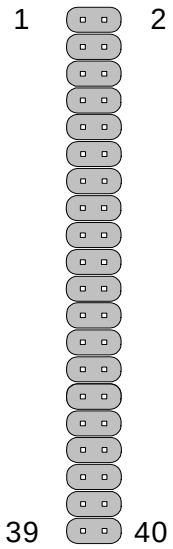
The Express-BASE7 provides GPIO expansion for I2C applications via a Phillips PCA955 with 16-bit I2C I/O port and interrupt (for CN41 n=0, for CN42 n=1). See 8.4 Digital I/O LEDs for CN41 LED descriptions.

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	+ 3.3V	20	+ 3.3V



CN43: Feature Connector

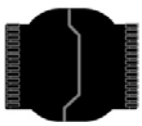
Pin	Signal	Pin	Signal
1	+ 5V	2	+ 5VSB
3	+ 5V	4	Hard Disk Activity
5	I2C_DAT	6	SMBCLK_SB
7	I2C_CK	8	SMBDAT_SB
9	Internal Use	10	GPO0
11	Internal Use	12	GPO1
13	PS_ON#	14	GPO2
15	SUS_S3#	16	GPO3
17	GND	18	GND
19	THRMTRIP#	20	SMBALRT#
21	GPI1	22	SUS_S4#
23	SUS_STAT#	24	GPI0
25	GPI2	26	SUS_S5#
27	WDTRIG	28	THRM#
29	GPI3	30	PCI_M66EN
31	BATLOW#	32	WAKE1#
33	PEF_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 6.19 Other Jumper Setting and 7.1 SPI Secondary BIOS for details.

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

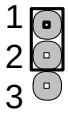


6.19. Other Jumper Settings

JP4: Clear CMOS

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

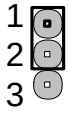
Jumper	Status
1-2	Normal <<<<
2-3	Clear CMOS



JP23/24: BIOS Selection

See 7.1 SPI Secondary BIOS for a detailed description.

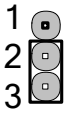
JP23	JP24	Status
1-2	1-2	Module BIOS <<<<
2-3	1-2	Reserved
1-2	2-3	Carrier SPI BIOS
2-3	2-3	Reserved



JP32: TPM Signal Jumper

Configuring the jumper to “ON” pulls the TPM signal high and “OFF” does nothing to the TPM signal. Dependent upon COM Express modules’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-BASE7 supports Secondary BIOS using Serial Peripheral Interface (SPI) for COM.0 Rev. 3.0 modules.

Secondary BIOS solutions can be used as an alternative to the on-module BIOS and provide support for the following:

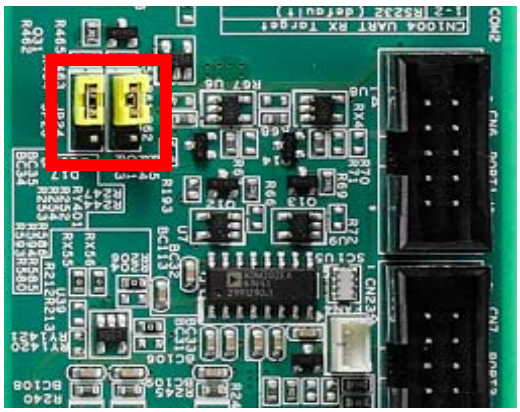
- Testing new BIOS versions
- Development of firmware modifications
- Recovery if soldered BIOS on module is corrupted

7.1. SPI Secondary BIOS

SPI is supported by PICMG COM.0 Rev. 3.0 to provide a Secondary BIOS for COM Express Rev 3.0 modules that support a SPI Secondary BIOS.

To use the BIOS on the module:

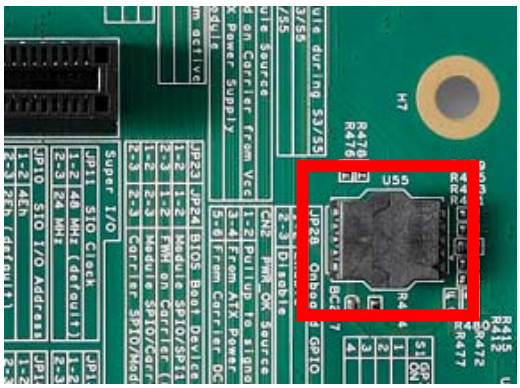
- Short pins 1-2 on both JP23 and JP24. (as shown at right)



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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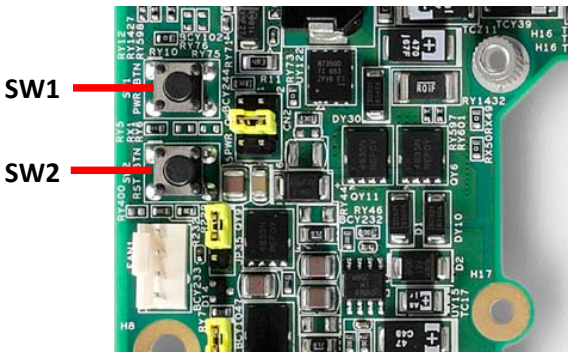
8. Switches, POST and LEDs

8.1. Switches (S1-S5)

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

The **S1** switch is the **ATX Power Button.**

The **S2** switch is the **Reset Button.**

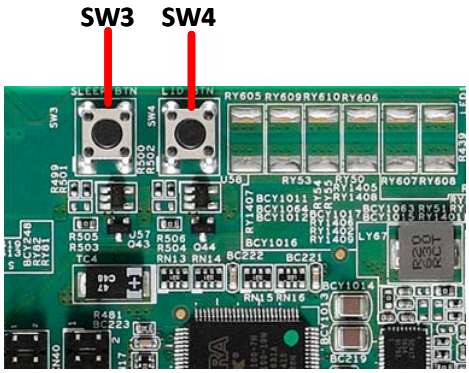


At the top edge of the carrier are two more switches.

The **S3** switch is the **Sleep Button.**

The **S4** switch is the **Lid Button**.

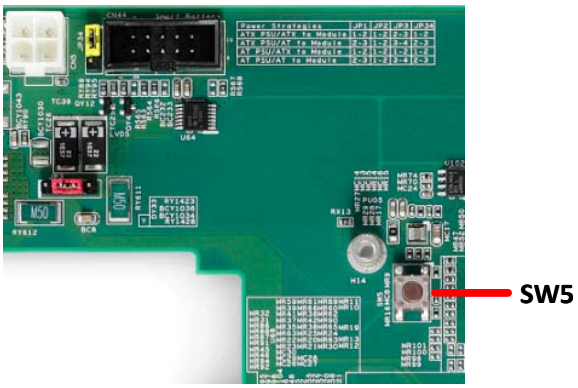
Both buttons support Type 7 modules for ACPI power management behavior settings in an OS environment.



Nearby the top there is one more switch.

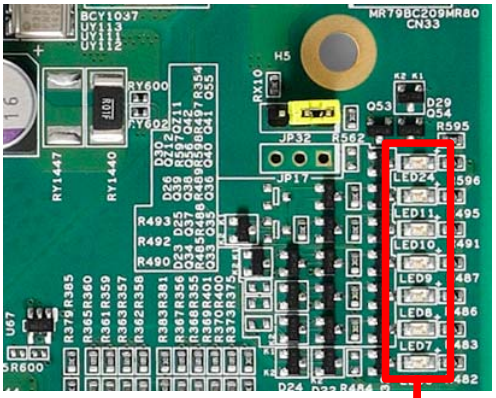
The **S5** switch is the **Reset Button** for **MiniBMC**.

This switch is used for MiniBMC FW development only.



8.2. Module Type Display

At the right edge of the Express-BASE7, 7 mini LEDs (LED 6-11, LED24) indicate the **type of COM Express module** installed on the Express-BASE7.



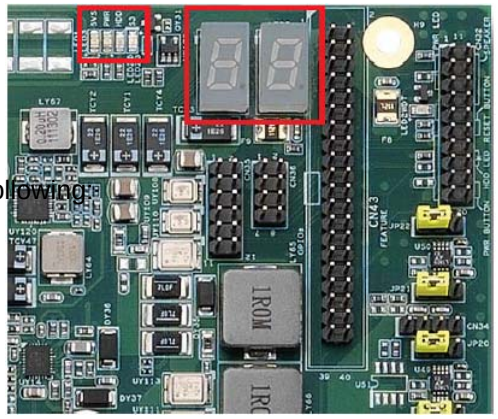
COM Express Type: 1-2, 3, 4, 5, 6, 7 or wrong pinout

8.3. POST & Indicator LEDs

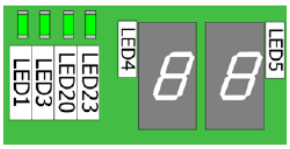
An LPC based POST display is added for debgging.

The two LEDs shows the actual **POST data.**

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

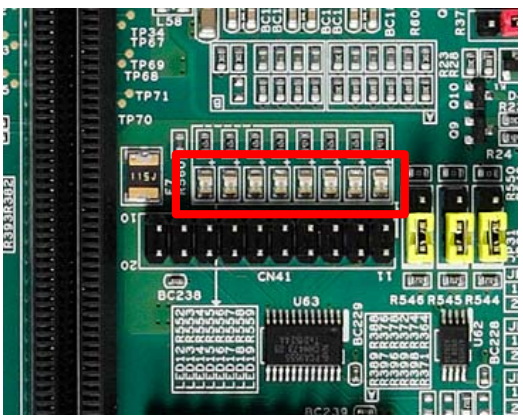


LED1 **5VSB:** ATX power attached on standby or active
LED3 **PWR:** Indicates power on
LED20 **HDD:** Indicates hard drive activity
LED23 **S3:** Indicates S3 status



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**,

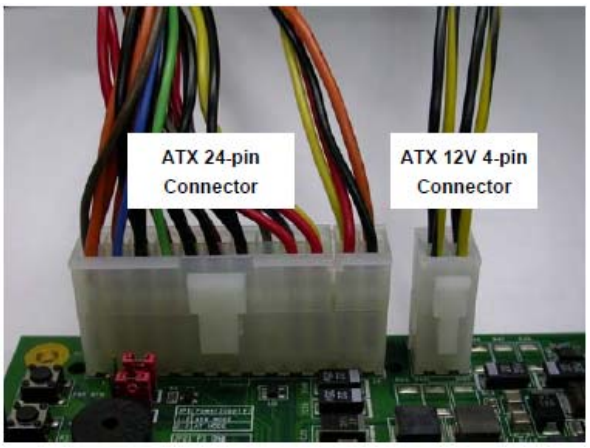
The **I/O 7** signal corresponds to **LED12**.

8.5. ATX Power Connectors

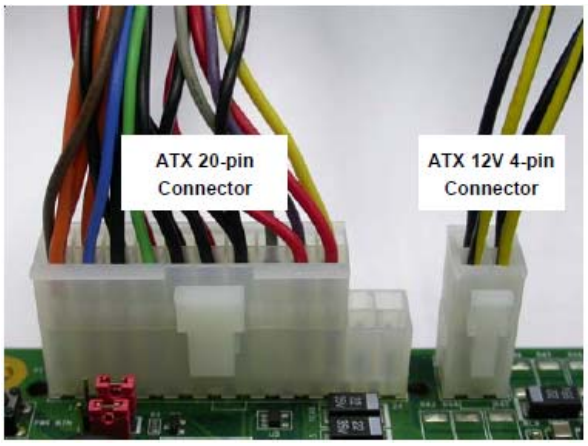
The Express-BASE7 has one **ATX 24-pin connector** to supply power to the carrier board and one **ATX 12V 4-pin connector** to supply power to the COM Express module.

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

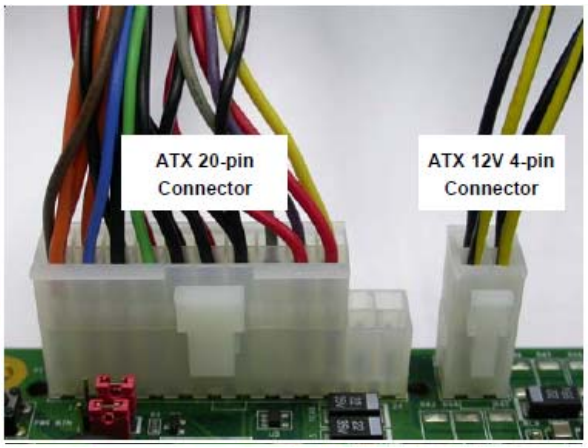
If your power supply has a 24-pin ATX connector, then attach the connectors as shown.



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



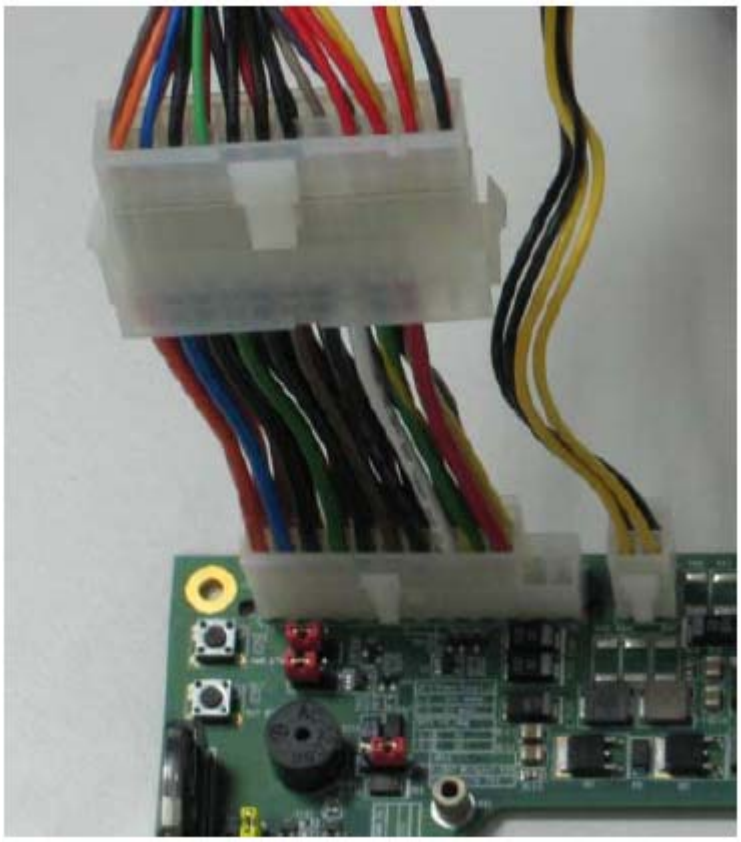
DO NOT plug the ATX 12V 4-pin connector into the ATX 24-pin power
connector.



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.



Safety Instructions

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- Please read these safety instructions carefully.
- Please keep this User‘s Manual for later reference.
- The equipment should be operated only from the type of power source indicated on the rating label. Make sure the voltage of the power source when connect the equipment to the power outlet.
- If your equipment has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.
- For pluggable equipment, that the socket-outlet shall be installed near the equipment and shall be easily accessible.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- If the equipment is not use for long time, disconnect the equipment from mains to avoid being damaged by transient overvoltage.
- All cautions and warnings on the equipment should be noted.
- Please keep this equipment from humidity.
- Do not use this equipment near water or a heat source.
- Lay this equipment on a reliable surface when install. A drop or fall could cause injury.
- Never pour any liquid into opening; this could cause fire or electrical shock.
- Openings in the case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space around the system for ventilation when you set up your work area. Never insert objects of any kind into the ventilation openings.
- To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before removing covers.
- Lithium Battery provided (real time clock battery)

CAUTION – Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries according to the instructions

- If one of the following situations arises, get the equipment checked by a service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment has not work well or you can not get it work according to user‘s manual.
  - The equipment has dropped and damaged.
  - If the equipment has obvious sign of breakage.

Getting Service

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