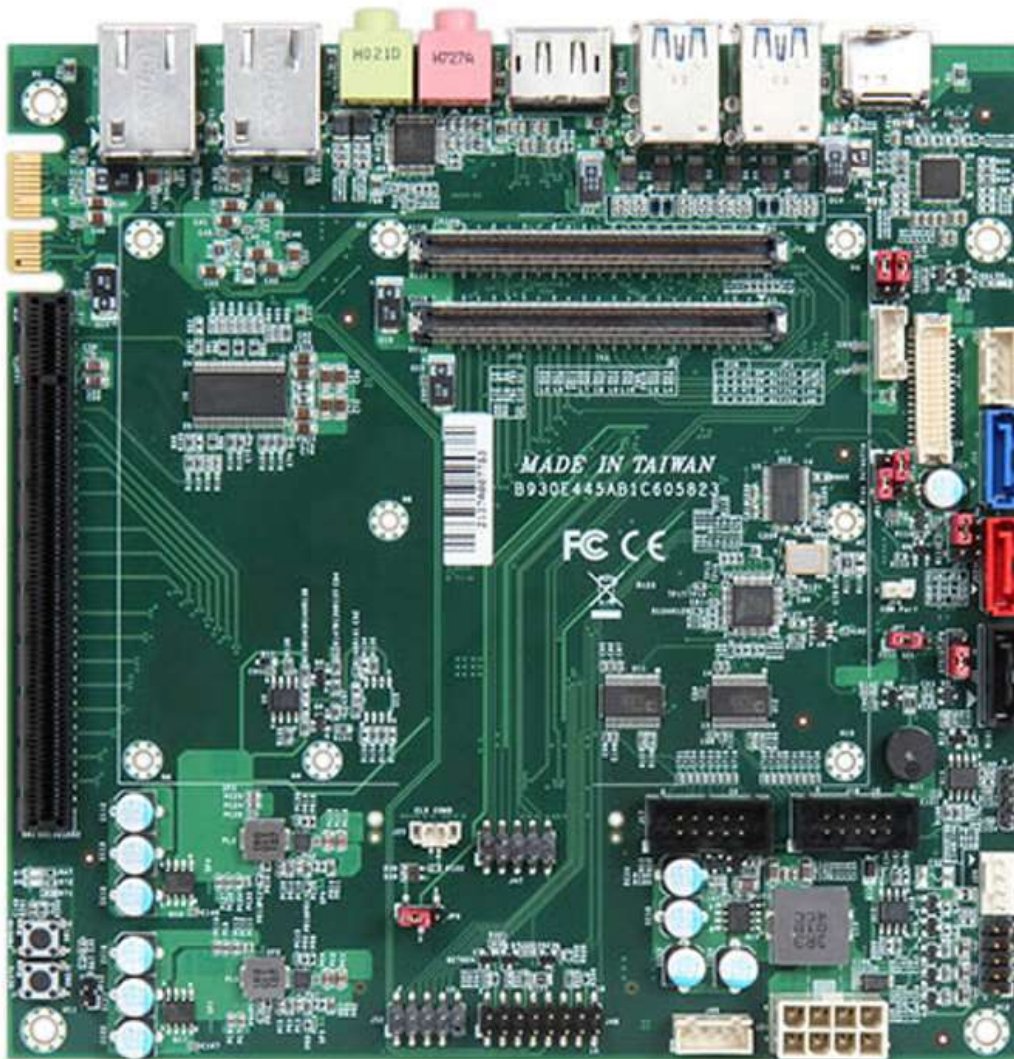




COM Express™

PCOM-C605 R3

User Manual Revision 0.0

Revision History

R2.1	Preliminary for PCOM-C605 R1
R2.2	PCOM-C605 R2
R2.3	Add Portwell Product Matrix
R3.0	1. Modify supported temperate range from (-40C to 80C) to (0C to 60C) 2. Change BD from Rev 2 to Rev 3. 3. Change cover photo of C605

Contents

1	Introduction	9
2	Block Diagram	10
3	Specifications	12
4	Carrier I/O Location.....	14
5	Mechanical drawing.....	17
6	Rear I/O	21
7	On board Connectors.....	27
8	Headers	37
9	Miscellaneous	44
10	Ordering Guide.....	46
11	Pin out Tables.....	47
12	Portwell Product Matrix.....	53
13	Industry Specifications.....	55

List of Tables

Table 1 Specifications.....	13
Table 2 Rear IO list	22
Table 3 Audio Jack J1 & J2	23
Table 4 HDMI - J3	23
Table 5 DP - J4.....	24
Table 6 USB 3.0/2.0 - J5 & J6	25
Table 7 RJ45 - J7 & J8	26
Table 8 Headers & Connectors list	28
Table 9 Golden finger - J9	29
Table 10 SATA J12 & J31	30
Table 11 LVDS - J13.....	31
Table 12 SATA 3.0 - J14	32
Table 13 PEG/PCIE x16 - J15	33
Table 14 COM Port - J17 & J18.....	34
Table 15 ATX Power connector - J21	34
Table 16 Battery Header - J25.....	35
Table 17 FAN - J29	35
Table 18 GPIO - J47	35
Table 19 Front Panel – J48.....	36
Table 20 SATA Power – J49 & J50	36

Table 21 LPC Header – J52.....	36
Table 22 Function Header list.....	38
Table 23 LVDS Back Light Power	39
Table 24 LVDS Invertor	39
Table 25 LVDS Power	40
Table 26 RTC Header	40
Table 27 5VSB ON	41
Table 28 Serial Port Header.....	41
Table 29 PSON#.....	41
Table 30 I2C Header	42
Table 31 VGA Header	42
Table 32 Power Button Header	43
Table 33 SPI Flash Boot selection	43
Table 34 Power & Reset Button.....	45
Table 35 Ordering Guide	46
Table 36 AB & CD Row connector signals	48
Table 37 Portwell Product Matrix.....	54

List of Figures

Figure 1 Block Diagram 11

Figure 2 I/O & Connectors location 14

Figure 3 Mechanical dimension - Top 18

Figure 4 Mechanical dimension - Bottom..... 19

Figure 5 Mechanical dimension - Side view 20

Figure 6 Rear I/O..... 21

Disclaimer

Warranty

PORTWELL tries to procure that this user manual and our product features are correct and reliable, but in any condition, PORTWELL provides no express or implied warranty and guaranty regard to this user manual or any other product information.

PORTWELL shall not be liable for loss of revenues or profits, inconveniences, expense for substitute equipment or service, storage charges, loss or corruption of data, or any other special, incidental or consequential damages caused by the use or misuse of or inability to use the PORTWELL products, regardless of the legal theory on which the claim is based, and even if PORTWELL as been advised of the possibility of such damages.

The information contained within this user manual, including but not limited to any other product specification, PORTWELL reserves its right to modify them at any time without notice.

Trademarks

All product names, logos, brands, trademarks and registered trademarks in this user's manual or the PORTWELL website are the property of their respective owners.

Certification



PORTWELL is certified to ISO 9001:2008 standard.

Technical Support

PORTWELL technicians and engineers are committed to providing the best possible technical support for our customers so that our products can be easily used and implemented.

We request that you first visit our website at <http://www.PORTWELL.com.tw/support/> for the latest documentation, utilities and drivers, which have been made available to assist you. If you still require assistance after visiting our website, you can contact our technical support department by email at tsd@mail.PORTWELL.com.tw for further assistance.

1 Introduction

PCOM-C605 Ver. R3 is a Mini-ITX form factor COM Express Type 6 Carrier board, designed for COM Express Type 6 Basic and Compact size Module product. Suitable for wide range working temperature 0 °C ~ 60 °C. Additional GbE Ethernet port is provided.

2 Block Diagram

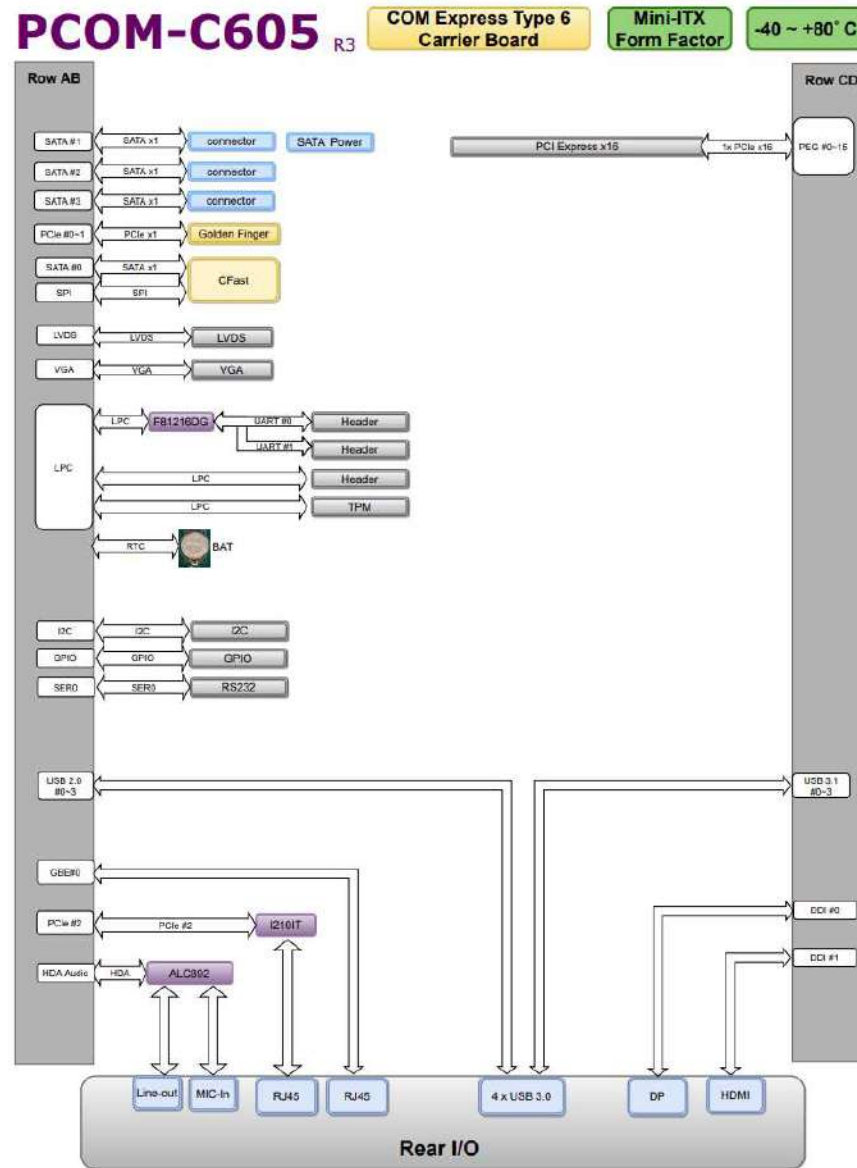


Figure 1 Block Diagram

3 Specifications

Product	➤ PCOM-C605 Ver. R3
Form Factor	➤ COM Express™ standard pin out Type 6 Rev. 2.1 (Mini-ITX 170 x 170mm / 6.7" x 6.7").
Display Interface	➤ Display Port (Rear I/O) ➤ HDMI (Rear I/O) ➤ VGA (Header) ➤ LVDS 24bit / Dual channel (Connector)
Ethernet	➤ GbE Intel I210-AT
Serial IO	➤ 8x GPIO (4 GPI / 4 GPO) ➤ I2C / SMBus ➤ 1x Serial Port (TX / RX) ➤ 2x RS-232 COM Ports
PCI Express	➤ 1x PCIe x16 Slot ➤ 2x PCIe x1 Golden finger
USB	➤ 4 x USB3.0/2.0 (5 Gbps) (Port 0~3)
SATA	➤ 1x CFEX (Port 0) ➤ 3 x SATA3.0 (6 Gbps) (Port 1~3)
Miscellaneous	➤ FAN 4 Pin ➤ HDA
Power DC IN	➤ +12VDC ; AT/ATX Mode
Environment	➤ Operating Temperature 0 ° C ~ +60 ° C ➤ Storage Temperature 0 ° C ~ +60 ° C ➤ Relative Humidity 5%~95%

Table 1 Specifications

4 Carrier I/O Location

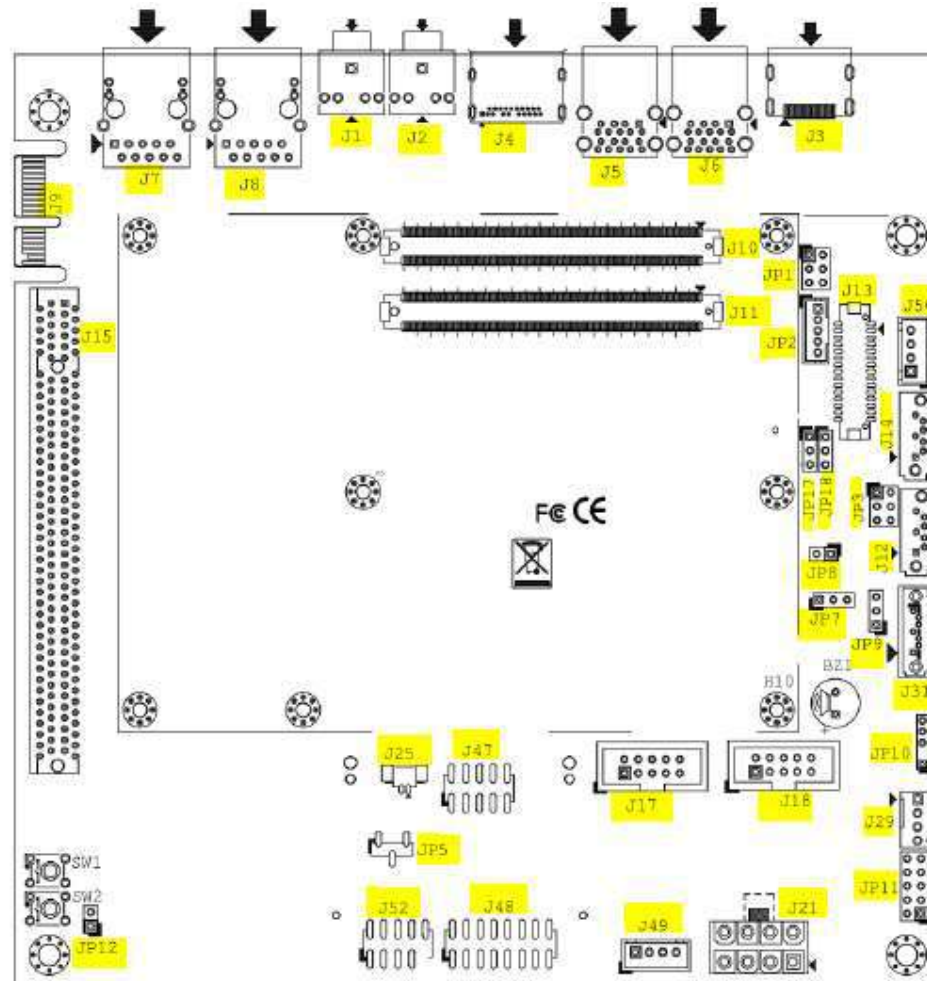


Figure 2 I/O & Connectors location

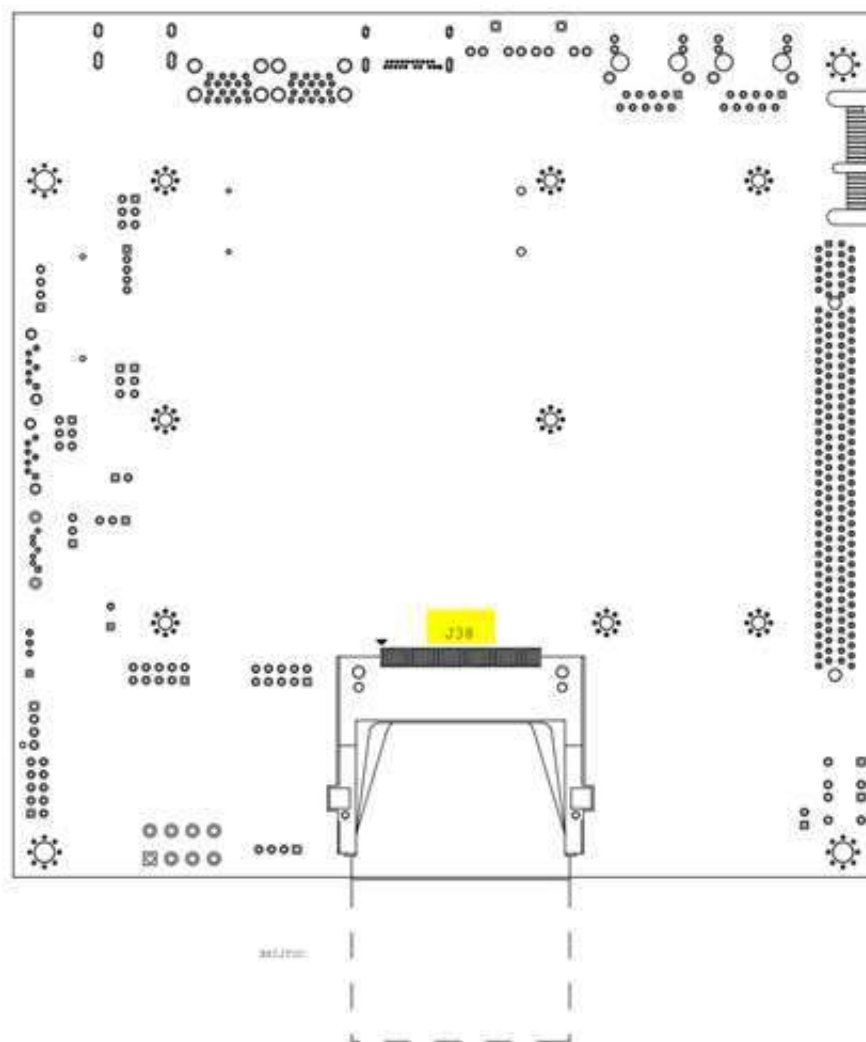
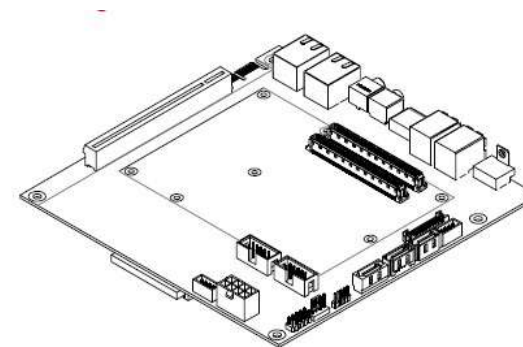


Figure 2 I/O & Connectors location

5 Mechanical drawing



This section presents the mechanical dimensions.

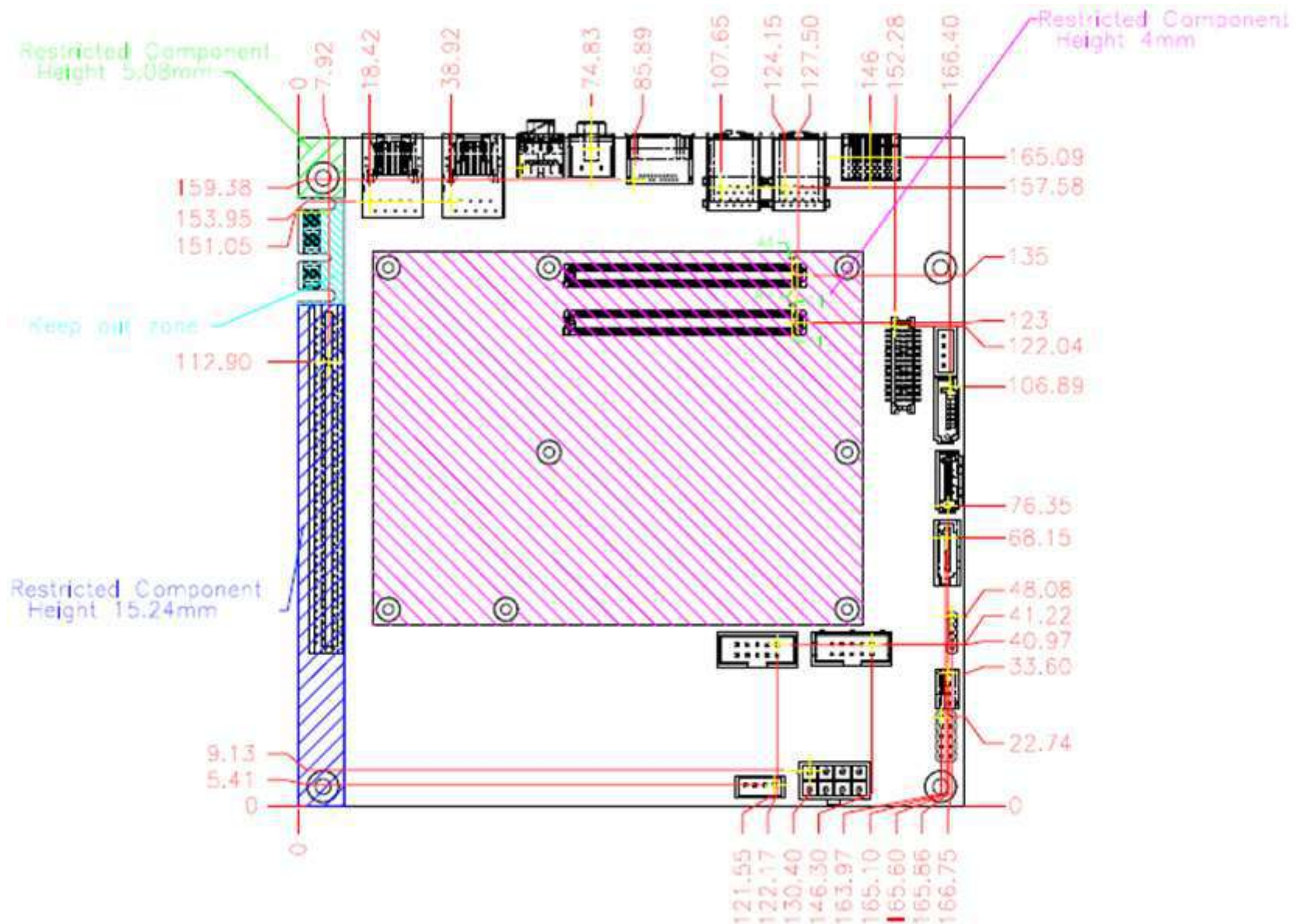


Figure 3 Mechanical dimension - Top

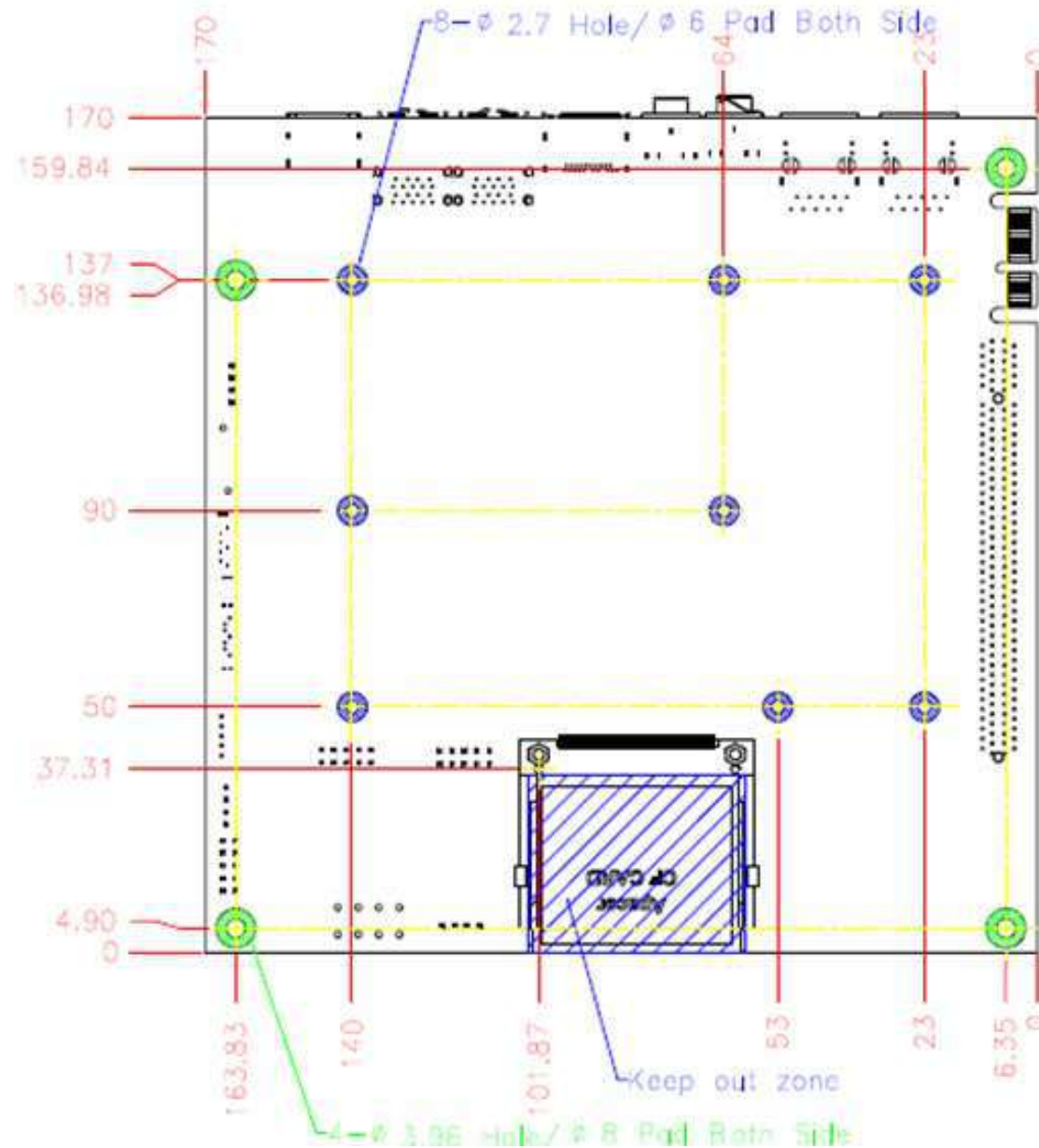


Figure 4 Mechanical dimension - Bottom

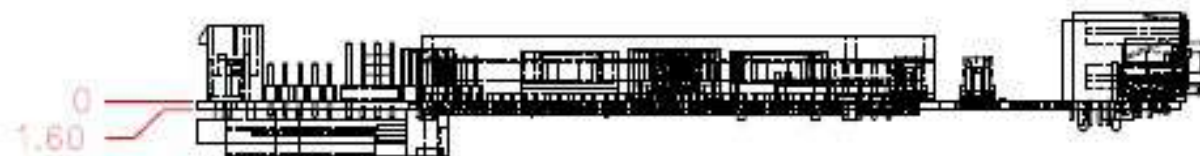


Figure 5 Mechanical dimension - Side view

6 Rear I/O

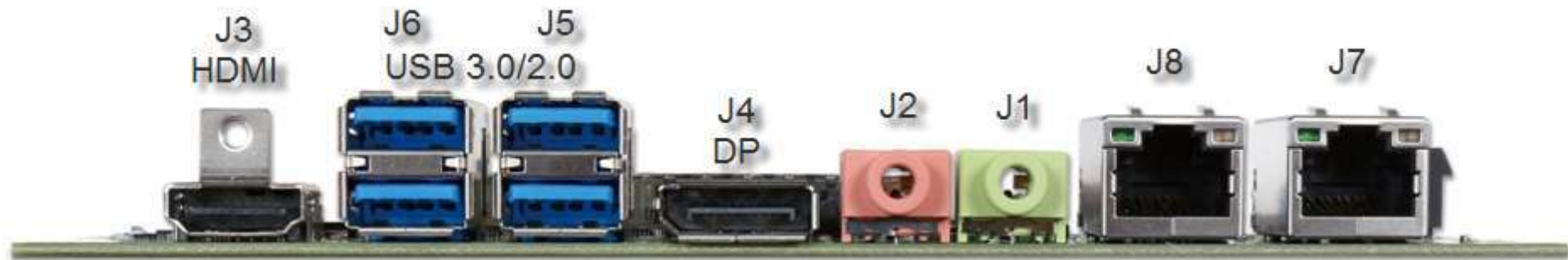


Figure 6 Rear I/O

This section presents the rear I/O list and signal names.

Rear I/O connectors list

Connector	Function
J1	Audio Jack
J2	Audio Jack
J3	HDMI connector
J4	DP connector
J5	USB3.0 * 2 connector
J6	USB3.0 * 2 connector
J7	RJ45 connector
J8	RJ45 connector

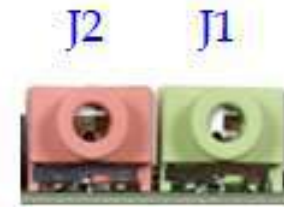
Table 2 Rear I/O list

J2 : Audio Jack

Pin	Signal Name
1	GND
2	MAC_IN1_L
3	GND
4	MAC_IN1_JD
5	MAC_IN1_R

J1 : Audio Jack

Pin	Signal Name
1	GND
2	LINE_OUT1_L
3	GND
4	LINE_OUT1_JD
5	LINE_OUT1_R

Table 3 Audio Jack J1 & J2**J3 : HDMI connector**

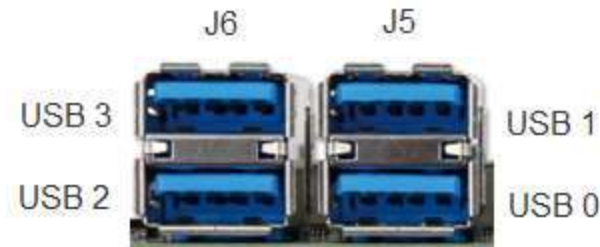
Pin	Signal Name	Pin	Signal Name
1	DPC_LANE0	11	GND
2	GND	12	DPC_LANE3#
3	DP_LANE0#	13	N/C
4	DPC_LANE1	14	N/C
5	GND	15	HDMI_DDC_CLK
6	DPC_LANE1#	16	HDMI_DDC_DATA
7	DP_LANE2	17	GND
8	GND	18	+5VF_HDMI_CON
9	DPC_LANE2#	19	DPC_HPD_IN
10	DPC_LANE3		

Table 4 HDMI - J3

J4 : DP connector			
Pin	Signal Name	Pin	Signal Name
1	DPB_LANE0	11	GND
2	GND	12	DPB_LANE3#
3	DPB_LANE0#	13	DPB_AUX_SEL
4	DPB_LANE1	14	GND
5	GND	15	DPB_AUX_L
6	DPB_LANE1#	16	GND
7	DPB_LANE2	17	DPB_AUX_L#
8	GND	18	DPB_HPD
9	DPB_LANE2#	19	GND
10	DPB_LANE3	20	+VCC3_DP_CON



Table 5 DP - J4

**J6: USB3.0*2 (Compatible with USB 2.0) connector**

Pin	Signal Name	Pin	Signal Name
B1	5VSB	A1	5VSB
B2	DF_USB_3N_R	A2	DF_USB_2N_R
B3	DF_USB_3P_R	A3	DF_USB_2P_R
B4	GND	A4	GND
B5	USB3_SSRXN_R	A5	USB2_SSRXN_R
B6	USB3_SSRXP_R	A6	USB2_SSRXP_R
B7	GND	A7	GND
B8	USB3_SSTXN_R	A8	USB2_SSTXN_R
B9	USB3_SSTXP_R	A9	USB2_SSTXP_R
CG1	GND	CG3	GND
CG2	GND	CG4	GND

J5: USB3.0*2 (Compatible with USB 2.0) connector

Pin	Signal Name	Pin	Signal Name
B1	5VSB	A1	5VSB
B2	DF_USB_1N_R	A2	DF_USB_0N_R
B3	DF_USB_1P_R	A3	DF_USB_0P_R
B4	GND	A4	GND
B5	USB1_SSRXN_R	A5	USB0_SSRXN_R
B6	USB1_SSRXP_R	A6	USB0_SSRXP_R
B7	GND	A7	GND
B8	USB1_SSTXN_R	A8	USB0_SSTXN_R
B9	USB1_SSTXP_R	A9	USB0_SSTXP_R
CG1	GND	CG3	GND
CG2	GND	CG4	GND

Table 6 USB 3.0/2.0 - J5 & J6

**J7 : RJ45 connector**

Pin	Signal Name	Pin	Signal Name
1	LAN_MDI0P	2	LAN_MDI0N
3	LAN_MDI1P	4	LAN_MDI1N
5	+VCT_LAN	6	GND
7	LAN_MDI2P	8	LAN_MDI2N
9	LAN_MDI3P	10	LAN_MDI3N
11	LAN_LED_100#	12	LAN_LED_1000#
13	LAN_LED_LNK#_ACT	14	3VSB
CG1	GND	CG2	GND

J8 : RJ45 connector

Pin	Signal Name	Pin	Signal Name
1	LANB_MDI0P	2	LANB_MDI0N
3	LANB_MDI1P	4	LANB_MDI1N
5	V_1P5_L2	6	GND
7	LANB_MDI2P	8	LANB_MDI2N
9	LANB_MDI3P	10	LANB_MDI3N
11	LANB_LED_100#	12	LANB_LED_1000#
13	LANB_LED_LNK#_ACT	14	3VSB
CG1	GND	CG2	GND

Table 7 RJ45 - J7 & J8

7 On board Connectors

This section presents the connectors on PCOM-C605 Ver. R3

Top side connectors list

Connector [Ⓜ]	Function [Ⓜ]
J9 [Ⓜ]	Golden finger [Ⓜ]
J12, J31 [Ⓜ]	SATA2.0 connector [Ⓜ]
J13 [Ⓜ]	LVDS connector [Ⓜ]
J14 [Ⓜ]	SATA3.0 connector [Ⓜ]
J15 [Ⓜ]	PCI-E*16 Slot [Ⓜ]
J17, J18 [Ⓜ]	COM PORT header [Ⓜ]
J21 [Ⓜ]	8-PIN ATX Power connector [Ⓜ]
J25 [Ⓜ]	Battery Header [Ⓜ]
J29 [Ⓜ]	Fan Connector [Ⓜ]
J47 [Ⓜ]	GPIO Header [Ⓜ]
J48 [Ⓜ]	Front Panel [Ⓜ]
J49,J50 [Ⓜ]	SATA Power [Ⓜ]
J52 [Ⓜ]	LPC Header [Ⓜ]

Bottom side connectors list

Connector [Ⓜ]	Function [Ⓜ]
J38 [Ⓜ]	CFEXConnector [Ⓜ]

Table 8 Headers & Connectors list

J9 : Golden finger			
PIN	Signal Description	PIN	Signal Description
A1	BF_SMB_CLK	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	VCC3
A4	GND	B4	GND
A5	PCIE_TX1+	B5	REFCLK0+
A6	PCIE_TX1-	B6	REFCLK0-
A7	PCIE_RX1+	B7	GND
A8	PCIE_RX1-	B8	VCC3
A9	VCC3	B9	VCC3
A10	VCC3	B10	3VSB
A11	BUF_PLT_RST#	B11	PCIE_WAKE#
A12	GND	B12	BF_SMB_DATA
A13	REFCLK1+	B13	GND
A14	REFCLK1-	B14	PCIE_TX0+
A15	GND	B15	PCIE_TX0-
A16	PCIE_RX0+	B16	GND
A17	PCIE_RX0-	B17	VCC3
A18	GND	B18	GND



Table 9 Golden finger - J9

J12 : SATA2.0 connector

Pin	Signal Name
1	GND
2	SATA_TXP2
3	SATA_TXN2
4	GND
5	SATA_RXN2
6	SATA_RXP2
7	GND

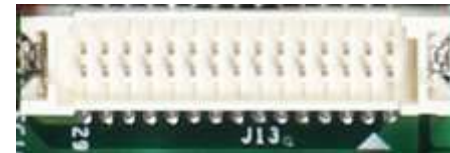
J31 : SATA2.0 connector

Pin	Signal Name
1	GND
2	SATA_TXP3
3	SATA_TXN3
4	GND
5	SATA_RXN3
6	SATA_RXP3
7	GND

Table 10 SATA J12 & J31

J13 : LVDS connector

Pin	Signal Name	Pin	Signal Name
1	Power	2	Power
3	LVDSA_Data0	4	LVDSA_Data0#
5	LVDSA_Data1	6	LVDSA_Data1#
7	LVDSA_Data2	8	LVDSA_Data2#
9	LVDSA_Data3	10	LVDSA_Data3#
11	LVDSA_CLKP	12	LVDSA_CLKN
13	LVDS_DDC_CLK	14	LVDS_DDC_DATA
15	GND	16	GND
17	LVDSB_Data0	18	LVDSB_Data0#
19	LVDSB_Data1	20	LVDSB_Data1#
21	LVDSB_Data2	22	LVDSB_Data2#
23	LVDSB_Data3	24	LVDSB_Data3#
25	LVDSB_CLKP	26	LVDSB_CLKN
27	NC	28	NC
29	GND	30	GND

Table 11 LVDS - J13

J14 : SATA3.0 connector

Pin	Signal Name
1	GND
2	SATA_TXP1
3	SATA_TXN1
4	GND
5	SATA_RXN1
6	SATA_RXP1
7	GND

Table 12 SATA 3.0 - J14

J15 : PCI-E*16 Slot											
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
A1	GND	A31	GND	A61	G_PER10-	B1	+12V	B31	NC	B61	GND
A2	+12V	A32	NC	A62	GND	B2	+12V	B32	GND	B62	G_PET11+
A3	+12V	A33	NC	A63	GND	B3	+12V	B33	G_PET4+	B63	G_PET11-
A4	GND	A34	GND	A64	G_PER11+	B4	GND	B34	G_PET4-	B64	GND
A5	NC	A35	G_PER4+	A65	G_PER11-	B5	SMB_CLK	B35	GND	B65	GND
A6	NC	A36	G_PER4-	A66	GND	B6	SMB_DATA	B36	GND	B66	G_PET12+
A7	NC	A37	GND	A67	GND	B7	GND	B37	G_PET5+	B67	G_PET12-
A8	NC	A38	GND	A68	G_PER12+	B8	VCC3	B38	G_PET5-	B68	GND
A9	VCC3	A39	G_PER5+	A69	G_PER12-	B9	NC	B39	GND	B69	GND
A10	VCC3	A40	G_PER5-	A70	GND	B10	3VSB	B40	GND	B70	G_PET13+
A11	BUF_PLT_RST#	A41	GND	A71	GND	B11	PCIE_WAKE#	B41	G_PET6+	B71	G_PET13-
A12	GND	A42	GND	A72	G_PER13+	B12	NC	B42	G_PET6-	B72	GND
A13	REFCLK4+	A43	G_PER6+	A73	G_PER13-	B13	GND	B43	GND	B73	GND
A14	REFCLK4-	A44	G_PER6-	A74	GND	B14	G_PET0+	B44	GND	B74	G_PET14+
A15	GND	A45	GND	A75	GND	B15	G_PET0-	B45	G_PET7+	B75	G_PET14-
A16	G_PER0+	A46	GND	A76	G_PER14+	B16	GND	B46	G_PET7-	B76	GND
A17	G_PER0-	A47	G_PER7+	A77	G_PER14-	B17	NC	B47	GND	B77	GND
A18	GND	A48	G_PER7-	A78	GND	B18	GND	B48	NC	B78	G_PET15+
A19	NC	A49	GND	A79	GND	B19	G_PET1+	B49	GND	B79	G_PET15-
A20	GND	A50	NC	A80	G_PER15+	B20	G_PET1-	B50	G_PET8+	B80	GND
A21	G_PER1+	A51	GND	A81	G_PER15-	B21	GND	B51	G_PET8-	B81	NC
A22	G_PER1-	A52	G_PER8+	A82	GND	B22	GND	B52	GND	B82	NC
A23	GND	A53	G_PER8-			B23	G_PET2+	B53	GND		
A24	GND	A54	GND			B24	G_PET2-	B54	G_PET9+		
A25	G_PER2+	A55	GND			B25	GND	B55	G_PET9-		
A26	G_PER2-	A56	G_PER9+			B26	GND	B56	GND		
A27	GND	A57	G_PER9-			B27	G_PET3+	B57	GND		
A28	GND	A58	GND			B28	G_PET3-	B58	G_PET10+		
A29	G_PER3+	A59	GND			B29	GND	B59	G_PET10-		
A30	G_PER3-	A60	G_PER10+			B30	NC	B60	GND		



Table 13 PEG/PCIE x16 - J15

J17 : COM PORT Header

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#1	2	RXD#1
3	TXD#1	4	DTR#1
5	GND	6	DSR#1
7	RTS#1	8	CTS#1
9	RI#1	10	NC

J18 : COM PORT Header

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#0	2	RXD#0
3	TXD#0	4	DTR#0
5	GND	6	DSR#0
7	RTS#0	8	CTS#0
9	RI#0	10	NC



Table 14 COM Port - J17 & J18

J21 : 8-PIN ATX Power connector

Pin	Signal Name	Pin	Signal Name
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V



Table 15 ATX Power connector - J21

J25 : Battery Header

Pin	Signal Name
1	BAT Power
2	GND

Table 16 Battery Header - J25**J29 : Fan connector**

Pin	Signal Name
1	GND
2	12V
3	SENSE
4	FAN_PWMOUT

Table 17 FAN - J29**J47 : GPIO Header**

Pin	Signal Name	Pin	Signal Name
1	GPI0	2	GPO0
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3
9	GND	10	VCC3

Table 18 GPIO - J47

J48 : Front Panel

Pin	Signal Name	Pin	Signal Name
1	5VSB(330 ohm)	2	VCC
3	PWR_LED	4	GND
5	3VSB(220 ohm)	6	NC
7	LAN0#_ACT	8	BUZZER
9	LAN1#_ACT	10	GND
11	3VSB(220 ohm)	12	PWRBRN#
13	VCC3(330 ohm)	14	SYS_RERST#
15	HD_LED#	16	GND

Table 19 Front Panel - J48**J49,J50 : SATA Power**

Pin	Signal Name
1	12V
2	GND
3	GND
4	VCC

Table 20 SATA Power - J49 & J50**J52 : LPC Header**

Pin	Signal Name	Pin	Signal Name
1	LAD0	2	VCC3
3	LAD1	4	PLTRST#
5	LAD2	6	LFRAME#
7	LAD3	8	CLK_PCI_SIO
9	KEY	10	GND

Table 21 LPC Header – J52

8 Headers

*This section presents configurable settings of headers on PCOM-C605 Ver. R3. Default setting are mark as **

Header list

Connector	Function
JP1	LVDS Back light Power
JP2	LVDS Invertor Connector
JP3	LVDS Power
JP5	RTC Header
JP7	5VSB On
JP8	RS232 Header
JP9	PSON#
JP10	I2C Header
JP11	VGA Header
JP12	PWRBTN Header
JP17	Boot SPI flash selection Header
JP18	Boot SPI flash selection Header
SW1	Power Button
SW2	Reset Button

Table 22 Function Header list

JP1 : LVDS Back Light Power	
Configuration	Backligh_EN Voltage Select
1-3, 2-4*	5V, Active High
1-3, 4-6	12V, Active High
3-5, 2-4	5V, Active Low
3-5, 4-6	12V, Active Low



Table 23 LVDS Back Light Power

JP2 : LVDS Invertor connector	
Pin	Signal Name
1	BACKLIGH_EN
2	GND
3	12V
4	BRIGHTNESS_CTRL
5	5V



Table 24 LVDS Invertor

JP3 : LVDS Power

Configuration	LVDS Voltage Select (VDD)
1-3*	3V
3-5	5V
3-4	12V

Table 25 LVDS Power**JP5 : RTC Header**

Configuration	RTC Header
1-2*	Enable RTC
2-3	Disable RTC(Clear CMOS)
No Jumper	Disable RTC(Clear CMOS)

Table 26 RTC Header

JP7 : 5VSB ON

Configuration	5VSB On
1-2*	Enable 5VSB

Table 27 5VSB ON**JP8 : RS232 Header**

Pin	Signal Name
1	SER0_RX
2	SER0_TX

Table 28 Serial Port Header**JP9 : PSON#**

Configuration	PSON# On
1-2*	Disable
2-3	Enable

Table 29 PSON#

Note : For AT Mode, please Enable PSON# and disable 5VSB ON.

JP10 : I2C Header

Pin	Signal Name
1	I2C_CLK
3	GND
4	I2C_DATA
5	VCC3

Table 30 I2C Header**JP11 : VGA Header**

Pin	Signal Name
1	RED
2	DDCCLK
3	GREEN
4	GND
5	BLUE
6	DDCDATA
7	VSYNC
8	GND
9	HSYNC
10	N/C

Table 31 VGA Header

JP 12 : Power Button Header

Pin	Signal Name
1	PWR_BTN#
2	GND

Table 32 Power Button Header**JP 17 / JP18 : SPI Flash Boot slection**

Configuration		SPI Boot selection
J17	J18	Jumper Setting Describe
1-2	1-2	Boot from Module SPI flash
1-2	2-3	Boot from Carrier SPI flash
2-3*	1-2*	Boot from Module SPI flash
2-3	2-3	Boot from Module SPI flash

Table 33 SPI Flash Boot selection

9 Miscellaneous

This section presents other functions and locations. Power / Reset button, CMOS battery etc. can be found in this section.

Power & Reset Button

Button	Function
SW1	Power Button
SW2	Reset Button

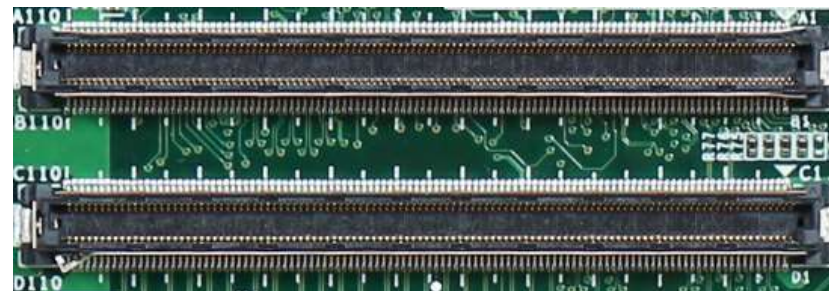
Table 34 Power & Reset Button

10 Ordering Guide

Product	Ordering P/N	Status
PCOM-C605 R3	AB1-3998	Available

Table 35 Ordering Guide

11 Pin out Tables



Below tables lists PCOM-C605 AB and CD Row connectors Type 6 pin name, un-connected pins are present as NC.

PICMG COM Express Rev2.1 Type 6				
Pin	Row A	Row B	Row C	Row D
1	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
2	GBE0_MDI3-	GBE0_ACT#	GND	GND
3	GBE0_MDI3+	LPC_FRAME#	USB_SSRX0-	USB_SSTX0-
4	GBE0_LINK100#	LPC_AD0	USB_SSRX0+	USB_SSTX0+
5	GBE0_LINK1000#	LPC_AD1	GND	GND
6	GBE0_MDI2-	LPC_AD2	USB_SSRX1-	USB_SSTX1-
7	GBE0_MDI2+	LPC_AD3	USB_SSRX1+	USB_SSTX1+

8	GBE0_LINK#	LPC_DRQ0#	GND	GND
9	GBE0_MDI1-	LPC_DRQ1#	USB_SSRX2-	USB_SSTX2-
10	GBE0_MDI1+	LPC_CLK	USB_SSRX2+	USB_SSTX2+
11	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
12	GBE0_MDI0-	PWRBTN#	USB_SSRX3-	USB_SSTX3-
13	GBE0_MDI0+	SMB_CK	USB_SSRX3+	USB_SSTX3+
14	GBE0_CTREF	SMB_DAT	GND	GND
15	SUS_S3#	SMB_ALERT#	DDI1_PAIR6+	DDI1_CTRLCLK_AUX+
16	SATA0_TX+	SATA1_TX+	DDI1_PAIR6-	DDI1_CTRLCLK_AUX-
17	SATA0_TX-	SATA1_TX-	RSVD19	RSVD19
18	SUS_S4#	SUS_STAT#	RSVD19	RSVD19
19	SATA0_RX+	SATA1_RX+	PCIE_RX6+	PCIE_TX6+
20	SATA0_RX-	SATA1_RX-	PCIE_RX6-	PCIE_TX6-
21	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
22	SATA2_TX+	SATA3_TX+	PCIE_RX7+	PCIE_TX7+
23	SATA2_TX-	SATA3_TX-	PCIE_RX7-	PCIE_TX7-
24	SUS_S5#	PWR_OK	DDI1_HPD	RSVD19
25	SATA2_RX+	SATA3_RX+	DDI1_PAIR4 +	RSVD19
26	SATA2_RX-	SATA3_RX-	DDI1_PAIR4-	DDI1_PAIR0+
27	BATLOW#	WDT	RSVD19	DDI1_PAIR0-
28	(S)ATA_ACT#	AC/HDA_SDIN2	RSVD19	RSVD19
29	AC/HDA_SYNC	AC/HDA_SDIN1	DDI1_PAIR5+	DDI1_PAIR1+
30	AC/HDA_RST#	AC/HDA_SDIN0	DDI1_PAIR5-	DDI1_PAIR1-
31	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
32	AC/HDA_BITCLK	SPKR	DDI2_CTRLCLK_AUX+	DDI1_PAIR2+

33	AC/HDA_SDOUT	I2C_CK	DDI2_CTRLDATA_AUX-	DDI1_PAIR2-
34	BIOS_DIS0#	I2C_DAT	DDI2_DDC_AUX_SEL	DDI1_DDC_AUX_SEL
35	THRMTRIP#	THRM#	RSVD19	RSVD19
36	NC	NC	NC	DDI1_PAIR3+
37	NC	NC	NC	DDI1_PAIR3-
38	NC	NC	NC	RSVD19
39	NC	NC	NC	DDI2_PAIR0+
40	NC	NC	NC	DDI2_PAIR0-
41	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
42	USB2-	USB3-	NC	DDI2_PAIR1+
43	USB2+	USB3+	NC	DDI2_PAIR1-
44	USB_2_3_OC#	USB_0_1_OC#	NC	DDI2_HPDP
45	USB0-	USB1-	RSVD19	RSVD19
46	USB0+	USB1+	NC	DDI2_PAIR2+
47	VCC_RTC	EXCD1_PERST#	NC	DDI2_PAIR2-
48	EXCD0_PERST#	EXCD1_CPPE#	RSVD19	RSVD19
49	EXCD0_CPPE#	SYS_RESET#	NC	DDI2_PAIR3+
50	LPC_SERIRQ	CB_RESET#	NC	DDI2_PAIR3-
51	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
52	NC	NC	PEG_RX0+	PEG_TX0+
53	NC	NC	PEG_RX0-	PEG_TX0-
54	GPIO	GPO1	TYPE0#	PEG_LANE_RV#
55	NC	NC	PEG_RX1+	PEG_TX1+
56	NC	NC	PEG_RX1-	PEG_TX1-
57	GND	GPO2	TYPE1#	TYPE2#

58	NC	NC	PEG_RX2+	PEG_TX2+
59	NC	NC	PEG_RX2-	PEG_TX2-
60	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
61	PCIE_TX2+	PCIE_RX2+	PEG_RX3+	PEG_TX3+
62	PCIE_TX2-	PCIE_RX2-	PEG_RX3-	PEG_TX3-
63	GPI1	GPO3	RSVD19	RSVD19
64	PCIE_TX1+	PCIE_RX1+	RSVD19	RSVD19
65	PCIE_TX1-	PCIE_RX1-	PEG_RX4+	PEG_TX4+
66	GND	WAKE0#	PEG_RX4-	PEG_TX4-
67	GPI2	WAKE1#	RSVD19	GND
68	PCIE_TX0+	PCIE_RX0+	PEG_RX5+	PEG_TX5+
69	PCIE_TX0-	PCIE_RX0-	PEG_RX5-	PEG_TX5-
70	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
71	LVDS_A0+	LVDS_B0+	PEG_RX6+	PEG_TX6+
72	LVDS_A0-	LVDS_B0-	PEG_RX6-	PEG_TX6-
73	LVDS_A1+	LVDS_B1+	GND	GND
74	LVDS_A1-	LVDS_B1-	PEG_RX7+	PEG_TX7+
75	LVDS_A2+	LVDS_B2+	PEG_RX7-	PEG_TX7-
76	LVDS_A2-	LVDS_B2-	GND	GND
77	LVDS_VDD_EN	LVDS_B3+	RSVD19	RSVD19
78	LVDS_A3+	LVDS_B3-	PEG_RX8+	PEG_TX8+
79	LVDS_A3-	LVDS_BKLT_EN	PEG_RX8-	PEG_TX8-
80	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
81	LVDS_A_CK+	LVDS_B_CK+	PEG_RX9+	PEG_TX9+
82	LVDS_A_CK-	LVDS_B_CK-	PEG_RX9-	PEG_TX9-

83	LVDS_I2C_CK	LVDS_BKLT_CTRL	RSVD19	RSVD19
84	LVDS_I2C_DAT	VCC_5V_SBY	GND	GND
85	GPI3	VCC_5V_SBY	PEG_RX10+	PEG_TX10+
86	RSVD19	VCC_5V_SBY	PEG_RX10-	PEG_TX10-
87	eDP_HPD	VCC_5V_SBY	GND	GND
88	PCIE_CLK_REF+	BIOS_DIS1#	PEG_RX11+	PEG_TX11+
89	PCIE_CLK_REF-	VGA_RED	PEG_RX11-	PEG_TX11-
90	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
91	SPI_POWER	VGA_GRN	PEG_RX12+	PEG_TX12+
92	SPI_MISO	VGA_BLU	PEG_RX12-	PEG_TX12-
93	GPO0	VGA_HSYNC	GND	GND
94	SPI_CLK	VGA_VSYNC	PEG_RX13+	PEG_TX13+
95	SPI_MOSI	VGA_I2C_CK	PEG_RX13-	PEG_TX13-
96	TPM_PP	VGA_I2C_DAT	GND	GND
97	TYPE10#	SPI_CS#	RSVD19	RSVD19
98	SER0_TX	RSVD19	PEG_RX14+	PEG_TX14+
99	SER0_RX	RSVD19	PEG_RX14-	PEG_TX14-
100	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
101	SER1_TX	FAN_PWNOUT	PEG_RX15+	PEG_TX15+
102	SER1_RX	FAN_TACHIN	PEG_RX15-	PEG_TX15-
103	LID#	SLEEP#	GND	GND
104	VCC_12V	VCC_12V	VCC_12V	VCC_12V
105	VCC_12V	VCC_12V	VCC_12V	VCC_12V
106	VCC_12V	VCC_12V	VCC_12V	VCC_12V
107	VCC_12V	VCC_12V	VCC_12V	VCC_12V

108	VCC_12V	VCC_12V	VCC_12V	VCC_12V
109	VCC_12V	VCC_12V	VCC_12V	VCC_12V
110	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)

Table 36 AB & CD Row connector signals

12 Portwell Product Matrix

		PCOM-B219VG	PCOM-B632VG	PCOM-B632VGL	PCOM-B637VG	PCOM-B638VG	PCOM-B639VG	PCOM-B641
J1, J2	Audio Jack	V	V	V	V	V	V	V
J3	HDMI connector	V	X	V	V	V	V	V
J4	DP connector	V	V	V	V	V	V	V
J5	USB3.0 * 2	V	v (Note 1)	Only one	V	V	V	V
J6	USB3.0 * 2	V	v (Note 1)	X	V	V	V	only one
J7	RJ45 connector	V	V	V	V	V	V	V
J8	RJ45 connector	V	v (PCIe2)	X	V	V	V	V
J9	Golden finger	V	V	V	V	V	V	V
J12	SATA2.0	V	X	X	V	V	V	X
J31	SATA2.0	V	X	X	V	X	V	X
J13	LVDS connector	V	x (Note 2)	V	X	V	Option (Note 4)	V
J14	SATA3.0	V	V	X	V	V	V	V
J15	PCIe x16 slot	V	X	X	V	Only PCIe4	V	X
J17	COM PORT	V	V	V	V	V	V	V
J18	COM PORT	V	V	V	V	V	V	V
J21	8-PIN ATX Power	V	V	V	V	V	V	V
J25	Battery Header	V	V	V	V	V	V	V
J29	Fan connector	V	V	V	V	V	V	V
J38	CFEX connector	V	v (SATA0)	V	V	V	V	V
J47	GPIO Header	V	v (GPIO only)	V	V	Option (Note 3)	V	V
J48	Front Panel	V	V	V	V	V	V	V
J49	SATA Power	V	X	V	V	V	V	V
J50	SATA Power	V	X	V	V	V	V	V
J52	LPC Header	V	V	V	V	V	V	V

Table 37 Portwell Product Matrix

Note1. Only USB0 is 3.0, others are 2.0

Note 2: DDI1 signals on these pin

Note 3: GPIO and SD Card CO-Lay. Default: GPIO. Need to BOM change by module.

Note 4: eDP/LVDS CO-Lay. Default: LVDS. Need to BOM change by module.

13 Industry Specifications

The list below provides links to industry specifications that apply to PORTWELL COM Express Carrier.

Low Pin Count Interface Specification, Revision 1.0 (LPC) <http://www.intel.com/design/chipsets/industry/lpc.htm>

Universal Serial Bus (USB) Specification, Revision 2.0 <http://www.usb.org/home>

PCI Specification, Revision 2.3 <https://www.pcisig.com/specifications>

Serial ATA Specification, Revision 3.0 <http://www.serialata.org/>

PICMG® COM Express Module™ Base Specification <http://www.picmg.org/>

PCI Express Base Specification, Revision 2.0 <https://www.pcisig.com/specifications>