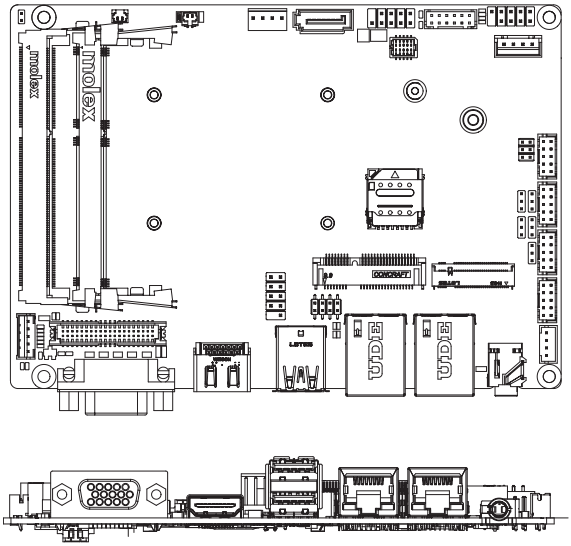
QBiP-4200B/ QBiP-4200C/ QBiP-3350A/ QBiP-E3940A/ QBiP-E3940AT

3.5” SBC Boards
User’s Manual V3.0



Copyright Notice

Acknowledgement

Packing List

Before setting up your product, please make sure the following items have been shipped:

For QBiP-4200B/ QBiP-4200C/ QBiP-3350A/ QBiP-E3940A :

Item	Quantity
QBiP-4200B/ QBiP-4200C/ QBiP-3350A/ QBiP-E3940A	1
SATA power cable	1

For QBiP-E3940AT :

Item	Quantity
QBiP-E3940AT	1
SATA power cable	1
Fanless Heatsink	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the GIGAIPC.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat

dissipation.

13. Watch out for high temperatures when the system is running.

14. Do not touch the heat sink or heat spreader when the system is running

15. Never pour any liquid into the openings. This could cause fire or electric shock.

16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device

18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

FCC Statement

This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量
GIGAIPC Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	O	O	O	O	O	O
外部信号连接器及线材	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006 标准规定的限量要求以下。
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。
备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products
GIGAIPC Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	O	O	O	O	O	○
Wires & Connectors for External Connections	O	O	O	O	O	O

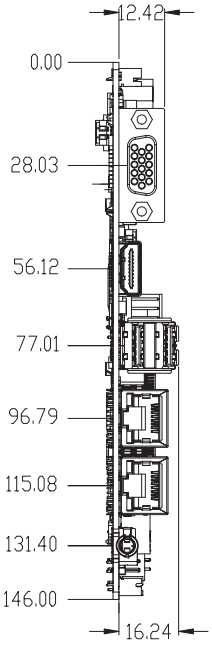
O : The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.
X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.
Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

GIGAIPC

Table Contents

Chapter 1

Chapter1 - Product Specifications
QBiP-4200B/ QBiP-4200C/ QBiP-3350A/
QBiP-E3940A/ QBiP-E390AT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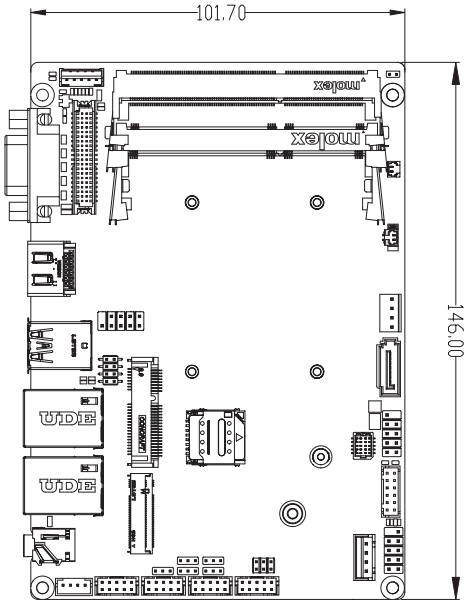
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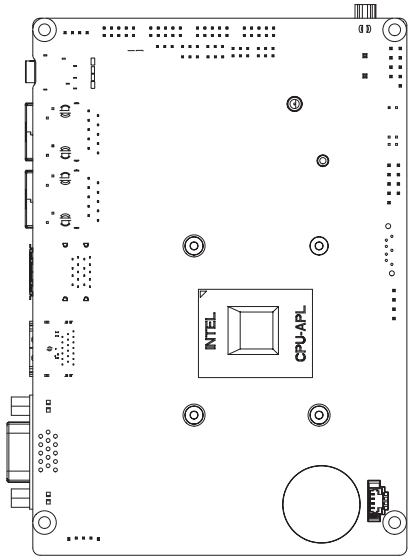

INTEL
CPU-APL

1.1 Specifications- QBiP-4200B/ QBiP-4200C

Motherboard	QBiP-4200B	QBiP-4200C
Form Factor	3.5'' SBC 146W x 101.7Dmm	
CPU	Intel® Pentium® N4200 Processor 14nm, 4 cores, 4 threads, up to 2.50 GHz TDP 6W	
Socket	1 x FCBGA1296	
Chipset	—	
Memory	2 x DDR3L SO-DIMM sockets, Max. Capacity 8 GB Support Dual channel DDR3L 1866 MHz memory modules	
Ethernet	2 x GbE LAN Ports (Intel® I211AT)	
Video	Integrated Graphics Processor -Intel® HD Graphics 505 1 x HDMI 1.4 port, supporting a maximum resolution of 3840x2160 @30Hz 1 x VGA port, supporting a maximum resolution of 2560x1600 @60Hz (with compatible displays) 1 x LVDS port, supporting a maximum resolution of 1920x1080 @60Hz (3 independent display outputs)	
Audio	Realtek® Audio Codec	
Storage	1 x SATA 6Gb/s port 1 x eMMC 32GB	1 x SATA 6Gb/s port
Raid	—	
Expansion Slots	1 x 2242 M.2 M-Key (SATA 6Gb/s) 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0) -- support 3G/4G module	

Motherboard	QBiP-4200B	QBiP-4200C
Internal I/O	1 x 4-pin box power connector (+9V~36VDC) 1 x SATA Power header 1 x System fan header 1 x Front panel header 1 x 2W Speaker out header 4 x USB 2.0 headers 3 x COM headers (RS-232) 1 x COM header (RS-232/422/485 & RI/5V/12V) 1 x Backlight control header 1 x AT/ATX mode select jumper 1 x GPIO (8 bits) & SMBUS header 1 x Buzzer header	
Rear I/O	1 x Headphone Jack 1 x HDMI 1 x VGA 2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1	
TPM	1 x TPM header	
OS Compatibility	Windows 10 (x64)	
PSU Connectors	1 x 4-pin Box header power connector (+9~36V Full Range)	
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)	

* Conditional DC-input 9V support with :
(1) SATA_PWR support 5V only
(2) LVDS backlight cannot support
(3) Total power consumption under 50W

1.2 Specifications- QBiP-3350A

Motherboard	QBiP-3350A
Form Factor	3.5'' SBC 146W x 101.7Dmm
CPU	Intel® Celeron® N3350 Processor 14nm, 2 cores, 2 threads, up to 2.40 GHz TDP 6W
Socket	1 x FCBGA1296
Chipset	—
Memory	2 x DDR3L SO-DIMM sockets, Max. Capacity 8 GB Support Dual channel DDR3L 1866 MHz memory modules
Ethernet	2 x GbE LAN Ports (Intel® I211AT)
Video	Integrated Graphics Processor -Intel® HD Graphics 500: 1 x HDMI port, supporting a maximum resolution of 3840x2160 @30Hz 1 x VGA port, supporting a maximum resolution of 2560x1600 @60Hz (with compatible displays) 1 x LVDS port, supporting a maximum resolution of 1920x1080 @60Hz (18/24bits) (3 independent display outputs)
Audio	Realtek® Audio Codec
Storage	1 x SATA 6Gb/s port
Raid	—
Expansion Slots	1 x 2242 M.2 M-Key (SATA 6Gb/s) 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0) -- support 3G/4G module

Motherboard	QBiP-3350A
Internal I/O	1 x 4-pin box power connector (+9V~36VDC) 1 x SATA Power header 1 x System fan header 1 x Front panel header 1 x 2W Speaker out header 4 x USB 2.0 headers 3 x COM headers (RS-232) 1 x COM header (RS-232/422/485 & RI/5V/12V) 1 x Backlight Control header 1 x AT/ATX mode select jumper 1 x GPIO (8-bits) & SMBUS header 1 x Buzzer header
Rear I/O	1 x Headphone Jack 1 x HDMI 1 x VGA 2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1
TPM	1 x TPM header
OS Compatibility	Windows 10 (x64)
PSU Connectors	1 x 4-pin Box header power connector (+9~36V Full Range)
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)

* Conditional DC-input 9V support with :
(1) SATA_PWR support 5V only
(2) LVDS backlight cannot support
(3) Total power consumption under 50W

1.3 Specifications- QBiP-E3940A/ QBiP-E3940AT

Motherboard	QBiP-E3940A	QBiP-E3940AT
Form Factor	3.5'' SBC 146W x 101.7Dmm	
CPU	Intel® Atom® x5-E3940 Processor 14nm, 4 cores, 4 threads, up to 1.8 GHz TDP 9.5W 2M Cache	
Socket	1 x FCBGA1296	
Chipset	—	
Memory	2 x DDR3L SO-DIMM sockets, Max. Capacity 8 GB Support Dual channel DDR3L 1866 MHz memory modules	
Ethernet	2 x GbE LAN Ports (Intel® I211AT)	
Video	Integrated Graphics Processor - Intel® HD Graphics 500: 1 x HDMI 1.4 port, supporting a maximum resolution of 3840x2160 @30Hz 1 x VGA port, supporting a maximum resolution of 2560x1600 @60Hz (with compatible displays) 1 x LVDS port, supporting a maximum resolution of 1920x1080 @60Hz (3 independent display outputs)	
Audio	Realtek® Audio Codec	
Storage	1 x SATA 6Gb/s port	
Raid	—	
Expansion Slots	1 x 2242 M.2 M-Key (SATA 6Gb/s) 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0) -- support 3G module	

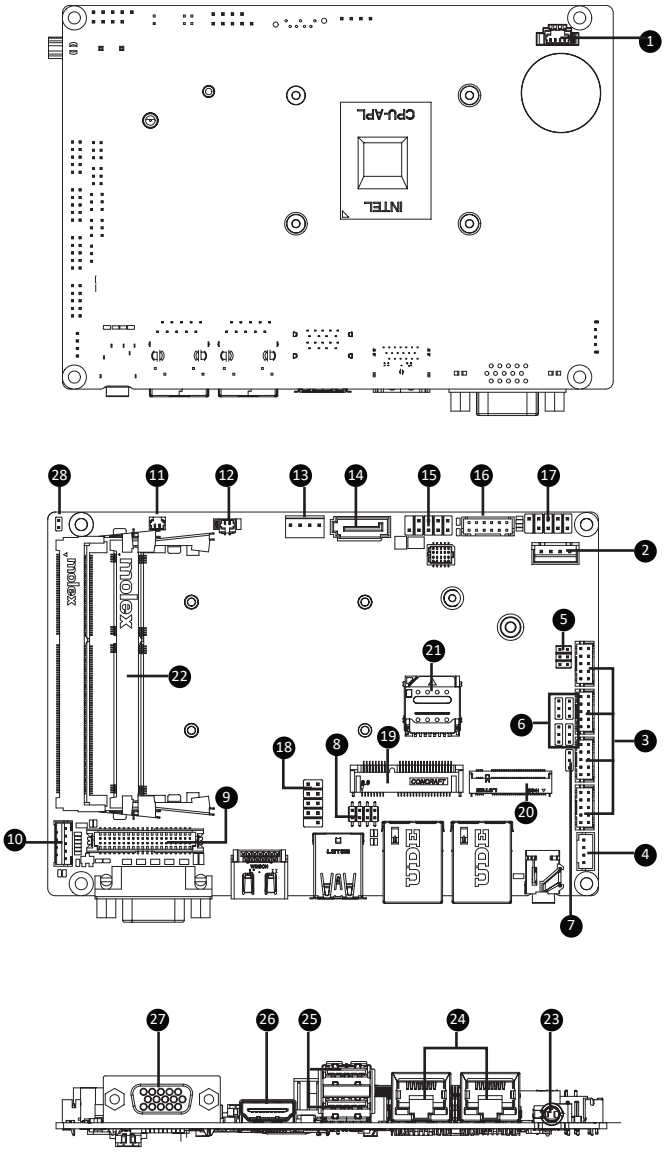
Motherboard	QBiP-E3940A	QBiP-E3940AT
Internal I/O	1 x 4-pin box power connector (+9V~36VDC) 1 x SATA Power header 1 x System fan header 1 x Front panel header 1 x 2W Speaker out header 4 x USB 2.0 headers 3 x COM headers (RS-232) 1 x COM header (RS-232/422/485 & RI/5V/12V) 1 x Backlight Control header 1 x AT/ATX mode select jumper 1 x GPIO (8-bits) & SMBUS header 1 x Buzzer header	
Rear I/O	1 x Headphone Jack 1 x HDMI 1 x VGA 2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1	
TPM	1 x TPM header	
OS Compatibility	Windows 10 (x64)	
PSU Connectors	1 x 4-pin Box header power connector (+9~36V Full Range)	
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)	Operating temperature: -40°C to 85°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)

* Conditional DC-input 9V support with :
(1) SATA_PWR support 5V only
(2) LVDS backlight cannot support
(3) Total power consumption under 50W

Chapter 2

Chapter 2 – Hardware Information

2.1 Jumpers and Connectors

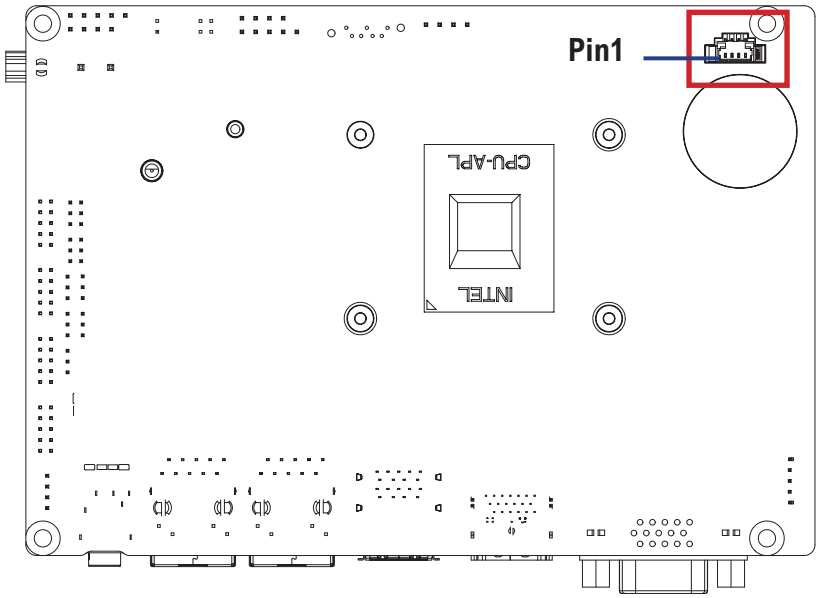


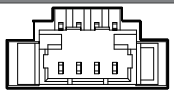
No	Code	Description
1	FAN	FAN connector
2	DC_IN	DC IN 1x4pin power connector
3	COM1 COM2 COM3 COM4	Serial port header COM1 : RS-232/422/485 & RI/5V/12V COM2, COM3, COM4 : RS-232
4	SPK_OUT	Speaker out connector
5	JCOM11	RI# pin RI#/5V/12V Select jumper for COM1 port
6	JRS11-JRS14	RS11-14 select jumper for serial port
7	AT_CN	AT/ATX power mode select jumper
8	LSW	LVDS resolution jumper
9	LVDS	LVDS connector
10	BKL_CN	Backlight brightness control connector
11	BUZZER	—
12	BATTERY	Battery cable connector
13	SATAPW	SATA power connector
14	SATAIII	SATA 6Gb/s Connector
15	FUSB20_1	USB 2.0 header
16	GPIO_CNT	General Purpose input/output header
17	SYS_PANEL	Front panel header
18	FUSB2_2	USB 2.0 header
19	MPCIE	Mini-PCIe slot
20	M2M	M.2 slot
21	SIM_CARD1	3G/4G Sim Slot

No	Code	Description
22	SODIMMA/B	2 x DDR3L SO-DIMM sockets, Max. Capacity 8 GB Dual channel memory architecture Support DDR3L 1866MHz memory modules
23	Audio jack	Line out
24	LAN1, LAN2	2 x RJ45 Ports
25	FUSB30	2 x USB3.0 Ports
26	HDMI	1 x HDMI Port
27	VGA	1 x VGA Port
28	CLS_CMOS	1 x Clear CMOS jumper

2.2.1 FAN (FAN connector)

1



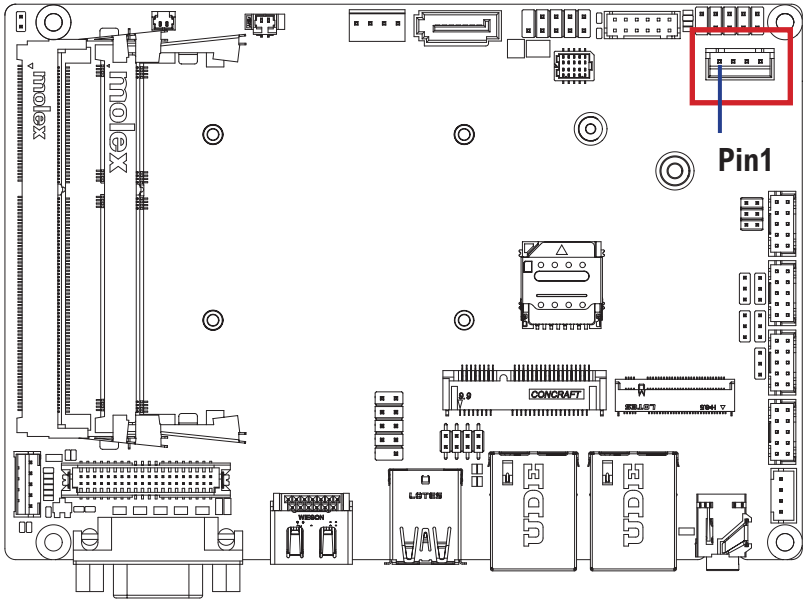
CPU/System FAN
 1 2 3 4

Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

Pin No.	Definition
1	GND
2	12V
3	Detect
4	Speed Control

2.2.2 DC IN (DC IN 1 x 4-pin power connector)

❷



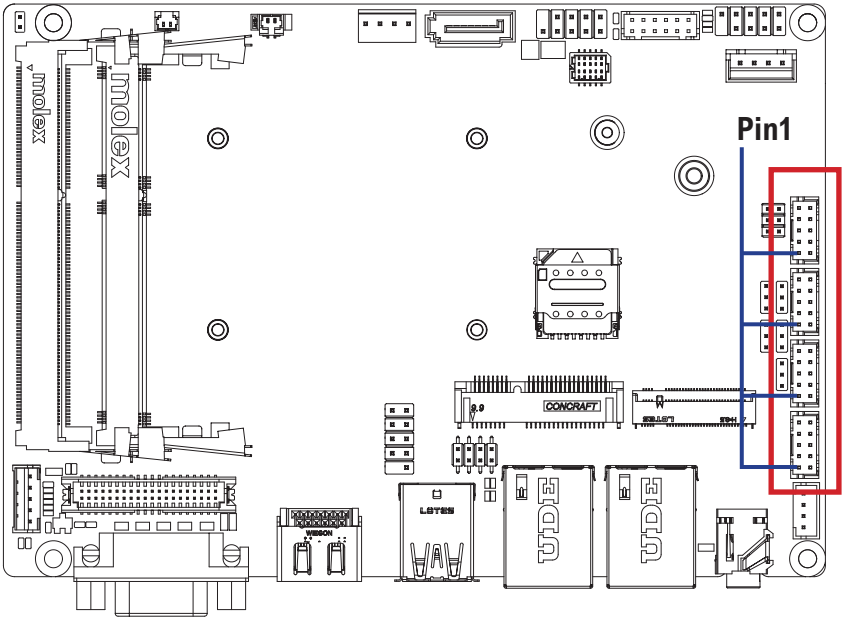
DC in Connector
DC_IN 1 4

Connector PN	Vendor
753-81-04TW00	PINREX

Pin No.	Definition
1	GND
2	DCIN
3	DCIN
4	GND

2.2.3 COM1, COM2, COM3, COM4 (Serial port header)

3



Serial Port Cable Connector

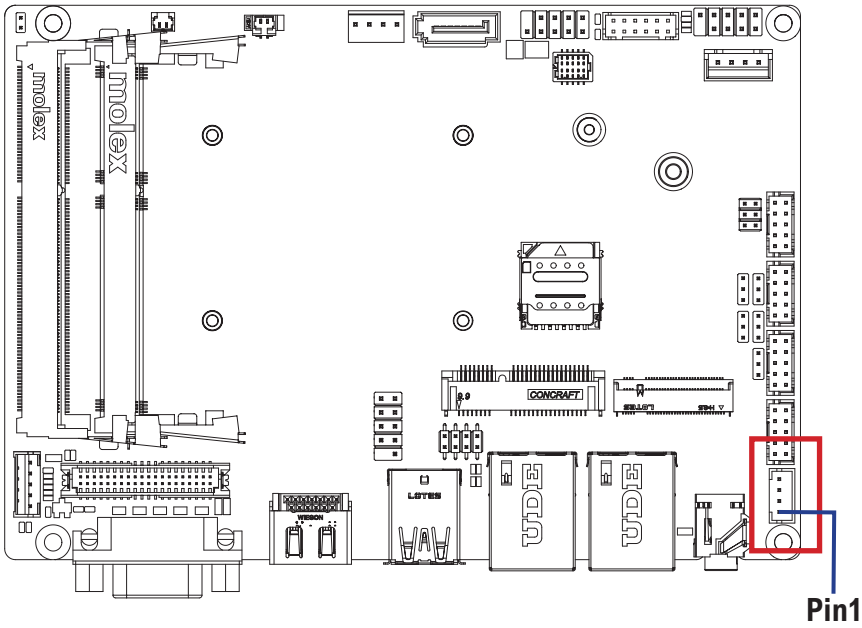

Pin No.	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	RXD	TXD+	D+
2	DCD	TXD-	D-
3	DTR	RXD-	–
4	TXD	RXD+	–
5	DSR	–	–
6	GND	–	–
7	CTS	–	–
8	RTS	–	–
9	No Connect	–	–
10	RI/5V/12V	–	–

Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

Note :
COM1 : Support RS-232/422/485 & RI/5V/12V
For RI/5V/12V jumper setting, please see P. 29
COM2, COM3, COM4 : Support RS-232 only

2.2.4 SPK_OUT (Speaker out connector)

4



Speaker out connector
4 1

Pin No.	Definition
1	Speaker Out R+
2	Speaker Out R-
3	Speaker Out L-
4	Speaker Out L+

Connector PN	Vendor
721-81-045W00	PINREX
A2001WV-04P146	JOINT-TECH

2.2.5 JCOM11 (RI# pin RI#/5V/12V Select jumper for COM1 port)

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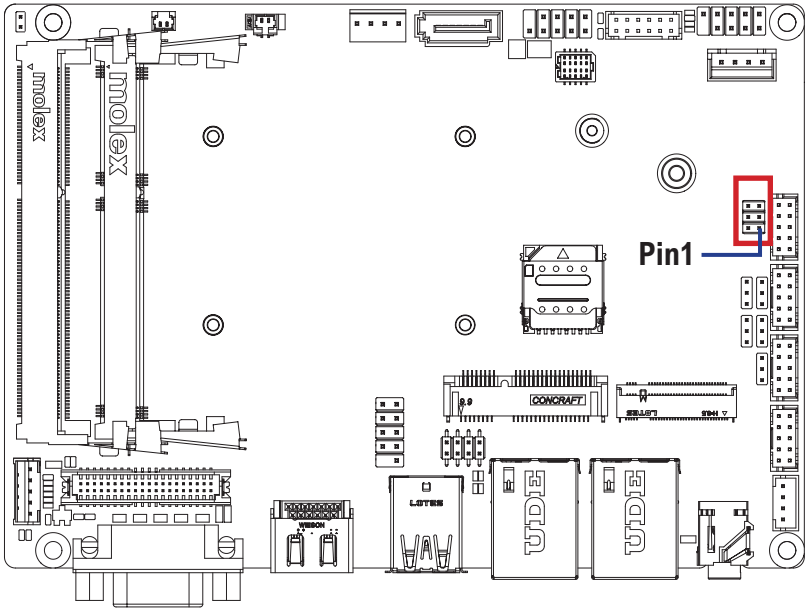
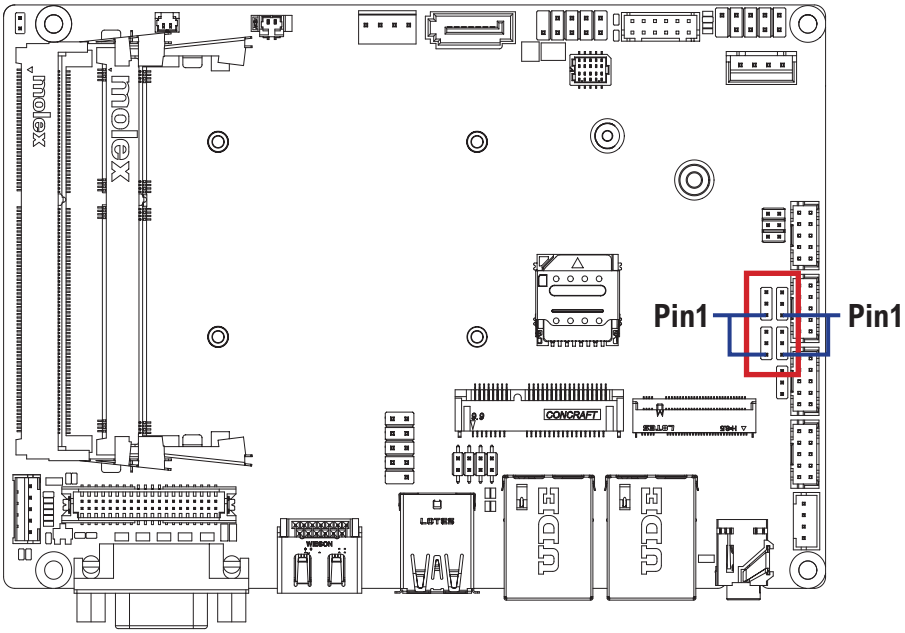


JCOM11 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)
	5-6 Close: 12V (Power COM)

Connector PN	Vendor
220-97-03GB01	PINREX
PH06N53BAZ000	HORNGTONG

2.2.6 JRS11-JRS14 (RS11-14 select jumper for serial port)

6



JRS 11-14 Jumper
JRS13 JRS14 123 123 JRS12 JRS11
RS-232 (Default)

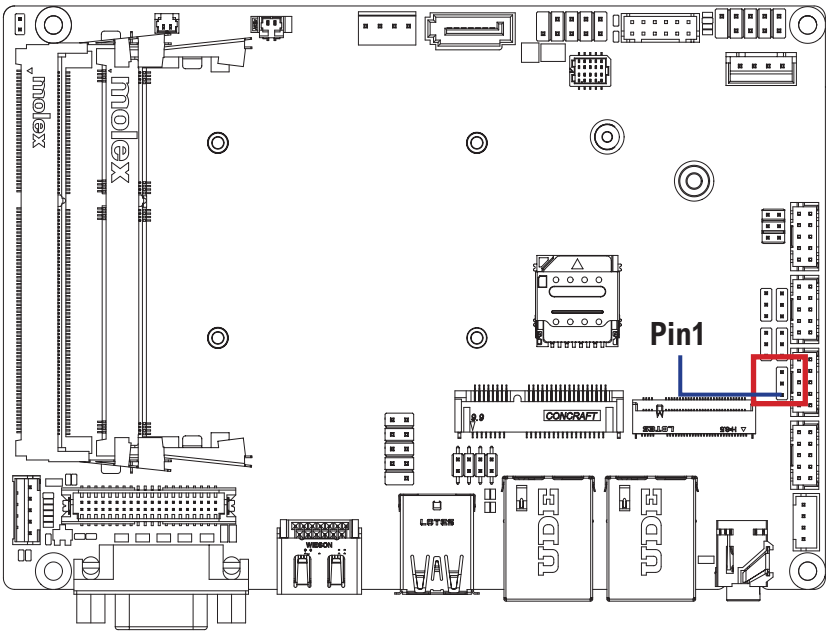
Connector PN	Vendor
220-96-03GB01	PINREX
PH03N2-7BAN000	HORNGTONG

HW jump Configuration
Pin1, Pin2 Close is 1 Pin2, Pin3 Close is 0

JRS11	JRS12	JRS13	Mode	Status
0	0	0	RS-422 Full Duplex	1T/1R RS-422
0	0	1	Pure RS-232	3T/5R RS-232 (Default)
0	1	0	RS-485 Half Duplex	1T/1R RS-485, TX ENABLE Low Active
0	1	1	RS-485 Half Duplex	1T/1R RS-485, TX ENABLE High Active

2.2.7 AT_CN (AT/ATX mode select jumper)

7



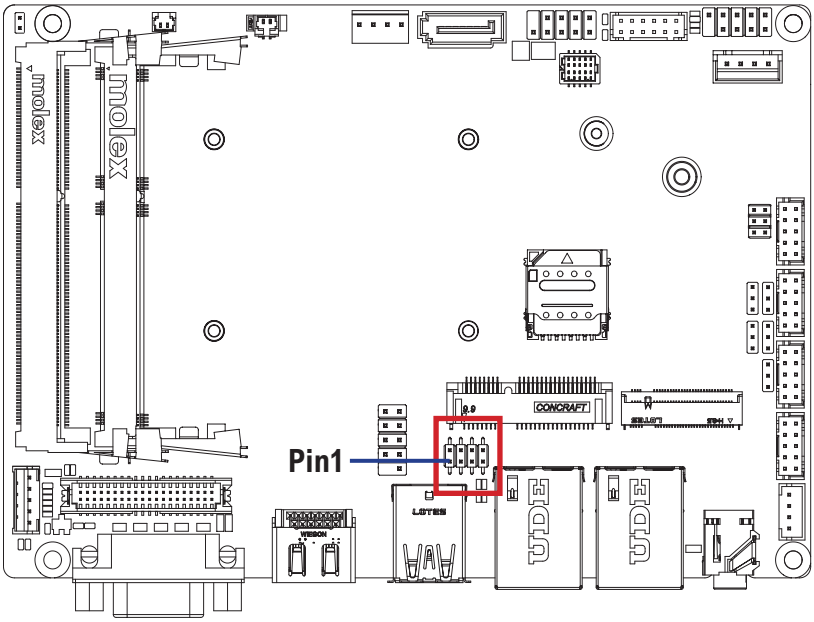
AT/ATX mode select jumper	
1	1-2 Close : AT mode.
	2-3 Close : ATX mode. (Default setting)

Connector PN	Vendor
220-96-03GB01	PINREX
PH03N2-7BAN000	HORNGTONG

Pin No.	Definition
1	AT MODE
2	Detect
3	ATX MODE

2.2.8 LSW (LVDS resolution jumper)

8

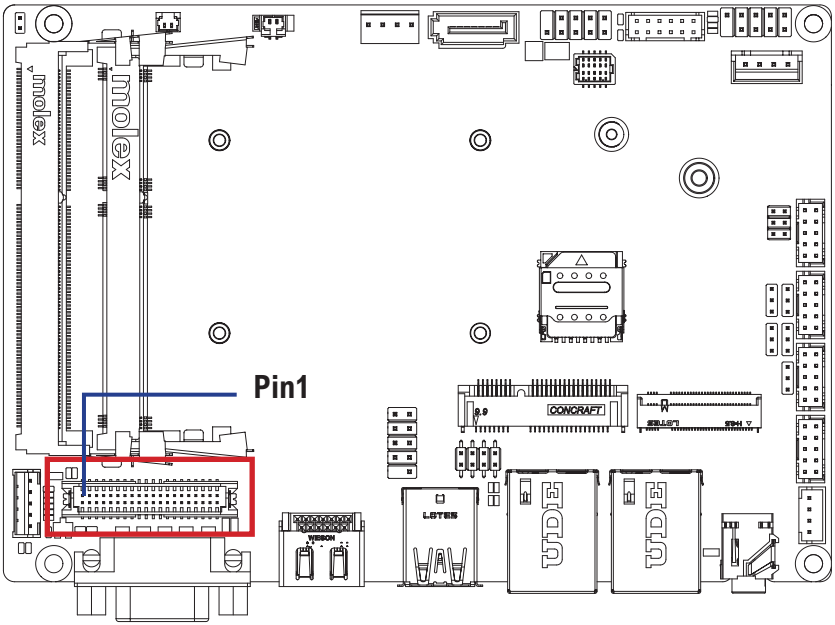


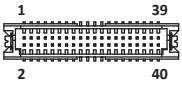
LVDS Resolution Jumper			
Jumper Setting	Resolution	Jumper Setting	Resolution
1 8	800 x 600 18bit (default)	1 8	1366 x 768 24bit
1 8	1024 x 768 18bit	1 8	1440 x 900 24bit
1 8	1024 x 768 24bit	1 8	1400 x 1050 24bit
1 8	1024 x 600 18bit	1 8	1600 x 900 24bit
1 8	1280 x 800 18bit	1 8	1680 x 1050 24bit
1 8	1280 x 960 18bit	1 8	1600 x 1200 24bit
1 8	1280 x 1024 24bit	1 8	1920 x 1080 24bit
1 8	1366 x 768 18bit	1 8	1920 x 1200 24bit

Connector PN	Vendor
222-97-04GBE1	PINREX

2.2.9 LVDS (LVDS connector)

9



LVDS Connector


Pin No.	Definition	Pin No.	Definition
1	3.3V	21	A5+
2	5V	22	A4+
3	3.3V	23	A5-
4	5V	24	A4-
5	SPEC0	25	GND
6	SPED0	26	GND
7	GND	27	A7+
8	GND	28	A6+
9	A1+	29	A7-
10	A0+	30	A6-
11	A1-	31	GND
12	A0-	32	GND
13	GND	33	CLK2+
14	GND	34	CLK1+
15	A3+	35	CLK2-
16	A2+	36	CLK1-

Pin No.	Definition	Pin No.	Definition
17	A3-	37	GND
18	A2-	38	GND
19	GND	39	12V
20	GND	40	12V

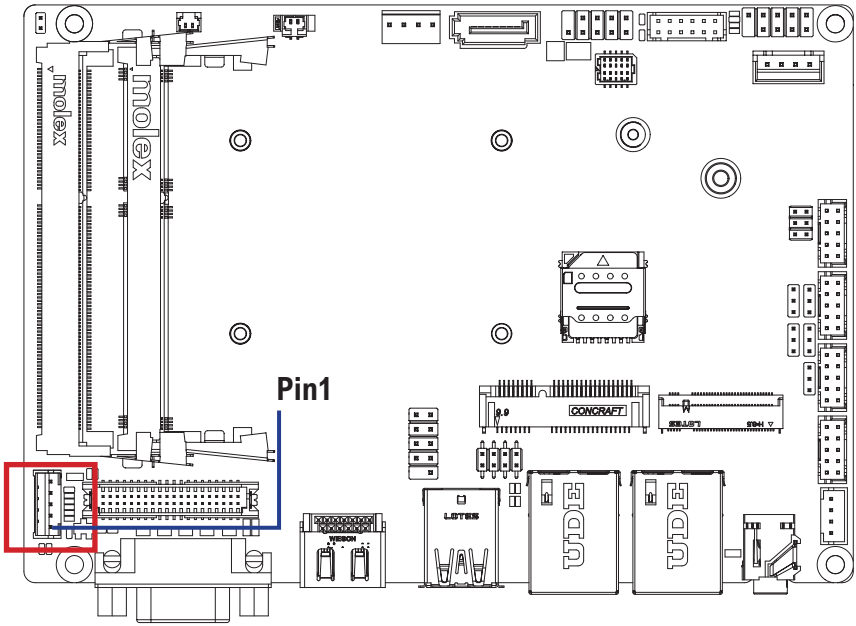
For each model support LVDS function.
But below model no need to add.
A0~A3 is odd channel 0~3, A4~A7 is even channel.

Connector PN	Vendor
712-76-40GWE0	PINREX
A1252WV-SF-2X20PD01	JOINT-TECH

Note: *The LVDS output connector of the unit is only intended to be connected to an UL/IEC/EN approval equipment with fire enclosure.

2.2.10 BKL_CN (Backlight brightness control connector)

10



Backlight brightness control connector
5

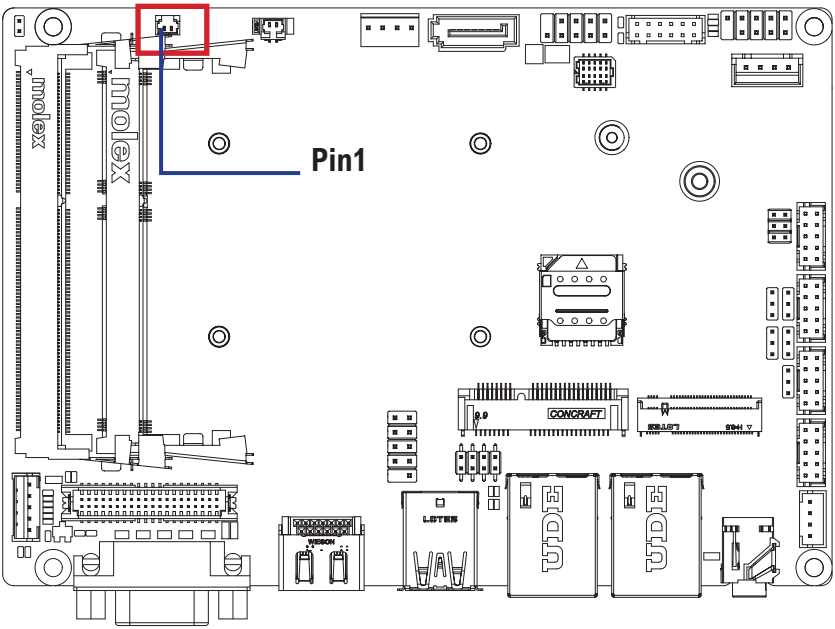
1

Connector PN	Vendor
721-81-05TW00	PINREX
A2001WV-05P146	JOINT-TECH

Pin No.	Definition
1	5V
2	PWM
3	Back Light Enable
4	GND
5	12V

2.2.11 BUZZER

11



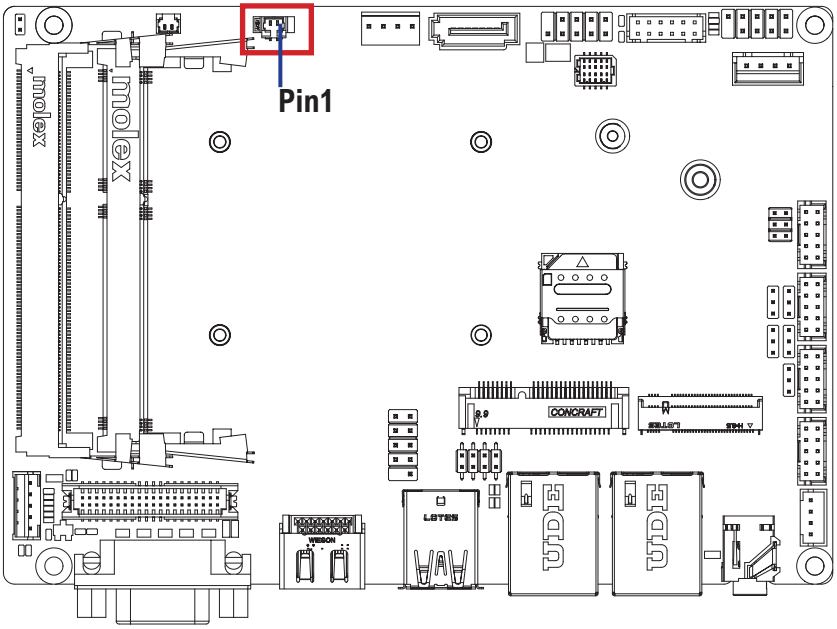
Buzzer


Connector PN	Vendor
712-71-02TW01	PINREX
A1250WV-02P	JOINT-TECH

Pin No.	Definition
1	-SPKR
2	+VS5

2.2.12 BATTERY

12



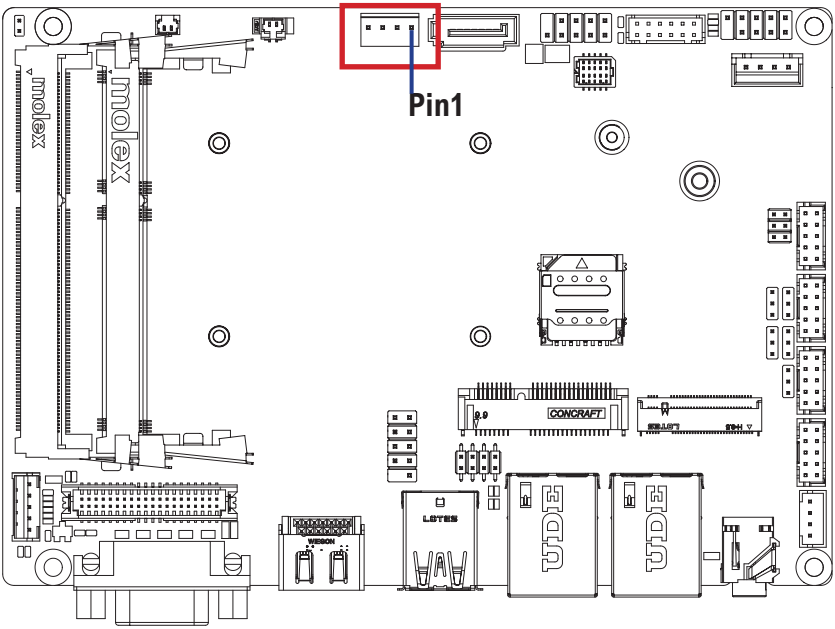
Battery Cable Connector
2 1

Connector PN	Vendor
85205-0270L	ACES
A1250WV-S-02PC	JOINT-TECH

Pin No.	Definition
1	3.3V RTC
2	GND

2.2.13 SATAPW (SATA power connector)

13



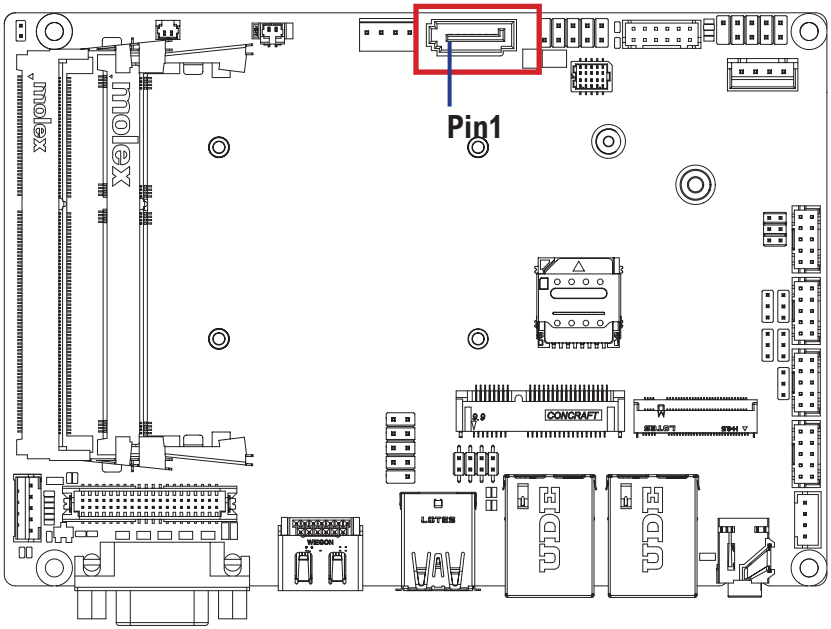
Hard Disk Power Connector
4 ■■■■ 1

Connector PN	Vendor
743-81-04TW00	PINREX
WF04Q2-3BJQ000	HORNGTONG

Pin No.	Definition
1	+12V
2	GND
3	GND
4	VCC

2.2.14 SATAIII (SATA 6Gb/S Connector)

14



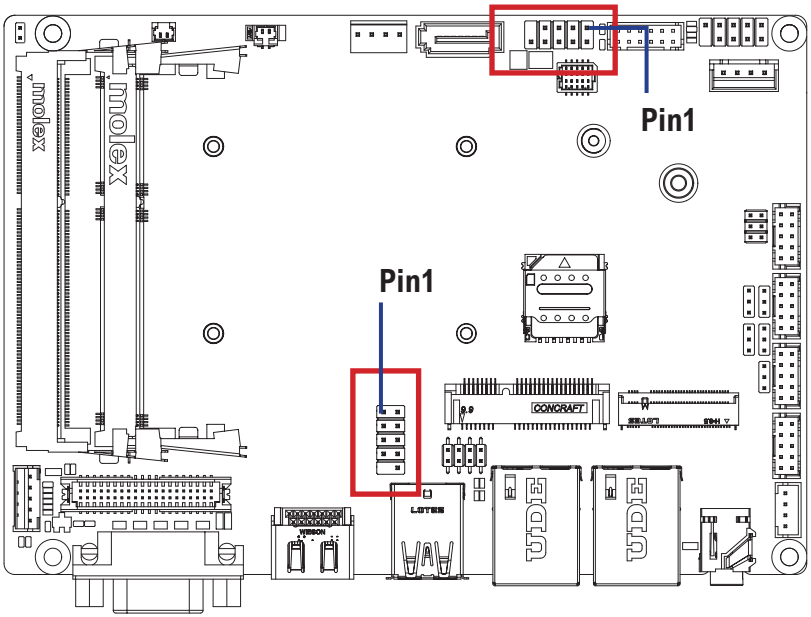
SATA 6Gb/S Connector


SATAIII	
Connector PN	Vendor
WAT3M-07A1G3BU4W	WINWIN
ABA-SAT-054-S15	LOTES

Pin No.	Definition
1	GND
2	TXp
3	TXn
4	GND
5	RXn
6	RXp
7	GND

2.2.15 FUSB20_1, FUSB2_2 (USB 2.0 header)

15 18



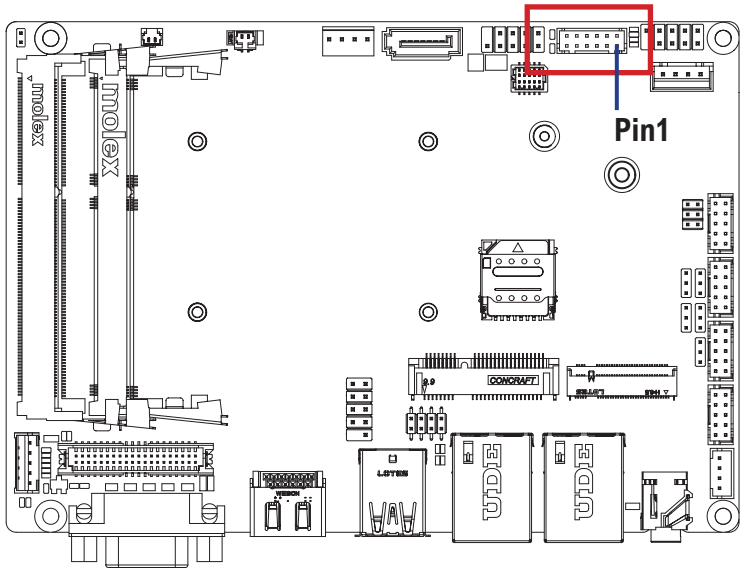
USB 2.0 Header

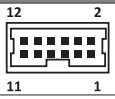

Connector PN	Vendor
210-92-05GB04	PINREX
PH10R53BAZ009	HORNGTONG

Pin No.	Definition
1	5V
2	5V
3	DX-
4	DY-
5	DX+
6	DY+
7	GND
8	GND
9	No Pin
10	No Connect

2.2.16 GPIO_CNT (General Purpose input/output header)

16



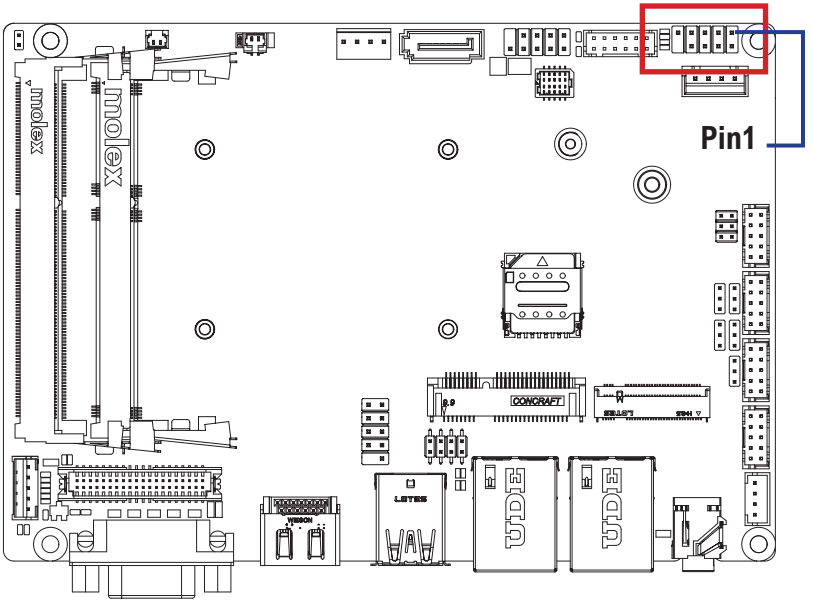
GPIO Connector


Pin No.	Definition
1	GPIO-output_1
2	GPIO-input_1
3	GPIO-output_2
4	GPIO-input_2
5	GPIO-output_3
6	GPIO-input_3
7	GPIO-output_4
8	GPIO-input_4
9	SMBus Clock
10	SMBus DATA
11	5V
12	GND

Connector PN	Vendor
725-81-12TW00	PINREX
A2004WV-2X06P46	JOINT-TECH

2.2.17 SYS_PANEL (Front panel header)

17

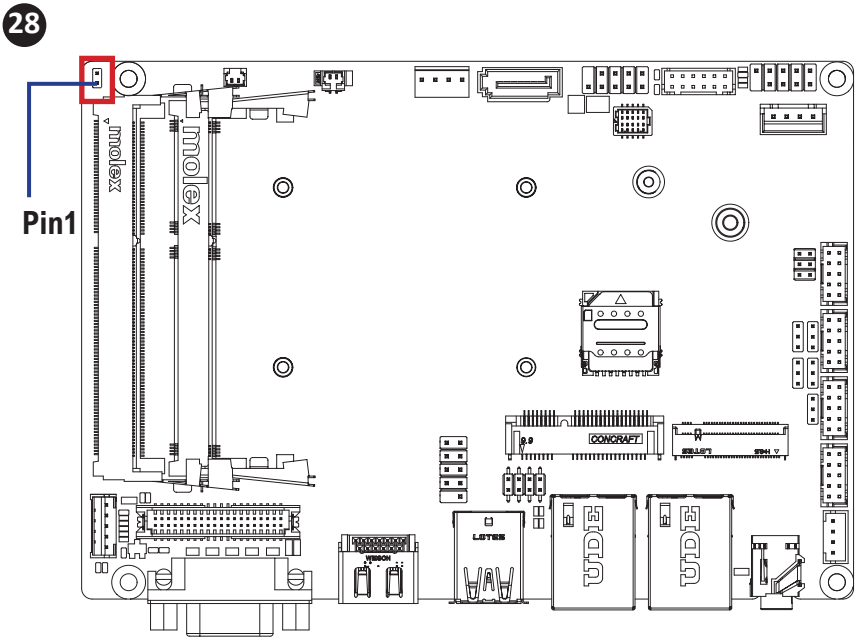


System Panel Header


Connector PN	Vendor
210-92-05G111	PINREX

Pin No.	Definition
1	HDD LED+
2	Power LED+
3	HDD LED-
4	Power LED-
5	GND
6	Power Button+
7	Reset Button
8	Power Button-
9	No Connect
10	No Pin

2.2.18 CLS_CMOS (Clean CMOS jumper)



Clear CMOS Jumper
2 1

Pin No.	Definition
1	Clear CMOS
2	GND

Pin No.	Definition
Open: Normal Operation (Default setting) Close: Clear CMOS data.	

Connector PN	Vendor
210-91-02GB01	PINREX
PH02R23BAZ000	HORNGTONG