



Industrial Communication Platforms

Energy Management and Industrial Cyber Security Solutions

LEC-2430 User Manual

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About this Document

This manual describes the overview of the various functionalities of this product, and the information you need to get it ready for operation. It is intended for those who are:

- responsible for installing, administering and troubleshooting this system or Information Technology professionals.
- assumed to be qualified in the servicing of computer equipment, such as professional system integrators, or service personnel and technicians.

The latest version of this document can be found on Lanner's official website, available either through the product page or through the [Lanner Download Center](#) page with a login account and password.

Conventions & Icons

The icons are used in the manual to serve as an indication of interest topics or important messages.

Icon Descriptions

Icon	Usage
 Note or Information	This mark indicates that there is something you should pay special attention to while using the product.
 Warning or Important	This mark indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

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Documentation Feedback

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

- ▶ Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- ▶ This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Note

1. An unshielded-type power cord is required to meet FCC emission limits and to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.
2. Use only shielded cables to connect I/O devices to this equipment.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Important

1. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.
2. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Safety Guidelines

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- ▶ Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- ▶ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- ▶ Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- ▶ Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.

Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- ▶ Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- ▶ Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- ▶ Portez des lunettes de sécurité pour protéger vos yeux.
- ▶ N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- ▶ Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- ▶ Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

Lithium Battery Caution

- ▶ There is risk of Explosion if Battery is replaced by an incorrect type.
- ▶ Dispose of used batteries according to the instructions.
- ▶ Installation only by a skilled person who knows all Installation and Device Specifications which are to be applied.
- ▶ Do not carry the handle of power supplies when moving to another place.
- ▶ Please conform to your local laws and regulations regarding safe disposal of lithium BATTERY.
- ▶ Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- ▶ Exposure to extreme heat may cause the battery to explode or leak flammable liquid or gas.
- ▶ Low air pressure may cause the battery to explode or leak flammable liquid or gas.

Avertissement concernant la pile au lithium

- ▶ Risque d'explosion si la pile est remplacée par une autre d'un mauvais type.
- ▶ Jetez les piles usagées conformément aux instructions.
- ▶ L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- ▶ Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.

Operating Safety

- ▶ Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- ▶ Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
- ▶ Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground

yourself by touching the metal part of the chassis.

- ▶ Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Sécurité de fonctionnement

- ▶ L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.
- ▶ Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- ▶ Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- ▶ Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- ▶ Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

Mounting Installation Precaution

- ▶ Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- ▶ If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- ▶ Installation of the equipment (especially in a rack) should consider the ventilation of the system's intake (for taking chilled air) and exhaust (for emitting hot air) openings so that the amount of airflow required for safe operation of the equipment is not compromised.
- ▶ To avoid a hazardous load condition, be sure the mechanical loading is even when mounting.
- ▶ Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- ▶ Reliable earthing should be maintained. Attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Installation & Operation:

- ▶ This equipment must be grounded. The power cord for product should be connected to a socket-outlet with earthing connection.
Cet équipement doit être mis à la terre. La fiche d'alimentation doit être connectée à une prise de terre correctement câblée
- ▶ Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.
Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.
- ▶ The machine can only be used in a restricted access location and must be installed by a skilled person.
Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT.



Important

This unit is intended to be supplied by an UL Listed Adapter/DC power source with mating connector.

Warning

- ▶ Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.
- ▶ Product shall be used with Class 1 laser device modules.

Avertissement

- ▶ Équipement de classe I. Ce matériel doit être relié à la terre. La fiche d'alimentation doit être raccordée à une prise de terre correctement câblée. Une prise de courant mal câblée pourrait induire des tensions dangereuses sur des parties métalliques accessibles.
- ▶ Le produit doit être utilisé avec des modules de dispositifs laser de classe 1.

Electrical Safety Instructions

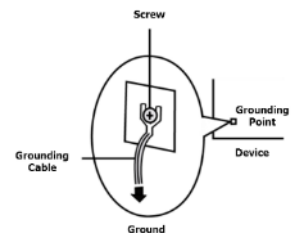
Before turning on the device, ground the grounding cable of the equipment. Proper grounding (grounding) is very important to protect the equipment against the harmful effects of external noise and to reduce the risk of electrocution in the event of a lightning strike. To uninstall the equipment, disconnect the ground wire after turning off the power. A ground wire is required and the part connecting the conductor must be greater than 4 mm² or 10 AWG.

Consignes de sécurité électrique

- ▶ Avant d'allumer l'appareil, reliez le câble de mise à la terre de l'équipement à la terre.
- ▶ Une bonne mise à la terre (connexion à la terre) est très importante pour protéger l'équipement contre les effets néfastes du bruit externe et réduire les risques d'électrocution en cas de foudre.
- ▶ Pour désinstaller l'équipement, débranchez le câble de mise à la terre après avoir éteint l'appareil.
- ▶ Un câble de mise à la terre est requis et la zone reliant les sections du conducteur doit faire plus de 4 mm² ou 10 AWG.

Grounding Procedure for DC Power Source

- ▶ Loosen the screw of the earthing point.
- ▶ Connect the grounding cable to the ground.
- ▶ The protection device for the DC power source must provide 30 A current.
- ▶ This protection device must be connected to the power source before DC power.



Procédure de mise à la terre pour source d'alimentation CC

- ▶ Desserrez la vis du terminal de mise à la terre.
- ▶ Branchez le câble de mise à la terre à la terre.
- ▶ L'appareil de protection pour la source d'alimentation CC doit fournir 30 A de courant.
- ▶ Cet appareil de protection doit être branché à la source d'alimentation avant l'alimentation CC.

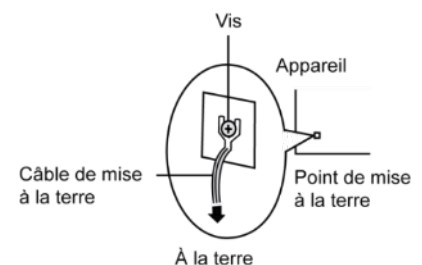


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CHAPTER 1: PRODUCT OVERVIEW

Thank you for choosing LEC-2430. LEC-2430 is a compact and value embedded system which adopts Intel Bay-Trail CPU to provide a high performance with lower power consumption, ideal for various applications. LEC-2430 supports many integrated multimedia and I/O features such as video, audio, network, serial, and USB ports suitable for many mainstream applications. In addition, LEC-2430 is designed for easy installation and replacement for most environments.

Key Features

- ▶ Intel® Bay Trail Celeron® Processor N2930/J1900 or Atom® E3845
- ▶ Robust fan-less enclosure and compact size
- ▶ DDR3L memory support, up to 4GB
- ▶ Dual display support VGA and HDMI
- ▶ Dual 10/100/1000Mbps Ethernet ports
- ▶ USB Ports: 1x USB3.0 and 4x USB 2.0
- ▶ 2x serial ports supporting RS232/422/485
- ▶ Support audio Line-out and MIC
- ▶ Storage: 1x SATA port, 1x mSATA socket
- ▶ 1x Mini-PCIe (with SIM-card reader), 1x PCIe expansion slot
- ▶ Wide-Range power input

Package Content

Your package contains the following items:

- ▶ 1x LEC-2430 Fan-less Box PC
- ▶ 1x Terminal Block Connector AC/DC Adapter

NOTE: If there are any missing items, please contact your dealer or sales rep immediately.

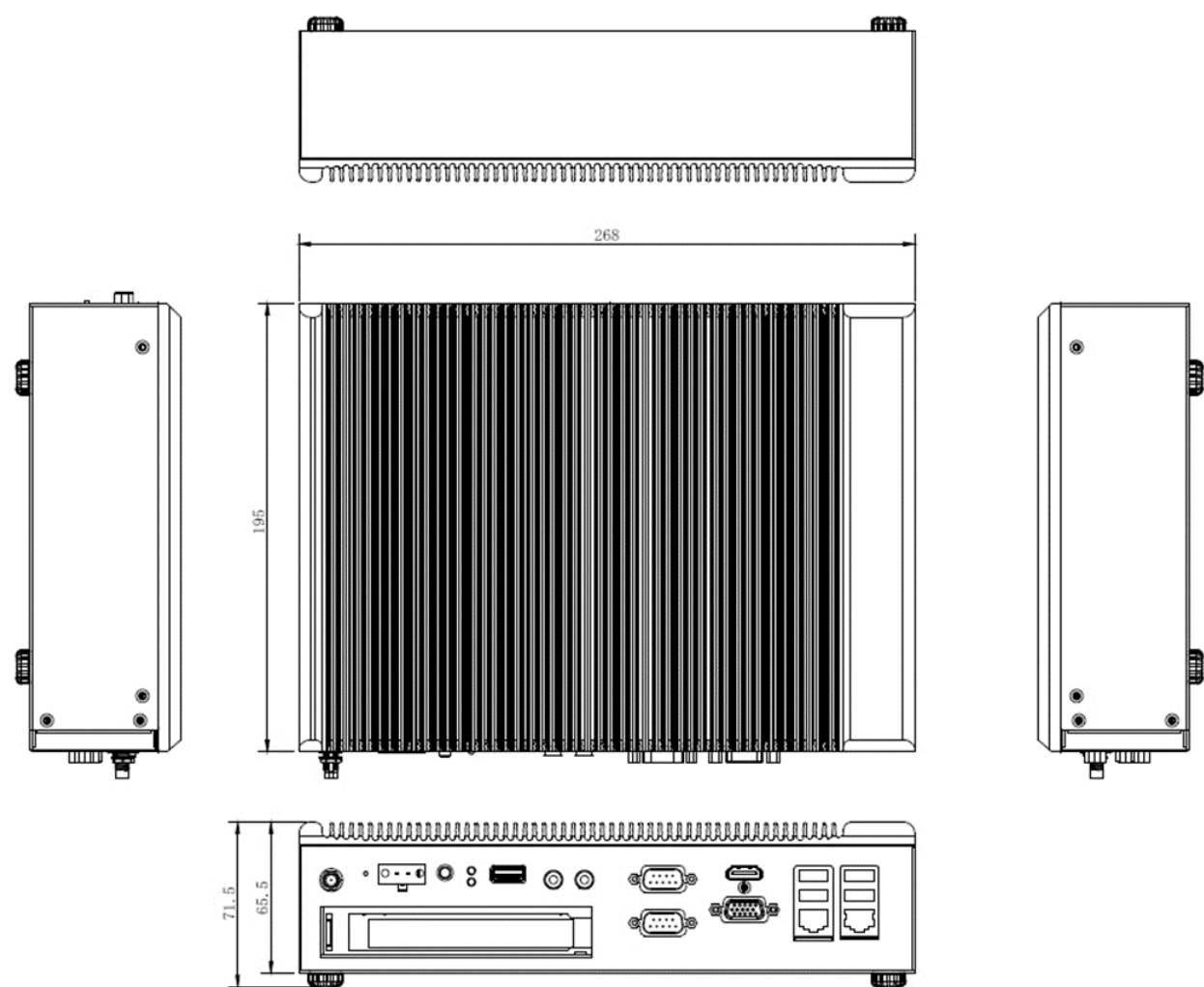
Ordering Information

SKU No.	Main Features
LEC-2430-J11A	Fanless Industrial PC with Intel® Celeron® Processor J1900 4C @ 2GHz CPU, 2x RS232/422/485, 1x USB3.0, 4x USB2.0, 2x LAN, one PCIe expansion, +9~30VDC Input with AC/DC Adapter
LEC-2430-N21A	Fanless Industrial PC with Intel® Celeron® Processor N2930 4C @ 1.86GHz CPU, 2x RS232/422/485, 1x USB3.0, 4x USB2.0, 2x LAN, one PCIe expansion, +9~30VDC Input with AC/DC Adapter
LEC-2430-E51A	Fanless Industrial PC with Intel® ATOM® Processor E3845 4C @ 1.91GHz CPU, 2x RS232/422/485, 1x USB3.0, 4x USB2.0, 2x LAN, one PCIe expansion, +9~30VDC Input with AC/DC Adapter

System Specifications

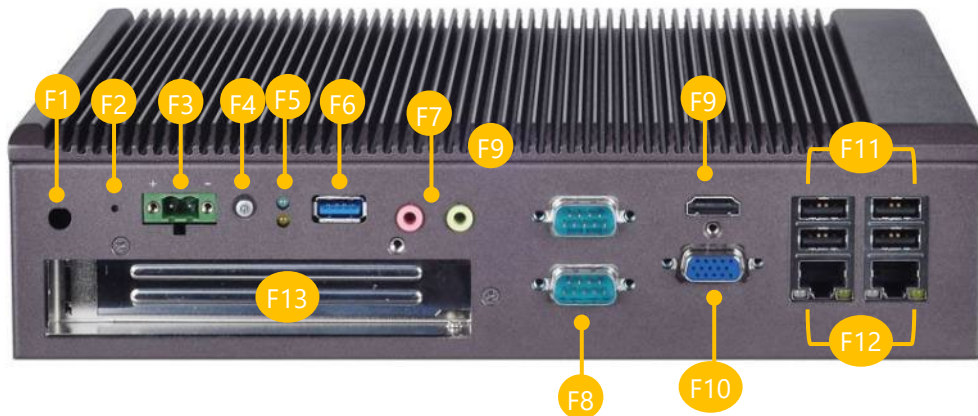
Processor System	Processor Options	Intel® Bay Trail Celeron® N2930 or J1900, or Atom® E3845
	BIOS	AMI SPI Flash BIOS
Memory	Technology	DDR3L, 1333MHz SDRAM
	Max. Capacity	4GB
	Socket	1x 204-Pin SODIMM
Ethernet	Controller	Intel® i210 10/100/1000 BASE-T
	Interface	2x RJ45 connectors 10/100/1000Mbps
Audio	Controller	1x stack audio 3.5mm connector with Realtek ALC886
	Interface	1x Line-out, green phone-jack connector 1x Mic-in, pink phone-jack connector
I/O Interface	Serial Port	2x DB9 male connectors for RS232/422/485; double-stacked
	USB 2.0 Port	4x USB 2.0 Type-A Ports
	USB 3.0 Port	1x USB 2.0 Type-A Port
	LED Indicator	1x Double-stack LEDs; Yellow for Storage-access Status; Green for 3G Status
	Reset Button	1x Reset Button
	Power Button	1x Power Switch with LED
Storage	Antenna	1x SMA Antenna slot for wireless connectivity
	HDD/SSD	1x SATA 2.5" HDD/SSD/SATA DOM
Expansion	mSATA	1x mSATA Storage
	Mini-PCIe	1x Mini-PCIe expansion socket (USB2.0 + PCIe) for 3G
Display	PCIe	1x PCI expansion slot for PCI added-on card
	Controller	Intel® Integrated Graphics supports
Mechanical	Interface/Resolutions	HDMI: up to 1920x1080; VGA: up to 1600x1200 @60 24bpp
	Dimension (W x H x D)	268mm(W) x 195mm(D) x 65.5mm(H)
Environmental	Weight	2.7kg
	Housing	Steel Aluminum
	Mounting Options	Wallmount
Power	Operating Temperature	-20°C to +55°C (with Industrial-grade storage and memory)
	Storage Temperature	-20°C ~ 70°C
	Relative Humidity	5% ~ 95% (non-condensing)
Driver/OS Support	Input Voltage	9~30Vdc Power Input
	Connector	2-Pin Terminal Block
Certification	Microsoft Windows	Windows 7/7 Embedded 32/64bit, Windows 8 32/64bit
	Linux	Linux
Certification	EMC	CE/FCC
	Compliance	RoHS

Mechanical Drawing



Physical Overview

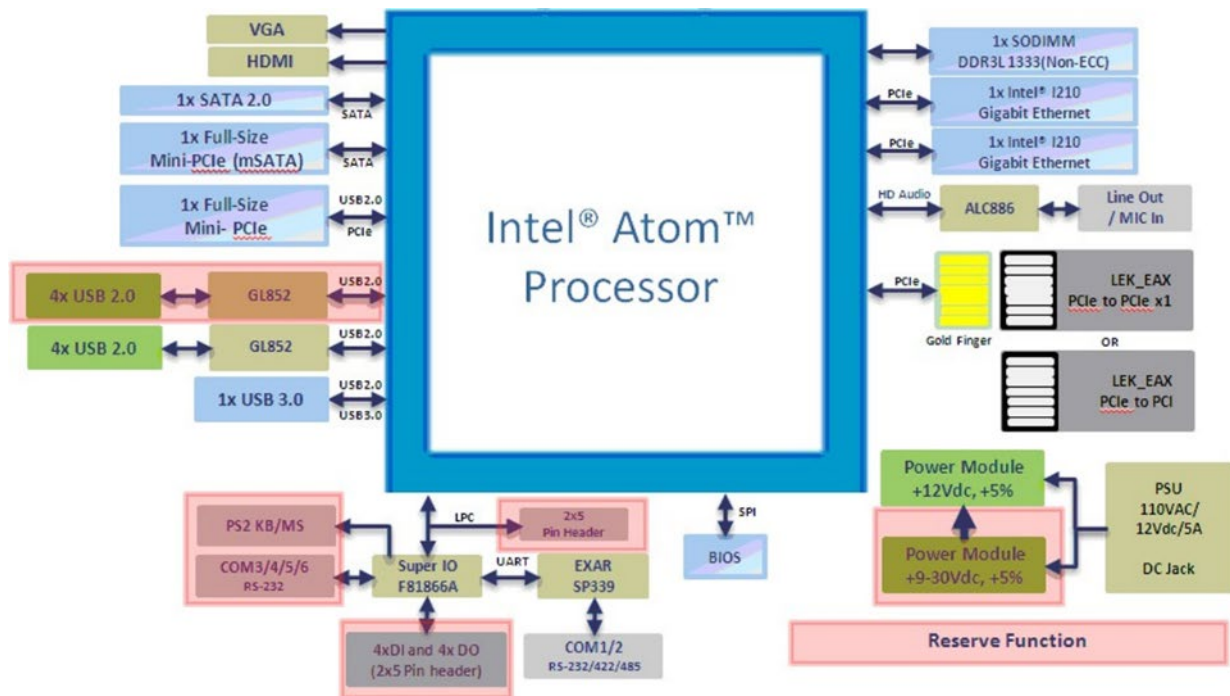
Front Panel



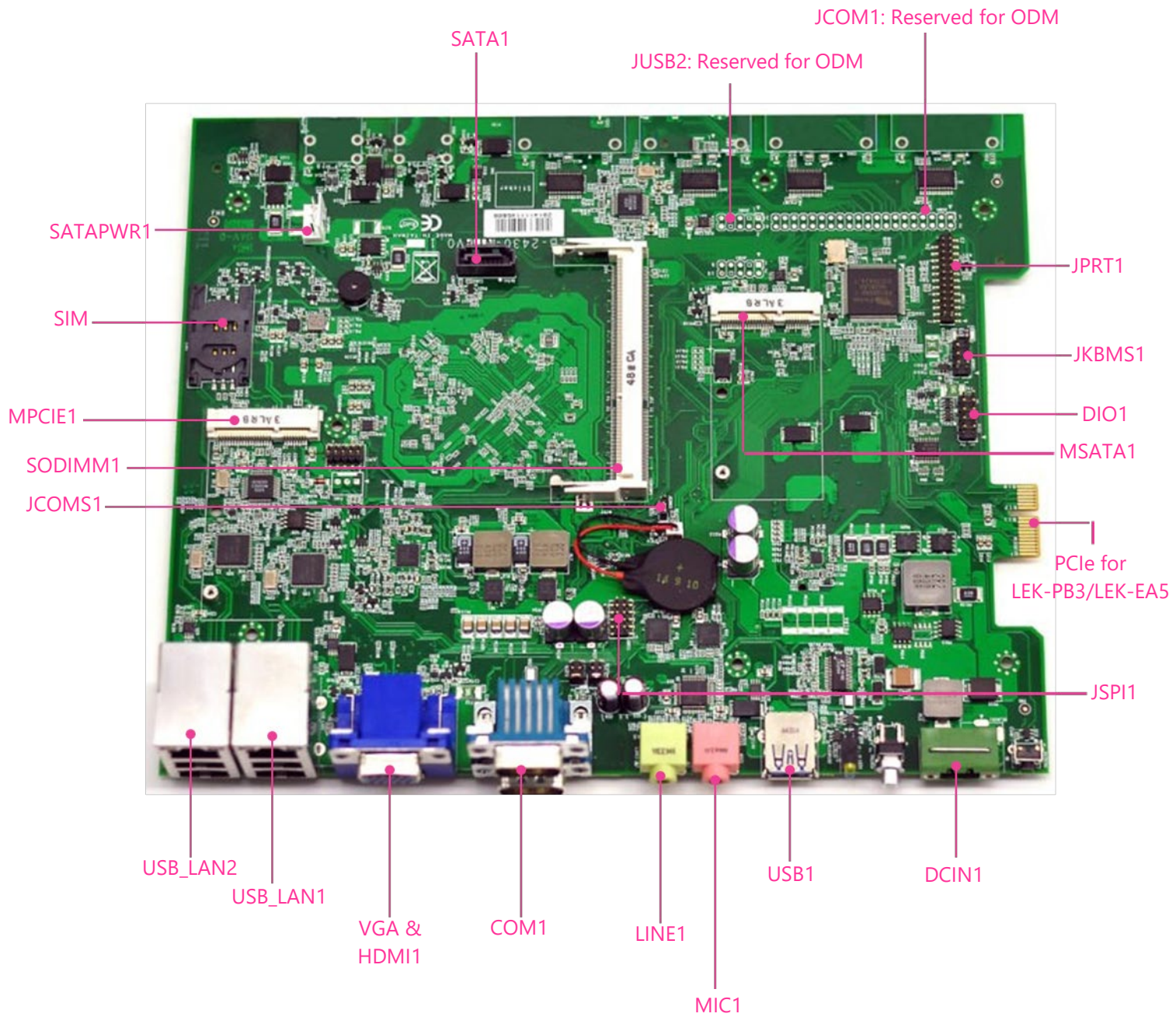
No.	Description	
F1	Antenna Hole	1x SMA Antenna Hole for Wireless Connectivity
F2	Reset Button	1x Reset Button
F3	Power Input	9~30VDC 2-Pin Terminal Block Connector
F4	Power Switch	1x Power On/Off Button
F5	LED Indicator	Double-stacked LEDs; Yellow for storage access status, Green for 3G status
F6	USB 3.0 Port	1x USB 3.0 Type-A Port
F7	Audio Port	1x Green phone jack for Audio Line-Out; 1x Pink phone jack for Mic-In
F8	Serial COM Port	2x Serial COM ports in DB9, supporting RS-232/422/485 Signals
F9	HDMI Port	1x HDMI Output Port
F10	VGA Port	1x VGA Display Port
F11	USB 2.0 Port	4x USB 2.0 Type-A Ports
F12	LAN Port	2x Ethernet LAN Ports (RJ45 with LED)
F13	PCIe Expansion	1x PCIe expansion slot (for PCIe add-on card)

CHAPTER 2: MOTHERBOARD INFORMATION

Block Diagram



Inside LEC-2430

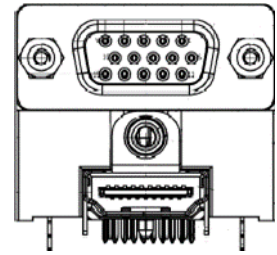


Jumper Settings & Connector Pinouts

Connectors/Jumpers	
Labels	Function
VGA+HDMI1	VGA and HDMI output ports
LINE1	3.5mm green phone jack
MIC1	3.5mm pink phone jack
USB_LAN1/2	USB and LAN stacked ports
COM1	2 x COM ports (double stacked)
USB1	USB2.0/3.0 connector
DCIN1	DC power input in 2-pin connector
JSPI1	SPI pin header for debug purpose
MSATA1	mSATA storage socket
DIO1	Digital input/output pin header
KBMS1	PS/2 keyboard and mouse pin header
JPRT1	Parallel connector
JCOM1	40-pin Serial connector reserved for ODM purpose
JUSB2	10-pin USB pin header reserved for ODM purpose
SATA1	SATA signal connector (7-pin)
SATAPWR1	SATA power connector (4-pin)
SIM	SIM card reader
MPCIE1	Mini PCIe socket
SODIMM1	DDR3L SO-DIMM socket
JCOMS1	CMOS jumper
PCIE1/2	PCIe x 1 lane socket
PCI1	Conventional PCI bus

VGA & HDMI1: VGA & HDMI Display Ports**HDMI**

Pin	Description	Pin	Description
1	DATA2+	2	GND
3	DATA2-	4	DATA1+
5	GND	6	DATA1-
7	DATA0+	8	GND
9	DATA0-	10	CLK+
11	GND	12	CLK-
13	N.C	14	N.C
15	DDC CLK	16	DDC DAT
17	GND	18	DDC DAT
19	HPD	--	

**VGA**

Pin	Description	Pin	Description
1	CRT-R	2	CRT-G
3	CRT-B	4	N.C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N.C	12	V_SDAT
13	HSYNC	14	VSYNC
15	V_SCLK	--	

Audio**LINE1: 3.5mm Phone Jack (Green)**

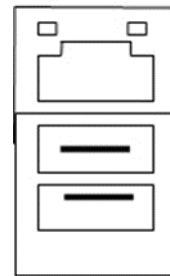
Pin	Description
1	GND
2	LINE_OUT_L
3	GND
4	GND
5	LINE_OUT_R

MIC1: 3.5mm Phone Jack (Pink)

Pin	Description
1	GND
2	MIC_L
3	GND
4	GND
5	MIC_R

USB_LAN1/2: LAN Connector (RJ45 Connector with LED) & USB Dual Connectors

Pin	Description	
1	TXD+	MD0+
2	TXD-	MD0-
3	RXD+	MD1+
4	T45	MD2+
5	T45	MD2-
6	RXD-	MD1-
7	T78	MD3+
8	T78	MD3-
9	10-/100-/1000+	
10	10+/100+/1000-	
11	NC	
12	NC	
13	Active LED- (yellow)	
14	Active LED+	

USB_LAN⁺**USB Dual Connector Port #0/1/2/3 under LAN Ports**

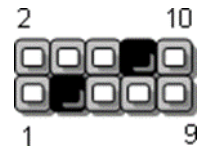
Pin	Description
1	5V_USB1
2	-USB0
3	+USB0
4	GND
5	5V_USB1
6	-USB1
7	+USB1
8	GND

USB1: USB2.0/3.0 Connector

Pin	Description
1	USB_VCC1
2	USB1 D-
3	USB1 D+
4	GND
5	USB RX-
6	USB RX+
7	GND
8	USB1 TX-
9	USB1 TX+

JUSB2: Internal USB Pin Header (for ODM Purpose)

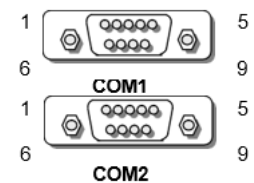
Pin	Description	Pin	Description
1	USB VCC	2	GND
3	KEY	4	+USB
5	-USB	6	-USB
7	+USB	8	KEY
9	GND	10	USB VCC

**JKBMS1: PS/2 Keyboard & Mouse Connector (2x4, 2.54mm Pin Header)**

Pin	Description	Pin	Description
1	KBCLK	2	GND
3	KEY	4	KBDATA
5	KEY	6	MSDATA
7	MSCLK	8	KBVCC

**COM1: Dual COM (D-SUB9) Connectors**

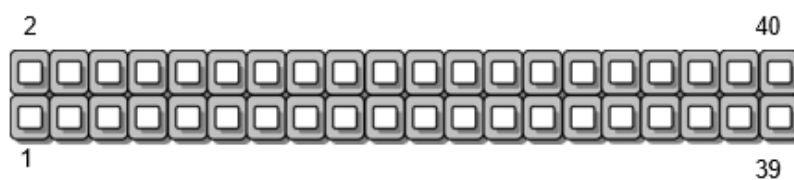
Pin	Description
1	Data Carrier Detect (DCDA#)
2	Receive Data (RXDA)
3	Transmit Data (TXDA)
4	Data Terminal Ready (DTRA#)
5	Ground (GND)
6	Data Set Ready (DSRA#)
7	Request To Send (RTSA#)
8	Clear To Send (CTSA#)
9	Ring Indicator (RIA#)



Pin	RS-232	RS-422	RS-485
1	DCD	TX-	RTX-
2	RXD	TX+	RTX+
3	TXD	RX+	
4	DTR	RX-	
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI		

JCOM1: Serial Port 3~6 (2x20, 2.0mm Pin Header for ODM purposes)

Pin	Description	Pin	Description
1	DCD#3	2	DSR#3
3	RX3	4	RTS#3
5	TX3	6	CTS#3
7	DTR#3	8	RI3
9	GND	10	N.C
11	DCD#4	12	DSR#4
13	RX4	14	RTS#4
15	TX4	16	CTS#4
17	DTR#4	18	RI4
19	GND	20	N.C
21	DCD#5	22	DSR#5
23	RX5	24	RTS#5
25	TX5	26	CTS#5
27	DTR#5	28	RI5
29	GND	30	N.C
31	DCD#6	32	DSR#6
33	RX6	34	RTS#6
35	TX6	36	CTS#6
37	DTR#6	38	RI6
39	GND	40	N.C



JCOM1

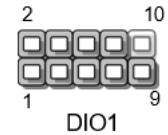
JPRT1: Parallel Connector (2x26, 2.0mm Pin Header)

Pin	Description	Pin	Description
1	STROBE	2	AFD#
3	PD0	4	ERR#
5	PD1	6	INIT#
7	PD2	8	SLIN#
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND

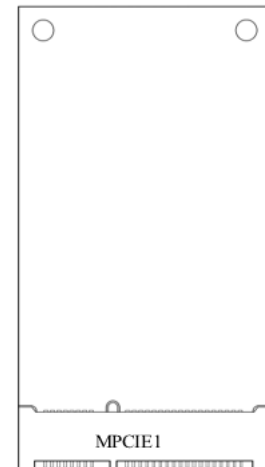
17	PD7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT		

DIO1: Digital Input/Output

Pin	Description
1	DI 0
2	DO 0
3	DI 1
4	DO 1
5	DI 2
6	DO 2
7	DI 3
8	DO 3
9	GND
10	DIO 5V

**MPCIE1: Mini-PCle Slot with SIM (Full Size)**

Pin	Description	Pin	Description
1	WAKE#	2	+3.3V
3	RSVD	4	GND
5	RSVD	6	+1.5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
KEY			
17	RSVD	18	GND
19	RSVD	20	W_DISABLE#
21	GND	22	PERST#
23	PERn0	24	+3.3V
25	PERp0	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D+
37	GND	38	USB_D-
39	+3.3V	40	GND
41	+3.3V	42	LED_WWAN#
43	GND	44	LED_WLAN#
45	RSVD	46	LED_WPAN#



47	RSVD	48	1.5V
49	RSVD	50	GND
51	RSVD	52	+3.3V

MSATA1: mSATA Slot (Full Size)

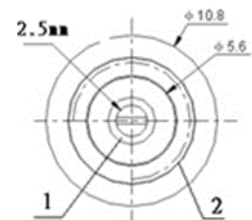
Pin	Description	Pin	Description
1	N.C	2	+3.3V
3	N.C	4	GND
5	N.C	6	N.C
7	N.C	8	N.C
9	GND	10	N.C
11	N.C	12	N.C
13	N.C	14	N.C
15	GND	16	N.C
KEY			
17	N.C	18	GND
19	N.C	20	N.C
21	GND	22	N.C
23	SATA_RXp	24	+3.3V
25	SATA_RXn	26	GND
27	GND	28	N.C
29	GND	30	N.C
31	SATA_TXn	32	N.C
33	SATA_TXp	34	GND
35	GND	36	N.C
37	GND	38	N.C
39	+3.3V	40	GND
41	+3.3V	42	N.C
43	GND	44	N.C
45	N.C	46	N.C
47	N.C	48	N.C
49	N.C	50	GND
51	N.C	52	+3.3V

**DCIN1: 5.0mm 2-Pin Phoenix Connector**

Pin	Description
1	DC IN (9~30V)
2	DC IN (-)

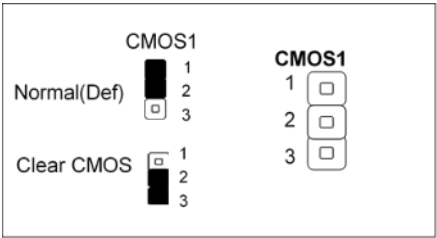
DCJACK1: DC Power Jack (Optional)

Pin	Description
1	DC IN (+12V)
2	DC IN (-)



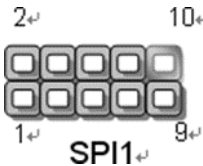
JCOMS1: Clear CMOS

Description	CMOS1 Pins
Normal (default)	Short 1-2
Clear CMOS	Short 2-3



JSPI1: SPI Interface (Debug Only)

Pin	Description	Pin	Description
1	SPI HOLD	2	N.C
3	SPI CS#	4	SPI VCC
5	SPI MO	6	N.C
7	N.C	8	SPI CLK
9	GND	10	SPI MI



CHAPTER 3: HARDWARE INSTALLATION

To reduce the risk of personal injury, electric shock, or damage to the system, please remove all power connections to shut down the device completely. Also, please wear ESD protection gloves when conducting the steps in this chapter.

Opening the Chassis

1. Power off the system, and turn the system around, and remove the four (4) rubber feet on the bottom chassis cover.



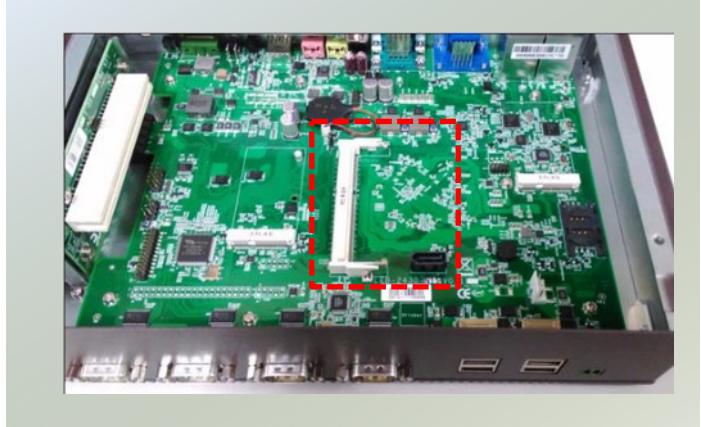
2. Lift and open the bottom chassis cover.



Installing the System Memory (Optional)

The motherboard comes with one DDR3L SO-DIMM socket. The SO-DIMM to be installed should meet the require frequency which is 1333MHz for this system. Do not install SO-DIMM supporting different frequencies. The motherboard can support up to 4 GB memory capacity maximum. Please follow the steps below for installation.

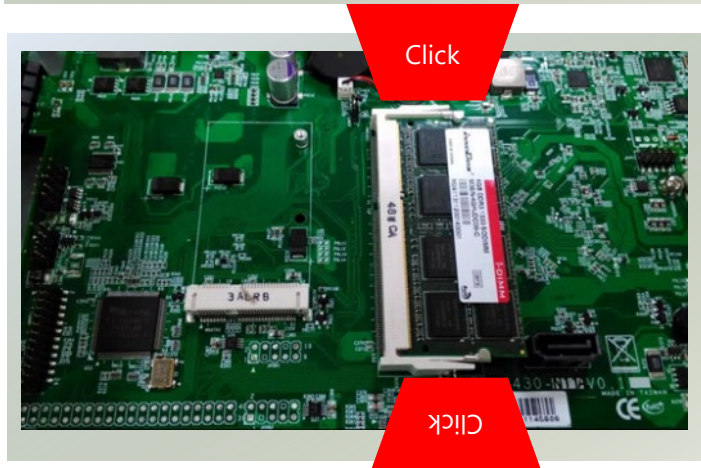
1. Locate the DIMM socket on the motherboard.



2. Align the notches of the DIMM module with the socket key in the pin slot.



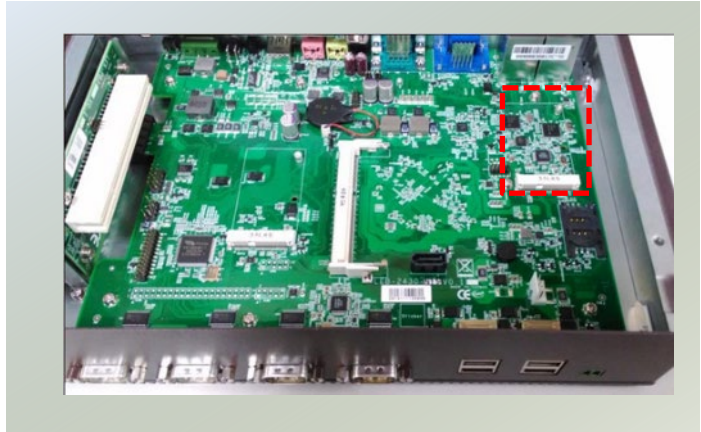
3. Insert the module into the slot at a diagonal angle and press it down until it is firmly seated by the clips on both sides.



Installing a Mini-PCle Module

The system supports one mini-PCle socket, please follow the steps below for installation.

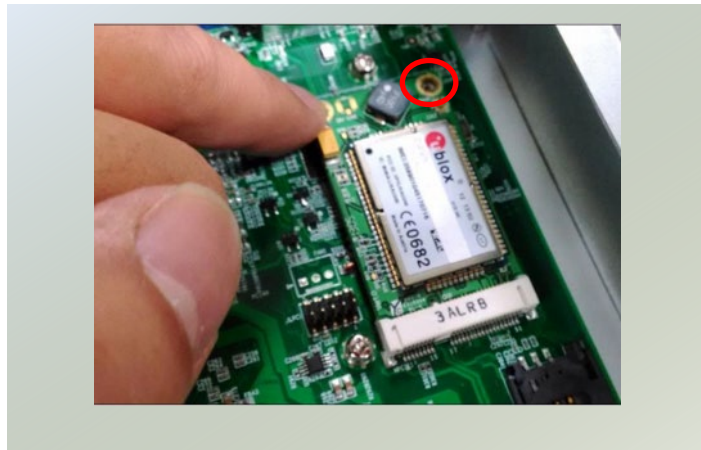
1. Locate the mini-PCle socket on the motherboard.



2. Align the notches of the module with the socket key in the pin slot.



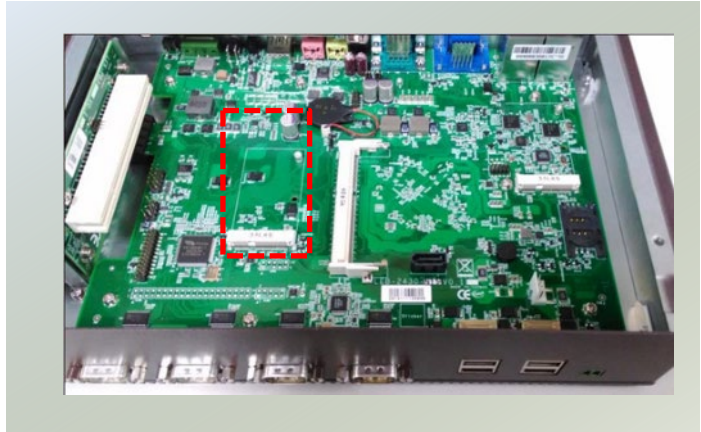
3. Insert the module at 30 degrees into the socket until it is fully seated. Push down on the module card and secure it with one (1) screw.



Installing a mSATA Storage Module

The system comes with a mSATA socket. Please follow the steps below for installing a mSATA storage module.

1. Locate the mSATA slot on the motherboard.



2. Align the notches of the module with the socket key in the pin slot. Insert the module at 30 degrees into the socket until it is fully seated.



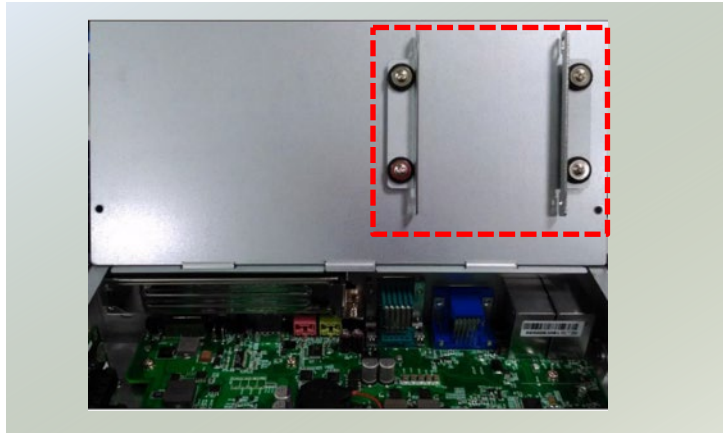
3. Push down on the module card and secure it with one (1) screw.



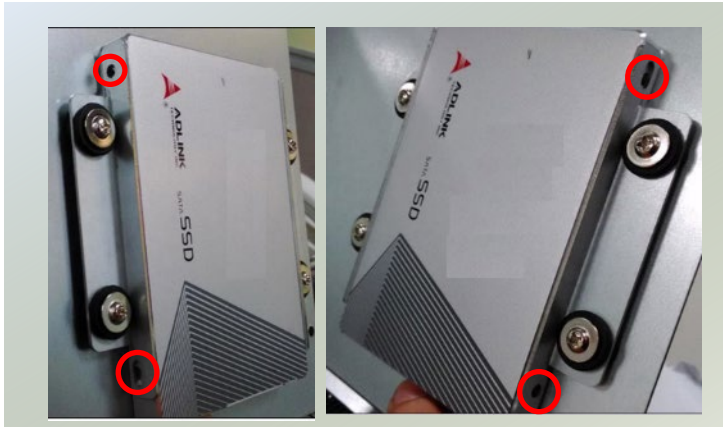
Installing a Disk Drive (Optional)

The system comes with a disk drive tray supporting SATA 2.5" HDD/SSD. Please follow the steps for installation.

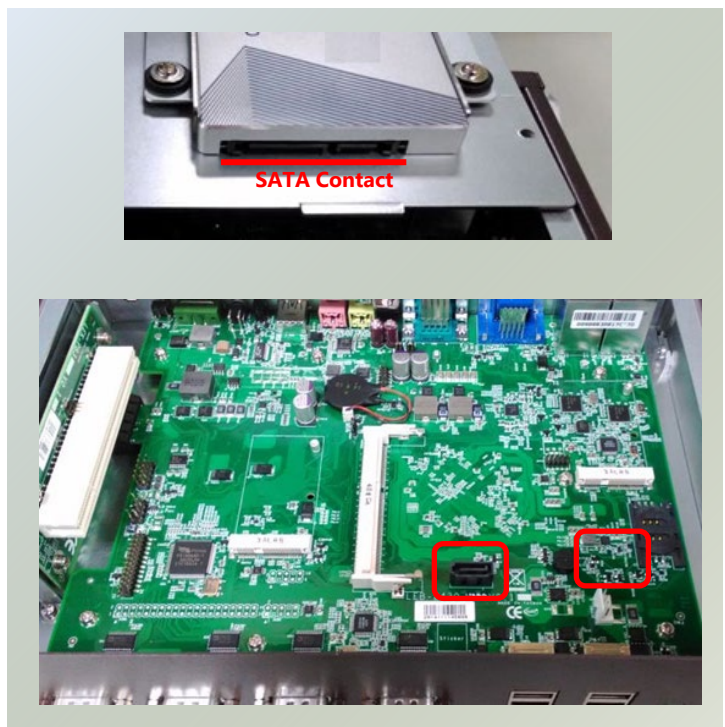
1. Locate the 2.5" SATA HDD/SSD drive placement on the underside of the bottom chassis cover.



2. Place the 2.5" HDD/SSD on the chassis cover and secure with two (2) screws on each side.



3. Insert the SATA cables to the SATA contact on the HDD/SSD. Insert the other end of the SATA data and power cable connectors on the motherboard.



APPENDIX A: PROGRAMMING WATCHDOG TIMER

A watchdog timer is a piece of hardware that can be used to automatically detect system anomalies and reset the processor in case there are any problems. Generally speaking, a watchdog timer is based on a counter that counts down from an initial value to zero. The software selects the counter's initial value and periodically restarts it. Should the counter reach zero before the software restarts it, the software is presumed to be malfunctioning and the processor's reset signal is asserted. Thus, the processor will be restarted as if a human operator had cycled the power. For sample watchdog code, see WD folder under Driver and Utility on the Driver and Manual CD.



APPENDIX B: TERMS AND CONDITIONS

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after service freight charges for goods returned to the user.
3. The buyer will pay for the repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service," RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
 - ▶ Improper or inadequate maintenance by the customer
 - ▶ Unauthorized modification, misuse, or reversed engineering of the product
 - ▶ Operation outside of the environmental specifications for the product.

RMA Service

Requesting an RMA#

1. To obtain an RMA number, fill out and fax the "RMA Request Form" to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.



Note

Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA No:		Reasons to Return: ☐ Repair(Please include failure details)	
		☐ Testing Purpose	
Company:		Contact Person:	
Phone No.		Purchased Date:	
Fax No.:		Applied Date:	
Return Shipping Address: _____			
Shipping by: ☐ Air Freight ☐ Sea ☐ Express _____			
☐ Others: _____			
Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

***Problem Code:**

01: D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party

Confirmed By Supplier

Authorized Signature / Date

Authorized Signature / Date