



NEXCOM International Co., Ltd.

Industrial Computing Solutions

Embedded Computing (Industrial Motherboard)

NEX 607

User Manual

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Preface

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Acknowledgements

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance



NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2002/95/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2006 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as “Out of Warranty.”
- Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

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NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.
3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

Conventions Used in this Manual



Warning:

Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.



Caution:

Information to avoid damaging components or losing data.



Note:

Provides additional information to complete a task easily.

Global Service Contact Information

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<http://www.nexcom-jp.com>

Package Contents

Before continuing, verify that the NEX 607 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part number	Name	Description	Qty
1	20G00060700X0	ASSY NEX607		1
2	50222A0539X00	NEX607 I/O PANEL VER:A NORTHERN QUEEN	158.75x44.45x4.40mm SUS t=0.2mm	1
3	60177A0274X00	(N)NEX607 QUICK REFERENCE GUIDE VER:A	KRAMER	1
4	60233ATA48X00	SATA CABLE BEST	SATA CON 7P 180D TO 180D CONNECTOR L:250mm 28AWG	1
5	60233POW22X00	POWER CABLE EDI:302204040181-RS	4P 5.08mmx2 TO 2x2 4.2mm L:180+-10mm	1
6	60233PW149X00	SATA POWER CABLE EDI:354204040201-RS	AMP 4PIN PIT:2.54mm TO SATA 15P L:200mm	1
7	60233USB48X00	USB CABLE EDI:262082080401-RS	DUAL PORT USB CON TO HOUSING 2x4PIN 2.0mm L:400+-10mm	1

Ordering Information

The following information below provides ordering information for NEX 607.

NEX 607 (P/N: 10G00060700X0) RoHS Compliant

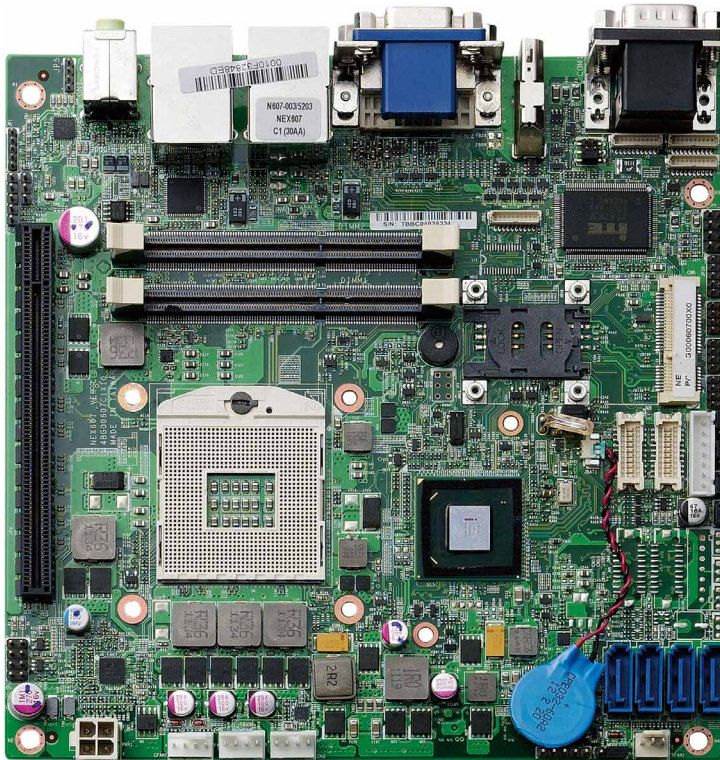
Mini ITX, Intel® 2nd generation Intel® Core™ processor family with VGA/48-bit LVDS/HDMI/DVI-D/2x Gigabit LAN/10 x USB / 4x SATA / TPM (Option) / Second 48 Bit LVDS. (Option).

NEX 607 CPU Cooler (P/N: 5050300544X00) Optional

Part Number	Name	Qty
5050300544X00	(N)Intel PGA989 CPU COOLER COOLJAG:JACDD01C-5	1

Chapter 1: Product Introduction

Overview



Key Features

- 2nd generation Intel® Core™ processor family
- Intel® QM67 chipset
- Two 204-pin SO-DIMM socket supports up to 8 GB DDR3 1066/1333 MHz SDRAM
- Display: VGA & DVI-D & HDMI & LVDS (2x DF13 20-pin 18/24/36/48-bit support)
- 1x Mini-PCIe
- 1x PCIe16 slot
- 2x Intel Gigabit Ethernet
- 4x SATA with RAID 0,1,5,10 function.
- 10x USB, 4-in/4-out GPIO, Mic-in, Line-out
- Serial port: 3 x RS232, 1x RS232/422/485 port
- Support AT/ATX mode and Single +12 Vdc input
- TPM (option)
- Second 48 Bit LVDS support (option)

Hardware Specifications

CPU Support

- 2nd generation Intel® Core™ processor

Main Memory

- Two 204-pin SO-DIMM socket supports up to 8 GB DDR3 1066/1333MHz SDRAM

Chipset

- Intel® QM67 chipset

BIOS

- AMI BIOS
- Plug & Play support
- Advanced Power Management
- Advanced Configuration & Power Interface

On-board LAN

- 2x Realtek® PCI Express Gigabit Ethernet
- Support Boot From LAN (PXE)
- 2x RJ45 with LED

Display

- 2nd generation Intel® Core™ processor integrated Intel® HD Graphics 3000 engine, Intel® HD Graphics integrates high-performance graphics and media processing right on the processor, delivers sophisticated graphics for large display applications, dual independent display support.

- Analog VGA interface
 - 1x VGA connector
 - Resolution up to 2048x1536 75Hz
- DVI interface
 - 1x DVI-I connector
 - Resolution up to 1920x1200
- HDMI interface
 - 1x HDMI connector
- LVDS1 interface
 - 48bit LVDS interface, 2xDF13 20-pin LVDS connector for internal connection
 - LVDS2 interface (option, Through SDVO w/CH7308)
 - 48bit LVDS interface, 2xDF13 20-pin LVDS connector for internal connection
- CCFL interface
 - 2x CCFL for LCD Panel Backlight Inverter

Audio

- Realtek ALC886 CODEC for High Definition
- 1x Phone Jack for mic-in
- 1x Phone Jack for line-out
- 1x 4 2.0 pitch pin header for line-in
- 1x 5 pin 2.0 pitch pin header for speaker-out

Expansion

- 1x Mini-PCIe
- 1x PCIe x16

I/O Interface

- Serial port: 4 port
 - COM1: RS232 DB-9 male connector on edge I/O
 - COM2: RS232/422/485 DB-9 male connector on edge I/O
 - COM3,4:RS232 2x5/2.54mm Box header
- USB 2.0: 10 ports
 - 4 ports edge connector
 - 6 ports by 2.0mm pin connector
- 8 GPIO lines via header (GPI 0~3 and GPO0~3) TTL Level (0/5 V)
- On-board Power LED and HDD Active LED Pin Header
- 1x 4-pin fan connector (for CPU)
- 1x 3-pin fan connector (for System)
- 1x Keyboard/Mouse pin header
- On board Buzzer/ SMBus2.0/ Reset SW/ On &Off switch button

Edge I/O Interface

- 1x DVI/VGA connector
- 1x HDMI connector
- 2x dual stack USB and RJ45 connector
- 1x dual stack serial port connector
- 1x Mic-in and Line out phone Jack

Watchdog Timer

- Watchdog timeout can be programmed by software from 1 second to 255 seconds, and from 1 minute to 255 minutes (Tolerance 15% under room temperature 25°C)

Storage

- 4x SATA port with RAID 0,1,5,10 function

System Monitor

- Monitoring of 4 voltages and 2 temperatures and 2 Fans speed detection
- 4 Voltage (Vcore, +12V , +3.3V , 5V)
- 2 Temperatures (CPU, System)
- 2 Fan Speed detection

On-board RTC

- On-chip RTC with battery backup
- 1x External Li-Ion battery

Power Input

- Support AT and ATX mode

Power Requirements

- Power requirement: +12V DC Input
- One 4-pin power connector

Dimensions

- Mini-ITX M/B form factor.
- 170mm (L) x 170mm (W)

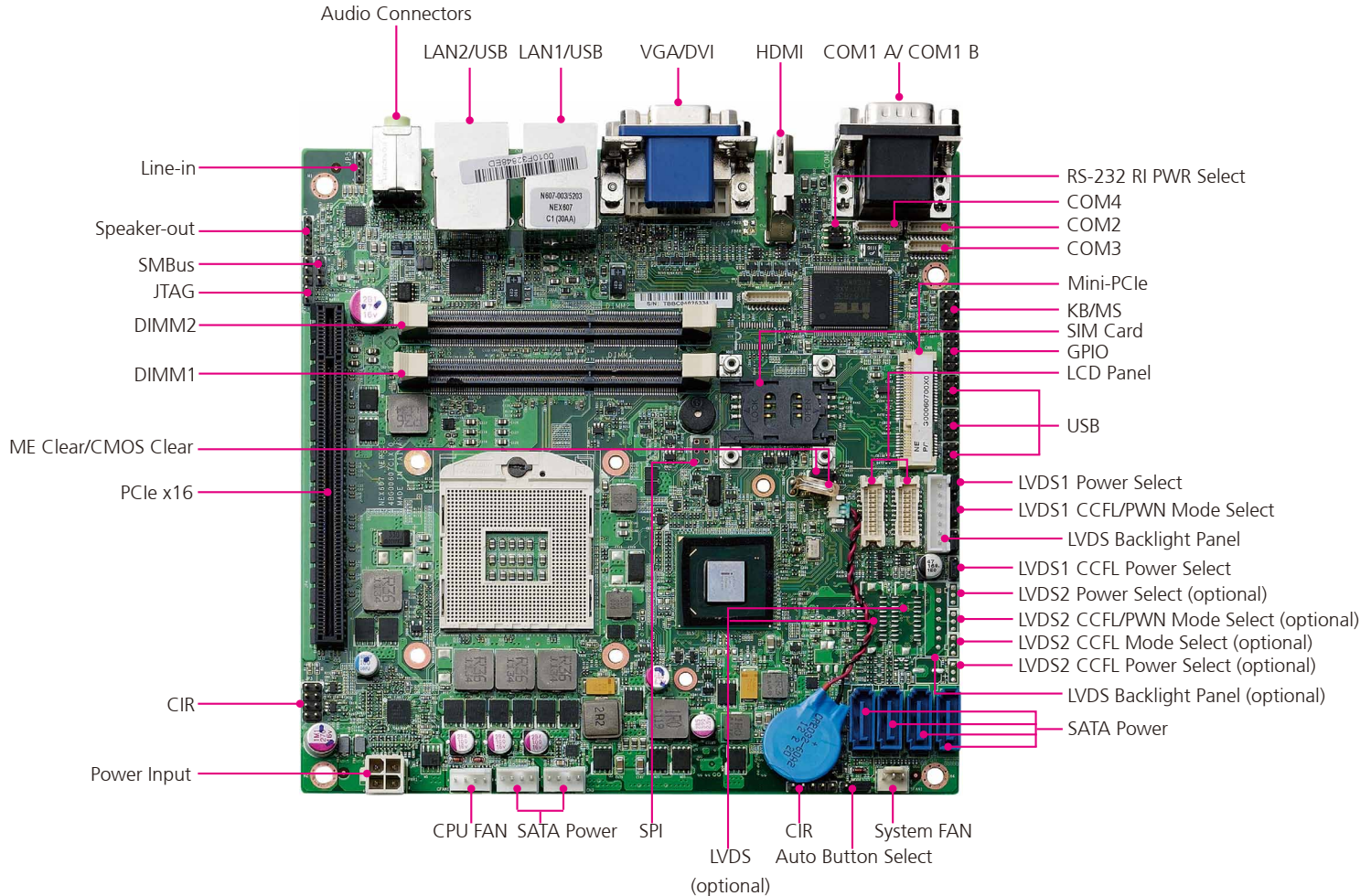
Environment

- Operating temperatures: 0°C to 60°C
- Storage temperature: -20°C to 85°C
- Relative humidity: Operating 10% to 90%, non-condensing

Certifications

- CE approval
- FCC Class A

Knowing Your NEX 607



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NEX 607 motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

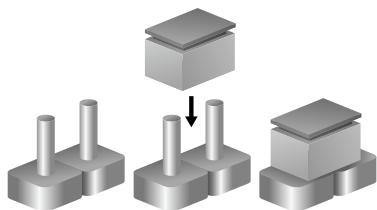
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

Jumper Settings

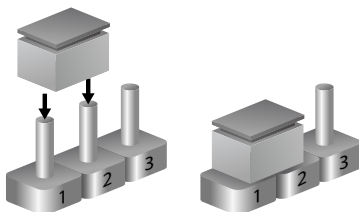
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)

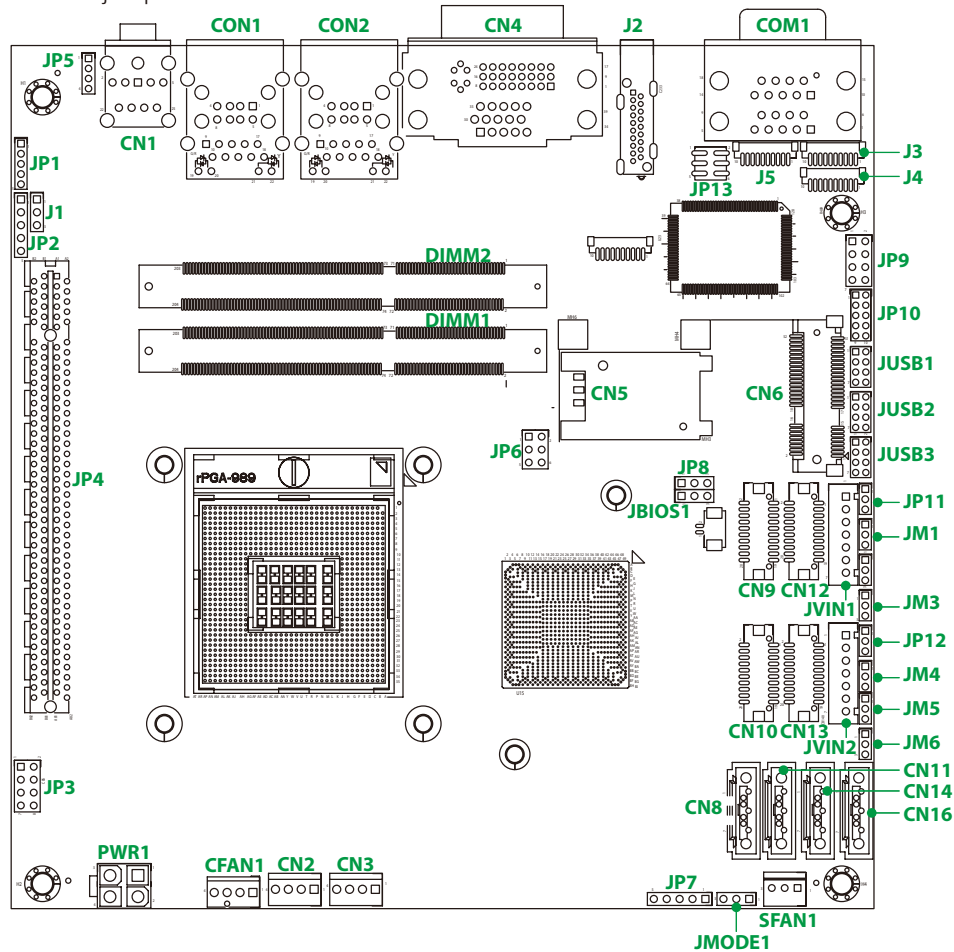


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

The figure below shows the location of the jumpers and connectors.



Jumpers

CMOS Clear Select

Connector type: 1x3 3-pin header

Connector location: JBIOS1



Pin	Status	Settings
1-2	On	Normal
2-3	On	Clear BIOS

1-2 On: default

ME Clear Select

Connector type: 1x3 3-pin header

Connector location: JP8



Pin	Status	Settings
1-2	On	Normal
2-3	On	Clear ME Setting

1-2 On: default

LVDS1 Power Select

Connector type: 1x3 3-pin header
Connector location: JP11



Pin	Status	Settings
1-2	On	VCC5
2-3	On	VCC3

1-2 On: default

LVDS1 CCFL Mode Select

Connector type: 1x3 3-pin header
Connector location: JM5



Pin	Status	Settings
1-2	On	Negative
2-3	On	Positive

2-3 On: default

LVDS1 CCFL/PWN Mode Select

Connector type: 1x3 3-pin header

Connector location: JM1



Pin	Status	Settings
1-2	On	PWN Mode
2-3	On	CCFL Mode

2-3 On: default

LVDS1 CCFL Power Select

Connector type: 1x3 3-pin header

Connector location: JM3



Pin	Status	Settings
1-2	On	VCC3
2-3	On	VCC5

2-3 On: default

LVDS2 Power Select

Connector type: 1x3 3-pin header
Connector location: JP12



Pin	Status	Settings
1-2	On	VCC5
2-3	On	VCC3

1-2 On: default

LVDS2 CCFL/PWN Mode Select

Connector type: 1x3 3-pin header
Connector location: JM4



Pin	Status	Settings
1-2	On	PWN Mode
2-3	On	CCFL Mode

2-3 On: default

LVDS2 CCFL Mode Select

Connector type: 1x3 3-pin header

Connector location: JM5



Pin	Status	Settings
1-2	On	Negative
2-3	On	Positive

2-3 On: default

LVDS2 CCFL Power Select

Connector type: 1x3 3-pin header

Connector location: JM6



Pin	Status	Settings
1-2	On	VCC3
2-3	On	VCC5

2-3 On: default

Auto Button Select

Connector type: 1x3 3-pin header
 Connector location: JMODE1

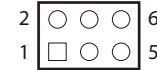


Pin	Status	Settings
1-2	On	AT Mode
2-3	On	ATX Mode

2-3 On: default

RS-232 RI Power Select

Connector type: 2x3 6-pin header
 Connector location: JP13



Pin	Settings	Pin	Settings
1	COM2_RI#	2	VCC5
3	COM2_RI#	4	+12V
5	COM2_RI#	6	COM_RI#2

5-6 On: default

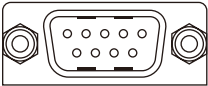
Connector Pin Definitions

External I/O Interfaces

COM 1 Port

Connector type: DB-9 port, 9-pin D-Sub

Connector location: COM1A

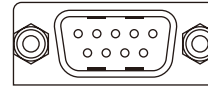


Pin	Definition	Pin	Definition
1	COM_DCD#1	2	COM_RXD1
3	COM_TXD1	4	COM_DTR#1
5	GND	6	COM_DSR#1
7	COM_RTS#1	8	COM_CTS#1
9	COM_RI#1		

COM 2 Port

Connector type: DB-9 port, 9-pin D-Sub

Connector location: COM1B

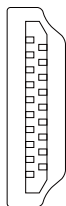


Pin	Definition	Pin	Definition
10	COM_DCD#2	11	COM_RXD2
12	COM_TXD2	13	COM_DTR#2
14	GND	15	COM_DSR#2
16	COM_RTS#2	17	COM_CTS#2
18	COM_RI#2		

HDMI

Connector type: HDMI port

Connector location: J2

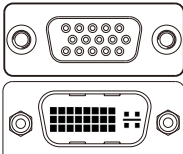


Pin	Definition	Pin	Definition
1	HDMI_DATA2_P	2	GND
3	HDMI_DATA2_N	4	HDMI_DATA1_P
5	GND	6	HDMI_DATA1_N
7	HDMI_DATA0_P	8	GND
9	HDMI_DATA0_N	10	HDMI_CLK_P
11	GND	12	HDMI_CLK_N
13	NC	14	NC
15	HDMI_CTRL_CLK	16	HDMI_CTRL_DATA
17	GND	18	HDMI_VCC5
19	DPD_HPD	MH1	GND
MH2	GND	MH3	GND
MH4	GND		

VGA and DVI-D Ports

Connector type: DB-15 port, 15-pin D-Sub (VGA)
24-pin D-Sub, 2.0mm-M-180 (DVI)

Connector location: CN4



Pin	Definition	Pin	Definition
1	DVI_DATA2_N	2	DVI_DATA2_P
3	GND	4	NC
5	NC	6	DVI_CTRL_CLK
7	DVI_CTRL_DATA	8	NC
9	DVI_DATA1_N	10	DVI_DATA1_P
11	GND	12	NC
13	NC	14	DVI_PWR_S
15	GND	16	DVI_HPDET
17	DVI_DATA0_N	18	DVI_DATA0_P
19	GND	20	NC
21	NC	22	NC
23	DVI_CLK_P	24	DVI_CLK_N
C1	NC	C2	NC
C3	NC	C4	NC
C5A	GND	C5B	GND
25	CRT_RED	26	CRT_GREEN

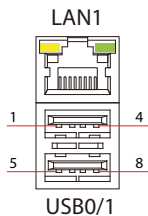
Pin	Definition	Pin	Definition
27	CRT_BLUE	28	GND
29	GND	30	GND
31	GND	32	GND
33	VCC (VCC5)	34	GND
35	GND	36	DDC_DATA_VGA
37	HSYNC_VGA	38	VSYNC_VGA
39	DDC_CLK_VGA		

LAN1 and USB0/1 Ports

Connector type: RJ45 port with LEDs (LAN1)

Dual USB port, Type A (USB0/1)

Connector location: CON1



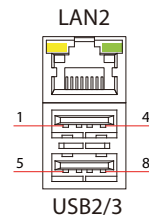
Pin	Definition	Pin	Definition
1	P5V_USB_P01	2	USB_ON
3	USB_OP	4	GND
5	USB3_RX0_N	6	USB3_RX0_P
7	GND	8	USB3_TX0_N
9	USB3_TX0_P	10	P5V_USB_P01
11	USB_1N	12	USB_1P
13	GND	14	USB3_RX1_N
15	USB3_RX1_P	16	GND
17	USB3_TX1_N	18	USB3_TX1_P
19	LAN2_1.9V	20	LAN2_MDI0P
21	LAN2_MDI0N	22	LAN2_MDI1P
23	LAN2_MDI1N	24	LAN2_MDI2P
25	LAN2_MDI2N	26	LAN2_MDI3P
27	LAN2_MDI3N	28	GND
29	LAN2_LED1P	30	LAN2_LED_ACT#
31	LAN2_LED_LINK100#	32	LAN2_LED_LINK1G#
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND
MH5	Chassis_GND	MH6	Chassis_GND
MH7	Chassis_GND	MH8	Chassis_GND

LAN2 and USB2/3 Ports

Connector type: RJ45 port with LEDs (LAN2)

Dual USB port, Type A (USB2/3)

Connector location: CON2

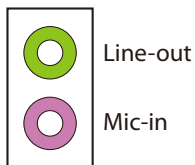


Pin	Definition	Pin	Definition
1	P5V_USB_P23	2	USB_2N
3	USB_2P	4	GND
5	USB3_RX2_N	6	USB3_RX2_P
7	GND	8	USB3_TX2_N
9	USB3_TX2_P	10	P5V_USB_P23
11	USB_3N	12	USB_3P
13	GND	14	USB3_RX3_N
15	USB3_RX3_P	16	GND
17	USB3_TX3_N	18	USB3_TX3_P
19	VCT_LAN	20	LAN1_MDI0P
21	LAN1_MDI0N	22	LAN1_MDI1P
23	LAN1_MDI1N	24	LAN1_MDI2P
25	LAN1_MDI2N	26	LAN1_MDI3P
27	LAN1_MDI3N	28	GND
29	LAN1_LED1P	30	LAN1_LED_ACT#
31	LAN1_LED_LINK100#	32	LAN1_LED_LINK1G#
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND
MH5	Chassis_GND	MH6	Chassis_GND
MH7	Chassis_GND	MH8	Chassis_GND

Audio Connectors

Connector type: 2x 3.5mm TRS

Connector location: CN1



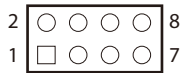
Pin	Definition	Pin	Definition
1	AGND	2	MIC_OUT-L
3	MIC_JD	4	AGND
5	MIC_OUT-R	MH1	Chassis_GND
MH2	Chassis_GND	MH3	Chassis_GND
MH4	Chassis_GND	22	LINE_OUT_LC
23	MIC_JD	24	AGND
25	LINE_OUT_RC	MH1	NC

Internal Connectors

Keyboard and Mouse Connector

Connector type: 2x4 8-pin header

Connector location: JP9

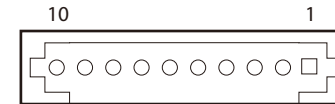


Pin	Definition	Pin	Definition
1	5V_KB	2	5V_KB
3	KDAT_R	4	MDAT_R
5	KCLK_R	6	MCLK_R
7	KBMS_GND	8	KBMS_GND
9	NC		

COM2 Connector (RS232)

Connector type: 1x10 10-pin header

Connector location: J3



Pin	Definition	Pin	Definition
1	COM_DCD#2	2	COM_RXD2
3	COM_TXD2	4	COM_DTR#2
5	GND	6	COM_DSR#2
7	COM_RTS#2	8	COM_CTS#2
9	COM_RI#2	10	GND
MH1	GND	MH2	GND

RS422 Pin Definition

Pin	Definition	Pin	Definition
1	TXD-	2	TXD+
3	RXD+	4	RXD-
5	GND	6	RTS-
7	RTS+	8	CTS+
9	CTS-		
MH1	GND	MH2	GND

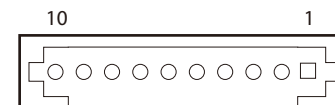
RS485 Pin Definition

Pin	Definition	Pin	Definition
1	TXD-	2	TXD+
	TXD+		RXD+
3	Reserve	4	Reserve
5	Reserve	6	Reserve
7	Reserve	8	Reserve
9	Reserve		

COM3 Connector (RS232)

Connector type: 1x10 10-pin header

Connector location: J4

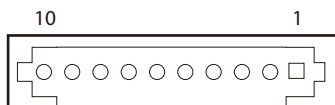


Pin	Definition	Pin	Definition
1	COM_DCD#3	2	COM_RXD3
3	COM_TXD3	4	COM_DTR#3
5	GND	6	COM_DSR#3
7	COM_RTS#3	8	COM_CTS#3
9	COM_RI#3	10	GND
MH1	GND	MH2	GND

COM4 Connector (RS232)

Connector type: 1x10 10-pin header

Connector location: J5



Pin	Definition	Pin	Definition
1	COM_DCD#4	2	COM_RXD4
3	COM_TXD4	4	COM_DTR#4
5	GND	6	COM_DSR#4
7	COM_RTS#4	8	COM_CTS#4
9	COM_RI#4	10	GND
MH1	GND	MH2	GND

SMBus Connector

Connector type: 1x3 3-pin header

Connector location: J1



Pin	Definition
1	PCH_SMB_CLK
2	PCH_SMB_DATA
3	GND

JTAG

Connector type: 1x5 5-pin header

Connector location: JP2

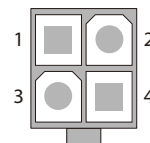


Pin	Definition
1	P_TRST
2	P_TCK
3	TDI
4	P_TDO
5	P_TMS

ATX Power Input Connector

Connector type: 2x2 Aux power connector

Connector location: PWR1



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

CPU FAN Connector

Connector type: 1x3 3-pin Wafer

Connector location: CFAN1

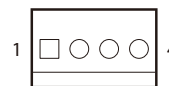


Pin	Definition
1	GND
2	+12V
3	CPUFANIN

SATA Power Connectors

Connector type: 1x4 4-pin Wafer

Connector location: CN2 and CN3

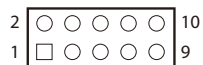


Pin	Definition
1	+12V
2	GND
3	GND
4	VCC5

GPIO Connector

Connector type: 2x5 10-pin header

Connector location: JP10

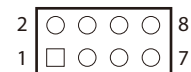


Pin	Definition	Pin	Definition
1	VCC50	2	GND
3	SIO_GPO24	4	SIO_GPI20
5	SIO_GPO25	6	SIO_GPI21
7	SIO_GPO26	8	SIO_GPI22
9	SIO_GPO27	10	SIO_GPI23

USB 1 Connector

Connector type: 2x4 8-pin header

Connector location: JUSB1

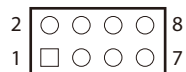


Pin	Definition	Pin	Definition
1	P5V_USB_P45	2	GND
3	USB4-	4	USB5+
5	USB4+	6	USB5-
7	GND	8	P5V_USB_P45

USB 2 Connector

Connector type: 2x4 8-pin header

Connector location: JUSB2

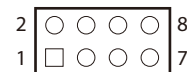


Pin	Definition	Pin	Definition
1	P5V_USB_P67	2	GND
3	USB6-	4	USB7+
5	USB6+	6	USB7-
7	GND	8	P5V_USB_P67

USB 3 Connector

Connector type: 2x4 8-pin header

Connector location: JUSB3

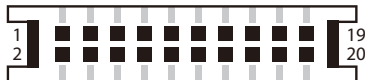


Pin	Definition	Pin	Definition
1	P5V_USB_P89	2	GND
3	USB8-	4	USB9+
5	USB8+	6	USB9-
7	GND	8	P5V_USB_P89

LCD Panel A Connector

Connector type: 2x10 20-pin header

Connector location: CN9

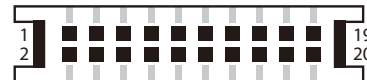


Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	VCC_LCD1	4	LVDSA_DATA0
5	LVDSA_DATA3	6	LVDSA_DATA#0
7	LVDSA_DATA#3	8	VCC_LCD1
9	GND	10	LVDSA_DATA1
11	LVDSA_CLK	12	LVDSA_DATA#1
13	LVDSA_CLK#	14	GND
15	GND	16	V_INV1
17	LVDSA_DATA2	18	V_INV1
19	LVDSA_DATA#2	20	LCD_GND1

LCD Panel A Connector

Connector type: 2x10 20-pin header

Connector location: CN12

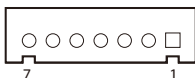


Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	VCC_LCD1	4	LVDSB_DATA0
5	LVDSB_DATA3	6	LVDSB_DATA#0
7	LVDSB_DATA#3	8	VCC_LCD1
9	GND	10	LVDSB_DATA1
11	LVDSB_CLK	12	LVDSB_DATA#1
13	LVDSB_CLK#	14	GND
15	GND	16	V_INV1
17	LVDSB_DATA2	18	V_INV1
19	LVDSB_DATA#2	20	LCD_GND1

LVDS Backlight Connector

Connector type: 1x7 JST, 7-pin header

Connector location: JINV1

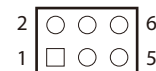


Pin	Definition	Pin	Definition
1	VCC5	2	V_INV1
3	V_INV1	4	GFPDE_CCFL1
5	GND	6	GND
7	L_BKLT_EN		

SPI Programming Header

Connector type: 2x3 6-pin header

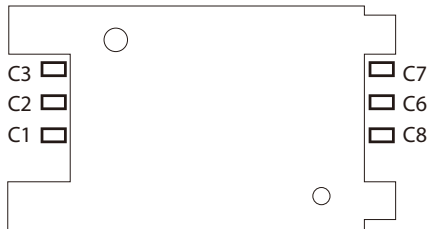
Connector location: JP6



Pin	Definition	Pin	Definition
1	VSPI	2	GND
3	SPI_CS#0	4	BIOS_SPI_CLK
5	BIOS_SPI_SO	6	BIOS_SPI_SI

SIM Card Connector

Connector location: CN5

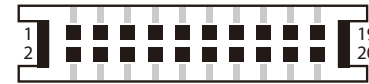


Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA

LVDS A Connector

Connector type: 2x10 20-pin header

Connector location: CN10

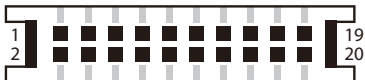


Pin	Definition	Pin	Definition
1	NC	2	NC
3	VCC_LCD2	4	LVDSA_TXL4P
5	LVDSA_TXL7P	6	LVDSA_TXL4N
7	LVDSA_TXL7N	8	VCC_LCD2
9	LCD_GND2	10	LVDSA_TXL5P
11	LVDSA_CLK2P	12	LVDSA_TXL5N
13	LVDSA_CLK2N	14	GND
15	LCD_GND2	16	V_INV2
17	LVDSA_TXL6P	18	V_INV2
19	LVDSA_TXL6N	20	LCD_GND2
MH1	LCD_GND2	MH2	LCD_GND2

LVDS B Connector

Connector type: 2x10 20-pin header

Connector location: CN13

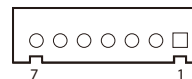


Pin	Definition	Pin	Definition
1	NC	2	NC
3	VCC_LCD2	4	LVDSA_TXL4P
5	LVDSA_TXL7P	6	LVDSA_TXL4N
7	LVDSA_TXL7N	8	VCC_LCD2
9	LCD_GND2	10	LVDSA_TXL5P
11	LVDSA_CLK2P	12	LVDSA_TXL5N
13	LVDSA_CLK2N	14	GND
15	LCD_GND2	16	V_INV2
17	LVDSA_TXL6P	18	V_INV2
19	LVDSA_TXL6N	20	LCD_GND2
MH1	LCD_GND2	MH2	LCD_GND2

LVDS Backlight Connector

Connector type: 1x7 JST, 7-pin header

Connector location: JINV2

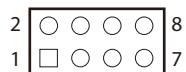


Pin	Definition	Pin	Definition
1	VCC5	2	V_INV2
3	V_INV2	4	GFPDE_CCFL2
5	GND	6	GND
7	L_BKLT_EN2		

CIR Pin Header

Connector type: 2x4 8-pin header

Connector location: JP3

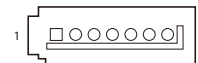


Pin	Definition	Pin	Definition
1	SATA_LED_P	2	PWR_LED_P
3	SATA_LED#	4	GND
5	GND	6	BTN_A#
7	RST_BTN#	8	GND

SATA0 Connector

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)

Connector location: CN16

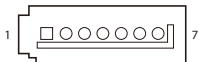


Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0
3	SATA_TXN0	4	GND
5	SATA_RXN0	6	SATA_RXP0
7	GND		

SATA1 Connector

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)

Connector location: CN8

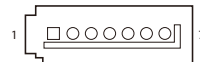


Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1
3	SATA_TXN1	4	GND
5	SATA_RXN1	6	SATA_RXP1
7	GND		

SATA2 Connector

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)

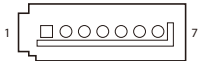
Connector location: CN11



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

SATA3 Connector

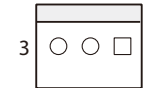
Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)
 Connector location: CN14



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

SYSTEM FAN Connector

Connector type: 1x3 3-pin Wafer
 Connector location: SFAN1



Pin	Definition
1	GND
2	+12V
3	SYSFANIN

CIR Pin Header

Connector type: 1x5 5-pin header

Connector location: JP7



Pin	Definition
1	VCC5
2	CIRRX
3	IRRX
4	GND
5	IRTX

Speaker-out Connector

Connector type: 1x5 5-pin header

Connector location: JP1



Pin	Definition
1	OUT-LR+
2	OUT-LR-
3	SPKR_GND
4	OUT-RR+
5	OUT-RR-

Line-in Connector

Connector type: 1x4 4-pin header

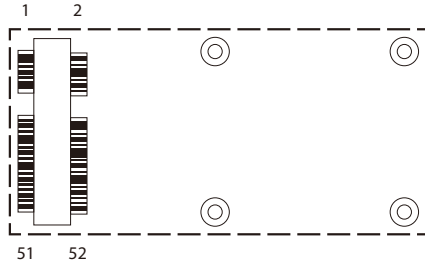
Connector location: JP5



Pin	Definition
1	LINEIN_L
2	LINEINGND
3	LINEIN_JD
4	LINEIN_R

Mini-PCIe Slot

Connector location: CN6

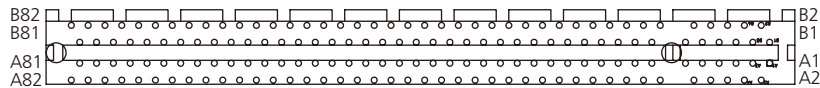


Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI1
3	NC	4	GND
5	NC	6	P1V5_MINI1
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	DISABLE#
21	GND	22	PERST#
23	PERn0	24	3VSB_MINI1
25	PERp0	26	GND

Pin	Definition	Pin	Definition
27	GND	28	P1V5_MINI1
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	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	LED_WWAN#
43	GND	44	LED_WLAN#
45	NC	46	LED_WPAN#
47	NC	48	P1V5_MINI1
49	NC	50	GND
51	NC	52	3VSB_MINI1

PCIe x16 Slot

Connector location: JP4



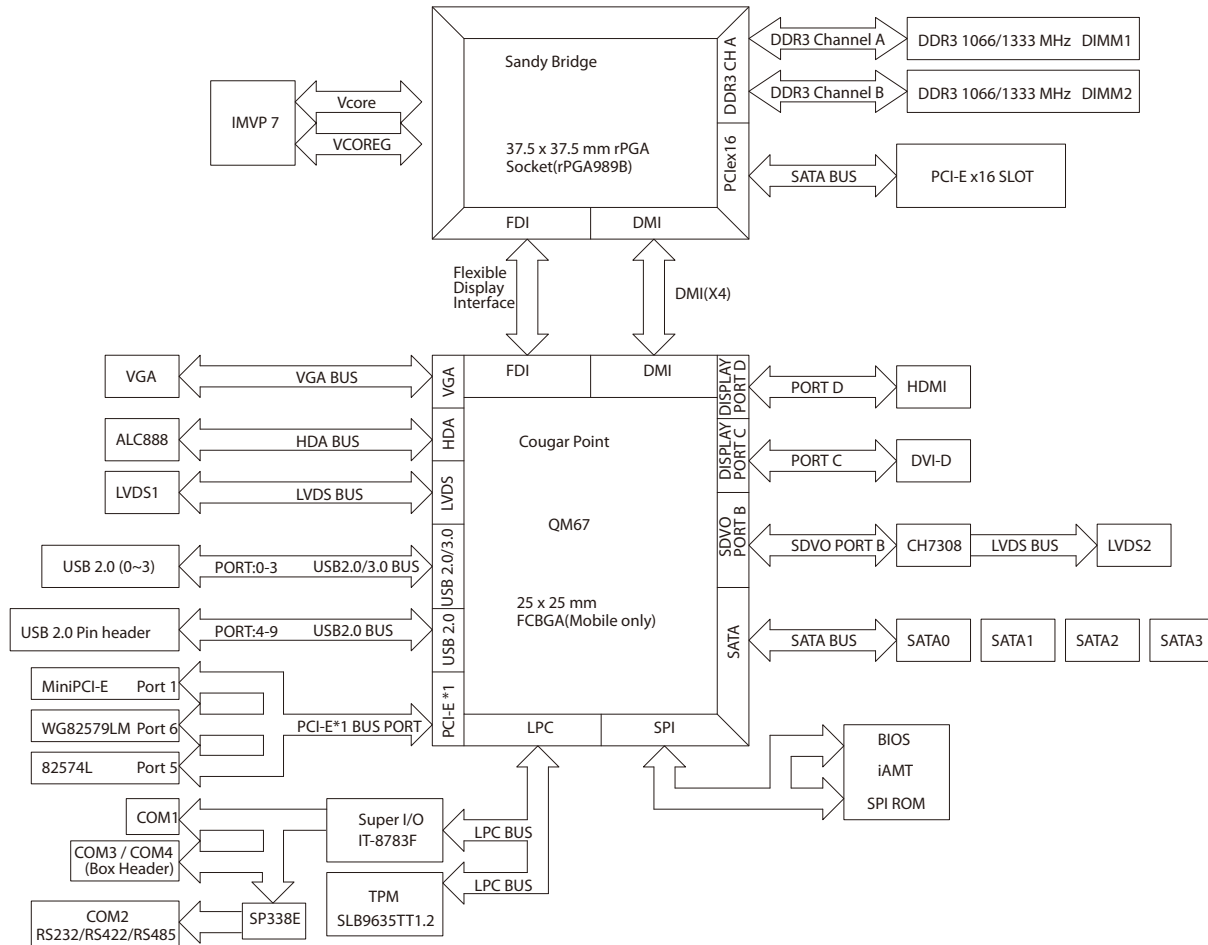
Pin	Definition	Pin	Definition
A1	NC	A2	+12V
A3	+12V	A4	GND
A5	NC	A6	NC
A7	NC	A8	NC
A9	VCC3	A10	VCC3
A11	PE_RESEET#	A12	GND
A13	REFCLK_P	A14	REFCLK_N
A15	GND	A16	RXP0
A17	RXN0	A18	GND
A19	Reserved	A20	GND
A21	RXP1	A22	RXN1
A23	GND	A24	GND
A25	RXP2	A26	RXN2
A27	GND	A28	GND
A29	RXP3	A30	RXN3
A31	GND	A32	Reserved

Pin	Definition	Pin	Definition
B1	+12V	B2	+12V
B3	Reserved	B4	GND
B5	SMBus clock	B6	SMBus data
B7	GND	B8	+3.3 volt power
B9	NC	B10	3.3VSB
B11	WAKE#	B12	Reserved
B13	GND	B14	TXP0
B15	TXN0	B16	GND
B17	PRSENT2#_1	B18	GND
B19	TXP1	B20	TXN1
B21	GND	B22	GND
B23	TXP2	B24	TXN2
B25	GND	B26	GND
B27	TXP3	B28	TXN3
B29	GND	B30	Reserved
B31	PRSENT2#_2	B32	GND

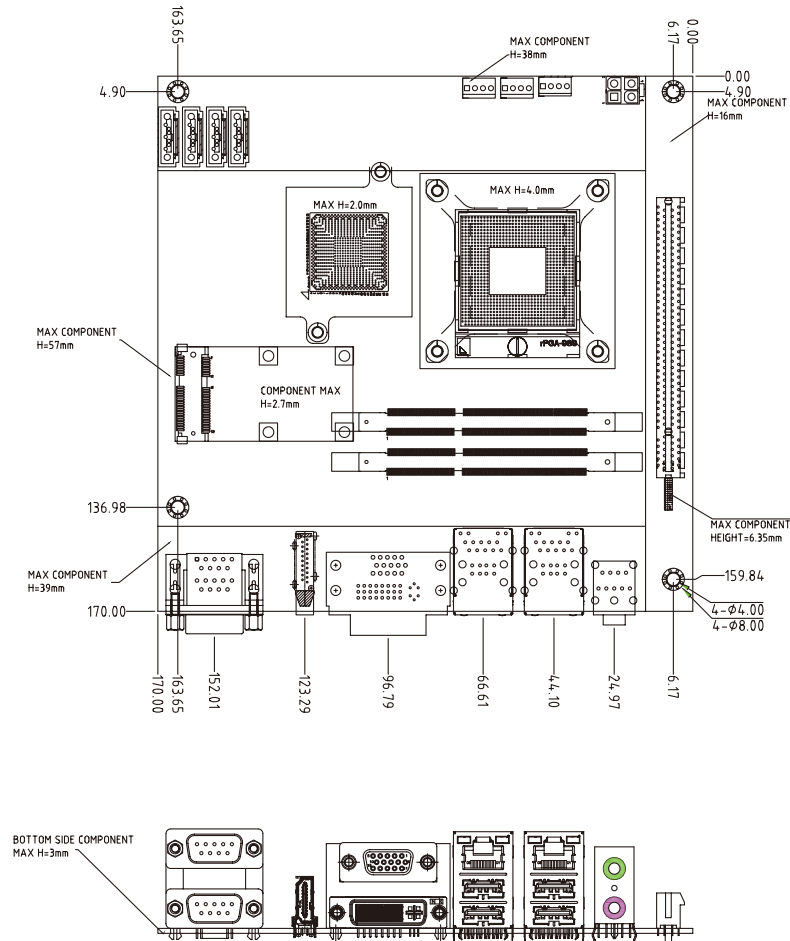
Pin	Definition	Pin	Definition
A33	Reserved	A34	GND
A35	RXP4	A36	RXN4
A37	GND	A38	GND
A39	RXP5	A40	RXN5
A41	GND	A42	GND
A43	RXP6	A44	RXN6
A45	GND	A46	GND
A47	RXP7	A48	RXN7
A49	GND	A50	Reserved
A51	GND	A52	RXP8
A53	RXN8	A54	GND
A55	GND	A56	RXP9
A57	RXN9	A58	GND
A59	GND	A60	RXP10
A61	RXN10	A62	GND
A63	GND	A64	RXP11
A65	RXN11	A66	GND
A67	GND	A68	RXP12
A69	RXN12	A70	GND
A71	GND	A72	RXP13
A73	RXN13	A74	GND
A75	GND	A76	RXP14
A77	RXN14	A78	GND
A79	GND	A80	RXP15

Pin	Definition	Pin	Definition
B33	TXP4	B34	TXN4
B35	GND	B36	GND
B37	TXP5	B38	TXN5
B39	GND	B40	GND
B41	TXP6	B42	TXN6
B43	GND	B44	GND
B45	TXP7	B46	TXN7
B47	GND	B48	PRSNT2#_3
B49	GND	B50	TXP8
B51	TXN8	B52	GND
B53	GND	B54	TXP9
B55	TXN9	B56	GND
B57	GND	B58	TXP10
B59	TXN10	B60	GND
B61	GND	B62	TXP11
B63	TXN11	B64	GND
B65	GND	B66	TXP12
B67	TXN12	B68	GND
B69	GND	B70	TXP13
B71	TXN13	B72	GND
B73	GND	B74	TXP14
B75	TXN14	B76	GND
B77	GND	B78	TXP15
B79	TXN15	B80	GND
B81	PRSNT2#_4	B82	NC

Block Diagram



Board Dimensions



Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for the NEX 607. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
 - When changing the system configuration
 - When a configuration error is detected by the system and you are prompted to make changes to the setup program
 - When resetting the system clock
 - When redefining the communication ports to prevent any conflicts
 - When making changes to the Power Management configuration
 - When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT PRESS + +

Press the key to enter Setup:


Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menu or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu


Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

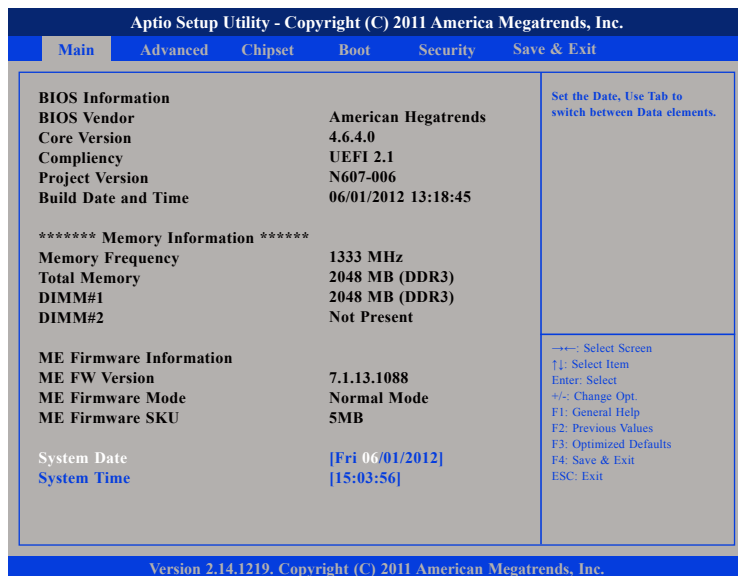
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



The screenshot shows the Aptio Setup Utility Main menu. At the top, it says "Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc." Below this is a navigation bar with tabs: Main, Advanced, Chipset, Boot, Security, and Save & Exit. The main area is divided into two columns. The left column contains BIOS information, memory information, and ME firmware information. The right column contains a legend for navigation keys. At the bottom, it says "Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc."

Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
BIOS Information	
BIOS Vendor	American Hegatrends
Core Version	4.6.4.0
Compiency	UEFI 2.1
Project Version	N607-006
Build Date and Time	06/01/2012 13:18:45
***** Memory Information *****	
Memory Frequency	1333 MHz
Total Memory	2048 MB (DDR3)
DIMM#1	2048 MB (DDR3)
DIMM#2	Not Present
ME Firmware Information	
ME FW Version	7.1.13.1088
ME Firmware Mode	Normal Mode
ME Firmware SKU	5MB
System Date	[Fri 06/01/2012]
System Time	[15:03:56]
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.	

Set the Date, Use Tab to switch between Data elements.

←→: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



Setting incorrect field values may cause the system to malfunction.

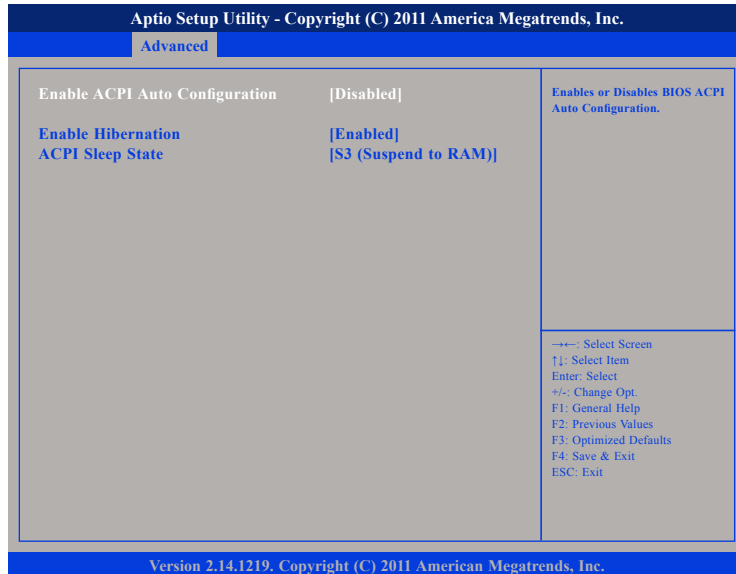


Launch LAN1/2 PXE OpROM

Enables or disables boot option for legacy network devices connected to LAN1 and LAN2.

ACPI Settings

This section is used to configure ACPI settings.



Enable ACPI Auto Configuration

Enables or disables BIOS ACPI auto configuration.

Enable Hibernation

Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled, S1 (CPU Stop Clock) and S3 (Suspend to RAM).

CPU Configuration

This section is used to configure the CPU.



Hardware Prefetcher

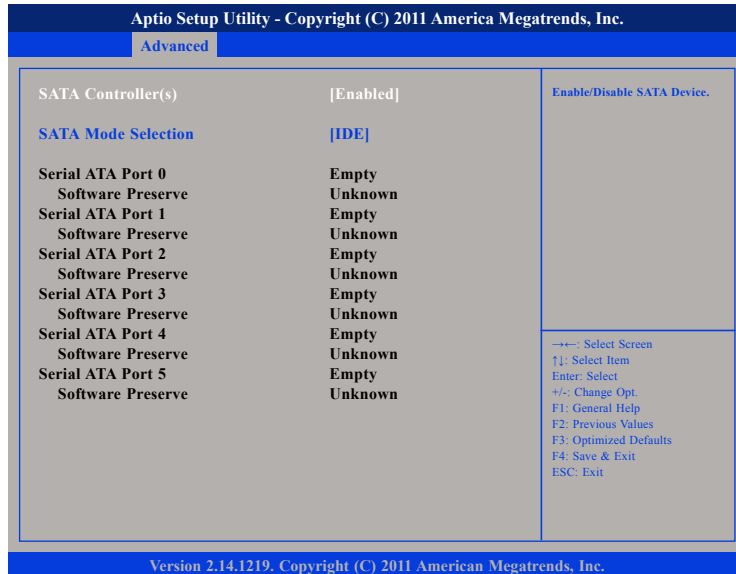
Enables or disables the MLC streamer prefetcher.

Intel® Virtualization Technology

Enables or disables Intel® Virtualization Technology.

SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables SATA device.

SATA Mode Selection

Configures the SATA as IDE, AHCI or RAID mode.

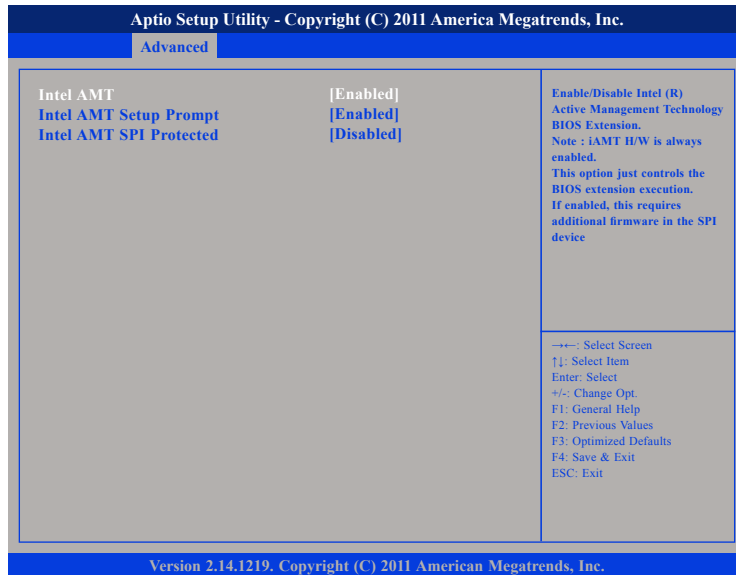
- IDE This option configures the Serial ATA drives as Parallel ATA physical storage device.
- RAID This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.
- AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

Serial ATA Port 0 – 5

Displays information on the SATA devices detected.

AMT Configuration

This section is used to configure Active Management Technology (AMT) options.



Intel® AMT

Enables or disables Intel® Active Management Technology.

Intel® AMT Setup Prompt

Enables or disables Intel® AMT setup prompt at startup.

Intel® AMT SPI Protected

Enables or disables Intel® AMT SPI write protect

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.

Auto Disables support for Legacy when no USB devices are connected.

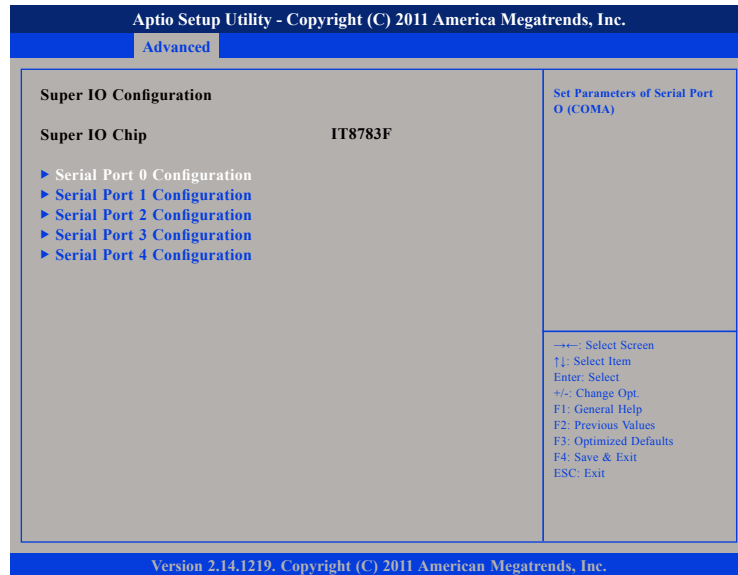
Disable Keeps USB devices available only for EFI applications.

EHCI Hand-Off

This is a workaround for OSs that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

Super IO Configuration

This section is used to configure the serial ports.

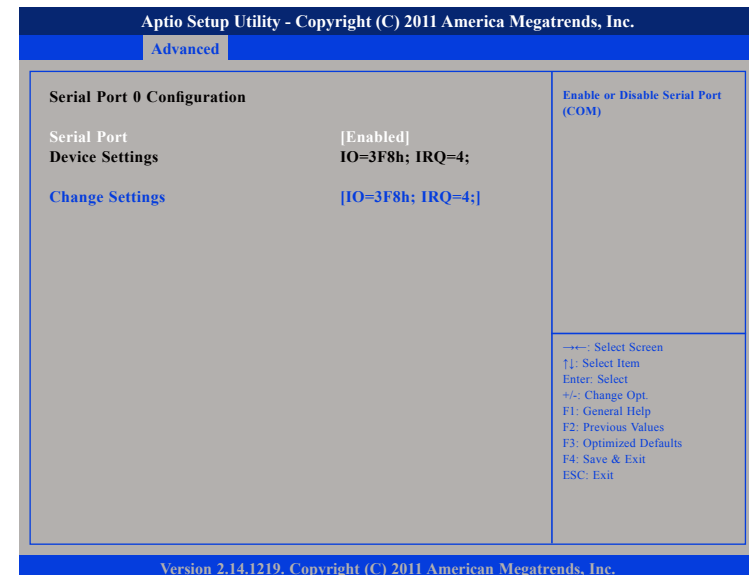


Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

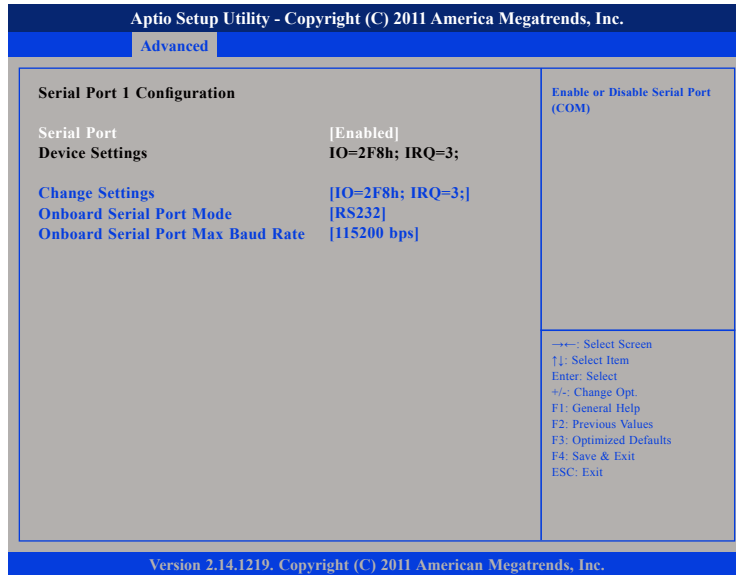
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422 or RS485.

Onboard Serial Port Max Baud Rate

Select this to change the max baud rate of the serial port.

Serial Port 2 Configuration

This section is used to configure serial port 2.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 3 Configuration

This section is used to configure serial port 3.



Serial Port

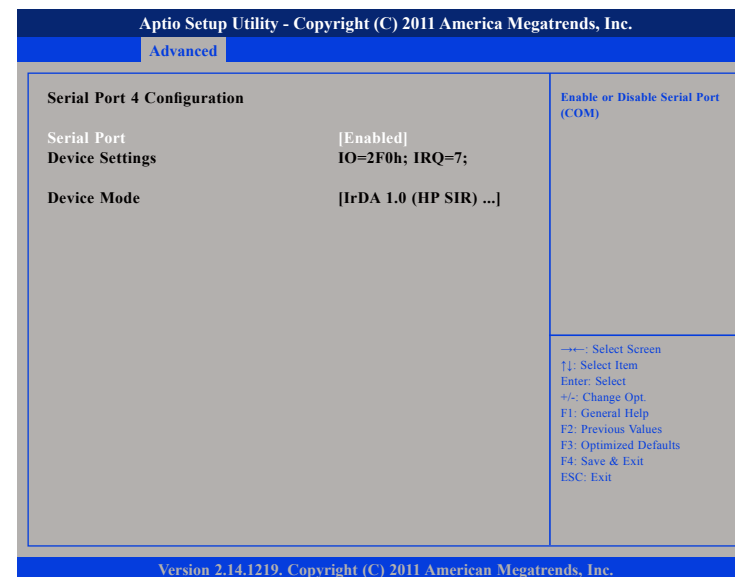
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 4 Configuration

This section is used to configure serial port 4.



Serial Port

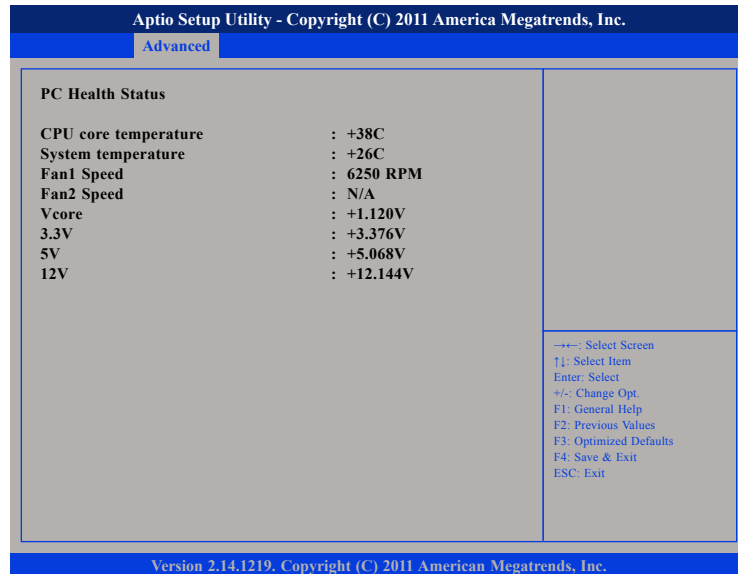
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



CPU Core Temperature

Detects and displays the current CPU temperature.

System Temperature

Detects and displays the current system temperature.

Fan1 Speed

Detects and displays Fan1 speed.

Fan2 Speed

Detects and displays Fan2 speed.

Vcore

Detects and displays the Vcore CPU voltage.

3.3V

Detects and displays 3.3V voltage.

5V

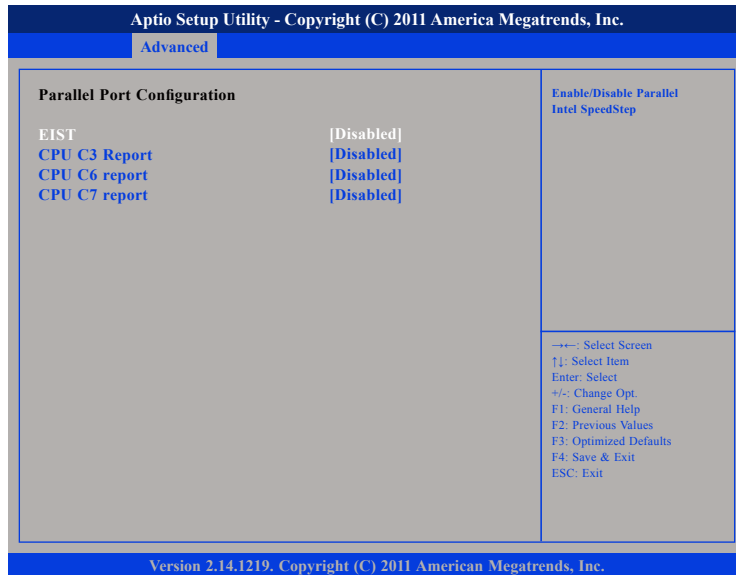
Detects and displays 5V voltage.

12V

Detects and displays 12V voltage.

Sandybridge PPM Configuration

This section is used to configure the Processor Power Management (PPM) configuration.



EIST

Enables or disables Intel® SpeedStep.

CPU C3 Report

Enables or disables C3 report to the operating system.

CPU C6 Report

Enables or disables C6 report to the operating system.

CPU C7 Report

Enables or disables C7 report to the operating system.

Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



System Agent (SA) Configuration

System Agent (SA) parameters

PCH-IO Configuration

PCH-IO parameters

System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.



Intel IGFX Configuration

Selects the Graphic chip setting of Intel IGFX Configuration.

NB PCIe Configuration

Configures the NB PCI Express settings.

Intel® IGFX Configuration

This section is used to configure the Intel® IGFX configuration.



Graphics Turbo IMON Current

Graphics turbo IMON current values supported (14-31).

Primary Display

Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics

Keep IGD enabled based on the setup options.

Aperture Size

Select the Aperture size.

DVMT Pre-Allocated

Select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

DVMT Total Gfx Mem

Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Primary IGFX Boot Display

Select the video device which will be activated during POST. Has no effect if external graphics is present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

Secondary IGFX Boot Display

Select the secondary display device.

LVDS1 Panel Type

Select the LCD panel used by the internal graphics device.

LVDS1 Backlight Control

Configures LVDS1 backlight control settings.

LVDS1 Backlight

Configures LVDS1 backlight brightness.

Active LFP

Select the Active LFP configuration.

Panel Color Depth

Select the LFP Panel Color Depth.

NB PCIe Configuration

This section is used to configure Northbridge PCI Express settings.



PEG0 – Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen2

Always Enable PEG

Enables or disables the PEG slot.

PCH-IO Configuration

This section is used to configure PCH-IO configuration..



PCH LAN Controller

Enables or disables onboard NIC.

Wake on LAN Enable

Enables or disables integrated LAN to wake the system.

Azalia

Control Detection of the Azalia device.

Disabled - Azalia will be unconditionally disabled.

Enabled - Azalia will be unconditionally disabled.

Auto - Azalia will be enabled if present, disabled otherwise.

SLP_S4 Assertion Width

Select a minimum assertion width of the SLP_S4# signal.

Restore AC Power Loss

Select AC power state when power is re-applied after a power failure.

PCI Express Configuration

This section is used to configure PCI Express configuration..



PCI Express Root Port 1

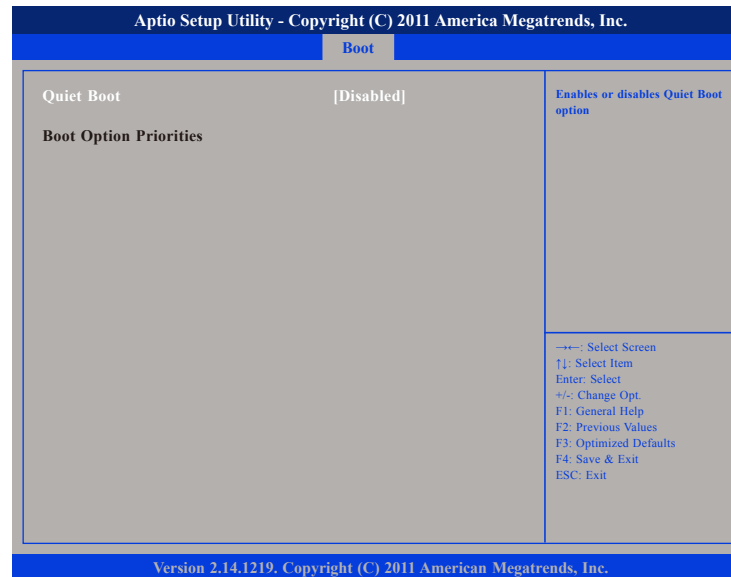
Settings for PCI Express root port 1.

PCI Express Root Port 5

Settings for PCI Express root port 2.

Boot

This section is used to configure the boot features.



Quiet Boot

Enabled Displays OEM logo instead of the POST messages.
 Disabled Displays normal POST messages.

Boot Option Priorities

Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Security

Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User Will have Administrator rights. The password length must be 3 to 20 characters long.</p> <p>Administrator Password User Password</p>		<p>Set Setup Administrator Password</p>			
		<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>			
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.					

Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Save & Exit

Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
<p>Save Changes and Reset Discard Changes and Reset</p> <p>Load Optimized Defaults</p>		<p>Reset the system after saving the changes.</p>			
		<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>			
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.					

Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Load Optimized Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Appendix A: Watchdog Timer

WDT Programming Guide

```
#define SUPERIO_PORT 0x2E
#define WDT_SET      0x72
#define WDT_VALUE 0x73

void main(void)
{
    #Enter SuperIO Configuration
        outputb(SUPERIO_PORT, 0x87);
        outputb(SUPERIO_PORT, 0x01);
        outputb(SUPERIO_PORT, 0x55);
        outputb(SUPERIO_PORT, 0x55);

    # Set LDN
        outputb(SUPERIO_PORT, 0x07);
        outputb(SUPERIO_PORT+1 ,0x07);

    # Set WDT setting
        outputb(SUPERIO_PORT, WDT_SET);
        outputb(SUPERIO_PORT+1, 0xC0); # Use the second
# Use the minute, change value to 0x40
    # Set WDT sec/min
        outputb(SUPERIO_PORT, WDT_VALUE);
        outputb(SUPERIO_PORT+1, 0x05); #Set 5 seconds
```

Appendix B: GPIO Programming Guide

GPIO (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPIO pins in the NEX 607 series. The pin definition is shown in the following table:

Pin No.	GPIO mode	PowerOn Default	Address	Pin No.	GPIO mode	PowerOn Default	Address
1	VCC	-	-	2	GND	-	-
3	GPO0	Low	A04h (Bit4)	4	GPIO	High	A04h (Bit0)
5	GPO1	Low	A04h (Bit5)	6	GP11	High	A04h (Bit1)
7	GPO2	Low	A04h (Bit6)	8	GP12	High	A04h (Bit2)
9	GPO3	Low	A04h (Bit7)	10	GP13	High	A04h (Bit3)

Control the GPO pin (3/5/7/9) level from I/O port A04h bit (4/5/6/7).
The bit is Set/Clear indicated output High/Low

GPIO programming sample code

```
#define GPIO_PORT      0xA04
#define GPO0           (0x01 << 4)
#define GPO1           (0x01 << 5)
#define GPO2           (0x01 << 6)
#define GPO3           (0x01 << 7)

#define GPO0_HI        outportb(GPIO_PORT, GPO0)
#define GPO0_LO        outportb(GPIO_PORT, 0x00)
#define GPO1_HI        outportb(GPIO_PORT, GPO1)
#define GPO1_LO        outportb(GPIO_PORT, 0x00)
#define GPO2_HI        outportb(GPIO_PORT, GPO2)
#define GPO2_LO        outportb(GPIO_PORT, 0x00)
#define GPO3_HI        outportb(GPIO_PORT, GPO3)
#define GPO3_LO        outportb(GPIO_PORT, 0x00)
void main(void)
{
    GPO0_HI;
    GPO1_LO;
    GPO2_HI;
    GPO3_LO;
}
```