NEXCOM International Co., Ltd.

Industrial Computing Solutions

Applied Panel PC

APPC 1230T/1231T/1235T/1530T/1531T/1730T/1731T/1930T/1931T

User Manual

NEXCOM International Co., Ltd.
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Preface

Copyright

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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

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 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.

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.

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.

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Package Contents

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

APPC 1930T/APPC 1931T

Item	Description	Qty
1	PS/2 Y Cable	1
2	Panel Mount Kit	14
3	Driver CD	1
4	Touch Pen	1
5	DC Power Cable	1
6	Flat Head for HDD Installation	4
7	Panel Mount Hole Block	14

APPC 1730T/APPC 1731T

Item	Description	Qty
1	PS/2 Y Cable	1
2	Panel Mount Kit	12
3	Driver CD	1
4	Touch Pen	1
5	DC Power Cable	1
6	Flat Head for HDD Installation	4
7	Panel Mount Hole Block	12

APPC 1530T/APPC 1531T

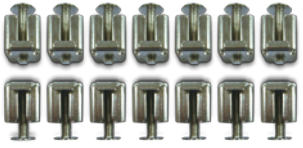
Item	Description	Qty
1	PS/2 Y Cable	1
2	Panel Mount Kit	12
3	Driver CD	1
4	Touch Pen	1
5	DC Power Cable	1
6	Flat Head for HDD Installation	4
7	Panel Mount Hole Block	12

APPC 1230T/APPC 1231T/APPC 1235T

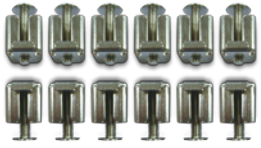
Item	Description	Qty
1	PS/2 Y Cable	1
2	Panel Mount Kit	12
3	Driver CD	1
4	Touch Pen	1
5	DC Power Cable	1
6	Flat Head for HDD Installation	4
7	Panel Mount Hole Block	12

Note: Package contents may vary depending on your country region, some items may be optional. Please contact your local distributor for more information.

PS/2 Y Cable



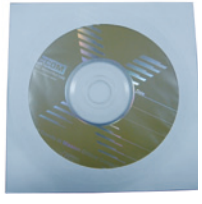
Panel Mount Kit
(APPC 1930T/APPC 1931T)



Panel Mount Kit
(APPC 1730T/APPC 1731T/APPC 1530T/APPC 1531T/
APPC 1230T/APPC 1231T/APPC 1235T)

Panel Mount Hole Block
(APPC 1930T/APPC1 931T)

Panel Mount Hole Block
(APPC 1730T/APPC 1731T/APPC 1530T/APPC 1531T/
APPC 1230T/APPC 1231T/APPC 1235T)



Driver CD

Touch Pen

DC Power Cable

Flat Head Screw

Ordering Information

The following information below provides ordering information for Applied Panel PC series.

- **Barebone**

APPC 1930T (P/N: 10IA1930T00X0)
– 19" SXGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485

APPC 1931T (P/N: 10IA1931T00X0)
– 19" SXGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485 and 4/4 DI/O with isolated protection, 2x RS232, 2x2 GPI/O, Brightness adjustment buttons

APPC 1730T (P/N: 10IA1730T00X0)
– 17" SXGA CCFL Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485

APPC 1731T (P/N: 10IA1731T00X0)
– 17" SXGA CCFL Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485 and 4/4 DI/O with isolated protection, 2x RS232, 2x2 GPI/O, Brightness adjustment buttons

APPC 1530T (P/N: 10IA1530T00X0)
– 15" XGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485

APPC 1531T (P/N: 10IA1531T00X0)
– 15" XGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485 and 4/4 DI/O with isolated protection, 2x RS232, 2x2 GPI/O, Brightness adjustment buttons

APPC 1230T (P/N: 10IA1230T00X0)
– 12.1" SVGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485

APPC 1231T (P/N: 10IA1231T00X0)
– 12.1" SVGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485 and 4/4 DI/O with isolated protection, 2x RS232, 2x2 GPI/O, Brightness adjustment buttons

APPC 1235T (P/N: 10IA1235T00X0)
– 12.1" XGA LED Backlight Touch Panel PC, Intel® Atom™ D2550 1.86 GHz, touch screen, 1GB DDR3, 2x RS232/422/485

- **Optional**
  12V, 60W AC/DC power adapter w/o power cord (P/N: 7400060016X00)

Chapter 1: Product Introduction

APPC 1230T/1231T/1235T

Overview

Key Features

- 4:3 12.1" SVGA Fanless LED Panel Computer (APPC 1230T/1231T)
- 4:3 12.1" XGA Fanless LED Panel Computer (APPC 1235T)
- Intel® Atom™ D2550, Dual Core, Low Consumption CPU
- Flush Panel by 5-wire Touch Screen
- Dual GbE/ 2nd display-VGA/ Line-in/ Line-out/ MIC-in/ PS2 KB/MS
- USB x4/ 2x mini-PCIe sockets/ 1x CFast/ 2x RS232/ 422/ 485
- Optional 3.5G/ Wi-Fi Module / 2.5"HDD/ 2x COMs / GPIO / DIO
- DDR3 1GB/ 2.5" HDD Bracket
- IP65 Compliant Front Panel
- Mounting Support: Panel/ Wall/ Stand/ VESA 100mm x 100mm
- Wide Range Power Input 12V~30V DC

Specifications

Panel

APPC 1230T/ APPC 1231T

- LED Size: 12.1", 4:3
- Resolution: SVGA 800x600
- Luminance: 450cd/m2
- Contrast ratio: 700
- LCD color: 16.2M
- Viewing Angle: 65(U), 75(D), 80(L), 80(R)
- Backlight: LED

APPC 1235T

- LED Size: 12.1", 4:3
- Resolution: XGA 1024x768
- Luminance: 500cd/m2
- Contrast ratio: 700
- LCD color: 16.2M
- Viewing Angle: 80(U), 80(D), 80(L), 80(R)
- Backlight: LED

Touch Screen

- 5-wire resistive (flush panel type)
- Light transmission: 80%
- Interface: USB

System

- CPU: On-board Intel® Atom™ Dual Core processor D2550, 1.86GHz,1M L2 Cache
- BIOS: AMI BIOS
- System chipset: Intel® NM10 Express chipset
- System memory: 2x 204-pin DDR3 SO-DIMM socket, 1G DDR3 (Default), support up to 4GB DDR3-800/1066, Non-ECC and un-buffered
- Storage Device:
  - 1x external locked CFast socket
  - 1x hard drive bay: optional 1x 2.5" SATA HDD or 1x SATA DOM
- 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)
- H/W status monitor: Monitoring system temperature, and voltage
- Expansion: 2x mini-PCIe sockets (support optional Wi-Fi or 3.5G module)
- Panel backlight control button: Increase brightness / decrease brightness / Backlight On/Off (For APPC1231T only)

Rear I/O

- Ethernet: 2x RJ45
- 2nd display VGA port: 1x DB15
- Audio port: 1x Line out; 1x Line in; 1x MIC-in
- USB: 4x USB 2.0
- PS2 keyboard/ mouse
- Power switch / Reset button
- COM #1: RS232/422/485 w/RI or 5V selection
- COM #2: RS232/422/485 w/RI or 12V selection

For APPC1231T only
DIO w/ 2.5kv isolated:
4x Digital Input (Source type)
– Input Voltage (Dry Contact): Logic 0: Close to GND
– Logic 1: Open
– Input Voltage: Logic 0: 3V max
– Logic 1: +5V ~ +30V
4x Digital Output (Sink type)
– Output Voltage: 3.6V ~ 5V
– Sink current: 200 mA max. per channel

- GPIO: 2x digital in / 2x digital out
- COM #1: RS232/422/485 w/ 2.5kv isolated
- COM #2: RS232/422/485 w/ 2.5kv isolated
- COM #3: RS232 w/ RI or 5V selection
- COM #4: RS232 w/ RI or 12V selection

Audio

- AC97 codec: Realtek ALC886-GR
- Audio interface: Line out/Line in/MIC-in Audio Jack

Ethernet

- LAN chip: dual Intel® 82574L Gigabit LAN
- Ethernet interface: 10/100/1000 Based-Tx Ethernet compatible

Mechanical & Environment

- Color: pantone black\RAL 15 00 front bezel w/ Pantone 400C\RAL 090 80 10 metal style membrane
- IP protection: IP65 front
- Mounting: panel/ wall/ stand/ VESA 100mm x 100mm
- Power input: 12V~ 30V DC
- Power adapter: Optional AC to DC power adaptor (+12V, 60W)
- Vibration:
  – IEC 68 2-64 (w/ HDD)
  – 1Grms @ sine, 5~500Hz, 1hr/axis (HDD Operating)
  – 2Grms @ sine, 5~500Hz, 1hr/axis (CFast Operating)
  – 2.2Grms @ random condition, 5~500Hz, 0.5hr/axis (Non-operating)
- Shock:
  – IEC 68 2-27
  – HDD: 20G@wall mount, half sine, 11ms
- Operating temperature: -5°C to 60°C
- Storage temperature: -20°C to 75°C
- Operating humidity: 10%~90% relative humidity, non-condensing
  Limits to be at 90% RH at max 50°C
- Dimension: 317 x 243 x 65.89mm
- Weight: 3.9 Kg

Certifications

- CE approval
- FCC Class A

APPC 1530T/1531T

Key Features

- 4:3 15" XGA Fanless LED Panel Computer
- Intel® Atom™ D2550, Dual Core, Low Consumption CPU
- Flush Panel by 5-wire Touch Screen
- Dual GbE/ 2nd display-VGA/ Line-in/ Line-out/ MIC-in/ PS2 KB/MS
- USB x4/ 2x mini-PCIe sockets/ 1x CFast/ 2x RS232/ 422/ 485
- Optional 3.5G / Wi-Fi Module / 2.5"HDD / 2x COMs / GPIO / DIO
- DDR3 1GB / 2.5" HDD Bracket
- IP65 Compliant Front Panel
- Mounting Support: Panel/ Wall/ Stand/ VESA 100mm x 100mm
- Wide Range Power Input 12V ~ 30V DC

Specifications

Panel

- LED Size: 15”, 4:3
- Resolution: XGA 1024x768
- Luminance: 400cd/m2
- Contrast ratio: 700
- LCD color: 16.2M
- Viewing Angle: 60(U), 80(D), 80(L), 80(R)
- Backlight: LED

Touch Screen

- 5-wire resistive (flush panel type)
- Light transmission: 80%
- Interface: USB

System

- CPU: On-board Intel® Atom™ Dual Core processor D2550, 1.86GHz, 1M L2 Cache
- BIOS: AMI BIOS
- System chipset: Intel® NM10 Express chipset
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  - 1x external locked CFast socket
  - 1x hard drive bay: optional 1x 2.5” SATA HDD or 1x SATA DOM
- 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)
- H/W status monitor: Monitoring system temperature, and voltage
- Expansion: 2x mini-PCIe sockets (support optional WiFi or 3.5G module)
- Panel backlight control button: Increase brightness / decrease brightness / Backlight On/Off (For APPC1531T only)

Rear I/O

- Ethernet: 2x RJ45
- 2nd display VGA port: 1x DB15
- Audio port: 1x Line out; 1x Line in; 1x MIC-in
- USB: 4x USB 2.0
- PS2 keyboard/ mouse
- Power switch
- Reset button
- COM #1: RS232/422/485 w/RI or 5V selection
- COM #2: RS232/422/485 w/RI or 12V selection

For APPC1531T only

- DIO w/ 2.5kv isolated:

4x Digital Input (Source type)

- Input Voltage (Dry Contact): Logic 0: Close to GND
- Logic 1: Open
- Input Voltage: Logic 0: 3V max
- Logic 1: +5V ~ +30V

4x Digital Output (Sink type)

- Output Voltage: 3.6V ~ 5V
- Sink current: 200 mA max. per channel

- GPIO: 2x digital in/ 2x digital out
- COM #1: RS232/422/485 w/ 2.5kv isolated
- COM #2: RS232/422/485 w/ 2.5kv isolated
- COM #3: RS232 w/ RI or 5V selection
- COM #4: RS232 w/ RI or 12V selection

Audio

- AC97 codec: Realtek ALC886-GR
- Audio interface: Line out/Line in/MIC-in Audio Jack

Ethernet

- LAN chip: dual Intel® 82574L Gigabit LAN
- Ethernet interface: 10/100/1000 Based-Tx Ethernet compatible

Mechanical & Environment

- Color: pantone black\RAL 15 00 front bezel w/ Pantone 400C\RAL 090 80 10 metal style membrane
- IP protection: IP65 front
- Mounting: panel/ wall/ stand/ VESA 100mm x 100mm
- Power input: 12V~ 30V DC
- Power adapter: Optional AC to DC power adaptor (+12V, 60W)
- Vibration:
  IEC 68 2-64 (w/ HDD)
  - 1Grms @ sine, 5~500Hz, 1hr/axis (HDD Operating)
  - 2Grms @ sine, 5~500Hz, 1hr/axis (CFast Operating)
  - 2.2Grms @ random condition, 5~500Hz, 0.5hr/axis (Non-operating)
- Shock:
  - IEC 68 2-27
  - HDD: 20G@wall mount, half sine, 11ms
- Operating temperature: -5°C to 60°C
- Storage temperature: -20°C to 75°C
- Operating humidity: 10%~90% relative humidity, non-condensing
  Limits to be at 90% RH at max 50°C
- Dimension: 384.37 x 309.95 x 63.2 mm
- Weight: 5 Kg

Certifications

- CE approval
- FCC Class A

APPC 1730T/1731T

Key Features

- 4:3 17" SXGA Fanless Panel Computer
- Intel® Atom™ D2550, Dual Core, Low Consumption CPU
- Flush Panel by 5-wire Touch Screen
- Dual GbE/ 2nd display-VGA/ Line-in/ Line-out/ MIC-in/ PS2 KB/MS
- USB x4/ 2x mini-PCIe sockets/ 1x CFast/ 2x RS232/ 422/ 485
- Optional 3.5G / Wi-Fi Module / 2.5"HDD / 2x COMs / GPIO / DIO
- DDR3 1GB / 2.5" HDD Bracket
- IP65 Compliant Front Panel
- Mounting Support: Panel/ Wall/ Stand/ VESA 100mm x 100mm
- Wide Range Power Input 12V~ 30V DC

Specifications

Panel

- LED Size: 17", 4:3
- Resolution: SXGA 1280x1024
- Luminance: 380cd/m2
- Contrast ratio: 1000
- LCD color: 16.7M
- Viewing Angle: 80(U), 80(D), 85(L), 85(R)
- Backlight: CCFL

Touch Screen

- 5-wire resistive (flush panel type)
- Light transmission: 81%
- Interface: USB

System

- CPU: On-board Intel® Atom™ Dual Core processor D2550, 1.86GHz, 1M L2 Cache
- BIOS: AMI BIOS
- System chipset: Intel® NM10 Express chipset
- System memory: 2x 204-pin DDR3 SO-DIMM socket, 1G DDR3 (Default), support up to 4GB DDR3-800/1066, Non-ECC and un-buffered
- Storage Device:
  - 1x external locked CFast socket
  - 1x hard drive bay: optional 1x 2.5" SATA HDD or 1x SATA DOM
- 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)
- H/W status monitor: Monitoring system temperature, and voltage
- Expansion: 2x mini-PCIe sockets (support optional Wi-Fi or 3.5G module)
- Panel backlight control button: Increase brightness / decrease brightness / Backlight On/Off (For APPC1731T only)

Rear I/O

- Ethernet: 2x RJ45
- 2nd display VGA port: 1x DB15
- Audio port: 1x Line out; 1x Line in; 1x MIC-in
- USB: 4x USB 2.0
- PS2 keyboard/ mouse
- Power switch
- Reset button
- COM #1: RS232/422/485 w/RI or 5V selection
- COM #2: RS232/422/485 w/RI or 12V selection

For APPC1731T only

- DIO w/ 2.5kv isolated:

4x Digital Input (Source type)

- Input Voltage (Dry Contact): Logic 0: Close to GND
- Logic 1: Open
- Input Voltage: Logic 0: 3V max
- Logic 1: +5V ~ +30V

4x Digital Output (Sink type)

- Output Voltage: 3.6V ~ 5V
- Sink current: 200 mA max. per channel

- GPIO: 2x digital in/ 2x digital out
- COM #1: RS232/422/485 w/ 2.5kv isolated
- COM #2: RS232/422/485 w/ 2.5kv isolated
- COM #3: RS232 w/ RI or 5V selection
- COM #4: RS232 w/ RI or 12V selection

Audio

- AC97 codec: Realtek ALC886-GR
- Audio interface: Line out/Line in/MIC-in Audio Jack

Ethernet

- LAN chip: dual Intel® 82574L Gigabit LAN
- Ethernet interface: 10/100/1000 Based-Tx Ethernet compatible

Mechanical & Environment

- Color: pantone black\RAL 15 00 front bezel w/ Pantone 400C\RAL 090 80 10 metal style membrane
- IP protection: IP65 front
- Mounting: panel/ wall/ stand/ VESA 100mm x 100mm
- Power input: 12V~ 30V DC
- Power adapter: Optional AC to DC power adaptor (+12V, 60W)
- Vibration:
  - IEC 68 2-64 (w/ HDD)
  - 1Grms @ sine, 5~500Hz, 1hr/axis (HDD Operating)
  - 2Grms @ sine, 5~500Hz, 1hr/axis (CFast Operating)
  - 2.2Grms @ random condition, 5~500Hz, 0.5hr/axis (Non-operating)
- Shock:
  - IEC 68 2-27
  - HDD: 20G@wall mount, half sine, 11ms
- Operating temperature: -5°C to 50°C
- Storage temperature: -20°C to 75°C
- Operating humidity: 10%~90% relative humidity, non-condensing
  Limits to be at 90% RH at max 50°C
- Dimension: 410.4 x 340.4 x 75.79 mm
- Weight: 6.6 Kg

Certifications

- CE approval
- FCC Class A

APPC 1930T/1931T

Key Features

- 4:3 19" SXGA Fanless LED Panel Computer
- Intel® Atom™ D2550, Dual Core, Low Consumption CPU
- Flush Panel by 5-wire Touch Screen
- Dual GbE/ 2nd display-VGA/ Line-in/ Line-out/ Mic-in/ PS2 KB/MS
- USB x4/ 2x mini-PCIe sockets/ 1x CFast/ 2x RS232/ 422/ 485
- Optional 3.5G / Wi-Fi Module / 2.5"HDD / 2x COMs / GPIO / DIO
- DDR3 1GB / 2.5" HDD Bracket
- IP65 Compliant Front Panel
- Mounting Support: Panel/ Wall/ Stand/ VESA 100mm x 100mm
- Wide Range Power Input 12V~ 30V DC

Specifications

Panel

- LED Size: 19", 4:3
- Resolution: SXGA 1280x1024
- Luminance: 350cd/m2
- Contrast ratio: 1000
- LCD color: 16.7M
- Viewing Angle: 80(U), 80(D), 85(L), 85(R)
- Backlight: LED

Touch Screen

- 5-wire resistive (flush panel type)
- Light transmission: 81%
- Interface: USB

System

- CPU: On-board Intel® Atom™ Dual Core processor D2550, 1.86GHz, 1M L2 Cache
- BIOS: AMI BIOS
- System chipset: Intel® NM10 Express chipset
- System memory: 2x 204-pin DDR3 SO-DIMM socket, 1G DDR3 (Default), support up to 4GB DDR3-800/1066, Non-ECC and un-buffered
- Storage Device:
  - 1x external locked CFast socket
  - 1x hard drive bay: optional 1x 2.5" SATA HDD or 1x SATA DOM
- 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)
- H/W status monitor: Monitoring system temperature, and voltage
- Expansion: 2x mini-PCIe sockets (support optional WiFi or 3.5G module)
- Panel backlight control button: Increase brightness / decrease brightness / Backlight On/Off (For APPC1931T only)

Rear I/O

- Ethernet: 2x RJ45
- 2nd display VGA port: 1x DB15
- Audio port: 1x Line out; 1x Line in; 1x MIC-in
- USB: 4x USB 2.0
- PS2 keyboard/ mouse
- Power switch
- Reset button
- COM #1: RS232/422/485 w/RI or 5V selection
- COM #2: RS232/422/485 w/RI or 12V selection

For APPC1931T only

- DIO w/ 2.5kv isolated:
  4x Digital Input (Source type)
  - Input Voltage (Dry Contact): Logic 0: Close to GND
  - Logic 1: Open
  - Input Voltage: Logic 0: 3V max
  - Logic 1: +5V ~ +30V

  4x Digital Output (Sink type)
  - Output Voltage: 3.6V ~ 5V
  - Sink current: 200 mA max. per channel

- GPIO: 2x digital in/ 2x digital out
- COM #1: RS232/422/485 w/ 2.5kv isolated
- COM #2: RS232/422/485 w/ 2.5kv isolated
- COM #3: RS232 w/ RI or 5V selection
- COM #4: RS232 w/ RI or 12V selection

Audio

- AC97 codec: Realtek ALC886-GR
- Audio interface: Line out/Line in/MIC-in Audio Jack

Ethernet

- LAN chip: dual Intel® 82574L Gigabit LAN
- Ethernet interface: 10/100/1000 Based-Tx Ethernet compatible

Mechanical & Environment

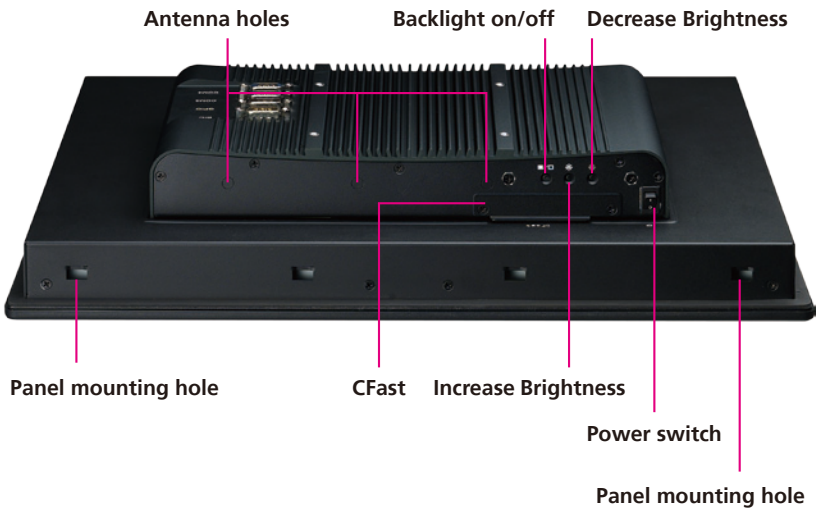
- Color: pantone black\RAL 15 00 front bezel w/ Pantone 400C\RAL 090 80 10 metal style membrane
- IP protection: IP65 front
- Mounting: panel/ wall/ stand/ VESA 100mm x 100mm
- Power input: 12V~ 30V DC
- Power adapter: Optional AC to DC power adaptor (+12V, 60W)
- Vibration:
  - IEC 68 2-64 (w/ HDD)
  - 1Grms @ sine, 5~500Hz, 1hr/axis (HDD Operating)
  - 2Grms @ sine, 5~500Hz, 1hr/axis (CFast Operating)
  - 2.2Grms @ random condition, 5~500Hz, 0.5hr/axis (Non-operating)
- Shock:
  - IEC 68 2-27
  - HDD: 20G@wall mount, half sine, 11ms
- Operating temperature: -5°C to 50°C
- Storage temperature: -20°C to 75°C
- Operating humidity: 10%~90% relative humidity, non-condensing
  Limits to be at 90% RH at max 50°C
- Dimension: 457.64 x 379.24 x 61.25 mm
- Weight: 6.5 Kg

Certifications

- CE approval
- FCC Class A

Knowing Your APPC Series

Rear Top



Antenna holes for optional 3.5G/ WiFi/ Bluetooth

The 3 external antenna holes are used to mount and connect optional 3.5G/ WiFi/ Bluetooth antennas.

CFast Card Socket

Used to insert a CFast card.

Power Switch

Press to power-on or power-off the panel PC.

Panel Backlight Control Buttons

(APPC1231T/ APPC1531T APPC1731T/ APPC1931T only)

Backlight On/Off

Press to turn-on or turn-off the display

Increase Brightness

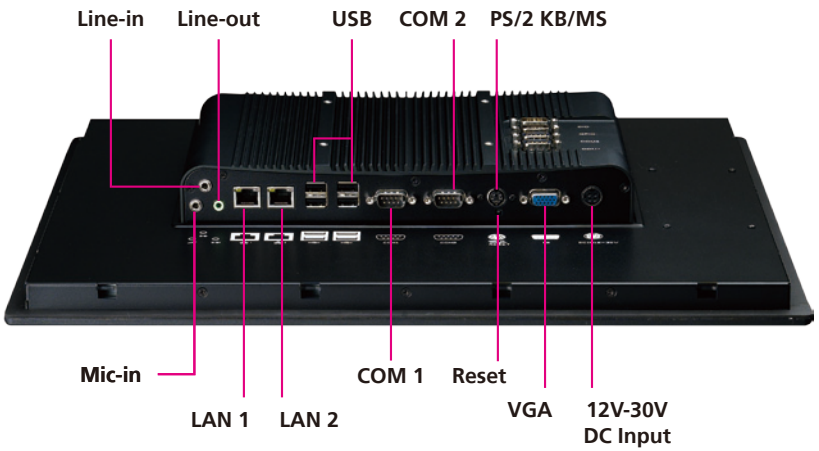
Press to increase brightness of the screen.

Decrease Brightness

Press to decrease brightness of the screen.

8 brightness level available:
30%, 40%, 50%, 60%, 70%, 80%, 90% and 100%

Rear Bottom



Line-in
Used to connect an audio device as sound source.

Mic-in
Used to connect an external microphone.

Line-out
Used to connect a headphone or a speaker.

LAN 1 and LAN 2
Used to connect the system to a local area network. LAN1 supports Wake up on LAN.

USB
Used to connect USB 2.0/1.1 devices.

COM 1 and COM 2
These COM ports support RS232/422/485 compatible series device by BIOS setting.
COM1 of APPC 1230T/1235T/1530T/1730T/1930T supports 5V or RI by Jumper setting.
COM2 of APPC 1230T/1235T/1530T/1730T/1930T supports 12V or RI by Jumper setting.
APPC 1231T/1531T/1731T/1931T have 2.5kV isolated protection.

PS/2 KB/MS
Used to connect a PS/2 keyboard and a PS/2 mouse

Reset Button
Press this button to restart the system.

VGA
Used to connect an analog VGA monitor.

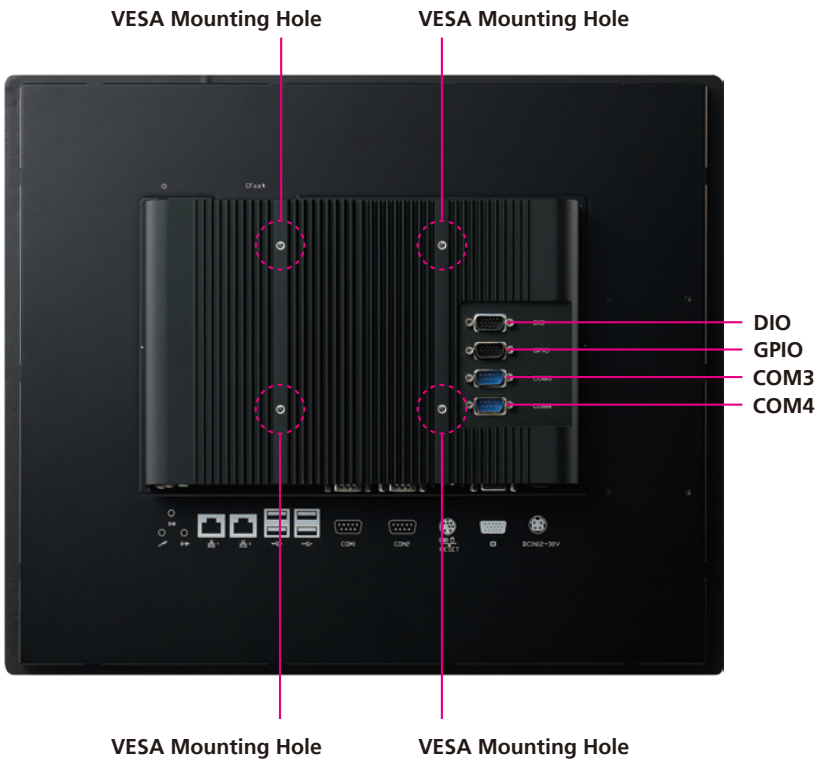
12V-30V DC Input
Used to plug a DC power cord.

Rear (APPC 1230T/1235T/1530T/1730T/1930T only)

VESA Mounting Holes

These are mounting holes for VESA mount (100x100mm)

Rear (APPC 1231T/1531T/1731T/1931T only)



DIO

The digital I/O connector support 4 isolated protection digital input channels and 4 isolated protection digital output channels.
Isolation voltage: 2500 VDC

DI:
4x Digital Input (Source Type)
- Input Voltage (Dry Contact)
  Logic 0: Close to GND
  Logic 1: Open
- Input Voltage (Wet Contact)
  Logic 0: 3V max.
  Logic 1: +5V-+30VDC

4x Digital Output (Sink Type)
- Output Voltage: Typical 24VDC, 30VDC max.
  Logic 0: 0-0.6VDC
  Logic 1: 3.6-5VDC
- Sink Current: 200mA max. per channel

GPIO

The GPIO connector supports 2 digital input and 2 digital output.

COM3 and COM4

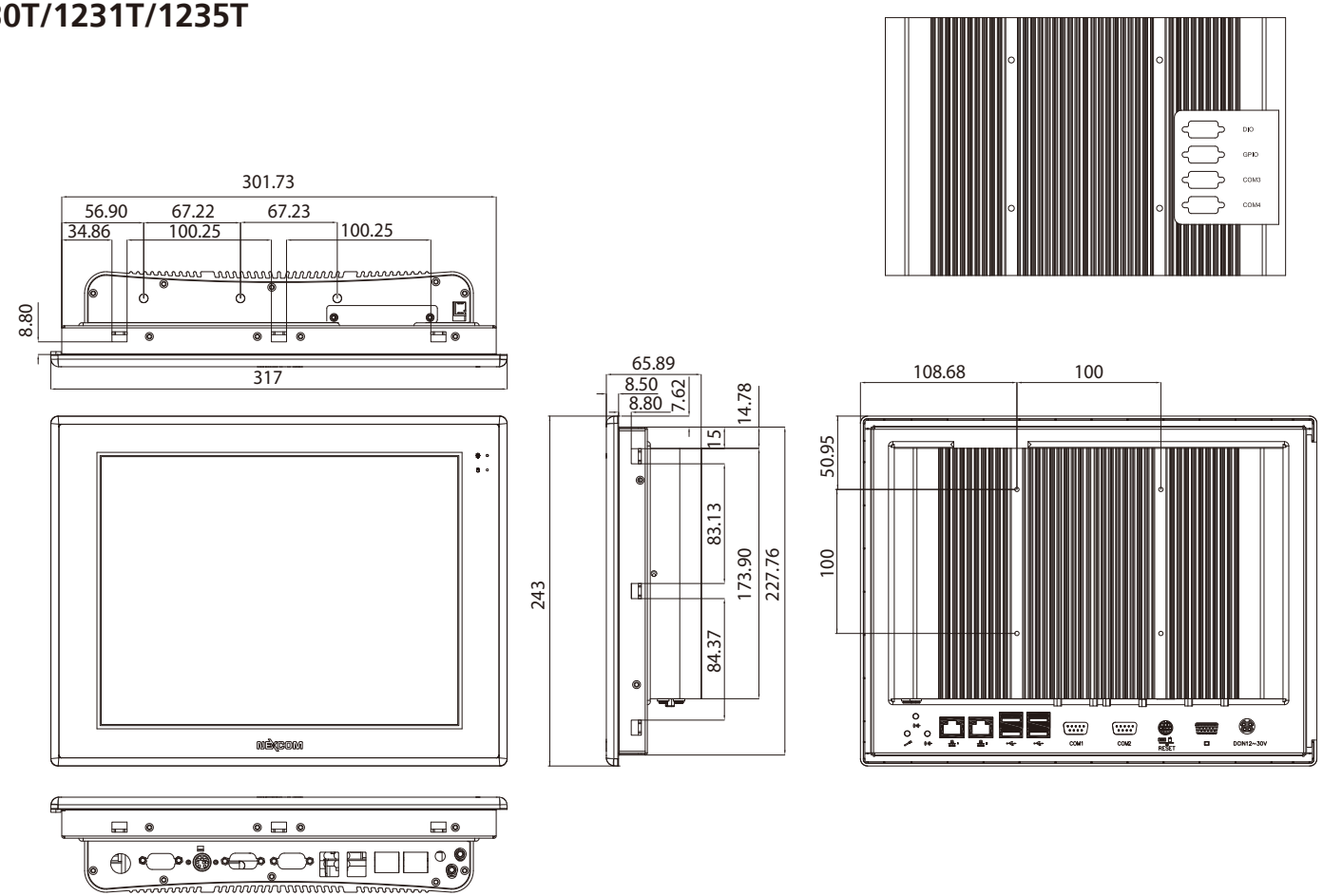
These COM ports support RS232 compatible serial devices.
COM3 supports 5V or RI by Jumper setting.
COM4 supports 12V or RI by Jumper setting.

VESA Mounting Holes

These are mounting holes for VESA mount (100x100mm).

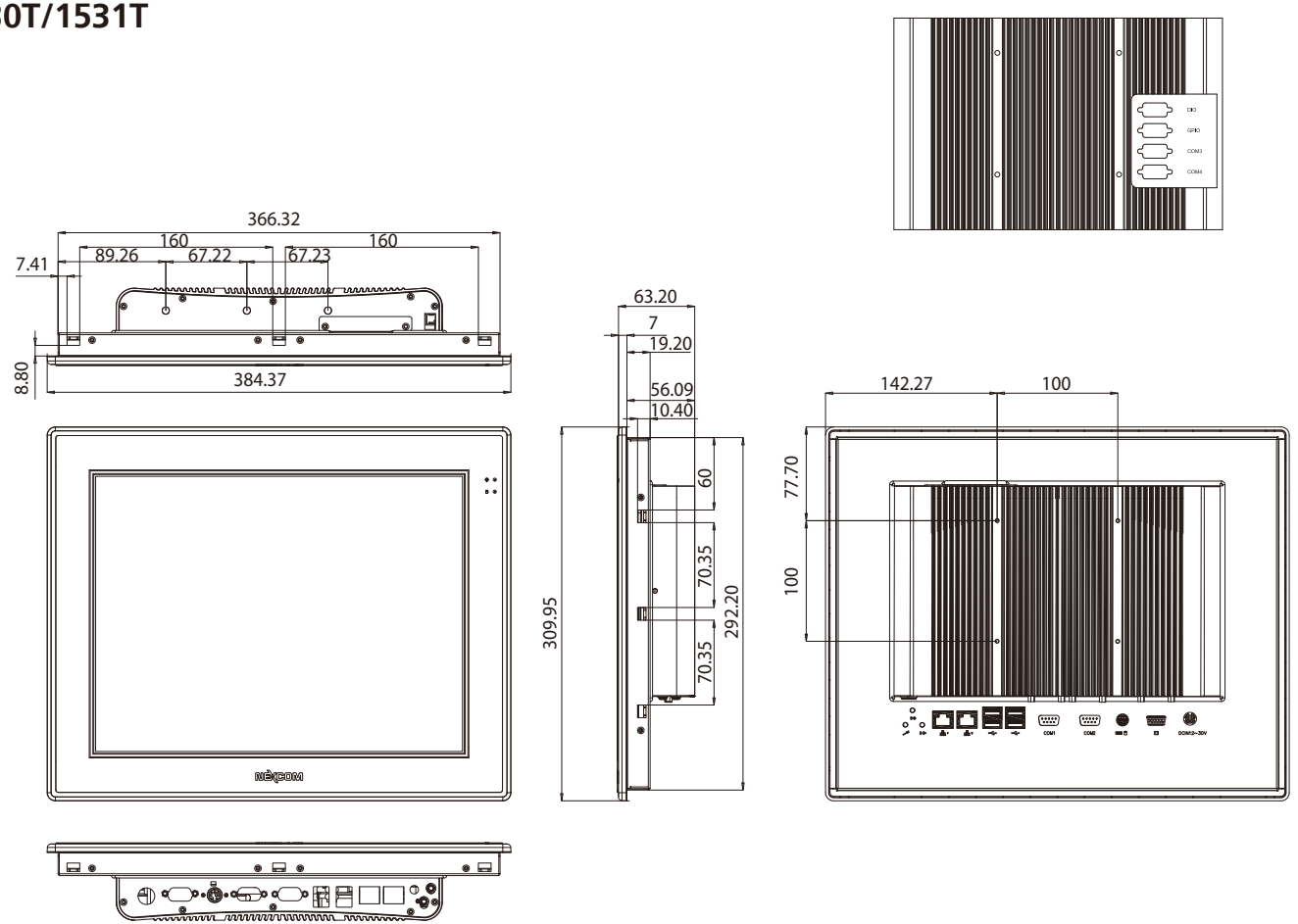
Mechanical Dimensions

APPC 1230T/1231T/1235T



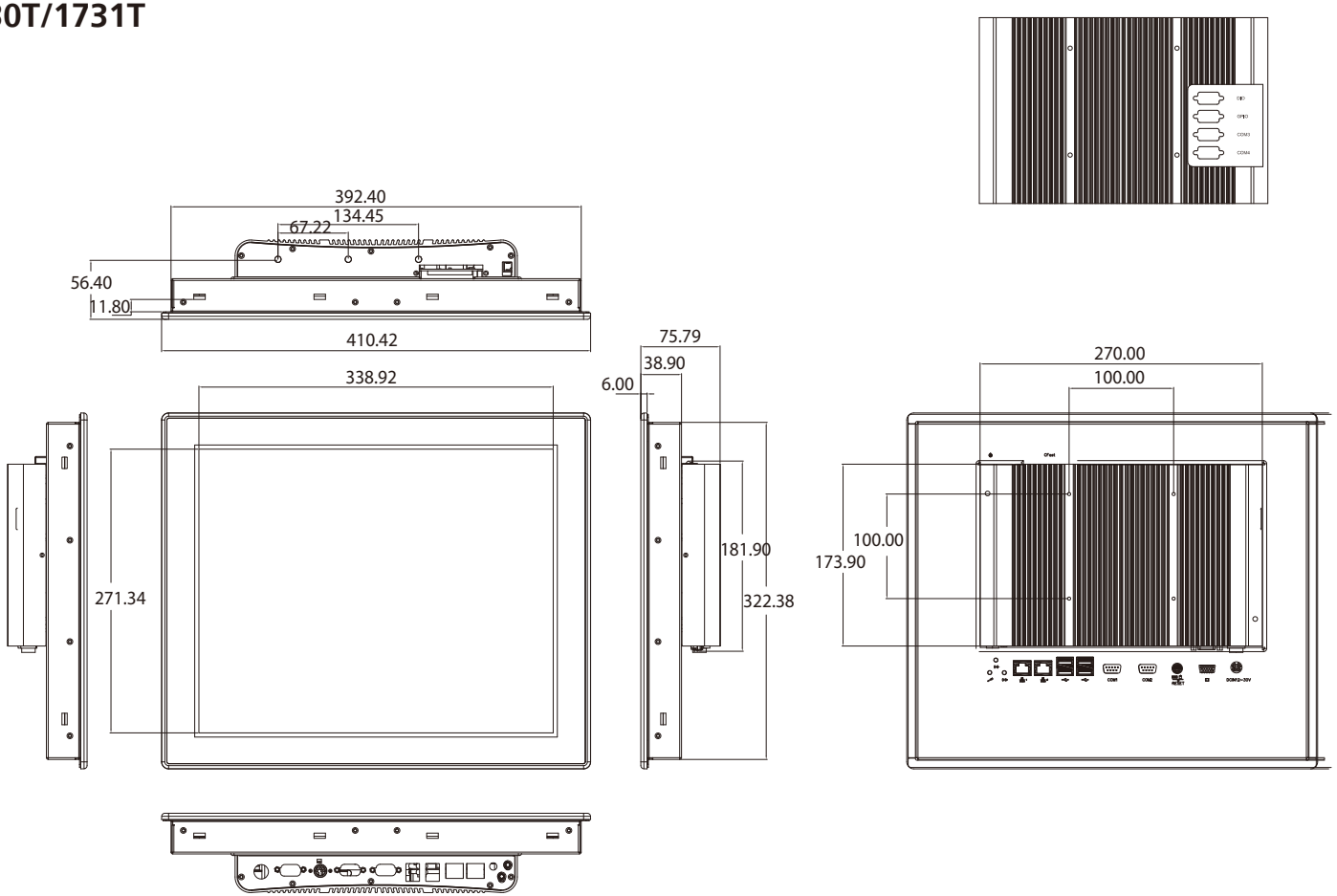
Mechanical Dimensions

APPC 1530T/1531T



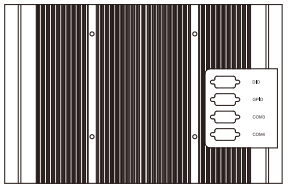
Mechanical Dimensions

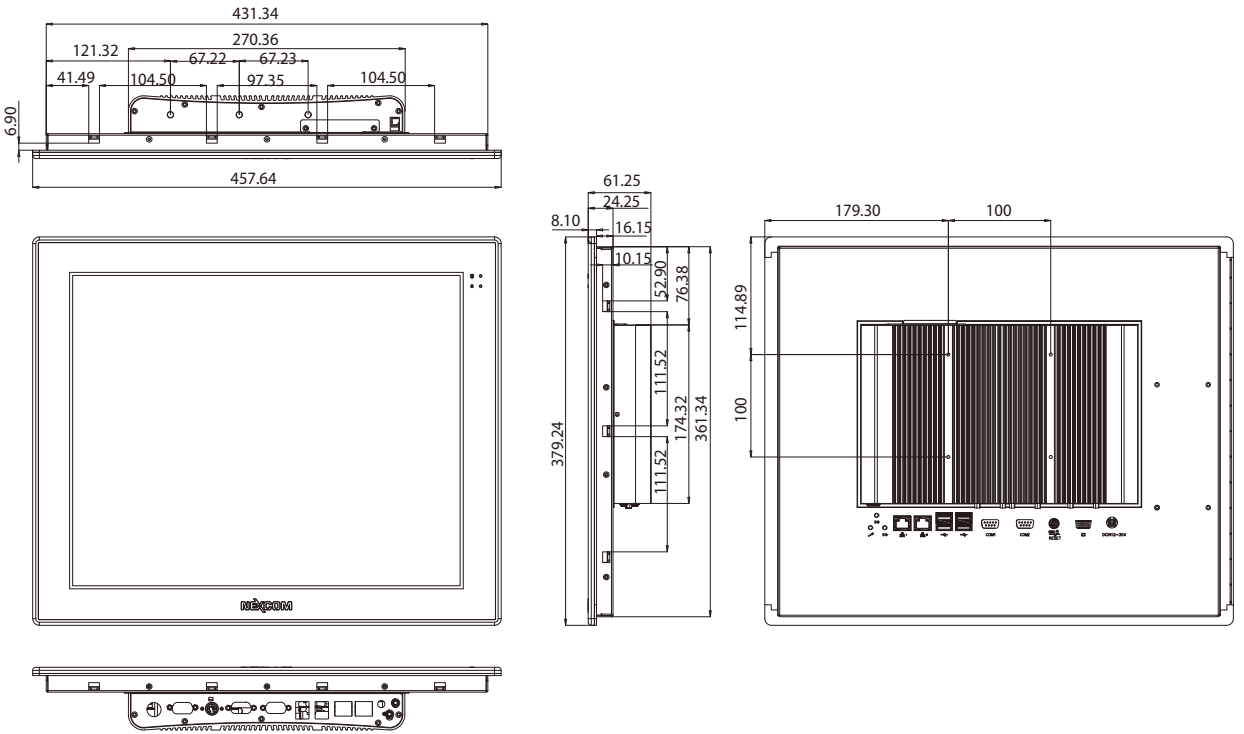
APPC 1730T/1731T



Mechanical Dimensions

APPC 1930T/1931T





Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the motherboard. Note that information in this chapter applies to APPC 1230T/1231T/1235T/1530T/1531T/1730T/1731T/1930T/1931T.

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:

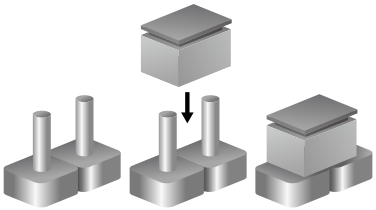
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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

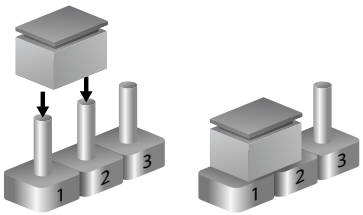
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

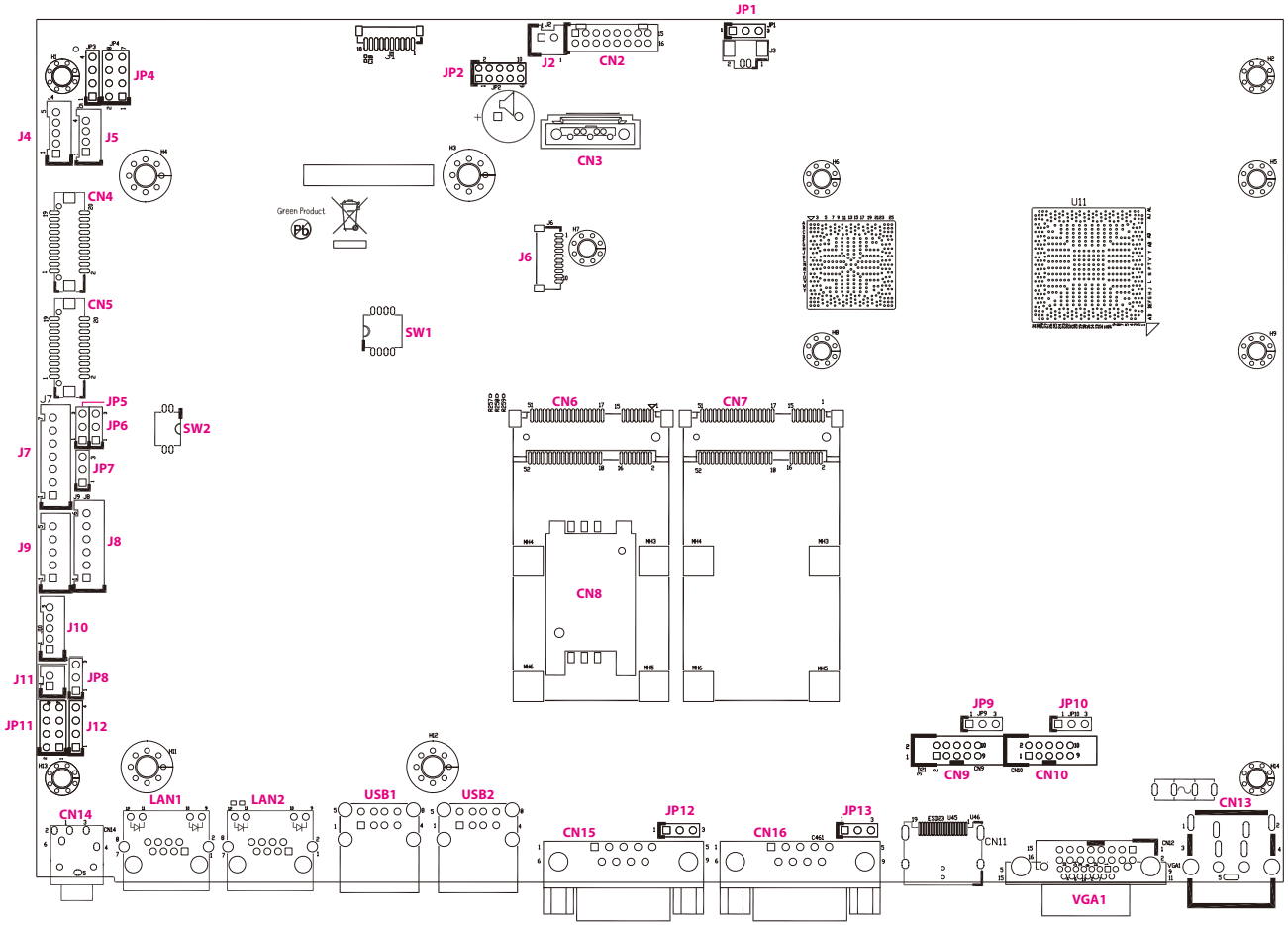


Three-Pin Jumpers: Pins 1 and 2 are Short

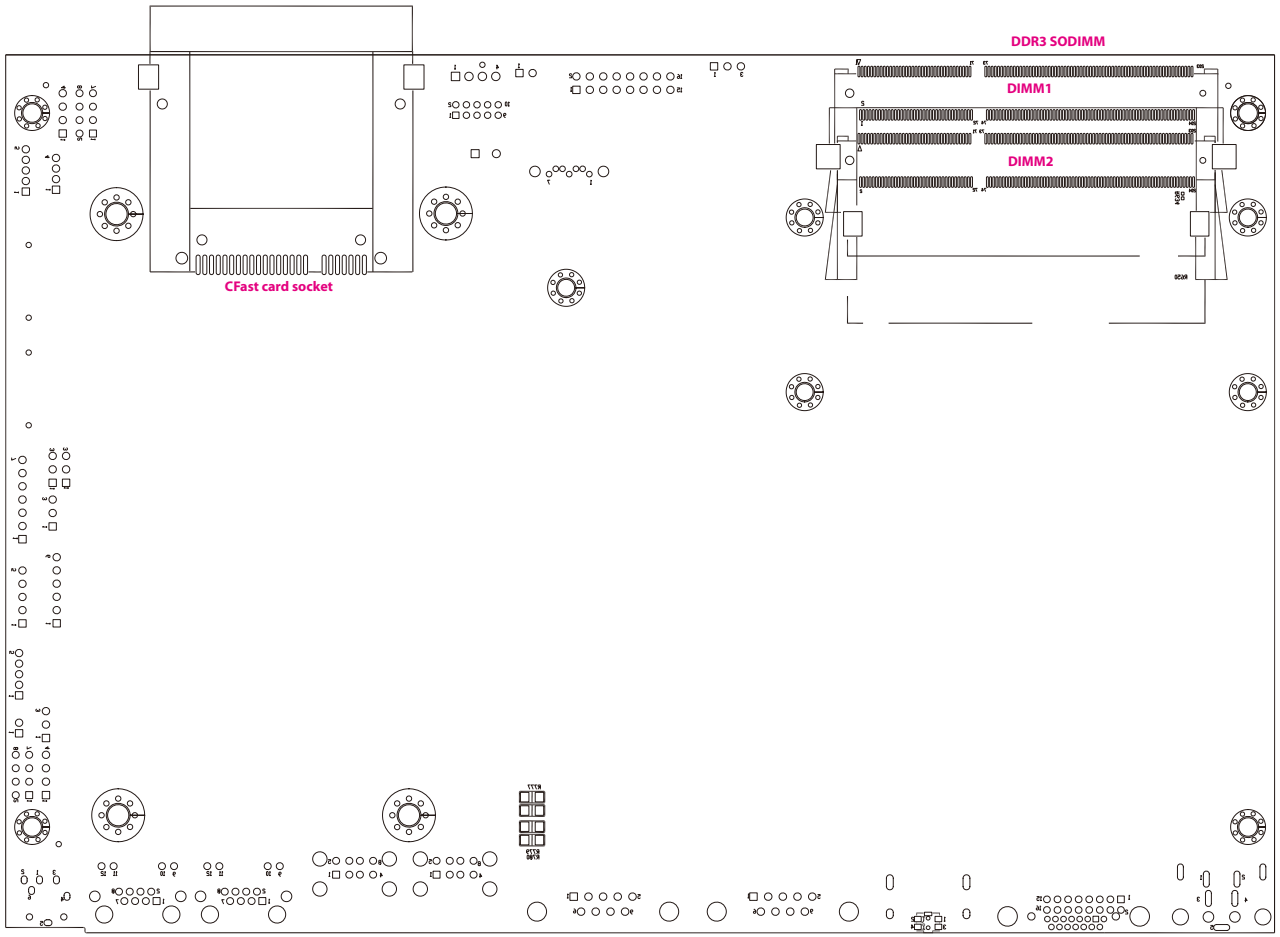


Locations of the Jumpers and Connectors

Top View



Bottom View



Jumpers and DIP Switch Settings

CMOS Clear Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP1

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

1-2 On: default

Pin	Definition
1	NC
2	RTC Power
3	GND

AT/ATX Selection

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP8

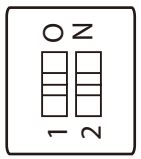
Pin	Settings
1-2 On	AT Mode
2-3 On	ATX Mode

2-3 On: default

Pin	Definition
1	AUTO (AT MODE)
2	PWRBT In
3	Manual (ATX MODE)

Dimming Type Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: SW2



SW2-1	SW2-2	Settings	Model
On	Off	PWM Mode	APPC1230T APPC1231T APPC1235T APPC1530T APPC1531T APPC1930T APPC1931T
Off	On	Analog Mode	APPC1730T APPC1731T

Default: PWM

Dimming Signal Level Select

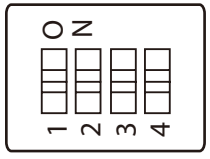
Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP6

Pin	Settings	Model
1-2 On	3.3V	APPC1230T APPC1231T APPC1235T APPC1930T APPC1931T
2-3 On	5V	APPC1530T APPC1531T APPC1730T APPC1731T

Pin	Definition
1	VCC3
2	Power for Dimming
3	VCC5

Panel Resolution Select

Connector type: 4-pin On/Off Switch
Connector location: SW1



SW1-1	SW1-2	SW1-3	SW1-4	Resolution/Color/Backlight On	Model
ON	ON	ON	ON	800 x 600/6 bits/High	
OFF	OFF	OFF	ON	800 x 600/8 bits/High	APPC1230T APPC1231T
OFF	ON	ON	ON	1024 x 768/6 bits/High	
ON	OFF	ON	ON	1024 x768/8 bits/High	APPC1235T APPC1530T APPC1531T
OFF	OFF	ON	ON	1280 x 1024/8 bits/Low	APPC1730T APPC1731T
ON	OFF	OFF	ON	1280 x 1024/8 bits/High	APPC1930T APPC1931T
ON	OFF	OFF	OFF	1920 x 1080/8 bits/High	

LCD Panel VDD Power Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP5

Pin	Settings	Model
1-2 On	3.3V	APPC1230T APPC1231T APPC1235T APPC1530T APPC1531T
2-3 On	5V	APPC1730T APPC1731T APPC1930T APPC1931T

1-2 On: default

Pin	Definition
1	VCC3
2	Power for VDD
3	VCC5

Touch 4/5 Wire Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP7

Pin	Settings
1-2 On	5 wire
2-3 On	4 wire

1-2 On: default

COM1 RI Pin Power Select

(APPC 1230T/APPC 1235T/APPC 1530T/APPC 1730T/APPC 1930T only)

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: JP12

Pin	Settings
1-2 On	RING
2-3 On	+5V

1-2 On: default

Pin	Definition
1	SP1_RI
2	SP1_PSRI
3	VCC5

COM2 RI Pin Power Select

(APPC 1230T/APPC 1235T/APPC 1530T/APPC 1730T/APPC 1930T only)

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: JP13

Pin	Settings
1-2 On	RING
2-3 On	+12V

1-2 On: default

Pin	Definition
1	SP2_RI
2	SP2_PSRI
3	+12V

COM3 RI Pin Power Select

(APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T only)

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: JP9

Pin	Settings
1-2 On	RING
2-3 On	+5V

1-2 On: default

Pin	Definition
1	SP3_RI
2	SP3_PSRI
3	VCC5

COM4 RI Pin Power Select

(APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T only)

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: JP10

Pin	Settings
1-2 On	RING
2-3 On	+12V

1-2 On: default

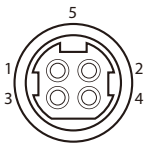
Pin	Definition
1	SP4_RI
2	SP4_PSRI
3	12V

Connector Pin Definitions

External I/O Interface

12V-30V DC Power Input

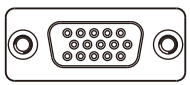
Connector type: DC 4-pin DIN power jack with shield
Connector location: CN13



Pin	Settings
1	DC+
2	DC+
3	DC-
4	DC-
5	GND

VGA Port

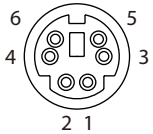
Connector type: DB-15 port, 15-pin D-Sub
Connector location: VGA1

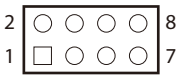


Pin	Definition	Pin	Definition
1	Red	9	+5V
2	Green	10	GND
3	Blue	11	N/C
4	N/C	12	DDC Data
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC Clock
8	GND		

PS/2 Keyboard/Mouse Port

Connector type: PS/2, Mini-DIN-6, 2.0mm pitch
2x4 8-pin header, 2.54mm pitch
Connector location: JP4





External Connector

Pin	Settings
1	KB_DATA
2	MS_DATA
3	GND
4	VCC5
5	KB_CLK
6	MS_CLK

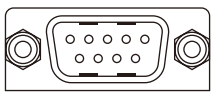
Internal Connector

Pin	Definition	Pin	Definition
1	VCC5	2	VCC5
3	KB_DATA	4	MS_DATA
5	KB_CLK	6	MS_CLK
7	GND	8	GND

COM2 Port: Serial Port RS232/422/485

APPC 1230T/APPC 1235T/APPC 1530T/APPC 1730T/APPC 1930T
(Ring or +12V Power for Pin 9)
APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T
(Isolation protection with RS232/422/485)

Connector type: 9-pin D-Sub
Connector location: CN16



RS232

Pin	Definition
1	COM2_DCD
2	COM2_RXD
3	COM2_TXD
4	COM2_DTR
5	COM2_GND
6	COM2_DSR
7	COM2_RTS
8	COM2_CTS
9	COM2_RI (Could be a +12V Power Pin)

RS422

Pin	Definition
1	COM2_TXD-
2	COM2_TXD+
3	COM2_RXD+
4	COM2_RXD-
5	COM2_GND
6	COM2_RTS-
7	COM2_RTS+
8	COM2_CTS+
9	COM2_CTS- (Could be a +12V Power Pin)

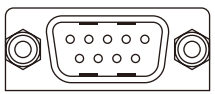
RS485

Pin	Definition
1	COM2_TXD- COM2_RXD-
2	COM2_TXD+ COM2_RXD+
3	Reserve
4	Reserve
5	Reserve
6	Reserve
7	Reserve
8	Reserve
9	Reserve (Could be a +12V Power Pin)

COM1 Port: Serial Port RS232/422/485

APPC 1230T/APPC 1235T/APPC 1530T/APPC 1730T/APPC 1930T (Ring or +5V Power for Pin 9)
APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T (Isolation protection with RS232/422/485)

Connector type: 9-pin D-Sub
Connector location: CN15



RS232

Pin	Definition
1	COM1_DCD: Data Carrier Detect
2	COM1_RXD: Receive Data
3	COM1_TXD: Transmit Data
4	COM1_DTR: Data Terminal Ready
5	COM1_GND
6	COM1_DSR: Data Set Ready
7	COM1_RTS: Request To Send
8	COM1_CTS: Clear To Send
9	COM1_RI: Ring Indicator (Could be a +5V Power Pin)

RS422

Pin	Definition
1	COM1_TXD-: Transmit Data Negative
2	COM1_TXD+: Transmit Data Positive
3	COM1_RXD+: Receive Data Positive
4	COM1_RXD-: Receive Data Negative
5	COM1_GND
6	COM1_RTS-: Request To Send Negative
7	COM1_RTS+: Request To Send Positive
8	COM1_CTS+: Clear To Send Positive
9	COM1_CTS-: Clear To Send Negative (Could be a +5V Power Pin)

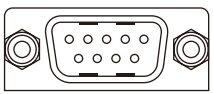
RS485

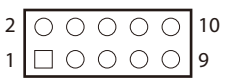
Pin	Definition
1	COM1_TXD-: Transmit Data Negative COM1_RXD-: Receive Data Negative
2	COM1_TXD+: Transmit Data Positive COM1_RXD+: Receive Data Positive
3	Reserve
4	Reserve
5	Reserve
6	Reserve
7	Reserve
8	Reserve
9	Reserve (Could be a +5V Power Pin)

COM3 Port and Connector: Serial Port RS232

APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T Only
(Ring or +5V Power for Pin 9)

Connector type: 9-pin D-Sub
2x5 10-pin header, 2.0mm pitch
Connector location: CN9





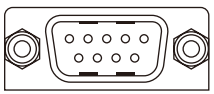
RS232

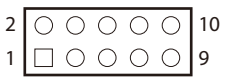
Pin	Definition
1	COM3_DCD
2	COM3_RXD
3	COM3_TXD
4	COM3_DTR
5	COM3_GND
6	COM3_DSR
7	COM3_RTS
8	COM3_CTS
9	COM3_RI (Could be a +5V Power Pin)
10	GND

COM4 Port and Connector: Serial Port RS232

APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T Only
(Ring or +12V Power for Pin 9)

Connector type: 9-pin D-Sub
2x5 10-pin header, 2.0mm pitch
Connector location: CN10



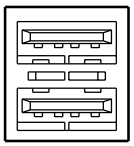


RS232

Pin	Definition
1	COM4_DCD
2	COM4_RXD
3	COM4_TXD
4	COM4_DTR
5	COM4_GND
6	COM4_DSR
7	COM4_RTS
8	COM4_CTS
9	COM4_RI (Could be a +12V Power Pin)
10	GND

USB Ports

Connector type: Dual USB port
Connector location: USB1 and USB2



USB1

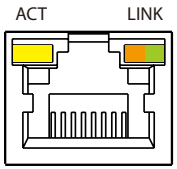
Pin	Definition	Pin	Definition
1	VCC5	5	VCC5
2	USB0-	6	USB1-
3	USB0+	7	USB1+
4	GND	8	GND

USB2

Pin	Definition	Pin	Definition
1	VCC5	5	VCC5
2	USB2-	6	USB3-
3	USB2+	7	USB3+
4	GND	8	GND

LAN2 Port

Connector type: RJ45 port with LEDs
Connector location: LAN2



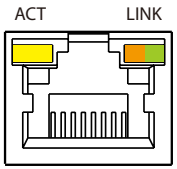
Act	Status
Yellow blinking	Data activity
Off	No activity

Link	Status
Steady green	1000M link
Steady orange	100M link
Off	10M or no link

Pin	Definition	Pin	Definition
1	LAN2M0+	5	LAN2M2-
2	LAN2M0-	6	LAN2M1-
3	LAN2M1+	7	LAN2M3+
4	LAN2M2+	8	LAN2M3-

LAN1 Port

Support Wake on LAN (WOL)
Connector type: RJ45 port with LEDs
Connector location: LAN1



Act	Status
Yellow blinking	Data activity
Off	No activity

Link	Status
Steady green	1000M link
Steady orange	100M link
Off	10M or no link

Pin	Definition	Pin	Definition
1	LAN1M0+	5	LAN1M2-
2	LAN1M0-	6	LAN1M1-
3	LAN1M1+	7	LAN1M3+
4	LAN1M2+	8	LAN1M3-

Line-out Jack

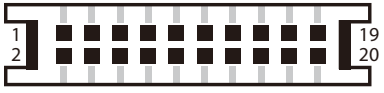
Connector type: 3.5mm Earphone Jack
Connector location: CN14

Pin	Definition
1	LOUT_R
2	JD
3	NC
4	LOUT_L
5	GND
6	GND

Internal Connectors

LVDS Channel 1

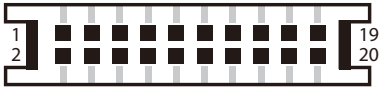
Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: CN5



Pin	Definition	Pin	Definition
1	NC	11	LVDS_CLK1+(Odd)
2	NC	12	LVDS_DAT1-(Odd)
3	VDD	13	LVDS_CLK1-(Odd)
4	LVDS_DAT0+(Odd)	14	GND
5	LVDS_DAT3+(Odd)	15	GND
6	LVDS_DAT0-(Odd)	16	+12V
7	LVDS_DAT3-(Odd)	17	LVDS_DAT2+(Odd)
8	VDD	18	+12V
9	GND	19	LVDS_DAT2-(Odd)
10	LVDS_DAT1+(Odd)	20	GND

LVDS Channel 2

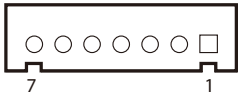
Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: CN4



Pin	Definition	Pin	Definition
1	NC	11	LVDS_CLK2+(Even)
2	NC	12	LVDS_DAT5-(Even)
3	VDD	13	LVDS_CLK2-(Even)
4	LVDS_DAT4+(Even)	14	GND
5	LVDS_DAT7+(Even)	15	GND
6	LVDS_DAT4-(Even)	16	+12V
7	LVDS_DAT7-(Even)	17	LVDS_DAT6+(Even)
8	VDD	18	+12V
9	GND	19	LVDS_DAT6-(Even)
10	LVDS_DAT5+(Even)	20	GND

Panel Backlight Connector

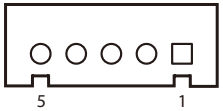
Connector type: 1x7 7-pin header JST, 2.5mm pitch
Connector location: J7



Pin	Definition	Pin	Definition
1	VCC5	5	GND
2	12V	6	GND
3	12V	7	BKLEN
4	BKCTRL		

Touch Sensor Connector

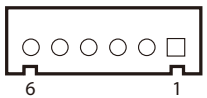
Connector type: 1x5 5-pin header JST, 2.5mm pitch
Connector location: J9



Pin	4-wire	5-wire
1	Left	LL (L)
2	Top	UL (Y)
3	N/A	Sense (S)
4	Right	LR (X)
5	Bottom	UR (H)

USB Connector

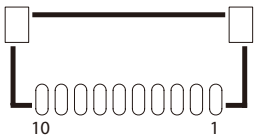
Connector type: 1x6 6-pin header JST, 2.5mm pitch
Connector location: J8



Pin	Definition
1	+5V
2	HUBUSB DM1-
3	HUBUSB DP1+
4	HUBUSB DM2-
5	HUBUSB DP2+
6	GND

Bluetooth Connector

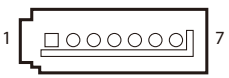
Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J6



Pin	Definition	Pin	Definition
1	GND	6	NC
2	HUBUSB_DP3+	7	NC
3	HUBUSB_DM3-	8	3.3V
4	NC	9	NC
5	NC	10	GND

SATA Connector

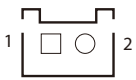
Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)
Connector location: CN3



Pin	Definition
1	GND
2	TX0+
3	TX0-
4	GND
5	RX0-
6	RX0+
7	GND

SATA DOM Power Connector

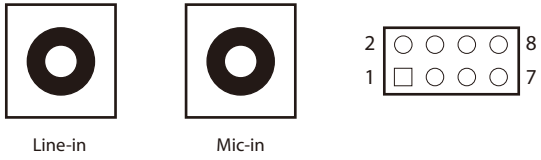
Connector type: 1x2 2-pin header, JST 2.5mm pitch
Connector location: J2



Pin	Definition
1	+5V
2	GND

Line-in/Mic-in Connector

Connector type: 2x4 8-pin header, 2.54mm pitch
Connector location: JP11



Pin	Definition	Pin	Definition
1	LINE IN_LP	2	MIC_L3
3	LINE IN_JD	4	MIC_JD
5	GND	6	GND
7	LINE IN_RP	8	MIC_R3

Speaker-out Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: J12

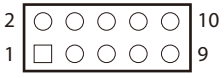
Pin	Definition
1	OUT-L+
2	OUT-L-
3	OUT-R+
4	OUT-R-

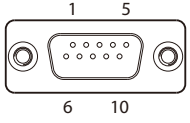
GPIO Connector

(APPC1931T/APPC1721T/APPC1531T/APPC1231T only)

Connector type: 2x5 10-pin header, 2.0mm pitch
DB15 male 10-pin

Connector location: JP2





Internal Connector

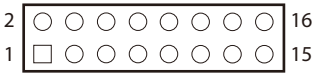
Pin	Definition	Pin	Definition
1	+5V	2	GND
3	GPIO22 (GPO)	4	GPIO20 (GPI)
5	GPIO23 (GPO)	6	GPIO21 (GPI)
7	NC	8	NC
9	NC	10	NC

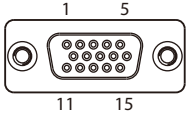
External Connector

Pin	Definition	Pin	Definition
1	+5V	2	GPIO20 (GPI)
3	GPIO21 (GPI)	4	NC
5	NC	6	GND
7	GPIO22 (GPO)	8	GPIO23 (GPO)
9	NC	10	NC

DIO Connector

Connector type: 2x8 16-pin header, 2.0mm pitch
DB15 male 15-pin
Connector location: CN2





Internal Connector

Pin	Definition	Pin	Definition
1	DI1	2	DO1
3	DI2	4	DO2
5	DI3	6	DO3
7	DI4	8	DO4
9	NC	10	NC
11	COM	12	NC
13	GND	14	GND
15	GND	16	GND

External Connector

Pin	Definition	Pin	Definition
1	DI1	2	DI2
3	DI3	4	DI4
5	GND	6	COM
7	NC	8	NC
9	DO1	10	DO2
11	DO3	12	DO4
13	GND	14	GND
15	GND		

DI1~DI4: Isolated digital input pins

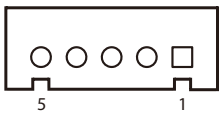
DO1~DO4: Isolated digital output pins

COM: Common pin for connecting inductive loads of isolated output channels DO1~DO4

GND: Isolated ground

Power/HDD LED Indicator Connector

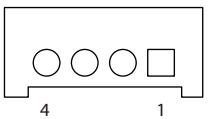
Connector type: 1x5 5-pin header JST, 2.0mm pitch
Connector location: J10



Pin	Definition
1	HDD_GND
2	HDD_PWR
3	PWR_GND
4	5VSB
5	VCC5

Backlight Control Input Connector

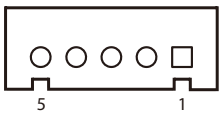
Connector type: 1x4 4-pin header JST, 2.0mm pitch
Connector location: J5



Pin	Definition
1	GND
2	Tact Switch input
3	PIR IN
4	VCC3

Dimming Control Button Connector

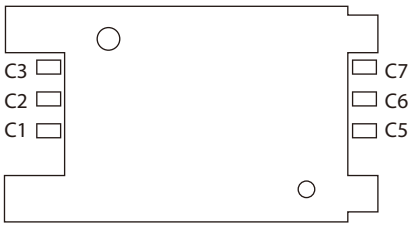
Connector type: 1x5 5-pin header JST, 2.0mm pitch
Connector location: J4



Pin	Definition
1	GND
2	Decreased input
3	Increased input
4	Light sensor input
5	VCC3

SIM Card Slot

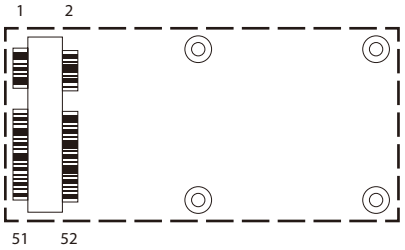
Connector location: CN8



Pin	Definition	Pin	Definition
C1	UIM_PWR	C5	GND
C2	UIM_RST	C6	UIM_VCCP
C3	UIM_CLK	C7	UIM_DAT

Mini-PCIe Slot

Connector location: CN6

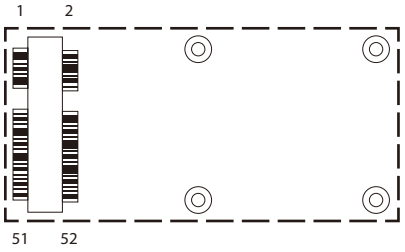


Pin	Definition	Pin	Definition
1	WAKE0#	2	+3.3V_MINI
3	NC	4	GND
5	NC	6	+1.5V_MINI
7	PCIE_CLKREQ	8	SIM_PWR
9	GND	10	SIM_DAT
11	GPP_CLK1-	12	SIM_CLK
13	GPP_CLK1+	14	SIM_RST
15	GND	16	SIM_VCCP
17	NC	18	GND
19	NC	20	MINICARD1_DIS#
21	GND	22	PCIE_RST#
23	PCIE_RX2-	24	+3.3V_MINI
25	PCIE_RX2+	26	GND

Pin	Definition	Pin	Definition
27	GND	28	+1.5V_MINI
29	GND	30	SMB_CLK
31	PCIE_TX3-	32	SMB_DAT
33	PCIE_TX3+	34	GND
35	GND	36	USB6-
37	GND	38	USB6+
39	+3.3V_MINI	40	GND
41	+3.3V_MINI	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V_MINI
49	NC	50	GND
51	NC	52	+3.3V_MINI

Mini-PCIe Slot

Connector location: CN7

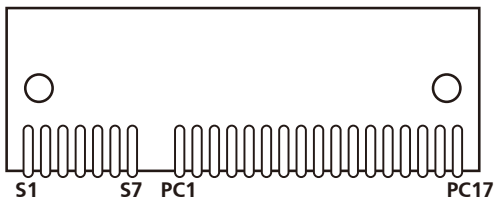


Pin	Definition	Pin	Definition
1	WAKE0#	2	+3.3V_MINI
3	NC	4	GND
5	NC	6	+1.5V_MINI
7	NC	8	NC
9	GND	10	NC
11	GPP_CLK1-	12	NC
13	GPP_CLK1+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1_DIS#
21	GND	22	PCIE_RST#
23	PCIE_RX2-	24	+3.3V_MINI
25	PCIE_RX2+	26	GND

Pin	Definition	Pin	Definition
27	GND	28	+1.5V_MINI
29	GND	30	SMB_CLK
31	PCIE_TX3-	32	SMB_DAT
33	PCIE_TX3+	34	GND
35	GND	36	USB6-
37	GND	38	USB6+
39	+3.3V_MINI	40	GND
41	+3.3V_MINI	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V_MINI
49	NC	50	GND
51	NC	52	+3.3V_MINI

CFast Card Slot

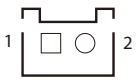
Connector type: Standard CFast connector
Connector location: J13



Pin	Definition	Pin	Definition
S1	GND	PC6	NC
S2	SATA_TX1+	PC7	GND
S3	SATA_TX1-	PC8	CFAST_LED1_C
S4	GND	PC9	CFAST_LED2_C
S5	SATA_RX1-	PC10	NC
S6	SATA_RX1+	PC11	NC
S7	GND	PC12	NC
PC1	CFAST_CDI	PC13	VCC3
PC2	GND	PC14	VCC3
PC3	NC	PC15	GND
PC4	NC	PC16	GND
PC5	NC	PC17	CFAST_CDO

Power Button Connector

Connector type: 1x2 2-pin header, JST 2.0 mm pitch
Connector location: J11

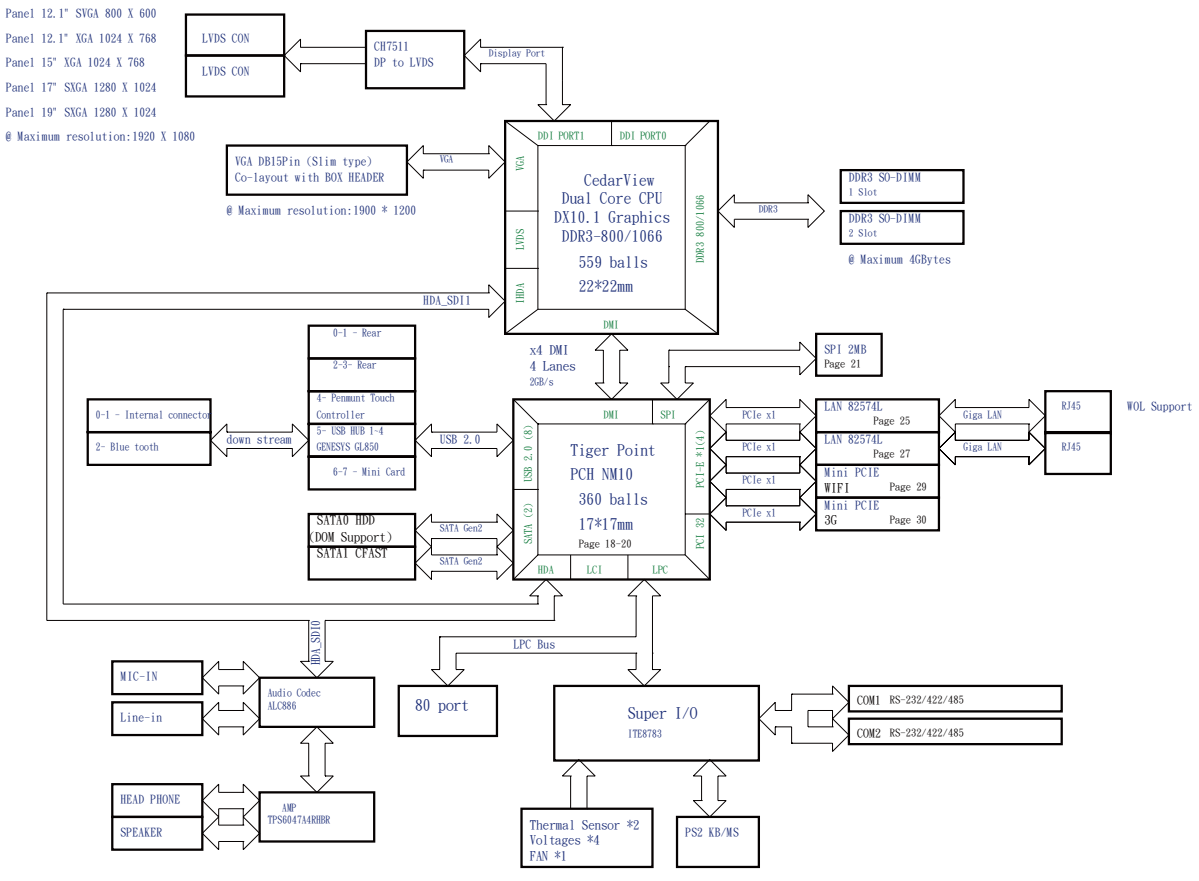


Pin	Definition
1	PWRBT
2	GND

Block Diagram

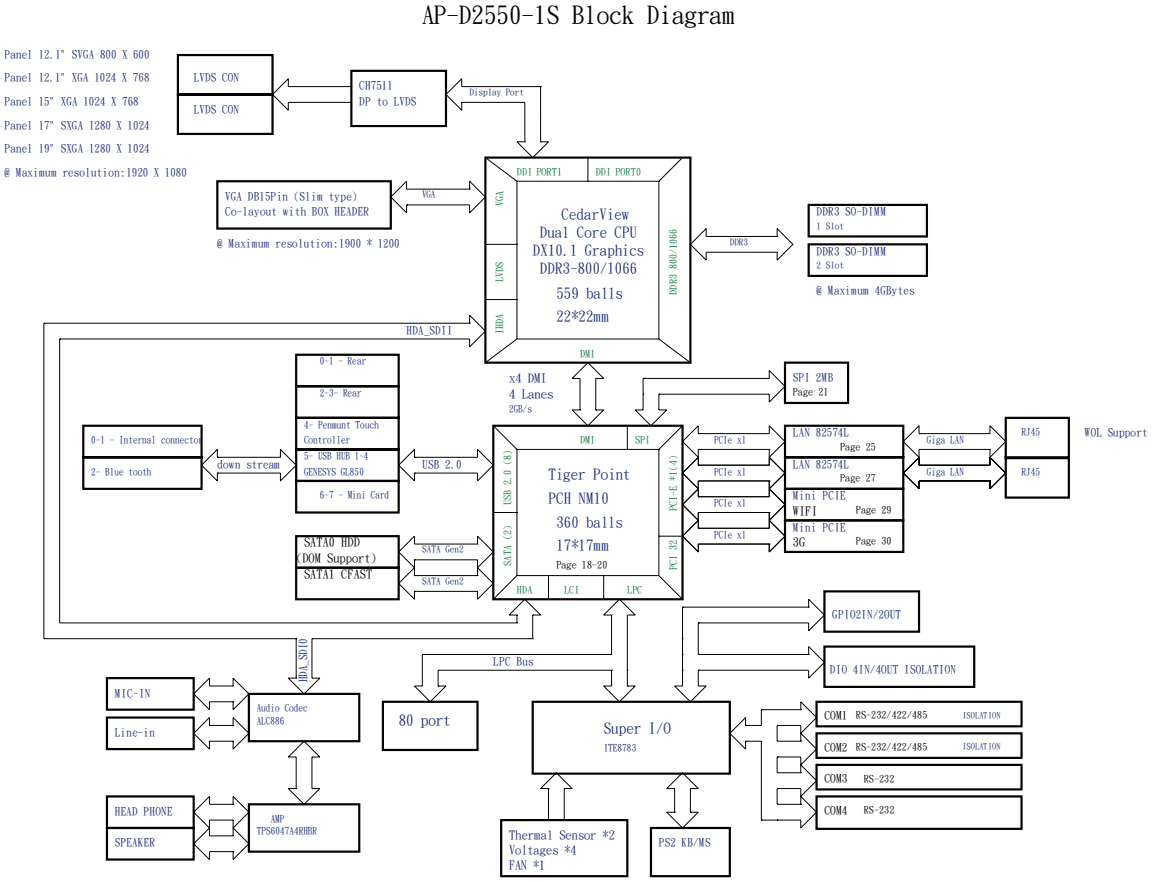
APPC 1930T/APPC 1730T/APPC 1530T/APPC 1230T/APPC 1235T

AP-D2550-1 Block Diagram



Block Diagram

APPC 1931T/APPC 1731T/APPC 1531T/APPC 1231T



Chapter 3: System Setup

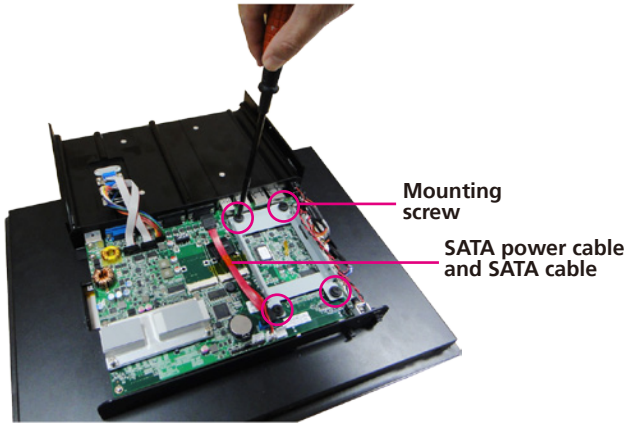
Installing a SATA Hard Drive

Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

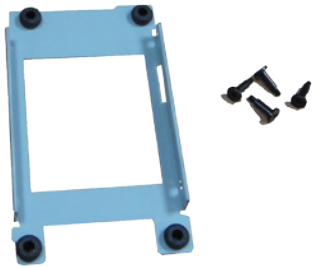
1. Remove the mounting screws around the chassis cover and then remove the cover.

The dots denote the locations of the screws.

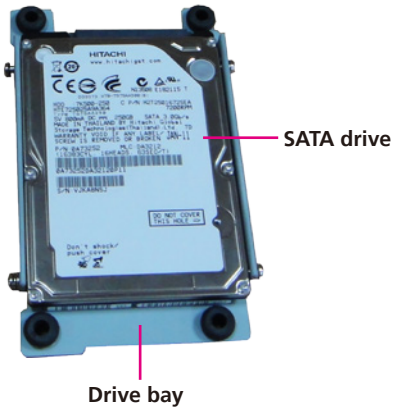
2. Remove the mounting screws of the drive bay.



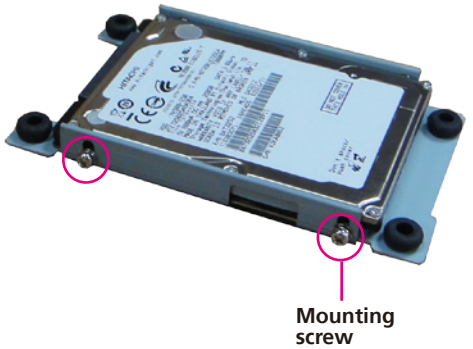
3. Remove the drive bay. The drive bay is used to hold a SATA hard drive.



4. Place the SATA hard drive on the drive bay.

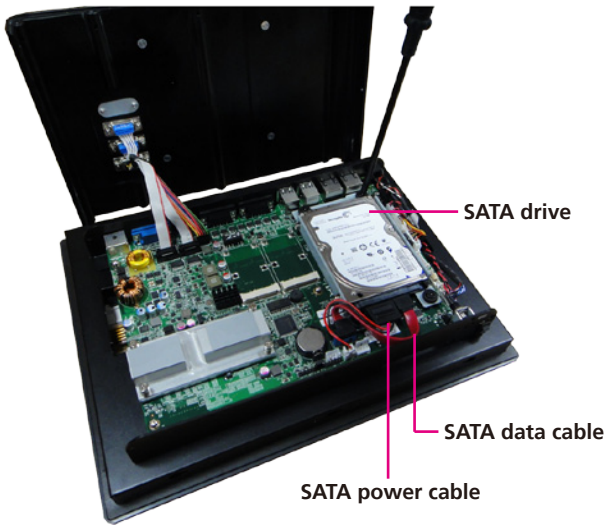


5. Align the mounting holes that are on the sides of the SATA drive with the mounting holes on the drive bay and then use the provided mounting screws to secure the drive in place.



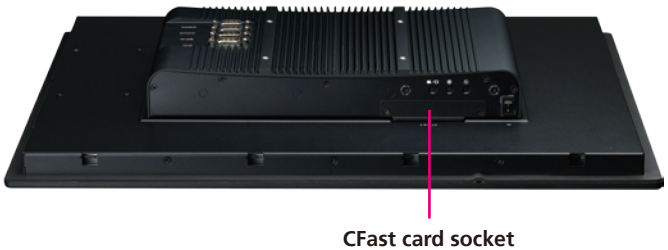
6. Place the SATA drive in the chassis and then use the provided mounting screws to secure the drive in the chassis.

   Connect the SATA data cable and SATA power cable to the connectorson the SATA drive.

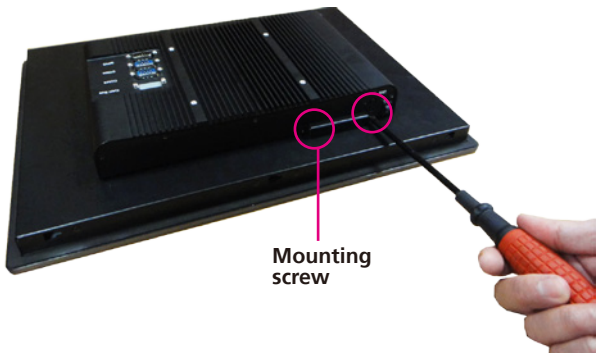


Installing a CFast Card

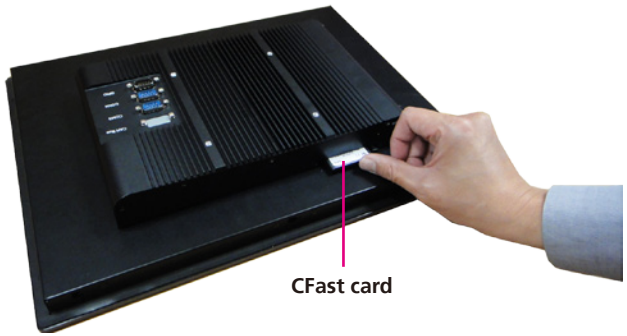
1. The CFast card socket is located on the rear top side of the chassis.



2. Remove the mounting screws of the CFast socket's cover.



3. With the CFast card's label facing up, insert the card until it is completely seated in the socket.



4. Push the CFast card to remove the CFast card.

Installing a SODIMM

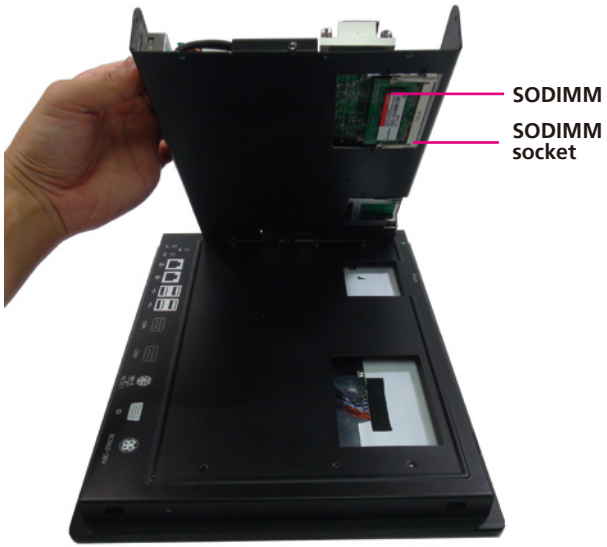
1. Remove the mounting screws around the chassis cover and then remove the cover.

2. Remove the mounting screws on the metal support plate.

3. Gently lift the motherboard support plate upwards and locate the SODIMM socket underneath.

4. Insert the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips into the socket. The gold-plated connector on the edge of the module will almost completely disappear inside the socket.

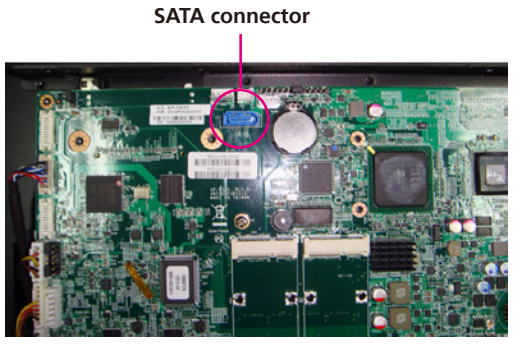
5. Push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive "click", indicating the module is correctly locked into position.



Note:
1. If only one SO DIMM is installed, please install to the one closest to the panel.
2. The maximum RAM size is 4G (2x 2G or 1x 4G)

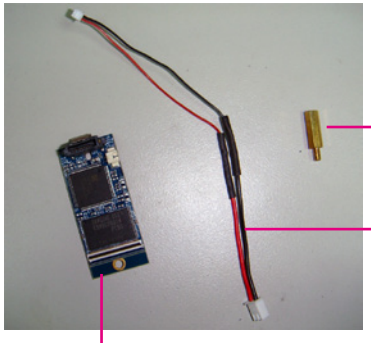
Installing a SATA DOM

1. Remove the drive bay bracket. The SATA connector is readily accessible upon removing the bracket.

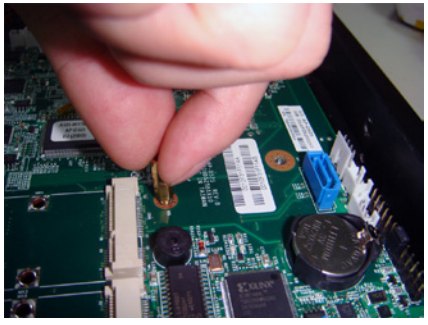


2. Remove the screw.

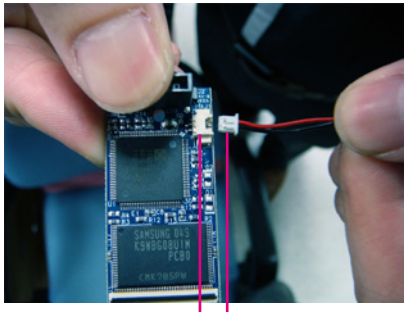
3. The SATA DOM package includes a supporting stud. The stud is used to stabilize the SATA DOM module.

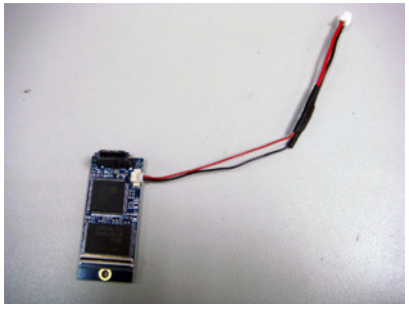


4. Install the supporting stud. Make sure the stud is fastened in place.

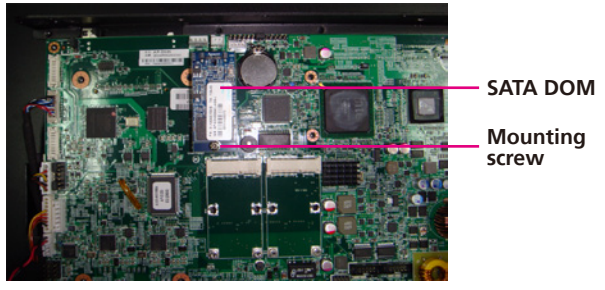


5. Connect one end of the provided cable to the connector on the module.

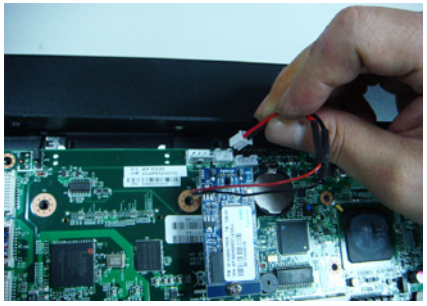


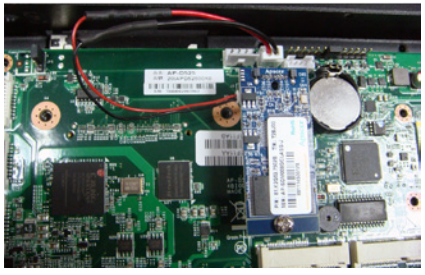


6. Install the module to the SATA port via the connector at the solder side of the module and then secure the module using the mounting screw you removed in step 2.



7. Connect the other end of the cable to the connector on the board.





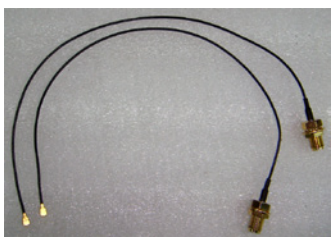
Installing a Mini PCIe Module

The Mini PCIe module package includes the following items:

RALINK 802.11b/g/n 2T3R wireless mini card module kit QCOM:Q802XKN

Mini PCIe Module

Antennas



RF Cables

3.5G module kit Sierra Wireless MC8790V

802.11b/g QN-MU-A0028 wireless mini card module kit
INTEL112.BNHMWG

If you are installing the 802.11b/g QN-MU-A0028 wireless mini card module (half-size), before proceeding with the installation, please assemble the Wi-Fi module bracket first by following the instructions below:

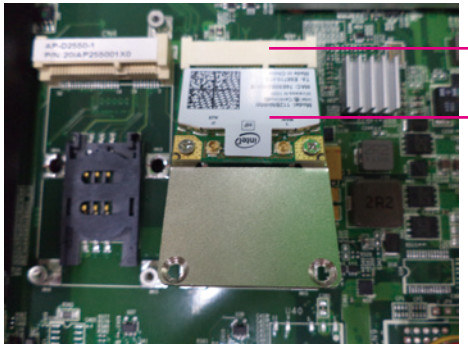
1. Align the mounting holes on the Wi-Fi mini card module to the mounting holes on the Wi-Fi module bracket.

Mounting holes **Wi-Fi module bracket**

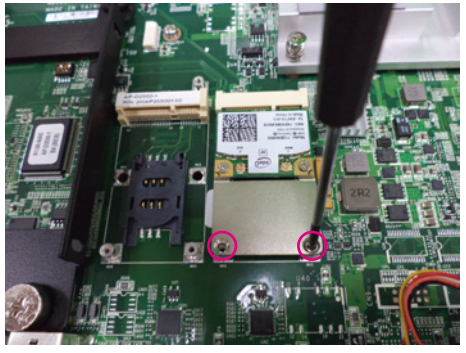
2. Tighten screws onto the mounting holes to secure the bracket.

Installing the Half-Size Mini PCIe Module

1. Insert the Mini PCIe module into the Mini PCIe slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.



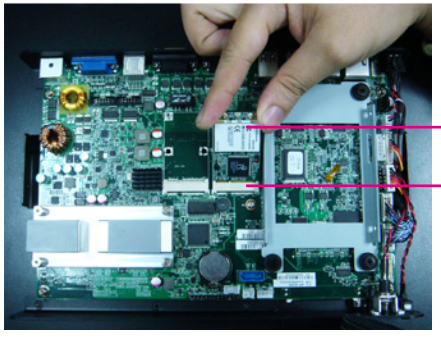
2. Secure the module with mounting screws.



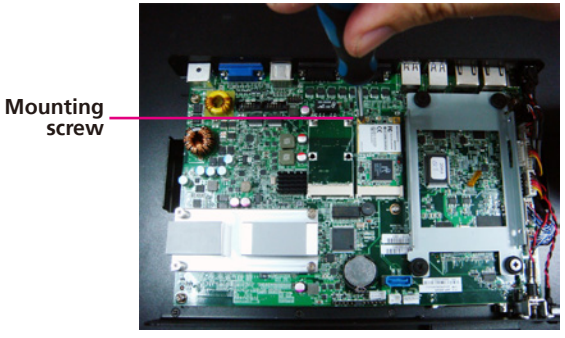
3. Please go to step 3 on page 69 to proceed.

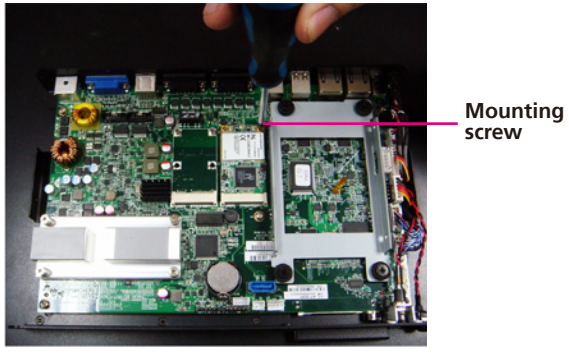
Installing the Full-Size Mini PCIe Module

1. Insert the Mini PCIe module into the Mini PCIe slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

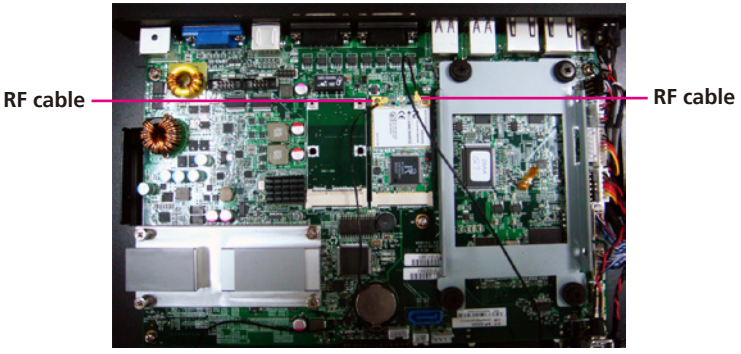


2. Secure the module with mounting screws.

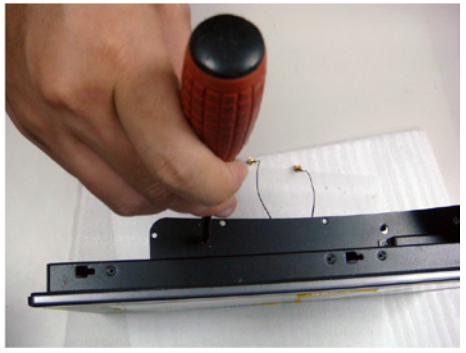




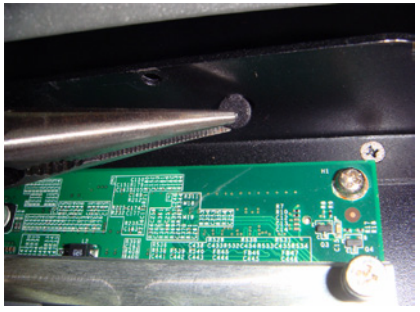
3. Attach one end of the RF cables onto the module.



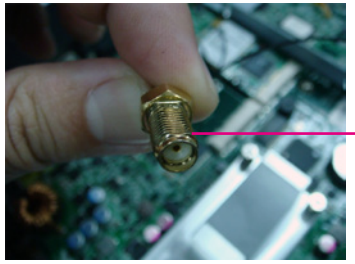
4. Push the antenna hole cover.

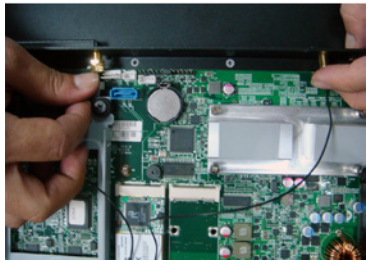


5. Remove the antenna hole covers.

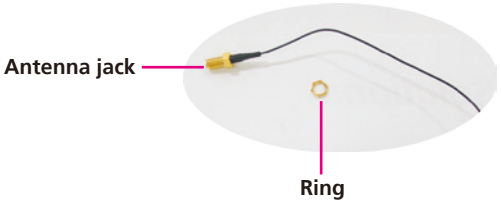


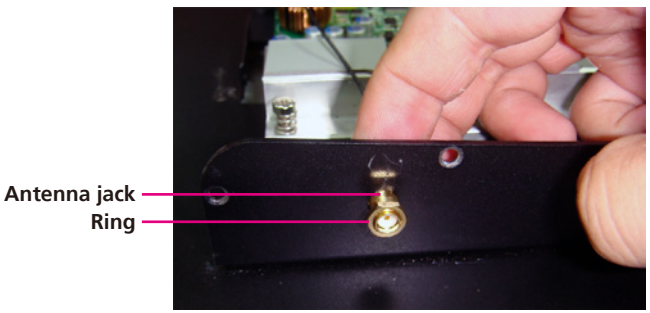
6. Insert the antenna jack end of the cable through the antenna hole.



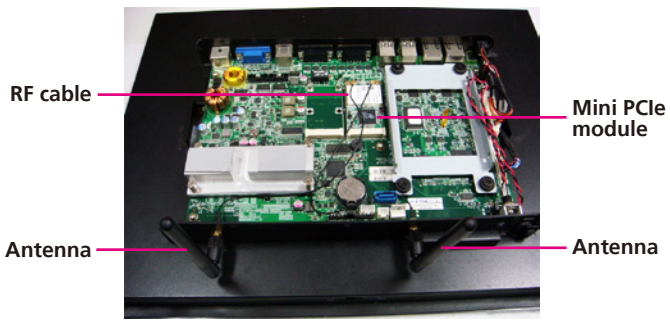


7. Insert the ring onto the antenna jack end of the cable.





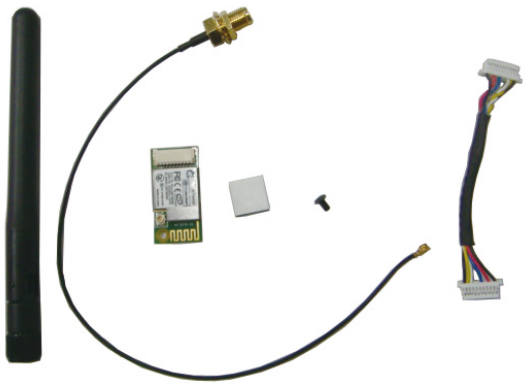
8. Connect external antennas to the antenna jacks.



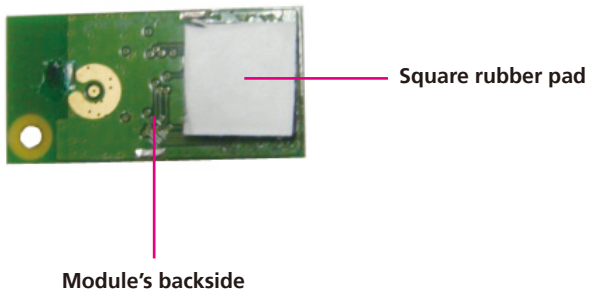
Installing a Bluetooth Module

The Bluetooth module package includes the following items:

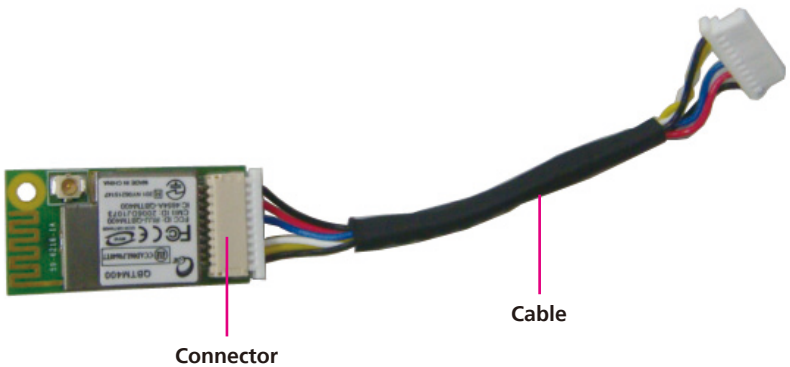
Bluetooth module QCOMQBTM400-01(V7)



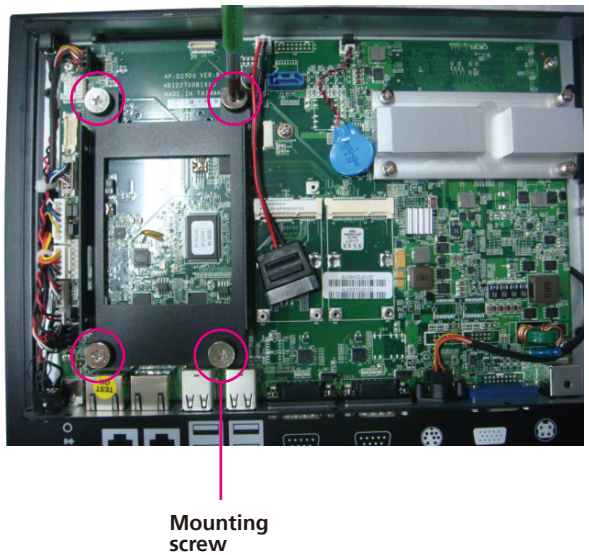
1. Remove the sticker on one side of the square rubber pad, then place that side on the back of the Bluetooth module.



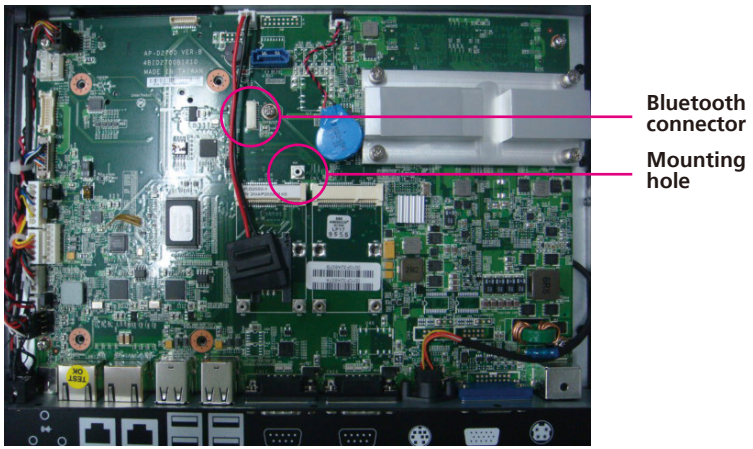
2. Connect the cable to the connector on the Bluetooth module.



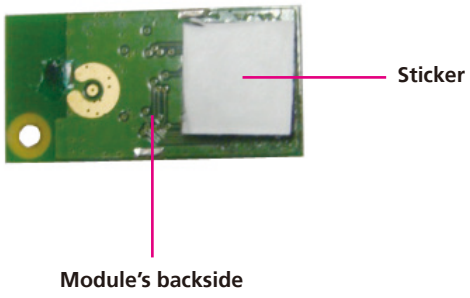
3. Remove the mounting screws of the drive bay.



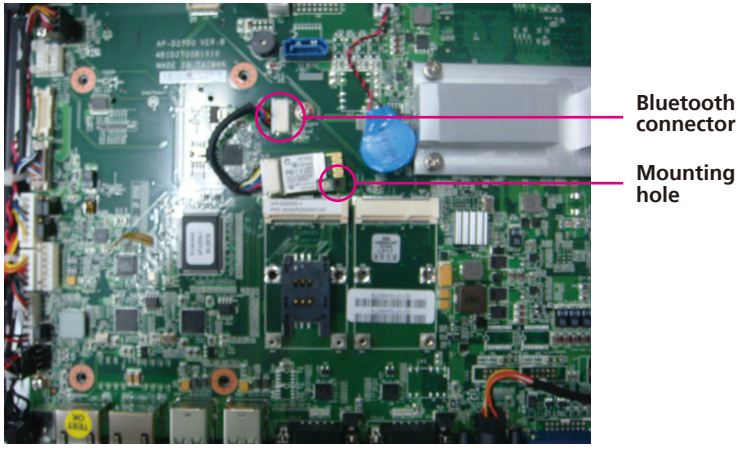
4. Remove the drive bay and locate the Bluetooth connector and mounting hole on the mainboard.



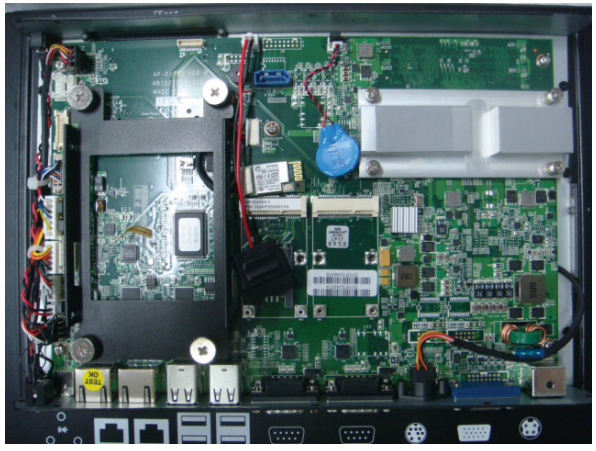
5. Remove the sticker on the square rubber pad



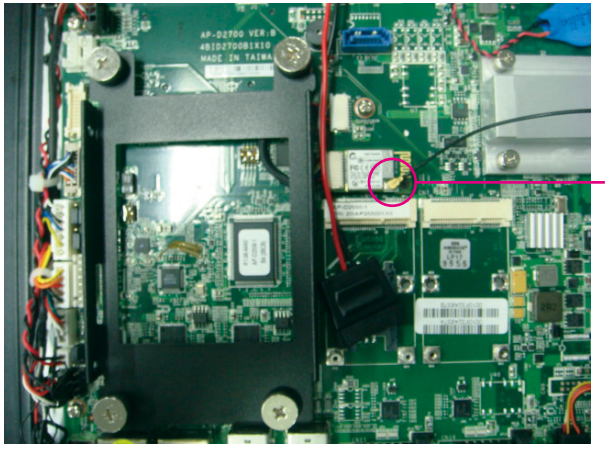
6. Align the mounting hole on the Bluetooth module to the mounting hole on the mainboard, then tighten screws to secure it. Once the module is secured, connect the cable to the Bluetooth connector.



7. Install the drive bay back to its original position.



8. Attach one end of the RF cable onto the module.



9. Mount the other end of the cable to the Bluetooth mounting hole located at the rear top panel of the chassis.

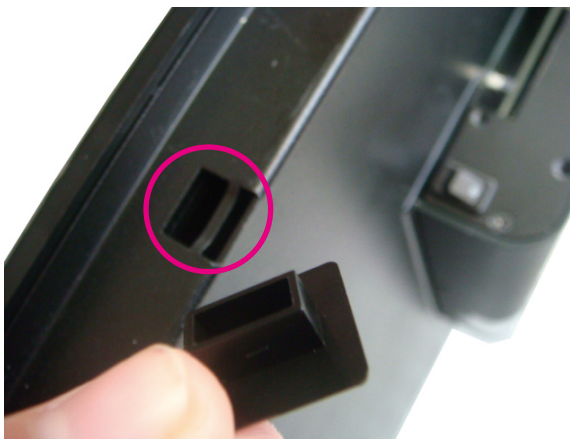
Placing Panel Mount Hole Blocks

The APPC series comes with panel mount hole blocks to cover the panel mount openings on the chassis to prevent dust invasion. You can also choose to cover the panel mount holes when VESA mount is used.

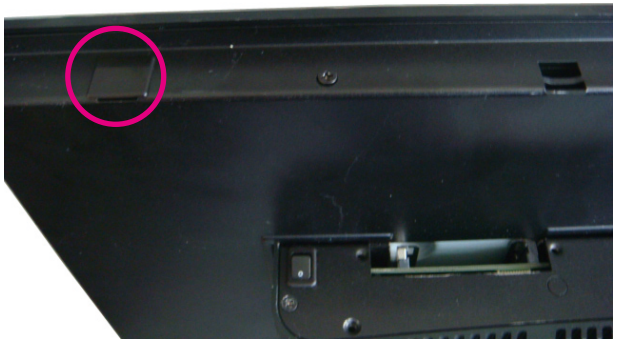
Panel Mount Hole Block
(APPC 1930T/APPC1 931T)

Panel Mount Hole Block
(APPC 1730T/APPC 1731T/APPC 1530T/APPC 1531T/
APPC 1230T/APPC 1231T/APPC 1235T)

1. Locate the panel mount openings on the chassis.



2. Insert the hole block into the opening until it is pushed in completely.



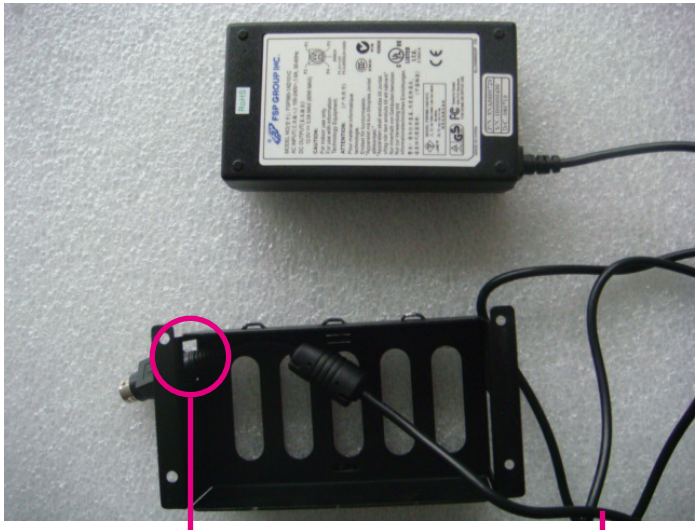
Installing the Power Adapter Bracket

(For APPC 193xT series only)

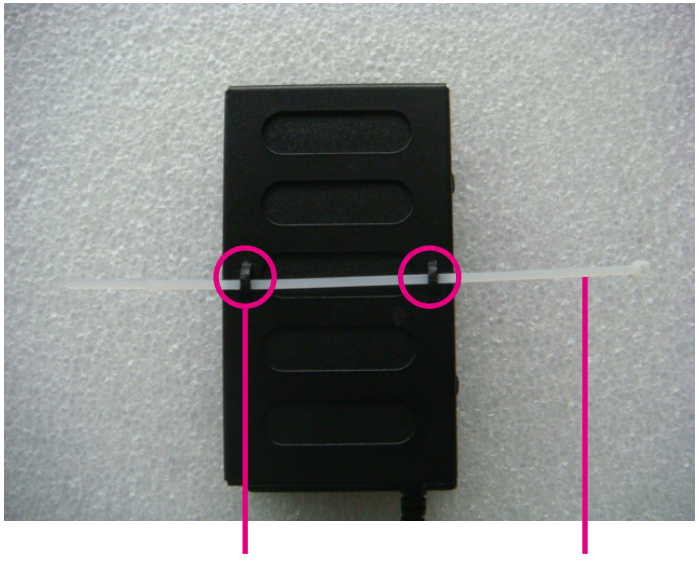
1. Locate the mounting screws for the bracket on the back side of the chassis.

2. Remove the mounting screws and store them in a safe place for later use.

3. Wire the power adapter cabling into the cable opening on the bracket, then place the adapter inside the bracket.

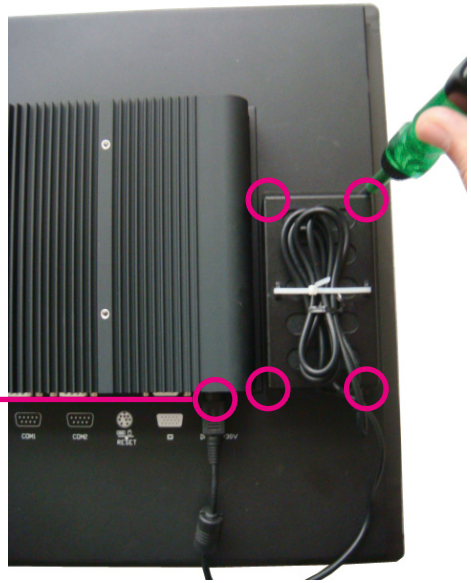


4. Turn the bracket over to the back side, and place the cable tie into the two tie mounts.



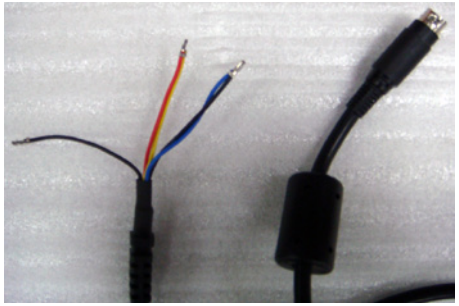
5. Wrap the power adapter cable, then secure the cable firmly by tying the cable tie.

6. With the bracket still facing backwards, align the mounting holes on the bracket to the mounting holes on the back of the chassis, then tighten screws to secure it. Once secured, plug the power adapter cable into the DC input.



Plugging the DC Power Cable

1. Plug the DC 4-pin DIN power jack (male) into the DC 4-pin DIN power jack (female) that is on the system.



2. The table below shows the pin definition of the cable.

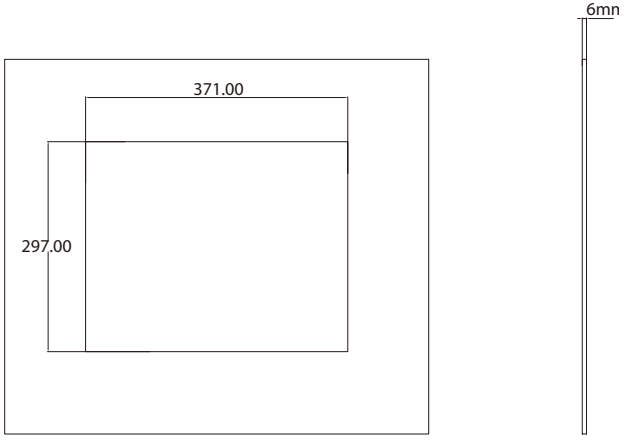
Color	Pin Definition
Black	GND
Red&Yellow	DC+
Blue&Black	DC-

Panel Mounting

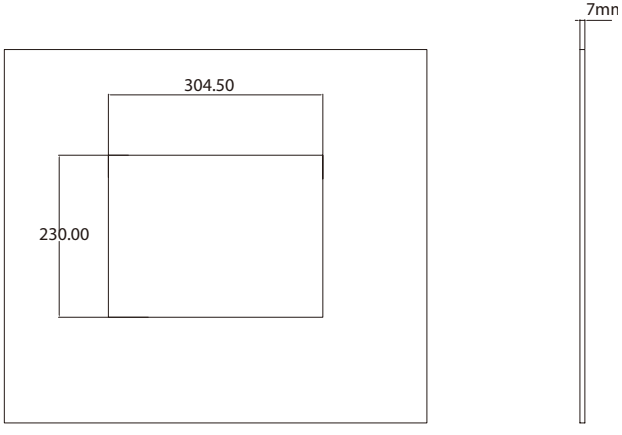
1. Select a place on the panel where you will mount the Panel PC.

2. Cut out a shape on the panel that corresponds to the Panel PC's rear dimensions.

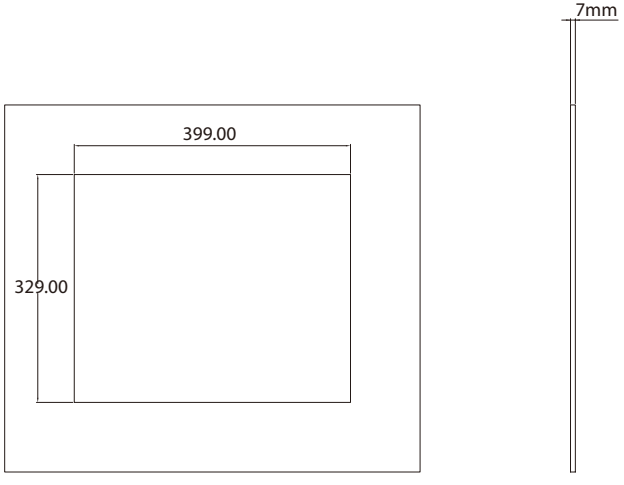
   The thickness of the panel (e.g. steel board, plank, acrylic board, wall, etc.) where you will mount the Panel PC must not exceed 7mm for APPC 1230T/1231T/1235T/1730T/1731T, and 6mm for APPC 1530T/1531T/1930T/1931T. If the distance between the front bezel and panel mount hole is too wide, it will not fit the panel mount kit.



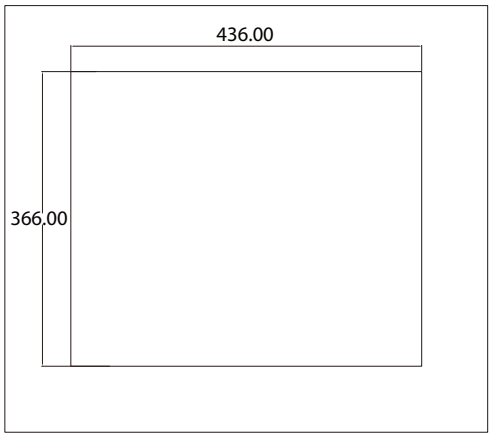
APPC 1530T/1531T



APPC 1230T/1231T/1235T



APPC 1730T/1731T



APPC 1930T/1931T

3. Slide the Panel PC through the hole until it is properly fitted against the panel.

4. Position the mounting clamps along the rear edges of the Panel PC. The first and second clamps must be positioned and secured diagonally prior to mounting the rest of the clamps. Tighten the clamp's screw until it touches the panel.

Do not overtighten the screws to prevent damaging the Panel PC.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the APPC Series. 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 <Del> 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 Ctrl + Alt + Esc

Press the Del 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¬menus or fields.
Esc	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.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	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 

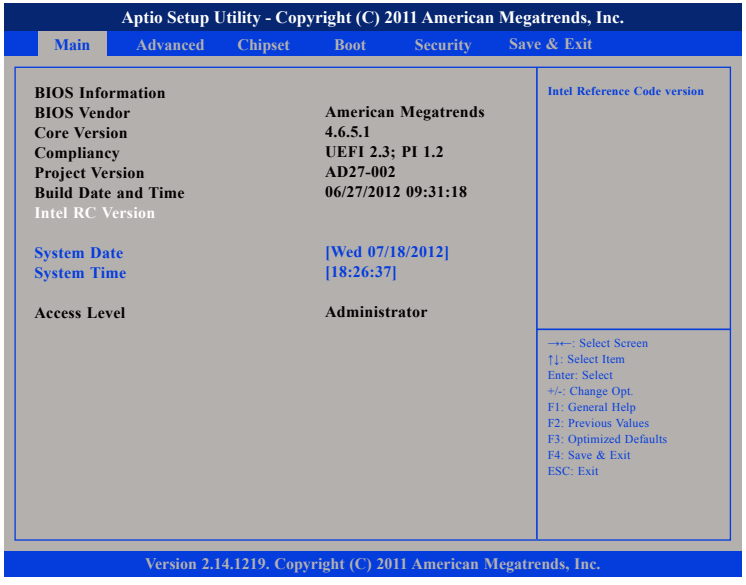
.

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 Enter to accept or enter the submenu.

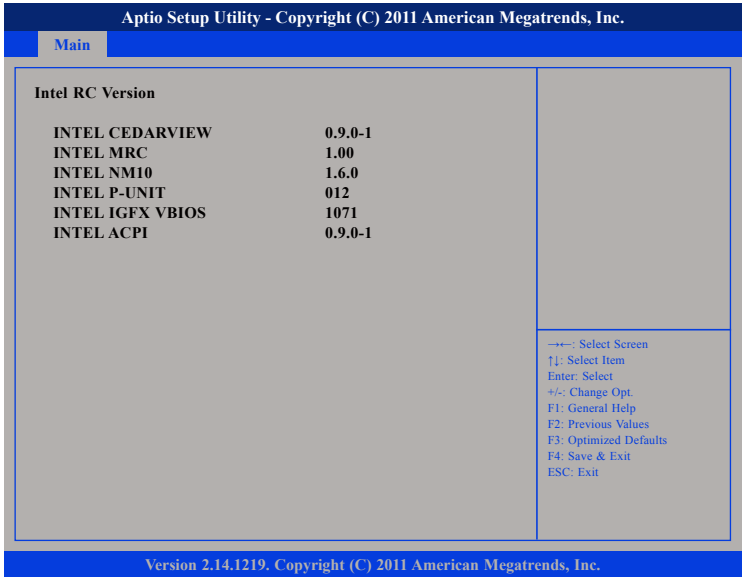
Main

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



Intel RC Version

Displays the Intel Reference Code version.



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.

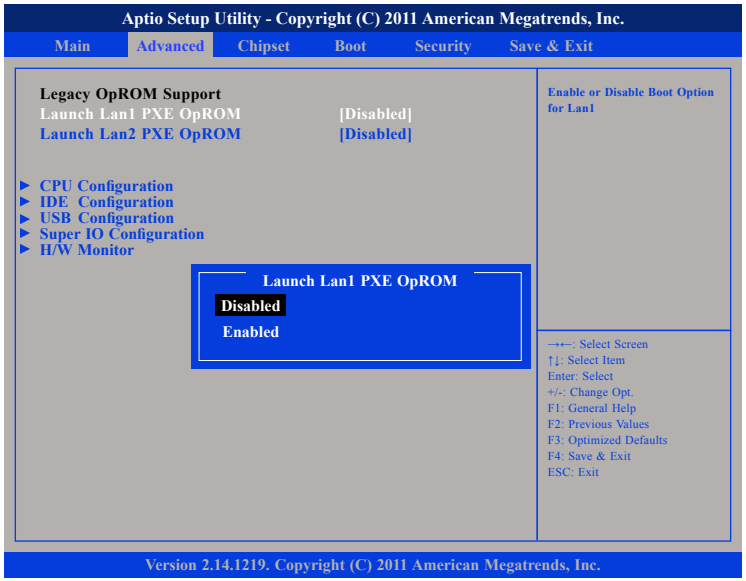
System Time
The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Access Level
Displays the access level of the current user in the BIOS.

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.

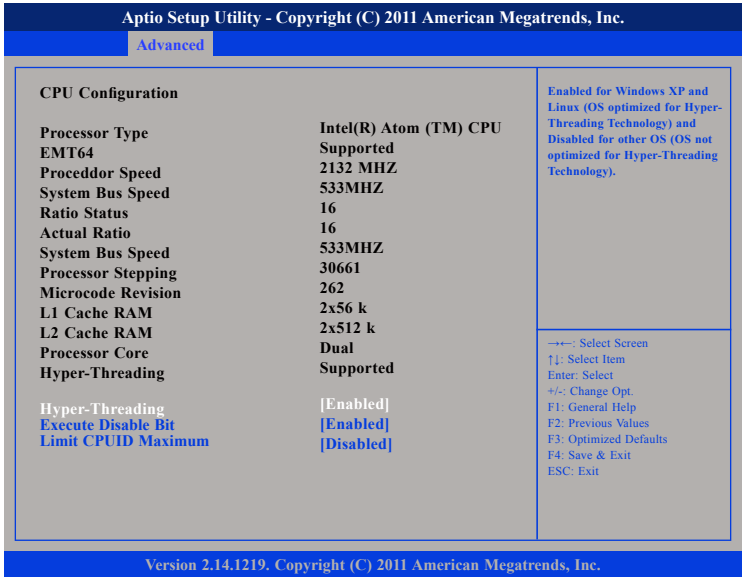


Launch LAN1/2 PXE OpROM

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

CPU Configuration

This section is used to configure the CPU.



Hyper-Threading

This field is used to enable or disable hyper-threading.

Execute Disable Bit

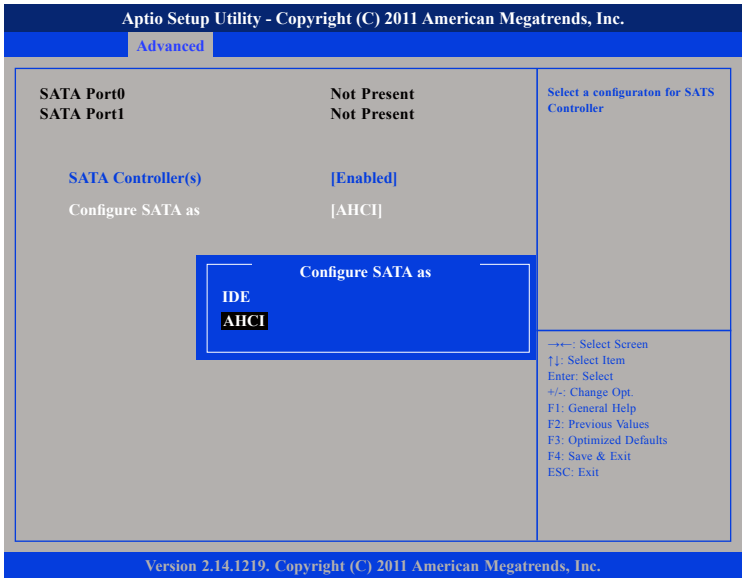
This field is used to enable or disable execute disable bit. When this field is set to Disabled, it will force the XD feature flag to always return to 0. XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3).

Limit CPUID Maximum

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or lesser than 3.

IDE Configuration

This section is used to configure the IDE devices.



SATA Controller(s)

Enables or disables SATA controller.

Configure SATA as

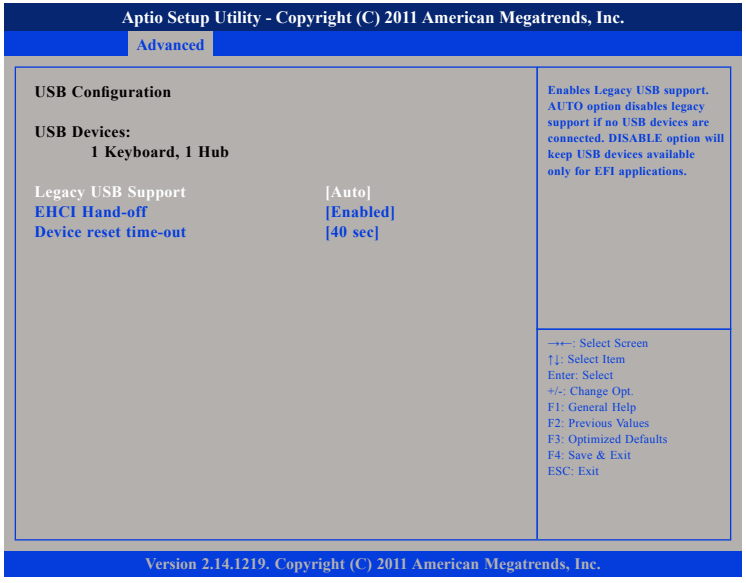
Configures the SATA as IDE or AHCI mode.

IDE This option configures the Serial ATA drives as Parallel ATA physical storage device.

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.

USB Configuration

This section is used to configure USB devices.



Legacy USB Support

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices.

If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

EHCI Hand-off

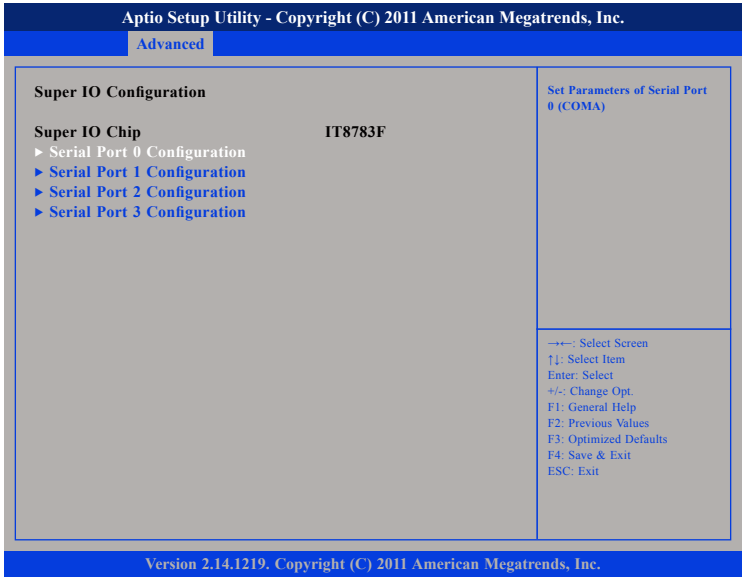
This is a workaround for OSs that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

Device reset time-out

Selects the USB mass storage device's start unit command timeout.

Super IO Configuration

This section is used to configure serial ports 0 to 4.

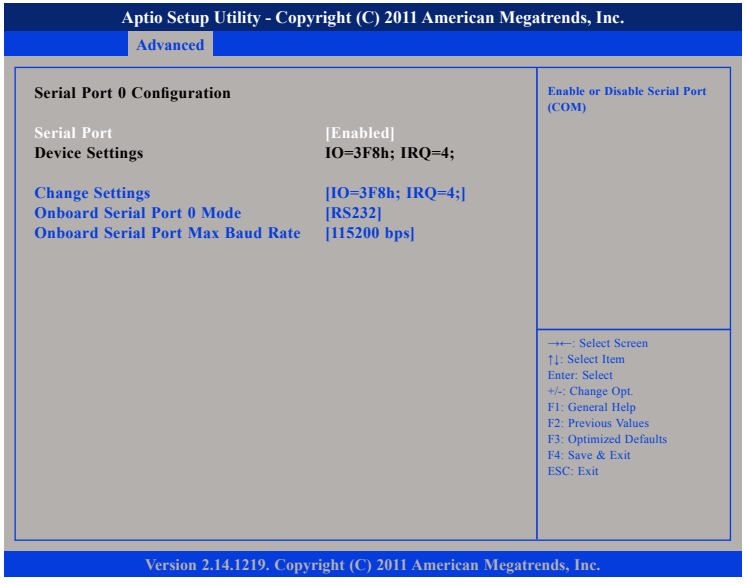


Super IO Chip

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

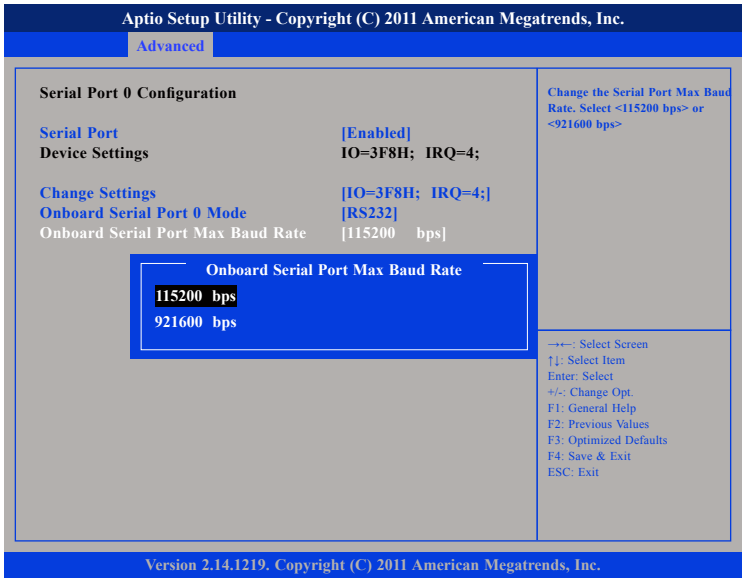
Selects an optimal setting for the Super IO device.

Onboard Serial Port 0 Mode

This field is used to configure the mode of serial port 0 as RS232, RS422, RS485 or RS485 AUTO.

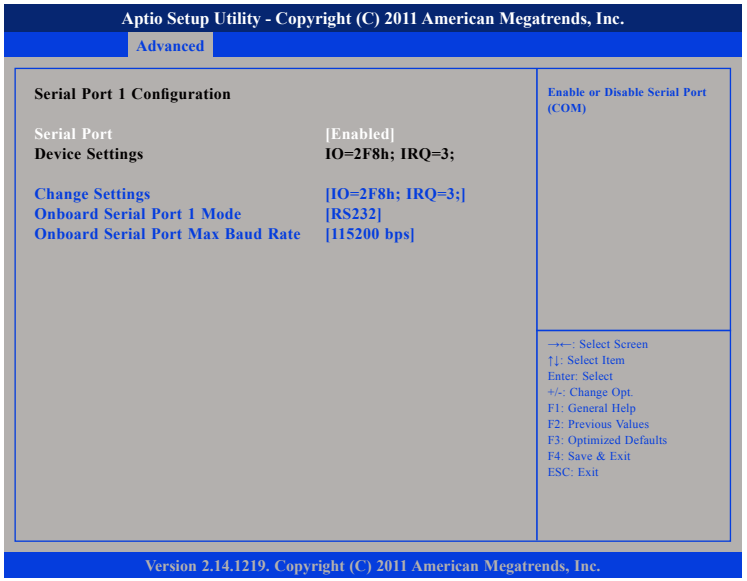
Onboard Serial Port Max Baud Rate

This field configures the maximum baud rate of the serial port 0, the options are 115200 bps and 921600 bps.



Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

Enables or disables the serial port.

Change Settings

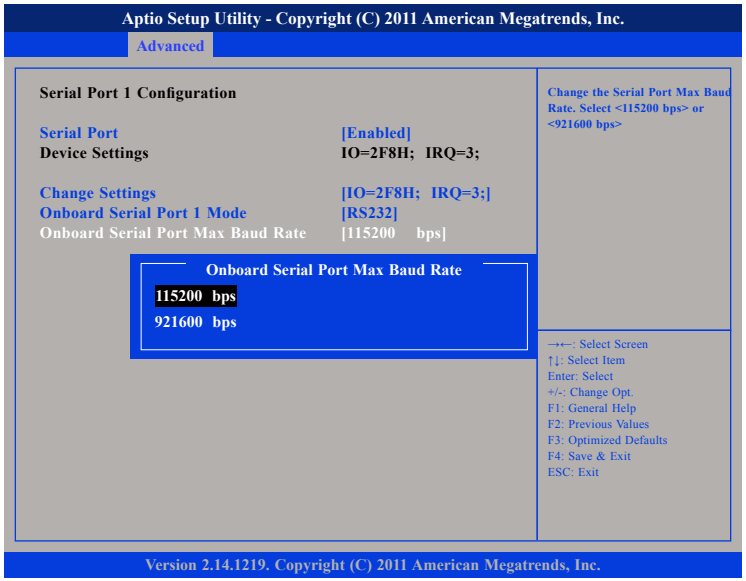
Selects an optimal setting for the Super IO device.

Onboard Serial Port 1 Mode

This field is used to configure the mode of serial port 1 as RS232, RS422, RS485 or RS485 AUTO.

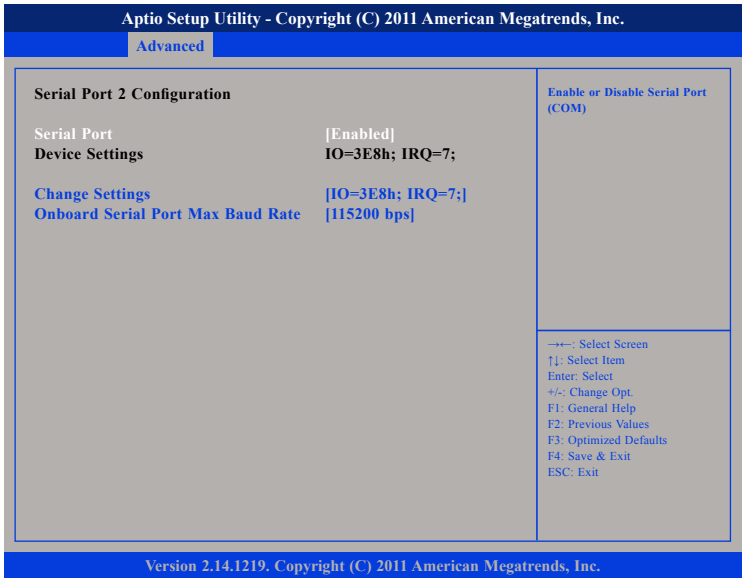
Onboard Serial Port Max Baud Rate

This field configures the maximum baud rate of the serial port 1, the options are 115200 bps and 921600 bps.



Serial Port 2 Configuration

This section is used to configure serial port 2.



Serial Port

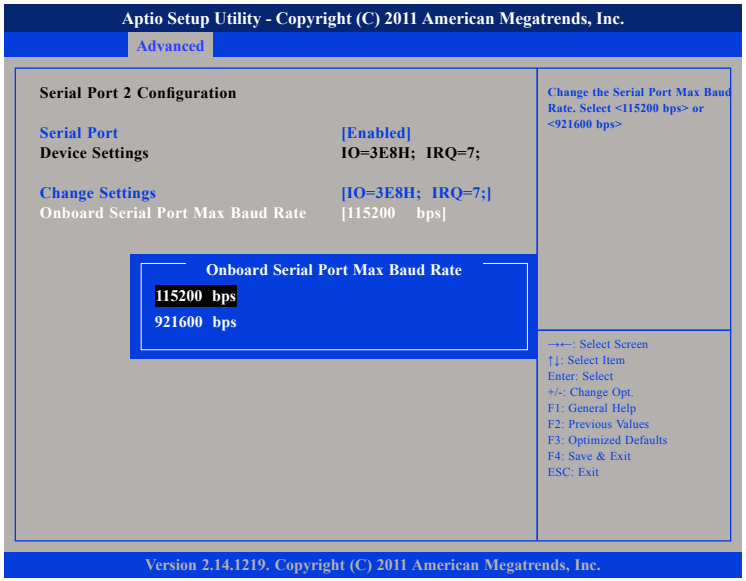
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

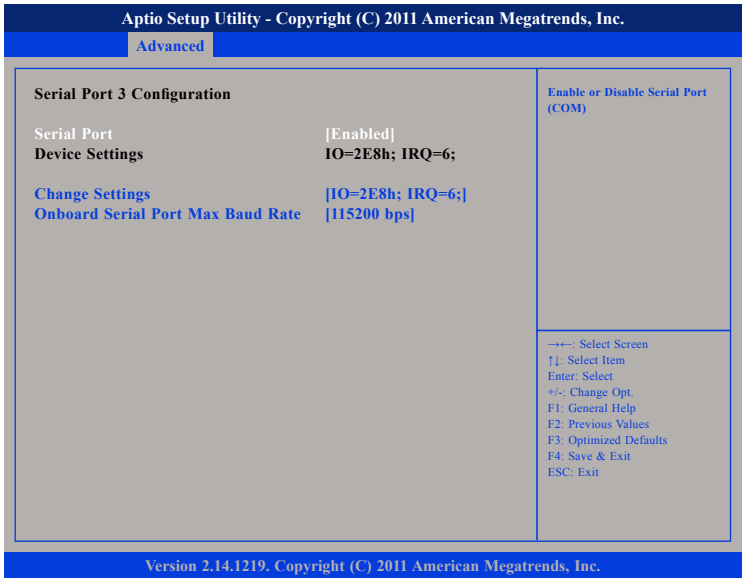
Onboard Serial Port Max Baud Rate

This field configures the maximum baud rate of the serial port 2, the options are 115200 bps and 921600 bps.



Serial Port 3 Configuration

This section is used to configure serial port 3.



Serial Port

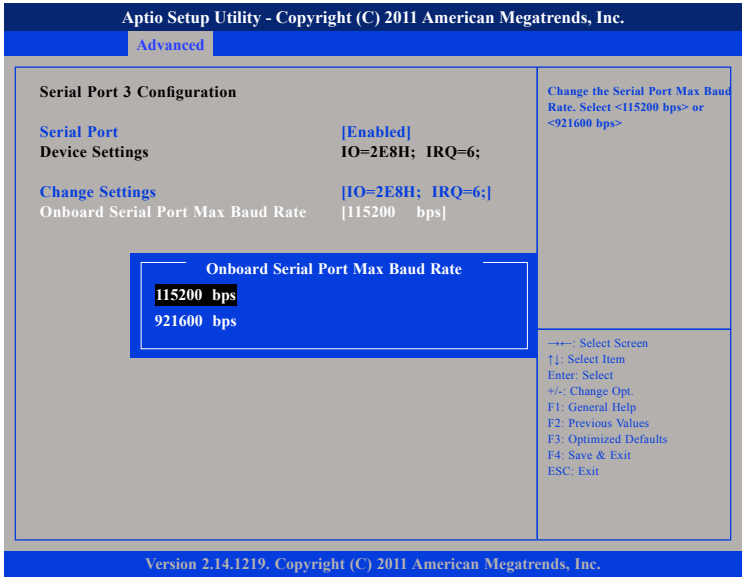
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

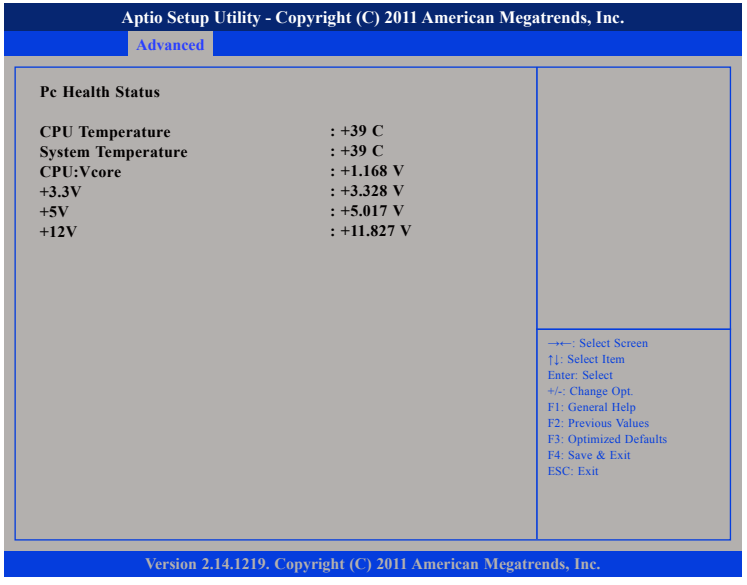
Onboard Serial Port Max Baud Rate

This field configures the maximum baud rate of the serial port 3, the options are 115200 bps and 921600 bps.



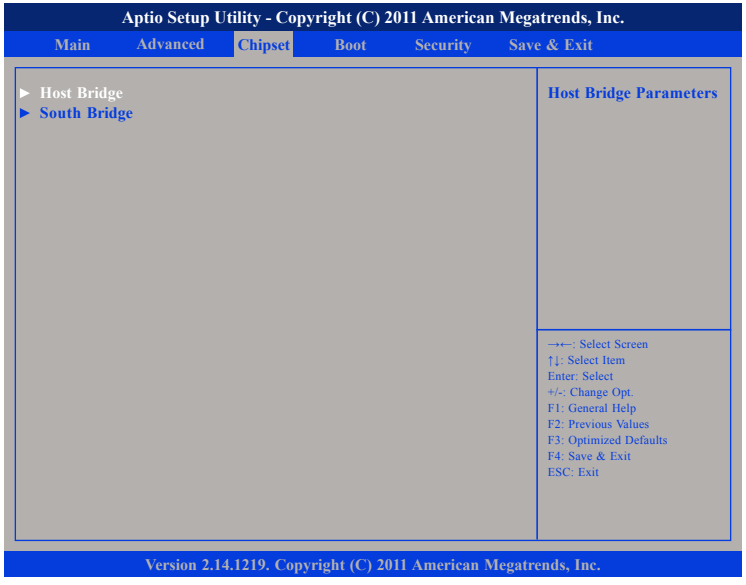
H/W Monitor

This section is used to configure the hardware temperature, fan speed and voltages.



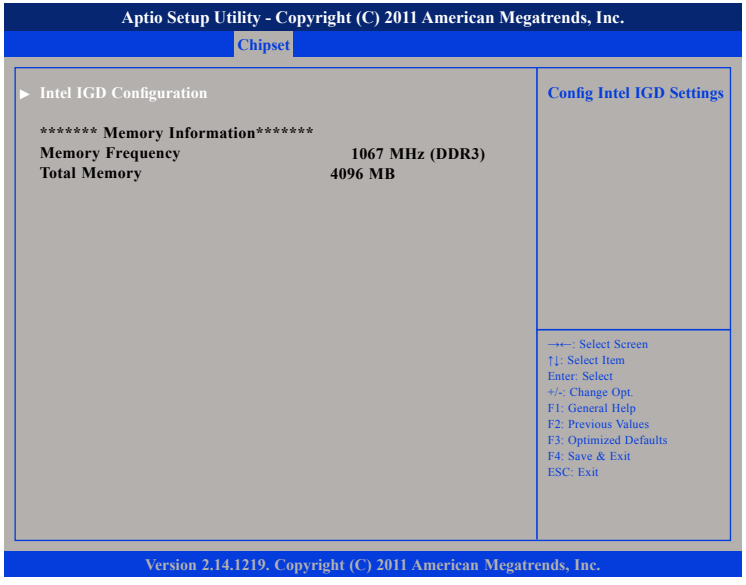
Chipset

This section is used to configure the system based on the specific features of the chipset.



Host Bridge

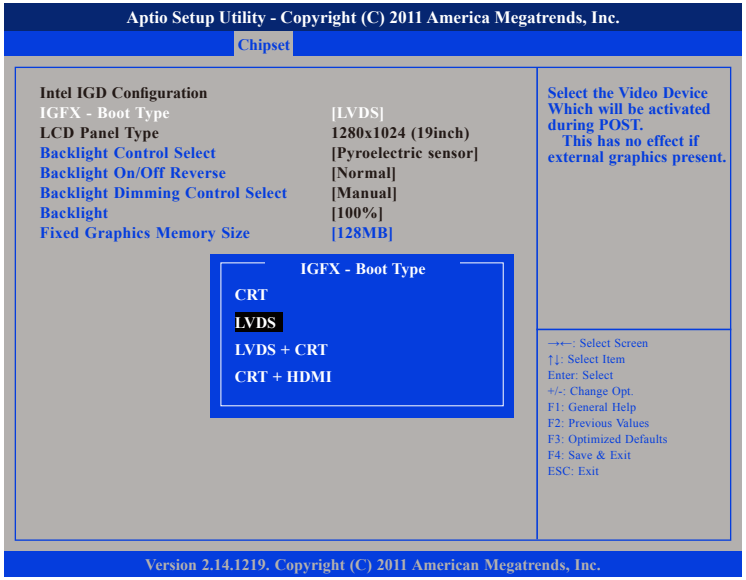
Displays the memory information



Setting incorrect field values may cause the system to malfunction.

Intel® IGD Configuration

This section is used to configure the Intel® IGD Graphic configurations.



IGFX – Boot Type

This field is used to configure which video device will be activated during POST. This has no effect if external graphics present. The options are CRT, LVDS, LVDS + CRT and CRT + HDMI.

Backlight Control Select

The available options are Pyroelectric sensor and Tact Switch. The default setting is Tact Switch for APPC 1231T/APPC 1531T/APPC 1731T/APPC 1931T, and the Backlight On/Off button is functional only in this mode.

Backlight On/Off Reverse

Please configure this option only when changing the panel, otherwise the display may not work.

Backlight Dimming Control Select

The options are Tact Switch, Manual and Light sensor.

The default setting is Manual for APPC 1230T/1235T/1530T/1730T/1930T and the Backlight option below will be configurable.

The default setting is Tact Switch for 1231T/1531T/1731T/1931T and the Backlight option below will not be configurable, please use the brightness button on the panel to adjust it.

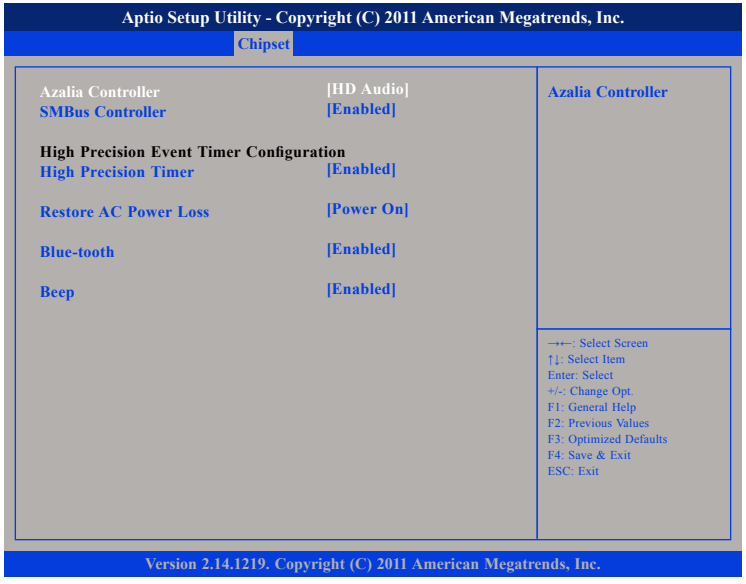
Backlight

Adjusts the brightness of the backlight.

Fixed Graphics Memory Size

This field is used to configure the memory size of the fixed graphics, the options are 128MB and 256MB.

South Bridge



Azalia Controller

This section disables Azalia or enables HD Audio.

SMBus Controller

This section is used to disable or enable SMBus controller.

High Precision Timer

This section is used to configure High Precision Event Timer.

Restore AC Power Loss

Power Off
When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

Power On
When power returns after an AC power failure, the system will automatically power-on.

Last State
When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

Blue-tooth

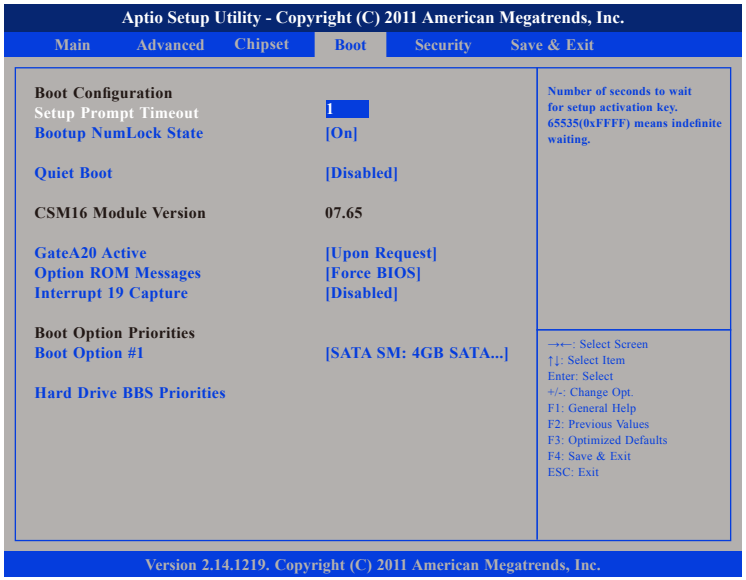
Enables or disables blue-tooth, settings for the optional Bluetooth module QCOM:QBTM400-01(V7).

Beep

Enables or disables beep.

Boot

This section is used to configure the boot features.



Setup Prompt Timeout

This section configures the number of seconds to wait for the setup activation key.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Quiet Boot

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

GateA20 Active

Upon Request	GA20 can be disabled using BIOS services.
Always	Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

This field is used to set display mode for Option ROM.

Interrupt 19 Capture

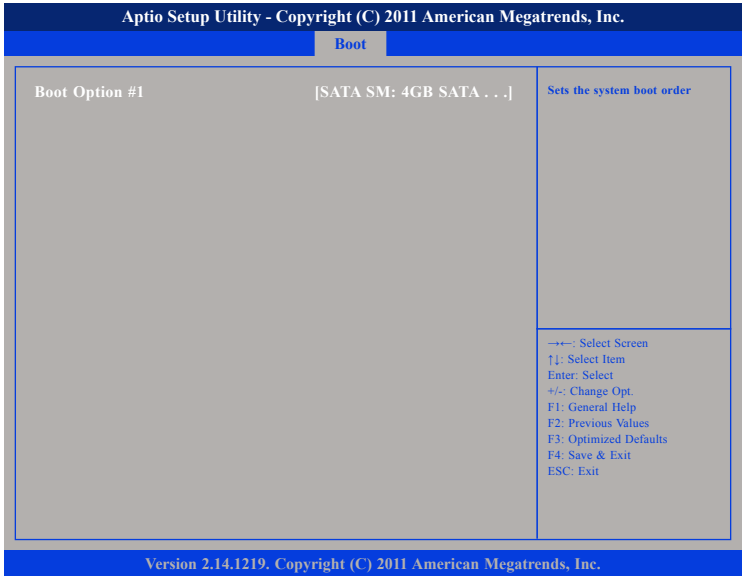
Allows Option ROMs to trap Interrupt 19 when enabled.

Boot Option Priorities

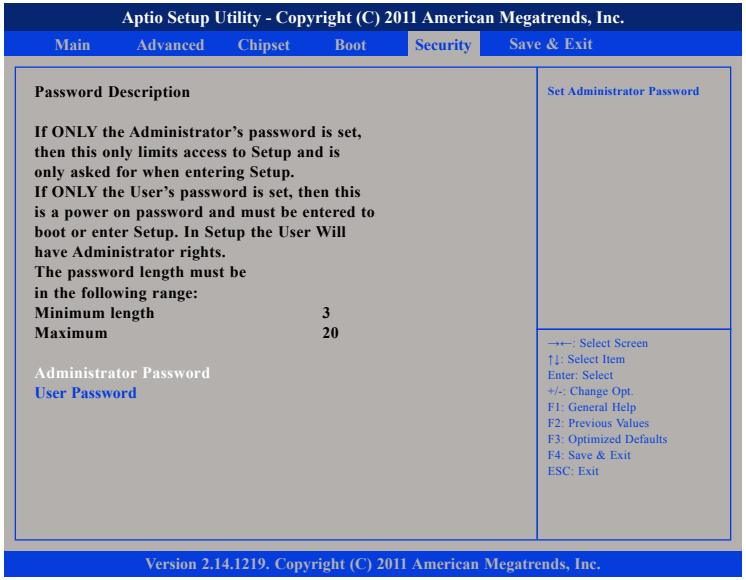
Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.



Security



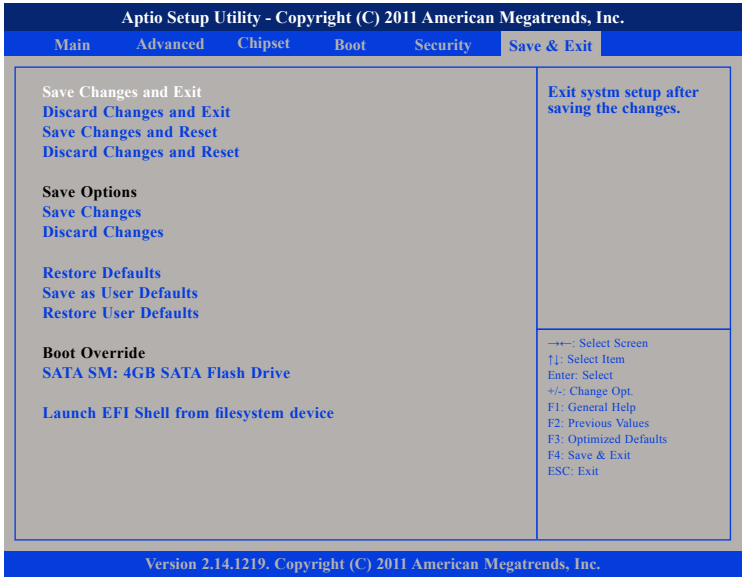
Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Save & Exit



Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

Discard Changes and Exit

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

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 and reboot the system without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

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

Discard Changes
To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

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

Save as User Defaults
To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

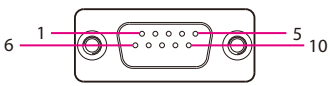
Restore User Defaults
To restore the BIOS to user default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Boot Override
To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.

Launch EFI Shell from filesystem device
To launch EFI shell from a filesystem device, select this field and press <Enter>.

Appendix A: GPI/O Programming Guide

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



Pin	GPI/O mode	PowerOn Default	Address	Pin	GPI/O mode	PowerOn Default	Address
1	+5V	-	-	2	GPI20	High	A04h (bit0)
3	GPI21	High	A04h (bit1)	4	NC	-	-
5	NC	-	-	6	GND	-	-
7	GPO22	Low	A04h (bit2)	8	GPO23	Low	A04h (bit3)
9	NC	-	-	10	NC	-	-

Control the GPO pin (7/8) level from I/O port A04h bit (2/3).
The bit is Set/Clear indicated output High/Low

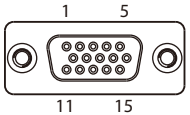
GPIO programming sample code

```
#define GPIO_PORT       0xA04
#define GPO7            (0x01 <<2)
#define GPO8            (0x01 <<3)

#define GPO7_HI         outportb(GPIO_PORT, 0x04)
#define GPO7_LO         outportb(GPIO_PORT, 0x00)
#define GPO8_HI         outportb(GPIO_PORT, 0x08)
#define GPO8_LO         outportb(GPIO_PORT, 0x00)
void main(void)
{
  GPO7_HI;
  GPO8_LO;
}
```

Appendix B: Digital I/O Programming Guide

Digital I/O (Digital Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the fifteen Digital I/O pins in the APPC series. The pin definition is shown in the following table:



Pin	GPI/O mode	PowerOn Default	Address	Pin	GPI/O mode	PowerOn Default	Address
1	DI1	High	A05h (bit0)	2	DI2	High	A05h (bit1)
3	DI3	High	A05h (bit2)	4	DI4	High	A05h (bit3)
5	GND	-	-	6	COM	-	-
7	NC	-	-	8	NC	-	-
9	DO1	Low	A05h (bit4)	10	DO2	Low	A05h (bit5)
11	DO3	Low	A05h (bit6)	12	DO4	Low	A01h (bit7)
13	GND	-	-	14	GND	-	-
15	GND	-	-				

Control the DO pin (9/10/11/12) level from I/O port A05h bit (4/5/6) and A01h bit (7).
The bit is Set/Clear indicated output High/Low

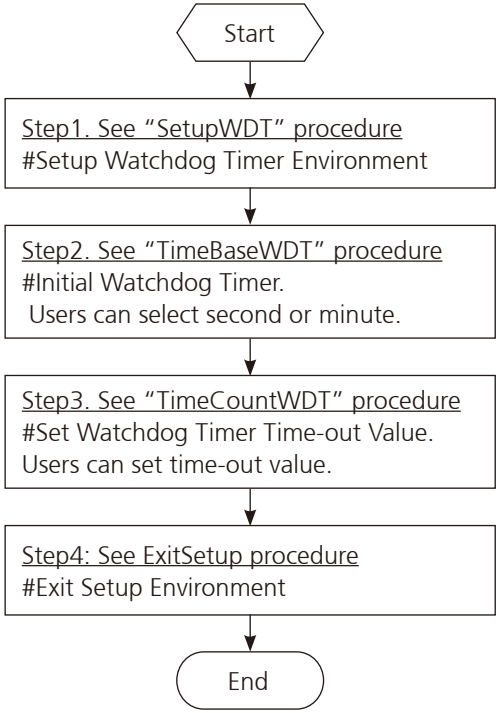
GPIO programming sample code

```
#define DIO_PORT        0xA05
#define DIO_PORTI       0xA01
#define DO9             (0x01 <<4)
#define DO10            (0x01 <<5)
#define DO11            (0x01 <<6)
#define DO12            (0x01 <<7)

#define DO9_HI          outportb(GPIO_PORT, 0x10)
#define DO9_LO          outportb(GPIO_PORT, 0x00)
#define DO10_HI         outportb(GPIO_PORT, 0x20)
#define DO10_LO         outportb(GPIO_PORT, 0x00)
#define DO11_HI         outportb(GPIO_PORT, 0x40)
#define DO11_LO         outportb(GPIO_PORT, 0x00)
#define DO12_HI         outportb(GPIO_PORTI, 0x80)
#define DO12_LO         outportb(GPIO_PORTI, 0x00)
void main(void)
{
DO9_HI;
DO10_LO;
    DO11_HI;
DO12_LO;
}
```

Appendix C: Watchdog Programming Guide

APPC Series Watch Dog Function Configuration Sequence Description:



```
;----------------------------------------------
SetupWDT        PROC
        mov     dx, 2eh
        mov     al, 087h
        out     dx, al
        nop
        nop
        mov     al, 01h
        out     dx, al
        nop
        nop
        mov     al, 55h
        out     dx, al
        nop
        nop
        out     dx, al          ;Write operations to special address
                                port (2E) for entering MB PnP Mode.

        mov     al, 07h
        out     2eh, al
        mov     al, 07h         ;Select logical device for Watch Dog.
        out     2fh, al
        ret
SetupWDT        ENDP

;----------------------------------------------
TimeBaseWDT             PROC
        mov     al, 72h
        out     2eh, al
        mov     al, 10h ;Set WDT reset upon PWROK
        or      al, 80h ;Here!! set 80h for second, set 00h for minute
        out     2fh, al
        ret
TimeBaseWDT     ENDP

;----------------------------------------------
TimeCountWDT    PROC
        mov     al, 73h ;WDT Time-out register.
        out     2eh, al
        mov     al, 03h ;Here!! Set count 3.
        out     2fh, al
        ret
TimeCountWDT    ENDP

;----------------------------------------------
ExitSetup        PROC
        mov     al, 02h
        out     2eh, al
        mov     al, 02h
        out     2fh, al
        ret
ExitSetup        ENDP
;----------------------------------------------
```

Appendix D: Power Consumption

Power Consumption Management

Purpose

The purpose of the power consumption test is to verify the power dissipation of the system and the load of the power supply.

Test Equipment

1. PROVA CM-07 AC/DC CLAMP METER
2. Burn-in test ver:2.0

Device Under Test

DUT: sys#1/

Test Procedure

1. Power up DUT and then boot Windows 7.
2. Enter the standby mode (HDD power down).
3. Measure the power consumption and record it.
4. Run the Burn-in test program to apply 100% full loading.
5. Measure the power consumption and record it.

APPC 1930T/1931T

	+12V	+24V	+30V
Full-Loading Mode	3.2A	1.65A	1.26A
Total	38.4W	39.6W	37.8W
Standby Mode	0.75A	0.41A	0.36A
Total	9W	9.84W	10.8W

APPC 1730T/1731T

	+12V	+24V	+30V
Full-Loading Mode	4.2A	2A	1.63A
Total	50.4W	48W	48.9W
Standby Mode	0.74A	0.41A	0.34A
Total	8.88W	9.84W	10.2W

APPC 1530T/1531T

	+12V	+24V	+30V
Full-Loading Mode	2.5A	1.28A	1A
Total	30W	30.72W	30W
Standby Mode	0.76A	0.41A	0.36A
Total	9.12W	9.84W	10.8W

APPC 1230T/1231T

	+12V	+24V	+30V
Full-Loading Mode	2.26A	1.11A	0.9A
Total	27.12W	26.64W	27W
Standby Mode	0.76A	0.41A	0.35A
Total	9.12W	9.84W	10.5W

APPC 1235T

	+12V	+24V	+30V
Full-Loading Mode	2.5A	1.24A	1.01A
Total	30W	29.76W	30.3W
Standby Mode	0.79A	0.43A	0.36A
Total	9.48W	10.32W	10.8W

Appendix E: Troubleshooting

1. I cannot make voice calls using 3.5G mini-PCIe card as network connection.

   Answer: APPC series' 3.5G connection only supports data transmission and does not support voice transmission.

2. The second VGA display is not working under DOS operating system.

   Answer: Second VGA display is not supported under DOS operating system.

3. In Windows XP Device Manager, why is there an exclamation mark on *Audio Device on High Definition Audio Bus*?

   Answer: Please disable Azalia controller in the BIOS menu to fix this issue, for more information on BIOS settings, please refer to Chapter 4: BIOS Setup section of the user manual.

4. In Windows XP, there is no image on the screen when CRT+LVDS is selected as the option in BIOS.

   Answer: Please configure the BIOS setting according to the table below:

Win XP	CRT	LVDS	HDMI	CRT+LVDS		CRT+HDMI		LVDS+HDMI	
BIOS	**single**	**single**	**single**	**clone**	**extend**	**clone**	**extend**	**clone**	**extend**
CRT	✓	✓	✓	✓	✓	✓	✓	✓	✓
LVDS	✓	✓	✓	✓	✓	✓	✓	✓	✓
CRT+LVDS	✓	✓	✓	✓	✓	✓	✓	✓	✓
LVDS+CRT (Default)	×	✓	✓	×	×	×	×	✓	✓
CRT+HDMI	✓	✓	✓	✓	✓	✓	✓	✓	✓