WPC-766/WPC-766E

Mini PC

USER'S MANUAL

Version V1.1

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Version Change History

Date	Version	Description	Remark
2018/02/06	V1.0	First release	Eddie Lee
2018/08/23	V1.1	Revise 1. Modify DVI x 1 as DVI-D x 1 2. Net Dimensions *3.* Net Weights	Eddie Lee

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FCC Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 18 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with this user manual, it may cause harmful interference to radio communications.
Note that even when this equipment is installed and used in accordance with this user manual, there is still no guarantee that interference will not occur. If this equipment is believed to be causing harmful interference to radio or television reception, this can be determined by turning the equipment on and off. If interference is occurring, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Warning:

Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

Do not modify this equipment without authorization of the manufacturer.

Safety Instructions

Intended use
The WPC-766/766E is intended to serve as a mini PC which is designed for general purpose for hospital environment. It shall not be used for life-supporting system.

Greeting & Setup
Thank you for purchasing the WPC-766/766E unit. We wish that this unit will be durable and reliable in providing your medical application needs. Please follow the instructions below to ensure the unit continues to have high performance.

Unpacking
After opening the carton, there will be a mini PC unit with an accessory box. Examine the contents to see if there are damages to the unit and if all accessories are present.

Setting up
Please read this manual carefully and remember to keep this manual for future reference.

Safety Instructions & Cleaning
The unit has undergone various tests in order to comply with safety standards. Inappropriate use of the open frame unit may be dangerous. Please remember to follow the instructions below to insure your safety during the installation and operating process.

Transporting & Placement of unit

1. When moving the unit on a cart; be very cautious. Quick stops, excessive forces and uneven surfaces may cause the cart to overturn thus risking the unit to fall to the ground.

2. If the mini PC unit does fall to the ground, immediately turn the power off and disconnect cords. Then contact a service technician for repairs. Continual use of the unit may result cause a fire or electric shock. Also, do not repair the unit on your own.

3. Having two or more people transporting the display unit is recommended. In addition, when installing the unit by suspending it also requires two or more people.

4. Before suspending the unit, make sure the material used for suspension is sturdy and stable. If not properly suspended, the display unit may fall and cause serious injury to people standing nearby as well as to the unit itself.

5. If you wish to mount the display unit, remember to use only the mounting hardware recommended by the manufacturer.

Electrical and Power Source Related

1. This mini PC unit must operate on a power source as shown on the specification label. If you are not sure what type of power supply used in the area, consult your dealer or local power supplier.

2. The power cords must not be damaged. Applied pressure, added heat, and tugging may damage the power cord.

3. The power cord must be routed properly when setup takes place. We advise that this aspect measure is to prevent people from stepping on the cords or while the unit is suspended to prevent flying objects from getting tangled with the unit.

4. Do not overload the AC outlets or extension cords. Electrical shocks or fires may occur from overloading.

5. Do not touch the power source during a thunderstorm.

6. If your hands are wet, do not touch the plug.

7. Use your thumb and index finger, grip firmly on the power cord to disconnect from the electrical socket. By pulling the power cord, may result in damaging it.

8. If the unit is not going to be in use for an extended period of time, remember to disconnect the unit.

9. Please use only the power cord provided by the dealer to ensure safety and EMC compliance.

Various Factors of Environment

1. Do not insert objects into the openings.

2. Do not have liquids seep into the internal areas of the mini PC unit.

3. Having liquids seep in or inserting objects into the unit may result in electric shocks from taking and/or short circuiting the internal parts.

4. Do not place the mini PC unit in the presence of high moisture areas.

5. Do not install the mini PC unit in a wet environment.

6. Do not place near unit near heat generating sources.

7. Do not place the unit in a location where it will come in contact with fumes or steam.

8. Remember to keep the mini PC unit away from the presence of dust.

9. If water has flow in or seep in, immediately disconnect the open frame unit. Then contact a service technician for repairs.

Ventilation Spacing

1. Do not cover or block the openings on the top and back sides of the display unit. Inadequate ventilation may cause overheating thus reducing the lifespan of the unit.

2. Unless proper ventilation is present, do not place unit in an enclosed area; such as a built-in shelf. Keep a minimum distance of 10 cm between the display unit and wall.

Cleaning the unit

1. Remember to turn off the power source and to unplug the cord from the outlet before cleaning the unit.

2. Carefully dismount the unit or bring the unit down from suspension to clean.

3. Please use a dry soft cloth to clean the unit.

4. Take a dry cloth and wipe the unit dry. Remember to avoid having liquids seep into the internal components and areas of the mini PC unit.

Servicing, Repairing, Maintenance & Safety Checks

1. If the unit is not functioning properly, observe the performance level of the display closely to determine what type of servicing is needed.

2. Do not attempt to repair the mini PC unit on your own. Disassembling the cover exposes users' to high voltages and other dangerous conditions. Notify and request a qualified service technician for servicing the unit.

3. To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

4. If any of the following situations occur turn the power source off and unplug the unit. Then contact a qualified service technician.

    (a) A liquid was spilled on the unit or objects have fallen into the unit.

    (b) The unit is soaked with liquids.

    (c) The unit is dropped or damaged.

    (d) If smoke or strange odor is flowing out of the operating unit.

    (e) If the power cord or plug is damaged.

    (f) When the functions of the unit are dysfunctional.

5. When replacement parts are needed for the mini PC unit, make sure service technicians use replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. If

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unauthorized parts are used it may result in starting a fire, electrical shock and/or other dangers.

⚠	ISO 7000-0434: Caution, consult ACCOMPANYING DOCUMENTS.
📖	ISO 7000-1641: Follow operating instructions or Consult instructions for use.
⏻	IEC 60417 -5009: STAND-BY.
⎓	IEC 60417-5031: Direct current.
🗑	EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product, or if applicable, follow any agreements made between yourself. The mark on electrical and electronic products only applies to the current European Union Member States.

When networking with electrical devices, the operator is responsible for ensuring that the resulting system meets the requirements set forth by the following standards:

– EN 60601-1 (IEC 60601-1)
Medical electrical equipment
Part 1: General requirements for safety

– EN 60601-1-1 (IEC 60601-1-1)
Medical electrical equipment
Part 1-1: General requirements for safety
Collateral standard: Safety requirements for
Medical electrical systems

– EN 60601-1-2 (IEC 60601-1-2)
Medical electrical equipment
Part 1-2: General requirements for safety
Collateral standard: Electromagnetic compatibility;
Requirements and tests

Accessory equipment connected to the analog and digital interfaces must be in

MEDICAL - GENERAL MEDICAL EQUIPMENT
AS TO ELECTRICAL SHOCK, FIRE AND MECHANICAL
HAZARDS ONLY IN ACCORDANCE WITH ANSI/AAMI
ES 60601-1 (2005) + AMD (2012),
CAN/CSA-C22.2 No. 60601-1 (2008) + (2014)

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compliance with the respective nationally harmonized IEC standards (i.e. IEC 60950 for data processing equipment, IEC 60065 for video equipment, IEC 61010-1 for laboratory equipment, and IEC 60601-1 for medical equipment.) Furthermore all configurations shall comply with the system standard IEC 60601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 60601-1-1. The unit is for exclusive interconnection with IEC 60601-1 certified equipment in the patient environment and IEC 60XXX certified equipment outside of the patient environment. If in doubt, consult the technical services department or your local representative.

Caution:

DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS MAY DAMAGE THE EQUIPMENT.

The user is not to touch SIP/SOPs and the patient at the same time.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB (A).

A) Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade".
B) Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
C) Caution: This adapter Sinpro HPU101-105 is a forming part of the medical device

Table of Contents

Introduction

Product Description

The WPC-766 / WPC-766E Mini PC are based on Intel *6th generation Core i* processor which can deliver faster graphic with higher CPU performance. It accommodates one 2.5" SATA III hard disk drive or Solid State Drive and up to 32GB DDR4 SODIMM.

Fanless solution, integrated multimedia functions and extensive expansion options make them the perfect platform upon which to build comprehensive lifestyle computing applications.

The WPC-766/WPC-766E is compact, Giga LAN and selectable WLAN network compatible PC with full safety and medical approval and features to control a dedicated system with a wide variety of applications. Combining the WPC-766/WPC-766E into your system can achieve both cost-saving and efficient improvements.

Common applications include Surgical, Radiology, PACS (Picture Archiving Communication Systems), LIS (Lab Information Systems) and Electronic Medical Record. The WPC-766 / WPC-766E are definitely your perfect choices.

Package list

Before you begin installing your Medical Station, please make sure that the following items have been shipped:

- The WPC-766 or WPC-766E Mini PC unit
- User manual, chipset drivers
- Power Adapter x 1 (Mf:Sinpro, type/model: HPU101-105)
- Power cord – Hospital grade used(US type), or other type in UK, EU…etc.

Features

- Medical grade box PC with 4th UL/EN 60601-1 regulation
- High performance 6th generation intel Core i CPU (S series), 35W max.
- Vpro support i7/i5 CPU
- Supports Dual Channel DDR4 SODIMM up to 32GB
- Rich 6x COM ports for control applications
- Two mini PCI-e expansion (One full size and another is half size)
- HDD Anti-vibration mechanism
- Optional WLAN/Bluetooth module with dipole antenna

Specifications

Hardware Specifications

CPU Support	*LGA1151 package 6th generation Intel® Core i7/i5/i3/ Pentium processor (35W max.)* *- Core™ i7-6700TE 2.40 GHz* *- Core™ i5-6500TE 2.30 GHz*
Chipset	*Intel® Q170 Chipset (Intel® GL82Q170 PCH)*
VGA	*Intel® integrated HD Graphics 530*
Audio	*Realtek ALC262 Audio Codec, 2+2 watts power amplifier*
LAN	*Intel i219LM x 1 (Vpro support i7/i5 CPU) + i210AT x 1*
Memory	*Two 2133 MHz DDR4 SODIMM socket support dual Channel, non-ECC, up to 32GB*
IO	*EC*
Serial ATA	*SATA 3, 600 MB/s transfer rate x 2*
WDT	*Generates system reset; 256 segments, 0, 1, 2…255 sec/min.*

Storage

HDD	*2.5" Hard Disk Drive (SATA III) or 2.5" Solid State Drive* (5Vdc,1.5A max.)
DVD	*2.5" DVD/CD Rewritable Drive for WPC-766E only* (5Vdc,1.5A max.)

Expansion slots

PCI-E	*PCI-E x 16 expansion slot x 1* (battery mode loaded 15W)
Mini-PCIe	*52 pin card-edge type compatible to PCI Express*Base specification 2.0 x 2* *(One full size support mSATA and another is half size)* (battery mode loaded 1.65W x 2)

External I/O

USB	*USB3.0 x4*
COM	*RS232 x 5, RS232/RS422/RS485 x 1 (RS-485 auto flow support, Jumpless by BIOS)*
LAN	*RJ-45 x 2 (Gigabit Ethernet)*

Audio	3.5mm phone jack connector * 2 (line-out, and mic-in)
Video output	DP x 1 + DVI-D x 1

Power Adapter

Power	DC 7V~32V (9~28V with battery pack)
MFR	Sinpro
Type	HPU101-105
Input Voltage	AC 100 ~240 V, 1.25 – 0.5A @47 ~63 Hz
Output Voltage	DC 12V @8.33A
MTBF	100,000 hrs operation at 25℃

Mechanical Specifications

Architecture	Aluminum heatsink and SECC with black coating
Color	Black
Mounting / Holder	Bracket mounting mechanism
Dimension (WxHxD)	WPC-766 : 306.6 * 188 * 63.6 mm WPC-766E : 306.6 * 188 * 108.6 mm
Net Weight	WPC-766: 3kg (w/o power adapter) WPC-766E: 4kg (w/o power adapter)
Packing Filler	PE

Environmental Specifications

Temperature	Operating: 0°C to 35°C (32°F ~95°F) Storage, Transportation: -20°C to 60°C (-4°F ~140°F)
Humidity	Operating: 10% to 90%@ 35°C, non-condensing Storage, Transportation: 10% to 90%, non-condensing
Vibration	Operating: 15g/0.53 oz, 11 ms, half sine wave Non-operating: 50g/1.76 oz, 11 ms, half sine wave
Shock	Operating: 5 ~ 17 Hz , Amplitude：0.117 ~ 500Hz , Acceleration：1.0G Non-operating:10~55Hz/0.15g, 55~500Hz/2.0g

Altitudes	Operational: up to 3000 m (9842 feet) Shipping: up to 12192 m (40000 feet)
Pressure	700 – 1060 hPa (Operation) 186 – 1060 hPa (Storage) 186 – 1060 hPa (Transportation)

Guidance and manufacturer's declaration – electromagnetic emissions		
The model WPC-766/WPC-766E is intended for use in the electromagnetic environment specified below. The customer or the user of the model WPC-766/WPC-766E should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment –** **guidance**
RF emissions CISPR 11		The model WPC-766/WPC-766E uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11		The model WPC-766/WPC-766E is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2		
Voltage fluctuations/ flicker emissions IEC 61000-3-3		
Recommended separation distances between **portable and mobile RF communications equipment and the model** WPC-766/WPC-766E		

The model WPC-766/WPC-766E is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the model WPC-766/WPC-766E can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model WPC-766/WPC-766E as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1{,}2\sqrt{P}$	80 MHz to 800 MHz $d = 1{,}2\sqrt{P}$	800 MHz to 2.7 GHz $d = 2{,}3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distanced in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and manufacturer's declaration – electromagnetic immunity			
The model WPC-766/WPC-766E is intended for use in the electromagnetic environment specified below. The customer or the user of the model WPC-766/WPC-766E should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance

Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.

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interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% U_T (100 % dip in U_T) for 0.5 cycle 0 % U_T (100 % dip in U_T) for 1 cycles 70 % U_T (30 % dip in U_T) for 25 cycles 0 % U_T (100 % dip in U_T) for 250 cycles	0 % U_T (100 % dip in U_T) for 0.5 cycle 0 % U_T (100 % dip in U_T) for 1 cycles 70 % U_T (30 % dip in U_T) for 25 cycles 0 % U_T (100 % dip in U_T) for 250 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of WPC-766/WPC-766E requires continued operation during power main interruptions, it is recommended that WPC-766/WPC-766E be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity

The model WPC-766/WPC-766E is intended for use in the electromagnetic environment specified below. The customer or the user of the model WPC-766/WPC-766E should assure that it is used in such an environment.

Immunity	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance

			Portable and mobile RF communications equipment should be used no closer to any part of the model WPC-766/WPC-766E, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.7 GHz	Vrms V/m	**Recommended separation distance** $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P}$ 80 MHz to 800 MHz $d = 2,3\sqrt{P}$ 800 MHz to 2.7 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: $\left(\left(\left(\cdot\right)\right)\right)$

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the model WPC-766/WPC-766E is used exceeds the applicable RF compliance level above, the model WPC-766/WPC-766E should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model WPC-766/WPC-766E.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than V/m.

Cleaning/Disinfecting

Steps:

1. Wipe the WPC-766/WPC-766E with a dry clean cloth.

2. Prepare agent per manufacturer's instructions or hospital protocol.

Cautions:

- Do not immerse or rinse the WPC-766/WPC-766E and its peripherals. If you accidentally spill liquid on the device, disconnect the unit from the power source. Contact your Biomed regarding the continued safety of the unit before placing it back in operation.

- Do not spray cleaning agent on the chassis.

- Do not use disinfectants that contain phenol.

- Do not autoclave or clean the WPC-766/WPC-766E or its peripherals with strong aromatic, chlorinated, ketone, ether, or Esther solvents, sharp tools or abrasives. Never immerse electrical connectors in water or other liquids.

Getting Started

System Set Up

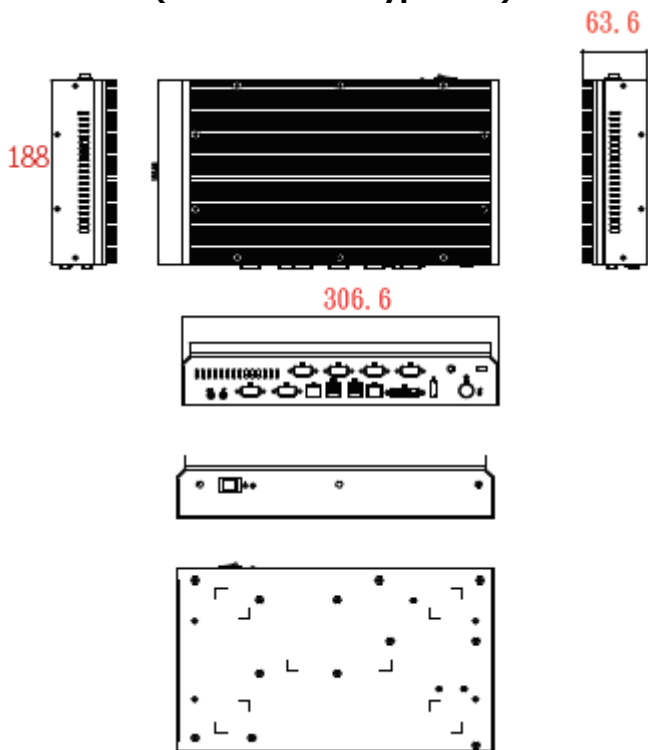The following is a summary of the steps in setting up the system for use.

(1). You can fix the system to a mounting fixture using the screw holes on the sides of the system.

(2). Make any required external connections such as the display, keyboard, and LAN.

(3). Plug the appropriate end of the power cord into the power connector on the rear of the system and the plug to an electrical outlet.

(4). ***Waiting for 3 seconds*** then press the power switch on the system once to turn on the system power.

(5). If necessary, run the BIOS SETUP programs to configure the system.

> ### *Caution:*
> *In order to boot up system from USB-CD/DVD drive, please connect USB-CD/DVD drive, turn on computer power, keep on pressing "F11" key, go into BIOS quick boot menu, select "USB-CD ROM", WAIT FOR 20 SECONDS, then press enter, system OS will boot up from USB-CD/DVD drive directly.*

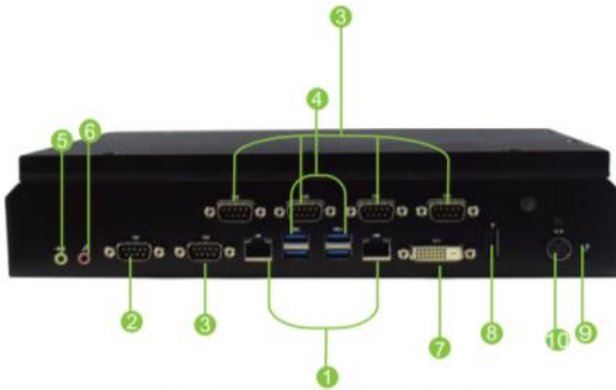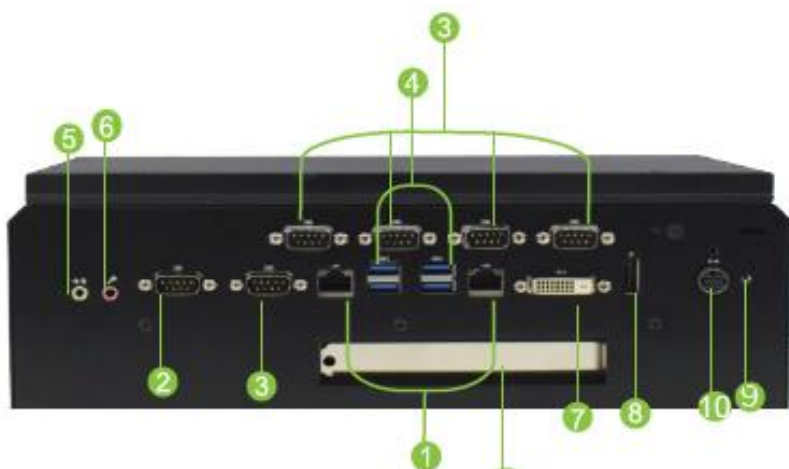# Dimension

WPC-766
(Mount Screw type: M4)

63. 6

188

306. 6

WPC-766E
(Mount Screw type: M4)

WPC-766/WPC-766E User's manual
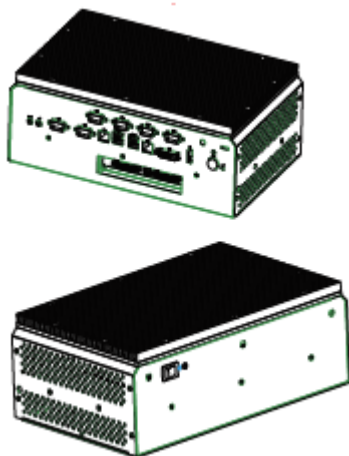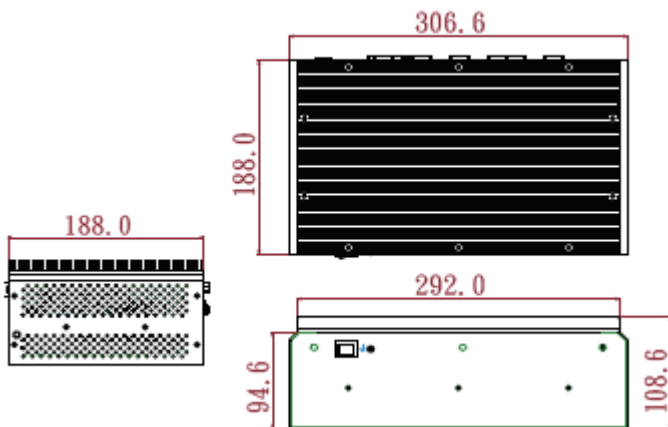
System View

Front View & I/O parts (WPC-766)

1. LAN x 2
2. RS232/422/485
3. RS232 x 5
4. USB x 4 (USB 3.0)
5. Line out
6. Microphone-in
7. DVI-D
8. DP x 1
9. Reset
10. DC-in

Front View & I/O parts (WPC-766E)

① LAN x 2
② RS232/422/485
③ RS232 x 5
④ USB x 4 (USB 3.0)
⑤ Line out
⑥ Microphone-in
⑦ DVI-D
⑧ DP x 1
⑨ Reset
⑩ DC-in
⑪ PCI-E {x16} slot

Mount Intallation (WPC-766)
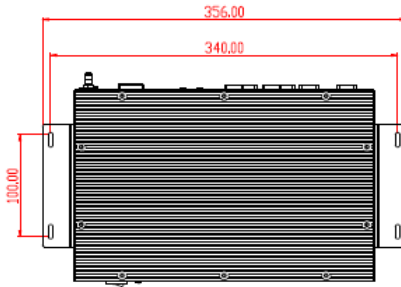
Please use the supplied 4 x M4-L10 screws. And as below mounting holder is just a diagrammatic drawing. You can choose mounting holder to mount our machine. (Caution: Only use on flat position.)

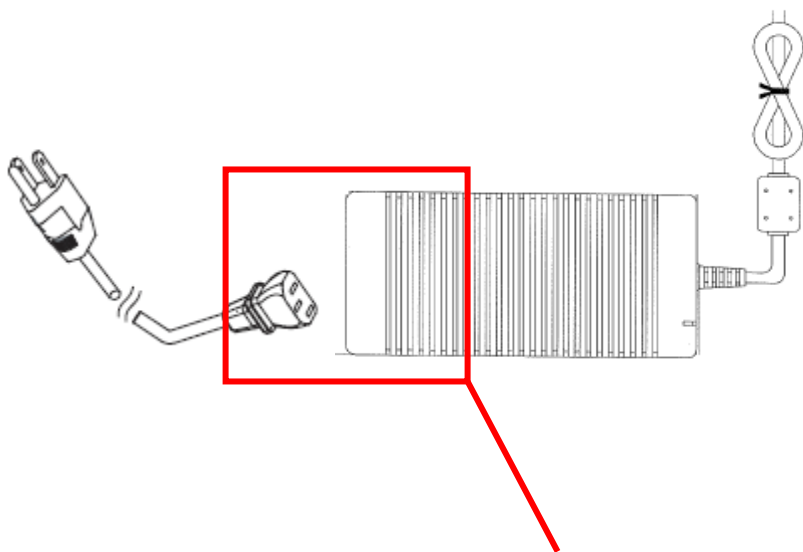## Mount Intallation (WPC-766E)
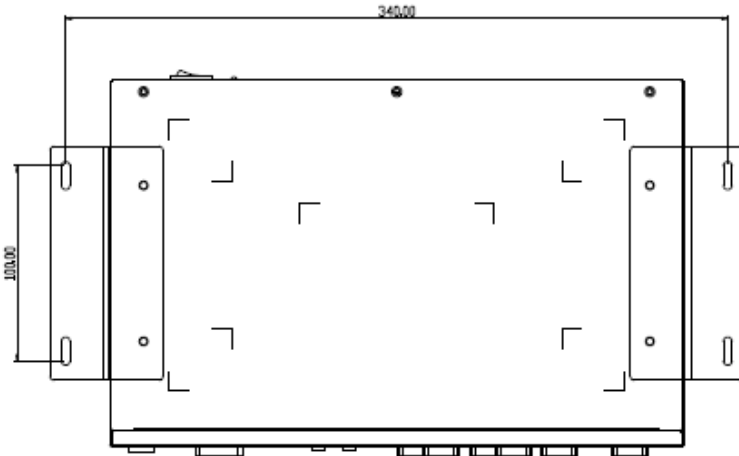
Please use the supplied 4 x M4-L10 screws. And as below mounting holder is just a diagrammatic drawing. You can choose mounting holder to mount our machine. (Caution: Only use on flat position.)

Disconnect Device

Unplug the power cord from the power
adapter jack to disconnect the device.

Scrap Computer Recycling

If the computer equipment need the maintenance or are beyond repair, we strongly recommended that you should inform us as soon as possible for the suitable solution. For the computers that are no longer useful or work well, please contact with worldwide distributors for recycling.

<u>Note:</u>
Follow the national requirement to dispose unit

Jumper and Connector Definition Block Diagram
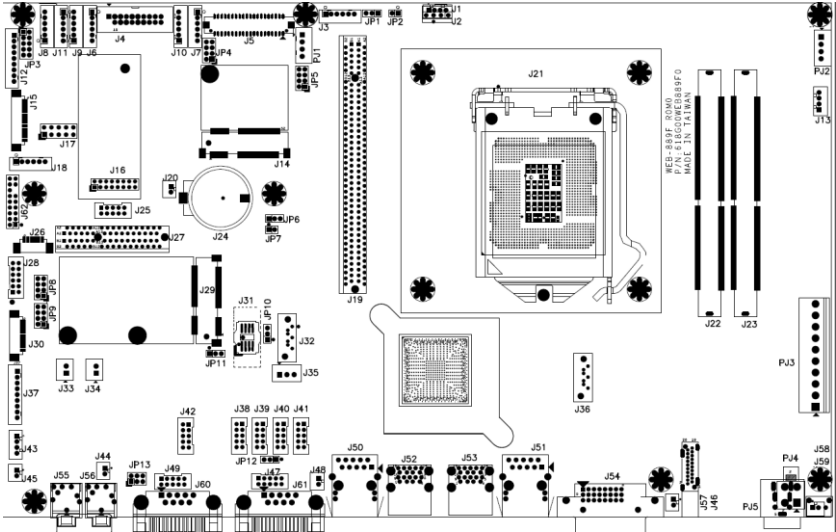
● **JP1 – Backlight Adjust**

Description	Jumper Setting
analog Inverter	1-2
PWM Inverter	*2-3 (default)*

● **JP2 – Backlight 5V / 3.3V Panel Settings**

Description	Jumper Setting
5V	*1-2 (NA) default*
3.3V	1-2 (Short)

● **JP3– 3M & ELO Type Touch Settings**

Description	Jumper Setting
X+/UL_R	**1-2** *(default)*
Y+/UR_R	**3-4** *(default)*
X+/UL_R	5-6
Y+/UR_R	7-8
SWITCH_4_5W	9-10

● **JP4 – Panel Resolution Settings**

GPIO0	GPIO1	GPIO2	GPIO3	Description	Jumper Setting
1	0	0	0	1024X768(6bit)	
0	1	0	0	1024X768(8bit)	
0	0	1	0	1280X800(8bit)	
0	*1*	*1*	*0*	*1280X1024(8bit)*	*GPIO0 and GPIO3 Low (default)*
0	1	1	1	1920X1080(8bit)	

● **JP5 – LVDS Power Settings**

Description	Jumper Setting
+5VS	**1-2** *(default)*
+5VS	**3-4** *(default)*
+3.3VS	5-6
+3.3VS	7-8

● **JP6 –CMOS Clear**

Description	Jumper Setting
Normal Open	*1-2 (default)*
CMOS Clear	2-3

● **JP8 –GPO Settings**

Description	Jumper Setting
Dry	Off (NA)
Wet	On (1-2, 3-4, 5-6, 7-8 short)

● **JP9 –GPI Settings**

Description	Jumper Setting
Dry	On (1-2, 3-4, 5-6, 7-8 short)
Wet	Off (NA)

● **JP10 –SATA or SATA DOM Selection**

Description	Jumper Setting
SATA DOM	1-2 ---power +5V
SATA Port	*2-3(default)--- GND*

● **JP11 –mSATA Settings**

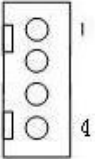| Description	Jumper Setting
mSATA	*2-3(default)*
PCIe	1-2

● **JP12 –Internal COM ports 12V / 5V Selection (Option)**

Description	Jumper Setting
Internal COM	1-2 ---power +12V
Internal COM	2-3---power +5V

● **JP13 – 5V / 12V / 232_RI# Selection**

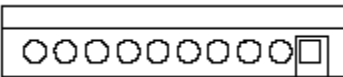| Description	Jumper Setting
+5V	1-2
+12V	3-4
232_RI#	*5-6(default)*

Connector Definition
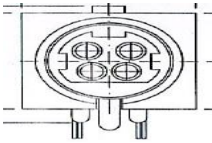
● **PJ1 /PJ2 – HDD Power Connector**

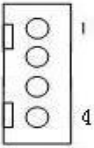| Pin #	Signal Description
1	+12VS
2	Ground
3	Ground
4	+5VS

● **PJ3 – Battery Connector**

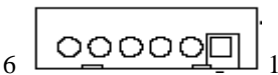| Pin #	Signal Description
1	BATT+
2	BATT+
3	BATT+
4	BATT_T
5	BATT_CLK
6	BATT_DAT
7	BATT_EN#
8	Ground
9	Ground
10	Ground

● PJ4/5 Co-layout– Power Jack Connector

Pin #	Signal Description
1	DC In
2	DC In
3	Ground
4	Ground
5	Ground

● J1 / J2 Co-layout – CPU PWM FAN

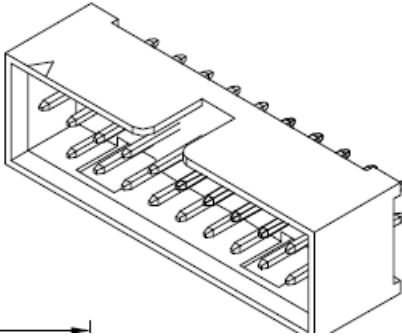| Pin #	Signal Description
1	GND
2	+12VS
3	CPU_FAN_RPM
4	FAN_PWM

● J3 – Inverter connect

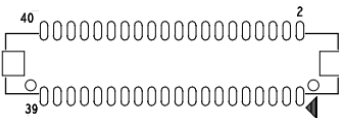| Pin #	Signal Description
1	+12VS
2	+12VS
3	Backlight Adjust

4	Backlight Enable
5	Ground
6	Ground

● **J4 – Internal USB3.0 Interface (Option)**

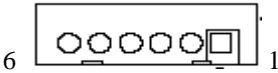| Pin #	Signal Description	Pin #	Signal Description
1	+USB3P1	2	INT_USB3RN5_R
3	INT_USB3RP5_R	4	Ground
5	INT_USB3TN5_R	6	INT_USB3TP5_R
7	Ground	8	USBPN9_USB3
9	USBPP9_USB3	10	Ground
11	USBPP8_USB3	12	USBPN8_USB3
13	Ground	14	INT_USB3TP4_R
15	INT_USB3TN4_R	16	Ground
17	INT_USB3RP4_R	18	INT_USB3RN4_R
19	+USB3P1		

● **J5 – LVDS Interface**

Pin #	Signal Description	Pin #	Signal Description
1	+LCD (+5V/ +3.3V)	2	+LCD (+5V/ +3.3V)
3	+LCD (+5V/ +3.3V)	4	+LCD (+5V/ +3.3V)

| 5	Ground	6	Ground
7	Ground	8	Ground
9	A_RxIn0-	10	B_RxIn0-
11	A_RxIn0+	12	B_RxIn0+
13	Ground	14	Ground
15	A_RxIn1-	16	B_RxIn1-
17	A_RxIn1+	18	B_RxIn1+
19	Ground	20	Ground
21	A_RxIn2-	22	B_RxIn2-
23	A_RxIn2+	24	B_RxIn2+
25	Ground	26	Ground
27	A_CKIN-	28	B_CKIN-
29	A_CKIN+	30	B_CKIN+
31	Ground	32	Ground
33	A_RxIn3-	34	B_RxIn3-
35	A_RxIn3+	36	B_RxIn3+
37	Ground	38	Ground
39	Ground	40	Ground

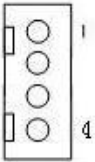● **J6/J7/J8/J9/J10/J11 – Internal USB Interface**

Pin #	Signal Description
1	+5VSB
2	+5VSB
3	D-
4	D+
5	Ground
6	Ground

● **J12 – Resistor Touch Panel Interface**
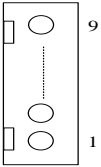
Pin #	Signal Description		
	8-wire	4-wire	5-wire
1	UL(X+)	UL(X+)	UL(X+)
2	UR(Y+)	UR(Y+)	UR(Y+)
3	N/A	N/A	PRCBE
4	LR(X-)	LR(X-)	LR(X-)
5	LL(Y-)	LL(Y-)	LL(Y-)
6	X+_DRIVE	N/A	N/A
7	Y+_DRIVE	N/A	N/A
8	X-_DRIVE	N/A	N/A
9	Y-_DRIVE	N/A	N/A

● **J13 – SYSTEM FAN**

Pin #	Signal Description
	J10(System Fan)
1	SYS_PWM
2	SYS_RPM
3	+12VS
4	GND

● **J14 – mini PCIe Socket(Half)**

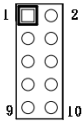| Pin #	Signal Description	Pin #	Signal Description
1	WAKE#	2	+3.3VSB
3	Reserved	4	GND
5	Reserved	6	+1.5VS
7	CLKREQ#	8	Reserved
9	GND	10	Reserved
11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PERST#
23	PERn0	24	+3.3VSB
25	PERp0	26	GND
27	GND	28	+1.5VS
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3VSB	40	GND
41	+3.3VSB	42	Reserved
43	GND	44	Reserved
45	CL_CLK	46	Reserved
47	CL_ DATA	48	+1.5VS
49	Controller Link RST#	50	GND
51	Reserved	52	+3.3VSB

● **J15 – DICOM connect**

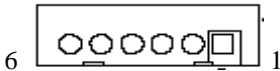| Pin #	Signal Description
1	ASIC_RST#
2	+3.3VS
3	+3.3VS
4	CSC_DET#
5	SCK_OUT
6	SDA_OUT
7	GND
8	SPI_PROG
9	SPI_CLK
10	SPI_DO
11	SPI_DI
12	GND

● **J16 –TPM / ID-394**
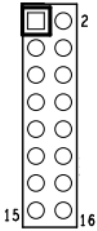
Pin #	Signal Description	Pin #	Signal Description
1	LPC AD0	2	PCI reset
3	LPC AD1	4	SERIRQ
5	LPC AD2	6	+3.3VS
7	LPC AD3	8	+5VSB
9	LPC Frame	10	PCI CLKRUN
11	Debug CLK	12	SMB CLK
13	GND	14	SMB DATA
15	SUS_STAT#	16	+3.3VB

● **J17 – DICOM JTAG**

Pin #	Signal Description	Pin #	Signal Description
1	+3.3VS	2	GND
3	GND	4	394_C2D
5	+3.3VS Pull High	6	X
7	394_RST#	8	X
9	GND	10	X

● **J18 – WRDM Interface**

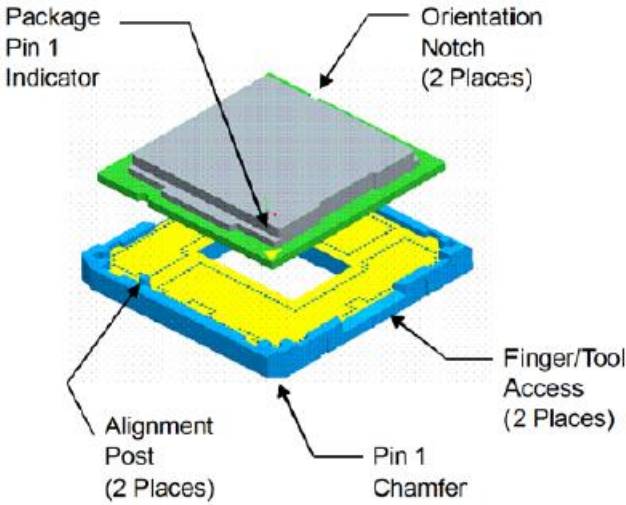| Pin #	Signal Description
1	GND
2	232_EC_SIN7
3	GND
4	232_EC_SOUT7
5	+5VSB
6	+3.3VSB

● **J19 or J500 –Standard PCIE X16 Slot Interface**

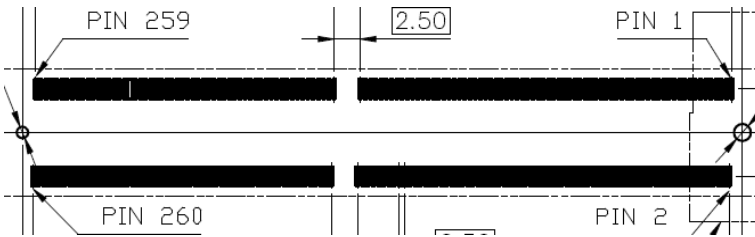| Pin #	Side B	Side A	Pin #	Side B	Side A
1	+12V	PRSNT1#	42	PETn6	GND
2	+12V	+12V	43	GND	PERp6
3	+12V	+12V	44	GND	PERn6
4	GND	GND	45	PETp7	GND
5	SMCLK	**PCIE_TXN7**	46	PETn7	GND

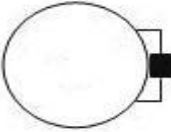| 6	SMDAT	**PCIE_TXP7**		47	GND	PERp7
7	GND	**PCIE_RXN7**		48	Reserved	PERn7
8	+3.3V	**PCIE_RXP7**		49	GND	GND
9	Reserved	+3.3V		50	PETp8	Reserved
10	+3.3V	+3.3V		51	PETn8	GND
11	WAKE#	PERST#		52	GND	PERp8
12	Reserved	GND		53	GND	PERn8
13	GND	PCIEx16_CLK+		54	PETp9	GND
14	PETp0	PCIEx16_CLK-		55	PETn9	GND
15	PETn0	GND		56	GND	PERp9
16	GND	PERp0		57	GND	PERn9
17	Reserved	PERn0		58	PETp10	GND
18	GND	GND		59	PETn10	GND
19	PETp1	Reserved		60	GND	PERp10
20	PETn1	GND		61	GND	PERn10
21	GND	PERp1		62	PETp11	GND
22	GND	PERn1		63	PETn11	GND
23	PETp2	GND		64	GND	PERp11
24	PETn2	GND		65	GND	PERn11
25	GND	PERp2		66	PETp12	GND
26	GND	PERn2		67	PETn12	GND
27	PETp3	GND		68	GND	PERp12
28	PETn3	GND		69	GND	PERn12
29	GND	PERp3		70	PETp13	GND
30	**PCIEx1_100MP**	PERn3		71	PETn13	GND
31	**PCIEx1_100MN**	GND		72	GND	PERp13
32	GND	Reserved		73	GND	PERn13
33	PETp4	Reserved		74	PETp14	GND
34	PETn4	GND		75	PETn14	GND
35	GND	PERp4		76	GND	PERp14
36	GND	PERn4		77	GND	PERn14
37	PETp5	GND		78	PETp15	GND
38	PETn5	GND		79	PETn15	GND
39	GND	PERp5		80	GND	PERp15
40	GND	PERn5		81	Reserved	PERn15
41	PETp6	GND		82	Reserved	NA

● **J21 – CPU Interface (Please refer to FCLGA1151)**

Package Pin 1 Indicator

Orientation Notch (2 Places)

Finger/Tool Access (2 Places)

Alignment Post (2 Places)

Pin 1 Chamfer

● **J22 / J23 – DDR4 Vertical Connect**

PIN 259

2.50

PIN 1

PIN 260

PIN 2

Pin	Front	Pin	Back	Pin	Front	Pin	Back	Pin	Front	Pin	Back
1	VSS	2	VSS	67	DQ29	68	VSS	133	A1	134	EVENT_n, NF	199	DM5_n/DBI5_n	200	DQS5_t
3	DQ5	4	DQ4	69	VSS	70	DQ24	135	VDD	136	VDD	201	VSS	202	VSS
5	VSS	6	VSS	71	DQ25	72	VSS	137	CK1_t/NF	138	CK1_t/NF	203	DQ46	204	DQ47
7	DQ1	8	DQ0	73	VSS	74	DQS3_c	139	CK0_c	140	CK1_c/NF	205	VSS	206	VSS
9	VSS	10	VSS	75	DM3_n/DM3_n	76	DQS3_t	141	VDD	142	VDD	207	DQ42	208	DQ43
11	DQS0_c	12	DM0_n/DM10_n	77	VSS	78	VSS	143	PARITY	144	A0	209	VSS	210	VSS
13	DQS0_t	14	VSS	79	DQ30	80	DQ31	145	BA1	146	A10/AP	211	DQ52	212	DQ53
15	VSS	16	DQ6	81	VSS	82	VSS	147	VDD	148	VDD	213	VSS	214	VSS
17	DQ7	18	VSS	83	DQ26	84	DQ27	149	CS0_n	150	BA0	215	DQ49	216	DQ48
19	VSS	20	DQ2	85	VSS	86	VSS	151	WE_n/A14	152	RAS_n/A16	217	VSS	218	VSS
21	DQ3	22	VSS	87	CB5/NC	88	CB4/NC	153	VDD	154	VDD	219	DQS6_c	220	DM6_n/DBI6_n
23	VSS	24	DQ12	89	VSS	90	VSS	155	ODT0	156	CAS_n/A15	221	DQS6_t	222	VSS
25	DQ13	26	VSS	91	CB1/NC	92	CB0/NC	157	CS1_n	158	A13	223	VSS	224	DQ54
27	VSS	28	DQ8	93	VSS	94	VSS	159	VDD	160	VDD	225	DQ55	226	VSS
29	DQ9	30	VSS	95	DQS8_c	96	DM8_n/DBI_n/NC	161	ODT1	162	C0/CS2_n/NC	227	VSS	228	DQ50
31	VSS	32	DQS1_c	97	DQS8_t	98	VSS	163	VDD	164	VDD	229	DQ51	230	VSS
33	DM1_n/DBI_n	34	DQS1_t	99	VSS	100	CB6/NC	165	C1, CS3_n, NC	166	SA2	231	VSS	232	DQ60
35	DQ15	36	DQ14	101	CB2/NC	102	VSS	167	VSS	168	VSS	233	DQ61	234	VSS
37	DQ15	38	DQ14	103	VSS	104	CB7/NC	169	DQ37	170	DQ36	235	VSS	236	DQ57
39	VSS	40	VSS	105	CB3/NC	106	VSS	171	VSS	172	VSS	237	DQS6	238	VSS
41	DQ10	42	DQ11	107	VSS	108	VSS	173	DQ33	174	DQ32	239	VSS	240	DQS7_c
43	VSS	44	VSS	109	CKE0	110	CKE1	175	VSS	176	VSS	241	DM7_n/DBI7_n	242	DQS7_t
45	DQ21	46	DQ20	111	VDD	112	VDD	177	DQS4_c	178	DM4_n/DBI4_n	243	VSS	244	VSS
47	VSS	48	VSS	113	BG1	114	ACT_n	179	DQS4_t	180	VSS	245	DQ62	246	DQ63
49	DQ17	50	DQ16	115	BG0	116	ALERT_n	181	VSS	182	DQ39	247	VSS	248	VSS
51	VSS	52	VSS	117	VDD	118	VDD	183	DQ38	184	VSS	249	DQ58	250	DQ59
53	DQS2_c	54	DM2_n/DBI2_n	119	A12	120	A11	185	VSS	186	DQ35	251	VSS	252	VSS
55	DQS2_t	56	VSS	121	A9	122	A7	187	DQ34	188	VSS	253	SCL	254	SDA
57	VSS	58	DQ22	123	VDD	124	VDD	189	VSS	190	DQ45	255	VDDSPD	256	SA0
59	DQ23	60	VSS	125	A8	126	A5	191	DQ44	192	VPP	257	VPP	258	VTT
61	VSS	62	DQ18	127	A6	128	A4	193	VSS	194	DQ41	259	VPP	260	SA1
63	DQ19	64	VSS	129	VDD	130	VDD	195	DQ40	196	VSS				
65	VSS	66	DQ28	131	A3	132	A2	197	VSS	198	DQS5_c				

● **J24 – Battery Socket**
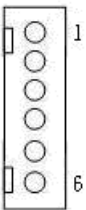
Pin #	Signal Description
1	RTC +3.3V
2	GND

● **J25 – EC 80 Port**
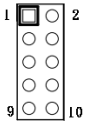
Pin #	Signal Description	Pin #	Signal Description
1	LPC_AD0	2	+5VS
3	LPC_AD1	4	+3.3VS
5	LPC_AD2	6	L80HLAT
7	LPC_AD3	8	L80LLAT
9	GND	10	GND

● **J26 – Light Sensor Connect**

Pin #	Signal Description
1	+3.3VS

2	NC
3	GND
4	SMBCLK
5	LIG_SEN_INT#
6	SMBDATA

● **J27 – ISO RISER Interface**

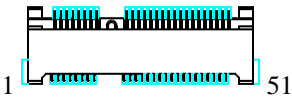| Pin #	Side B	Side A	Pin #	Side B	Side A
1	+5VSB	+3.3V_LAN	17	Ground	USBPN7
2	+5VSB	+3.3V_LAN	18	UARTCLK2_33M	Ground
3	+5VSB	+3.3V_LAN	19	Ground	Ground
4	+5VSB	+3.3V_LAN	20	Ground	Ground
5	+5VSB	+3.3V_LAN	21	Ground	Ground
6	+5VSB	+3.3V_LAN	22	Ground	Ground
7	Ground	Ground	23	PCIE_RXN6	Ground
8	LPC_AD0	+5VS	24	PCIE_RXP6	ISOCOM_GPIO2
9	LPC_AD1	+5VS	25	Ground	ISOCOM_GPIO3
10	LPC_AD2	+3.3VS	26	Ground	CLKRQ#_ISOLAN
11	LPC_AD3	ISOCOM_GPIO1	27	PCIE_TXN6	Ground
12	LPC_FRAME#	USB_PWREN	28	PCIE_TXP6	Ground
13	PLT_RST#	Ground	29	Ground	LANCLK2_100MN
14	SERIRQ	Ground	30	PCIE_WAKE#	LANCLK2_100MP
15	Ground	Ground	31	Ground	Ground
16	UARTCLK2_48M	USBPP7	32	Ground	Ground

● **J28 – GPIO Connect**
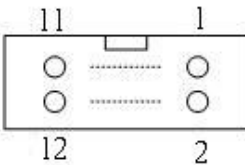
Pin #	Signal Description	Pin #	Signal Description
1	GPO1	2	GPI1
3	GPO2	4	GPI2

| 5	GPO3	6	GPI3
7	GPO4	8	GPI4
9	+5VS	10	+5VS
11	GND	12	GND

● **J29–mini PCI Express Socket (Full)**

1 ⎣ ⎦ 51

Pin #	Signal Description	Pin #	Signal Description
1	WAKE#	2	+3.3VSB
3	Reserved	4	GND
5	Reserved	6	+1.5VS
7	CLKREQ#	8	Reserved
9	GND	10	Reserved
11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PERST#
23	PERn0	24	+3.3VSB
25	PERp0	26	GND
27	GND	28	+1.5VS
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3VSB	40	GND
41	+3.3VSB	42	Reserved
43	SEL_PCIE_SATA	44	Reserved
45	CL_CLK	46	Reserved
47	CL_ DATA	48	+1.5VS
49	Controller Link RST#	50	GND
51	Reserved	52	+3.3VSB

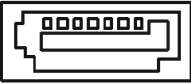● **J30 – CAP Front Bezel Button Connector**
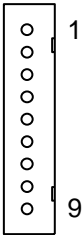
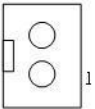| Pin #	Signal Description
1	+5V_AWS
2	+3.3_DSW
3	KP_SCL
4	KP_SDA
5	PWR_LED#
6	KP_P_LED#
7	SATA_LED#
8	Ground
9	Ground

● **J31 –BIOS SOCKET**

Pin #	Signal Description	Pin #	Signal Description
1	CS#	5	VDD
2	SO	6	HOLD#
3	WP#	7	SCK
4	VSS	8	SI

● **J32 – Standard SATA / SATA DOM Interface**

Pin #	Signal Description
1	Ground
2	Tx+
3	Tx-
4	Ground
5	Rx-
6	Rx+
7	Ground / **+5VS (jump select)**

● **J33,J34 – Reading Light (option)**

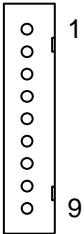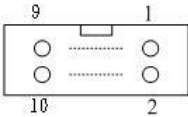| Pin #	Signal Description
1	+12VP
2	READING LIGHT

● **J35 – PCI POWER**
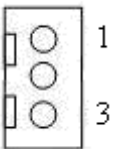
Pin #	Signal Description
1	+5V
2	Ground
3	+5V

● **J36 – Standard SATA Interface**
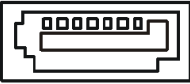
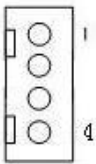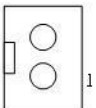| Pin #	Signal Description
1	Ground
2	Tx+
3	Tx-
4	Ground
5	Rx-
6	Rx+
7	Ground

● **J37 – Front Bezel Button Connector (WMP-17F)**

Pin #	Signal Description
1	PWRSW#
2	+3.3V_DSW
3	VOL+_BTN#
4	VOL-_BTN#
5	Ground
6	BKLT+_BTN#
7	BKLT-_BTN#
8	+3.3V_DSW
9	PWRLED#

● **J38,J39,J40,J42 – COM5, COM4, COM3, COM6 Serial Ports J41 – TTL COM4 Support +12VS / 5VS**

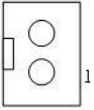| Pin #	Signal Description	Pin #	Signal Description
1	232_DCD	2	232_DSR
3	232_SIN	4	232_RTS
5	232_SOUT	6	232_CTS
7	232_DTR	8	232_RI
9	GND	10	+5VS

● **J43 – POWER & HDD LED**

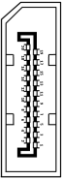| Pin #	Signal Description
1	SATA LED#
2	+3.3V_DSW
3	+3.3V_DSW
4	Power LED#

● **J44,J48 – R/L Speaker Connect**

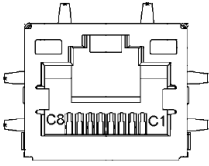| Pin #	Signal Description
1	AMP. Out +
2	AMP. Out -

● **J45 – Internal MIC**

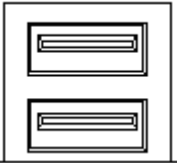| Pin #	Signal Description
1	MIC R/L Signals
2	AGND

● **J46 – Display Port Interface**

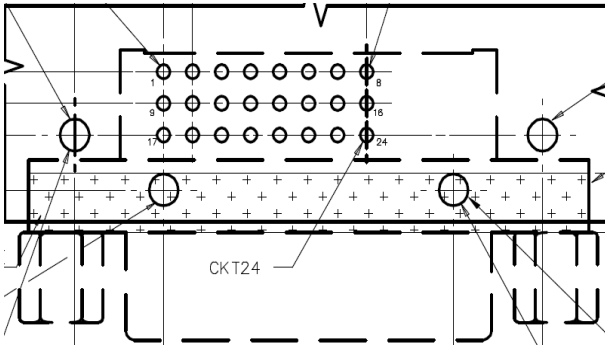| Pin #	Signal Description	Pin #	Signal Description
1	ML_LANE0+	11	GND
2	GND	12	ML_LANE3-
3	ML_LANE0-	13	DPN_AUX_EN_N
4	ML_LAN1+	14	GND
5	GND	15	DPN_AUX_P
6	ML_LAN1-	16	GND
7	ML_LANE2+	17	DPN_AUX_N
8	GND	18	Hot Plug
9	ML_LANE2-	19	GND
10	ML_LANE3+	20	+3.3VS

● **J50, J51 – Ethernet Ports**

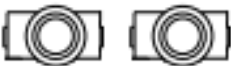| Pin #	Signal Description
1	LAN1_MDI3_N
2	LAN1_MDI3_P
3	LAN1_MDI2_N
4	LAN1_MDI2_P
5	LAN1_MDI1_N
6	LAN1_MDI1_P
7	LAN1_MDI0_N
8	LAN1_MDI0_P

● **J52, J53 – USB3.0 Port**

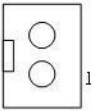| Pin #	Signal Description	Pin #	Signal Description
1	+5VSB	10	+5VSB
2	Data1-	11	Data2-
3	Data1+	12	Data2+
4	GND	13	GND
5	SSRX1-	14	SSRX2-
6	SSRX1+	15	SSRX2+
7	GND	16	GND
8	SSTX1-	17	SSTX2-
9	SSTX1+	18	SSTX2+

● **J54 – External DVI Connector**

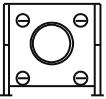| Pin #	Signal Description	Pin #	Signal Description
1	DVI Data2-	2	DVI Data2+
3	GND	4	NC
5	NC	6	DVI SCL
7	DVI SDA	8	VSYNC
9	DVI Data1-	10	DVI Data1+
11	GND	12	NC
13	NC	14	+5V
15	GND	16	Hot Plug Detect
17	DVI Data0-	18	DVI Data0+
19	GND	20	CRT_CLK
21	CRT_DATA	22	GND
23	DVI Clock+	24	DVI Clock-

● **J55 / J56 – External Audio Phone Jack**

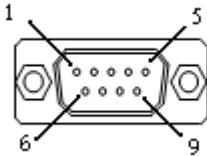| Pin #	Signal Description
J55	Line Out (stereo) Green
J56	Microphone (stereo) Pink

● **J57 – Power Switch connect**

Pin #	Signal Description
1	Power ON
2	GND

● **J58 – Reset Button (Option Co-layout J59– Reset connector)**

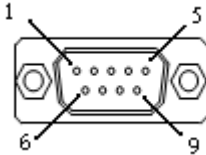| Pin #	Signal Description
1	SYS_RESET#
2	GND

● **J60 – External COM1 Connector**

| Pin #	Signal Description		
	RS-232	RS-422	RS-485
1	Carrier Detect	Transmit Data -	Transmit Data -
2	Receive Data	Transmit Data +	Transmit Data +
3	Transmit Data	Receive Data +	NC
4	Data Terminal Ready	Receive Data -	NC
5	Ground	NC	NC
6	Data Set Ready	NC	NC

7	Request to Send	NC	NC
8	Clear to Send	NC	NC
9	Ring Indicator	NC	NC

● **J61 – External COM2 Connector**

Pin #	Signal Description	Pin #	Signal Description
1	232_DCD	2	232_SIN
3	232_SOUT	4	232_DTR
5	GND	6	232_DSR
7	232_RTS	8	232_CTS
9	232_RI		

● **J62 – TPM 2.0 support**
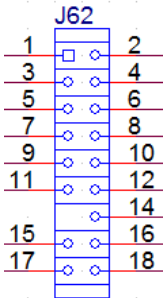
1	DEBUG_CLK	6	SMBDATA	11	LPC_AD0	16	SERIRQ
2	GND	7	LPC_LAD3	12	GND	17	GND
3	LPC_FRAME#	8	LPC_DAT2	13	NA	18	
4	SMBCLK	9	+3VS	14	SUS_SATA#		
5	PLT_RST#	10	LPC_DAT1	15	+3.3VSB		