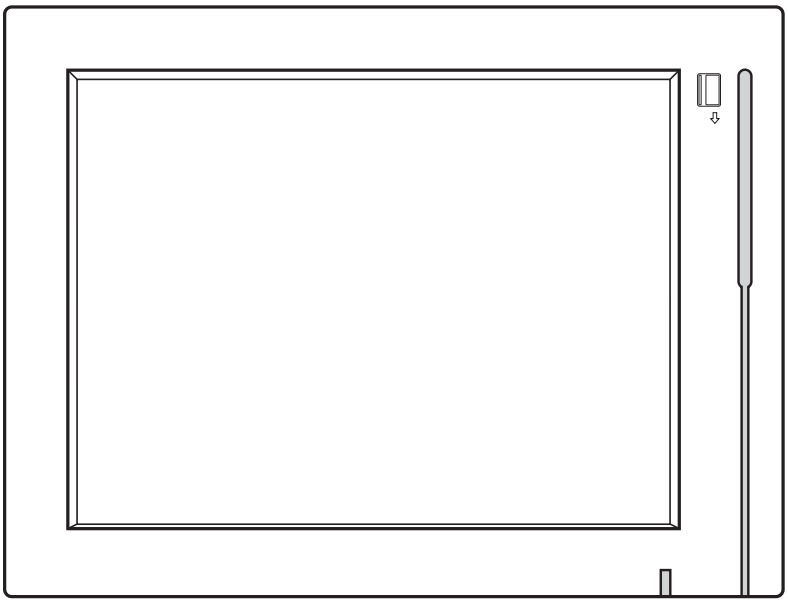
USER MANUAL

VERSION 1.2 April 2013

Saturn AIO(8”and 12”)



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Manual Version 1.0

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Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrical power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

CE MARK

This device complies with the requirements of the EEC directive 2004/108/EC with regard to “Electromagnetic compatibility” and 2006/95/EC “Low Voltage Directive”.

FCC

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

CAUTION ON LITHIUM BATTERIES

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

LEGISLATION AND WEEE SYMBOL

2012/19/EU Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.

The crossed dust bin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Revision History

Changes to the original user manual are listed below:

Revision	Description	Date
1.0	• Initial release	December 2009
1.1	• 12.1” LCD brightness updated	November 2011
1.2	• C46 MB added	April 2012

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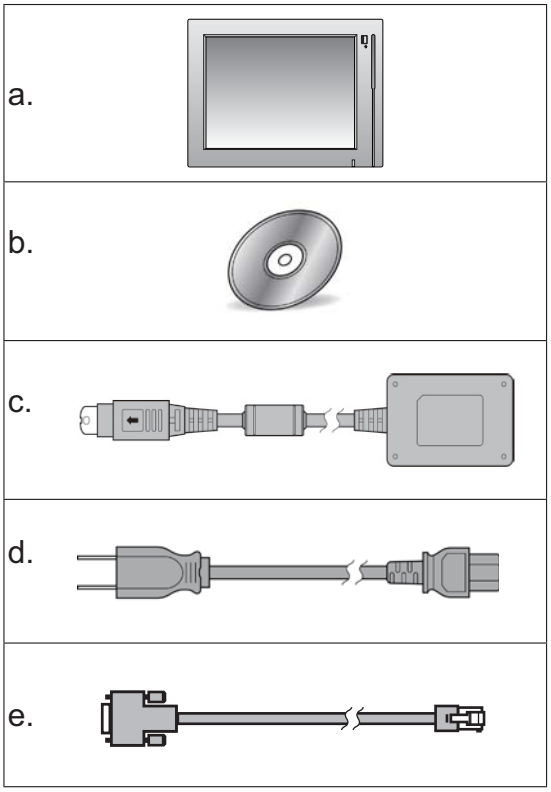
1. Packing List

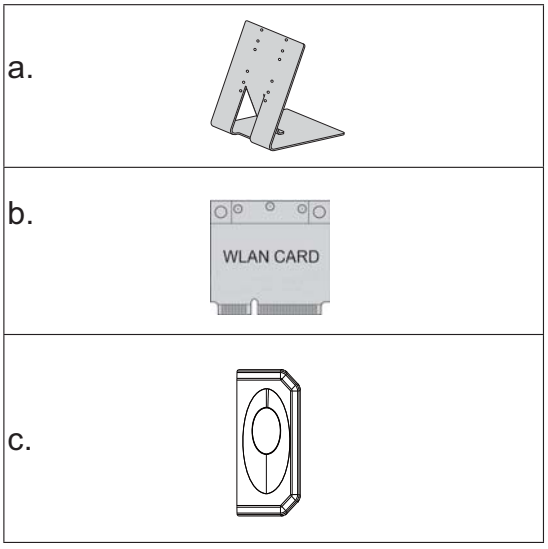
1-1. Standard Accessories

a. System
b. Driver bank
c. Power adapter
d. Power cord
e. RJ45-DB9 cable (x2)



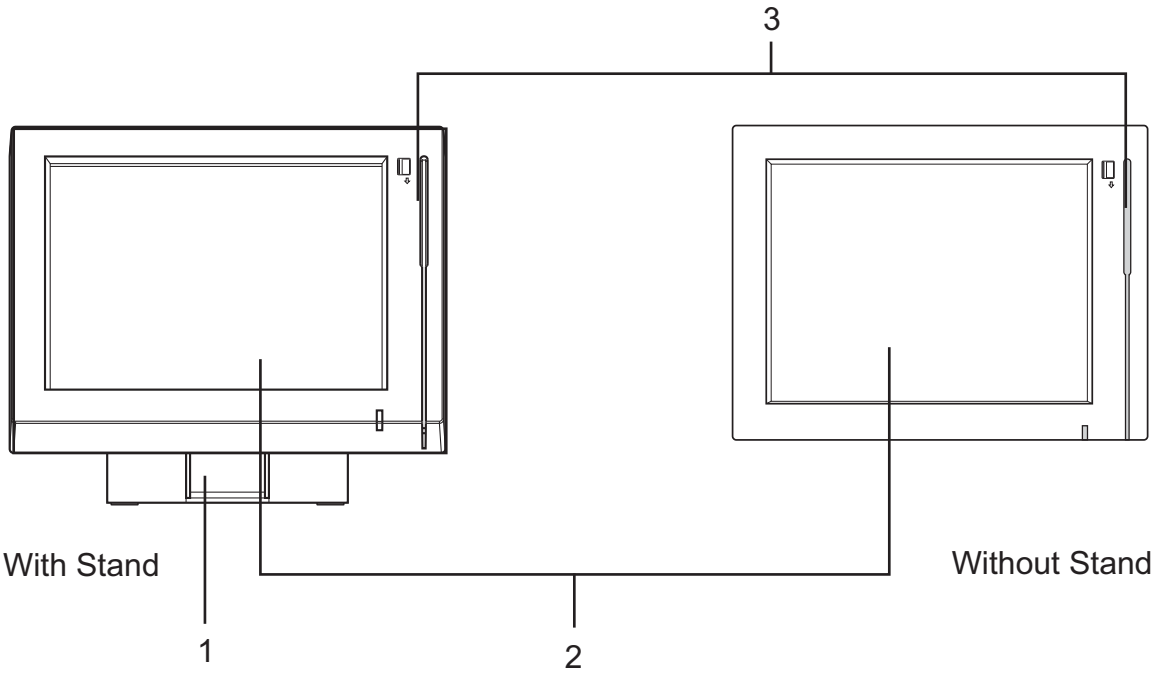
1-2. Optional Accessories

a. Stand
b. WLAN Card + internal antenna
c. Fingerprint reader



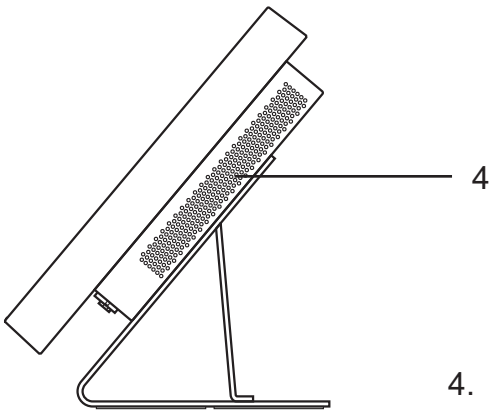
2. System View

2-1. Front View



1. Metal Stand
2. Touch Screen
3. Built-in MSR

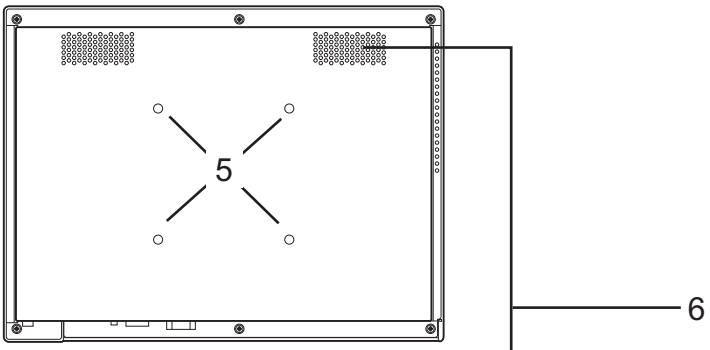
2-2. Side View



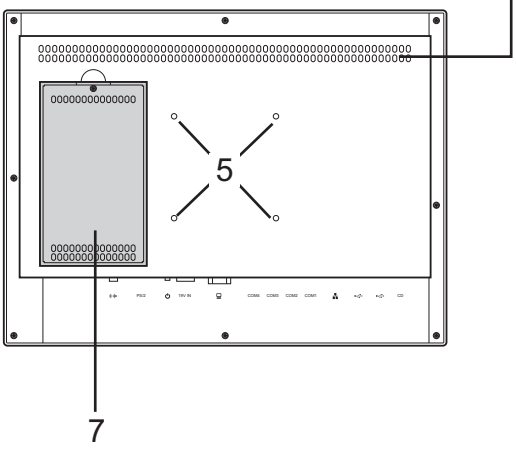
4. Ventilation holes

2-3. Rear View

8.4" System

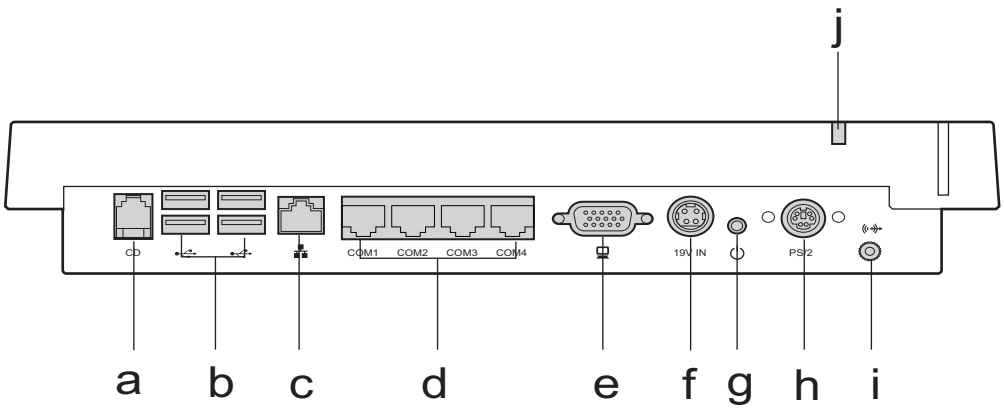


12.1" System



5. VESA Mounting Holes
6. Ventilation
7. HDD Door (12.1")

2-4. I/O view

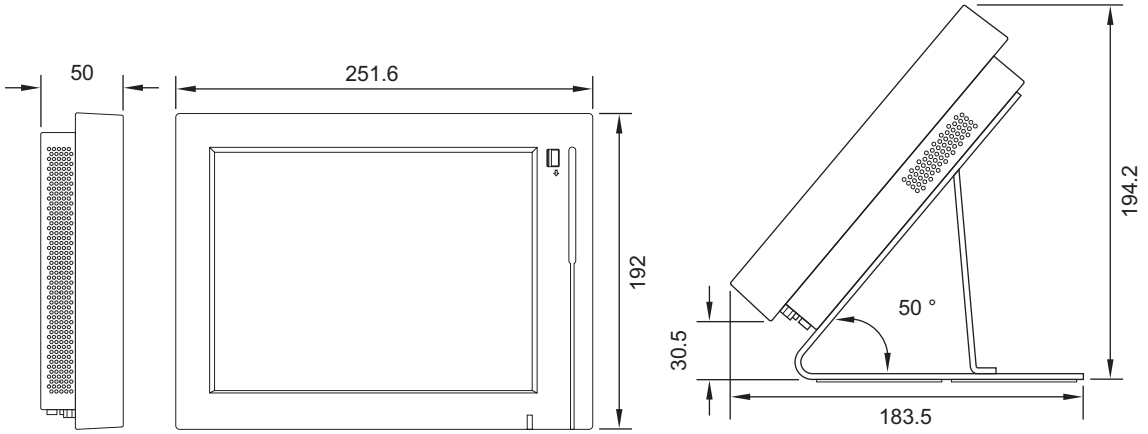


Item No.	Description
a	Cash drawer port
b	USB x 4
c	LAN (10/100/1000)
d	COM Port 1, 2, 3, 4 (from left to right)
e	VGA
f	DC jack
g	Power button
h	PS/2
i	Line-out
j	Power LED indicator

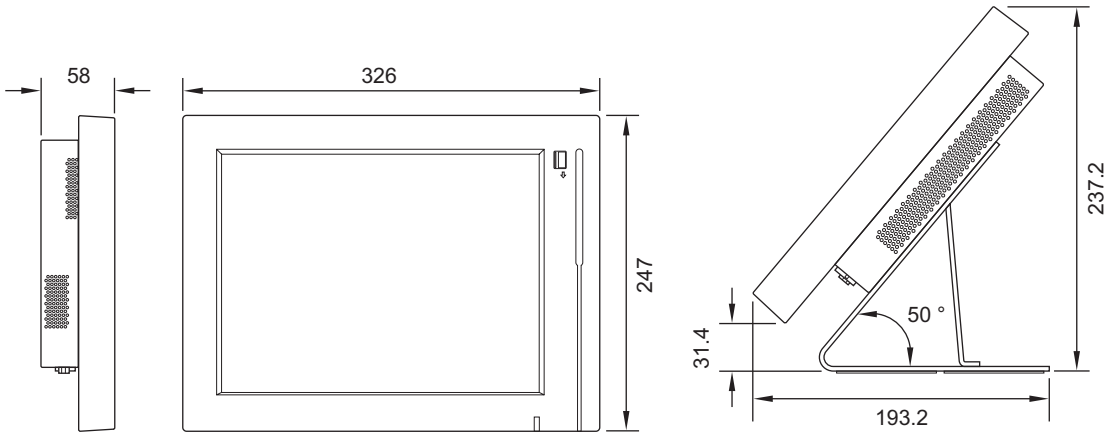
Note: The location of the I/O ports may vary slightly, depending on whether you have a system with or without fan.

2-5. Dimensions

2-5-1. 8.4" System



2-5-2. 12.1 System

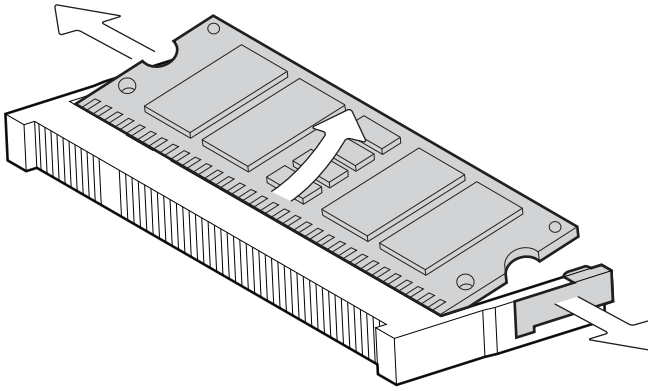


3. System Assembly

3-1. RAM Module Replacement

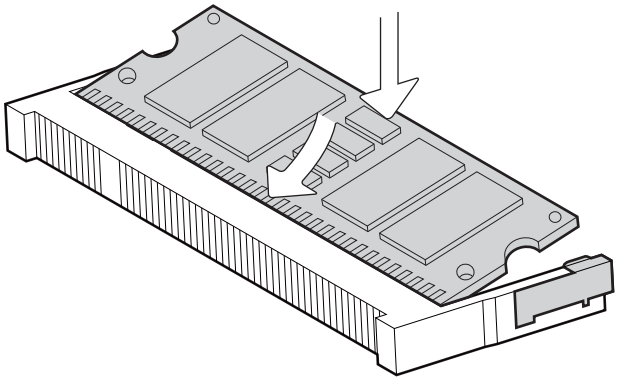
Removing a RAM module

1. Please Open the rear cover by unfastening the screws (x8) to access the motherboard. (See Chapter 3-2)
2. Use both fingers to pull the ejector clips out of the sides of the module.
3. Slide out to remove the memory module from the memory slot.



Installing a RAM moudle

4. Slide the memory module into the memory slot and press down until the ejector clips click in place.



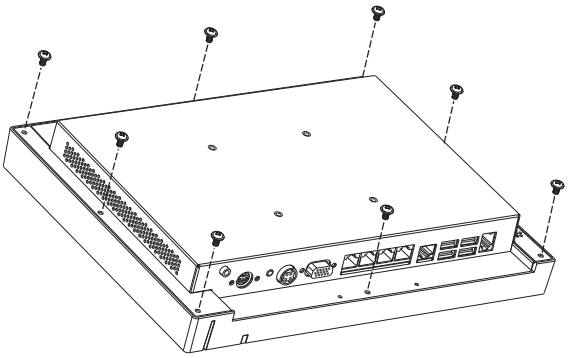
3-2. HDD Replacement

To remove and replace the HDD, please follow the steps below. The procedure is different depending on the 8.4” and 12.1” system being installed.

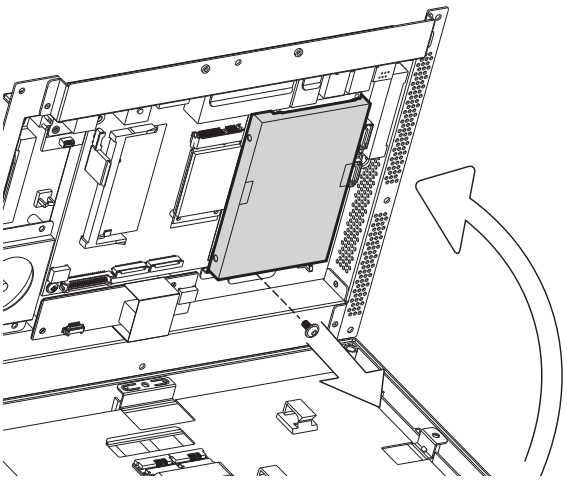
3-2-1. HDD replacement for 8.4” system

The HDD is installed on the motherboard, you need to uncover the rear cover first to access it. If your system is equipped with a stand or a wall-mount bracket, please remove them first.

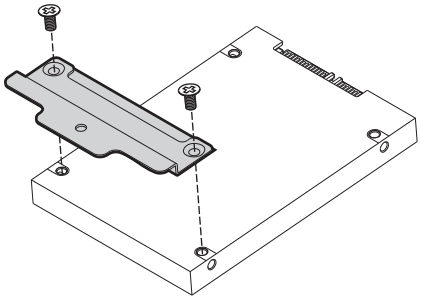
1. Turn to the rear side of the system and open the rear cover by unfastening all the screws (x6).



2. **Gently** flip up the rear cover due to various connectors connecting the motherboard to the LCD screen.
3. Unscrew the screw (x1) of the HDD holding bracket.
4. Disconnect the HDD connector and remove it with the holding bracket from the motherboard.



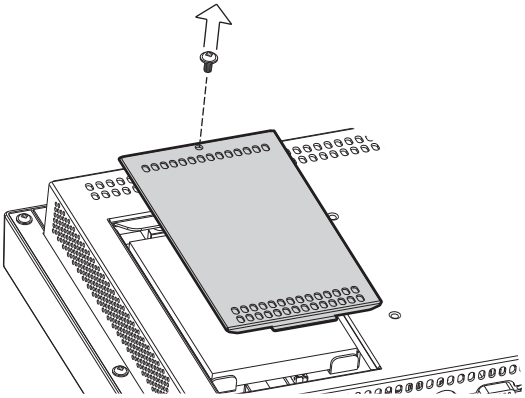
5. Unfasten the screws (x2) to separate the HDD holding bracket from the hard drive disk.
6. Reverse the steps above to replace the hard drive disk.



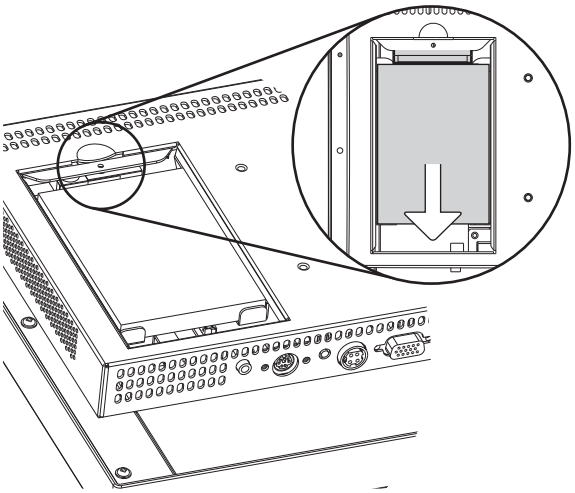
3-2-2. HDD replacement for 12.1” system

You can access the HDD easily by turning the system to the rear side on a 12” system. Please see detailed procedure below.

1. Turn to the rear side of the system to access the HDD door.
2. Unscrew the screw (x1) securing the HDD door to the rear cover of the system.



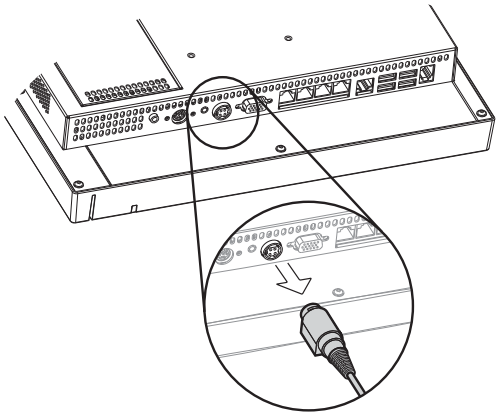
3. Disconnect the SATA cable from the drive.
4. Reverse above steps to replace the hard drive disk.



3-3. Power Adapter Installation

The system is equipped with a 65W power adapter, please plug it in as shown below.

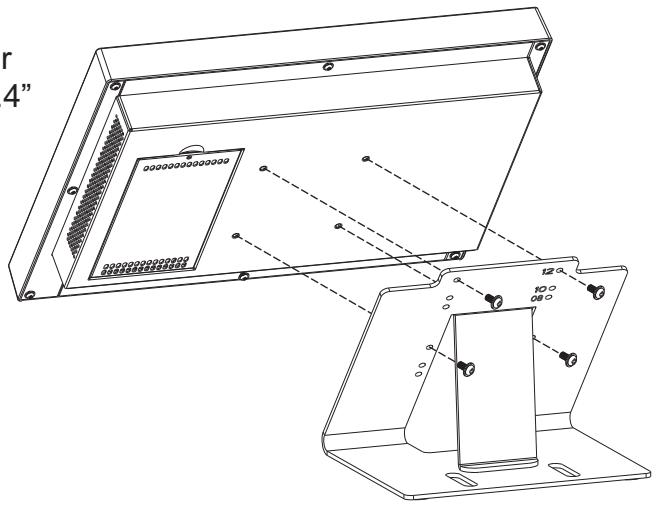
1. Please connect the power adapter to the DC-IN Connector on the I/O panel.



4. Peripheral Installation

4-1. Stand Installation

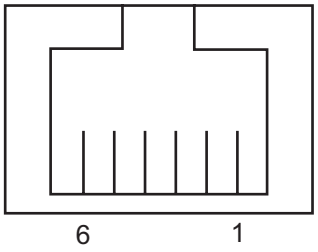
1. Fasten the screws (x4). The screw location may slightly differ according to the system size (8.4” and 12.1”) being installed.



4-2. Cash Drawer Installation

You can install a cash drawer through the cash drawer port. Please verify the pin assignment of your cable before installation.

Cash Drawer Pin Assignment



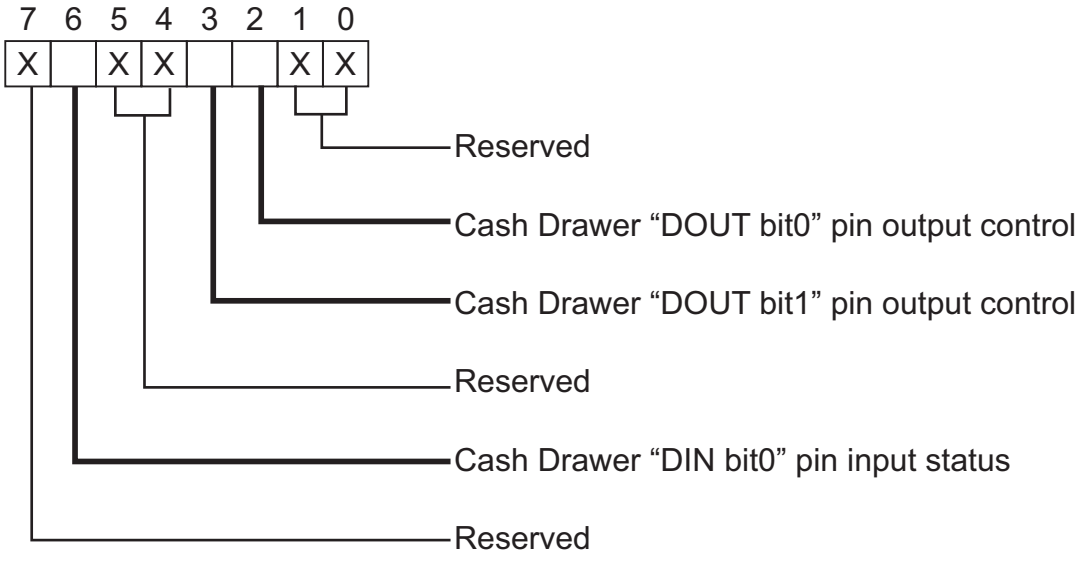
Pin	Signal
1	GND
2	DOUT bit0
3	DIN bit0
4	12V / 19V
5	DOUT bit1
6	GND

Cash Drawer Controller Register

The Cash Drawer Controller use one I/O address to control the Cash Drawer.

Register Location: 48Ch
Attribute: Read / Write
Size: 8bit

BIT	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Attribute	Reserved		Read	Reserved	Write		Reserved	



Bit 7: Reserved
Bit 6: Cash Drawer “DIN bit0” pin input status.
= 1: the Cash Drawer closed or no Cash Drawer
= 0: the Cash Drawer opened
Bit 5: Reserved
Bit 4: Reserved
Bit 3: Cash Drawer “DOUT bit1” pin output control.
= 1: Opening the Cash Drawer
= 0: Allow close the Cash Drawer
Bit 2: Cash Drawer “DOUT bit0” pin output control.
= 1: Opening the Cash Drawer
= 0: Allow close the Cash Drawer
Bit 1: Reserved
Bit 0: Reserved

Note: Please follow the Cash Drawer control signal design to control the Cash Drawer.

Cash Drawer Control Command Example

Use Debug.EXE program under DOS or Windows98

Command	Cash Drawer
O 48C 04	Opening
O 48C 00	Allow to close
► Set the I/O address 48Ch bit2 =1 for opening Cash Drawer by “DOUT bit0” pin control. ► Set the I/O address 48Ch bit2 = 0 for allow close Cash Drawer.	

Command	Cash Drawer
I 48C	Check status
► The I/O address 48Ch bit6 =1 mean the Cash Drawer is opened or not exist. ► The I/O address 48Ch bit6 =0 mean the Cash Drawer is closed.	

5. Specification

Model Name	Saturn AIO (8” and 12”)	
Motherboard	**N270**	**D525**
Processor	Intel® AtomTM processors N270 1.6Ghz L2 512K FSB 533MHz	Intel Pineview D525, dual core 1.8Ghz, L2 1M
Chipset	Intel® 945GSE Express chipset + ICH7M	CPU integrated graphic + ICH
System Memory	1 X DDR2 DIMM up to 2GB FSB 533MHz	1 x DDR3 DIMM socket up to 4GB, FSB 800Mhz
Graphic Memory	Intel® GMA 950 share system memory up to 224MB	Intel GMA 3150 share system memory up to 384MB
LCD Panel		
LCD Size	8.4” TFT LCD 12.1” TFT LCD	
Brightness	8.4” : 200~250 cd/m² 12.1” : 400~500 cd/m²	
Maximum Resolution	8.4”: 800x600 12.1”: 1024x768	
Touch Screen	Resistive	
Tile Angle	0°~ 60°	
Storage Device		
Hard Drive	1x2.5” SATA HDD or SSD	
Expansion		
mini-PCI express slot	1	
Rear I/O		
USB Port	4 (USB 2.0)	
Serial / COM	4 x RJ45 (COM1/COM2 standard COM, COM3/COM4 pin 9 +5V/+12V power by jumper)	4 x RJ45 (COM1/COM2 standard COM., COM3 /COM4 pin9 power by BIOS setting)
LAN Port	1 x RJ-45 (10/100/1000Mbps Giga LAN)	
Second Display	1 (DB-15 Female)	
Cash Drawer Port	1 x RJ-11 (12V / 24V)	
DC Jack	1 (DC 19V)	
Power button	1	
Power	Adapter (65W, 19V, 3.4A)	
Peripherals		
MSR	Standard integrated 3 Track MSR (PS/2 Standard, optional USB)	
Finger print	Optical Finger Printer Reader (USB, optional)	

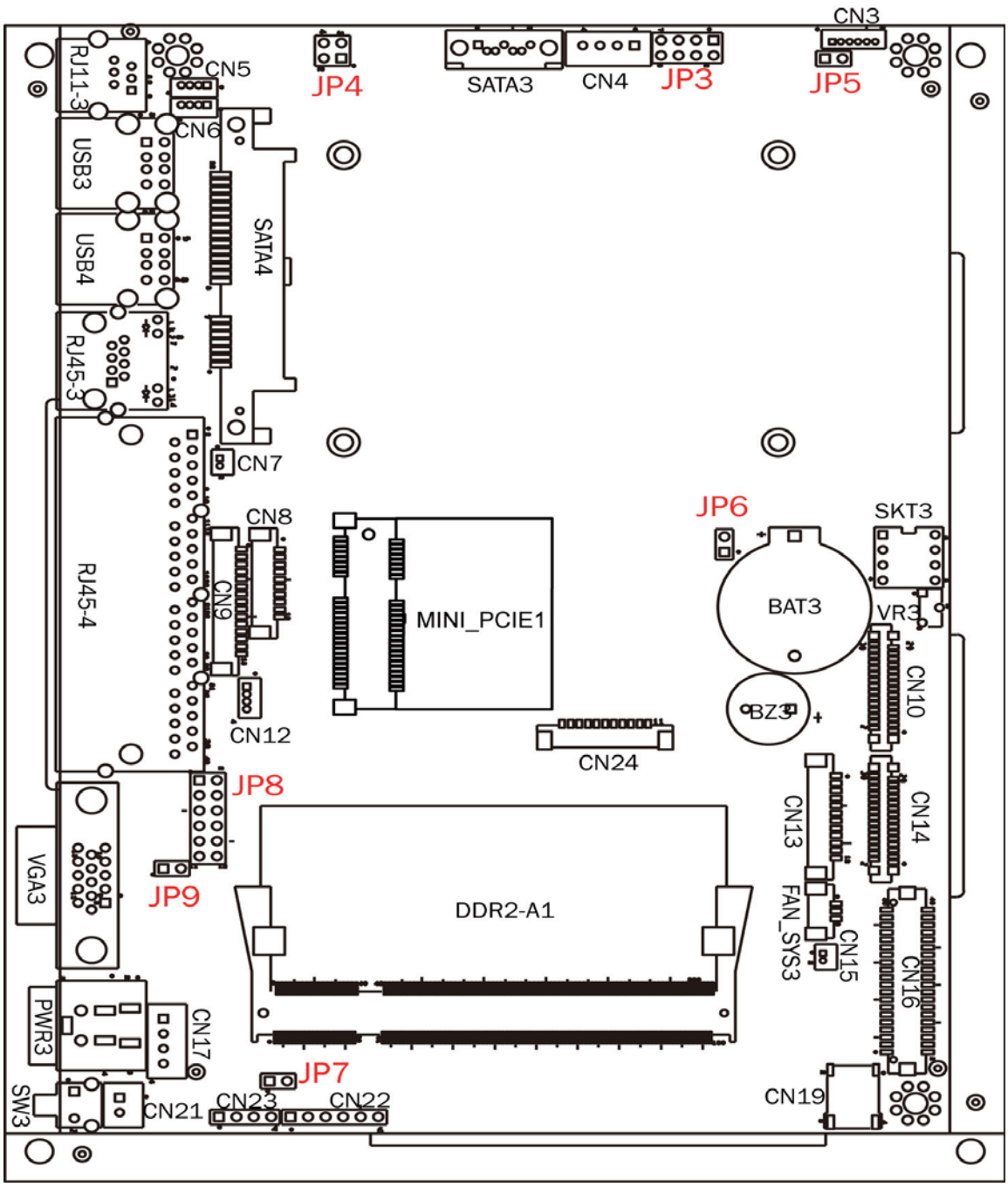
Environment	
EMC & Safety	FCC / CE Class A, LVD
Operating Temperature	0°C ~ 35°C (32°F ~ 95°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Humidity	20% - 85% RH non-condensing
Dust and Water Proof	IP54 for front bezel
Communication	
Wireless LAN	mini PCI-E wireless LAN card 802.11 b/g or n
Dimension (W x D x H)	8.4”: 251.5 x 180 x 193mm 12.1”: 326 x 210.5 x 202mm
Weight(N.W./G.W.)	8.4”: 2.5kgs/3.5kgs 12.1”: 3.5kgs/4.5kgs
OS Supported	Win7, Vista, WEPOS, Windows® XP, Windows® XP Embedded, Windows® CE, POSReady 2009, Linux

* Product specifications subject to change without prior notice.

6. Jumper Setting

6-1. N270 Motherboard

6-1-1. Motherboard Layout



6-1-2. Connectors & Funcions

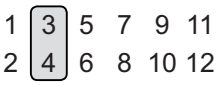
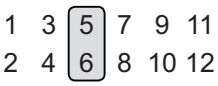
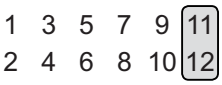
Connector	Function
BAT3	CMOS Battery Base (Use CR2023)
CN3	Speaker & MIC Connector
CN4	Power Connector For HDD
CN5	USB5
CN6	USB7
CN7	LAN LED
CN9	Card Reader Connector
CN12	IrDA Connector
CN13	Inverter Connector
CN15	Power LED
CN16	LCD Interface Connector
CN17	Internal DC-JACK connector
CN21	Internal Power On Switch Connector
CN22	5 Wire Touch
CN24	FT Status Interface
DDR2_A1	DDR2 SO-DIMM
PWR3	+19V Power Adaptor
RJ11_3	Cash Drawer Connector
RJ45_3	LAN (On Board)
RJ45_4	COM1~4
FAN_SYS3	System FAN Connector
MINI_PCIE3	Mini PCI-E Socket
SATA3	SATA Connector
SKT3	SPI ROM
SW3	Power On Button
USB3	USB1, USB2
USB4	USB3, USB4
VGA3	VGA Port
JP3	LCD ID Setting
JP4	Cash Drawer Power Setting
JP5	Power Mode Setting
JP6	CMOS Operation Mode
JP7	System Reset Setting
JP8	COM3 & COM4 Power Setting
JP9	VGA Power Setting

6-1-3. Connectors & Funcions

System Reset Settings

Function	JP7 (1-2)
▲Normal	
Reset	

COM3 & COM4 Power Setting

Function		JP8
COM3 Pin10	▲RI	
	+5V	
	+12V	
COM4 Pin10	▲RI	
	+5V	
	+12V	

▲ = Manufacturer Default Setting

Cash Drawer Power Setting

Function	JP4
+12V	
▲ +19V	

Power Mode Setting

Function	JP5
▲ATX Power	
AT Power	

CMOS Operation Mode

Function	JP6
▲CMOS Normal	
CMOS Reset	

VGA Power Setting

Function	JP9
▲No Power	
+12V	

▲ = Manufacturer Default Setting

LCD ID Setting

Panel#	Resolution	LVDS		Output Interface	JP3
		Bits	Channel		
1	1366 x 768	24	Single	LVDS	1 3 **5 7** / 2 4 **6 8**
2	1440 x 990	24	Dual	LVDS	1 3 **5** 7 / 2 4 **6** 8
4	1920 x 1080	24	Dual	LVDS	1 3 5 7 / 2 4 6 8
5	1024 x 768	24	Single	LVDS	1 **3 5 7** / 2 **4 6 8**
6	1280 x 1024	24	Dual	LVDS	1 **3 5** 7 / 2 **4 6** 8
7	800 x 600	24	Single	LVDS	1 **3** 5 **7** / 2 **4** 6 **8**
9	1024 x 768	18	Single	LVDS	**1 3 5 7** / **2 4 6 8**
11	800 x 600	18	Single	LVDS	**1 3** 5 **7** / **2 4** 6 **8**
12	800 x 600	18	Single	LVDS	**1 3** 5 7 / **2 4** 6 8
14	800 x 600	18		TTL	**1** 3 **5** 7 / **2** 4 **6** 8
15	1024 x 768	18		TTL	**1** 3 5 **7** / **2** 4 6 **8**
				CRT	**1** 3 5 7 / **2** 4 6 8

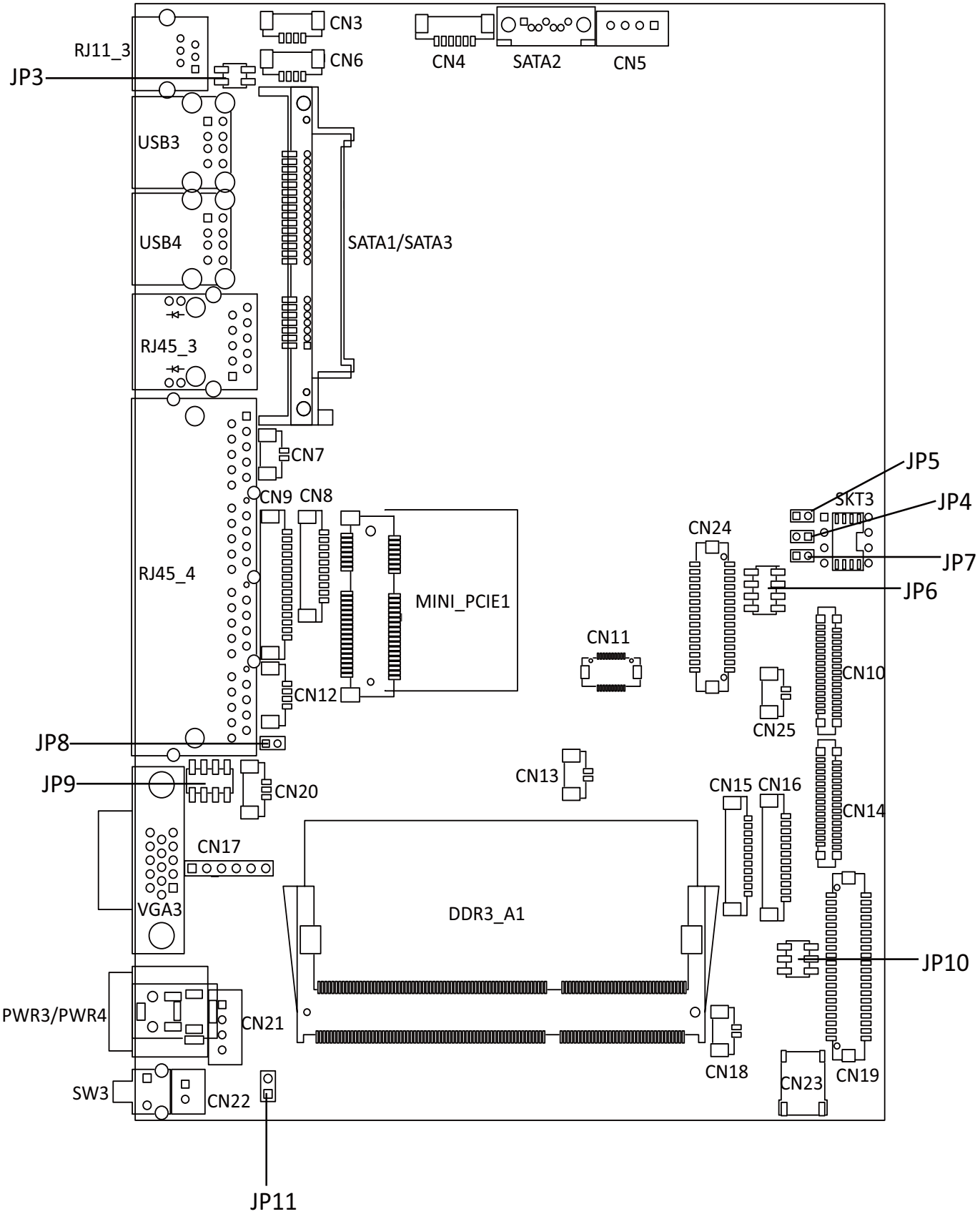
Remark: Item #12 is only applied for Sharp panel 12" LQ121S1LLG41.

1 / 2 Jumper open **1 / 2** Jumper short

▲ = Manufacturer Default Setting

6-2. D525 Motherboard

6-2-1. Motherboard Layout



6-2-2. Connectors & Functions

Connector	Function
CN3	USB
CN4	Speaker & MIC Connector
CN5	SATA Power
CN6	USB
CN9	Card Reader Connector
CN12	PS2
CN13	HDD LED
CN16	Inverter
CN17	Touch Sensor
CN18	Power LED
CN19	LVDS
CN20	System FAN
CN21	Internal DC Jack
CN22	Power On Switch Connector
CN23	TCOM Power
CN24	LVDS (18bit)
CN25	Battery Connector
PWR3	DC Jack
RJ11_3	Cash Drawer
RJ45_4	COM1~4
RJ45_5	LAN
SATA2	SATA
SATA3	SATA
SKT3	BIOS
USB3	USB
USB4	USB
VGA3	VGA Port
JP3	Cash Drawer Power Setting
JP4	AT/ATX
JP5	RTC Reset
JP6	LCD ID Setting
JP7	H/W Reset
JP8	VGA Power Setting
JP9	COM Power Setting
JP10	Inverter Select

6-2-3. Jumper Setting

Cash Drawer Power Setting

Function	JP3
▲19V	
12V	

Power Mode Setting

Function	JP4
▲ ATX Power	
AT Power	

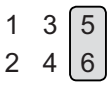
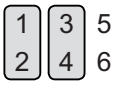
System Reset

Function	JP7
▲System Normal	
System Reset	

CRT Power Ctrl

Function	JP8
HW	
▲BIOS	

Inverter Selection

Function	JP10
▲CCFL	
LED	

▲ = Manufacturer Default Setting open short

CMOS Operation Mode

CMOS Reset

To clear the CMOS,

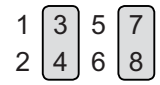
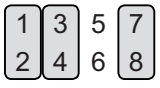
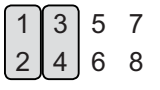
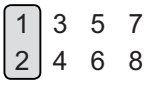
1. Remove the power cable from the system.
2. Open the system, and set the 'CMOS Operation jumper' from 'CMOS Normal'
   to 'CMOS Reset'. (refer to the jumper shown below)
3. Connect the power cable to the system, and **power on the system:**
   in ATX mode: press the power button and it will fail power on
   in AT mode: turn on system power
4. Remove the power cable from the system.
5. Return the "CMOS Operation mode" jumper setting from "CMOS Reset" to
   "CMOS normal".
6. Connect the power cable and power on the system.

CMOS Operation Mode

Function	JP5
▲ CMOS Normal	
CMOS Reset	

LCD ID Setting

Several configurations are applied to different sizes of panel.
Please refer to the followings to complete relevant settings.

Resolution	LVDS/TTL		Output Interface	JP6
	Bits	Channel		
800 x 600	24	Single	1st: LCD Panel 2nd: VGA port	
1024 x 768	24	Single		
800 x 600	18	Single		
*800 x 600	18	Single		
1024 x 768	18	Single		
			CRT only (Pineview CRT only)	

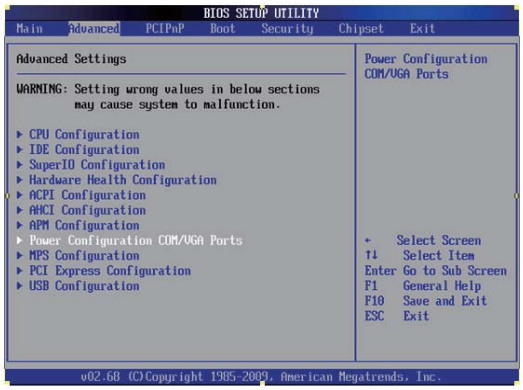
*remark: specialized for Sharp 12.1" LQ121S1LG41/LQ121S1LG42 panel.

COM3 & COM4 Power Setting

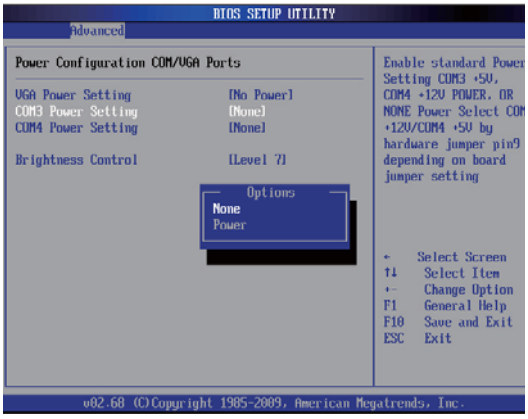
COM3 and COM4 can be set to provide power to your serial device.
The voltage can be set to +5V or 12V by setting jumper JP18 on the mother-board. When enabled, the power is available on pin 10 of the RJ45 serial con-nector. If you use the serial RJ45 to DB9 adapter cable, the power is on pin 9 of the DB9 connector. By default, the power option is disabled in the BIOS.

BIOS/Utility setup

1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select Power Configuration COM/VGA Ports and press <Enter> to go to display the available options.



4. To enable the power, select COM3 Power Setting or COM4 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.



COM Power Setting

Function	JP9
▲COM3 5V	[1] 3 5 7 [2] 4 6 8
COM3 12V	1 [3] 5 7 2 [4] 6 8
COM4 5V	1 3 [5] 7 2 4 [6] 8
▲COM4 12V	1 3 5 [7] 2 4 6 [8]

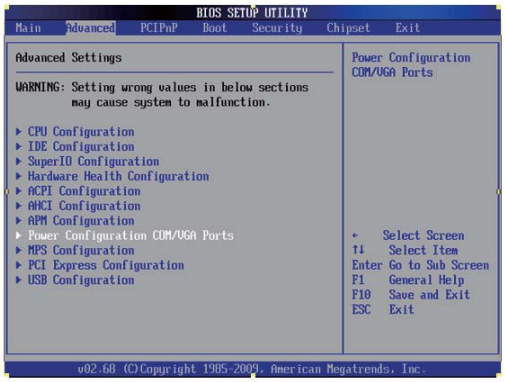
▲ = Manufacturer Default Setting [1 2] open [1 2] short

Please see the following page for jumper JP9 location

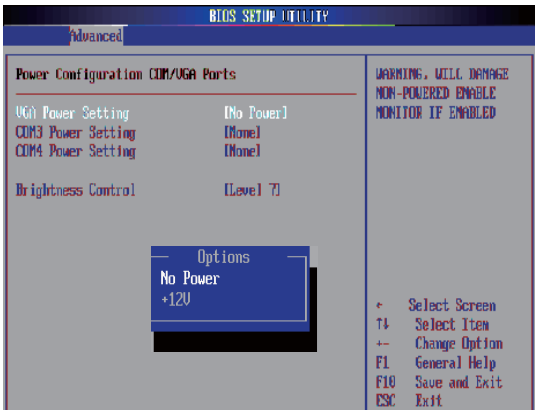
2nd VGA Power Setting

VGA port power must be on through BIOS/Utility for default is “No Power“.

1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select Power Configuration COM/VGA Ports and press <Enter> to go to display the available options.



4. To switch on the power, select "+12V". Please save the change before exiting BIOS to avoid data lost.



Appendix: Drivers Installation

The shipping package includes a Driver CD in which you can find every individual driver and utility that enables you to install the drivers on the system.
Please insert the Driver CD into the drive and double click on the “index.htm” to select the models. You can refer to the drivers installation guide for each driver in the “Driver/Manual List”.