User's Manual

2901190 and 2901200

Version 1.0

July 2007

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Packing List

The items listed below should all be included in the 2901190/2901200 package.

- 1 x 2901190/2901200 flat panel PC
- 1 x Power cord
- 1 x 45W power adapter
- 1 x Screw kit
- 1 x Jumper pack
- 1 x PS/2 keyboard/mouse Y cable
- 1 x User Manual and driver CD
- 1 x Panel mounting kit
- 1 x Wall mounting kit
- 1 x Rack mounting kit (optional)
- 1 x Arm mounting kit (optional)
- 1 x Stand mounting kit (optional)

Images of the above items are shown in Chapter 3.

Precautions

SAFETY PRECAUTIONS

1. Prior to installing, moving, and modifying the panel PC, make sure that the unit's power is turned off and the power cord is disconnected.
2. Do not apply voltage levels that exceed the specified voltage range. Doing so may cause fire or an electrical shock.
3. Electric shock can occur if the panel is opened. Do not drop or insert any objects into the ventilation openings of the panel PC.
4. Only qualified engineers from certified system integrators or VARs are allowed to make necessary functional modifications to the panel PC, e.g., adding a touch screen .
5. If considerable amount of dust, water, or fluids entered the panel PC, turn off the power supply immediately, unplug the power cord, and contact the vendor.
6. Explosions may occur with installations in environments where flammable gases are present.
7. Fault-tolerant and failsafe designs should be implemented with the use of the series models on transportation vehicles, ships, safety/security devices, or medical devices not related to life-support functionalities. Users/integrators should take the responsibility for implementations with adequate levels of reliability and safety.
8. Preventive designs should be implemented so as to avoid the communications faults between the panel PC and the PC/workstation/terminals that controls it.

HANDLING PRECAUTIONS

1. Do not drop the panel PC against a hard surface. Doing so may damage the display.
2. Do not strike or exert excessive force onto the touch panel.
3. Touching the touch panel using a sharp object may damage the LCD panel.
4. Avoid environments exposed to direct sunlight, dust, or chemical vapors.

5. The panel PC is actively cooled. In no circumstances should the panel PC operate with the openings obstructed by foreign objects. However, the ambient temperature of the installation site should be observed and controlled to avoid overheating the panel PC.
6. Condensation might form inside the panel PC chassis if exposed to sudden changes in temperature.
7. Carefully route the power cord so that people cannot step on it. Do not place anything over the power cord.
8. If the equipment should be left unused for an extended period of time, disconnect it from the power source to avoid damage by transient over-voltage.
9. If any of the following situations arises, get the equipment checked by service personnel:
   - The power cord or plug is damaged.
   - Liquid has penetrated into the equipment.
   - The equipment has been exposed to moisture.
   - The equipment does not work properly, or the user cannot get it to work according to the user manual.
   - The equipment has been dropped and damaged.
   - The equipment shows obvious signs of breakage.

WARNING!

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

MAINTENANCE AND CLEANING

Note the following precautions before beginning to clean the Panel PC.

When cleaning any single part or component of the computer, please read and understand the details below fully.

- Except for the properly installed front LCD panel, never spray or squirt liquids directly onto any computer component. To clean the device, please rub it with a piece of dry and soft cloth or a slightly moistened cloth with the exterior casing.
- The interior of the Panel PC does not require cleaning. Keep fluids away from the Panel PC and the interior of it.
- Be cautious of the tiny removable components when using a vacuum cleaner to absorb the dirt on the floor.
- Turn the system off before cleaning up the Panel PC.
- Never drop any tiny objects through the openings of the Panel PC or get circuit board damp or wet.
- Be cautious of all kinds of cleaning solvents or chemicals when using it for the sake of cleaning. Some individuals may be allergic to the ingredients.
- Avoid any food, drink or cigarette around the Panel PC.

CLEANING TOOLS

Although many companies have created products to help improve the process of cleaning the computer and peripherals, users can also use household items to clean their computers and peripherals. Below is a list of items to use while cleaning the computer or computer peripherals.

Please keep in mind that some components in the computer may only be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

- ***Cloth*** - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, it is recommended to rub it with a piece of cloth.
- ***Water or rubbing alcohol*** – Moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer.
- Unknown solvents may be harmful to the plastics parts.
- ***Vacuum cleaner*** - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

- ***Cotton swabs*** - Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in the keyboard, mouse, and other locations.
- ***Foam swabs*** - Whenever possible it is better to use lint free swabs such as foam swabs.

ESD PRECAUTIONS

Observe all conventional anti-ESD methods while handling the components contained within the LCD should the need arise for adding a functionality. The use of a grounded wrist strap and an anti-static work pad is recommended. Avoid dust and debris or other static-accumulating materials in the work area.

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Chapter

1

Introduction

1.1 2901190/2901200 Flat Panel PC Overview

The 2901190/2901200 flat panel PC is a flexible, multi-functional flat panel PC that can be applied in diverse operational environments and implemented in multi-faceted applications. The 2901190/2901200 comes fully kitted with a high-performance motherboard and a host of other peripheral interface connectors. The 2901190/2901200 is designed for ease of use and easy installation.

1.1.1 Model Variation

Six 2901190/2901200 models are available. The models are listed in Table 1-1.

2901190	CPU	LCD	Touch screen	Wireless Module
2901190A	AMD® Geode LX 800	10.4"	No	No
2901190B	AMD® Geode LX 800	10.4"	Yes	No
2901190C	AMD® Geode LX 800	10.4"	Yes	Yes
2901200	CPU	LCD	Touch screen	Touch screen
2901200A	AMD® Geode LX 800	12.1"	No	No
2901200B	AMD® Geode LX 800	12.1"	Yes	No
2901200C	AMD® Geode LX 800	12.1"	Yes	Yes

Table 1-1: 2901190 and 2901200 Model Variations

1.1.2 Applications

The 2901190/2901200 flat panel PC is designed for rigorous industrial environments where it may be exposed to both heat and moisture. Its durability and strength also makes it an ideal choice for public access computers. Some possible applications include:

- Automated manufacturing processes
- Public information gathering point

1.1.3 Standard Features

Some of the standard features of the 2901190 and 2901200 flat panel PC include:

- Fanless and low power consumption
- AMD® Geode™ LX 800 (500MHz) processor
- DDR 333/400 SO-DIMM memory support up to 1GB
- Aluminum die-casting IP 65 industrial panel
- Dual 10/100Mbps Ethernet support
- One CompactFlash® Type II socket support
- Optional 802.11b/g wireless LAN module
- Simplified installation process
- RoHS compliance

1.2 External Overview

1.2.1 General Description

The 2901190/2901200 flat panel PC is a rectangular cubic structure that comprises of a screen, rear panel, top panel, bottom panel and two side panels (left and right). An aluminum frame surrounds the front screen. The rear panel provides screw holes for a wall -mounting bracket . The bottom panel provides access to external interface connectors that include LAN, USB 2.0, audio, VGA port, serial ports, keyboard/mouse connector and power switch .

1.2.2 Front Panel

The front side of the 2901190/2901200 is a flat panel TFT LCD screen surrounded by an aluminum frame (Figure 1-1).

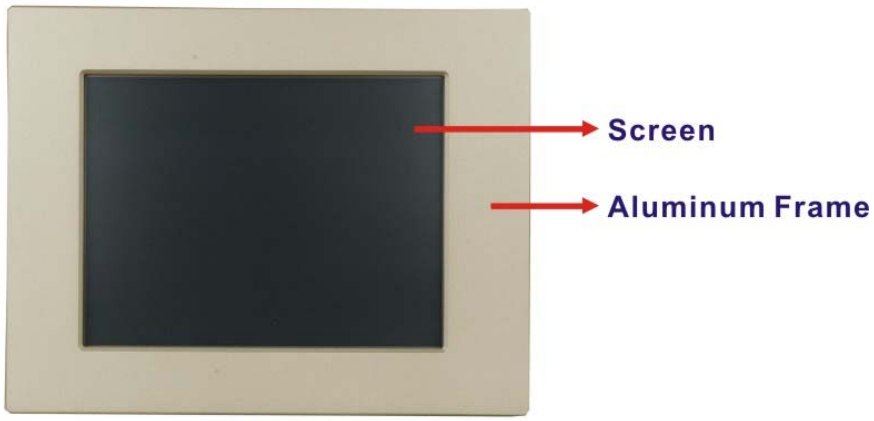


Figure 1-1: 2901190/2901200 Front View

1.2.3 Rear Panel

The rear panel provides access to ventilation vents and retention screw holes that support the wall mounting. Refer to Figure 1-2.

Figure 1-2: 2901190 Rear View

1.2.4 Top Panel

The top panel of 2901190/2901200 provides access to three retention screws that support to secure the back cover to the chassis. A connector reserved for wireless LAN antenna for 2901190C or 2901200C model is also located in the top panel. The retention screws and antenna connector are circled in Figure 1-3 below.

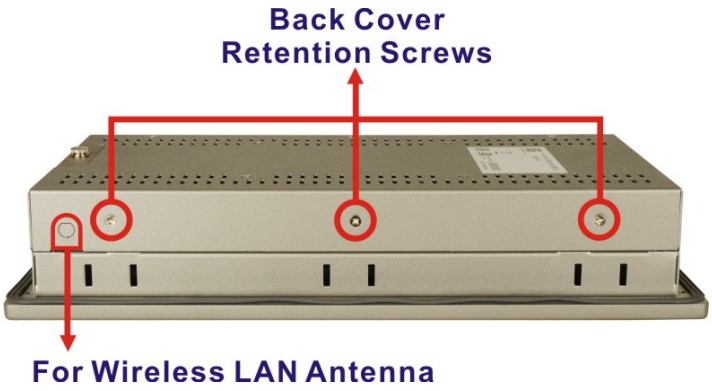


Figure 1-3: 2901190 Top View

1.2.5 Bottom Panel

The bottom panel of the 2901190/2901200 has the following I/O interfaces (Figure 1-4):

- 1 x PS/2 keyboard/mouse connector
- 1 x Audio jack
- 1 x VGA connector
- 1 x AC power adapter connector
- 1 x Power switch
- 2 x Serial port (COM) connectors
- 2 x RJ-45 10/100Mbps Ethernet connectors
- 2 x USB 2.0 connectors
- 1 x Reset button

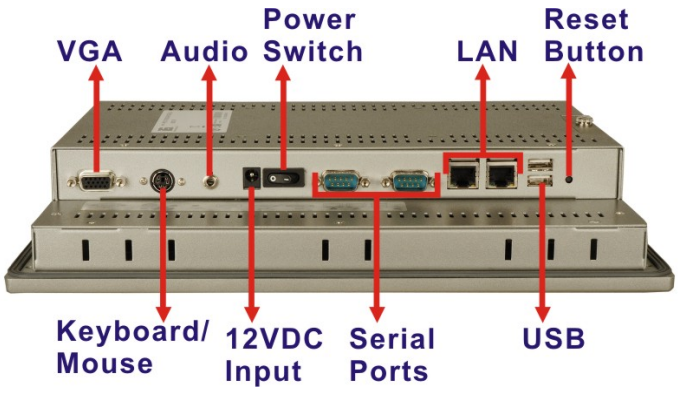


Figure 1-4: 2901190/2901200 Bottom View

1.2.6 Side Panel

The 2901190/2901200 has two side panels, left panel and right panel. Both side panels have retention screw holes that secure the back cover to the chassis. The left side panel also provides access to a CF card slot. Refer to Figure 1-5.

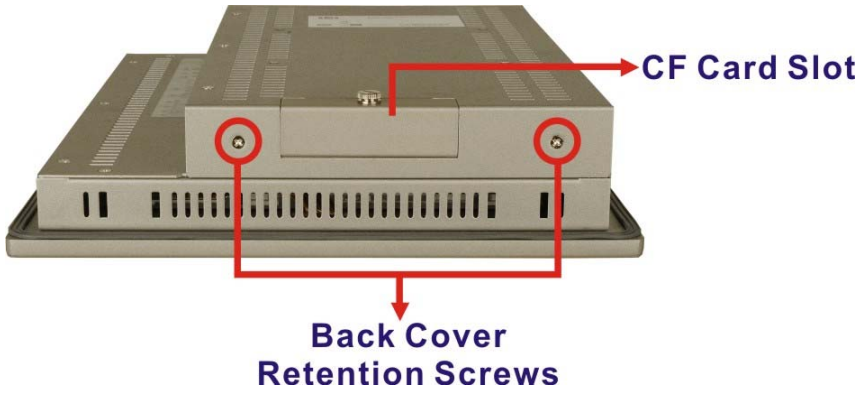


Figure 1-5: 2901190 Side View

1.3 Internal Overview

The 2901190/2901200 internal components are configured in a two level format. The motherboard and 2.5" HDD are installed on a metal sheet that protects the rear of the TFT LCD screen. Below the metal sheet is a circuit board that is connected to the screen and the motherboard.

1.4 Specifications

1.4.1 Preinstalled Hardware Components

The 2901190/2901200 flat panel PC has the following preinstalled components:

- 1 x Motherboard
- 1 x Inverter
- 1 x TFT LCD screen

The technical specifications for these components and the system are shown in the sections below.

1.4.2 System Specifications

The technical specifications for the 2901190 and 2901200 systems are listed in Table 1-2.

SPECIFICATION	2901190	2901200
Front Panel	Aluminum Front Panel	
Chassis	Heavy-duty Steel	
LCD Panel	10.4" TFT LCD	12.1" TFT LCD
Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)
Brightness	230cd/m^2	450cd/m^2
Contrast Ratio	500:1	700:1
Viewing Angle (H-V)	140/120	160/160
Backlight MTBF	30,000 hrs	30,000 hrs
Touch Screen	Optional 5-wire resistive type touch screen	
Drive Bay	One 2.5" IDE HDD bay	
I/O	2 x USB 2.0 ports 1 x keyboard/mouse port 1 x VGA port 2 x LAN 2 x RS-232 1 x Audio jack 1 x IDE	2 x USB 2.0 ports 1 x keyboard/mouse port 1 x VGA port 2 x LAN 2 x RS-232 1 x Audio jack 1 x IDE
Power	45W AC adapter -Input: 100-240VAC @ 47-63 Hz	

SPECIFICATION	2901190	2901200
	-Output voltage: 12VDC	
Mounting Feature	Panel, Wall, Arm, Stand or Rack	
Color	Silver (PANTONE PMS-8001)	
Operating Temperature	0ºC ~50ºC	
Storage Temperature	-20ºC ~60ºC	
Relative Humidity	5% ~ 95%@60ºC, non-condensing	
Vibration	5Hz - 17Hz, 0.1" double amplitude displacement. 17Hz - 640Hz, 1.5G acceleration, peak to peak.	
Shock	10G Acceleration, peak to peak (11ms)	
Dimension (W x H x D)	311.5mm x 242mm x 55mm	340mm x 260mm x 60.4mm
Net/Gross Weight	2.7kg/4.9kg	3.9kg/5.4kg
Front Panel Protection	IP 65 compliant	
Certificate	Meets CE/FCC	

Table 1-2: 2901190/2901200 Specifications

1.4.3 Motherboard Specifications

The 2901190 and 2901200 both come with an AMD Geode LX 800 motherboard. The technical specifications of the motherboard are listed in Table 1-3.

Specification	AMD Geode-LX 800
CPU	AMD® Geode™ LX 800 (500Mhz)
Southbridge Chipset	AMD® Geode™ CS5536
Display	CRT integrated in AMD® Geode™ LX 800

	24-bit TTL integrated in AMD® Geode™ LX 800
Memory	Supports one 1GB DDR 333/400 200-pin SO-DIMM SDRAM module
Extension	One mini PCI slot (for wireless LAN module)
BIOS	Award BIOS
SSD	CF Type II
Super I/O	N/A for legacy free
Audio	AC'97 Codec Realtek ALC203, AMP 1-2W
LAN	Dual RTL8100C 10/100Base-T Ethernet controllers
COM	Two RS-232 serial port s
IDE	One 44-pin IDE connects to two IDE devices
Touch Screen Controller	DMC9000
Power Supply	12V ATX power support
Dimensions	102mm x 186mm

Table 1-3: Motherboard Specifications

1.4.4 Flat Panel Screen Specifications

The 2901190/ 2901200 comes with a TFT LCD monitor at the front of the flat panel PC (see Figure 1-1). The specifications for the LCD monitor are shown in Table 1-4 below.

SPECIFICATION	2901190	2901200
Model	AUO-G104SN03	CMO-G121X1-L01
Size	10.4"	12.1"
Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)

SPECIFICATION	2901190	2901200
Active Area (mm)	211.2 x 158.4	245.76 x 184.32
Pixel Pitch (mm)	0.264	0.240 x 0.240
LCD Color	Native 262K colors	Native 262K colors
View Angel (H/V)	120/100	160/160
Brightness (cd/m^2)	230	450
Contrast Ratio	500:1	700:1
Response Time (ms)	35 (at 25°C)	6(Tr) / 17(Tf)
Power Consumption (W)	2.52	4
Supply Voltage (V)	3.3	3.3
Backlight	1 CCFL	2 CCFL
Outline Dimensions (mm)	236.0 x 174.0 x 5.6	260 x 204 x 12.2
Backlight MTBF (hrs.)	20000	50000

Table 1-4: 2901190/2901200 TFT LCD Monitor Specifications

1.5 Dimensions

1.5.1 2901190 Dimensions

The dimensions of the 2901190 flat panel PC are shown in Figure 1-6 below.

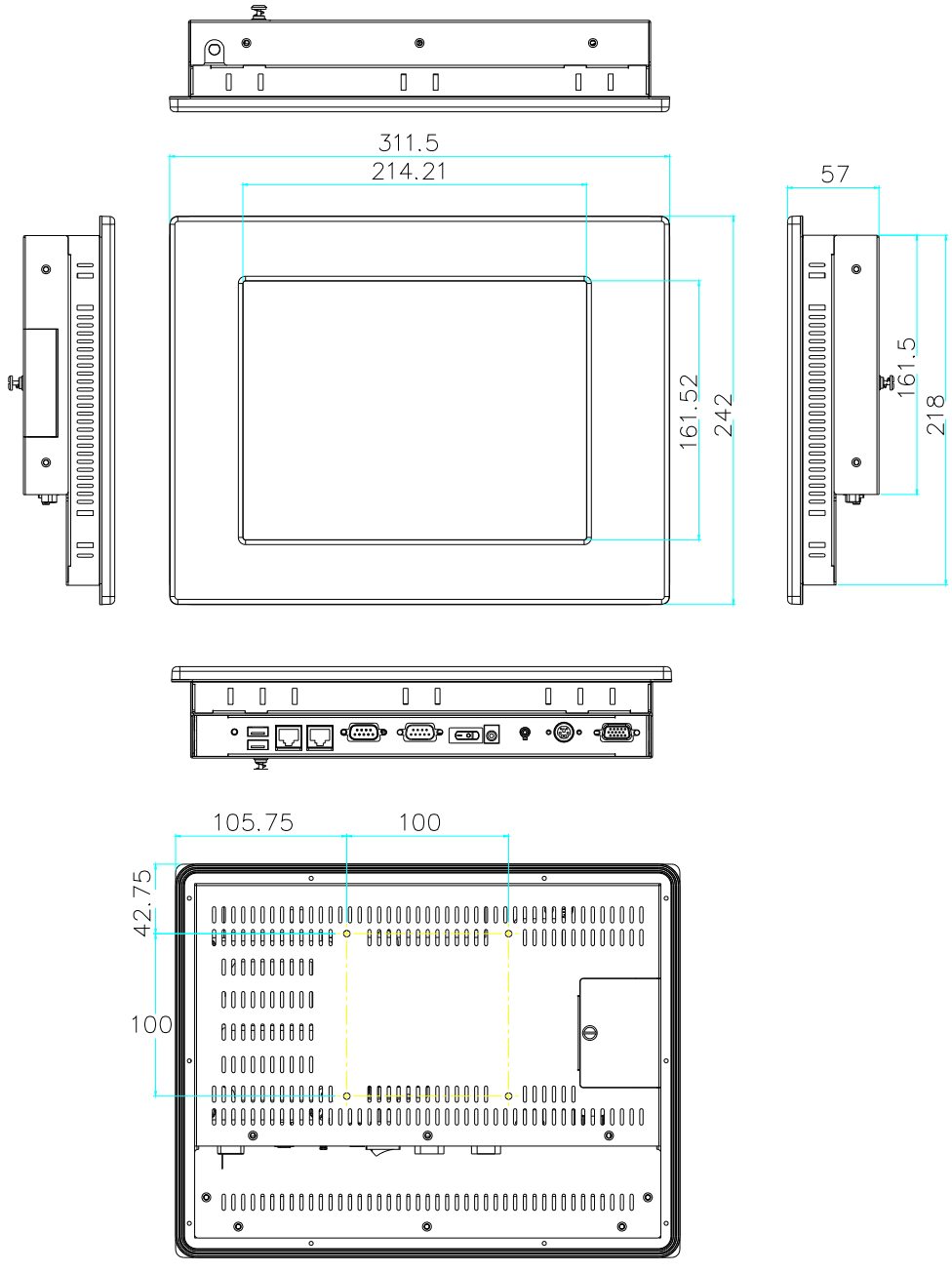


Figure 1-6: 2901190 Dimensions (units in mm)

1.5.2 2901200 Dimensions

The dimensions of the 2901200 flat panel PC are shown in Figure 1-7 below.

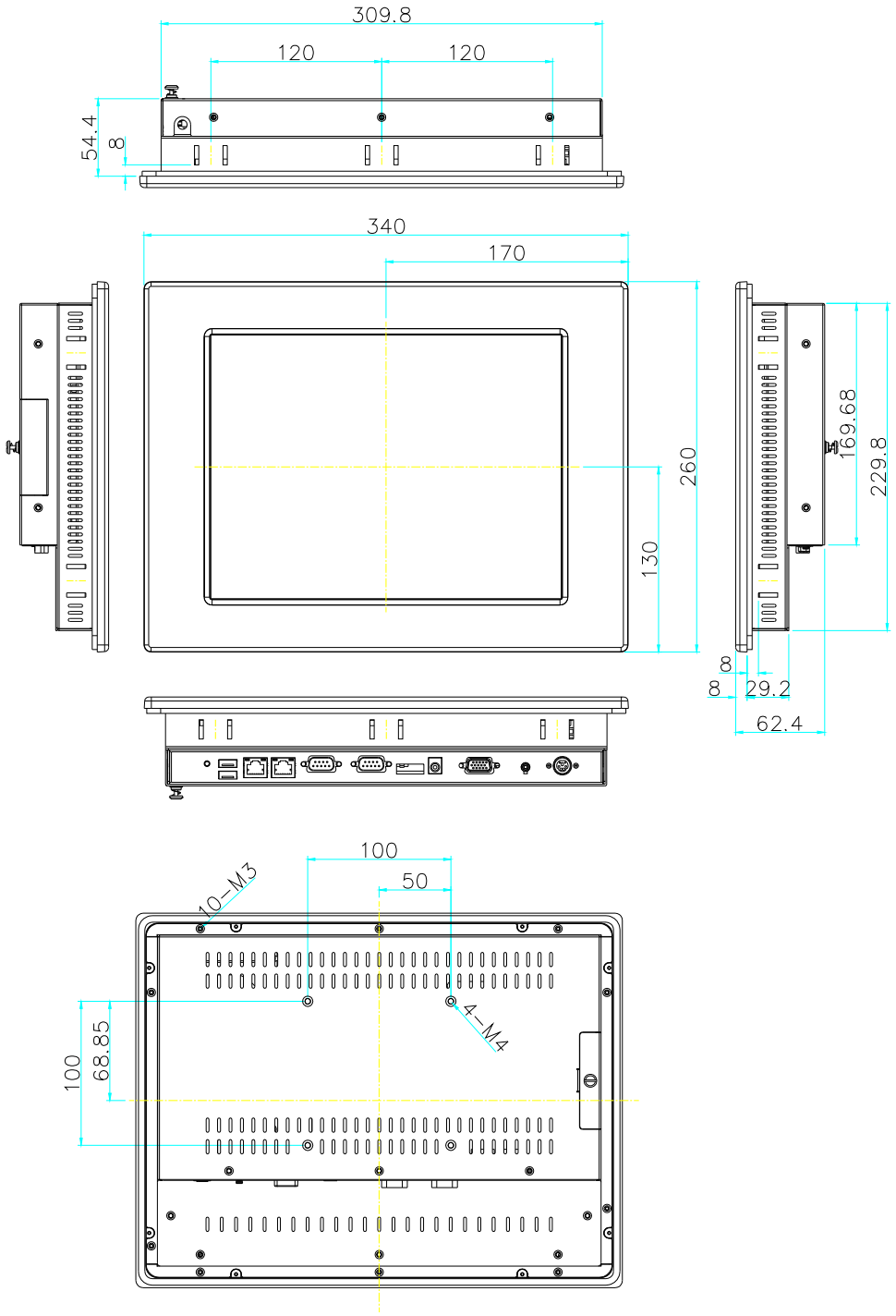


Figure 1-7: 2901200 Dimensions (units in mm)

Chapter

2

Motherboard

2.1 Introduction

The 2901190 and 2901200 flat screen PC both contain the AMD Geode-LX 800 motherboard. The motherboard is the heart of any computer and is responsible for transmitting, receiving and processing data as well as driving the different onboard devices. This chapter gives a brief introduction to the AMD Geode-LX 800 motherboard. For more complete details on the connectors and the different implementations of the AMD Geode-LX 800, please refer to the AMD Geode-LX 800 user guide.

2.2 CPU Support

The AMD Geode-LX 800 series motherboards all come with a preinstalled AMD® Geode™ LX 800 500MHz CPU.

2.2.1 AMD® Geode™ LX 800 500MHz Specifications

The specifications for the 500MHz AMD® Geode™ LX 800 are listed below

- x86/x87-compatible core
- Processor frequency up to 500 MHZ
- 64K I/64K D L1 cache and 128K L2 cache
- Split I/D cache/TLB (Translation Look-Aside Buffer)
- 64-bit DDR Memory interface up to 400MHz (LX 800), up to 333MHz (LX 700)
- Integrated FPU that supports the Intel MMX® and AMD 3DNow!™ Technology instruction sets
- 9 GB/s internal GeodeLink™ Interface Unit (GLIU)
- Security Block
  - 128-bit AES (CBC/ECB)
  - True Random Number Generator
- High-resolution CRT and TFT outputs (simultaneous operation)
  - Support for High Definition (HD) and Standard Definition (SD) standards
  - Support 1920x1440 in CRT mode and 1600x1200 in TFT mode
- VESA 1.1 and 2.0 VIP/VDA support
- 0.13 micron process
- 481-terminal PBGA (Plastic Ball Grid Array) with internal heatspreader

2.2.2 AMD® Geode™ LX 800 500MHz Power Management

The power management for the 500MHz AMD® Geode™ LX 800 is listed below:

- 1.8W Typical (3.9W TDP) @ 500MHz
- GeodeLink active hardware power management
- Hardware support for standard ACPI software power management
- I/O companion SUSP#/SUSPA# power controls
- Lower power I/O
- Wakeup on SMI/INTR

2.3 System Chipset

The AMD GEODE-LX 800 series motherboards all have a preinstalled AMD® Geode™ CS5536 system chipset. The system chipset features are listed below.

- **GeodeLink™ Interface Unit**
  - 64-bit, 66MHz operation
  - PCI VSM (Virtual System Module) that makes the interface transparent to applications software and BIOS
  - Programmable routing descriptors, use and activity monitors, and SSMI (Synchronous System Management Interrupt)
- **ATA-6 Controller**
  - 100 MB/second IDE Controller in UDMA mode per the ATA-6 specification
  - 5V interface
- **Flash Interface**
  - Multiplexed with IDE interface Connects to an array of industry standard NAND Flash and/or NOR Flash
- **USB Controller**
  - 4 USB ports
  - Supports both USB 1.1 and USB 2.0
  - 3 host ports
  - 1 host/device

- **Audio Codec 97 (AC97) Controller**
  - AC97 specification v2.3 compliant interface to multiple audio codecs: Serial In, Serial Out, Sync Out, Bit Clock In
  - Legacy "PC Beep" support
- **Diverse Device**
  - 82xx Legacy Devices
  - IR Communication Port
  - System Management Bus (SMB) Controller
  - LPC (Low Pin Count) Port
  - General Purpose I/Os (GPIOs)
  - 8 Multi-Function General Purpose Timers (MFGPTs)
  - Real-Time Clock (RTC) with CMOS RAM
  - Power Management Controller
  - ACPI v2.0 compliant

2.4 Graphics Support

The Geode LX processor's Graphics Processor is a BitBLT/vector engine that supports pattern generation, source expansion, pattern/source transparency, 256 ternary raster operations, alpha blenders to support alpha- BLTs, incorporated BLT FIFOs, a GeodeLink interface and the ability to throttle BLTs according to video timing. New features added to the Graphics Processor include:

- Command buffer interface
- Hardware accelerated rotation BLTs
- Color depth conversion
- Paletized color
- Full 8x8 color pattern buffer
- Separate base addresses for all channels
- Monochrome inversion

Table 2-1: Geode LX Graphics Features lists a complete list of Geode LX graphics features. For more details, please refer to the AMD website or the Geode LX series data book available from AMD.

Feature	AMD Geode™ LX Processor
Color Depth	8, 16, 32 bpp (A) RGB 4 and 8-bit indexed
ROPs	256 (2-src, dest and pattern)
BLT Buffers	FIFOs in Graphics Processor
BLT Splitting	Managed by hardware
Video Synchronized BLT/Vector	Throttle by VBLANK
Bresenham Lines	Yes
Patterned (stippled) Lines	Yes
Screen to Screen BLT	Yes
Screen to Screen BLT with mono expansion	Yes
Memory to Screen BLT	Yes (throttled rep movs writes)
Accelerated Text	No
Pattern Size (Mono)	8x8 pixels
Pattern Size (Color)	8x8 pixels
Monochrome Pattern	Yes (with inversion)
Dithered Pattern (4 color)	No
Color Pattern	8, 16, 32 bpp
Transparent Pattern	Monochrome
Solid Fill	Yes
Pattern Fill	Yes
Transparent Source	Monochrome
Color Key Source Transparency	Y with mask
Variable Source Stride	Yes
Variable Destination Stride	Yes
Destination Write Bursting	Yes
Selectable BLT Direction	Vertical and Horizontal
Alpha BLT	Yes (constant α, α/pix, or sep. α channel)
VGA Support	Decodes VGA Register
Pipeline Depth	Unlimited
Accelerated Rotation BLT	8, 16, 32 bpp
Color Depth Conversion	5:6:5, 1:5:5:5, 4:4:4:4, 8:8:8:8

Table 2-1: Geode LX Graphics Features

2.5 Ethernet Controller Specifications

2.5.1 Overview

The Realtek RTL8100C(L) is a highly integrated and cost-effective single-chip Fast Ethernet controller. It is enhanced with an ACPI (Advanced Configuration Power Interface) management function for PCI in order to provide efficient power management for advanced operating systems with OSPM (Operating System Directed Power Management).

The RTL8100C(L) also supports remote wake-up (including AMD Magic Packet™ and Microsoft® Wake-up frame) to increase cost-efficiency in network maintenance and management. It is an ideal solution for notebook/motherboard-embedded network designs.

2.5.2 Features

- Integrates Fast Ethernet MAC, physical chip, and transceiver onto a single chip
- 10Mbps and 100Mbps operation
- Supports 10Mbps and 100Mbps N-way auto-negotiation
- Supports 25MHz Crystal or 25MHz OSC as the internal clock source
- Complies with PC99/PC2001 standards
- Supports ACPI power management
- Provides PCI bus master data transfer
- Provides PCI memory space or I/O space mapped data transfer
- Supports PCI clock speed of 16.75MHz-40MHz
- Advanced power saving mode
- Supports Wake-on-LAN and remote wake-up (AMD Magic Packet™, Link Change, and Microsoft® Wake-up frame)
- Half/Full duplex capability
- Supports Full Duplex Flow Control (IEEE 802.3x)
- Provides interface to 93C46 EEPROM to store resource configuration and ID parameters
- Provides PCI clock run pin
- Provides LED pins for network operation status indication
- 2.5/3.3V power supply with 5V tolerant I/Os

2.6 Peripheral Device Interfaces, Connectors, and Slots

The peripheral device connectors, interfaces and slots on the AMD Geode-LX 800 motherboard are listed in the sections below.

2.6.1 OEM Options

Many of the peripheral device connectors listed below are not connected to any devices. These connectors are reserved for OEM customizations. For a customized option, please contact a Global American, Inc. sales representative.

2.6.2 Internal Slots

The slots listed below can all be found on the AMD Geode-LX 800 motherboard.

- 1 x 200-pin DDR SO-DIMM socket
- 1 x CF Type II slot
- 1 x Mini PCI slot (for wireless LAN module)

2.6.3 Internal Peripheral Device Connectors

The peripheral device connectors listed below are located on the AMD GEODE-LX 800 motherboard. Pinouts for these connectors can be found in *Appendix A*.

- 1 x Audio connector
- 1 x CompactFlash® (CF) slot
- 1 x Inverter connector
- 1 x LCD interface connector
- 1 x LED connector
- 1 x Mini PCI socket (for wireless LAN module)
- 1 x Power switch connector
- 1 x Touch screen connector

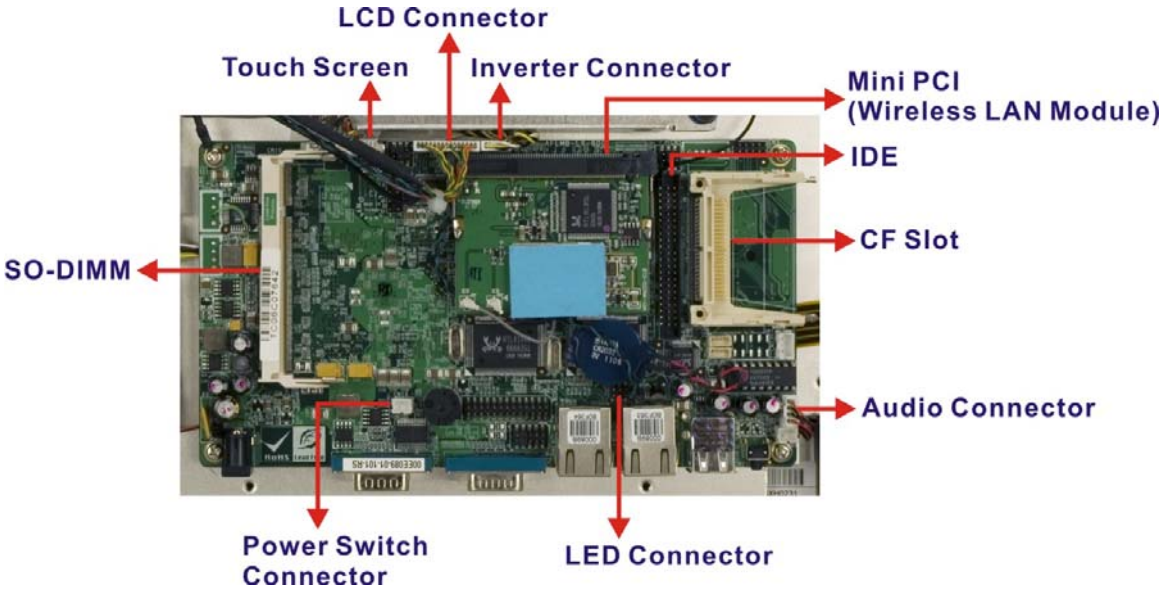


Figure 2-1: AMD Geode-LX 800 Connector Overview

2.6.4 External Peripheral Device Connectors

The peripheral device connectors listed below are located on the rear panel of the AMD Geode-LX 800 motherboard.

- 2 x Ethernet connectors
- 2 x USB connectors
- 2 x Serial port connectors
- 1 x Reset button
- 1 x Power connector

Chapter

3

Installation and Configuration

3.1 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.
- **Mounting**: The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are assisting with the procedure.
- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

3.2 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- TFT LCD screen
- Inverter

Preinstalled OEM customizations may include the following.

- Hard disk drive (HDD)
- Resistive type touch screen
- Wireless LAN module

Installation of some of the components are described in the following sections.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the flat panel PC

Step 2: Install the CF card

Step 3: Set the jumper settings

Step 4: Install HDD

Step 5: Install the SO-DIMM memory module

Step 6: Mount the flat panel PC

Step 7: Connect peripheral devices to the bottom panel of the flat panel PC

Step 8: Configure the system

3.4 Unpacking

To unpack the flat panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the flat panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the flat panel PC.

Step 7: Make sure all the components listed in the packing list are present.

3.4.1 Packing List

The 2901190/2901200 is shipped with the following components:

Quantity	Item and Part Number	Image
1	2901190/2901200 flat panel PC	
1	Power cord	
1	45W power adapter	
1	Screw kit	
1	Jumper pack	
1	PS/2 keyboard/mouse Y cable	
10	Panel mounting kit	
1	Wall mounting kit	
1	User manual and driver CD	

Table 3-1: Package List Contents

3.4.2 Optional Items

The following optional items are available for the 2901190/2901200.

Quantity	Item and Part Number	Image
1	Wireless LAN antenna (2901190C and 2901200C models only)	
1	LCD monitor arm kit	
1	LCD monitor stand kit	
1	Rack mounting kit	

Table 3-2: Optional Items

3.5

3.6 CompactFlash® Card Installation

The 2901190/2901200 embedded motherboard has one CF Type II slot on left side panel. To install the CF card, follow the instructions below.

Step 1: Turn the panel PC over.

Step 2: Remove CF card slot cover by loosing the thumb screw.

Step 3: Insert the CF card into the slot. (**Figure 3-1**).

Figure 3-1: CF Card Installation

Step 4: Replace the CF card slot cover.

3.7 Remove the Back Cover

Before the jumper settings can be configured and the HDD and DDR memory module can be installed, the back cover of the flat panel PC must be removed. To remove the back cover, please follow the steps below.

The back cover is secured to the chassis with ten retention screws, three on the top panel, three on the rear panel, two on the right panel and two on the left panel (Figure 3-2). Remove the ten retention screws and lift the cover off the 2901190/2901200.

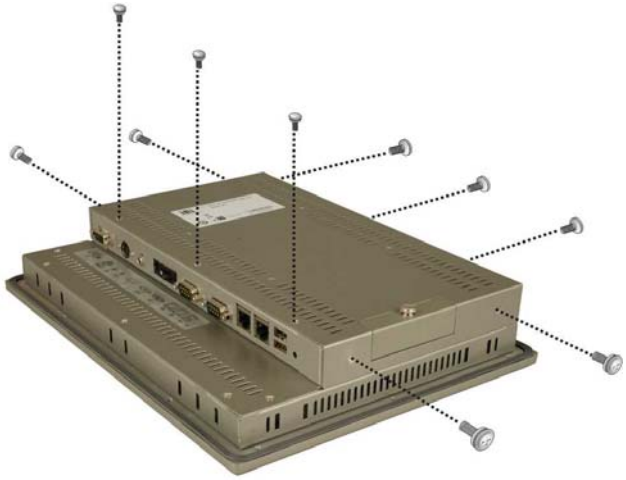
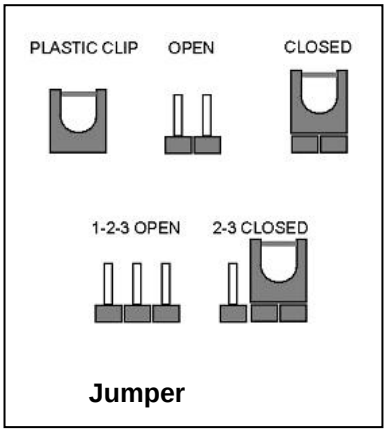


Figure 3-2: 2901190 Back Cover Retention Screws

3.8 Jumper Settings

NOTE:

A jumper is a metal bridge that is used to close an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



Jumper

The AMD GEODE-LX 800 comes with two jumpers. They are listed below.

- COM3 pin-9 signal select (JP3)
- COM1 and COM2 pin-9 signal select (JP4)

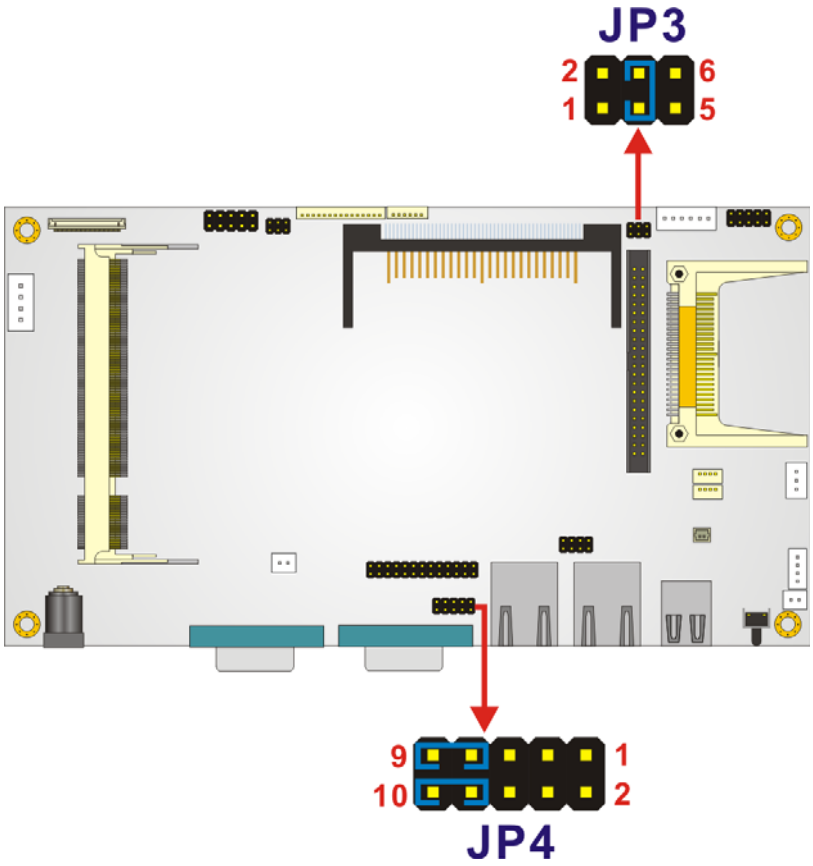


Figure 3-3: Jumper Locations

3.8.1 JP3: COM3 Pin-9 Signal Select Jumper Settings

The COM3 pin-9 signal can be selected as 12V, 5V or Ring.

JP3	Description	
Short 1-2	COM3 pin-9 is 12V output	
Short 3-4	COM3 pin-9 is RI input	Default
Short 5-6	COM3 pin-9 is 5V output	

Table 3-3: COM3 Pin-9 Signal Select Jumper Settings

3.8.2 JP4: COM1 and COM2 Pin-9 Signal Select Jumper Settings

The COM1 and COM2 pin-9 signal can be selected as 12V, 5V or Ring.

JP4	Description	
Short 1, 3	COM1 pin-9 is 12V output	
Short 3, 5	COM1 pin-9 is 5V output	
Short 5, 7	COM1 pin-9 is 5V output	
Short 7, 9	COM1 pin-9 is RI input	Default
Short 2, 4	COM2 pin-9 is 12V output	
Short 4, 6	COM2 pin-9 is 5V output	
Short 6, 8	COM2 pin-9 is 5V output	
Short 8, 10	COM2 pin-9 is RI input	Default

Table 3-4: COM1 and COM2 Pin-9 Signal Select Jumper Settings

3.9 HDD Installation

To install the HDD into the 2901190/2901200, please follow the steps below:

Step 1: Remove the back cover . See **Section 3.7** above.

Step 2: The HDD bracket is attached to the platform by four retention screws. Remove the four retention screws from the platform (**Figure 3-4**).

Figure 3-4: HDD Bracket Retention Screws

Step 3: Attach the HDD bracket to the HDD. To do this, align the four retention screw holes in the two sides of the HDD bracket with the retention screw holes on the

sides of the HDD. Insert four retention screws into the HDD bracket (**Figure 3-5**).

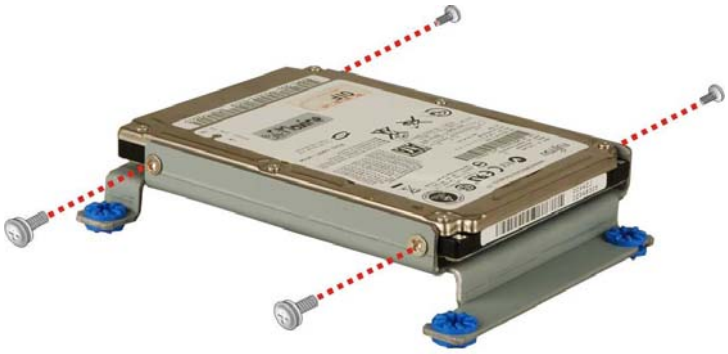


Figure 3-5: 2901190/2901200 HDD Bracket Retention Screws

Step 4: Connect the IDE cable from the motherboard to the rear of HDD.

Step 5: Install the HDD into the 2901190/2901200 by aligning the retention screw holes in the base of the HDD bracket with the retention screw holes on the platform. Insert the four retention screws.

3.10 Memory Module Installation

The flat panel PC embedded motherboard has one 200-pin SO-DIMM socket. To install the SO-DIMM module, follow the instructions below.

Step 1: Remove the back cover . See **Section 3.7** above.

Step 2: Locate the SO-DIMM socket on the motherboard of the flat panel PC.

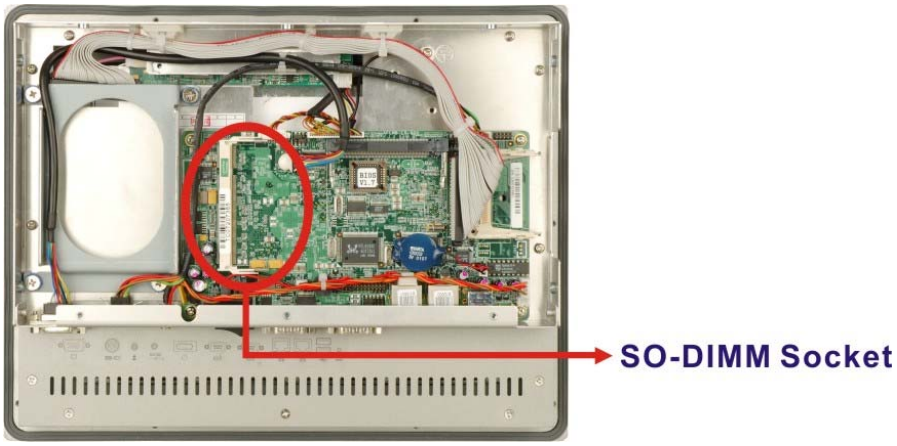


Figure 3-6: 2901190/2901200 SO-DIMM Socket Location

Step 3: Push the SO-DIMM chip into the socket at an angle. (See **Figure 3-7**)

Step 4: Gently pull the arms of the SO-DIMM socket out and push the rear of the SO-DIMM module down. (See **Figure 3-7**)

Step 5: Release the arms on the SO-DIMM socket. They clip into place and secure the SO-DIMM module in the socket.

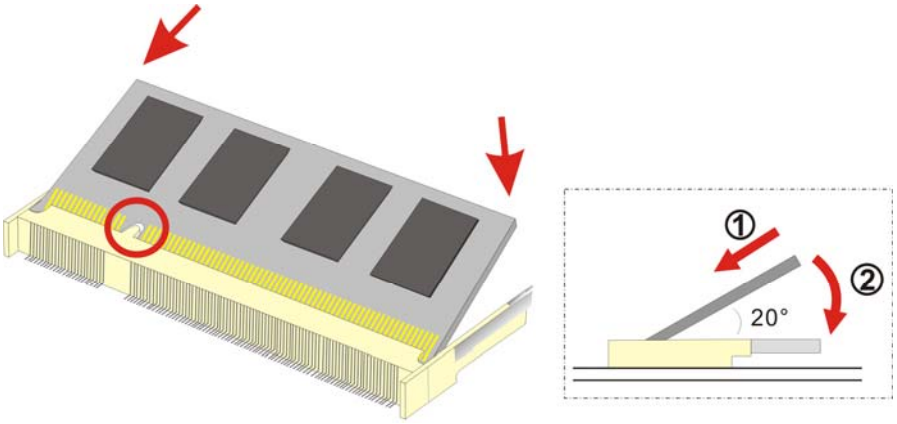


Figure 3-7: SO-DIMM Module Installation

3.11 Mounting the System

WARNING!

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The four methods of mounting the 2901190/2901200 are listed below.

- Wall mounting
- Panel mounting
- Arm mounting
- Rack mounting

The four mounting methods are described below.

3.11.1 Wall Mounting

To mount the flat panel PC onto the wall , please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four bracket screw holes on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-8**).

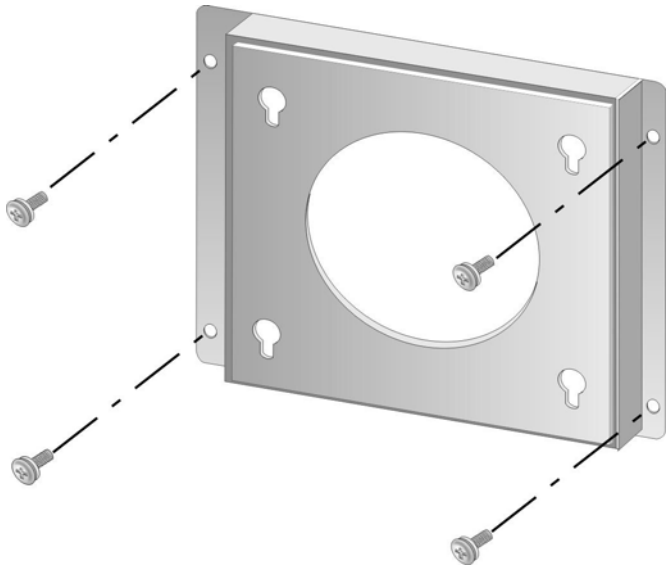


Figure 3-8: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the monitor and tighten until the screw shank is secured against the rear panel (**Figure 3-9**).

Step 6: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 7: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-9**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

NOTE:

In the diagram below the bracket is already installed on the wall.

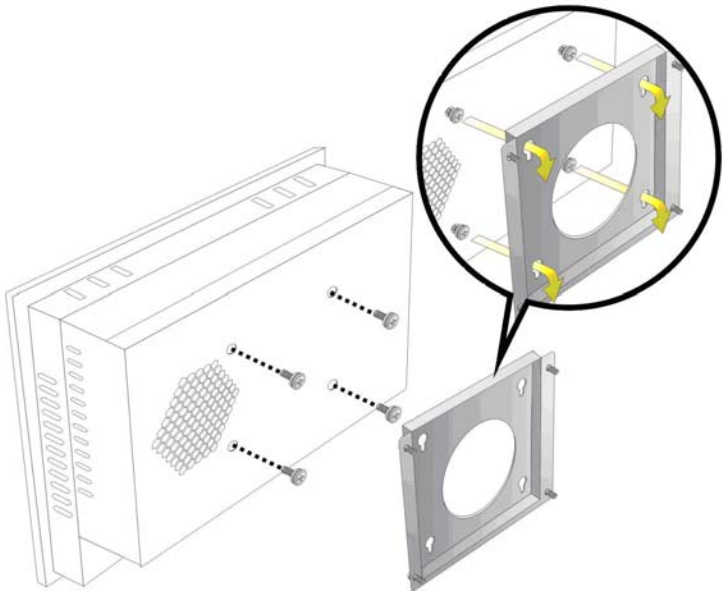


Figure 3-9: Mount the Chassis

Step 8: Secure the panel PC with the wall-mounting kit. To do this, stick the protective cushion to the wall-mounting kit first. Then, put the wall-mounting kit on the top panel of the panel PC. Carefully mark the location of the wall-mounting kit screw holes on the wall. Drill a pilot hole at the marked location on the wall. Secure the wall-mounting kit to the wall by inserting a retention screw into the pilot hole on the wall (**Figure 3-10**). This step is to avoid the panel PC being pushed apart from the wall-mounting bracket accidentally.

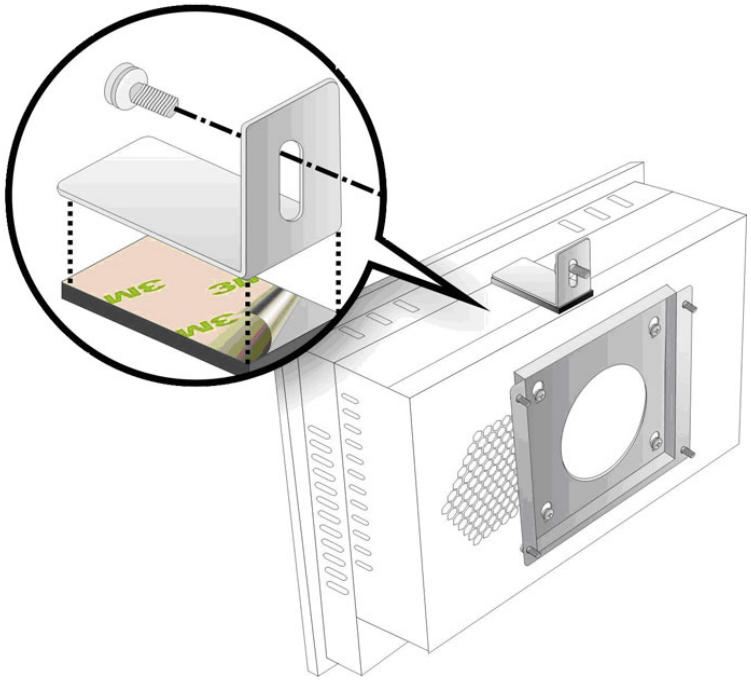


Figure 3-10: Secure the Chassis

3.11.2 Panel Mounting

To mount the 2901190/2901200 flat panel PC into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the flat panel PC.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the flat panel PC. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the flat panel PC but just large enough for the rear panel of the flat panel PC to fit through (**Figure 3-11** and **Figure 3-12**).

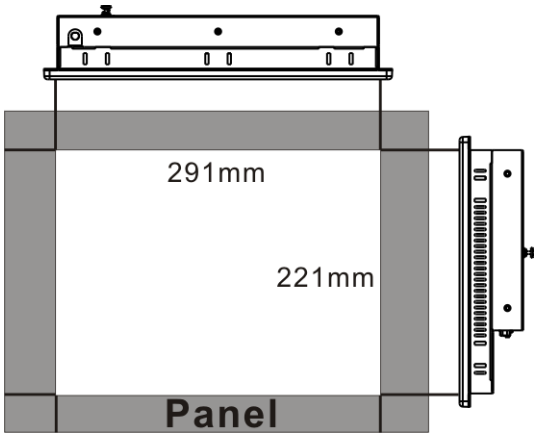


Figure 3-11: 2901190 Panel Opening

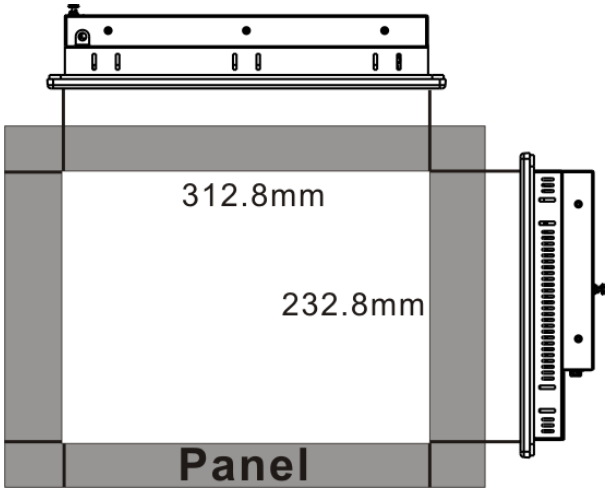


Figure 3-12: 2901200 Panel Opening

Step 3: Slide the flat panel PC through the hole until the aluminum frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the aluminum frame. There are a total of 10 panel mounting clamps.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-13**).

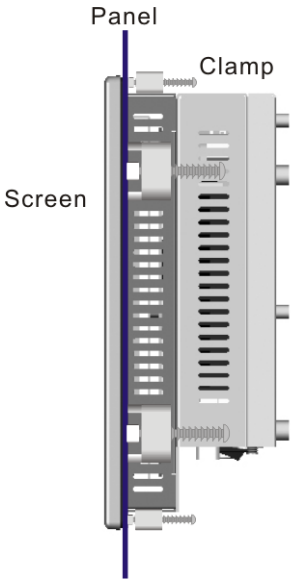


Figure 3-13: Tighten the Panel Mounting Clamp Screws

3.11.3 Arm Mounting

The 2901190/2901200 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the 2901190/2901200 on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the 2901190/2901200 flat panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the flat

panel PC. The flat panel PC arm mount retention screw holes are shown in **Figure 3-14**.

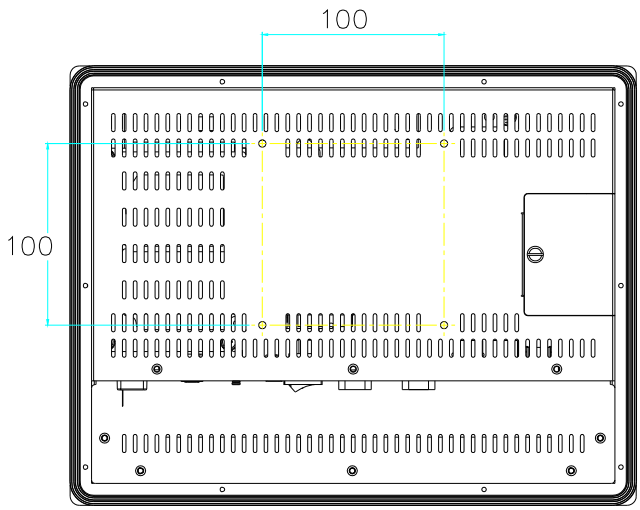


Figure 3-14: Arm Mounting Retention Screw Holes

Step 4: Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC.

3.11.4 Cabinet and Rack Installation

The 2901190/2901200 flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:

NOTE:

When purchasing the cabinet/rack installation bracket , make sure it is compatible with both the 2901190/2901200 flat panel PC and the rack/cabinet into which the 2901190/2901200 is installed.

Step 1: The back of the aluminum frame surrounding the 2901190/2901200 TFT LCD screen has 10 retention screw holes for a cabinet/rack installation bracket.

Step 2: Slide the rear chassis of the 2901190/2901200 flat panel PC through the rack/cabinet bracket until the rear side of the LCD screen frame is flush against the front of the bracket.

Step 3: Make sure the retention screw holes at the rear of the LCD screen are aligned with the retention screw holes in the rack/cabinet bracket.

Step 4: Secure the rack/cabinet bracket to the 2901190/2901200 flat panel PC by inserting the retention screws (**Figure 3-15**).

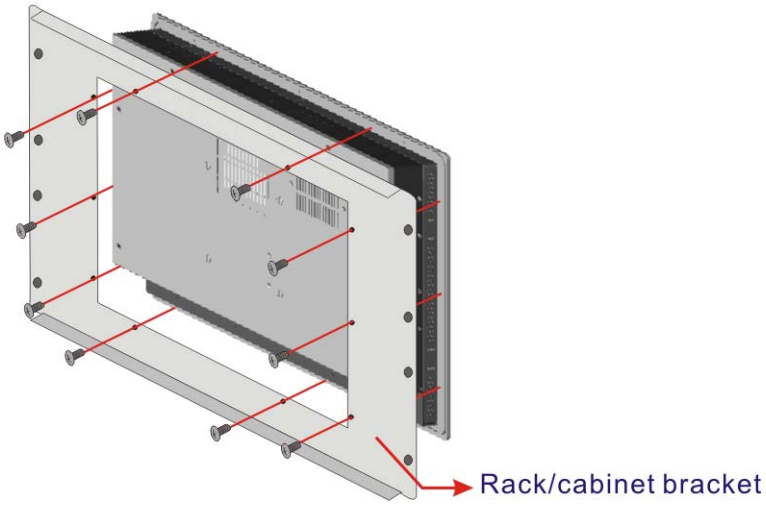


Figure 3-15: Secure the 2901190/2901200 Rack/Cabinet Bracket

Step 5: Slide the 2901190/2901200 flat panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-16**).

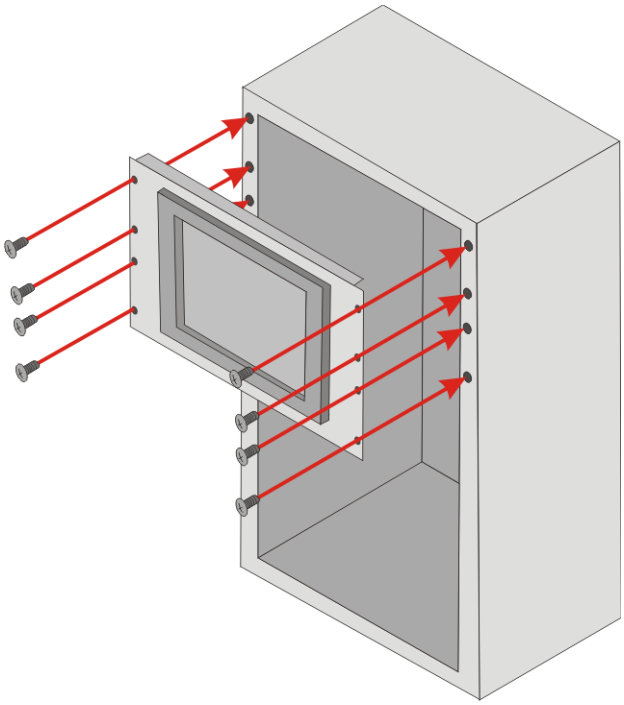


Figure 3-16: Install into a Rack/Cabinet

Step 6: Once the 2901190/2901200 flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-16**).

3.12 Rear Panel Connectors

3.12.1 LCD Panel Connection

To connect the 2901190/2901200 flat panel PC to a second monitor, a conventional CRT VGA monitor connector is located on the bottom panel. This panel is a 15-pin, female D-SUB connector.

3.12.2 Ethernet Connection

The two rear panel RJ-45 connectors can be connected to an external LAN and provide Internet connectivity to the flat panel PC.

3.12.3 USB Connection

The rear panel USB connectors provide easier and quicker access to external USB devices. The rear panel USB connector is a standard connector and can easily be connected to other USB devices.

3.12.4 Keyboard and Mouse Connection

One PS/2 connector on the bottom panel facilitates the connection of a mouse and a keyboard. To connect either device, plug the PS/2 connector at the end of the keyboard or mouse cable into the corresponding PS/2 connector on the external peripheral interface panel.

3.13 System Maintenance

If the components of the 2901190/2901200 fail they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts.

NOTE:

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to Global American, Inc. to be replaced. Please contact Global American, Inc. sales person directly.

Chapter

4

Gasket Replacement

4.1 Gasket Replacement

A gasket used for a long time may gradually lose its ability to protect the monitor from fluids and vapors; scratches or dirt may also accumulate. It is recommended that the gasket be replaced yearly.

NOTE:

If the monitor is mounted vertically, first remove it and place it on a flat, level surface with the display screen facing down before changing the gasket.

Step 7: Remove the old gasket from the sides of the monitor.

Step 8: Attach the new gasket to the monitor. Make sure the gasket fits precisely into the groove along the edges of the monitor's front panel (**Figure 4-1**).

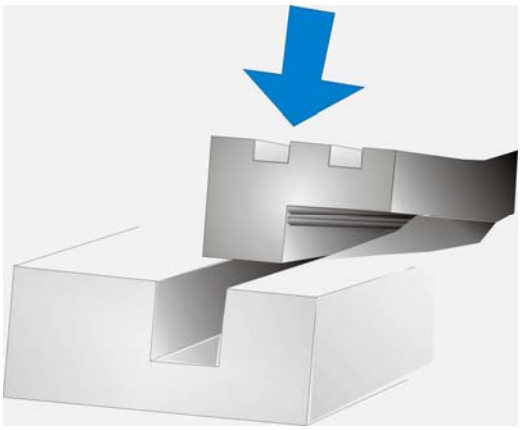


Figure 4-1: Gasket Replacement

NOTE:

Compliance with the IP 65 standard depends on correct installation of the gasket. Be sure to check that the gasket is properly installed after changing it.

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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