

Genesi Pegasos II Setup

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This application note is the first in a series of documents describing the Genesi Pegasos II system which contains a PowerPC™ microprocessor.

1 Introduction

This application note describes the steps for connecting all the ports and various connectors to the outside of the Pegasos system and the connection of all the chassis wires to the motherboard. Generally, the user will not need to open the box and connect or disconnect any of the components inside the box; however, the information is given here. For a complete list of the other application notes in this series refer to [Section 5, “References.”](#)

2 Terminology

The following terms are used in this application note:

| | |
|---------------|---|
| ATX | Open motherboard specification, widely used by PC manufacturers |
| Linux OS | Linux Operating system |
| Debian | One of the versions of Linux |
| Yellow Dog | One of the versions of Linux |
| Open Firmware | Firmware used in Genesi Pegasos |

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Outside the Box

| | |
|-------------|--|
| Firmware | Code associated with booting and starting the motherboard |
| Motherboard | Main system board |
| PCI | Peripheral component interconnect, a method of connecting extension cards to the motherboard |
| AGP | Another type of PCI connector, usually used for fast video |

3 Outside the Box

The Genesi Pegasos system consists of an ATX slim box chassis containing a power supply, motherboard, video AGP card, processor card, and various connectors. This section describes the outside connectors and the next section will describe the inside of the box. [Figure 1](#) shows the front of the chassis.



Figure 1. Front of Box with Closed Doors

Figure 2 shows the front of the chassis with the doors open.

- The large button is the ON/OFF key. Press once and the box will power up. While on, press and hold for 4 seconds to shut the power off.
- The smaller button is the reset button.
- There are two lights next to the reset button. The green one indicates power, the other indicates hard disk activity.
- Above the power button is the DVD/CDROM device. The button indicated in the figure will open and close the door.
- On the left are the following connections.
 - The left most miniature RCA connector is for the speaker, the other RCA connector is for the microphone.
 - There are two USB connectors next to the RCA connectors. The top one is not physically connected, the bottom one is the USB connector 1, in Linux parlance, /dev/sda1.



Figure 2. Front of Box with Open Door

The next set of figures are pictures of the back of the box.

Figure 3 shows the back of the box with labeled connectors. Instructions for their proper installation follow:

- Connect the power cord and ensure that the little red switch above the power cord is set to the correct voltage.
- Speaker and microphone can be connected either in the rear and/or in the front.
- The bottom purple PS/2 connector is for the keyboard.
- The top green PS/2 connector is for the mouse. Note that there is no printed information on the chassis.
- The two USB connectors are USB2 and USB3, in Linux parlance, /dev/sda2 and /dev/sda3.
- There are two ethernet ports.
 - The left port, the one closest to the mouse connector is ethernet1, in Linux parlance, eth1. It currently has no driver, and therefore does not work. In the future, this will be the gigabit ethernet.
 - The right port, the one farthest from the mouse connector is ethernet0, in Linux parlance, eth0, it is currently active as a 10/100 ethernet port. Connect your ethernet cable here.
- Under the ethernet ports are the firewire ports. (These are not labeled.)

Outside the Box

- Next to the firewire ports, is the serial port 1.
- Above the serial port is the parallel port.
- Below the parallel port is an optical audio output. (This is not labeled.)
- To the right of the parallel port is a digital video and a coaxial audio output. (These are also not labeled.)
- Next to the digital video is the VGA port. Connect your analog display here.
- At the top of the chassis are two thumb screws, remove these to gain access to the inside of the chassis, see [Section 4, “Inside the Box,”](#) for more details.

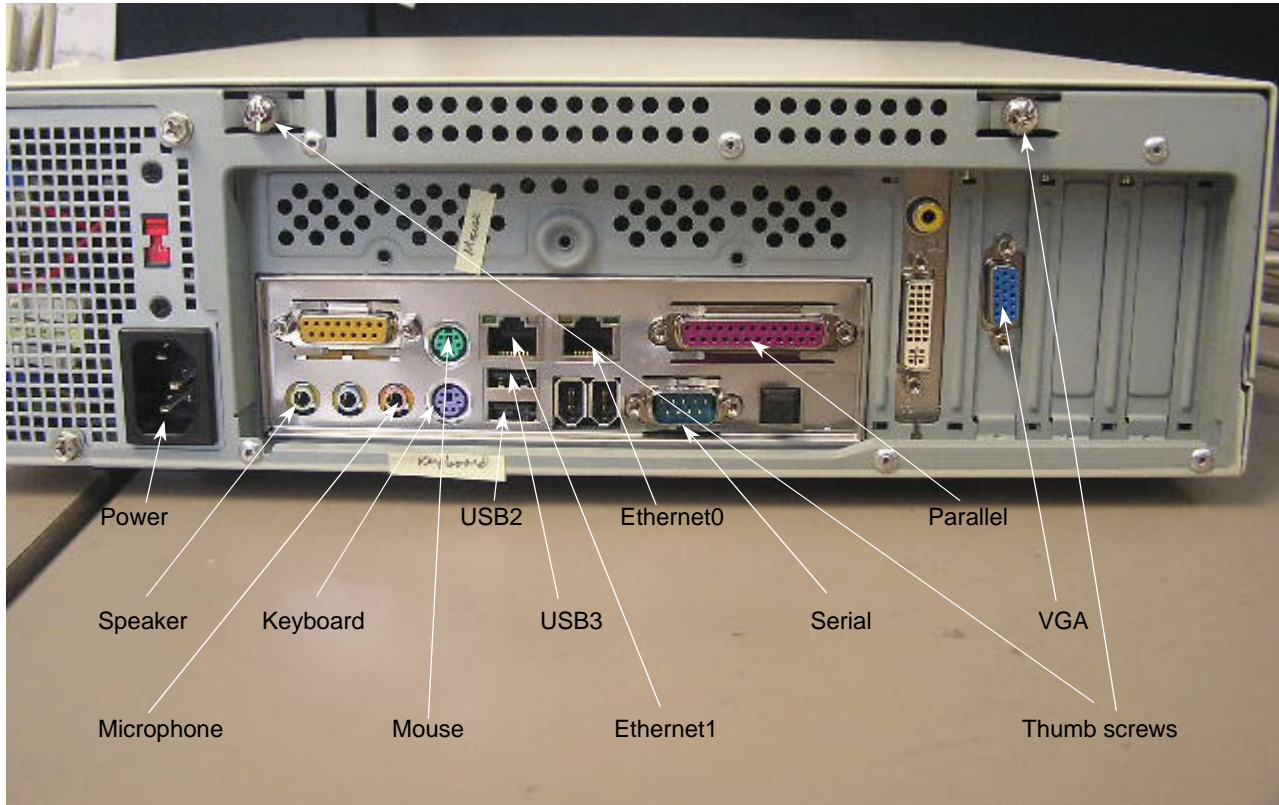


Figure 3. Back of Box Horizontal Orientation

Figure 4 shows the back of the box in a horizontal orientation, one without and the other with the cables connected.

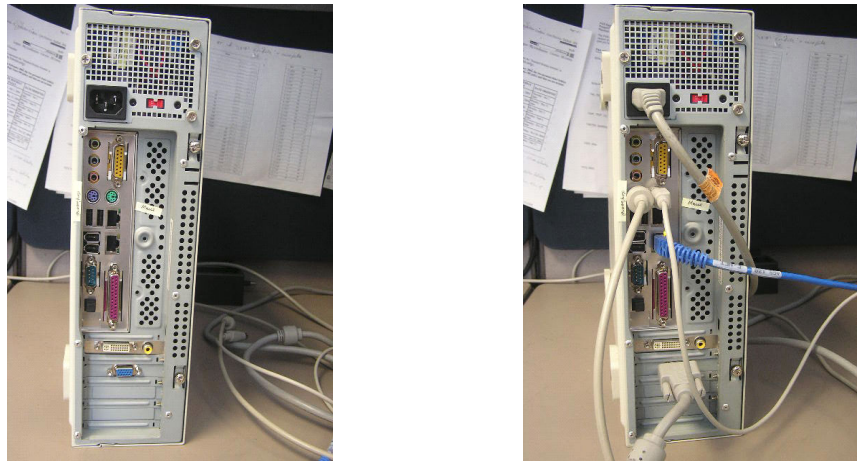


Figure 4. Back of Box Vertical Orientation and Wires Connected

4 Inside the Box

Remove the two thumb screws at the top rear of the chassis. Grasp the front of the chassis and pull forward then upward to remove the top.

Figure 5 and Figure 6 show the chassis from the front and the rear with the top removed.

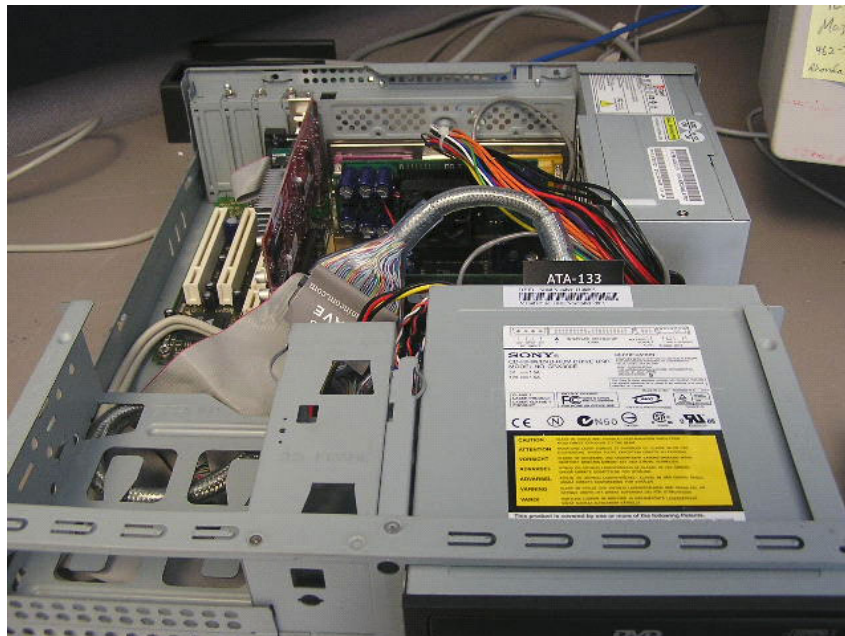


Figure 5. The Inside of the Chassis Looking from the Front

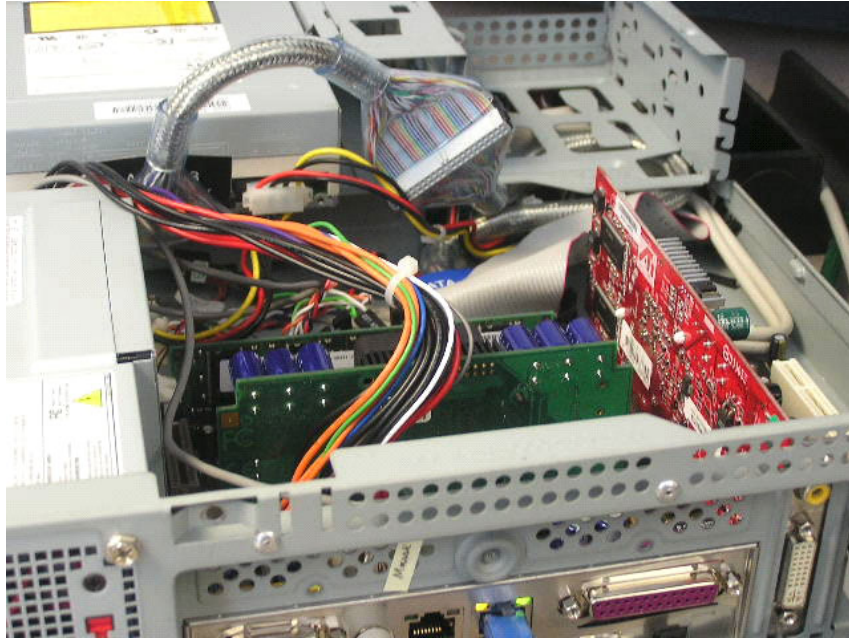
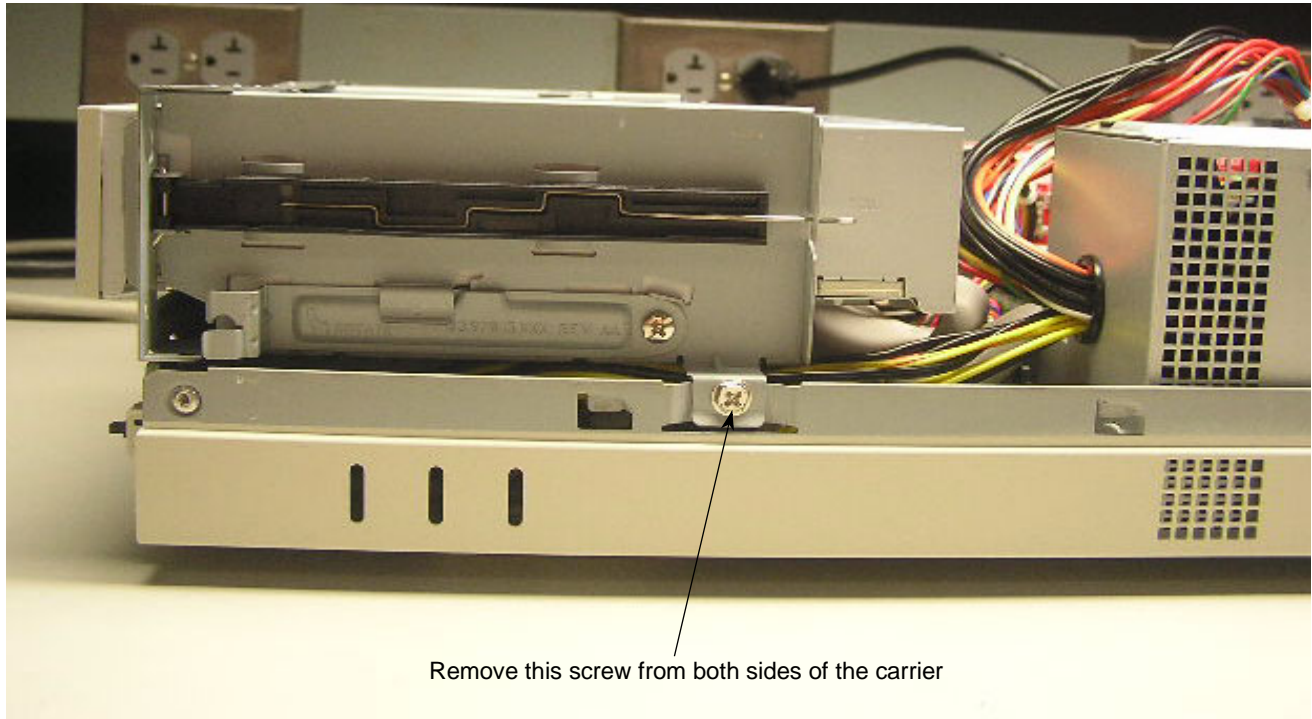


Figure 6. Inside of the Box Looking from the Rear

To remove the hard drive and DVD carrier, remove the screw from both sides of the carrier. [Figure 7](#) shows one side of the chassis with the screw noted.



Remove this screw from both sides of the carrier

Figure 7. Side of Chassis Showing One of the Screws Holding the Hard Drive DVD Holder

Lift the carrier toward the front and remove it. Now the motherboard is accessible.

See [Figure 8](#) for a view of the system with the hard drive and DVD carrier removed.



Figure 8. View of Genesi Pegasos II with Hard Drive DVD Carrier Removed

Inside the Box

The following diagrams show the motherboard and all the various connectors. The wires from the chassis are shown and their colors are indicated.

Figure 9 and Figure 10 show all the connectors on the motherboard and their orientation as seen from the front of the chassis.

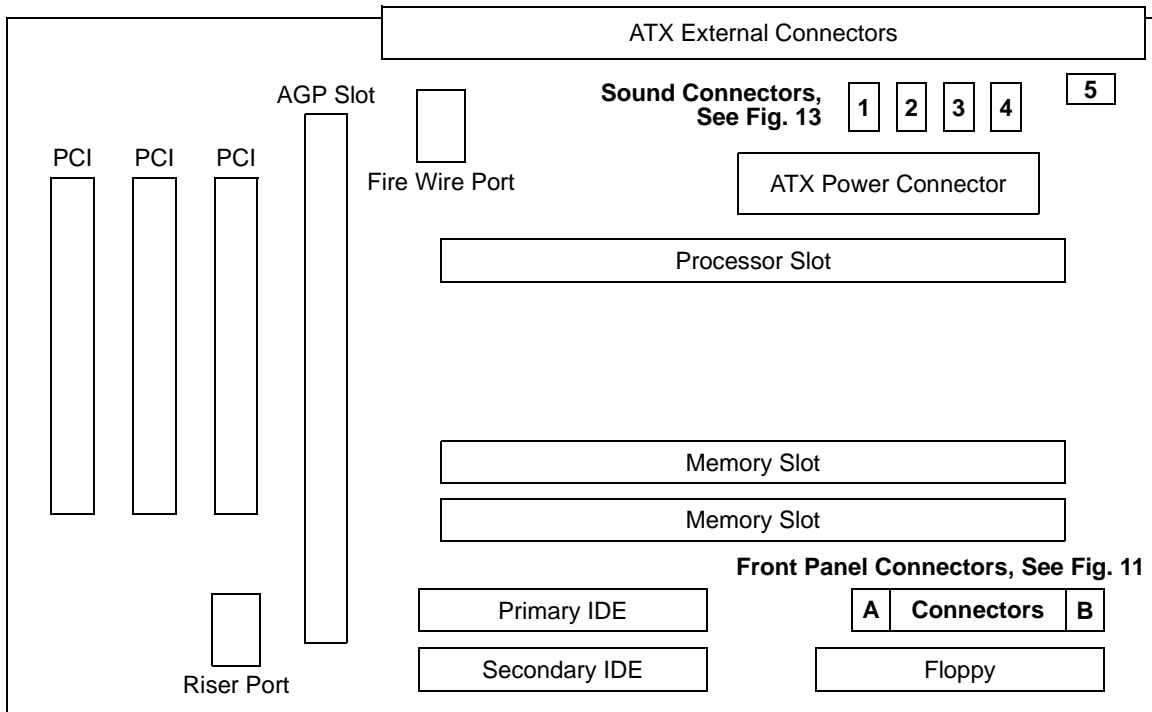


Figure 9. Motherboard Front Orientation

The two IDE slots are connected, one each to the hard drive and the DVD/CDROM device. Up to two more IDE devices can be connected to these IDE channels. The boot hard drive must be connected to the primary IDE as the master.

NOTE

If there is only one hard drive, it should be connected to the primary IDE and set up as cable select.

A floppy device is not included; however, the floppy hardware channel is configured on the main board. There are two memory slots located between the processor slot and the IDE connectors. The ATI video card connects to the AGP slot, the ATX power connects to the ATX power connector, and the processor card connects to the processor slot. There are five sound connectors, but only connectors 1, 4, and 5 are used. See Figure 13 for a more detailed look. The front panel connections are made to the front panel connector as shown in Figure 11. The ATX external connectors are the connectors outside the box discussed previously in Section 3, “Outside the Box.”

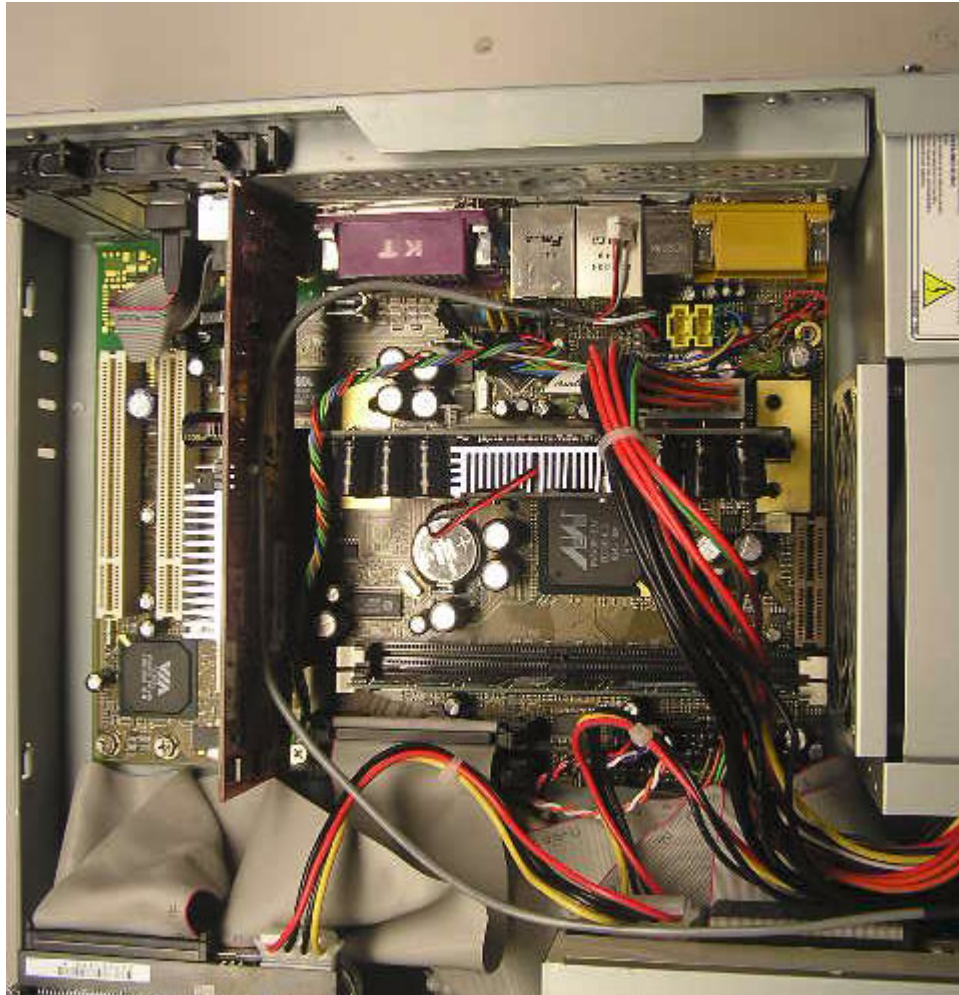


Figure 10. Genesi Pegasos II Motherboard

Figure 11 and Figure 12 indicate the 26 pin front panel connector. Each pin is described in detail after the diagram.

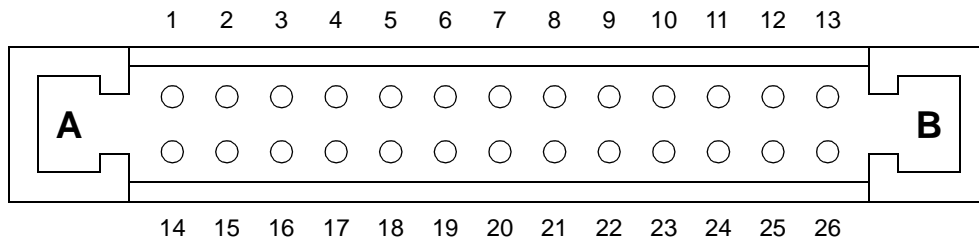


Figure 11. Front Panel Connectors

A description of all the pin connections for the front panel follows:

- Pin 1 to a red wire and pin 14 to a black wire connect the ATX soft power ON/OFF (PWR PT).
- Pin 2 to a violet wire and pin 15 to a white wire connect the hardware reset switch (RST).
- Pin 3 to a white wire and pin 16 to a green wire connect the power LED (PLED)
- Pin 4 to a white wire and pin 17 to an orange wire connect to the disk activity light.
- Pin 22, USB-VCC, a brown wire; pin 23, DM1, an orange wire; pin 24, DP1, a green wire; and pin 25, USB-GND, a grey wire connect the front bottom USB. The black, orange, and yellow wires on the USB panel are not connected.
- Pins 10, 11, 12, and 13 are for a speaker (SPEAK). They are not wired at this time.
- Pin 5, IR-TX; pin 6, IR-GND; pin 7, IR-RX; and pin 8, IR-VCC are the infrared connectors. They are not wired at this time.
- Pin 18, SDATA and pin 19, SCLK are not wired at this time.
- Pin 20, KDATA and pin 21, KCLK are not wired at this time.
- Pin 26 is not used.

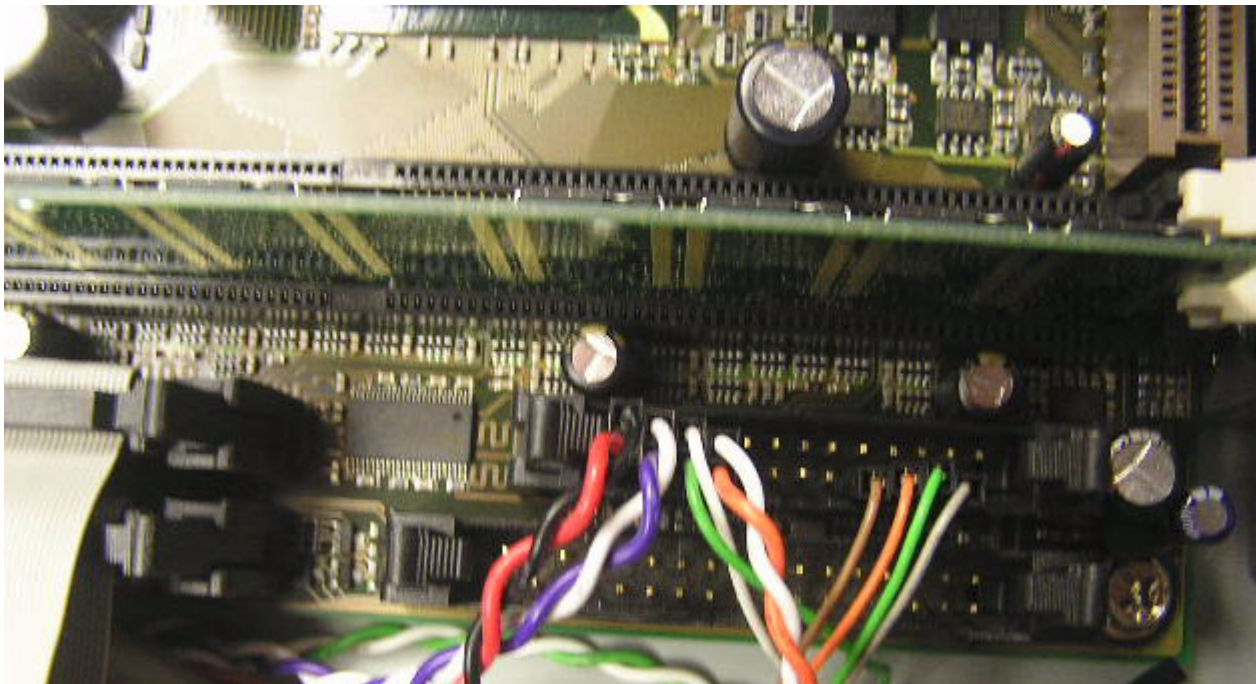


Figure 12. Front Panel Connectors

Figure 13 and Figure 14 indicate the 12 pins associated with sound on the motherboard. Each pin is described in detail after the figure.

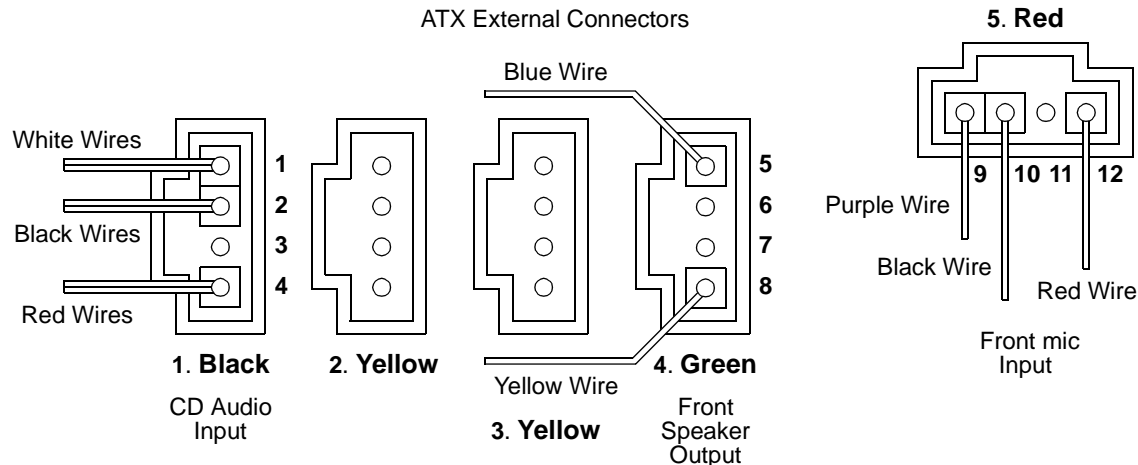


Figure 13. Sound Connectors

Descriptions of each of the sound connectors are listed below:

1. The black sound connector is the input from the CDROM connection wire. One side of this wire connects to the CDROM audio out and the other connects to this sound connector. The connectors are keyed on both ends so that they will only connect in one direction. Pin 1 connects to a white wire, pin 2 connects to a black wire, pin 3 is not used, and pin 4 connects to a red wire.
2. This yellow sound connector is not used.
3. This yellow sound connector is not used.
4. The green sound connector is the front speaker output, pin 5 connects to a blue wire, pins 6 and 7 are not used, and pin 8 connects to a yellow wire.
5. The red sound connector is the front microphone connector. Pin 9 connects to a purple wire, pin 10 connects to a black wire, pin 11 is not used, and pin 12 connects to a red wire. The green and grey wires of the audio harness are not connected and should be tied back so that they do not interfere with the power supply fan.

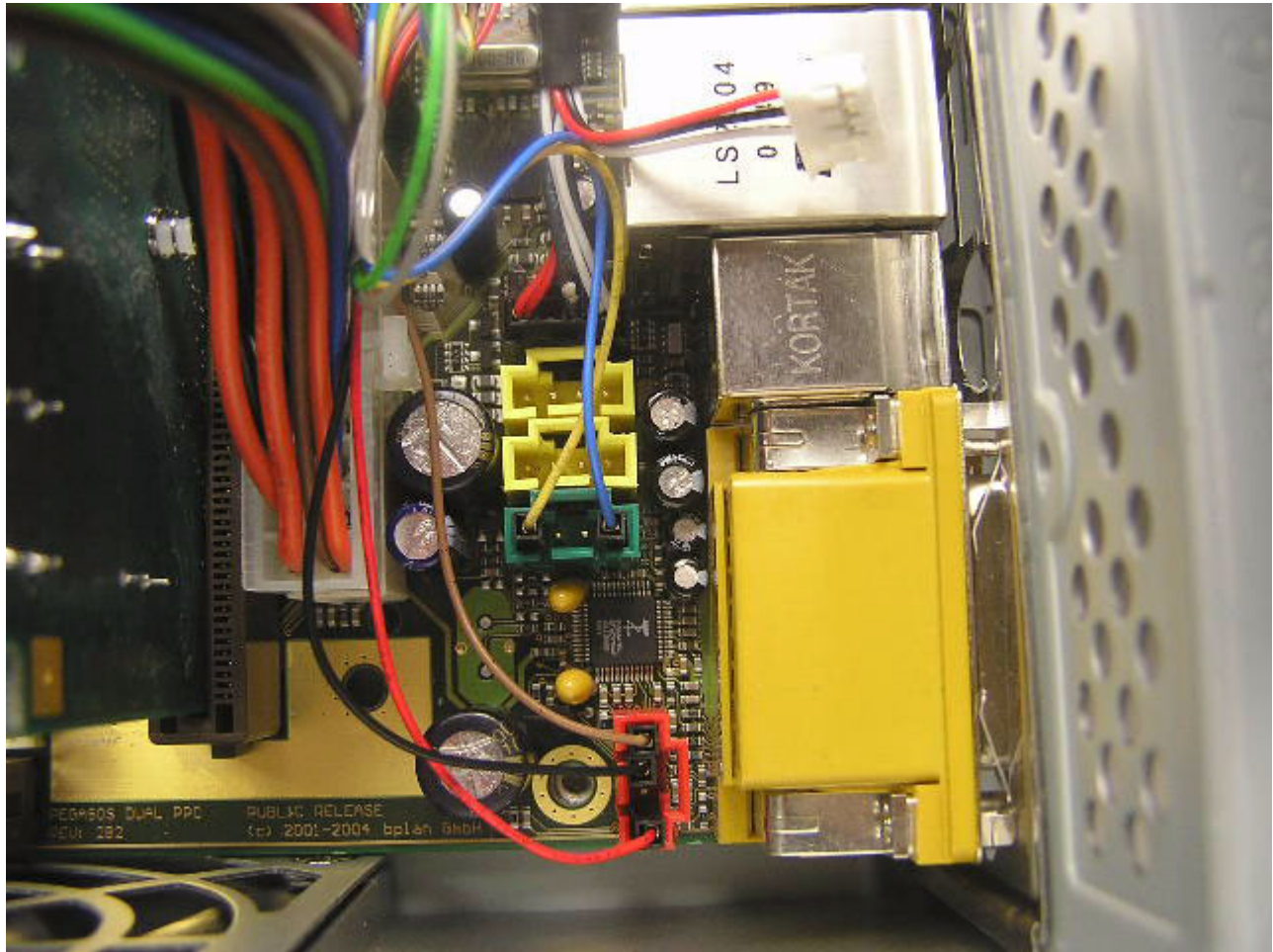


Figure 14. Sound Connectors

5 References

The following documents describe the various applications of the Genesi Pegasos II system.

1. Genesi *Pegasos II Instruction Manual, Revision 1.02*.
2. Freescale application note AN2736, *Genesi Pegasos II Boot Options*
3. Freescale application note AN2738, *Genesi Pegasos II Firmware*
4. Freescale application note AN2739, *Genesi Pegasos II Debian Linux*
5. Freescale application note AN2744, *PMON Module, an Example of Writing Kernel Module Code for Debian 2.6 on Genesi Pegasos II*
6. Freescale application note AN2743, *Software Analysis on Genesi Pegasos II Using PMON and Altivec*

For assistance or answers to any question on the information that is presented in this document, send an e-mail to risc10@freescale.com.

6 Document Revision History

Table 1 provides a revision history for this application note.

Table 1. Document Revision History

| Revision Number | Date | Change(s) |
|-----------------|----------|------------------|
| 0 | 07/14/04 | Initial release. |

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