# MACKIE.

Digital X bus Supermicro motherboard replacement installation guide

## Overview:

The Supermicro P4spa+ is a replacement motherboard for the previously used Iwill P4se. The Supermicro P4spa+ will use all of the previous peripheral components such as the P4 3.0 GHz processor, Zalman heat sink, PC3200 RAM, and the ATI 9200 video card.

The only item that will not be used is the 16 pin flat ribbon. The 16 pin flat ribbon cabled was used to connect the MIDI/Footswitch daughter board to the game port of the Iwill motherboard. This connection will require a new conversion cable made with the correct pinout to correspond with the Supermicro P4spa+.

## Please read, and follow all installation Instructions before proceeding.

• Keep the new motherboard in its protective anti-static bag until the exact moment you are ready to use it.

• This repair requires opening your Digital X bus and handling sensitive electronic components. Anti-static precautions must be taken in order to prevent damage to the unit or to the new motherboard from electro-static discharge (ESD).

It is highly recommended that you read getting inside the digital X bus located at the link below.

http://www.mackie.com/products/digitalxbus/pdfs/Getting_Inside.pdf

## Tools required:

In order to perform this procedure you will need to provide the tools listed below

1. A new condition #2 Philips head Screwdriver (Figure 1, below left).
2. Flathead "Jeweler's" Screwdriver (Figure 2, below right)
3. Anti-static Wrist Strap
4. Thermal paste (Thermal paste can be purchased at any computer supply store.)
5. 2 zip ties



Figure 1



Figure 2

## Parts Supplied:

1. P4spa+ Supermicro motherboard.
2. Midi/footswitch conversion cable.

# Before You Start

You'll need to do the following things before starting to open up your Digital X Bus:

• Make sure the console is completely shut off and unplugged from any AC power source. Before you begin to remove the Iwill motherboard make sure the motherboard power LED is not lit this guaranty that there is no AC power present.

• Unplug all audio and sync cables from the rear panel.

• Unplug any USB peripherals, mouse, keyboard, or anything other cables attached to the rear panel.

• Place the Digital X Bus on a surface larger than the console, away from any carpeting or static-prone area(s). This surface will need to extend beyond the rear side of the Digital X Bus by at least three feet (or one meter) of distance, because the rear panel will eventually slide out (like a drawer) and you will need to make sure it is supported and doesn't fall out of the mixer.

**! Note**: We recommend using an anti-static strap that fits on your wrist, and has a cord that clips to the metal chassis of the Digital X bus. This will discharge any static electricity from you onto the chassis, and prevent zapping the sensitive electronic parts.

**WARNING***: The wrist-strap and cord are electrically conductive and present a potentially **LETHAL** safety hazard. Once you are wearing it, keep the cord away from all live electrical circuits, outlets, sockets, contacts, electric heaters, or toasters for example.*

*• Damage caused to the Digital X bus due to improper installation or handling of these components will not be covered under warranty.*

# Removing the old motherboard

**!** **We will start by assuming you have read getting inside the Digital X bus or are already familiar with how to open the Digital X bus properly.**

**1.** Start by removing the aluminum cross brace. This will be held in place by 5 Philip head screws located in each corner of the brace and one holding the Digital X bus PCI card. Remove all 5 screws and set them to the side in a safe place.
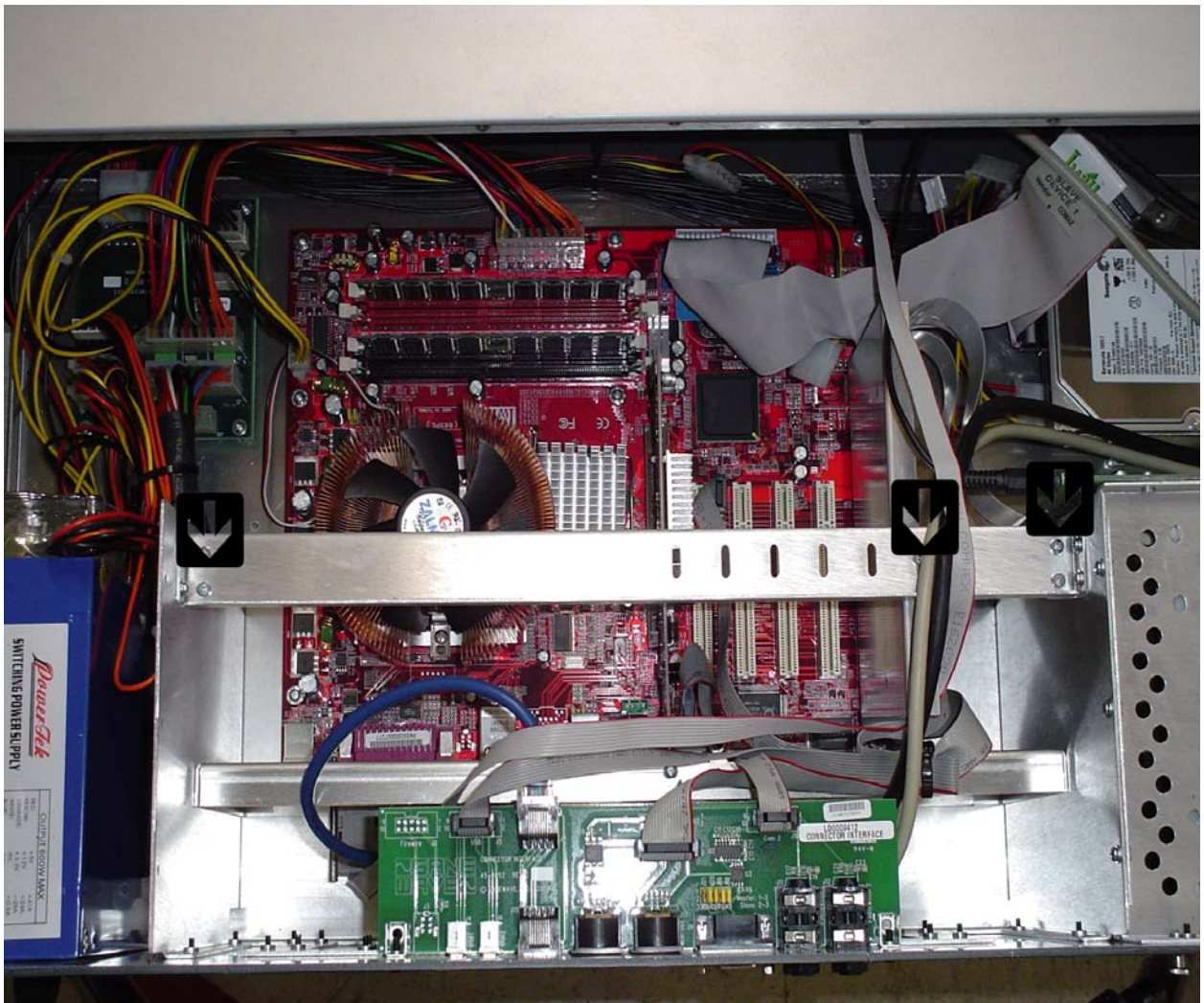
**2.** Removing all power supply cables from the motherboard. You will find a 20 pin Molex connector located at the front center of the Iwill motherboard. Next you will need to remove the 4 pin Molex connector located to the left of the black RAM socket.
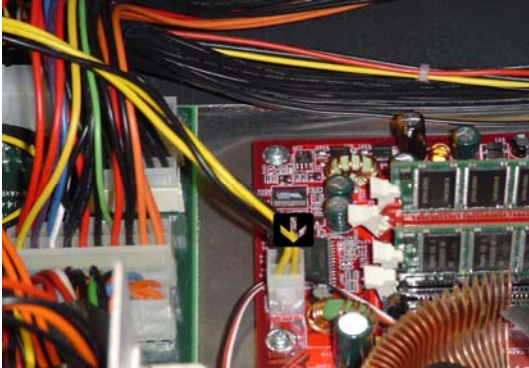


**3.** Remove the flat IDE ribbon cable located in the upper right hand corner. Note: this will be a blue header labeled IDE1.
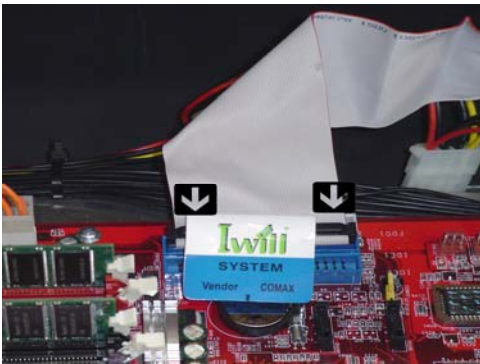


**4.** Next we will remove the ribbon cabled used to connect the USB from the Digital X Bus daughter board to the Iwill motherboard. Remove the end of the cabled connected to the Iwill motherboard (figure 3 below). Leave the ribbon cabled connected to the Digital X Bus daughter board at this time (figure 4 below).
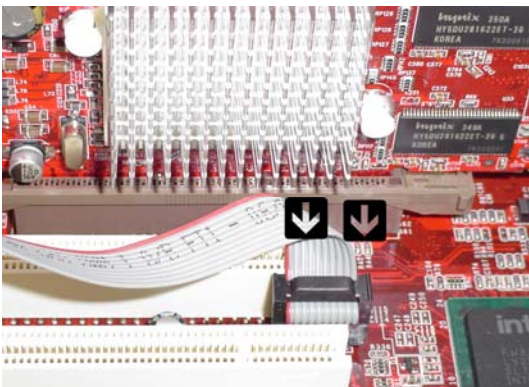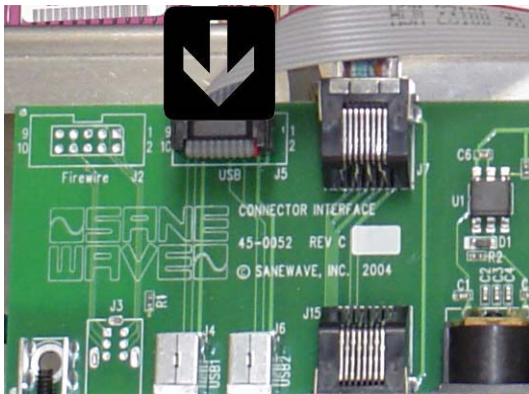
**Figure 3**

**Figure 4**



**5.** Now we will remove the ribbon cable used to connect the serial 9 port to Com 2 port of the Iwill motherboard. Start by removing the end of the ribbon cabled connected to the Iwill motherboard (refer to figure 5 below). Leave the other end of the ribbon cable connected to the Digital X Bus daughter board (refer to figure 6 below).
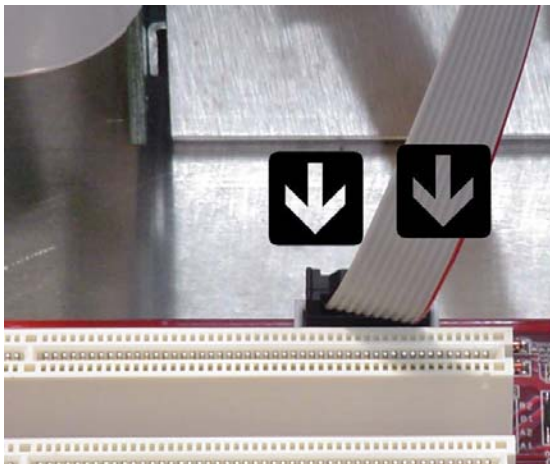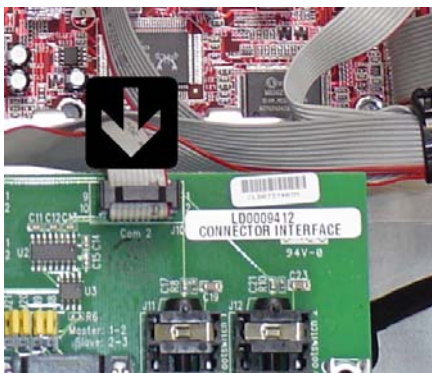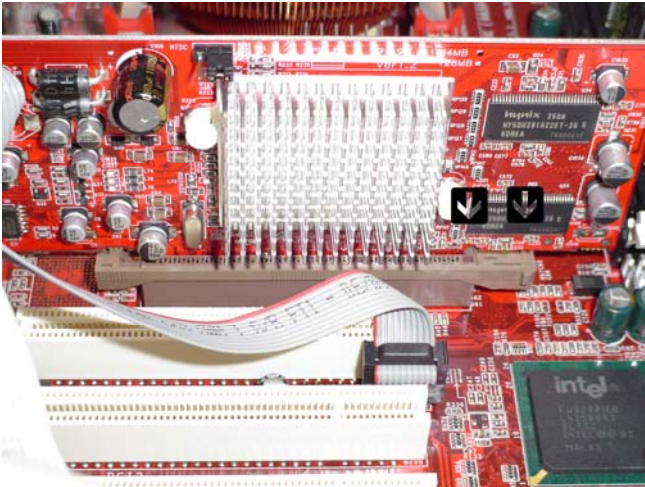
**Figure 5**



**Figure 6**

**6.** Next remove the AGP video card.  Start by sliding the latch at the rear of the of the AGP slot backwards away from the video card. Lift the front of the video card up slowly and pull upwards. Note:  Set the AGP video card in a safe place away from any potential electro-static discharge.



**7.** Now it is time for the most important part. Take the Digital X bus PCI card is located in PCI slot 5. Slowly pull the PCI card upwards away from the PCI slot. **Do not remove the PCI card completely.** You will see the PCI card start move once the card is free from the PCI slot place it off to side between the hard drive and backplane leave all 3 ribbon cables connected to the backplane.
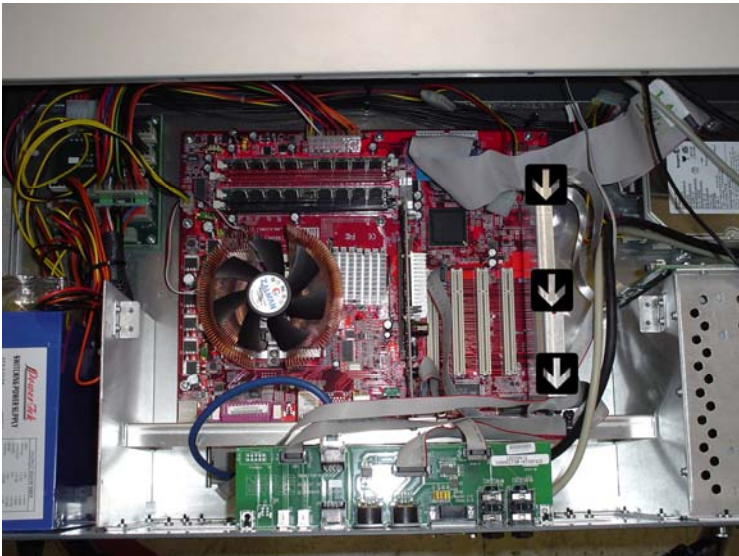
**8.** Remove each RAM module from the RAM sockets. You should find one located in RAM socket A1 and the other located in RAM socket B1. Start by moving the latch at each end of the RAM module outwards. Once the latch is free and clear lift the RAM module upward away from the socket.

**! Note**: *Set each RAM module in a safe place away from any potential electro-static discharge.*



**9.** Next we will remove the processor heat sink. Begin by loosening the screws that hold the processor heat sink in place (refer to figure 7 below). You will need to rotate the heat sink fan until you can fit a screw driver between the fans blades above the screws holding the heat sink. Slowly loosen each screw holding the heat sink. As you loosen each screw you will feel the spring action start to release. Once the heat sink screws are free from the heat sink slowly twist and slide the heat sink off the processor. You will notice that the thermal paste creates a physical bond between the processor and heat sink The last thing you will need to do is disconnect the power lead going to heat sink fan (refer to figure 8 below).

**! Note**: *Be very carful when removing the heat sink not to pull straight up doing so could damage the processor. If you pull straight up on the heat sink you run the risk of pulling the processor from the socket with out properly releasing it. This could cause damage to the processor that Mackie will not be responsible for. If you do not feel comfortable please contact Mackie tech support for referral to a qualified service center.*
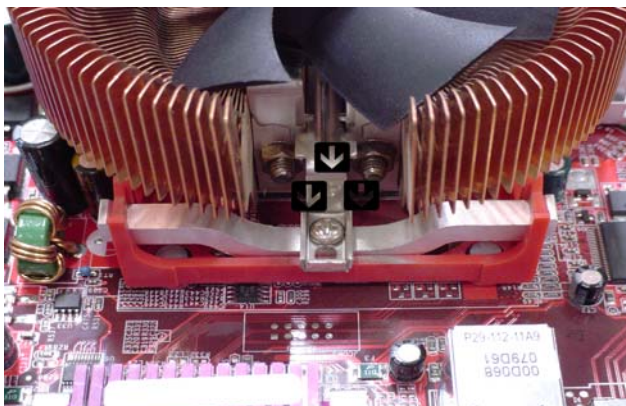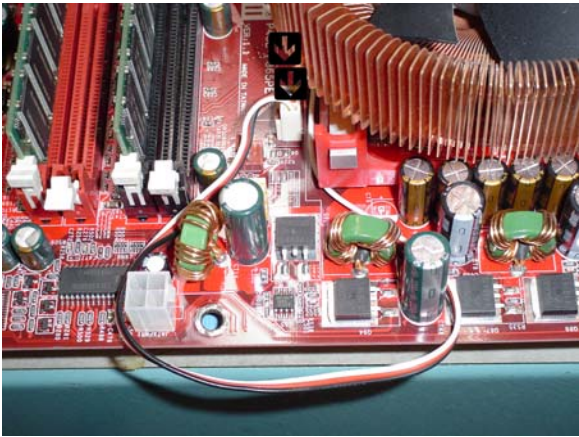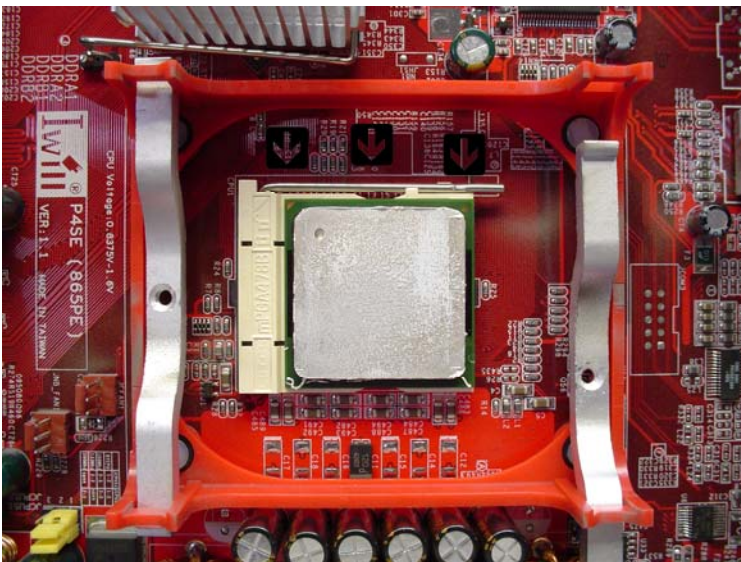
Figure 7

Figure 8



**10.** Remove the processor from the processor's socket. Start by lifting the arm located on the side of the processor socket. Slowly lifts the processor from the processor socket make sure you do not feel any resistance the processor should come free very easily

**! Note**: *Set the processor in a safe place away from any potential electro-static discharge.*

**11.** Now it is time to remove the Iwill motherboard.  The motherboard is held in place by 9 screws. Remove all 9 screws then lift the Iwill motherboard from the stand offs. Place all 9 screws in a safe place for later use.
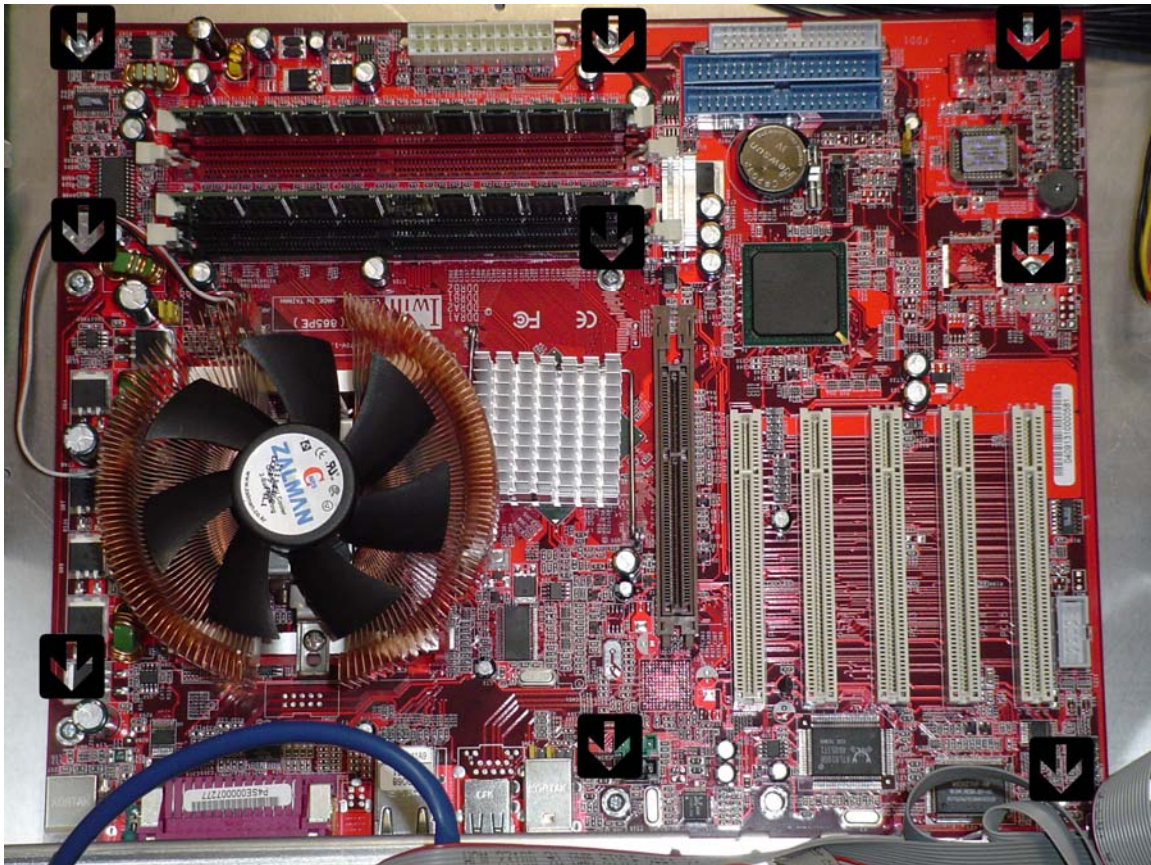
# Installing the Supermicro motherboard

**1.** Start by removing the new Supermicro motherboard from its packaging. Be very carful when removing the new motherboard from its anti-static bag as not to disturb any component located on the motherboard its self. Make sure you are properly connected to the chassis of the console using anti-static Wrist Strap.

**2.** Place the new motherboard in the position of the previous Iwill motherboard. Make sure to align the new motherboard on top of the stand offs. Bring the new motherboard all the way to the front of the chassis.
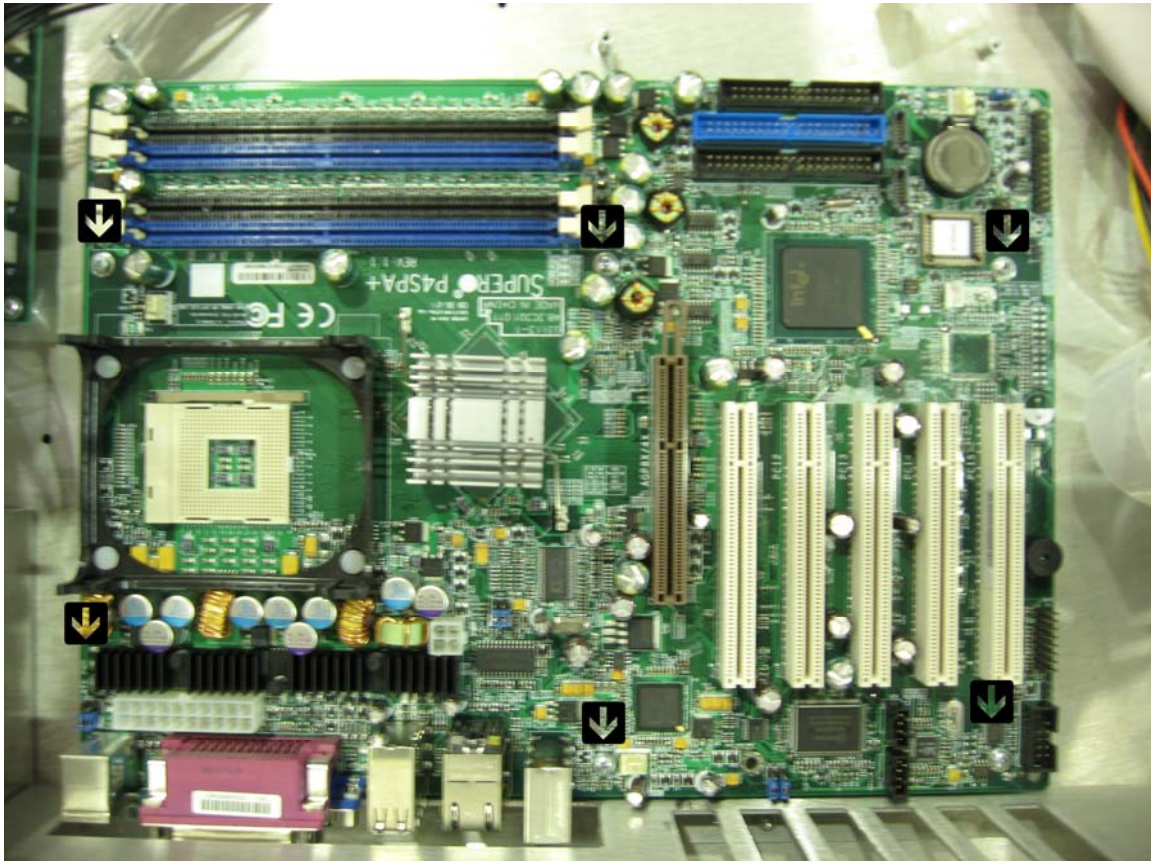


  **Note:** *the last row of stand offs will not be used only the first 2 rows will be used to mount The new motherboard in place this will not effect performance*

**3.** Now that the new motherboard is position in place, take 6 of the 9 screws previously used and tighten the new motherboard down to the first 2 rows of stand offs.

**4.** To install the processor in the processor's socket. Start by lifting the arm located on the side of the processor socket. Slowly put the processor in the processor socket, make sure to orient the processor with the golden triangle matched to the triangle on the processor's socket.
Note:  be very carful when handling the processor, keep the processor away from any potential electro-static discharge.

**! Note**: make sure to put a small amount of thermal paste on the processor before installing the heat sink.
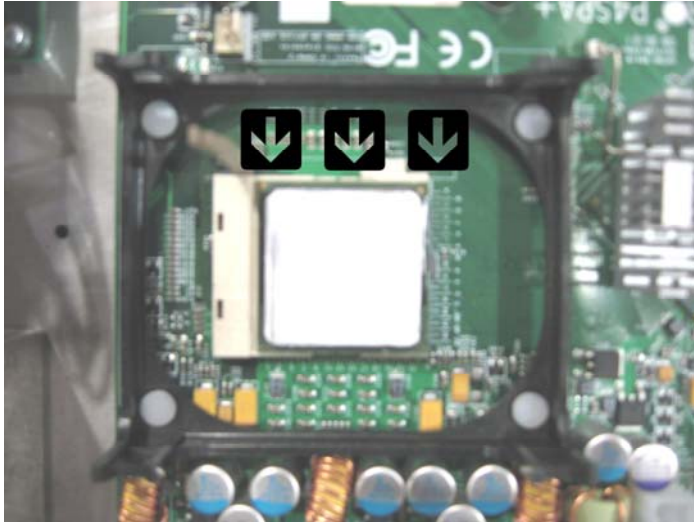


5. Next we will install the processor's heat sink.  It is recommended that you clean the surface of the heat sink before reinstalling.  Take the aluminum heat sink brackets and place them vertically in the motherboard heat sink socket.
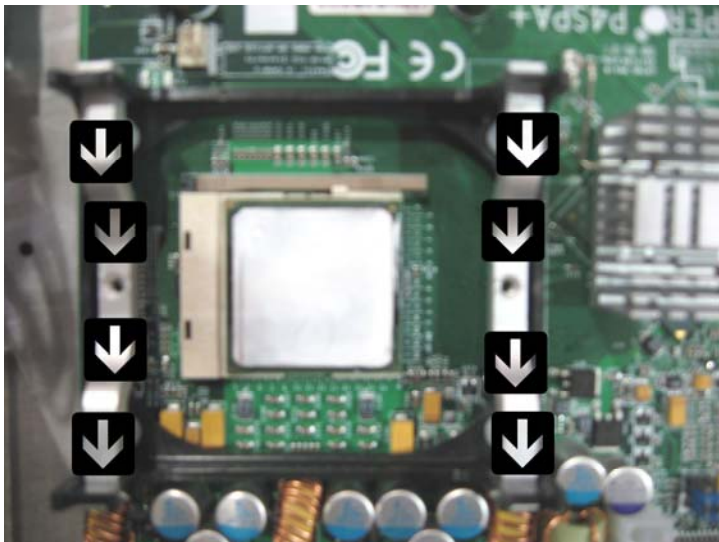
**6.** Take the processor heat sink and place it over the processor. Orient the heat sink screw holes so they align with the screw holes on the mounting brackets. Take the heat sink bracket screws and place them in the screw holes. Slowly tighten the screws on each side of the heat sink. Note: you will need to rotate the heat sink fan until you can fit a screw driver between the fans blades above the screw holes.
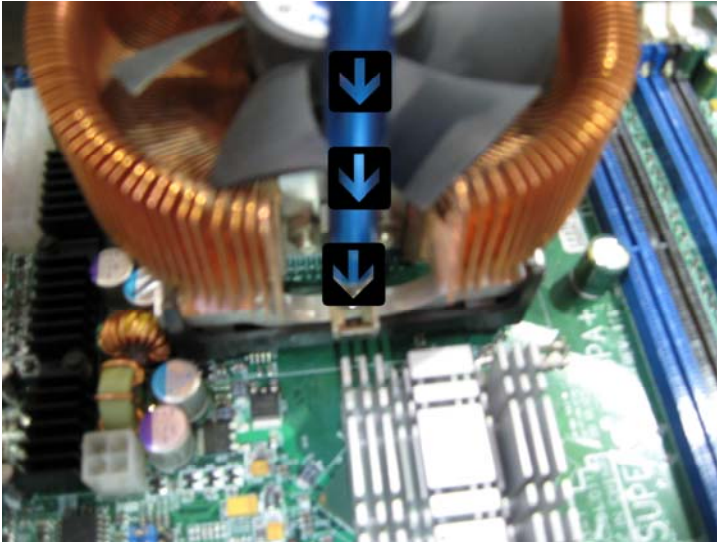


**7.** Now it is time to install your RAM modules. It is very important you install one RAM module in A1 and the other in A2. RAM socket A1 and A 2 are colored blue. Slowly move each latch outwards at the end of Ram socket A1 and A2. Take your first RAM module and place in socket A1. You will feel a small amount of resistance when pushing down on the RAM module. Push until you see and feel the latch at each end snap into place. Repeat the process for the second RAM module in socket A 2.

**! Note:** Keep each *RAM module in a safe place away from any potential electro-static discharge until you are ready to use the specific RAM module.*
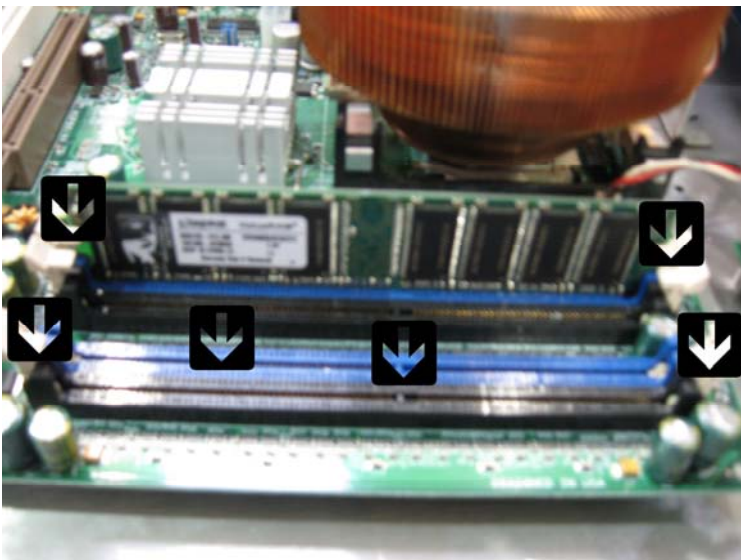
**8.** Next we will reinstall the AGP video card. Start by holding the AGP video card over the AGP slot (figure 9 below). Tilt the AGP video card backwards towards the rear of the AGP slot. Slowly lower the front of the AGP video card into the AGP slot. Once the AGP video card is in position in place press down firmly to make sure the card is seated all the way (figure 10 below).
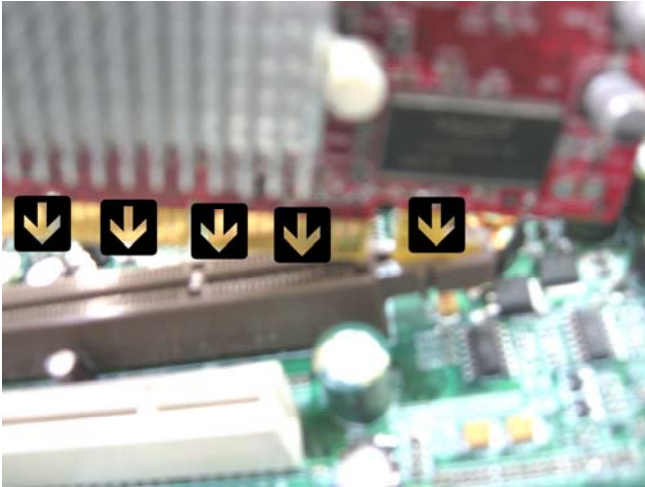
Figure 9



Figure 10

**9.** Now we will install the new MIDI/Footswitch conversion cable. You will notice one side of the MIDI/Footswitch conversion cable labeled motherboard and the other labeled daughter board. You will also notice that there is a little blue or white (figure 11 below) dote indicating pin 1. It is **very important** that the MIDI/Footswitch conversion cable is installed in the correct orientation in regards to pin 1 otherwise there could be damage to the motherboard. Take the side of the MIDI/Footswitch conversion cable labeled motherboard and connect it to game port. Position the cable so that the blue dote indicating pin 1 is facing the outer edge of the motherboard. Next we will need to connect the other end of the MIDI/Footswitch conversion cable to the daughter board. Position the cable so that the blue dote indicating pin 1 is facing inwards towards the motherboard (figure 12 below).
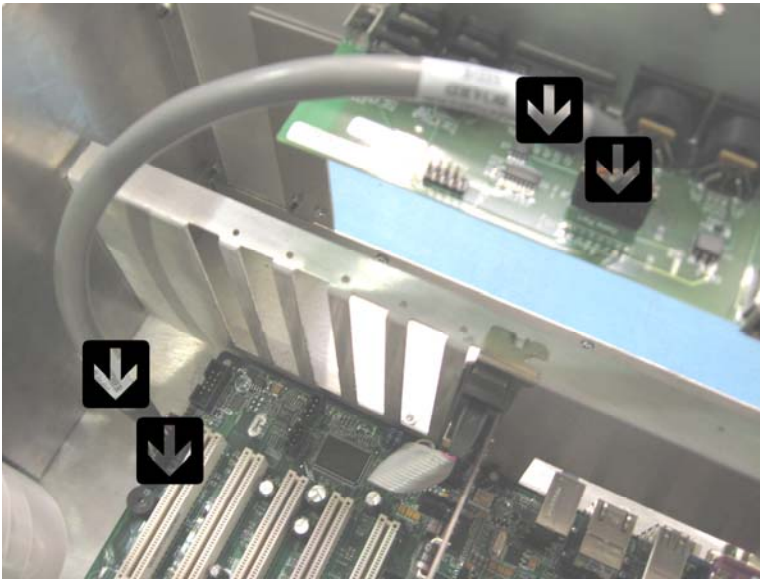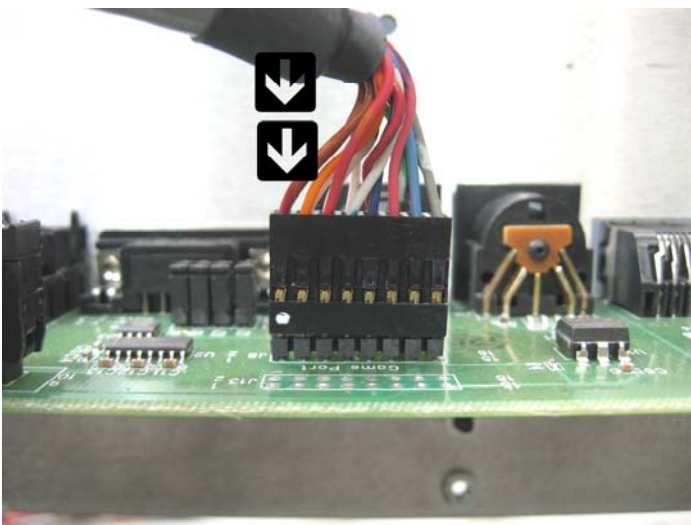
Figure 11



Figure 12

**10.** Next we will need to connect USB from the rear **Digital X Bus** daughter board (figure 13 below) to the Supermicro motherboard (figure 14 below). Take the 10 pin ribbon cable located on the left hand side of the **Digital X Bus** daughter board and connect it to USB header 6/7.  You will need to make sure to position the red strip on the ribbon cable indicating pin 1 so that it is facing the motherboard battery.

> **! Note**: it is very important that you match your Pin 1 orientation from the **Digital X Bus** daughter board to the Supermicro motherboard otherwise USB will not function properly.
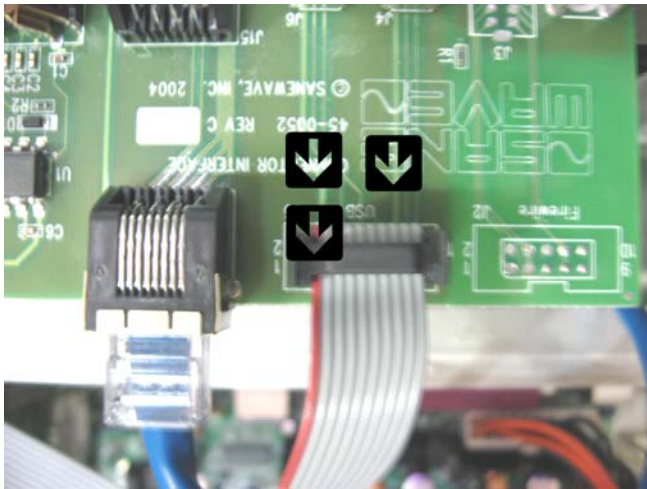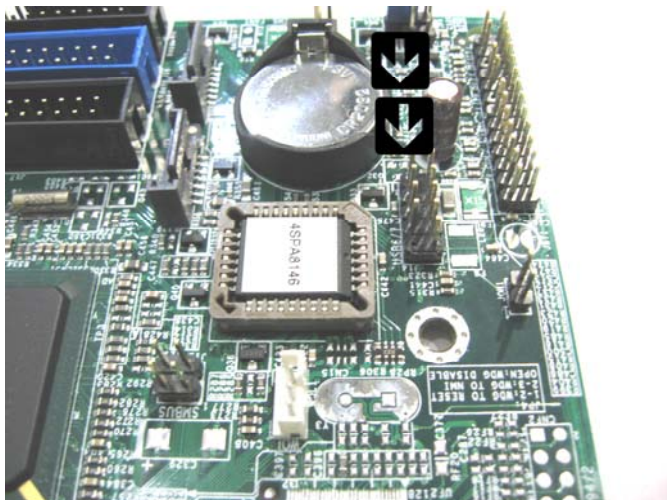
Figure 13



Figure 14

**11.** Now we will connect Com 2 from the rear **Digital X Bus** daughter board to the Supermicro motherboard. Take the10 pin ribbon cable located on the right hand side of the of the **Digital X Bus** daughter board (figure 15 below) and connect it to Com port 2 on the Supermicro motherboard (figure 16 below).
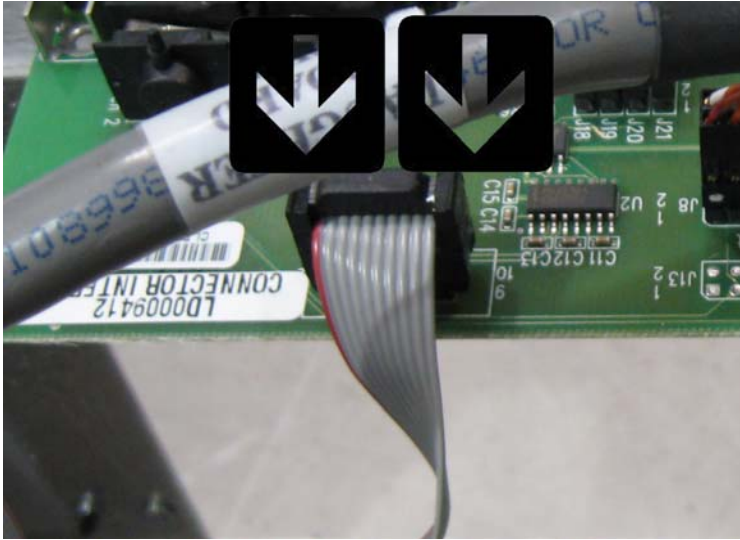
Figure 15



Figure 16
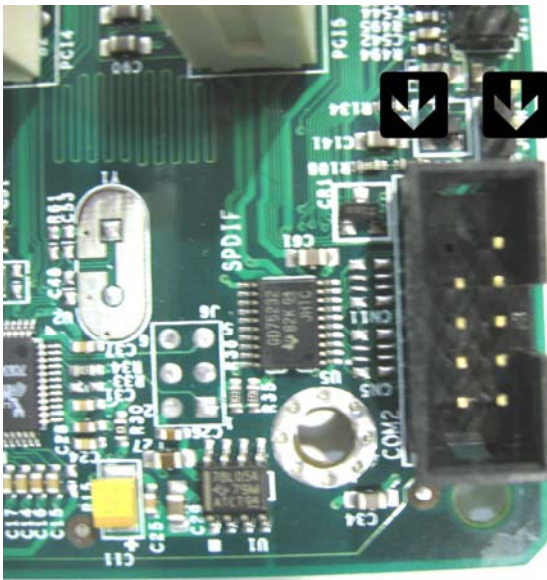
**12.** It is time to install the most important part the **Digital X Bus** PCI card. Previously you set the DXB PCI card safely between the hard drive and back plain. Carefully take the **Digital X Bus** PCI card and position it over the fifth PCI slot. Push down slowly on the PCI card until it is firmly seated all the way

**Note:** *Be very careful not to twist or put the Digital X Bus PCI card ribbon cables at an angel when moving or installing the card.*

Figure 17



Figure 18



Figure 19

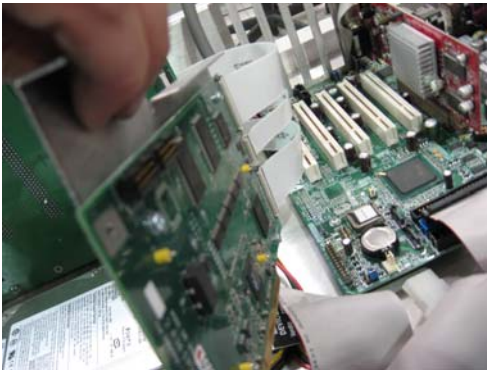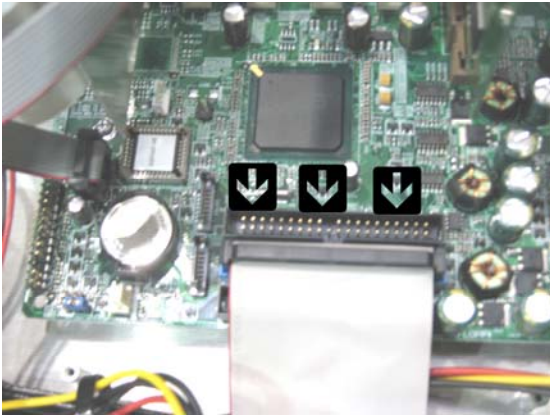**13.** Next we will connect the IDE ribbon cable. This cable will connect to IDE 1. The IDE 1 header is colored blue.



**14.** Connect the 20 pin Molex connector to the primary power supply header.
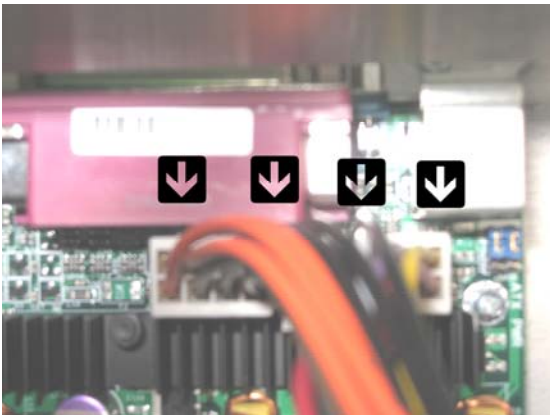


**15.** Connect the 4 pin 12V power supply cable to the 4 pin 12 V header.
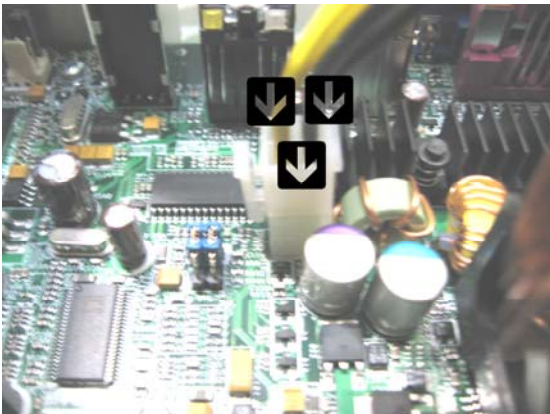
**16.** Now it is time reinstall the aluminum cross brace. Take the aluminum cross brace and place it over the motherboard and PCI card. Position the cross brace so the screw holes line up with PCI card and mounting brackets. Take 4 of 5 screws we sat aside earlier and begin tightening down each corner of the cross brace. Once the cross brace is loosely in place take the fifth screw and tighten down the PCI card. Once the PCI card is completely secure finish tightening down the cross brace.

Figure 20
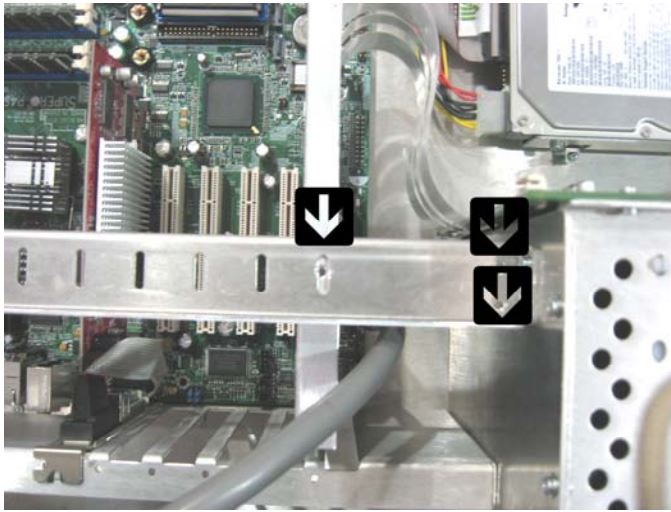


Figure 21
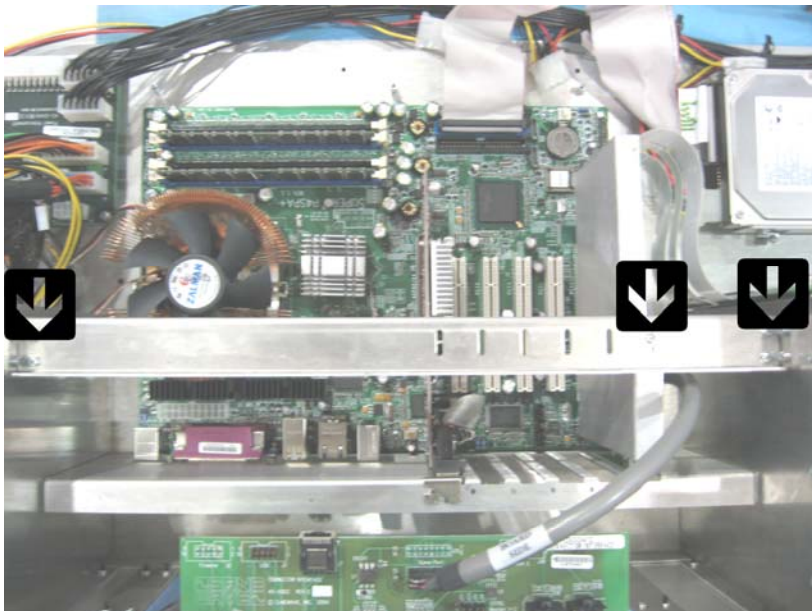
**17**. Once the cross brace is positioned in place we will need to secure the 20 pin and 4 pin power leads to the cross brace. This will keep the power leads away from the heat sink fan. In order to do this you will require a plastic zip tie. Take the zip tie and secure the two power lead to the cross brace as shown below.

Figure 22
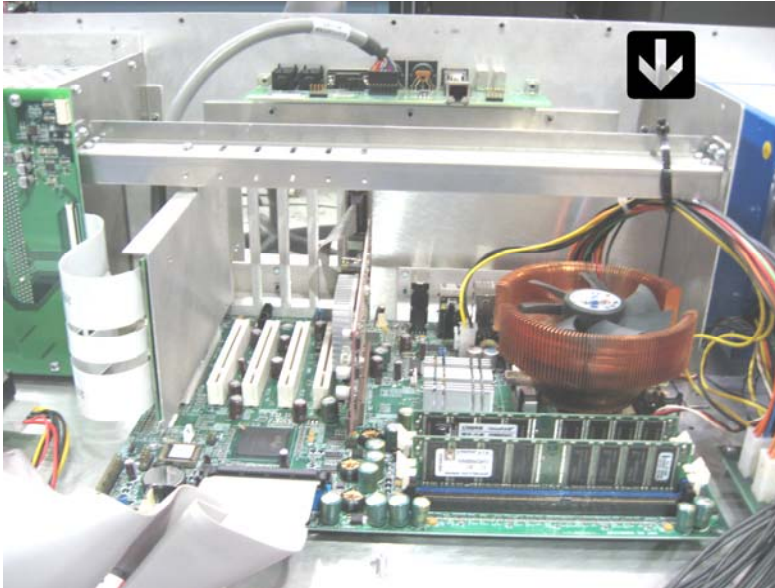


**18.** The last thing we will need to do is install the momentary power switch. Take the momentary power switch and connect it to the PW-ON jumper. The PW-ON jumper will be located in the upper right hand corner. You will notice two long black rows of jumpers. The PW-ON jumper will be located in the first row to the left. The PCB will be labeled PW-ON about ¾ of the way up the row of jumpers.

Note: If you did not receive a momentary power switch please contact Mackie tech support and we will ship one out to you.

Figure 23
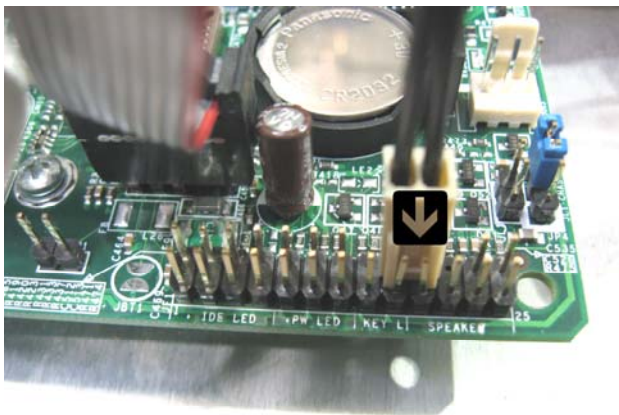
Figure 24
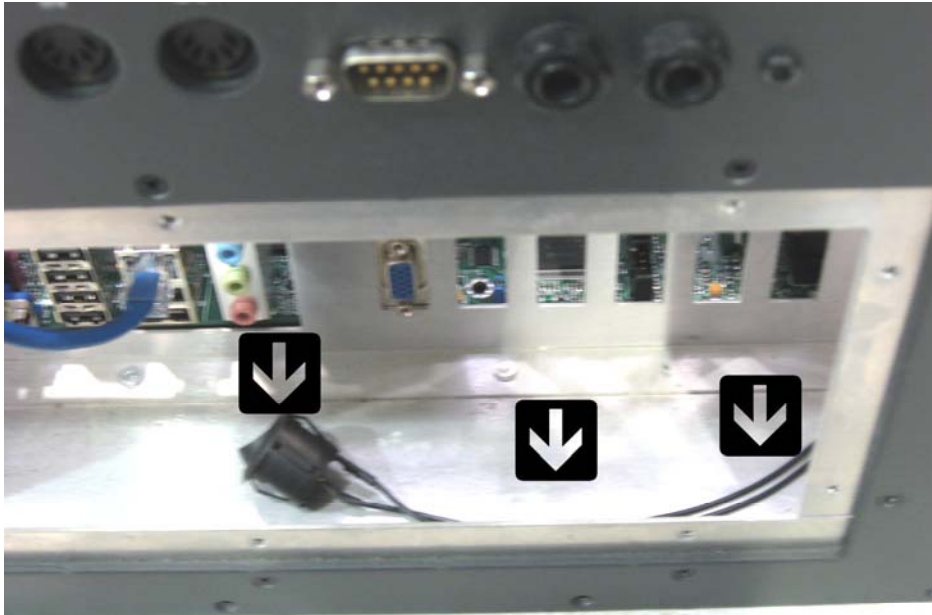


## Installing the Digital X bus Operating System

After installing the new Supermicro motherboard the digital X bus will require you to reinstall the operating system

If you have experienced a complete system failure with your previous Iwill motherboard it is possible to boot into the previously installed Operating system to recover any session files. It is not recommended that you use the previous installation of the Operating system. Although the Digital X bus will boot and allow you to recover any stored session files the system is not stable.

You can use an external USB flash drive to transfer and backup a stored session files.

You will require a copy of the Digital X bus operating system version 1.1.04
and a USB CD or DVD ROM.

If you have never installed the Digital X bus operating system before and require detailed instructions or require a copy of the operating system please refer to the link below.

http://www.mackie.com/products/digitalxbus/software.html

Note: In order for the footswitch to function properly the Digital X bus must be on software version 1.2.2

DXB BIOS settings for Supermicro motherboard

MAIN

Date (mm:dd:yy)
Time (hh:mm:ss)

Legacy diskette A    [None]
Legacy diskette B    [None]
……………………………………………………………………………………………………

IDE Channel 0 Master  [xxxxxxxxx]

IDE Channel 0 Master (sub menu)

IDE HDD Auto Detection [N/A]

IDE Channel 0 Master [Auto]
Access Mode            [Auto]
……………………………………………………………………………………………………

> IDE Channel 0 Slave    [None]
> IDE Channel 1 Master  [None]
> IDE Channel 1 Slave    [None]
   Halt on               [No Errors]

Base Memory                 640K
Extended Memory        1047552K
Total Memory             1048576K
……………………………………………………………………………………………………

ADVANCED

>BIOS Feature

Quick Boot              [Enabled]
Quiet Boot              [Enabled]

ACPI Function          [Enabled]
ACPI Suspend Type     [S1&S3]
USB Flash Disk Type    [Auto]
ACPI Mode             [Enabled]
MSP Version Control     [1.4]
PWRON after PWR-fail [Former-sts]
……………………………………………………………………………………………………

>Advanced Chipset Control

Graphics Apertures        [64]
CSA LAN (Giga-LAN)  [Enabled]

On-Chip VGA Setting
On-Chip VGA               [Disabled]
On-chip Frame buffer size 16MB

On-Chip Serial ATA Setting
On-Chip Serial ATA      [Disabled]
X Serial ATA Port 0 Mode SATA0 master
X Serial ATA Port 1 Mode SATA1 master

USB Controller              [Enabled]
USB 2.0 Controller         [Enabled]
USB Legacy Support      [Disabled]
X USB KB Wake-up from S3 Disabled
AC97                            [Disabled]

CPU THRM-Throttling   [75.0%]
………………………………………………………………………………………………

>I/O Device Configuration

Onboard Serial Port 1     [3F8/IRQ4]
Onboard Serial Port 2     [2F8/IRQ3]
UART Mode Select         [Normal]
X RxD TxD Active          Hi, Lo
X IR Transmission Delay Enabled
X UR2 Duplex Mode      Half
X Use IRPines                IR-Rx2Tx2
Onboard Parallel Port     [378/IRQ7]
Parallel Port Mode         [SPP]
X EPP Mode select        EPP1.7
X ECP Mode Use DMA 3

Game Port Address         [201]
Midi Port Address          [330]
Midi Port IRQ               [5]
Watch Dog Timer Select [Disabled]

POWER ON Function    [BUTTON ONLY]
X KB Power ON password enter
X Hot Key Power ON     Ctrl-F1
………………………………………………………………………………………………

>PnP/PCI Configuration

Init Display From            [Onboard/AGP]
Reset Configuration Data [Disabled]

Resources Controlled By [Auto(ESCD)]
X IRQ Resources
…………………………………………………………………………………………

>Hardware Monitor

CPU Warning Temperature [Disabled]

The remaining parameters will be grayed out and are for monitoring your system only.
…………………………………………………………………………………………

>Processor & Clock Option

Limit CPUID MaxVal  [Disabled]
Hyper-Threading Technology [Enabled]
Spread Spectrum         [Disabled]
CPU Clock               [200MHz]
…………………………………………………………………………………………

SECURITY

Set Supervisor Password  [Disabled] will not show option
Set User Password         [Disabled] will not show option
Password Check           [Setup]
…………………………………………………………………………………………

BOOT

>Hard Disk Priority
     1.  ChO M.  : ST340014A
     2.  Bootable Add-in Cards

First Boot Device     [USB-CDROM]
Second Boot Device  [Hard Disk]
Third Boot Device    [Removable]
Boot Other Device    [Enabled]
…………………………………………………………………………………………

EXIT

Save & Exit Setup