

Troubleshooting for the IA Platform (Appendix A)

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INTRODUCTION

This guide is designed to give an overview of basic PC troubleshooting and to be used as a quick reference guide. To use this manual effectively, you should already be familiar with using and troubleshooting PCs. The first section will give an overview of the PC and describe the individual components as they relate to troubleshooting the PC. The second part will list common problems and will discuss on how to isolate these types of problems. This guide is designed for quick access of a lot of information.

Important Note: Disassembly, assembling, upgrading and troubleshooting computers should be performed only by a computer professional since the electronic devices may cause serious damage to the installer, the system and its components if it is done improperly. Before attempting to disassemble or assemble computers, install components in a computer or to troubleshoot computers, carefully review the documentation specific for the computer and its related components. Make sure that you will not be voiding the warranty of the system by opening the computer or replacing any of the components in the computer. Lastly, make sure to follow Electrostatic Discharge (ESD) procedures.

A.1 COMPUTER DOES NOT COMPLETE BOOT

Computer Does Not Boot - No Lights or Fans – Nothing Displayed on the monitor

- Determine if the system worked before. Determine if there have been any recent changes. Often if a recent change is been made, the recent change is the cause of the problem.
- Make sure the computer is plugged in and on.
- Make sure that the monitor is plugged in and on.
- Use a voltmeter or an AC wall outlet tester found in a hardware store to confirm that there is adequate AC voltage at the wall outlet. See section 6.4.
- If your AC outlet is connected to an on/off outlet switch, make sure that it is on.
- Determine power supply voltage selector setting (230 volts vs. 115 volts) is correct.
- Ensure the selected motherboard is appropriate for the processor model, frequency, and stepping you are planning to use.
- Verify that your chassis/case and power supply is appropriate for the processor model and frequency and the motherboard you are planning to use.
- Verify that the power supply has the capacity to power all the devices used in your system.
- Make sure the power cables inside the computer are attached correctly and secure. You will need to attach the main power connector and a 2x2 power and/or 1x6 optional power connector.
- Make sure the drive ribbon cables inside the computer are attached correctly and secure. Be sure to check the orientation of pin 1 of Hard Drive. If the ribbon cable is connected backwards may cause the computer not to power up.
- Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.
- Check the cables that connect from the case to the motherboard. Be sure to include the power switch (PWR SW) and power LED (PWR LED). Refer to the motherboard manual for more information. See section 6.2.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output, replace the power supply).
- Use a voltmeter to verify the PowerGood signal is +5 volts. If the signal is below 1.0 volts, there may be a short or overload causing a constant reset. Consider replacing the power supply.
- Check for shorts and overloads inside computer by removing nonessential items such as extra controller cards and IDE/ATAPI devices and turning the computer on to see if it starts to boot. Leave the motherboard, power supply, RAM or processor. If the problem goes away, there was a short or overload with one of the components that you just removed or one of those components is faulty. Replace each of those one at a time until you isolate which is causing the problem. If the problem still occurs after removing the nonessential components, the problem has to be with the motherboard, power supply, RAM or processor. See section 6.3.
- Remove the processor and RAM and reinstall them to make sure that they are installed correctly.
- Make sure that you have mounted the motherboard correctly with the spacers/stand-

offs. In addition, make sure that when you insert the screws to tighten the motherboard into place, make sure not to tighten the screws too much.

- Determine if motherboard/system has any security features, which would disable boot.
- If you are using RDRAM, make sure that all memory sockets of a channel are filled with either a memory chip or a continuity module. In addition, if the motherboard has multiple channels, make sure that you fill the first channel once and that you check to see which memory sockets go with each channel. Lastly, the RDRAM often has to be installed in pairs of the same type of memory chips. For example, you would have to install two sticks of 64 MB of RDRAM running at 800 MHz. See section 5.1.3.
- If you are using SDRAM or DDR-SDRAM, some motherboards require you to populate the memory sockets starting with the first socket. Refer to your motherboard documentation for more information.
- If the problem still persists, swap the RAM with known good RAM. In addition, test the suspected RAM in another known working system.
- If the problem still persists, swap the processor with a known good processor. In addition, test the suspected processor in another known working system.
- If the problem still persists, swap the motherboard with a known good motherboard. In addition, test the suspected motherboard in another known working system.

Computer Does Not Boot - Has lights and/or fans – Nothing Displayed on the monitor

- Determine if the system worked before. Determine if there have been any recent changes. Often if a recent change is been made, the recent change is the cause of the problem.
- Make sure that the monitor is plugged in and that the monitor is on.
- Make sure that the video cable is connected properly at the monitor and the PC.
- Determine if there is power light on the monitor. Most monitors will have a green light indicating it has sufficient power and is getting a video signal and an amber light if it has power but it is not getting a video signal from the computer. If you have no lights, it is most likely a problem with the monitor. Make sure that the monitor is connected to a working AC outlet, the AC power cord is plugged into the wall outlet and the monitor. If you have any on/off switches for the outlet, make sure that the switches are on. If the problem still persists, try replacing the monitor and try the monitor on another AC outlet and another system. If you have an amber light, it is most likely a problem with the computer.
- Check the brightness and contrast controls on the monitor. The monitor might be dimmed where you cannot see anything on the monitor.
- If you have a light on the monitor, use a voltmeter or an AC wall outlet tester found in a hardware store to confirm that there is adequate AC voltage at the wall outlet for the computer.
- If your AC outlet for your computer is connected to an on/off outlet switch, make sure that it is on.
- Ensure the selected motherboard is appropriate for the processor model, frequency, and stepping you are planning to use.
- Verify that your chassis/case and power supply is appropriate for the processor

model and frequency and the motherboard you are planning to use.

- Verify that the power supply has the capacity to power all the devices used in your system.
- Make sure the power cables inside the computer are attached correctly and secure. Some systems may require a 2x2 and/or 1x6 power connector.
- Make sure the drive ribbon cables inside the computer are attached correctly and secure. Be sure to check the orientation of pin 1 of Hard Drive. If the ribbon cable is connected backwards may cause the computer not to power up.
- Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.
- Check the cables that connect from the case to the motherboard. Be sure to include the power switch (PWR SW) and power LED (PWR LED). Refer to the motherboard manual for more information.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output, replace the power supply).
- Use a voltmeter to verify the PowerGood signal is +5 volts. If the signal is below 1.0 volts, there may be a short or overload causing a constant reset. Consider replacing the power supply.
- Check for shorts and overloads inside computer by removing nonessential items such as extra controller cards and IDE/ATAPI devices and turning the computer on to see if it starts to boot. Leave the motherboard, power supply, RAM or processor. If the problem goes away, there was a short or overload with one of the components that you just removed or one of those components is faulty. Replace each of those one at a time until you isolate which is causing the problem. If the problem still occurs after removing the nonessential components, the problem has to be with the motherboard, power supply, RAM or processor.
- Remove the processor and RAM and reinstall them to make sure that they are installed correctly.
- Make sure that you have mounted the motherboard correctly with the spacers/stand-offs. In addition, make sure that when you insert the screws to tighten the motherboard into place, make sure not to tighten the screws too much.
- Determine if motherboard/system has any security features, which would disable boot.
- If you are using RDRAM, make sure that all memory sockets of a channel are filled with either a memory chip or a continuity module. In addition, if the motherboard has multiple channels, make sure that you fill the first channel once and that you check to see which memory sockets go with each channel. Lastly, the RDRAM often has to be installed in pairs of the same type of memory chips. For example, you would have to install two sticks of 64 MB of RDRAM running at 800 MHz.
- If you are using SDRAM or DDR-SDRAM, some motherboards require you to populate the memory sockets starting with the first socket. Refer to your motherboard documentation for more information.
- If the problem still persists, swap the RAM with known good RAM. In addition, test the suspected RAM in another known working system.
- If the problem still persists, swap the processor with a known good processor. In addition, test the suspected processor in another known working system.

If the problem still persists, swap the motherboard with a known good motherboard. In addition, test the suspected motherboard in another known working system.

Operating System starts but does not finish boot

- Determine if it started to load the OS. Either it will load a Windows startup logo (splash) screen or it will display one of the following messages: Starting MS-DOS, Starting Windows 9X, Starting OS Loader. If it does not, the computer is having trouble finding or loading the OS.
- Determine if the system worked before. Determine if there have been any recent changes. Often if a recent change is been made, the recent change is the cause of the problem.
- Determine if the machine always stops in the same place every time or it seems random. If it seems to stop in different places, it may be a hardware problem.
- Update the system BIOS to the newest version. In addition, check to see if your system has a firmware that could also be updated to the newest version. Refer to your motherboard documentation.
- Check the BIOS using the BIOS/CMOS setup utility, particularly the boot order. Make sure that your system is detecting all of the drives and make sure that the drive you are trying to boot is listed. See section 4.2, 4.3 and 5.1.
- Check the BIOS using the BIOS/CMOS setup utility, particularly the memory settings.
- Try booting the operating system in Safe mode/VGA mode. If it works fine in safe mode, it is mostly likely a driver or software that is not loaded correctly during Safe mode. See section 13.2 and 14.2.
- If the operating system supports, try a Step-by-Step boot. See section 13.2 and 14.2.
- Look at the boot log to find out what the last driver that it loaded. To access the advanced boot menu, press F8 as soon as Windows starts to load. For Windows 9X, the boot log is located at the C:\bootlog.txt. For Windows 2000 and Windows XP, the boot log is NTBTLOG.TXT file located in the C:\WINNT directory. See section 13.2 and 14.2.
- If the processor can boot to safe mode, try a Selective Startup using MSCONFIG (Windows 98, Windows Me or Windows XP only) program to isolate the offending driver or program. See section 13.2 and 14.2.
- For Windows NT, Windows 2000 or Windows XP, start the installing program for Windows from the installation CD and choose the R to start the Repair option. This will check the master boot record and the boot files. Refer to the Troubleshooting for the IA Platform PDF document for more information. See section 14.2.
- Suggest running ScanDisk to see if your hard drive has a lot of lost clusters and other anomalies. If you don't properly shutdown your computer using the Start button shutdown option, you may see some lost clusters and possible bad clusters.
- Suggest running an updated virus checker to see if your system is affected by a virus.
- Suggest reloading the OS, drivers or program.
- Suggest reformatting the hard drive and reinstalling everything
- Make sure that your system has enough ventilation around the fan outlet and that the fan is operating correctly.

- Make sure that the thermal solution for the processor is installed correctly and make sure that processor fan is operating correctly.
- Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output, replace the power supply).
- Use a voltmeter to verify the PowerGood signal is +5 volts. If the signal is below 1.0 volts, there may be a short or overload. Consider replacing the power supply.
- Remove the processor and RAM and reinstall them to make sure that they are installed correctly.
- Make sure that you have mounted the motherboard correctly with the spacers/stand-offs. In addition, make sure that when you insert the screws to tighten the motherboard into place, make sure not to tighten the screws too much.
- If the problem still persists, swap the RAM with known good RAM. In addition, test the suspected RAM in another known working system.
- If the problem still persists, swap the processor with a known good processor. In addition, test the suspected processor in another known working system.
- If the problem still persists, swap the motherboard with a known good motherboard. In addition, test the suspected motherboard in another known working system.
-

You get a “The system did not load because of the computer disk hardware configuration problem. Could not read from the selected boot disk.”

The location of your OS is not configured correctly in the BOOT.INI file.

- You need to boot using an Emergency Repair Disk or the Recovery Console. At the command prompt, type `attrib -s -r C:\boot.ini`. Type `edit boot.ini` to read and change the file. Check to make sure that the path of the default OS in the boot loader section is identical to one listed in the “operating systems” section. If you recently added any CD, DVD, or disk drives or created any primary partitions, then the path to your OS probably has changed. Refer to section 14.2.

After installing a new BIOS or replacing the CMOS battery, the system now asks for a password

This is not the Windows password, but a BIOS password asked during POST.

- If you set a password using the BIOS Setup program, try the password. Be sure to check your caps lock key. If the password still does not work, turn the CAPs lock on and try it again. Also try a blank password where you just press enter.
- If you still cannot get in, clear the old configuration by looking for a jumper on the motherboard to “Clear CMOS” or “Clear Password” or remove the CMOS battery.

The PC does not boot after flashing the BIOS

If you flashed the BIOS and it stopped for whatever reason or you flashed the wrong BIOS version, there is nothing that you can do except to replace the BIOS IC.

- If the system has a boot block to restore the original BIOS, use it.
- If not, you will need to contact the system or motherboard manufacturer for a replacement.

The system hangs up when the SCSI BIOS headers appear during POST

- Check SCSI Termination.
- Check the SCSI ID numbers.
- Check the system resources (BIOS address, I/O address, DMA and interrupts) of the SCSI controller card.

A.2 BIOS BEEP CODES

AMI BIOS Beep Codes

<p>You are getting beeps that indicate a memory failure:</p> <ol style="list-style-type: none">1 Beep – Refresh Error (with nothing on the screen and it is not a video problem)2 Beep – Parity Error3 Beep – Base 64 K memory failure <ul style="list-style-type: none">• Reseat the memory.• Make sure that the contacts on the memory and the socket are clean.• Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.• Try using RAM chips from the same manufacturer with the same part number and speed.• Check for a faulty memory module by trying the memory in a known good system.• Trying known good memory in the system.• Check the power supply and check for power fluctuations.• Swap the motherboard.
<p>You are getting 4 beeps indicating a Timer not operational:</p> <ul style="list-style-type: none">• Check for foreign objects such as screws that may ground the motherboard and make sure that screws that hold the motherboard are not too tight.• Swap the motherboard.
<p>You are getting 5 beeps indicating a Processor error:</p> <ul style="list-style-type: none">• Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.• Make sure the processor is seated properly.• Swap the processor.• Remove the motherboard and reinstall it.• If the problem still persists, swap the motherboard.
<p>You are getting 6 beeps indicating 8042 – gate A20 failure:</p> <ul style="list-style-type: none">• Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.• Try reseating the keyboard controller chip (if possible).• Swap the keyboard.• Swap the processor.
<p>You are getting 7 beeps indicating Processor exception interrupt error</p> <ul style="list-style-type: none">• Make sure the processor is seated properly.• Swap the processor.• Swap the motherboard.
<p>You are getting 8 beeps indicating Display memory read/write failure</p> <ul style="list-style-type: none">• Make sure that you have a video card on your system.• If possible, swap the memory on the video card.• Swap the video card.• Swap the motherboard.

AMI BIOS Beep Codes

You are getting 9 beeps indicating ROM checksum error

- If possible, try reseating the System ROM BIOS chip.
- If possible, try reflashing the system ROM BIOS.
- Swap the motherboard.

You are getting 10 beeps indicating CMOS shutdown register read/write error

- Swap the motherboard

You are getting 11 beeps indicating Cache memory bad

- Make sure the system is configured properly (CMOS Setup Program and jumpers on the motherboard) for the RAM cache.
- If possible, replace the RAM cache.
- Swap the processor
- Swap the motherboard

Award BIOS Beep Codes

You are getting one long and two short beeps indicating a video problem

- Make sure that you have a video card on your system.
- If possible, swap the memory on the video card.
- Swap the video card.
- Swap the motherboard.

Any other beeps:

- Determine if the system worked before.
- Determine if there have been any recent changes
- Reseat the memory.
- Try a different motherboard.
- Make sure that the contacts on the memory and the socket are clean.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Swap RAM, motherboard and processor one at a time. If suspect one of these components, try it in another PC.

Phoenix Beep Codes – Fatal System Board Errors		
Beep Code	Description	Recommended Solution
None	CPU register test in progress	<ul style="list-style-type: none"> • Swap the processor. • Try reseating the motherboard • Swap the motherboard.
1-1-3	CMOS write/read failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
1-1-4	ROMBIOS checksum failure	<ul style="list-style-type: none"> • Try reflashing the BIOS. • Swap the motherboard
1-2-1	Programmable interval timer failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
1-2-2	DMA initialization failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
1-2-3	DMA page register write/read failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
1-3-1	RAM refresh verification failure	<ul style="list-style-type: none"> • Reseat the memory. • Make sure that the contacts on the memory and the sockets are clean. • Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0. • Try using RAM chips from the same manufacturer with the same part number and speed. • Check for a faulty memory module by trying the memory in a known good system. • Trying known good memory in the system. • Check the power supply and check for power fluctuations. • Swap the motherboard.
None	First 64K RAM test in progress	
1-3-3	First 64 KB RAM chip or data line failure, multibit	
1-3-4	First 64 KB RAM odd/even logic failure	
1-4-1	Address line failure first 64 KB RAM	
1-4-2	Parity failure first 64 KB	
2-x-x	First 64 KB RAM Failure	
3-1-1	Slave DMA register failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
3-1-2	Master DMA register failure	
3-1-3	Master interrupt mask register failure	
3-1-4	Slave interrupt mask register failure	
3-2-4	Keyboard controller test failure	Check keyboard XT/AT switch, keyboard cable, keyboard or motherboard.

Phoenix Beep Codes – Fatal System Board Errors

3-3-4	Screen initialization failure	<ul style="list-style-type: none"> • Make sure that you have a video card on your system. • If possible, swap the memory on the video card. • Swap the video card. • Swap the motherboard.
3-4-1	Screen retrace failure	
3-4-2	Search for video ROM in progress	

Phoenix BIOS Beep Codes – Nonfatal System Board Errors

Beep Code	Description	Recommended Solution
4-2-1	Timer tick interrupt test in progress or failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
4-2-2	Shutdown test in progress or failure	First check the keyboard for problems. If nothing, you have a bad motherboard.
4-2-3	Gate A20 failure	<ul style="list-style-type: none"> • Check for foreign objects such as screws that may ground the motherboard. • Try reseating the keyboard controller chip. • Swap the keyboard. • Swap the processor. • Try removing and reinstalling the motherboard. • If the problem still persists, swap the motherboard.
4-2-4	Unexpected interrupt in protected mode	<ul style="list-style-type: none"> • Check for a bad expansion card or bad motherboard.
4-3-1	RAM test in progress or address failure >FFFh	<ul style="list-style-type: none"> • Replace the motherboard.
4-3-3	Interval timer Channel 2 test or failure	<ul style="list-style-type: none"> • Try reseating the motherboard. • Swap the motherboard.
4-3-4	Time-of-day clock test or failure	<ul style="list-style-type: none"> • Try running the setup program that comes with the computer. Check the date and time. If that doesn't work, replace the battery or motherboard.
4-4-1	Serial port test or failure	<ul style="list-style-type: none"> • Reseat, or replace, the I/O card. If the serial port is on the motherboard, disable
4-4-2	Parallel port test or failure	<ul style="list-style-type: none"> • Reseat, or replace, the I/O card. If the serial port is on the motherboard, disable
4-4-3	Math coprocessor test or failure	<ul style="list-style-type: none"> • Run a test program to double-check it. If the problem does exist, replace the math coprocessor (or CPU).
Low 1-1-2	System board select failure	<ul style="list-style-type: none"> • Replace the motherboard.
Low 1-1-3	Extended CMOS RAM failure	<ul style="list-style-type: none"> • Replace the motherboard.

A.3: Operating Problems

The date and time seem to drift or you get one of the following messages indicating problems with the CMOS:

- CMOS battery failed
 - CMOS BATTERY HAS FAILED
 - CMOS Battery State Low
 - CMOS CHECKSUM ERROR
- Replace the CMOS battery.
 - If the problem still persists, try replacing the motherboard. Note: You may also consider using a battery backup. Refer to your motherboard manual.

The system boots with no problem, but crashes or freezes after several minutes of operation.

- Determine if the system worked before. Determine if there have been any recent changes. Often if a recent change is been made, the recent change is the cause of the problem.
- Check to see if your system feels warm and check the processor for overheating. NOTE: Use extreme caution when checking for heat, since you can be easily burned.
- Make sure that the power supply fan is running properly and any other external case fans are running properly. Make sure that the air intakes for the external fans are unobstructed and have at least several inches away from walls and other items.
- Make sure the fans on the processor are connected properly and running.
- Make sure that the thermal interface material or the thermal grease is applied properly.
- Disable thermal measurements and power saving features in the BIOS setup program.
- Update the system BIOS to the newest version. In addition, check to see if your system has a firmware that could also be updated to the newest version. Refer to your motherboard documentation.
- Check the BIOS using the BIOS/CMOS setup utility, particularly the boot order. Make sure that your system is detecting all of the drives and make sure that the drive you are trying to boot is listed.
- Do not overclock your system. Your system can become unreliable, may shorten the life of your PC components, may damage your PC components and may void your warranty.
- Check the BIOS using the BIOS/CMOS setup utility, especially the RAM settings. See section 5.2.
- Suggest running ScanDisk to see if your hard drive has a lot of lost clusters and other anomalies. If you don't properly shutdown your computer using the Start button shutdown option, you may see some lost clusters and possible bad clusters.
- Suggest running an updated virus checker to see if your system is affected by a virus.
- Suggest reloading the OS, drivers or program.
- Suggest reformatting the hard drive and reinstalling everything

- Verify that your chassis/case and power supply is appropriate for the processor model and frequency and the motherboard you are planning to use.
- Verify that the power supply has the capacity to power all the devices used in your system.
- Check for foreign objects such as screws that may ground the motherboard and make sure the screws that hold the motherboard are not too tight.
- Make sure the power cables inside the computer are attached correctly and secure. You will need to attach the main power connector and a 2x2 power and/or 1x6 optional power connector.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output, replace the power supply).
- Use a voltmeter to verify the Power Good signal is +5 volts. If the signal is below 1.0 volts, there may be a short or overload causing a constant reset. Consider replacing the power supply.
- Check for shorts and overloads inside computer by removing nonessential items such as extra controller cards and IDE/ATAPI devices and turning the computer on to see if it starts to boot. Leave the motherboard, power supply, RAM or processor. If the problem goes away, there was a short or overload with one of the components that you just removed or one of those components is faulty. Replace each of those one at a time until you isolate which is causing the problem. If the problem still occurs after removing the nonessential components, the problem has to be with the motherboard, power supply, RAM or processor.
- Remove the processor and RAM and reinstall them to make sure that they are installed correctly.
- Make sure that you have mounted the motherboard correctly with the spacers/stand-offs. In addition, make sure that when you insert the screws to tighten the motherboard into place, make sure not to tighten the screws too much.
- If the problem still persists, swap the RAM with known good RAM. In addition, test the suspected RAM in another known working system.
- If the problem still persists, swap the processor with a known good processor. In addition, test the suspected processor in another known working system.
- If the problem still persists, swap the motherboard with a known good motherboard. In addition, test the suspected motherboard in another known working system.

Error loading GDI.EXE. You must re-install Windows.

- The Fonts folder is moved, renamed or deleted. Recreate the Fonts folder in the C:\WINDOWS directory and extract the files from the Windows installation CD-ROM.
- Reinstall Windows.

You get an “Error loading Kernel. You must reinstall Windows” error message.

- The Kernel32.dll file, which contains the Windows kernel is corrupt or missing.
- Extract the Kernel32.dll file from your Windows setup disk and copy it to the appropriate folder on your hard drive (typically \windows\system).
- Reinstall Windows.

A.4 Processor Problems

The processor is not identified correctly during POST or in the BIOS setup program.

- Check the CMOS parameters or jumpers settings on the motherboard for the processor.
- Check to make sure the motherboard supports the processor.
- Update to the newest BIOS version and use the Processor Update Utility. See section 3.8 and 4.2.
- Run the Frequency ID Utility to verify the processor. See section 3.7.

The processor is not identified correctly by the operating system or an application.

- Check the CMOS parameters or jumpers settings on the motherboard for the processor.
- Check to make sure the motherboard supports the processor.
- Update to the newest BIOS version and use the Processor Update Utility. See section 3.8 and 4.2.
- Run the Frequency ID Utility to verify the processor. See section 3.7.
- Since many programs detect the processor so that they can better utilize their features, the software may have been written before the processor existed. Therefore, check with the software manufacturer for a patch or update. Note: If an application cannot identify a processor, the software will not run with the processor or it will assume it is an older processor without many of the features that the processor offers resulting in slower performance.

You are experiencing frequent processor failures.

- Make sure the motherboard supports the specific processor.
- Check the jumpers or BIOS setup program for the voltage settings of the processor.
- Check the jumpers or BIOS setup program for the operating frequency settings for the processor.
- Run the Frequency ID Utility. See section 3.7.
- Checking the thermal solution (heat-sink and fan). See section 3.2.
- Check for power fluctuations. Make sure that you have a reliable surge protector. See section 6.5.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output), replace the power supply. See section 6.1.

Processor is running hot

- Determine if the system worked before. Determine if there have been any recent changes. Often if a recent change is been made, the recent change is the cause of the problem.
- Do not overclock your system. Your system can become unreliable, may shorten the life of your PC components, may damage your PC components and may void your warranty.
- Verify that your chassis/case and power supply is appropriate for the processor model and frequency and the motherboard you are planning to use.

- If applicable, verify the voltage settings for the processor.
- Verify that your thermal solution for the Pentium 4 processor is adequate for the processor and frequency of the processor.
- Check to see if your system feels warm and check the processor for overheating. NOTE: Use extreme caution when checking for heat, since you can be easily burned. Many people may be running a software package or using their BIOS setup program, which is telling them the processor is running warmer than normal. Many times, these programs and/or BIOS setup programs may be wrong. Therefore, if you not feel a large amount of heat coming from the processor and heat sink, then the processor is probably not overheating.
- Make sure that the power supply fan is running properly and any other external case fans are running properly. Make sure that the air intakes for the external fans are unobstructed and have at least several inches away from walls and other items.
- Make sure that you have power cable for the fan connected to the correct fan header specifically for the processor. Refer to your motherboard documentation for more information.
- Make sure the fans on the processor are connected properly and running.
- Make sure that the thermal interface material or the thermal grease is applied properly.
- Disable thermal measurements and power saving features in the BIOS setup program.
- Update the system BIOS to the newest version. This will often correct problems with how the system measures the processor temperature.

A.5 Memory Problems

You get a Parity Error

- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states. See section 5.2.
- Make sure that you have the right memory module for your system.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system.
- Check the power supply and check for power fluctuations. See section 6.1.

You get a ROM Error displayed on the monitor during POST

To guarantee the integrity of system ROM, a checksum error test is performed as part of the POST.

- Try reflashing the System ROM BIOS (if possible).
- Some motherboards have a dual system ROM BIOS so that the second can be used to restore the first one when the first becomes corrupt.
- Replace the System ROM BIOS chip or the motherboard.

You see a general RAM error with fault addresses listed. For example:

Memory address line failure at <XXXX>, read <YYYY>, expecting <ZZZZ>

Memory read/write failure at <XXXX>, read <YYYY>, expecting <ZZZZ>

- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system.
- Check the power supply and check for power fluctuations.

Window 95, 98 or Me get a “Windows Protection Error” during boot.

- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states. See section 5.2.
- Try removing one bank of memory modules at a time. Note: Some systems might

need to have a memory module in Bank 0.

- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system.
- Check the power supply and check for power fluctuations. See section 6.5.

Invalid VxD Dynamic Call to Device 3 Service B

- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states. See section 5.2.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system. See section 6.5.
- Check the power supply and check for power fluctuations.

HIMEM.SYS had Detected Unreliable XMS Memory at <address>

- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states. See section 5.2.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and speed.
- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system.
- Check the power supply and check for power fluctuations. See section 6.5.
- Replace the motherboard.

You encounter random “fatal exception” errors under Windows 95, 98 or Me.

- Check for buggy or corrupted drivers by trying safe mode or by using the MSConfig to systematically disable software and drivers in order to isolate the offending software.
- Reseat the memory.
- Make sure that the contacts on the memory and the socket are clean.
- Check the memory parameters in the BIOS setup program including the number of wait states. If the memory is too slow, you need to increase the number of wait states. See section 5.2.
- Try removing one bank of memory modules at a time. Note: Some systems might need to have a memory module in Bank 0.
- Try using RAM chips from the same manufacturer with the same part number and

speed.

- Check for a faulty memory module by trying the memory in a known good system.
- Trying known good memory in the system.
- Check the power supply and check for power fluctuations. See section 6.5.

An error indicates that there is not enough memory to start Windows 95, 98 or ME or to start an application.

There is not enough real and virtual memory to start the Windows shell or a particular program.

- Make sure you have lots of free disk space on your hard drive. Try to boot from floppy and free some disk space.
- Try to Defrag the drive.
- Trying adding RAM.
- If the problem still persist, it could be caused by corrupt software. Try to reinstall the software.
- Reformat the system and reinstall the software.

You get the “Limited Virtual Memory. Your system is running without a properly sized paging file. Please use the virtual memory option of the System applet in the Control Panel to create a paging file, or to increase the initial size of your paging file.”

The size of the paging file is too small.

- Make sure that you have plenty of free disk space on your hard drive.
- Use the System applet in the Control Panel, access the virtual memory tool to set the paging file size to 0. Reboot the system and access the virtual memory tool again. Look for the recommended minimum and maximum sizes and set the values accordingly. Reboot the system.

A.6 Disk Problems

You see an “Invalid Media” error message when formatting.

- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon is connected properly.
- Check for viruses.
- Enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- Check the drive’s power including the +5 and +12 volt connectors.
- If it an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0.
- Check to see if all of the device drivers have been installed correctly.
- For hard drives, try a low-level format. Then partition, format and add the system files to the hard drive. For floppy disks, try another floppy disk.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

Hard Drives

The hard drive is completely dead.

The drive does not spin up and the drive light doesn’t illuminate during power-up.

- Make sure that the hard drive power connector is connected. See section 8.
- Make sure that the ribbon cable is connected properly. See section 8.
- Check the drive’s power including the +5 and +12 volt connectors.
- Swap the hard drive.

You see drive activity, but the computer will not boot from the hard drive.

- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- Run the BIOS setup program and make sure that drive and the controller is enabled. In addition make sure that the drive has the correct parameters; most likely you can try the autodetect feature.
- If it an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers. See section 8.2.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0. See section 8.4.
- If it is a SCSI drive, check during POST to see if the SCSI BIOS is loading and finding any SCSI devices. If not, check the host adapter installation including IRQ, DMA and I/O settings. See section 8.4.

- Check to see if all of the device drivers have been installed correctly.
- Check the drive's power including the +5 and +12 volt connectors.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

The following error messages indicate that the computer cannot find an operating system to boot:

- **Non-System disk or disk error, Replace and strike any key when ready**
- **No ROM Basic**
- **Disk Boot Error, Replace and Strike Key to Retry**
- **DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER**
- **BOOT: Couldn't find NTLDR, Please insert another disk**
- If you are trying to boot from the hard drive, make sure that there is no disk in drive A.
- If you are trying to boot from the floppy disk drive, try to boot from the hard drive and try to access the floppy disk. Then try to make sure that the disk has the necessary boot files and that the necessary boot files are not corrupt.
- If you are trying to boot from the floppy disk drive, try to boot from another bootable floppy disk.
- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- If using a removable/mobile IDE rack for the hard drive, verify that drive tray has been locked.
- Try reinstalling the necessary boot files.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- For hard drives, verify that your primary partition is active.
- For DOS, Windows 95, Windows 98 and Windows Me, try to reinstall the necessary boot files.
- For Windows NT, 2000 and XP, start the Windows installation program and choose R to repair. You will then be asked for an emergency repair disk. If you don't have one, don't repair the Registry when asked to do so. When you are in the Repair utility, the repair utility will detect the system file and reinstall it in the correct place.
- Try to reformat the drive and make the drive bootable again. See section 14.2.
- Try a low-level format. Then partition, format and add the system files to the hard drive.
- Check the drive's power including the +5 and +12 volt connectors.
- If it an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0.
- If it is a SCSI drive, check during POST to see if the SCSI BIOS is loading and

finding any SCSI devices. If not, check the host adapter installation including IRQ, DMA and I/O settings.

- Check to see if all of the device drivers have been installed correctly.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

You get a “No Fixed Disk Present” or “Error reading fixed disk” error message on the monitor.

- If you are trying to boot from the hard drive, make sure that there is no disk in drive A.
- If you are trying to boot from the floppy disk drive, try to boot from the hard drive and try to access the floppy disk. Then try to make sure that the disk has the necessary boot files and that the necessary boot files are not corrupt.
- If you are trying to boot from the floppy disk drive, try to boot from another bootable floppy disk.
- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- For DOS, Windows 95, Windows 98 and Windows Me, try to run the FDISK /MBR command.
- For Windows NT, 2000 and XP, start the Windows installation program and choose R to repair. You will then be asked for an emergency repair disk. If you don't have one, don't repair the Registry when asked to do so. When you are in the Repair utility, the repair utility will detect the system file and reinstall it in the correct place. See section 14.2.
- Try a low-level format. Then partition, format and add the system files to the hard drive.
- Check the drive's power including the +5 and +12 volt connectors.
- If it an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0.
- If it is a SCSI drive, check during POST to see if the SCSI BIOS is loading and finding any SCSI devices. If not, check the host adapter installation including IRQ, DMA and I/O settings.
- Check to see if all of the device drivers have been installed correctly.
- If you have two drives on the same IDE cable, try swapping the master/slave.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

Your drive spins up, but the system fails to recognize the drive.

- If you are trying to boot from the hard drive, make sure that there is no disk in drive A.
- If you are trying to boot from the hard drive, try to boot from a bootable floppy disk and try to access the hard drive. Then try to make sure that the disk has the necessary boot files and that the necessary boot files are not corrupt.
- If you are trying to boot from the floppy disk drive, try to boot from the hard drive and try to access the floppy disk. Then try to make sure that the disk has the necessary boot files and that the necessary boot files are not corrupt.
- If you are trying to boot from the floppy disk drive, try to boot from another bootable floppy disk.
- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- Try reinstalling the necessary boot files.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- For hard drives, verify that your primary partition is active.
- For DOS, Windows 95, Windows 98 and Windows Me, try to reinstall the necessary boot files.
- For DOS, Windows 95, Windows 98 and Windows Me, try using the FDISK /MBR command.
- For Windows NT, 2000 and XP, start the Windows installation program and choose R to repair. You will then be asked for an emergency repair disk. If you don't have one, don't repair the Registry when asked to do so. When you are in the Repair utility, the repair utility will detect the system file and reinstall it in the correct place. See section 14.2.
- Try to reformat the drive and make the drive bootable again.
- Try a low-level format. Then partition, format and add the system files to the hard drive.
- Check the drive's power including the +5 and +12 volt connectors.
- If it is an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0.
- If it is a SCSI drive, check during POST to see if the SCSI BIOS is loading and finding any SCSI devices. If not, check the host adapter installation including IRQ, DMA and I/O settings.
- Check to see if all of the device drivers have been installed correctly.
- If you have two drives on the same IDE cable, try swapping the master/slave.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

The following error messages indicate that the computer cannot communicate with the hard drive:

- **Hard Disk Failure**
- **Hard Disk Controller Failure**
- **HDD Controller Failure**
- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- If you have no IDE drives, select no hard drives installed in the BIOS setup program.
- Check the drive's power including the +5 and +12 volt connectors.
- If it is an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

You get an "Error reading drive C:" error message.

- Make sure that the ribbon cable is connected properly.
- Enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- Check for viruses.
- Run ScanDisk or some other similar utility.
- For DOS, Windows 95, Windows 98 and Windows Me, try running the FDISK /MBR command.
- For Windows NT, 2000 and XP, start the Windows installation program and choose R to repair. You will then be asked for an emergency repair disk. If you don't have one, don't repair the Registry when asked to do so. When you are in the Repair utility, the repair utility will detect the system file and reinstall it in the correct place. See section 14.2.
- Check the drive's power including the +5 and +12 volt connectors.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.
- Try to reformat the drive and make the drive bootable again.
- Try a low-level format. Then partition, format and add the system files to the hard drive.

You see a “No SCSI Controller Present” error message

- Check the host adapter installation including IRQ, DMA and I/O settings.
- Check to see if all of the device drivers have been installed correctly.
- Try the controller in a different system. If the control fails in a different PC, the control is probably faulty.
- Try upgrading the System ROM BIOS and the SCSI ROM BIOS (if you are able).

You see a “No SCSI device found” or similar error

- Make sure SCSI devices have power and ribbon cables connected properly.
- Check SCSI Termination
- Check the SCSI ID numbers.
- Swap the SCSI device.
- Swap the SCSI Controller.

You see an error such as “Unknown SCSI Device” or “Waiting for SCSI Device”

- Check that the primary hard disk is set to SCSI ID 0.
- Make sure that the drive is partitioned and formatted at the primary active drive. Make sure the partition is active.

You get a “Sector not found” error message.

- Use a utility such as ScanDisk to examine the drive for bad sectors. Note: if a file is using a failed sector, the file will be corrupt and should be restored from backup.
- Check for viruses.
- If the problem continues, try a low-level format.
- Try swapping the cable, card and drive, one at a time.

The system reports random data, seek or format errors.

- Use a utility such as ScanDisk to examine the drive for bad sectors. Note: if a file is using a failed sector, the file will be corrupt and be restored from backup.
- Check for viruses.
- If the problem continues, try a low-level format.
- Try swapping the cable, card and drive, one at a time.

The drive will work as a primary drive, but not as a secondary (or vise-versa)

- The drive does not spin up and the drive light doesn't illuminate during power-up.
- Make sure that the hard drive power cable is connected.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- For hard drives, verify that your primary partition is active.
- Check the drive's power including the +5 and +12 volt connectors.
- If it an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

The FDISK procedure hangs up to fails to create or save a partition record for the drive(s).

- Make sure that the hard drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- Check for viruses.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- For hard drives, verify that your primary partition is active.
- Try to recreate the master boot record by using the FDISK /MBR command.
- For Windows NT, 2000 and XP, start the Windows installation program and choose R to repair. You will then be asked for an emergency repair disk. If you don't have one, don't repair the Registry when asked to do so. When you are in the Repair utility, the repair utility will detect the system file and reinstall it in the correct place. See section 14.2.
- Try a low-level format. Then partition, format and add the system files to the hard drive.
- Check the drive's power including the +5 and +12 volt connectors.
- If it is an IDE drive, check the jumper settings of all of the IDE devices, especially the master, slave or stand-alone jumpers.
- If it is a SCSI drive, check the jumper settings of all SCSI devices, especially the termination and SCSI ID numbers. To make sure that the primary hard disk is set to SCSI ID 0.
- If it is a SCSI drive, check during POST to see if the SCSI BIOS is loading and finding any SCSI devices. If not, check the host adapter installation including IRQ, DMA and I/O settings.
- Check to see if all of the device drivers have been installed correctly.
- Swap the controller card, cable and hard drive, one at a time.
- Swap the motherboard.

You get a "Track 0 bad, disk unusable" error message.

- Try to boot from the floppy disk drive and access the hard drive.
- If you can, make sure that the bootable files are there. Try reinstalling the necessary boot files.
- From the floppy disk drive, run FDISK to check the partitions on your hard drive. Make sure there is at least one DOS partition and that is active.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct CMOS settings are chosen for the drive and make sure that the hard drive and floppy controllers are enabled. Also check the boot order. Note: on most systems, you can use the autodetect feature to determine the correct CMOS parameters and to see if it can see the drive.
- Make sure that the ribbon cable and power connector is connected properly.
- Replace the ribbon cable.

- Check the drive's power including the +5 and +12 volt connectors.
- Swap the controller card (or motherboard), cable and hard drive, one at a time.
- Swap the motherboard.

My hard drive seems to be running slow.

- Check for viruses.
- Defrag the hard drive.
- Check to see if you have a slow device on the cable.
- For SCSI drives, check termination.
- For IDE drives, enter the BIOS setup program and check to see if it is set to Ultra DMA or PIO mode. For SCSI drives, enter the SCSI BIOS and check the settings.
- Check to see if any one did a low-level format on the drive. If they don't use the proper low-level format program, essential tracking information could have been erased.
- Try a clean boot/install

You are experiencing frequent drive failures

- Make sure that all fans are working properly in the case.
- If you have several drives running in the system, check to see how warm the case is and how warm the exhaust coming from the fan.
- Make sure that you are using the proper screws in mounting the drives in the case.
- Check for low-level vibrations.
- Check for power fluctuations. Make sure that you have a reliable surge protector.
- Use a voltmeter to verify that each output from the power supply is correct. If any output is very low (especially the +5 volt output), replace the power supply.
- Check other environment factors such as smoke, heavy dust, high humidity and anything that may generate a strong electromagnetic field such as heavy machinery and motors.

Floppy Disk Drives

Your system generates a "FDD Controller Failure" or similar error message

- Make sure that the floppy disk drive power connector is connected.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct floppy disk is connected and that the floppy disk drive controller is enabled.
- Check the drive's power including the +5 and +12 volt connectors.
- Swap the ribbon cable.
- Swap the floppy disk drive.
- Swap the controller card (if it is not built into the motherboard).
- Swap the motherboard.

When a new disk is inserted in the drive, a directory from a previous disk appears.

This is called a phantom directory caused by not receiving the change disk signals (Pin 34).

- Make sure the ribbon cable is attached properly.

- Swap the floppy drive cable.
- Swap the floppy disk drive.
- Swap the floppy disk drive controller/motherboard.

The system does not recognize the floppy disk drive.

- Make sure that the floppy disk drive power connector is connected properly.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct floppy disk is selected and that the floppy disk drive controller is enabled.
- Check the drive's power including the +5 and +12 volt connectors.
- Swap the ribbon cable.
- Swap the floppy disk drive.
- Swap the controller card (if it is not built into the motherboard).
- Swap the motherboard.

You cannot read from or write to a floppy disk.

- Try the floppy disk in another system to make sure that the disk is good.
- If you are getting an access denied or similar message, make sure that the tab on the disk is not set to lock.
- Make sure that the floppy disk drive power connector is connected properly.
- Make sure that the ribbon cable is connected properly.
- If you cannot access the drive, enter the BIOS setup program and make sure that the correct floppy disk is connected and that the floppy disk drive controller is enabled.
- Check the drive's power including the +5 and +12 volt connectors.
- Swap the ribbon cable.
- Swap the floppy disk drive.
- Swap the controller card (if it is not built into the motherboard).
- Swap the motherboard.

Compact Disk Drives

You get a "Buffer under-run error XX" or similar error message when data is getting transferred from one storage device to another such as a CD-R or CD-RW drive.

- Close all applications before running the CD recording software.
- Run Disk defragmenter and ScanDisk.
- Make sure you are using updated device drivers.
- Try using a different brand of storage media.
- If possible, try to reduce the recording speed.

You get a read error when reading a CD.

- Try the compact disk in another drive. If the CD is having problems with both drives, then try to clean it.
- Try another compact disk in the drive. If the drive cannot read either disk, try to clean the drive heads with a special CD cleaning disk.
- Check the CMOS setup program.

- Check the power and ribbon connections.
- Replace the CD drive.
- If the problem still exists, the problem is either the motherboard or related components. It is suggested that you contact your distributor or notebook vendor to setup additional troubleshooting or replacement.

A.7 General Expansion Card Problems

You get a “Optional XXXX Optional ROM Bad, Checksum=YYYY” error message.

A ROM chip on an expansion card is having problems.

- Remove one card at a time until you can isolate which card is causing the conflict.
- Check to see if you have a memory address conflict with another card, especially if you just installed another device recently.
- Replace the expansion card with the faulty ROM chip.

You get no dial tone for your modem

- If it is a modem built into the motherboard, check the CMOS setup program to ensure that the modem is enabled.
- In addition, ensure that the appropriate drivers are loaded and working correctly.
- If it is an external modem, make sure the modem has power and is connected properly to the PC.
- Make sure that the phone line is active.
- Replace the phone cable.
- Replace the modem.
- Replace the motherboard

A.8 Video Problems

Windows seems to start normally, but the monitor display is unreadable, has bad static, or is otherwise screwed up.

- Boot your system to VGA mode to correct your video setting. Check the video driver, resolution, number of colors and refresh rate.

The image is saturated with red blue or green or appears greenish-blue (cyan), bluish-red (magenta) or yellowish.

- If there are any color controls on the monitor, make sure those controls have not been accidentally adjusted.
- Replace the cable that connects the monitor and video card.
- Check the connection between the monitor and video card.
- Check to see if any of the pins on the monitor plug to see if they are bent or mangled.
- Try swapping the monitor.
- Replace the video card.

The display appears wavy or the image appears to shake.

- Make sure the power cable and the connection between the monitor and video card is connected properly.
- If your monitor has the option, try to degauss the monitor.
- Check the AC power and look for power irregularities. You may also try a different AC outlet. See section 6.3 and 6.4.
- Replace the cable that connects the monitor and video card.
- Replace the monitor. It is usually indicates the power supply in the monitor is going bad.
- Replace the video card.
- Check for environment factors that may generate strong magnetic fields or power irregularities such as heavy machinery or motors.

On your monitor, you appear to have the colors bleed or smear.

- Make sure the power cable and the connection between the monitor and video card is connected properly.
- Check the AC power and look for power irregularities. You may also try a different AC outlet. See section 6.3 and 6.4.
- Replace the video card.
- Replace the monitor. It is usually indicates the power supply in the monitor is going bad.

You cannot select a higher display resolution in the Windows Display Properties dialog.

- Make sure that you have the correct monitor driver installed.
- Make sure that you have the correct video card driver installed.
- Make sure that you have enough video memory installed to support the higher display resolution.

A.9 Sound Problems

Speakers do not produce any sound

- Check the volume control in Windows and the volume control in the application to see if the sound has been muted or has been adjusted low.
- Check the volume control on speakers.
- Make sure the speakers are turned on and have power.
- Make sure the speaker cable is installed into the correct port on the back of the sound card.
- Make sure the sound drivers are installed and functioning properly.
- Swap the speaker cables and power cable one at a time.

There is no audio when playing an Audio CD

- Check the volume control (specifically Master Volume and CD Player) in Windows and the volume control in the application to see if the sound has been muted or low.
- Check the volume control on speakers.
- Make sure the speakers are turned on and have power.
- Check to see if the four-wire CD audio cable is connected between the CD drive and the sound card.

When trying to play a high-quality audio file through a USB speaker system, you get an error message saying “Out of bandwidth”

- Disconnect extraneous USB devices such as joysticks, scanners, and others.
- Purchase an additional USB controller and attach the speakers to it so that they can have sole access to all of its bandwidth.
- Play the audio file at a lower playback quality or use a lower-quality version of the file.

A.10 Problems with Input Devices

Keyboards

Your keyboard fails to be recognized during boot up or the keyboard is completely dead and no keys appear to function.

- Swap the keyboard. Note: you should reboot the system when a keyboard is replaced.
- Use a multimeter to check the +5 V supply at the keyboard connector.
- Check to see if the motherboard has a fuse to protect the +5 V supply feeding the keyboard connector.
- Replace the motherboard.

Joysticks

The Joystick does not respond

- Make sure the joystick is plugged into the game port correctly.
- When the game port has more than one connector, be sure that the joystick is plugged into the correct connector (joystick 1 or joystick 2).
- If the game port is running through a sound card, make sure the sound card is configured to use the port as a game port instead of a MIDI port.
- Refer to the application and see that it is configured to run from the joystick. Note: since many new joysticks appear with supplemental functions (hat switches, throttle control, etc), make sure that the application is written to take advantage of the particular joystick.
- Using the Windows Device Manager, make sure that the game port is set for the proper I/O address and that the proper driver is loaded.
- Swap the joystick.

Joystick performance is erratic or choppy and the rest of the system is running fine.

- Make sure the joystick is plugged into the game port correctly.
- Make sure that you have the driver loaded correctly.
- Swap joysticks.

The joystick is sending incorrect information to the system or the joystick appears to be drifting.

- Make sure the correct driver is loaded.
- Make sure that the joystick is calibrated correctly. Refer to the documentation that came with the joystick and refer to the documentation of the application.
- Check for I/O conflicts.
- Try another joystick.
- Try another game port.

A.11 Serial Ports, Parallel Ports and Modems

Serial Port

The serial port on the motherboard doesn't work.

- Check the BIOS setup program and make sure that the serial port is enabled.
- Check for resource conflicts such as I/O addresses and IRQs.
- Replace the motherboard.

Parallel Port

The parallel port on the motherboard doesn't work.

- Check the BIOS setup program and make sure that the parallel port is enabled.
- Make sure that the correct transfer mode (ECP, EPP and etc...) has been selected for the parallel port that relates to the device currently connected
- Check for resource conflicts such as I/O addresses and IRQs.
- Replace the motherboard.

Data is randomly lost or garbled

- Make sure the parallel cable is connected properly.
- Make sure that the cable is less than 2 meters or 6 feet long.
- Replace the cable.
- Try to connect to a different peripheral.
- Try to connect to the peripheral using a different computer.
- Try swapping the motherboard.
- Check for environmental factors such as devices that generate electromagnetic fields such as heavy machinery and motors.

Modem

When you try to use your modem, you may receive an error message such as "Could not open port."

- Check for resource conflicts such as I/O addresses and IRQs.
- A program is loading in the Windows Startup folder that opens a COM port for some other use other than the modem.
- Try rebooting to see if the port was opened by another program. Rebooting may correct the problem.

The PC or communication software refuses to recognize the modem.

- If it is an external modem, make sure the modem has power and it is turned on. In addition, make sure the cables are connected to the serial port.
- If it is an internal modem, make sure the modem is seated properly in the slot.
- Check in the BIOS setup program that the modem and/or serial port is enabled.
- Check for resource conflicts such as I/O addresses and IRQs.
- Try the modem in another system.
- Replace the modem. Be sure to try the modem in another system.

A.12 Problems Shutting Down

The system will not turn off when you press the power button.

- For ATX power supplies, the power button is designed to turn off the system only when you press and hold the power button for more than 5 seconds. Therefore, if you to reconfigure you're the power button for "instant off", use the BIOS setup program.
- If you cannot reconfigure the power button for "instant off" you may need a BIOS upgrade.

Problems Shutting Down Windows 95/98/Me

When Windows does not shut down properly, it may appear to stop responding for several minutes while the "Please wait while your computer shuts down" is displayed on the screen or you may see only a blank screen and a blinking cursor, or your computer may restart instead of shutting down.

Windows 98 Second Edition tries to perform many functions during the shutdown process, including completion of all disk write functions, flushing the disk cache, running the Close Window code to close all currently running programs and transitioning all Protected-mode drivers to Real mode.

Shutdown problems can be caused by any of the following issues:

- The Fast Shutdown registry key is enabled.
- There is a damaged Exit Windows sound file.
- A program or terminate-and-stay-resident (TSR) program may not close correctly.
- An incompatible, damaged, or conflicting device driver is loaded.
- Determine if shutdown problems are being caused by a virtual device driver (.vxd file)
- There is an incompatible Advanced Power Management (APM) or Advanced Configuration and Power Interface (ACPI) setting.
- There is an incompatible Basic Input/Output System (BIOS) configuration setting.
- The computer contains incorrectly configured or damaged hardware.
- There is a video adapter that is not assigned an IRQ in real mode.

The Fast Shutdown Registry Key Is Enabled

WARNING: Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Intel cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Note that you should back up the registry before you edit it. If you are running Windows NT or Windows 2000, you should also update your Emergency Repair Disk (ERD).

Problems Shutting Down Windows 95/98/Me (Continued)

The Microsoft System Configuration utility includes an option to disable Fast Shutdown. If this option is not set in Windows, your computer may reboot instead of shutting down. To resolve this issue, change the FastReboot data value from 1 to 0 in the following registry key:

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Shutdown

Note: After you apply the Windows 98 Second Edition Shutdown Supplement (available from Microsoft), the Disable Fast Shutdown option is no longer listed on the Advanced tab in Msconfig.exe.

There is a damaged Exit Windows sound file

- Click Start, point to Settings, click Control Panel, and then double-click Sounds and Multimedia.
- Record the name and location of the Exit Windows sound, click Exit Windows in the Sound Events box, and then click None in the Name box.
- Click OK, and then restart your computer.

If the issue is resolved, your Exit Windows sound file is damaged and must be replaced. To replace the sound file, restore the file from a backup, or reinstall the program that provided the sound file.

A program or terminate-and-stay-resident (TSR) program may not close correctly

Determine if the shutdown problem is caused by a command or driver that is loaded automatically from the Win.ini or System.ini files:

1. Click Start, click Run, type msconfig, and then click OK.
2. Click Selective Startup, and then click to clear the following check boxes:
 - a. Process Win.ini file
 - b. Process System.ini file

NOTE: If any of these items is unavailable, that particular file does not contain any items to load.
3. Click OK, and then click Yes to restart the computer. Test to determine if the issue is resolved by restarting your computer.
4. If the problem still exist, re-enable the processing of the Win.ini and System.ini files. Then to determine if the problem is with a TSR or drivers loaded in the CONFIG.SYS and AUTOEXEC.BAT file.
5. Click Start, click Run, type msconfig, and then click OK.
6. Click Selective Startup, and then click to clear the following check boxes:
 - a. Process Config.sys
 - b. Process Autoexec.bat
7. Click OK, and then click Yes to restart the computer. Test to determine if the issue is resolved by restarting your computer.

Problems Shutting Down Windows 95/98/Me (Continued)

A program in the StartUp folder may not close correctly StartUp folder

Determine whether a program in the StartUp folder conflicts with the startup process:

1. Click Start, click Run, type msconfig in the Open box, and then click OK.
2. Click Selective Startup, click to clear the Load Startup Group Items check box, click Apply, click OK, and then click Yes to restart your computer.

Test to determine if the issue is resolved by restarting your computer. If your computer does not shut down correctly If your computer shuts down correctly, one of your startup programs is probably causing this issue. To determine which startup program is causing this issue:

1. Click Start, click Run, type msconfig in the Open box, and then click OK.
2. On the Startup tab, click to select a check box, click OK, and then click Yes to restart your computer. Test to determine if the startup program you disabled caused the issue. If not, repeat these steps but enable a different program. When your computer does not start correctly, you have determined that the last startup program you enabled is the cause of the issue.

If disabling startup programs does not resolve the problem, re-enable the startup programs.

Determine if the problem is listed in the startup log file. You can look in your startup log file (Bootlog.prv) to find information about problems that occur during shutdown. The Bootlog.prv file is a hidden file in the root folder of drive C. If Windows is configured to hide system files, use these steps to display hidden files:

1. On the Windows desktop, double-click My Computer.
2. On the Tools menu, click Folder Options.
3. Click the View tab.
4. Click to clear the Hide protected operating system files check box, and then click Yes when you are prompted to confirm this action.
5. Click OK, and then look for the Bootlog.prv file again.
6. Click Start, click Shut Down, click Shut Down, and then click OK.

If your computer does not automatically shut off, press the power button on your computer to turn it off. Leave your computer off for approximately 15 seconds, and then turn your computer back on. While your computer is starting, press and hold the CTRL key. When the Startup menu is displayed, use the UP ARROW and DOWN ARROW keys to choose Logged (\BOOTLOG.TXT), and then press ENTER.

After Windows starts, click Start, click Shut Down, click Restart, and then click OK.

To review your startup log file:

1. Double-click My Computer, double-click drive C, and then look for the Bootlog.prv file.
2. Double-click the Bootlog.prv file. If you are prompted to select a program to use to open the file, click WordPad, Notepad, or any text editor in the list.
3. Look for "Terminate=" entries. These entries, located at the bottom of the file, might provide clues about the cause of the problem. If a process that is started by a "Terminate=" entry is completed successfully, the file contains a matching "EndTerminate=" entry.

Problems Shutting Down Windows 95/98/Me (Continued)

4. Check the last line in the Bootlog.prv file to see if it is one of these items:
 - Terminate=Query Drivers: This is a Memory Manager problem. Your computer might have defective memory chips or damaged files. You might need to reinstall Windows.
 - Terminate=Reset Display: Try installing an updated video adapter driver.
 - Terminate=RIT: There may be timer-related problems with the sound card or an older mouse driver. Try installing updated drivers for these devices.
 - Terminate=Win32: A program is not shutting down properly. Try quitting all programs before you shut down Windows.

An incompatible, damaged, or conflicting device driver is loaded

Some of the most common device drivers that may cause problems are sound card drivers, video adapter drivers, and network adapter drivers. To disable device drivers:

1. Right-click My Computer, click Properties, and then click the Device Manager tab.
2. Double-click a device type, for example, Sound, Video, and Game Controllers, to expand it.
3. Click one of the listed devices, and then click Properties.
4. Click to select the Disable In This Hardware Profile check box.
IMPORTANT: Record all of the devices you disable in this manner so that you can enable them again later.
5. Click OK, click OK, and then restart your computer.

Test to determine if the issue is resolved by restarting your computer. If your computer does not shut down correctly, repeat the steps but with a different component.

To test your video adapter, click Start, click Run, type msconfig, click OK, click Advanced, click to select the VGA 640x480x16 check box, and then click OK. If you disable your sound card, video adapter, and network adapter, but the issue is still not resolved, re-enable these devices by clicking to clear the Disable In This Hardware Profile check box.

If you are unable to change the video adapter by using the preceding steps, change your video adapter driver to the Standard VGA driver by using these steps:

1. Click Start, point to Settings, click Control Panel, and then double-click Display.
2. Click the Settings tab, click Advanced, click the Adapter tab, and then click Change.
3. Click Next, click Display a list of all the drivers in a specific location, so you can select the driver you want, and then click Next.
4. Click Show All Hardware, click Standard Display Types in the Manufacturer box, click Standard Display Adapter (VGA) in the Models box, and then click Next.
5. Click Yes, click Next, and then click Finish.
6. Click Close, click Close, and then click Yes when you are prompted to restart your computer.
7. If changing your video adapter to the Standard VGA driver resolves the issue, contact your video adapter manufacturer to inquire about the availability of an updated Windows Me video adapter driver.

Problems Shutting Down Windows 95/98/Me (Continued)

Determine if shutdown problems are being caused by a virtual device driver (.vxd file):

1. Click Start, click Run, type msconfig, and then click OK.
2. Click Selective Startup, and then click to clear the Load Static VxDs check box.
3. Click OK, and then click Yes to restart the computer.

Test to determine if the issue is resolved by restarting your computer. If your computer does not shut down correctly, click to select the Load Static VxDs check box, and then continue with the next step. If the problem is fixed, suspect one of the following files:

This is a partial list of Microsoft static .vxd files:

Name of static .vxd file Provides support for

Vnetsup.vxd Microsoft networking

Ndis.vxd Microsoft networking

Ndis2sup.vxd Microsoft networking

Javasup.vxd Java support

Vrtwd.386 Clock

Vfixd.vxd Video Phone helper

Vnetbios.vxd Microsoft networking

Vserver.vxd Microsoft networking

Vredir.vxd Microsoft networking

Dfs.vxd Microsoft networking

Ndiswan.vxd Microsoft networking

Msmouse.vxd Microsoft Mouse

Check the properties of the incompatible static .vxd file to determine which program it is associated with. Uninstall and then reinstall the program to replace the .vxd file with a new copy. To check the properties of a file, click Start, click Search, type the name of the file in the For Files or Folders box, and then click Search Now. After the file you are looking for is displayed in the list, right-click the file, and then click Properties.

There is an incompatible Advanced Power Management (APM) or Advanced Configuration and Power Interface (ACPI) setting

Determine if Advanced Power Management (APM) is causing the shutdown problem by disabling it (Assuming that your system has APM):

1. Click Start, point to Settings, click Control Panel, double-click System, and then click the Device Manager tab.
2. Double-click the System Devices branch to expand it.
3. Double-click Advanced Power Management in the device list, click the Settings tab, and then click to select the Force APM 1.0 Mode and Disable Power Status Polling check boxes.
4. Click OK until you return to Control Panel, and then restart your computer.
5. Test to determine if the issue is resolved by restarting your computer. If your computer does not shut down correctly, repeat the steps, but click to clear the Force APM 1.0 Mode and Disable Power Status Polling check boxes.

Problems Shutting Down Windows 95/98/Me (Continued)

There is an incompatible Basic Input/Output System (BIOS) configuration setting - IRQ Steering

This option allows several PCI devices to share the same interrupt request line (IRQ). If the BIOS is not fully compliant, this option may cause your computer not to shut down properly, even if two or more devices are not sharing an IRQ. To disable PCI bus IRQ Steering, follow these steps:

1. Click Start, point to Settings, click Control Panel, and then double-click System.
2. On the Device Manager tab, click System Devices.
3. Double-click PCI Bus, and then click to clear the Use IRQ Steering check box on the IRQ Steering tab.
4. Click OK, click OK, and then restart your computer.
5. After you restart the computer, attempt to shut down your computer again.

If your computer shuts down successfully, you may need to change the BIOS configuration or you may need a BIOS update. For information about how to do so, contact your BIOS manufacturer.

There is an incompatible Basic Input/Output System (BIOS) configuration setting - Resume on Ring and LAN

Some shutdown-related issues may be solved by disabling the "Resume on Ring and LAN" feature in the computer's BIOS. For information about how to do so, contact your computer or BIOS manufacturer.

There is an incompatible Basic Input/Output System (BIOS) configuration setting - NVRAM/ESCD

There are specific settings for how the BIOS and Windows interact during the startup and shutdown processes. To check this, disable the NVRAM/ESCD updates feature to determine if doing so resolves the shutdown problem. To do this, follow these steps:

1. Click Start, point to Settings, click Control Panel, and then double-click System.
2. On the Device Manager tab, double-click System Devices.
3. Click Plug and Play BIOS, and then click to select the Disable NVRAM / ESCD updates check box on the Settings tab.
4. Click OK, click OK, and then restart your computer.
5. After you restart the computer, attempt to shut down your computer again.

There is an incompatible Basic Input/Output System (BIOS) configuration setting - Plug and Play BIOS

In some cases, the BIOS and Windows may not be communicating properly with the computer hardware during the shutdown process. You can configure Windows to ignore the presence of a Plug and Play BIOS and communicate directly with the hardware.

NOTE: Use this method for testing purposes only. Leaving the Plug and Play BIOS disabled may cause some hardware to stop working.

1. To configure Windows not to use the Plug and Play BIOS:
2. Restart your computer, and press and hold CTRL until you see the Windows Start menu.

Problems Shutting Down Windows 95/98/Me (Continued)

If the problem still exist, do the following:

1. Type the following line at the command prompt:
cd \windows\system
2. Rename the Bios.vxd file to Bios.old.
3. Restart your computer.
4. After the computer restarts, attempt to shut down Windows.

If the computer shuts down correctly, the system BIOS is likely to be contributing to the shutdown problems. Contact the motherboard or BIOS manufacturer for a possible update.

Antivirus Program

If you have an antivirus program that is configured to scan your floppy disk drive when you shut down your computer, your computer may stop responding.

A10 Windows NT 4.0, Windows 2000 and Windows XP Stop Errors

STOP 0x0000000A (0xA) IRQL_NOT_LESS_OR_EQUAL

Parameter:

- 1 Memory referenced
- 2 IRQL
- 3 Value: 0 = read operation, 1 = write operation
- 4 Address that referenced memory

An attempt was made to touch pageable memory at a process internal request level (IRQL) that is too high. In other words, a driver is using improper memory addresses. It is usually caused by a bad device driver, or using a Windows NT 4.0 driver on a Windows NT 3.51.

To isolate the cause of the STOP error, do the following:

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Turn your PC off and take out all cards except the video card and SCSI card if you are booting from the SCSI drive. After the OS is installed, shut down the computer and plug in one card at a time, boot the OS and installed the drivers for that card. If you get the error message again, try to update the driver.

STOP 0x0000001E (0x1E) KMODE_EXCEPTION_NOT_HANDLED

Parameters:

- 1 The exception code that was not handled
- 2 The address at which the exception occurred
- 3 Parameters 0 of the exception
- 4 Parameter 1 of the exception

While this is typically not a processor stop error, it is one of the most common bug code. Usually the exception address pinpoints the driver or function that caused the problem. Other causes include bad processor, bad memory, bad cache or bad BIOS or outdated BIOS. Always note this address as well as the link date of the driver or image that contains this address. A common error is exception code 0x80000003. This error means a hard-code breakpoint or assertion was hit, but the system was booted with the /NODEBUG switch. This problem should not occur very often. If it occurs repeatedly, make sure a debugger is connected and the system is booted with the /DEBUG switch.

To isolate the cause of the STOP error, do the following:

- Make sure that you have adequate disk space, especially for new installations.

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Update the offending driver or reinstall the offending driver/software package. You may need to use Last Known Good Configuration or Safe mode.
- If the motherboard and hard drive support Ultra DMA-66 or faster, enter the BIOS CMOS program and disable the Ultra DMA and set the PIO to mode 4 for that channel. Then after Windows is installed, try the Ultra DMA to see if Windows is stable. Be sure to use the 40-pin, 80 conductor cable.
- Replace the memory
- Replace the cache (if on motherboard)
- Replace the motherboard
- Replace the processor

STOP 0x00000023 and 0x00000024 FAT_FILE_SYSTEM or NTFS_FILE SYSTEM

This is usually caused by heavily fragmented drives, heavy file I/O, some types of drive-mirroring software or some types of antivirus software.

To isolate stop error:

- Temporarily disable any antivirus programs, backup programs and defragmentation utilities.
- Check for hard drive corruption by running ScanDisk.
- Try Safe mode and Last Known Good Configuration
- Delete all partitions, then repartition and reformat your system.

STOP 0x0000002E (0x2E) DATA_BUS_ERROR

Parameters:

- 1 Virtual address that caused the fault
- 2 Physical address that caused the fault
- 3 Processor status register (PSR)
- 4 Faulting instruction register (FIR)

This bug code is normally caused by a parity error in the system memory. This error can also be caused by a driver accessing a 0x8XXXXXXX address that does not exist.

To isolate the cause of the STOP error, do the following:

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Check for viruses.
- If you added a new device driver, start the computer in Safe mode, uninstall the driver and restart the computer.

- Update the offending driver
- Run hardware system diagnostic program. Run a general test for the entire system and an extensive test for the memory.
- Replace the memory
- Replace the Video memory (or video card)
- Replace the cache
- Replace the hard driver
- Replace the processor
- Replace the motherboard

**STOP 0x0000003E (0x3E)
MULTIPROCESSOR_CONFIGURATION_NOT_SUPPORTED**

The system has multiple processors, but they are asymmetric in relation to one another. To be symmetric, all processors must be the same type and level (same type, cache size and frequency with compatible stepping). In addition, make sure the processor supports multiprocessing. This information is stated in the Processor Specification Update guides.

STOP 0x0000003F NO_MORE_SYSTEM PTES

A driver is not cleaning up properly

To isolate the cause of the STOP error, do the following:

- Remove any recently installed software, including backup utilities or disk-intensive applications such as defragmenting, virus protection and backup utilities.

STOP 0x00000058

The failure of a primary drive in a fault-tolerance set.

- Using a Windows 2000 Startup disk, start your computer from the mirrored (secondary) system drive.
- Try Last Known Good Configuration.
- Delete all partitions, then repartition and reformat your system.
- If you are using an older machine and the drive is over 8,057 GB, you may need to load some special software so that the system can recognize over 8 GB or update the BIOS.

STOP 0x00000077 (0x77) KERNEL_STACK_INPAGE_ERROR

Parameters:

1 0
2 0

- 3 PTE value at time of error
- 4 Address of signature on kernel stack

or

- 1 Status code
- 2 I/O status code
- 3 Page file number
- 4 Offset into page file

The requested page of kernel data could not be read. This error is caused by bad block in a paging file or a disk controller error and in extremely rare cases, it is caused by running out of resources.

If the first and second arguments are 0, the stack signature in the kernel stack was not found. This error is caused by bad hardware.

If the status code is 0xC000009A, it's probably the L2 cache. If 0xC000009C and 0xC000016A, you have a failing hard drive. If the status is 0xC0000185 (STATUS_IO_DEVICE_ERROR) and the paging file is on a SCSI disk device, the cabling and termination should be checked. Other items to check would include defective L2 cache, defective memory, defective processor, defective motherboard and defective hard drive.

STOP ERROR 0x00000079 MISMATCHED HAL

- The Hardware Abstraction Layer is incorrect for the machine. This usually occurs when one machine mixes single and dual processor configuration files. In Windows NT, restart the install and when the message "Windows NT is examining the hardware" appears, press F5. Choose your computer type from the list that appears and continue with the installation. In Windows 2000, you should begin the installation process again and install a clean copy of OS. See
- Repartition and reformat your hard drive from scratch and install Windows.
- Replace the motherboard.
- Replace the processors.

Note: To change the HAL for Windows 2000 without reinstalling Windows 2000, see section 14.4.

STOP 0x0000007B INACCESSIBLE_BOOT_DEVICE

A problem occurred during the initialization of the I/O system (usually the startup device or the file system).

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Check for viruses on your computer.

- Remove any newly added hard drives or controllers.
- If you are using a SCSI adapter, obtain the latest Windows driver from the adapter vendor. In addition, try to disable sync negotiation, check termination and check the SCSI Ids of the devices.
- If you are using IDE devices, define the on-board IDE part to Primary only. Check the Master/Slave/Only settings for the IDE devices. Remove all Ide devices except for the hard disk.
- Run CHKDSK. The file system could be corrupt. If Windows cannot run CHKDSK, you might have to move the drive to another computer running Windows 2000 or Windows XP and run the CHKDSK command on that drive.
- Restart your computer. At the startup screen, press F8 for the Advanced Startup option, and select Last Known Good Configuration.

STOP 0x0000007F UNEXPECTED_KERNEL_MODE_TRAP

This error means a trap (exception) occurred in kernel mode, either a kind of trap that the kernel is not allowed to have or catch (a bound trap) or a kind of trap that is always instant death (double fault). This can be caused by a hardware or software problem, but is most commonly a hardware failure. The first number in the bug code parenthesis is the number of the trap (8 = double fault). To learn more about what these traps are, consult an Intel® Software Developer Manual, Volume 3: System Programming Guide, Chapter 5. Check for mismatched RAM, bad RAM, bad processor or outdated BIOS.

To isolate the cause of the STOP error, do the following:

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Run diagnostic software and test the RAM in the computer.
- Disable memory caching.
- Turn your PC off and take out all cards except the video card and SCSI card if you are booting from the SCSI drive. After the OS is installed, shut down the computer and plug in one card at a time, boot the OS and installed the drivers for that card. If you get the error message again, try to update the driver.
- Try removing or swapping out controllers, cards or other peripherals.
- Check to see if the RAM modules are the same speed and that they are compatible with each other.
- Make sure that you have sufficient RAM to run Windows.
- Try different RAM
- Try a different motherboard.
- Try a different processor.

STOP 0x00000080 NMI_HARDWARE_FAILURE

The HAL is supposed to report whatever specific data it has and to tell the user to call his or her hardware vendor for support.

To isolate the cause of the STOP error, do the following:

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Check to make sure the system is not using non-parity memory in a parity based system or mixing of parity/non-parity memory
- Try different RAM
- Try different motherboard
- Try different processor

STOP 0x0000009C Machine_Check_Exception

A fatal Machine Check Exception has occurred.

For Pentium processors, the parameters are:

- 1 Low 32 bits of P5_MC_TYPE MSR
- 2 Not Applicable
- 3 High 32 bit of P5_MC_ADDR MSR
- 4 Low 32 bits of P5_MC_ADDR MSR

Note: Machine-Check Exceptions are listed in the Intel Architecture Software Developer's Manual – Volume 3: System Programming Guide, chapter 12.

For a processor with a P6 architecture, the parameters are:

- 1 Bank number
- 2 Address of field of MCi_ADDR MSR for the MCA bank that had the error
- 3 High 32 bits of MCi_STATUS MSR for the MCA bank that had the error
- 4 Low 32 bits of MCi_STATUS MSR for the MCA bank that had the error

Note: Machine-Check Exceptions are listed in the Intel® Architecture Software Developer's Manual – Volume 3: System Programming Guide, chapter 12.

To isolate the cause of the STOP error, do the following:

- Make sure that you have the newest Windows Service Pack.
- Make sure that you have the most current BIOS update.
- Replace the RAM
- Try a different motherboard
- Try a different processor or processors

STOP 0x000000B4 VIDEO_DRIVER_INIT

The video driver is bad, corrupted, missing, or disabled.

To isolate the cause of the STOP error, do the following:

- Try starting your computer in safe mode or Enable VGA mode and trying removing the driver and reinstalling the driver.
- Make sure that you have the newest Windows Service Pack.
- Make sure that you have the most current BIOS update.

STOP 0XC0000185 STATUS_IO_DEVICE_ERROR:

- Make sure the SCSI controller and SCSI cable is connected correctly.
- Check for Resource Conflicts for your SCSI card.

STOP 0x00000221 STATUS_IMAGE_CHECKSUM_MISMATCH

The installer program found a corrupt driver or DLL file for some hardware device.

- Make sure that you have the most current BIOS.
- Make sure that you have the newest Windows Service Pack.
- Turn your PC off and take out all cards except the video card and SCSI card if you are booting from the SCSI drive. After the OS is installed, shut down the computer and plug in one card at a time, boot the OS and installed the drivers for that card. If you get the error message again, try to update the driver.