XPC User Guide

For the : SX58H7
Shuttle®

XPC Installation Guide

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This device complies to Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must withstand any background interference including those that may cause undesired operation.

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Safety Information
Read the following precautions before setting up a Shuttle XPC.

CAUTION
Incorrectly replacing the battery may damage this computer. Replace only with the same or equivalent as recommended by Shuttle. Dispose of used batteries according to the manufacturer's instructions.

Laser compliance statement
The optical disc drive in this PC is a laser product. The drive's classification label is located on the drive.

CLASS 1 LASER PRODUCT
CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

Installation Notices

- Do not place this device underneath heavy loads or in an unstable position.
- Do not use or expose this device around magnetic fields as magnetic interference may affect the performance of the device.
- Do not expose this device to high levels of direct sunlight, high-humidity or wet conditions.
- Do not block the air vents to this device or impede the airflow in any way.
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1 Function Introduction

1.1 XPC Introduction

The Shuttle XPC is the original high-performance Small Form Factor (SFF) computer. Since the first model was introduced in 2001, the XPC has become the world’s best-selling SFF computer brand.

Each Shuttle XPC is sold as a “barebone” computer ~ chassis, power supply and motherboard. The user must add his own processor, memory, drives and, as applicable, expansion cards. The XPC has been designed to be easily assembled and configured directly by the end user. Consumers can choose to buy preconfigured, ready-to-run XPC’s as well ~ a list of Shuttle-authorized value-added resellers can be found at www.shuttle.com.

The Shuttle XPC owes its popularity to its unique combination of small-size, high-performance and near universal component compatibility. However, unlike ordinary desktop computers, Shuttle XPC’s have been engineered as complete systems.

The XPC concept can be summarized as:

Use of high-performance, industry-standard components; Minimum size possible, while preserving component compatibility and system expansion; Focus on quality ~ a commitment to quality construction, materials and industrial design.

To meet the above requirements, Shuttle has created and patented dozens of new technologies, including the Integrated Cooling Engine (ICE), which extend and enhance the personal computing experience while reducing heat, noise and space requirements.

Thank you for choosing the Shuttle XPC!
### 1.2 Model Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>Shuttle Form Factor</td>
</tr>
<tr>
<td>Processor</td>
<td>LGA1366, Intel® Core i7 family</td>
</tr>
<tr>
<td>Chipset</td>
<td>North Bridge: Intel® X58 Chipset, South Bridge: ICH10R</td>
</tr>
<tr>
<td>Memory</td>
<td>3 + 1 Triple channel unbuffered non-ECC DDR3 1066/1333/1600(OC) MHz DIMM Slots</td>
</tr>
<tr>
<td></td>
<td>DIMM Supports up to 16GB system memory</td>
</tr>
<tr>
<td>Audio</td>
<td>Realtek ALC888, Supports Analog 7.1 channel output, Supports Digital S/PDIF out</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Realtek 8111C (PCI-E Interface), IEEE 802.3u 100Base-T compliant, 10Mb/s, 100Mb/s and 1000Mb/s operation, Supports DOS Wake-On-LAN, Dual LAN support Teaming</td>
</tr>
<tr>
<td>Storage</td>
<td>South Bridge (2) eSATA connectors in back panel, (1) eSATA connector in Front panel</td>
</tr>
<tr>
<td></td>
<td>(3) On board SATA 3.0Gb/s connectors</td>
</tr>
<tr>
<td></td>
<td>Jmicron (1) UltraDMA 133 IDE channel connector</td>
</tr>
<tr>
<td></td>
<td>NCQ support</td>
</tr>
<tr>
<td>On Board Connectors</td>
<td>(1) ATA133 IDE connector, (3) SATA connectors, (2) Fan connectors, (2) Power connectors, (2) Front Panel headers, (1) AUX_IN header, (1) BIOS header, (2) 2x5 USB 2.0 headers, (1) CIR header, (1) GPIO header, (1) eSATA power port, (1) PS/2 Keyboard &amp; Mouse header, (1) Print Port, (1) PCI-E X16</td>
</tr>
<tr>
<td>Power</td>
<td>Input: 100Vac-240Vac, Support 80 PLUS Bronze, Output: 500W</td>
</tr>
<tr>
<td>Chassis</td>
<td>H, Dimension: 325(L) x 208(W) x 189(H) mm, Bay: (2) 3.5&quot; bays (internal) (1) 5.25&quot; bay</td>
</tr>
</tbody>
</table>

⚠️ The product’s color and specification will depend upon the actually shipping product.
1.3 XPC Exterior Dissection

Shuttle offers a variety of different XPC models loaded with various options. The illustration below will help familiarize you with the included features in your new XPC.

1.3.1 XPC Front

- F1. 5.25" Bay
- F2. Eject Button
- F3. Power Switch
- F4. Power LED
- F5. HDD LED
- F6. Bluetooth LED
- F7. WIFI LED
- F8. Reset Button
- F9. eSATA Port
- F10. USB2.0 Ports
- F11. Headphone
- F12. Mic in

1.3.2 XPC Back

- B1. AC Power Socket
- B2. eSATA Power Port
- B3. eSATA Ports
- B4. USB 2.0 Ports
- B5. Front Out (L/R)
- B6. Side Surr (L/R)
- B7. Clear CMOS Button
- B8. LAN Ports
- B9. Line-In Port
- B10. Center/Bass Port
- B11. Surround Back (L/R) Port
- B12. Wireless LAN Perforation
- B13. Parallel Port & PS/2 Port Kit Perforation
- B14. SPDIF Out Port
1.4 Accessories

1. Power cord (1)

2. ATI CrossFireX bridge (1)

3. Cable tie (2), Cable clip (1), Adhesive tape (2), Screws

4. Front feet (2)

5. Heatsink compound (1)

6. eSATA expansion kit (1), IDE Cable (1)

7. Motherboard DVD (1)

8. XPC installation Manual (1)

9. Y Type SPDIF OUT Cable (Optional) PCR-SP3H60-S000

10. eSATA expansion upgrade kit (Optional) PCR-CO3100-K002

11. NVIDIA SLI bridge (Optional) PCR-OTSL10-3L00

⚠️ Bundled Accessories may differ from specified. If there are items missing, please contact your local authorized Shuttle dealer.
1.5 XPC Motherboard

1.5.1 SX58H7 Motherboard Illustration
1.5.2 Jumper Settings

Front Panel Connector

Header JP4 can be used to provide operation status signals to the front daughterboard. Note that this is an alternative header to the 50pins streamline header that also connects the motherboard to the front daughterboard. Header JP5 is used to connect cable to front panel connector mounted on front-panel or back-panel.

The front panel is where the hard drive activity lights, reset button, on/off button, computer power on light, USB connectors, eSATA connectors, and audio headers, are located.

Pin Assignments (JP4):

1=USBPWR 2=USBPWR 3=USBPWR 4=USBPWR 5=USBPWR
6=USBPWR 7=USBPWR 8=USBPWR 9=USBA+ 10=USBA-
11=USBGND 12=USBGND 13=USBB+ 14=USBB- 15=USBGND
16=USBGND 17=eSATA TX+ 18=eSATA TX- 19=GND 20=GND
21=eSATA RX+ 22=eSATA RX- 23=GND 24=GND 25=FMIC
26=MIC_PWR 27=SNES0 28=AUDIOGD 29=LINE IL 30=AUDIOGD
31=LINE IR 32=SENSE1 33=AUDIOGD 34=AUDIOGD 35=LINE OR
36=LINE FR 37=AUDIOGD 38=AUDIOGD 39=LINE OL 40=LINE FL
41=AUDIOGD 42=AUDIOGD 43=HDPWR 44=GLED A 45=HDLED
46=GLED B 47=RST SW 48=PW SW 49=VCC 50=VCC

Pin Assignments (JP5):

1=HDLED PW R 2=GRNLEDA
3=HD LED 4=GRNLEDB
5=BT_SEL 6=PWR SW
7=GND 8=GND
9=NC 10=KEY

HD-Audio Connector

Pin Assignments (JP1):

1=ACZ_SDIN0 2=ACZ_BIT CLK
3=ACZ_SDIN1 4=ACZ_RST-
5=ACZ_SDIN3 6=ACZ_SYNC
7=KEY 8=ACZ_SDOUT
9=GND 10=GND
Extended USB Connector

These headers are used to connect auxiliary USB devices to the motherboard. These headers are directional and will only allow USB cables to be connected in one direction.

Pin Assignments (USB1,USB2):

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USBPWR</td>
</tr>
<tr>
<td>2</td>
<td>USBPWR</td>
</tr>
<tr>
<td>3</td>
<td>USBPXN</td>
</tr>
<tr>
<td>4</td>
<td>USBPXN</td>
</tr>
<tr>
<td>5</td>
<td>USBPXP</td>
</tr>
<tr>
<td>6</td>
<td>USBPXP</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>Key</td>
</tr>
<tr>
<td>10</td>
<td>NC</td>
</tr>
</tbody>
</table>

PS/2 Keyboard & Mouse Header

Header KBC1 can be used to connect PS/2 Keyboard & Mouse device.

Pin Assignments (KBC):

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KDAT</td>
</tr>
<tr>
<td>2</td>
<td>KCLK</td>
</tr>
<tr>
<td>3</td>
<td>5V_DUAL</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>MDAT</td>
</tr>
<tr>
<td>6</td>
<td>MCLK</td>
</tr>
</tbody>
</table>

AUX-IN Connector

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system. On the motherboard, locate the 4-pin Aux-In header, and connect the cable to this header.

Pin Assignments (AUX_IN1):

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AUX-IN – Left</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>AUX-IN – Right</td>
</tr>
</tbody>
</table>
Fan Connector

The motherboard provides the onboard 12V cooling fan power connector to support CPU, Chassis or Chipset cooling fans.

![Fan Connector Diagram]

Both cable wiring and type of plug may vary depending on the fan maker.

GPIO Header

GPIO Supports three application-definable GPIO LEDs.

Pin Assignments (JP2):
1 = VCC
2 = KEY
3 = GND
4 = BLUETOOTH-GPIO
5 = WIFI-GPIO

![GPIO Header Diagram]

SPDIF-In/Out Connector

Pin Assignments (SPDIF1):
1 = SPDIF_IN
3 = VCC
5 = VCC
2 = GND
4 = GND
6 = SPDIF_OUT

CIR Header

Pin Assignments (CIR1):
1 = PIN85_CIRRX
2 = 5V_DUAL
3 = GND

![CIR Header Diagram]
2.1 Installation

⚠️ For safety reasons, please ensure that the power cord is disconnected before opening the case.

2.1.1 Remove the Cover

1. Unscrew 3 thumbscrews of the chassis cover.
2. Slide the cover backwards and upwards.

2.1.2 Remove the Rack

1. Unfasten the rack mount screws.
2. Remove the rack.
2.2 CPU and ICE Installation

2.2.1 Remove the ICE Module

1. Unfasten the ICE fan thumbscrews on the back of the chassis.

2. Unfasten the four ICE module attachment screws and unplug the fan connector.

3. Remove the ICE module from the chassis and put it aside.

2.2.2 Install the CPU

This 1366 pin socket is fragile and easily damaged. Always use extreme care when installing a CPU and limit the number of times that you remove or change the CPU. Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.

Follow the steps below to correctly install the CPU into the motherboard CPU socket.

1. First unlock and raise the socket lever.
2. Press A with your thumb, then move it to the left B until it is released from the retention tab. Lift the metal load plate on the CPU socket.

3. Remove the protective socket cover from the CPU socket.

⚠️ DO NOT touch socket contacts. To protect the CPU socket, always replace the protective socket cover when the CPU is not installed.

4. Orientate the CPU and socket, aligning the yellow triangle on the corner of the CPU with the triangle on the socket or you may align the CPU notches with the socket alignment keys. Make sure the CPU is perfectly horizontal, insert the CPU into the socket.

⚠️ Please be aware of the CPU orientation, DO NOT force the CPU into the socket to prevent bending the pins on the socket and damaging the CPU!
5. Close the metal load plate, lower the CPU socket lever and lock in place.

6. Spread thermal paste evenly on the CPU surface.

⚠ Please do not apply excess amount of thermal paste. The thermal paste is toxic and inedible. If it gets into your eyes or touches your skin, ensure to wash it off immediately and seek professional medical help.

2.2.3 Install the ICE Module

1. Place the ICE module on top of the CPU die and match the screws with the holes on the motherboard.
2. Screw the ICE module to the motherboard.
   Note to press down on the opposite diagonal corner while tightening each screw.

3. Connect the fan connector.

4. Fasten the Smart Fan to the chassis with the 4 thumbscrews.

2.3 Memory module Installation

2.3.1 Guidelines for Memory Configuration
Before installing DIMMs, read and follow these guidelines for memory configuration.

⚠ Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
   (Go to Shuttle's website for the latest memory support list.)

Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.
This motherboard provides four DDR3 memory sockets and supports Dual/ Triple Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Dual or Triple Channel memory mode may double or triple the original memory bandwidth.

You may install varying memory sizes, the system maps the total size of the lower-sized channel for the dual-channel or triple-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.

- **Single Channel Memory Configurations Table**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DIMM1 (Red)</td>
</tr>
<tr>
<td>1 DIMM</td>
<td>DS/SS</td>
</tr>
</tbody>
</table>

(SS=Single-Sided, DS=Double-Sided, "--"=No Memory)

- **Dual Channel Memory Configurations Table**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DIMM1 (Red)</td>
</tr>
<tr>
<td>2 DIMMs</td>
<td>DS/SS</td>
</tr>
</tbody>
</table>

(SS=Single-Sided, DS=Double-Sided, "--"=No Memory)

- **Warning:** Dual Channel mode cannot be enabled if only one DDR3 memory module is installed. If only one DDR3 memory module is installed, be sure to install it in the DIMM1(Red) socket.

- **Warning:** When enabling Dual/ Triple Channel Technology, it is recommended that memory of the same capacity, brand, speed, and chips be used.
When enabling Dual Channel mode with two memory modules, be sure to install them in the DIMM1(Red) and DIMM2(Red) sockets.

**Triple Channel Memory Configurations Table**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DIMM1 (Red)</td>
</tr>
<tr>
<td>3 DIMMs</td>
<td>DS/SS</td>
</tr>
<tr>
<td>4 DIMMs</td>
<td>DS/SS</td>
</tr>
</tbody>
</table>

(SS=Single-Sided, DS=Double-Sided, "--"=No Memory)

When enabling Triple Channel mode with four memory modules, be sure to install them in the DIMM1(Red), DIMM2(Red), DIMM3(Red) and DIMM4(Yellow) sockets.
2.3.2 Installing a Memory

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

DDR3 and DDR2 DIMMs are not compatible to each other or DDR DIMMs. Be sure to install DDR3 DIMMs on this motherboard. Follow the steps below to correctly install your memory modules in the memory sockets.

1. Unlock the DIMM latch.

2. Align the memory module's cutout with the DIMM slot notch. Slide the memory module into the DIMM slot.

A DDR3 memory module has a cutout, so it can only fit in one direction.

3. Check that the latches are closed, and the memory module is firmly installed.

Repeat to install additional memory modules if required.
2.4 Peripheral Installation

2.4.1 Install the HDD

1. Loosen the purse lock and separate the HDD power cable.

2. Place the HDD in the rack and secure with screws from the side.

3. Place the rack in the chassis and refasten the rack.

⚠ Please make sure to secure the screws on each side.

4. Place the power cables in the rack clip located on the underside of the rack mount.
5. Connect the Serial ATA and power cables to the HDD.

2.4.2 Install an Optical Drive

1. Plug the IDE cable in the IDE1 header.

2. Slide the optical drive into the chassis.
3. Fasten the four side screws.

4. Plug the IDE cable and power cable into the optical drive.
2.5 Accessories Installation

2.5.1 Install PCI Express x16 Graphics Card

1. A PCI Express x16 graphics card will be used to demonstrate the installation procedure. Unfasten expansion slot bracket screws.

2. Remove the back panel bracket and put the bracket aside.

3. As shown Install the PCI Express x16 graphics card into the PCI Express x16 slot. Connect power cable to the graphics card.

⚠️ The maximum size acceptable for graphics card is 267mm x 98mm x 18mm. Repeat to install additional PCI Express x16 graphics card if desired.
4. Secure the bracket.

2.5.2 Install eSATA HDD

1. Take out the eSATA to SATA Cable and External SATA Power Cable from the accessory box.

2. Plug the eSATA to SATA cable to the eSATA port and plug the External SATA Power Cable to the eSATA power port.

3. Connect the eSATA to SATA Cable and External SATA Power Cable to the HDD.

- eSATA to SATA Cable
- External SATA Power Cable
- eSATA expansion upgrade kit (Optional)
2.6 Final Touches

2.6.1 Close the Chassis Cover

1. Replace the cover and refasten the thumbscrews.

2.6.2 Install Front Feet

1. Take out the two front feet from the accessory box.
2. Screw the front feet to the base of the chassis.

2.6.3 Complete
2.7 XPC Accessories
Shuttle offers over 25 great upgrade and modding kits for your XPC. Visit our website at http://www.shuttle.com for more information or speak to your local retailer.

2.8 Tech Support
1. Shuttle Inc.
   http://global.shuttle.com/
2. Tech Support
   http://global.shuttle.com/support.jsp
3. Download
   http://global.shuttle.com/download.jsp
4. Barebone FAQ
   http://global.shuttle.com/support_faq.jsp
5. Barebone Support List
   http://global.shuttle.com/support_list.jsp

2.9 Technical Notes: Clear CMOS Button
This XPC comes enhanced with an easy-to-use Clear CMOS Button. This button allows users to reset BIOS information to factory default settings.

1. Power down the XPC and remove the power cord.
2. Press the Clear CMOS Button by inserting a pointed object (e.g. a pen nib) into the clear CMOS hole. Keep it pressed for 5 seconds.
3. Reconnect the power cord and turn on the computer.

![Clear CMOS button](image)

⚠️ Remove the power cord before clearing CMOS.
2.A Setup of ATI® CrossFireX™/NVIDIA® SLI™ (Optional)

The ATI® CrossFireX™ and NVIDIA® SLI™ technologies offer blistering graphics performance with the ability to bridge two PCI Express x16 graphics cards! This section provides instructions on configuring an CrossFireX™/SLI™ system.

⚠️ Using graphics cards of identical brand and chips is recommended.

2.A.1 ATI® CrossFireX™ technology

❖ Installing CrossFireX™ graphics cards

1. Prepare two CrossFireX-ready graphics cards.
2. Insert the two graphics card into the PCI Express x16 slots.
3. To set up a 2-Way ATI® CrossFireX™ system, as shown align and firmly insert the CrossFireX bridge connector to the goldfingers on each graphics card.

❖ Enabling 2-Way ATI® CrossFireX™ technology

1. Connect a VGA or DVI cable to the graphics card.
2. After installing your graphics cards and the device drivers, enable the CrossFireX feature through the ATI Catalyst Control Center in Windows.
3. You can right-click the ATI icon in the windows notification area and select Catalyst Control Center.
4. The Catalyst Control Center Setup Assistant appears when the system detects the existence of dual graphics cards. Click Go to continue to the Catalyst Control Center Advanced View window.

5. In the Catalyst Control Center window, click Graphics Settings → CrossFireX → Configure.

6. From the graphics adapter list, select the graphics card to act as the display GPU.

7. Select Enable CrossFireX.

8. Click OK to exit the window.
2.A.2 NVIDIA® SLI™ technology (Optional)

Installing SLI™ graphics cards

1. Prepare two SLI-ready graphics cards.
2. Insert the two graphics card into the PCI Express x16 slots.
3. To set up a 2-Way NVIDIA® SLI™ system, as shown align and firmly insert the SLI bridge(optional) connector to the goldfingers on each graphics card.
4. Connect power cables to the two graphics cards.

Enabling 2-Way NVIDIA® SLI™ technology

1. Right click on the empty space of the Windows desktop and select NVIDIA Control Panel.
   The NVIDIA Control Panel window appears (See Step 6).

2. If you can not see the NVIDIA Control Panel in Step (1), select Personalize.
3. From the **Personalization** window, select **Display Settings**.

4. From the **Display Settings** dialog box, click **Advanced Settings**.

5. Select the **Nvidia GeForce** tab, and then click **Start the NVIDIA Control Panel**.
6. From the NVIDIA Control Panel window, select **Set an SLI Configurations**. Click **Enable SLI** and set the display for viewing SLI rendered content. When done, click **Apply**.

**2.B S/PDIF Cable Installation for HDMI Graphic card only(Optional)**

For safety reasons, please ensure that the power cord is disconnected before opening the case.

1. Unfasten the screws on the back panel and remove the cover.
   - Unfasten screws of the S/PDIF cable on the back panel
   - Remove the S/PDIF cable from mainboard

2. Unfasten the expansion slot bracket screws. Remove the back panel bracket and put the brackets aside.

To enable audio and video HDMI function, SPDIF-Out connector should be connect with cable and send the singal into SPDIF-In connector on graphic card.

3. Use the SPDIF cable that included in accessory box, connect one side to the SPDIF connector on the mainboard.
4. Connect other side of the SPDIF cable to SPDIF-In on graphic card.
5. Release 2 screws for the cable bracket, insert the S/PDIF cable into the cable bracket, and then hook up the cable holder and fasten the 2 screws for the cable bracket. Please follow the below picture.

6. Install the display card into the PCI-E slot and secure the bracket.

7. Attach the case and fasten the thumbscrews to complete the display card installation.
3.1 Motherboard Driver DVD

Note: The DVD contents attached in SX58H7 motherboard are subject to change without notice. The product’s specifications will depend upon the actually shipping product.

The Motherboard Driver DVD contains all the motherboard drivers necessary to optimize the performance of this XPC in a Windows® OS. Install these drivers after installing Microsoft® Windows®.

Navigation Bar Description:

- Install Motherboard Drivers - Install Intel Chipset Driver
  Install Realtek Audio Driver
  Install Realtek LAN Driver
  Install Intel IAA Driver

- Install Utilities - Install Adobe Reader 8.1
  Install Symantec Norton 2008 Software
  Install Bluetooth Driver
  - Install Bluetooth Driver, Wireless/Bluetooth LED Driver
  Install Wireless LAN Driver
  - Install Wireless LAN Driver, Wireless/Bluetooth LED Driver


- Link to Shuttle Website - Link to shuttle website homepage.

- Browse this DVD - Allows you to see contents of this DVD.
3.1.1 Installing Motherboard Software

Insert the attached DVD into your DVD-ROM drive. The DVD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Motherboard Software Setup screen.

Click the “Install Motherboard Drivers” bar. Individually install the following drivers.

- Install Intel Chipset Driver
- Install Realtek Audio Driver
- Install Realtek LAN Driver
- Install Intel IAA Driver
- Return to previous page
Appendix

BIOS Settings

The SX58H7 BIOS ROM has a built-in Setup program that allows users to modify basic system configuration. This information is stored in battery-backed RAM so that it retains Setup information even if the system power is turned off.

The system BIOS manages and executes variety of hardware related functions including:

- System date and time
- Hardware execution sequence
- Power management functions
- Allocation of system resources

Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

Step1. Power on the computer. The system will perform its POST (Power-On Self Test) routine checks.

Step2. Press the <Del> key immediately, or at the following message:
Press DEL to enter SETUP

⚠️ If you miss wordings mentioned in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the <RESET> switch located at the computer’s front-panel. You may also reboot by simultaneously pressing the <Ctrl>, <Alt>, <Del> keys simultaneously.

Step3. When you enter the BIOS program, the CMOS Setup Utility will display the Main Menu, as shown in the next section.
The Main Menu

Once you enter the AMI BIOS(tm) CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard BIOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to change the values in the chipset registers and optimize your system’s performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Features

Use this menu to specify your power management settings.
**PnP / PCI Resource Management**
This entry appears if your system supports PnP / PCI.

**Hardware Health Event Monitoring**
This entry displays the current system temperature, Voltage, and FAN settings.

**Frequency/Voltage Functions**
Use this menu to specify your settings for frequency/voltage control.

**Load Default Settings**
Use this menu to load the BIOS default values that are factory-set for optimal system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

**Set Supervisor / User Password**
Use this menu to change, set, or disable password protection. This allows you to limit access to the system and Setup, or only to Setup.

**Save & Exit Setup**
Save CMOS value changes in CMOS and exit from setup.

**Exit Without Saving**
Abandon all CMOS value changes and exit from setup.
# Standard BIOS Features

The items in the Standard CMOS Setup Menu are divided into several categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the `<PgUp>` or `<PgDn>` keys to select the value you want in each item.

---

**Date**

`<Month>  <DD>  <YYYY>`

Set the system date. Note that the 'Day' automatically changes when you set the date.

**Time**

`<HH : MM : SS>`

The time is converted based on the 24-hour military-time clock.

For example, 5 p.m. is 17:00:00.

**Serial ATA 1/2/3/4/5/6 Channel**

Options are in its sub-menu.

Press `<Enter>` to enter the sub-menu of detailed options.
Total Memory

This item is automatically detected by the system at start up time. This is display-only field. You can't make change to this field.

********************************************

SATA/IDE Adapters

The SATA/IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

LBA/Large Mode

Choose the access mode for this hard disk.

➤ The choice: Auto or Disabled.

S.M.A.R.T.

When disabled, HDD won’t report errors automatically.

➤ The choice: Auto, Enabled, or Disabled
Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system’s default speed, boot-up sequence, keyboard operation, shadowing, and security.

### CPU Feature

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

#### Limit CPUID MaxVal

Set Limit CPUID MaxVal to 3, Should Be "Disabled" for WinXp.

- The Choice: Disabled or Enabled.

⚠️ Some older O.S.’s (Win98, WinMe..) cannot handle a CPUID MaxVal greater than 3. Please choose "Enabled" if you use one of those O.S. If your O.S. is WinXP or Win2000, we suggest you "Disabled" the item.

#### C1E Function

When disabled, processor can’t transitions to a lower core frequency and voltage.

- The Choice: Auto or Disabled.

#### Intel(R) TurboMode tech

This item allows user to enable TurboMode.

- The Choice: Enabled or Disabled
Intel(R) C-STATE tech
This item allows user to enable C2/C3/C4.
➢ The Choice: Enabled or Disabled.

Core Multi-Processing
This item allows you to enable/disable the Core Multi-Processing.
➢ The choice: Disabled or Enabled.

Boot Sector Virus Protection
This item allows you to enable/disable the Boot Sector Virus Protection.
➢ The choice: Disabled or Enabled.

Hard Disk Boot Priority
This item allows you to select Hard Disk Boot Device Priority.

Bios Write Protect
This item allows you to enable or disable the Bios Write Protect. If you want to flash BIOS, you must set it [Disabled].
➢ The choice: Enabled or Disabled.

Quick Power On Self Test
This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.
➢ The choice: Enabled, or Disabled.

First/Second/Third Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Bootup Num-Lock
This item allows user to enable Num-Lock after bootup.

Security Option
Select whether the password is required every time the system boots or only when you enter setup.

System  The system will not boot and access to Setup will be denied if the correct password is not entered promptly.

Setup  The system will boot, but access to Setup will be denied if the correct password is not entered promptly.
➢ The choice: System or Setup.
To disable security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password.

Don't type anything and just press <Enter>; it will disable security. Once the security is disabled, the system will boot, and you can enter Setup freely.

Full Screen LOGO Show

This item allows you to enable/disable the Full Screen LOGO Show.

- The choice: Enabled or Disabled.
Integrated Peripherals

OnChip IDE Device
Option are in its sub-menu.
Press <Enter> to enter the sub-menu of detailed options.

SATA Mode
This item allows you to set the SATA Mode.
➢ The choice: IDE, AHCI or RAID.

LEGACY Mode Support
Certain OS is not supported under Native mode.
➢ The choice: Enabled or Disabled.

Onboard Device
Option are in its sub-menu.
Press <Enter> to enter the sub-menu of detailed options.

High Definition Audio
This item allows you to set the High Definition Audio.
➢ The choice: Enabled or Disabled.

Onboard IDE Function
Decide whether to invoke the Onboard IDE Function.
➢ The choice: Enabled or Disabled.
Onboard Lan1 Function
Decide whether to invoke the Onboard Lan1 Function.
➢ The choice: Enabled or Disabled.

Onboard Lan2 Function
Decide whether to invoke the Onboard Lan2 Function.
➢ The choice: Enabled or Disabled.

Onboard Lan Boot ROM
Decide whether to invoke the Onboard Lan Boot ROM.
➢ The choice: Enabled or Disabled.

SuperIO Device
Option are in its sub-menu.
Press <Enter> to enter the sub-menu of detailed options.

Onboard Parallel Port
This item allows you to determine onboard parallel port controller I/O address and interrupt request ( IRQ ).
➢ The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, or Disabled.

Parallel Port Mode
Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.
➢ The choice: SPP, EPP, ECP, or ECP+EPP.

CIR Function
This item allows you to set the CIR Function.
➢ The choice: Enabled or Disabled.

USB Device Setting
Option are in its sub-menu.
Press <Enter> to enter the sub-menu of detailed options.

USB 2.0 Controller
Enable or Disable Universal Host Controller Interface for Universal Serial Bus.
➢ The choice: Enabled or Disabled.
USB Operation Mode
Auto decide USB device operation mode.

High speed: If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.

Full/Low Speed: All of USB device operated on full/low speed mode.
➢ The choice: High speed or Full/Low Speed.

USB Storage Function
Enable or Disable Legacy support of USB Mass Storage.
➢ The choice: Enabled or Disabled.
# Power Management Features

The Power Management Setup allows you to configure your system to most effectively saving energy while operating in a manner consistent with your own style of computer use.

**ACPI Function**

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).
- Always "Enabled".

**ACPI Suspend Type**

This item allows you to select sleep state when suspend.
- The choice: S1(POS) or S3(STR).

**Run VGABIOS if S3 Resume(Auto)**

This item allows the system to initialize the VGA BIOS from S3(Suspend to RAM) sleep state.
- The choice: Auto, Yes or No.

**Wake-on-LAN(WOL)**

This item allows you to set the Wake-on-LAN(WOL).
- The choice: Enabled or Disabled.
Resume by Alarm
When this item enabled, your can set the date (day of the month) and time to turn on your system.
➢ The choice: Disabled or Enabled.

Date(of Month)
This item selects the alarm Date (day of the month).
➢ Key in a DEC number: Min = 0, Max = 31.

Time(hh : mm : ss)
This item selects the alarm Time.
[hh] ➢ Key in a DEC number: Min = 0, Max = 23.
[mm/ss] ➢ Key in a DEC number: Min = 0, Max = 59.

Power on By PS2 Mouse
This item allows you to set the the Mouse Power On function.
Only supports S4/S5.
➢ The choice: Disabled or Mouse Click.

Power on By PS2 Keyboard
This item allows you to set the Keyboard Power On function.
Only supports S4/S5.
➢ The choice: Disabled, password, Hot KEY, Any KEY.

KB Power ON Password
This item allows you to set the KB Power On Password.
➢ Press" Enter" to set Password.

Hot Key Power ON
This item allows you to set the Hot Key Power On.
➢ The choice: Ctrl-F1 ~ Ctrl-F12.

PWR-On After PWR-Fail
This item defines if the system will be rebooted after the power fails.
➢ The choice: Off or On.
PnP / PCI Resource Management

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.

This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

PCI/VGA Palette Snoop

- It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. If you have MPEG ISA/VESA VGA Cards and PCI/VGA Card worked, Enable this field. Otherwise, please Disable it.
- The choice: Enabled or Disabled.

IRQ Resources

- When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.
**IRQ3/4/5/7/9/10/11/14/15 assigned**

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

- The choice: Available or Reserved.

**DMA Resources**

DMA Channel 0/1/3/5/6/7 assigned

- The choice: Available or Reserved.
Hardware Health Event Monitoring

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.

Hardware Health Event Monitoring

<table>
<thead>
<tr>
<th>CPU Fan Control Mode</th>
<th>CPU Fan Mode Setting</th>
<th>Panel LED Lightness Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>[Smart Fan mode]</td>
<td></td>
</tr>
<tr>
<td>CPU Temperature</td>
<td>:44°C/111°F</td>
<td></td>
</tr>
<tr>
<td>System Temperature</td>
<td>:46°C/114°F</td>
<td></td>
</tr>
<tr>
<td>CPU Fan Speed</td>
<td>:2177 RPM</td>
<td></td>
</tr>
<tr>
<td>Fan 2 Speed</td>
<td>:3750 RPM</td>
<td></td>
</tr>
<tr>
<td>CPU Core</td>
<td>:1.200 V</td>
<td></td>
</tr>
<tr>
<td>CPU UTT</td>
<td>:1.136 V</td>
<td></td>
</tr>
<tr>
<td>DRAM</td>
<td>:1.504 V</td>
<td></td>
</tr>
<tr>
<td>IOH</td>
<td>:1.126 V</td>
<td></td>
</tr>
<tr>
<td>+3.3V</td>
<td>:3.856 V</td>
<td></td>
</tr>
<tr>
<td>+5.00V</td>
<td>:4.919 V</td>
<td></td>
</tr>
<tr>
<td>+12.0V</td>
<td>:11.640 V</td>
<td></td>
</tr>
<tr>
<td>VBAT</td>
<td>:3.312 V</td>
<td></td>
</tr>
</tbody>
</table>

Help Item

Options

Auto
Manual

CPU Fan Control Mode

Here you can set the CPU Fan Control Mode.

➢ The choice: Auto or Manual.

CPU Fan Auto Mode

Here you can set the CPU Fan Auto Mode.

➢ The choice: Smart Fan, Ultra-Low, Low, Mid, or Full.

Fan Speed Percentage

Here you can set the Fan Speed Percentage.

Ex. The full speed of CPU Fan is 4000 rpm.
Set 50% for CPU Fan speed is 2000 rpm.

➢ The choice: 20~100 %.

Over Temp Protection

Here you can set the Over Temp Protection.

Ex. Set 75°C means CPU Fan go to full speed when CPU temperature is 75°C or higher.

➢ The choice: 60°C ~ 90°C.
Panel LED Lightness Set
Here you can set the Panel LED Lightness.
➢ The choice: 0% ~ 100 %.

CPU Temperature
System Temperature
CPU Fan Speed
Fan 2 Speed
CPU Core
CPU VTT
DRAM
IOH
+ 3.3V
+ 5.00V
+ 12.0V
VBAT

⚠️ Before manually modifying the CPU fan setting, please make sure fan connectors are plugged into the correct fan connector on the motherboard.

⚠️ Warning: It is strongly recommended to disable 'Smart Fan' if you use an alternative fan to the default.
**Frequency/Voltage Functions**

<table>
<thead>
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<th>User Habit Function</th>
<th>Options</th>
<th>Help Item</th>
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<tr>
<td>▶ User Habit Auto Set</td>
<td>[Press Enter]</td>
<td>Options</td>
</tr>
<tr>
<td>Spread Spectrum</td>
<td>[Enabled]</td>
<td>Default</td>
</tr>
<tr>
<td>CPU PSI</td>
<td>[Disabled]</td>
<td>Manual</td>
</tr>
</tbody>
</table>

**** Main Over Clocking Set ****

| DC Function | [Manual ] | Default |
| CPU Clock Ratio | [60] | DOC |
| BCLK | [133] | X.M.P. |
| DRAM Ratio | [Auto] | |

Selected DRAM Frequency: DDR3-1066

| Uncore Clock Ratio | [Auto] |
| QPI Link Data Rate | [Auto] |
| PCIe Clock Set | [100] |

******* Memory Timing Set *******

| DRAM_tCL | [Auto] |
| DRAM_tRCD | [Auto] |
| DRAM_tRP | [Auto] |
| DRAM_tRAS | [Auto] |
| DRAM_tRRD | [Auto] |
| DRAM_tWR | [Auto] |
| DRAM_tWTR | [Auto] |
| DRAM_tRP | [Auto] |
| DRAM_tRFC | [Auto] |

******* Voltage **************

| CPU Voltage | [Auto] |
| CPU UTT Voltage | [Auto] |
| CPU PLL Voltage | [Auto] |
| DRAM Voltage | [Auto] |
| DIMM A Reference Voltage | [Auto] |
| DIMM B Reference Voltage | [Auto] |
| DIMM C Reference Voltage | [Auto] |
| IOH Voltage | [Auto] |
| IOH PLL Voltage | [Auto] |
| ICH Voltage(1.5V) | [Auto] |
| ICH Voltage(1.1V) | [Auto] |

User Habit Auto Set

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

Spread Spectrum

- This item allows you to set Spread Spectrum.
- The choice: The Choice: Disabled or Enabled.
CPU PSI
This item allows user to enable/disable CPU Power Saving Function.
➢ The choice: Enabled or Disabled.

************ Main Over Clocking Set ************

OC Function
Intel XMP provides a simple and robust high performance profiles, DDR3 based memory solution.
➢ The choice: Default, Manual, DOC or XMP.

eXtreme Memory Profile
➢ The choice: The choice: Disabled, Profile1 or Profile2

⚠️ If DRAM support, Profile1 and Profile2 appear.

CPU DOC Set
This item allows you to set CPU DOC Set.
➢ The choice: 3%, 5%, 7%, 10%, 15% or 20% .

CPU DOC Sensitivity
This item allows user to adjust the sensitivity of DOC.
➢ The choice: Low, Medium, High or Aggressive.

CPU Clock Ratio
This item allows the user to adjust CPU Clock Ratio.
➢ The Choice: 12X ~ 60X.

BCLK
This item allows the user to adjust Base Clock.
Min: 100 Max: 250
➢ Key in a DEC number: (Between Min and Max.)

DRAM Ratio
This item allows you to enable or disable the DRAM Clock Ratio.
➢ The choice: Auto, 3, 4, 5 or 6.

DRAM Frequency
This item Show DRAM frequency.
Uncore Clock Ratio
This item allows you to enable/disable Uncore Clock Ratio
➢ The Choice: Auto, 6 ~ 15.

QPI Link Data Rate
This item allows you to enable/disable QPI Link Data Rate.
➢ The choice: Auto, 4.800GT, 5.866GT, or 6.400GT.

PCIEX Clock Set
This item allows you to set PCIEX Clock Set.
➢ The choice: 100MHz ~ 150MHz.

******** Memory Timing Set ********

DRAM tCL
This item allows you to set DRAM_tCL.
➢ The choice: Auto, 5, 6, 7, 8, 9 or 10.

DRAM tRCD
This item allows you to set DRAM_tRCD.
➢ The choice: Auto, 5, 6, 7, 8, 9 or 10.

DRAM tRP
This item allows you to set DRAM_tRP.
➢ The choice: Auto, 5, 6, 7, 8, 9 or 10.

DRAM tRAS
This item allows you to set DRAM_tRAS.
➢ The choice: Auto or 14 ~ 28.

DRAM tRRD
This item allows you to set DRAM_tRRD.
➢ The Choice: Auto, 5 ~ 11.

DRAM tWR
This item allows you to set DRAM_tWR.
➢ The Choice: Auto, 3 ~ 15.

DRAM tWTR
This item allows you to set DRAM_tWTR.
➢ The Choice: Auto, 4 ~ 15.
DRAM_tRTP
This item allows you to set DRAM_tRTP.

DRAM_tRFC
This item allows you to set DRAM_tRFC.
➢ The Choice: Auto, 40, 41, 42, 43 ~ 100.

************** Voltage **************

⚠ Over voltage may destroy the devices like CPU, DRAM or Chipset!!

CPU Voltage
This item allows you to set CPU Voltage.
➢ The choice: Auto, 0.825V ~ 1.800V.

CPU VTT Voltage
This item allows you to set CPU VTT Voltage.
➢ The choice: Default, 1.125V ~ 1.800V.

CPU PLL Voltage
This item allows you to set CPU PLL Voltage.
➢ The Choice: Default, 1.8255V ~ 2.000V.

DRAM Voltage
This item allows you to set DRAM Voltage.
➢ The choice: 1.525V ~ 1.900V.

DIMM A Reference Voltage
This item allows you to set DIMM A Reference Voltage.
➢ The choice: -157.5mv ~ +200mv.

DIMM B Reference Voltage
This item allows you to set DIMM B Reference Voltage.
➢ The choice: -157.5mv ~ +200mv.

DIMM C Reference Voltage
This item allows you to set DIMM C Reference Voltage.
➢ The choice: -157.5mv ~ +200mv.
IOH Voltage
This item allows you to set IOH PLL Voltage.
▶ The choice: 1.125V ~ 2.000V.

IOH PLL Voltage
This item allows you to set IOH Voltage.
▶ The choice: Auto, 1.825V ~ 2.000.

ICH Voltage (1.5V)
This item allows you to set ICH Voltage(1.5V).
▶ The choice: 1.525V ~ 2.000V.

ICH Voltage (1.1V)
This item allows you to set ICH Voltage(1.1V).
▶ The choice: 1.125V ~ 2.000V.
Load Default Settings

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Default Settings (Y/N) ? N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.

Set Supervisor/User Password

Steps to set supervisor/user password are described as follows:

New Password Setting:
1. While pressing <Enter> to set a password, a dialog box appears to ask you enter a password.
2. Key in a new password. The password can not exceed eight characters.
3. System will request you to confirm the new password again.
4. When completed, new code takes effect.

No Password Setting:
5. If you want to delete the password, just press the <Enter> key instead of typing a new password. Follow the procedure as above.

If You Forget Password:
6. If you forget your password, you must turn off the system and clear CMOS. Please refer to the tech notes at the end of section two for more information.
Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

SAVE to CMOS and EXIT (Y/N)?  Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)?  N

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.
 Objective: To improve abilities for Shuttle’s customer to troubleshoot and decrease NTF (No Trouble Found) return repair goods

 Tools: CPU, VGA card, DDR Memory, Power Supply Unit.

 Type of situation: 1. System boot failure  
                    2. System unstable  
                    3. System incompatibility

 ➢ System won’t boot

 When receive a system or motherboard from end user that can not boot. Technician will need to identify the components that can be added on this system/motherboard. You may find the specifications inside the manual, CD driver or on our website.


 Step 1 Please unplug the power cord on the power supply to clear the CMOS jumper. Clear CMOS jumper will reset previous BIOS setting to the default. Change CPU, memory modules, VGA card and power supply unit for testing.

 Explanation:

 Why change memory module(s)?

 End user has inserted a memory module(s) which is already damaged. Chip on memory module(s) were not met by the specification of the chipset.

 Example:

 1. Some memory module like DDR3 1066/1333/1600(OC), user may need to add extra voltage in the BIOS in order to provide sufficient voltage for DDR3.

 Why change VGA card?

 1. When defected VGA card has inserted into the system/motherboard.
 2. When VGA card is inserted into a system/motherboard does not support its interface.

 If the system/motherboard continues fail to boot after following above procedure, please contact with your local retailer.
System running unstable

If the system incompatible the following may occur:

1. Overheating
2. System compatibility issue (Software, Operating system)
3. Add on components out of system/motherboard specification (Hardware)

Suggestion:

1. Unplug the power cord from the system and clear CMOS jumper. Update the BIOS to newest version. Updating BIOS may fix the previous bug or enhance stability of system.

2. Add thermal greases on top of CPU die to improve the heat conduction.

3. Change other hardware such as processor, memory module(s), VGA card or power supply unit to eliminate the chance of any hardware failure and compatibility problem

4. In order to eliminate the chance of any software or operating system problem. Please backup the data in the current system on separate storage device. Format the harddrive and reinstall the operating system and driver.

5. Try cross testing, by swapping components system/motherboard.

System incompatibility

There are four common system incompatibility issues, they are caused by add on device(s), driver, BIOS and hardware design. All system/motherboard may function normally until certain system actions are called upon causing conflict.

What causes CPU to become incompatible?

A processor with same speed could have difference on the sSpec#, Bus Speed, Mfg. Tech/Micron, Stepping, Cache Size and packaging type. System could show different result with differences on their performance due to the variables mentioned above. This may show a variant of inaccurate information on processor.
Example:

- Processor like AMD AM2, it has the memory control build into the processor. The compatibility issue may be different pending the version of processor.
- Processor like Intel 45nm, may have compatibility issue if the PWM on the system/motherboard does not support subject’s type of processor.
- Motherboard unable to recognize incompatible processor inserted.
- BIOS did not provide efficiency of voltage to the system processor.
- Did not show the correct sign on string in the POST screen and the Cache size.

**What will cause memory module incompatible?**

Most of system incompatibility is cause by memory module(s). In situations like this systems may freeze while user installs system OS, running a program, or fail on the benchmark test.

Example of memory incompatibility:

- Uncompetitive memory timing or inefficiency of voltage.
- Insert different combination of memory.
- Oxidize of on golden figure of the memory modules.

**What dimension of DDR2/DDR3 memory module can fit XPC?**


**What will cause VGA card incompatibility?**

VGA card incompatible may cause some functions to fail, for example system won’t boot.

Example of AGP incompatibility:

- VGA card did not plug-in its extend power.
- If drivers are not installed or installed improperly, then you may not use the standby functions such as S3, S4
What size of VGA card could be fit in XPC?


What will cause USB device incompatibility?

USB device did not provide efficiency of power, or driver installation incomplete.

Example of USB device incompatible:

- Shows unknown device in hardware manager due to missing driver.
- USB device that is out of standard specification may cause clock jitters with irregularly.

What will cause SATA/RAID incompatibility?

In order to install SATA for system, RAID driver is the essential part of the whole process. Without RAID driver, system may not detect the SATA harddrive.

Harddrive/CD-ROM/DVD-ROM:
When system do not detect IDE device, system will shows incorrect harddrive size

Audio:
No sound from system when drive did not install.

PCI:
When IRQ is in conflict, there could be a chance that PCI devices will fail in function.

Conclusion:
Always make sure you have the right components insert to system.

You may always find the specification of your system/motherboard from the manual, our website (product page) or download it from web link:
http://global.shuttle.com/download.jsp

BIOS update process (DOS & windows):

How to making a bootable disk to flash BIOS?

Please check our internet website <http://global.shuttle.com/support_faq_detail.jsp?PCI=%20&PI=766&PFI=968> for details
## 产品中有毒有害物质或元素的名称及含量

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○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物至少在该部件某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。