

## Changing the System Board

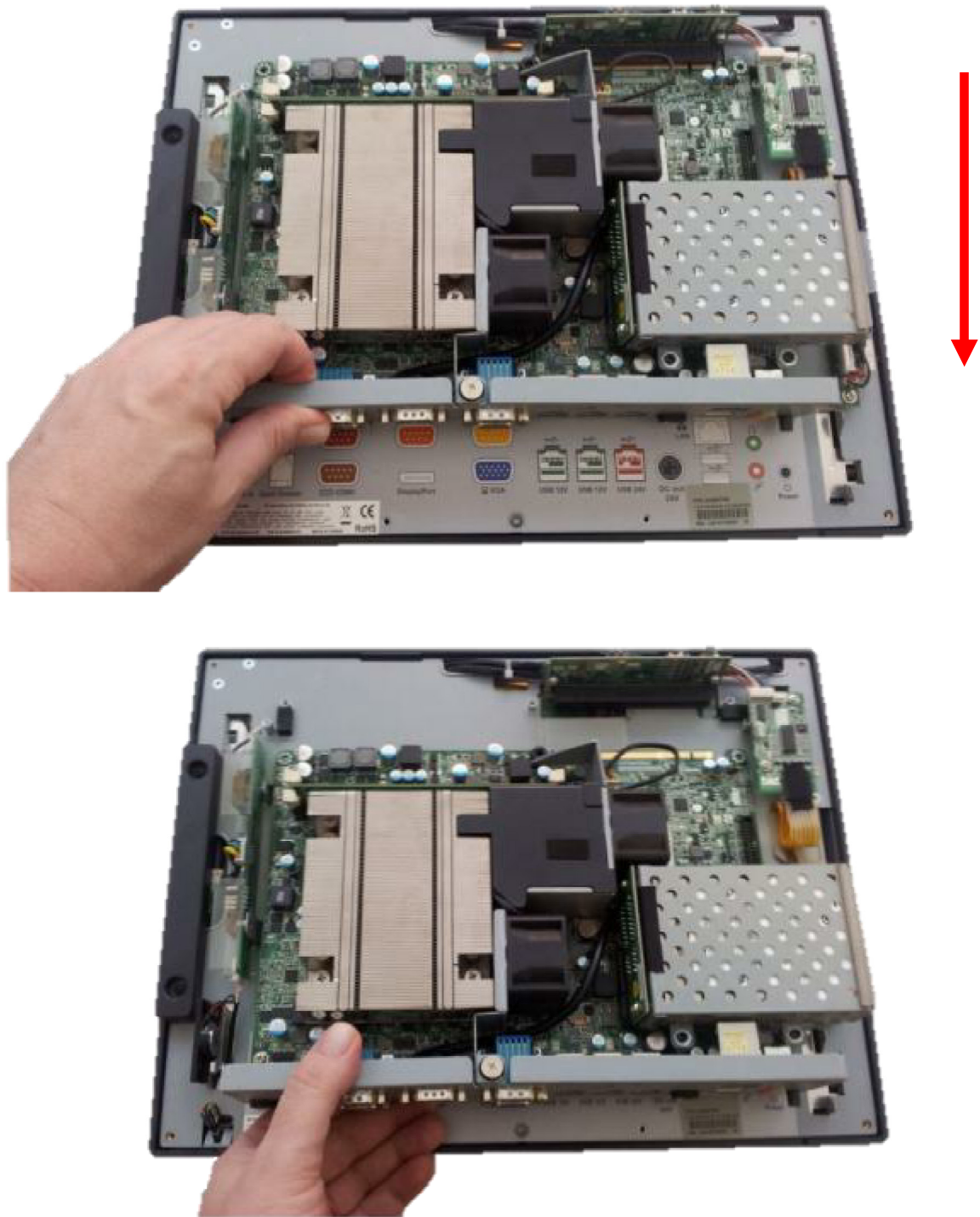
**\*Special Note:** An anti-static workplace with proper grounding is required when changing the System Board.

First remove the back cover. There are 3 screws that hold the system board in place that will need to be removed. (see photo below)

*Three screws to remove System Board*



After the screws are removed the system board can be unplugged from its connector. While using the I/O bracket to pull on, slide the board out towards the bottom of the unit as shown.



When reinstalling the system board make sure the locking tabs on the bottom of the board lock into their mating slots.

## Adding Memory

**Note: An anti-static workplace with proper grounding is required when adding memory.** Remove the back cover. You can now access the two memory sockets, the order in which the memory is populated does not matter.

The J2 680 supports up to 16GB of memory in two sockets. Memory type is 240 DIMM DDR3 1066/1333.

### *Memory sockets*



## Changing the Processor

To change the processor, **first start by working in an anti-static workplace with proper grounding.** Remove the back cover by removing the four screws; now remove the black plastic fan duct.

Loosen the four spring-loaded screws that secure the processor heat sink by loosening. Each screw about two turns at a time so that the pressure is removed from the socket evenly. Once the screws are free you will now be able to remove the heat sink. It will stick because of the heat sink compound, so take care to move it gently from side to side until it comes off. Set the heat sink aside, top side down.

You can now remove the processor from the socket. Push the locking lever down, push out from the locking tab, and move up as shown. Now carefully lift the cover up and you can remove the processor. **\*\*Be sure only to touch the edges of the processor and do not touch the processor pads of the socket pins. These socket pins are very easy to bend and damage to the socket is not covered by J2's warranty.**

## Accessing the HDD/SDD Drives

*Remove cover screw then remove cover*



*Remove or insert drive as needed*



The HDD/SSD may be hot swapped when in a RAID 1 configuration. In non-RAID 1 configurations the unit should be powered down before changing a drive or data may be lost. No physical damage will happen to the HDD if inserted or removed with power on.



# BIOS Setup

## Entering the BIOS Setup

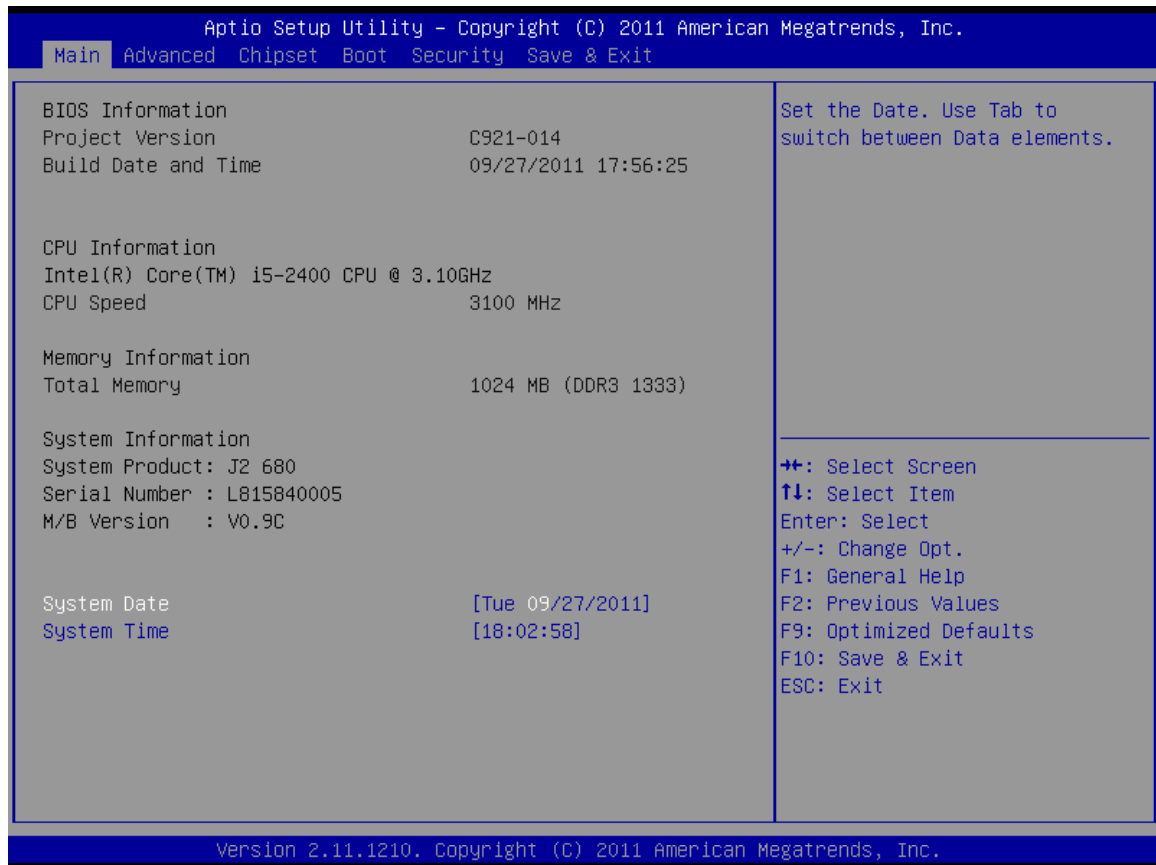
To enter the BIOS Setup, turn on or reboot the 680 and press the DEL key after the BIOS sign-on screen appears. The main menu of the BIOS setup will be displayed, this can take a few seconds. If the supervisor password is set, you must enter it here. The area on the right side of the screen displays a help window for the current screen or BIOS option.

BIOS setting should only be change by qualified personal as changing some setting can cause the system not to function properly.

## Main, System Overview

In this screen the system time and date are displayed and can be set. The time and date can also be set through the OS. This screen also displays the BIOS version (project), BIOS Build Date, CPU type, CPU speed and DRAM memory size, Product type, System Serial Number and mother board revision. The serial number of the mother board and the system are the same.

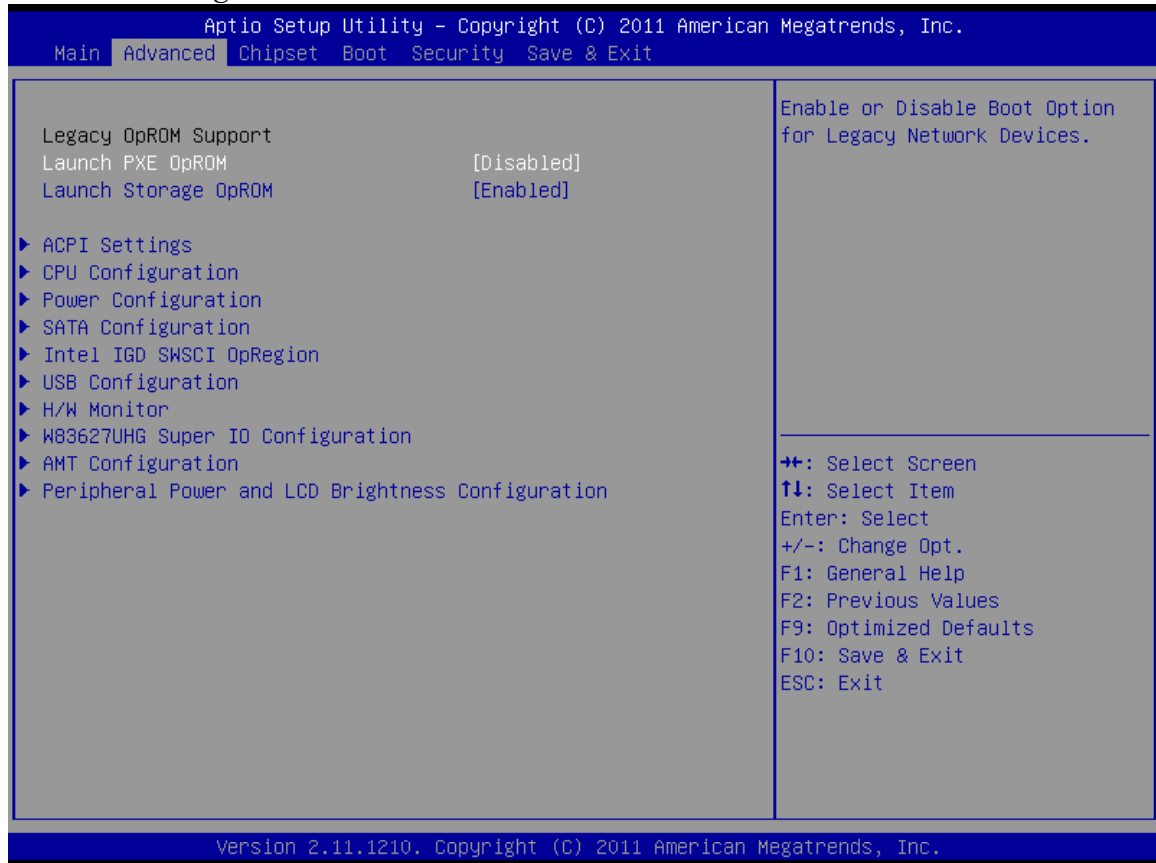
### Main screen



## Advanced Settings

This menu contains settings to control a number of system functions. Most these settings are self-explanatory.

### *Advanced Setting Screen*



## Launch PXE ROM

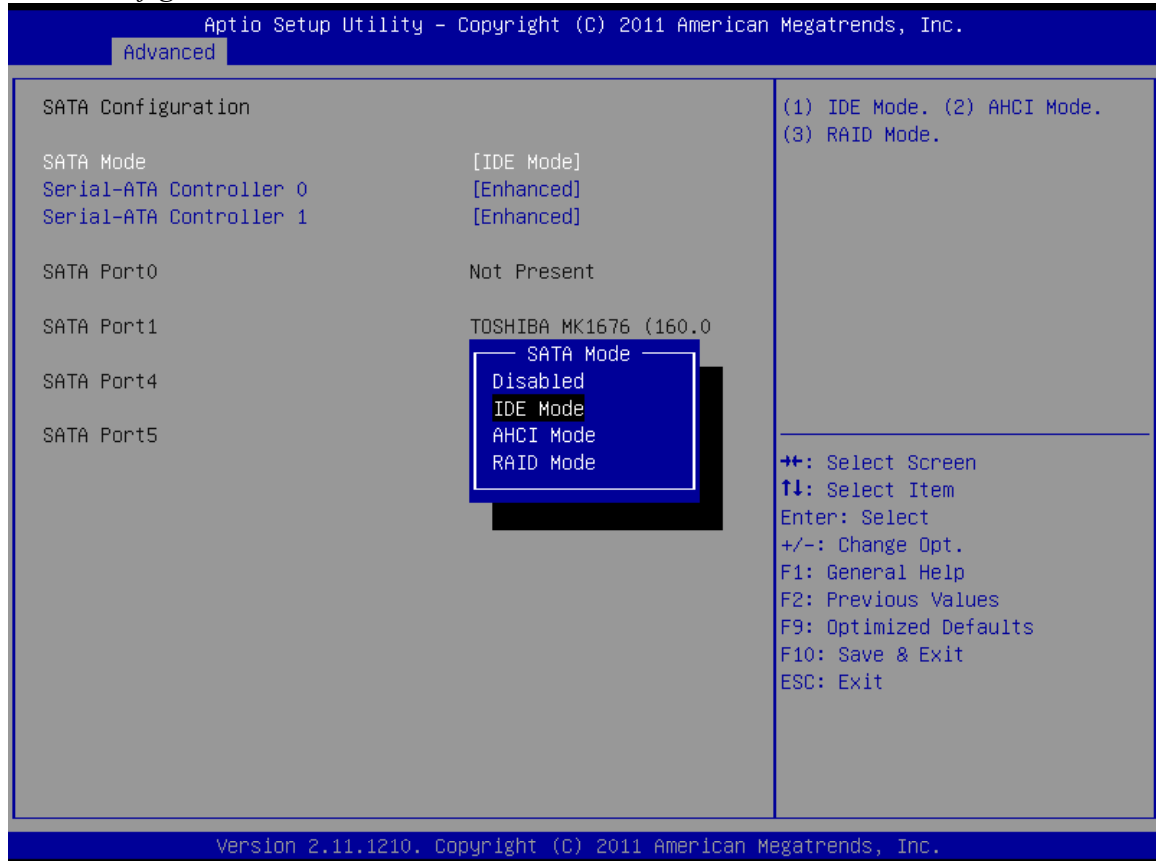
This setting enables the built- in PXE LAN remote boot rom. This allows the system to run as a diskless workstation, or to be able to download a drive image to a blank drive. When enabled, a message screen will appear and Shift-F10 can be typed to access the PXE ROM options. This option is located on the “Advanced” tab as shown above.

## SATA Configuration

In this screen the SATA hard drives can be set to work in one of three modes, SATA, RAID or AHCI.

When set to SATA, the SATA drive works the same as a normal IDE HDD. This is the IDE compatible mode and default BIOS setting. The other two selections are RAID and AHCI modes. Please see the separate section in the manual for RAID Setup for further information on using RAID and AHCI modes.

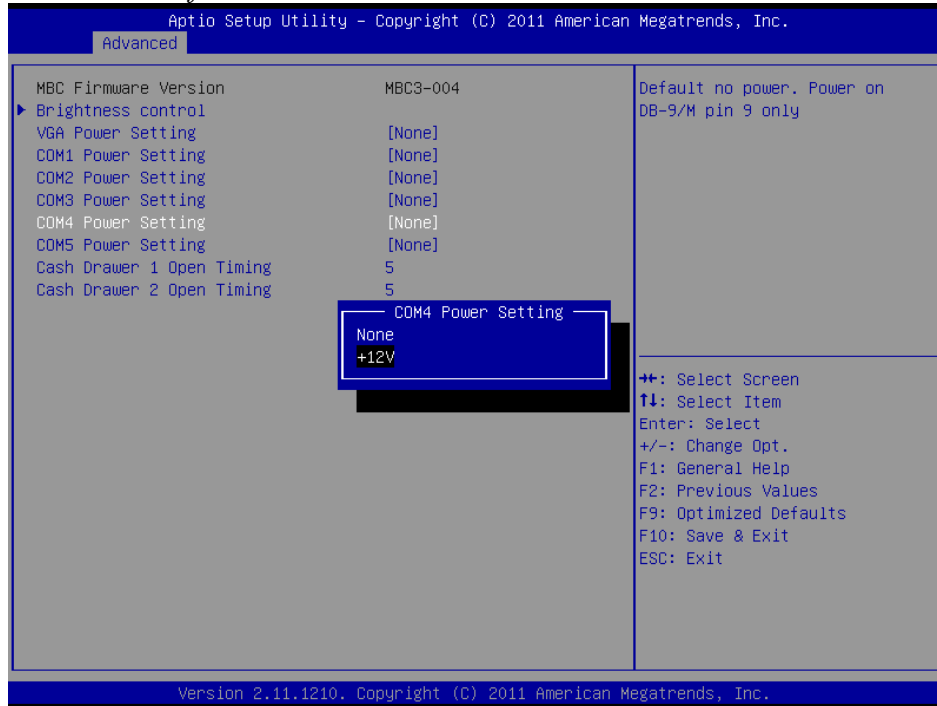
### SATA Configuration Screen



## Peripheral Power and LCD Brightness Configuration

This submenu allows for the enabling of power for the serial ports, default cash drawer pulse timing and default LCD brightness level and power for a J2 supplied VGA port monitor.

### *Power enable for serial Ports*



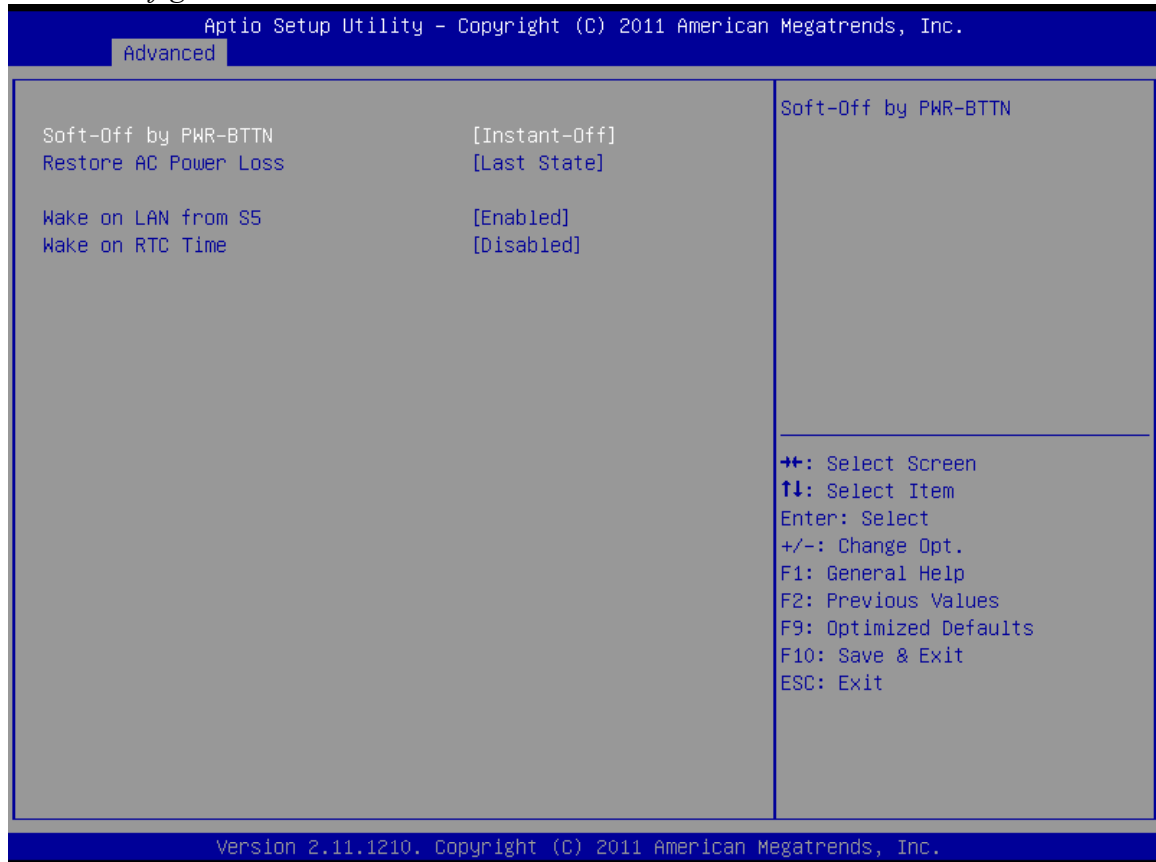
### *LCD Brightness Setting*





## Power Configure Screen

### Power Configure Screen



### Restore on AC Power Loss

The 680 has three options should AC power become lost and then restored. There is Power Off (stay turned off), Power On (turn on when AC restored), or Last State. The Last State setting will cause the unit to turn on if it was on when AC power was lost or it will stay off if the unit was off when AC power was lost.

### Wake on LAN

Wake on LAN is enabled by default but can be disabled in this screen.

### RTC Configuration

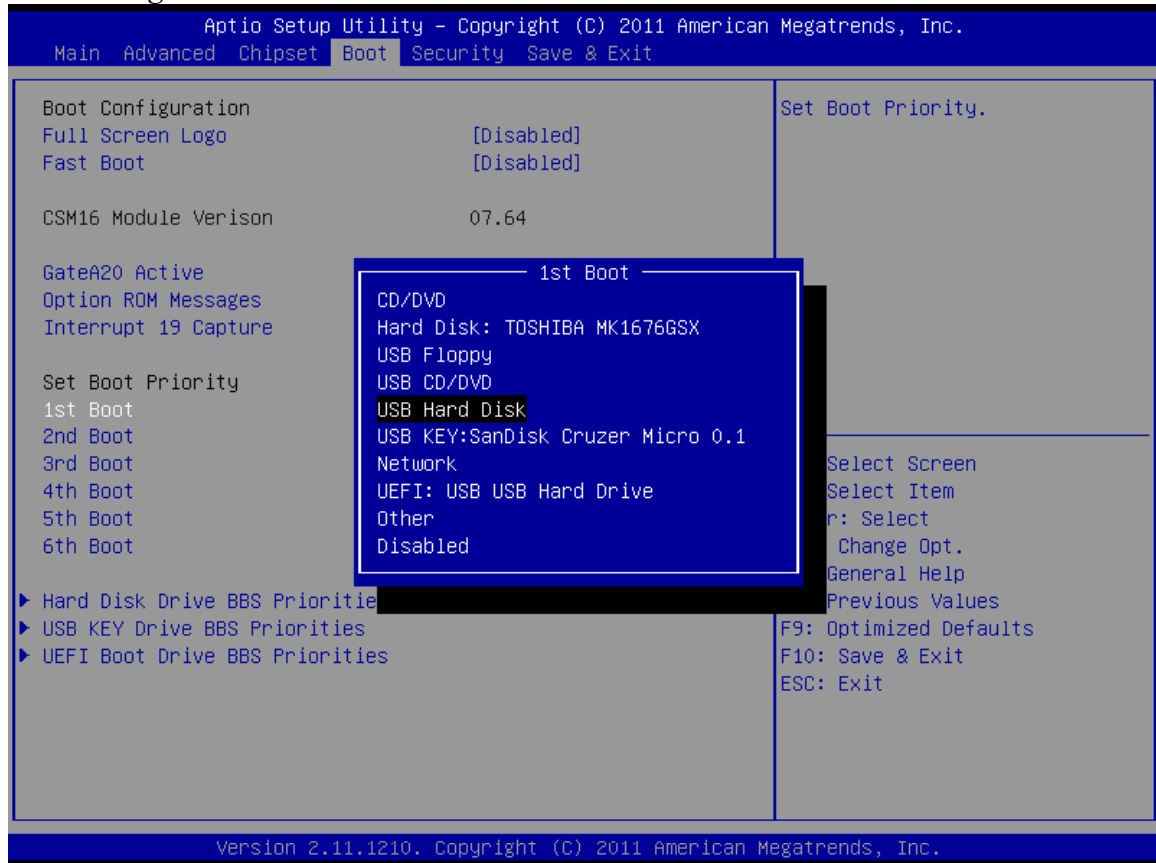
The RTC has an alarm function that can be used to turn the 680 on at a preset time of day. This function is enabled by this setting. The wake up time can also be set here.

J2 also has available a utility to set the wake-up time from Windows. This is more versatile than the BIOS setting as it allows for more than one time of day to be set as well as days of the week to turn on.

## Boot Settings

If more than one bootable device is in the system the boot order can be set in this menu. If a bootable USB storage device is plugged in at boot up the 680 will boot from that device by default. If this is not desired the boot order can be changed here. A list of detected drives will be displayed with the current boot order.

### Boot Settings Screen



## Display OEM Logo

The BIOS can display two types of OEM logos on boot up. The default is a small J2 logo in the upper left hand corner. With this setting BIOS POST test messages can be seen during boot up. The second type which is enabled by this entry is a full screen J2 logo. When this logo is selected the BIOS POST messages cannot be seen. The BIOS setup can still be entered by typing the DEL key a few seconds after the logo appears.

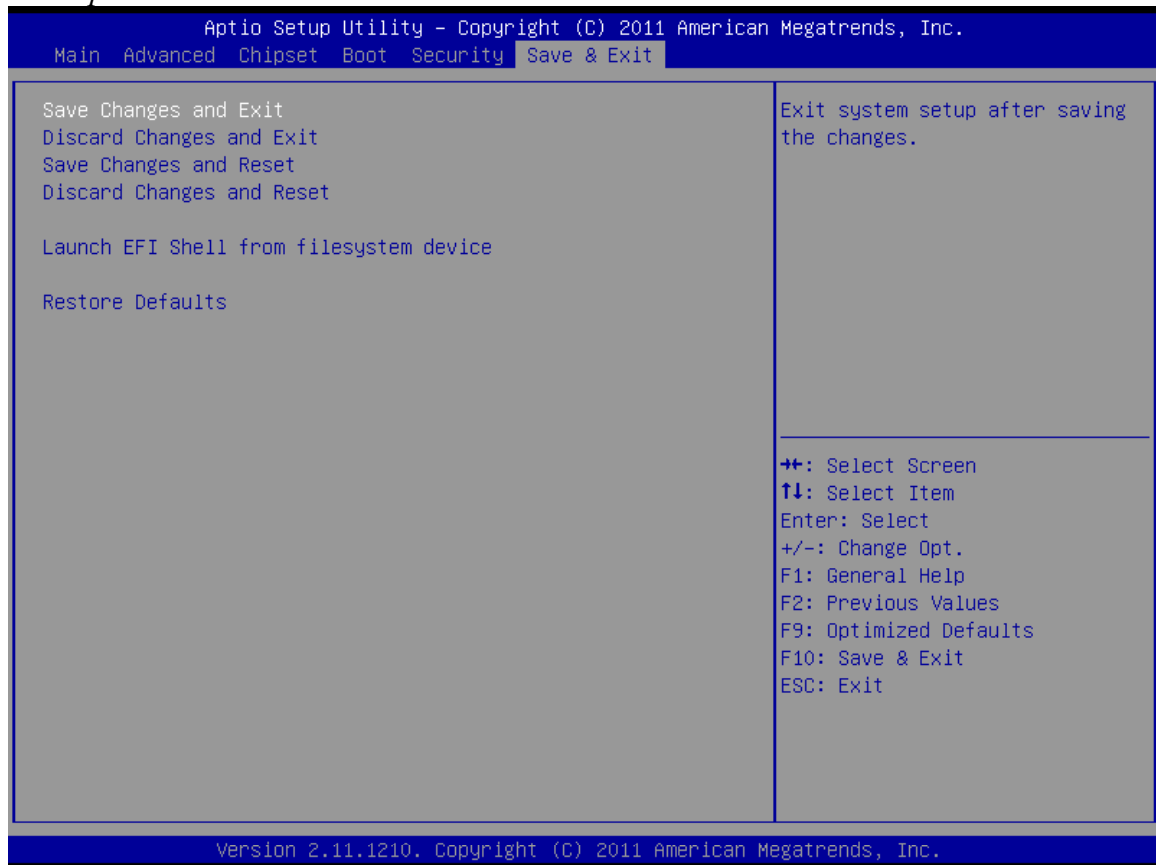
Customer logos can replace the J2 logos when required. Please contact J2 regarding this, if required.

## Exit Options

After making any changes to the BIOS settings, the changes can be saved from this screen. Any changes can be discarded as well or the factory BIOS defaults can be loaded. Typing the F9 key at any time will load the “Optimized Values” which resets all BIOS setting to the factory defaults.

It should be noted that to save changes to the BIOS setup the F10 key can be typed from any screen to save the BIOS changes. It is not necessary to exit setup from this screen. To discard any BIOS setup changes you can type the ESC key from any screen to exit.

### *Exit Options Screen*



## Driver Installation, Windows

### Chipset Driver Installation

The chipset driver is needed to get the full potential from the 680 chipset. It should be loaded before other drivers and first thing after booting. The drivers can be downloaded from the J2 web site:

<http://www.j2retailsystems.com/support/680/Chipset/>.

After extracting the drivers to a temporary folder, run **Setup**.

Just answer Next or Yes to all the screen prompts and the drivers will install.



### Graphics Driver Installation

You can download the 680 graphics driver from the J2 web site at:

<http://www.j2retailsystems.com/support/680/Graphics/>.

This is an .exe file so just run it and answer Next or Yes to all screen prompts and the drivers will install. The last screen will ask if you want to reboot, answer Yes.



## Audio Driver Installation

The Audio Drivers can be downloaded from the J2 web site at:  
<http://www.j2retailsystems.com/support/680/Audio/>.

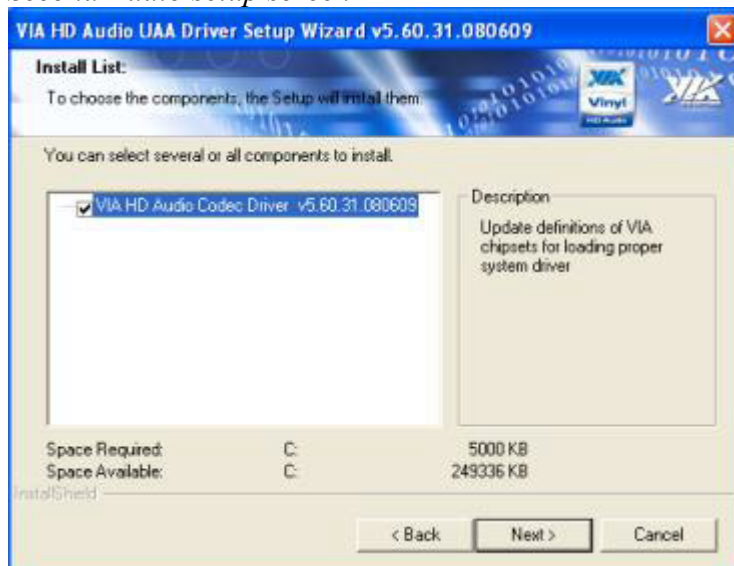
After extracting the driver to a temporary folder, run **Setup**, and then follow the instructions below:

### *First Audio setup screen*



Just click on Next to install the Audio driver.

### *Second Audio setup screen*



Check the Codec Driver box, and then click Next. Answer Next to any more dialog boxes, then Finish. The system will need to be rebooted before the audio drivers take effect.

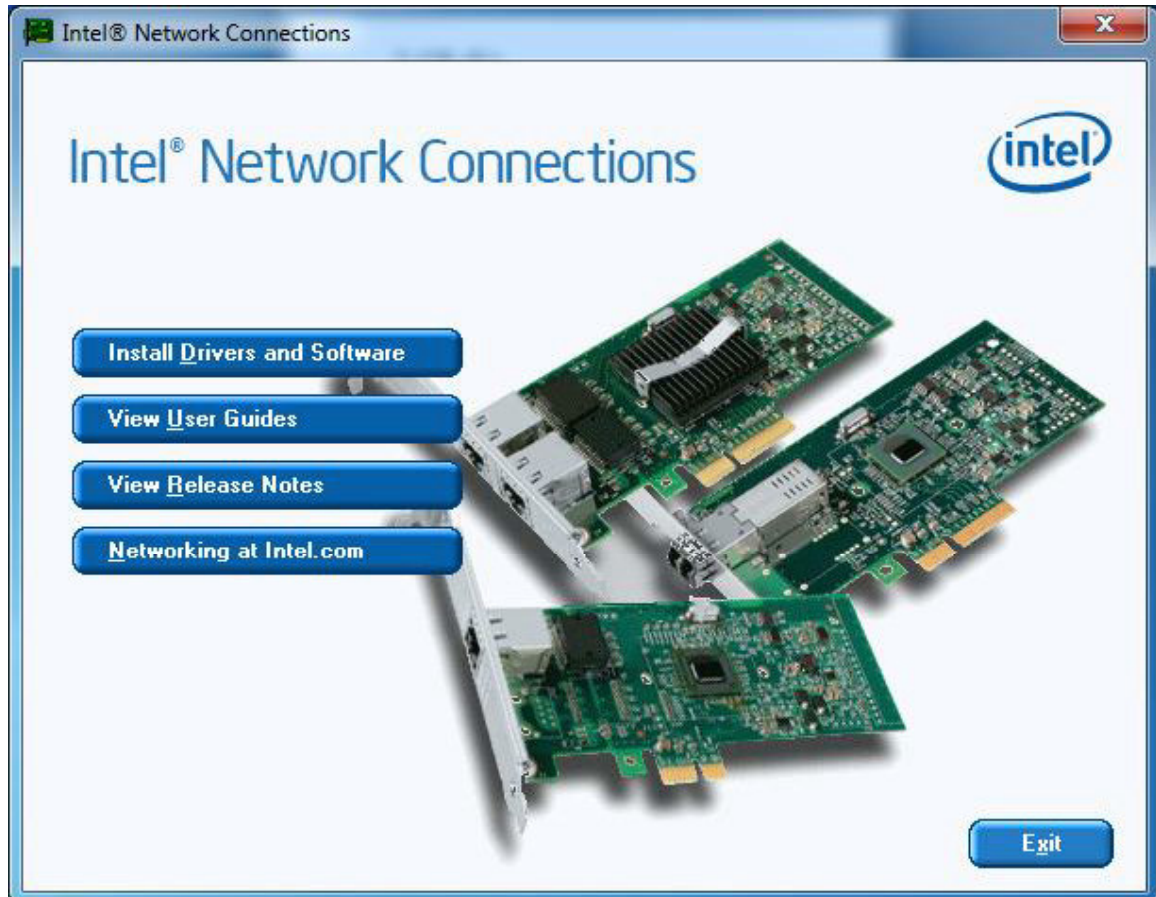
## LAN Driver Installation

The LAN drivers can be downloaded from the J2 web site:

<http://www.j2retailsystems.com/support/680/LAN/>.

After extracting the driver to a temporary folder, run **Setup**. Just answer Next or Yes to all the screen prompts and the driver will install.

*LAN driver install screen*





## Resistive Touch Screen Driver Installation

The Touch Drivers can be downloaded from the J2 web site at:  
<http://www.j2retailsystems.com/support/680/Touch/>.

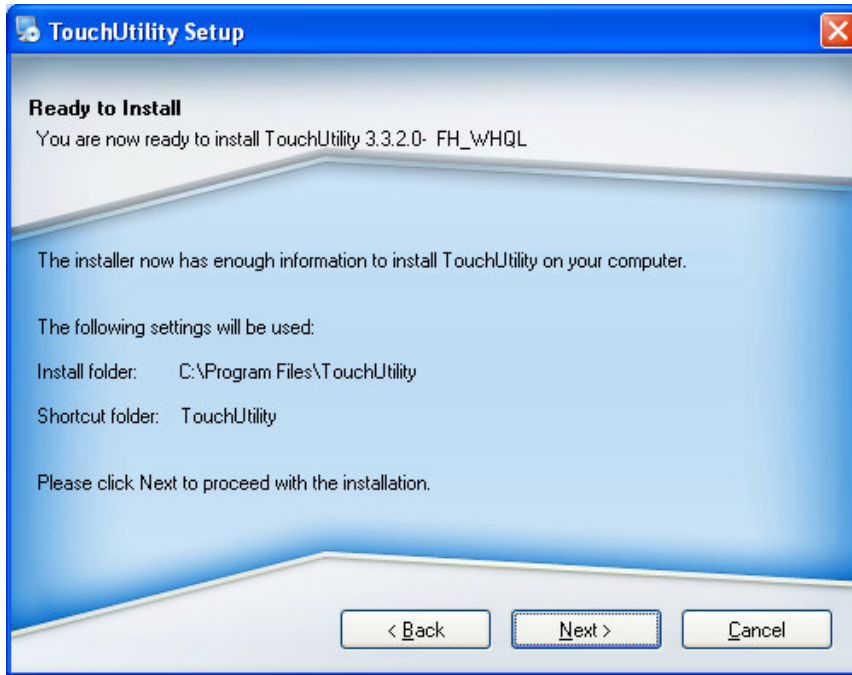
When run, the driver will display a welcome screen, at this point just press next for the next few screens.



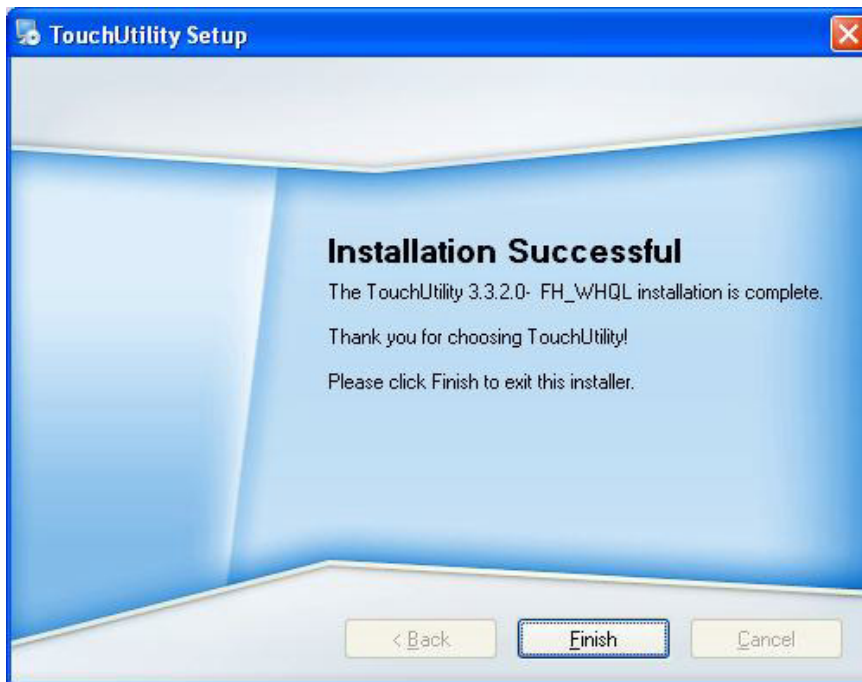
When you get to this screen check both RS232 and USB options and click next.



Just click till this screen and then click next and the driver will finish installing.



Click finish at the screen. The driver will then detect the port the touch screen is on (normally COM6) then ask you to reboot the system.

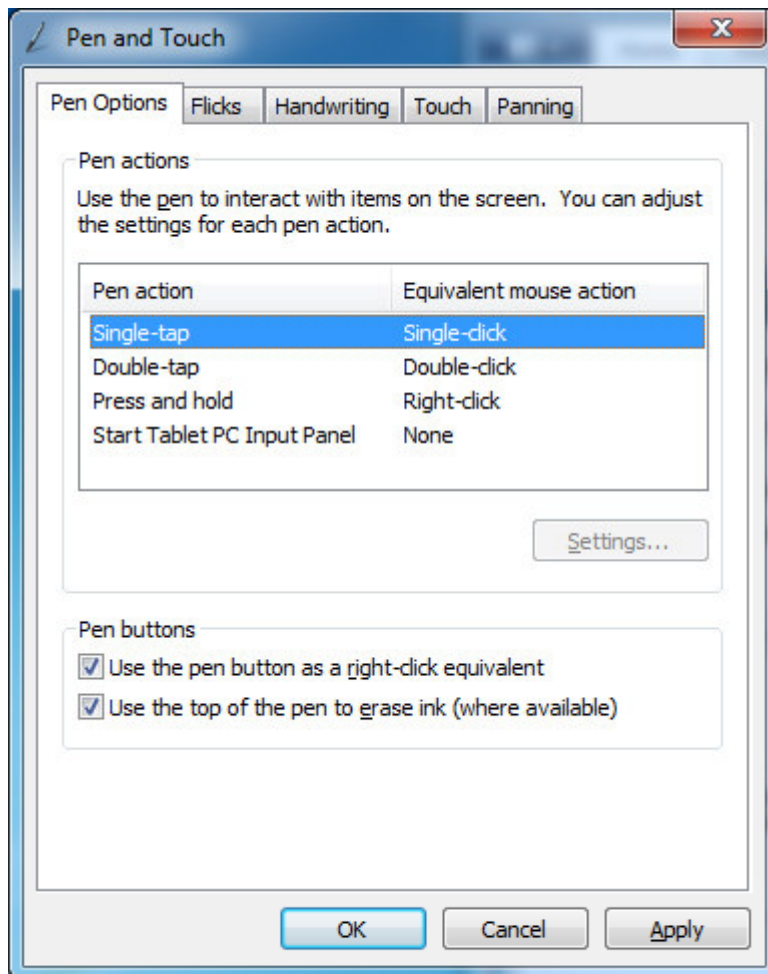


After rebooting the touch should be working. Calibration is not needed as this is done at the factory.

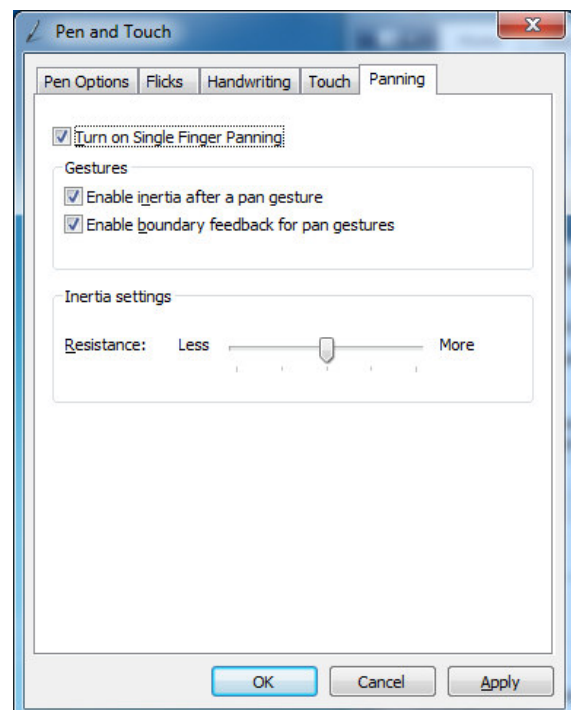
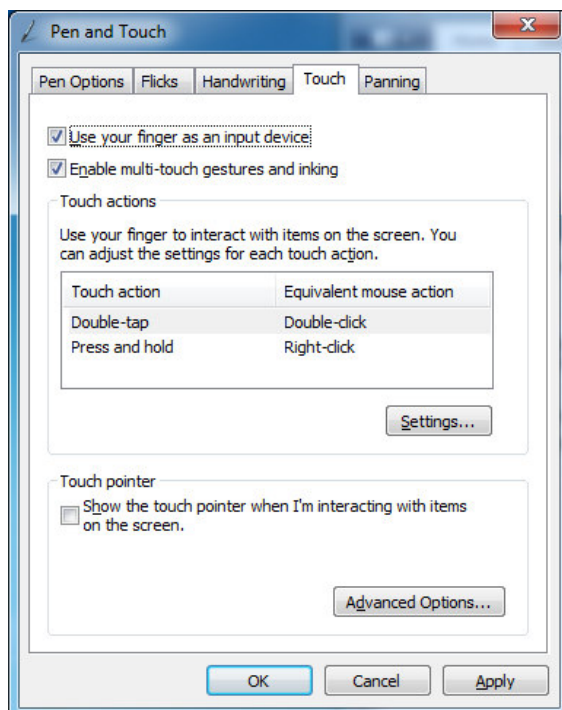
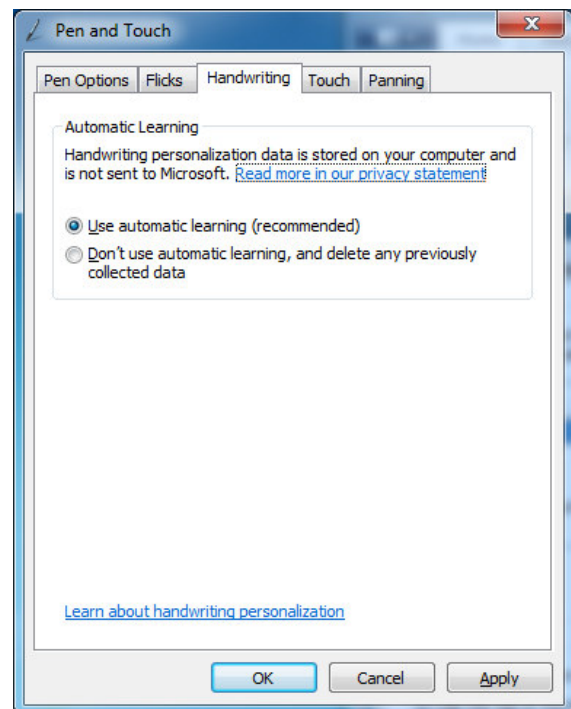
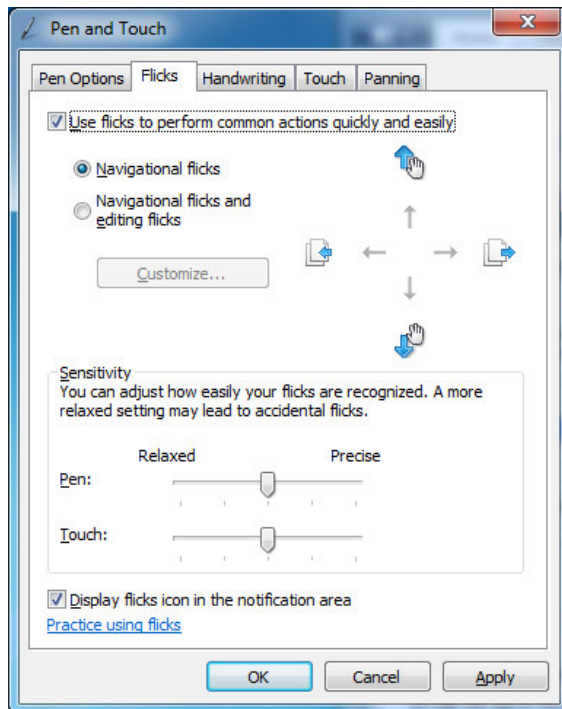
## Multi-Touch Projected Capacitive Touch Driver

No touch driver needs to be loaded for the PCT touch screen because it uses the Microsoft built in pen and touch driver, No calibration is needed for the projected capacitive touch screen. The driver options can be accessed via the Windows control panel. The built in Windows pen and touch driver is present in XP, Vista and all versions Windows 7.

The first page of options allows for the change how your finger or stylus interacts with the screen. The sensitivity and function of touch to the screen can be changed here.



The other four option tabs are shown below for reference. They are self-explanatory in most case and additional information can be obtained through the Windows help function.



## Optional Multi-Touch Projected Capacitive Touch Driver

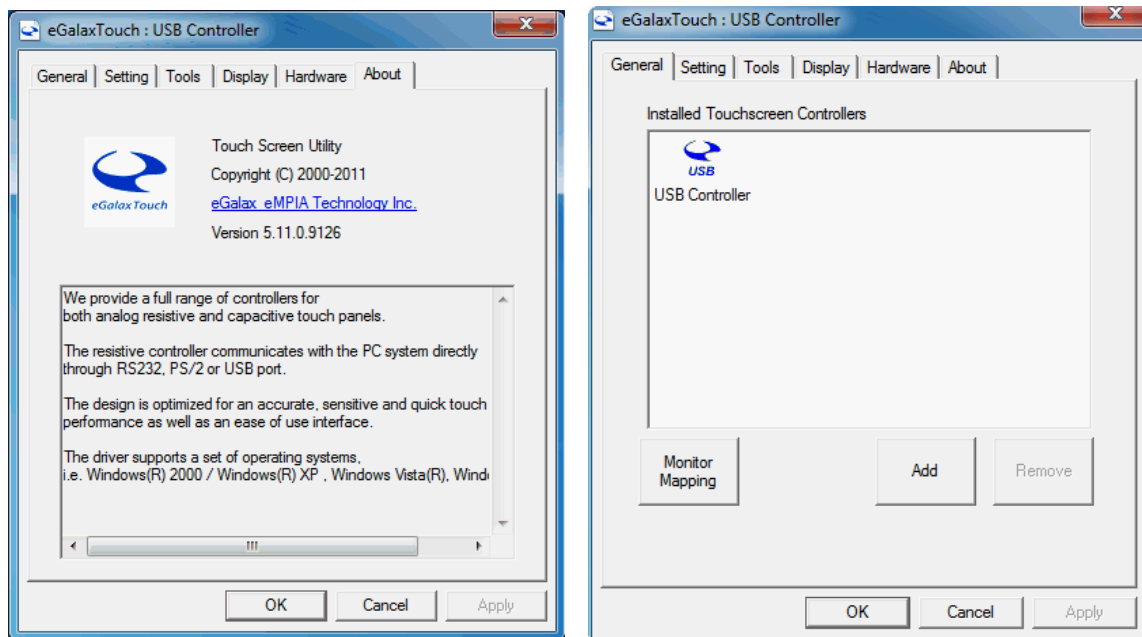
In addition to the Windows built in standard touch driver J2 also supplies and optional touch driver that is used when multi-monitor touch support is needed. This driver works with Windows XP and later version of Windows. The driver can be downloading from J2 web site.

To install just extract the zip file where you wish to run it from and run setup. When asked to install PS/2 or RS-232 driver answer no, the PCT controller is a USB device. When the install is complete it will ask if you wish to do a 4 point calibration, answer no to this as the PCT screen does not need calibration. The touch will now be working.

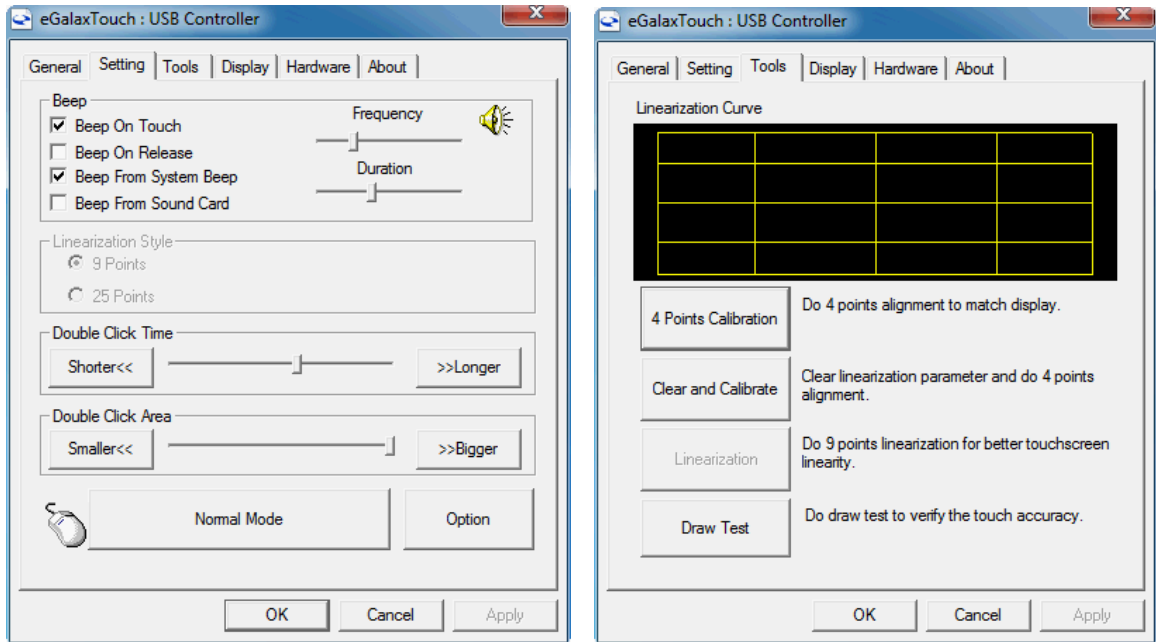
The PCT touch configuration utility can be found in programs under eGalax Touch, Configuration Utility. This program allows for the configuration of the touch screen option.

The “About” tab shows the current version of the touch screen plus has a link to the touch controller company’s web site where the latest version of the driver can be found. A copy of the current version can also be found on J2’s web page support page for the 680.

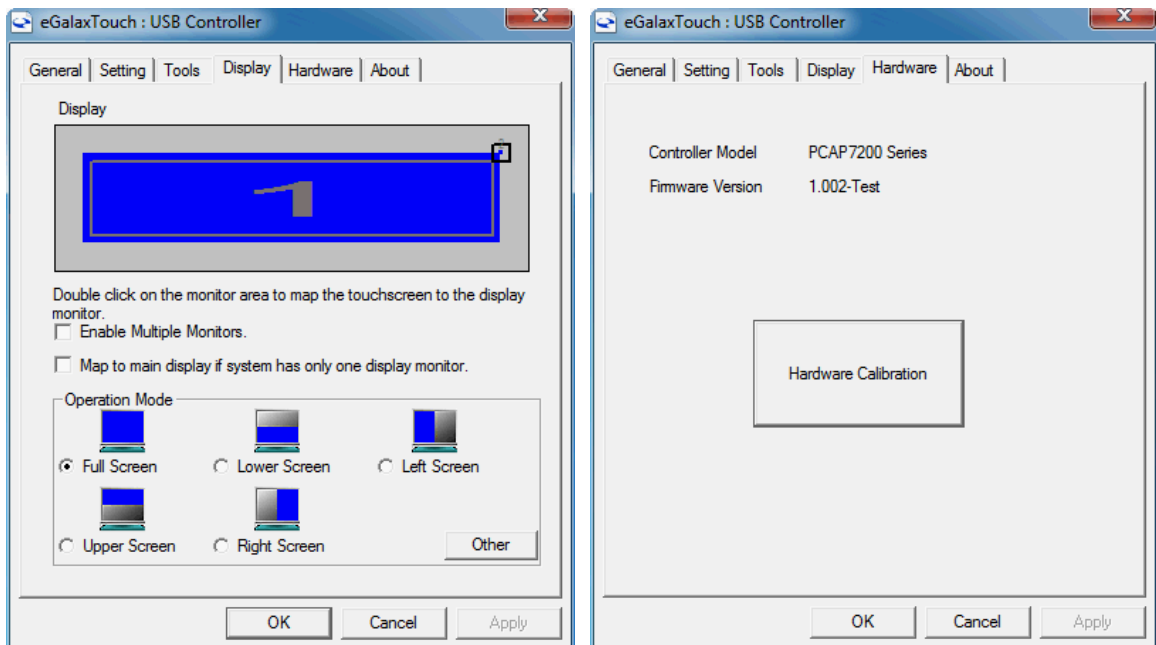
The “General” tab has the utility to set the monitor map when using multiple touch monitors.



The “Settings” tab controls the touch on beep, double click function and right mouse button emulation. The “Tools” tab allows for a calibration which is not normally needed for a PCT screen. A draw test is provided to verify the operation and calibration of the touch screen.



The “Display” tab controls how multiple touch monitors are used if required. The Hardware tab display the current controller firmware version and a “Hardware Calibration” function that will reset the screen calibration back to factory values.





## **OPOS drivers**

The OPOS driver for the 680 supports the Cash Drawer ports, the optional MSR, the optional 2x20 character Customer Display, and the optional iButton reader.

The OPOS driver may be downloaded from the J2 web site at:

<http://www.j2retailsystems.com/support/680/>.

Just run the OPOS setup.exe file to install.

## J2 Health

J2 has a standard program that works with all its POS products, called J2 Health. This program is used in either a standalone mode or in conjunction with J2 remote monitor/asset tracking software. The J2 Health program monitors different aspects of the POS hardware to ensure the hardware is running within specification. For the J2 680 it monitors critical system voltages, as well as system and CPU temperatures.

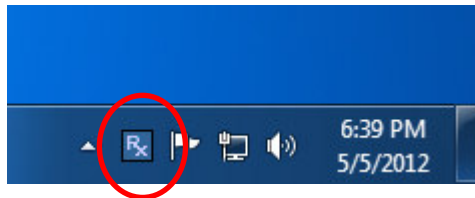
### Installation

The utility can be downloaded from the J2 web site:

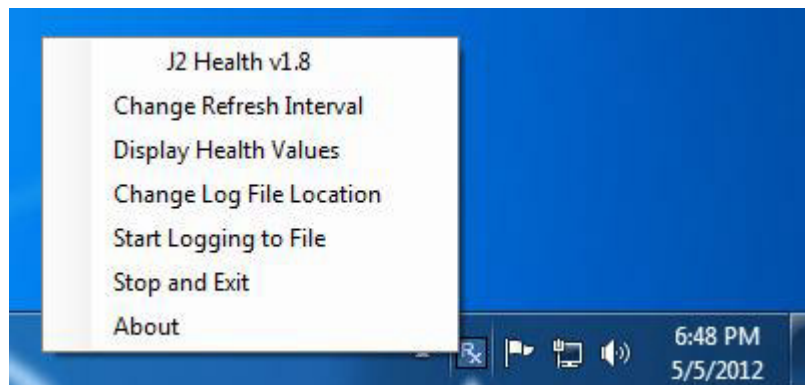
<http://support.j2rs.com/Utilities/Health/> To install just unzip anywhere and run setup. Like other J2 utilities it can be uninstalled through the Windows control panel.

### Tray Icon

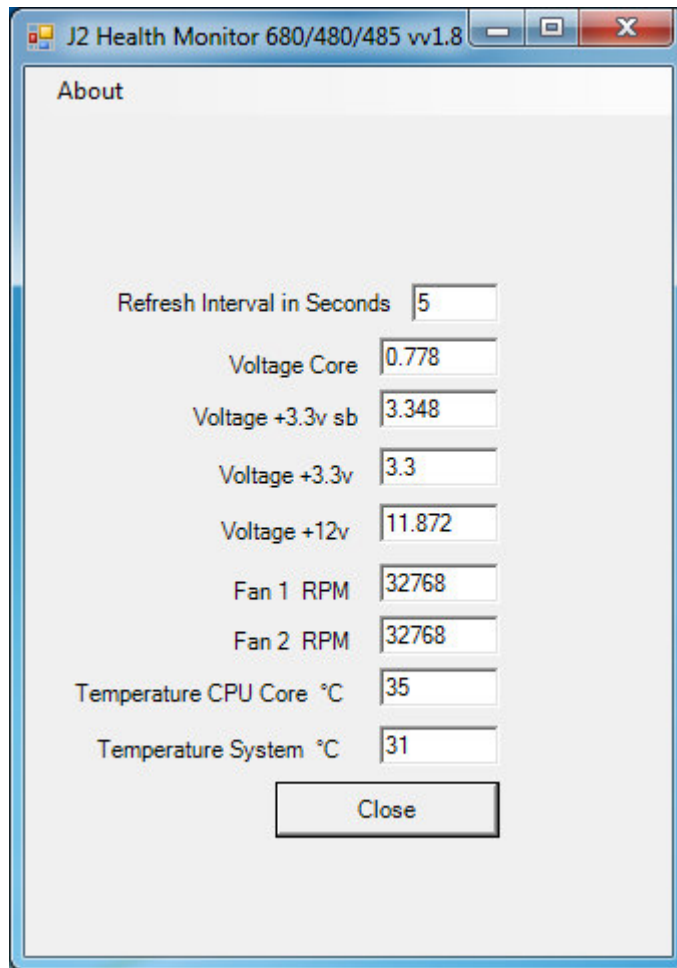
Once installed and the system has rebooted, J2 Health will be running in the background. The J2 health icon will appear in the task bar tray:



Right-clicking on this icon displays different Health options, *shown below*:



The current health values will display by clicking on “Display Health Values”. *A sample screen is shown below*:



As can be seen above, when running on the J2 680 the J2 Health program displays critical system voltages and system and CPU Core temperatures. For other J2 POS systems, J2 Health may display more or less information. An example would be the J2 680 unit, which in addition to the above information would also display the fan speed of the two J2 680 fans.

### Logging to File

The J2 Health program can log the health data to a file in the csv text format for importing to other programs, like Excel. This can be handy for finding “time of day” related problems.

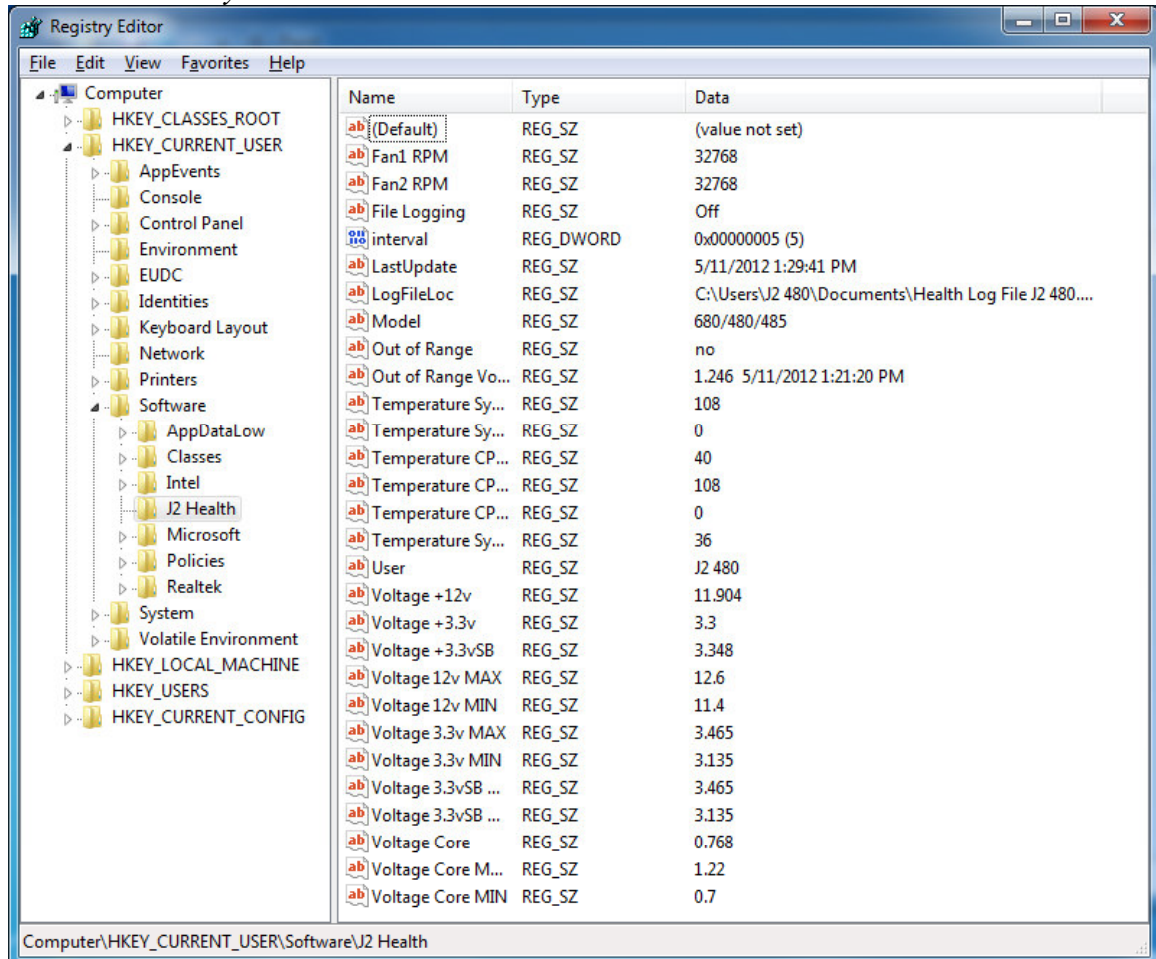
When logging is enabled, the tray icon Rx symbol will change to red to indicate logging in is taking place.



## Registry Entries

The J2 Health program creates registry entries for the different health values. Dynamic values are updated at the user defined interval, which is by default 5 seconds. Other software may use these registry entries to access the J2 health information.

*J2 680 Health keys are shown below:*



## J2 Remote Monitoring Software

J2 now offers a full remote monitoring and asset tracking solution that works in conjunction with J2 Health to ensure the highest uptime possible of your POS hardware. Please contact J2 sales for more information on this fully customizable, remote monitor solution.

For more information, please visit us at

[http://www.j2retailsystems.com/newsarticle.php?news\\_id=57](http://www.j2retailsystems.com/newsarticle.php?news_id=57)

## SMI BIOS Info Utility

The J2 SMI BIOS Info program allows for the reading of all populated BIOS DMI/SMI information. With some J2 products including the J2 680, this information also includes dynamic system health information. Normally this dynamic DMI health information BIOS is only supported on very high end servers. Now J2 brings this feature to POS hardware.

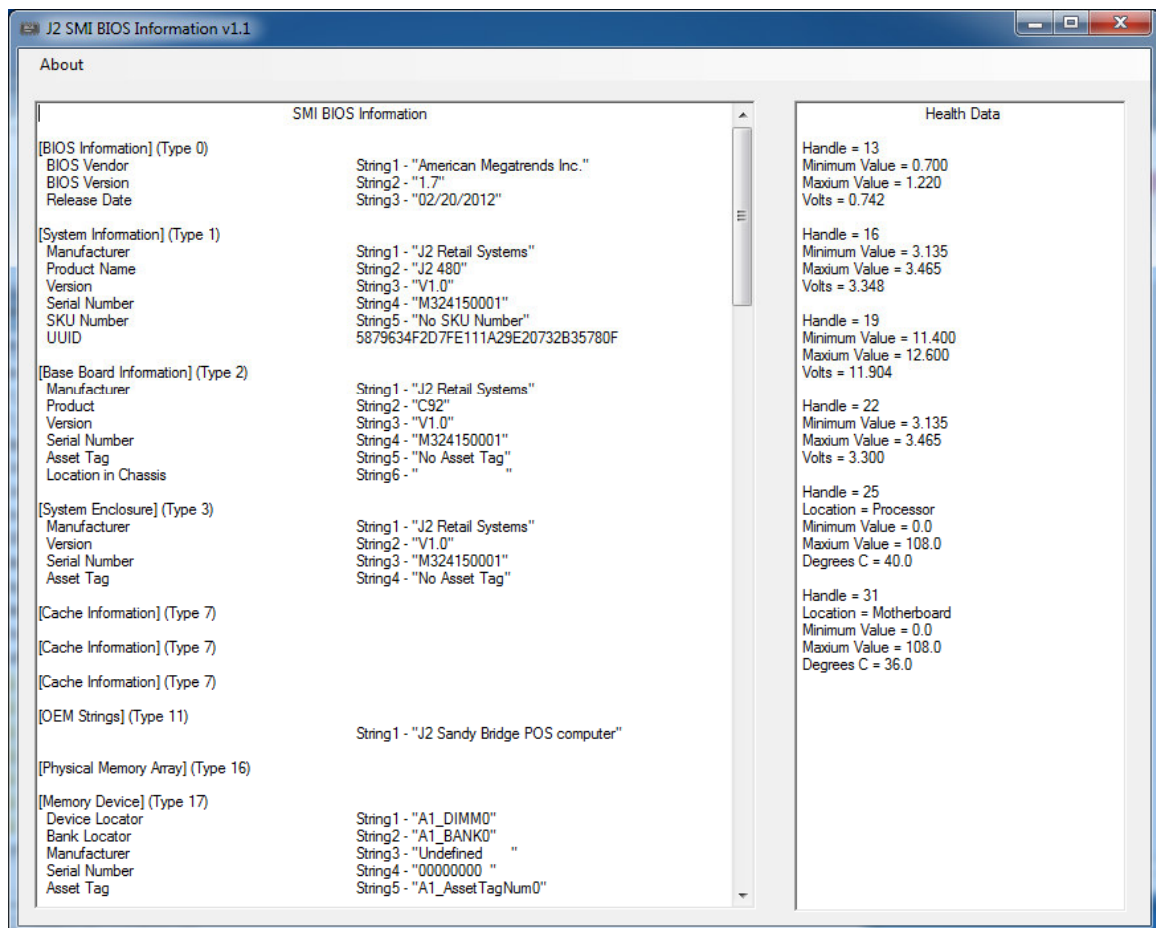
The J2 SMI BIOS Info program will run on any J2 POS hardware or for that fact on any PC hardware. It can display all DMI/SMI information on a formatted form.

### Installation

The utility can be downloaded from the J2 web site: <http://support.j2rs.com/Utilities/>  
To install just unzip anywhere and run as you wish to run the utility form.

### Operations

Just click on the .exe file to run. The following screen will be displayed (*see below*). Note that the health data will only display on newer J2 systems that support the dynamic DMI health BIOS.



## Cash Drawer Test Utility

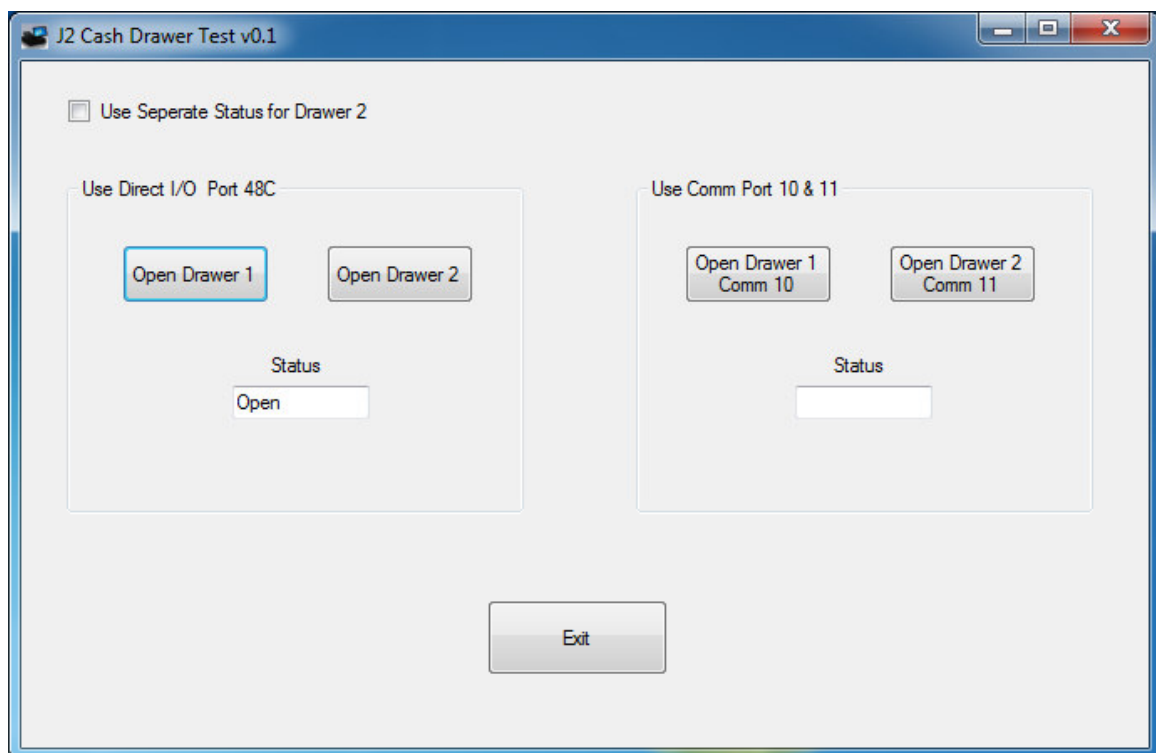
J2 has a generic cash drawer test utility that works on all J2 products, including the new J2 680 computer.

### Installation

The utility can be downloaded from the J2 web site: <http://support.j2rs.com/Utilities/>  
To install just unzip anywhere and run as you wish to download the utility form.

### Operation

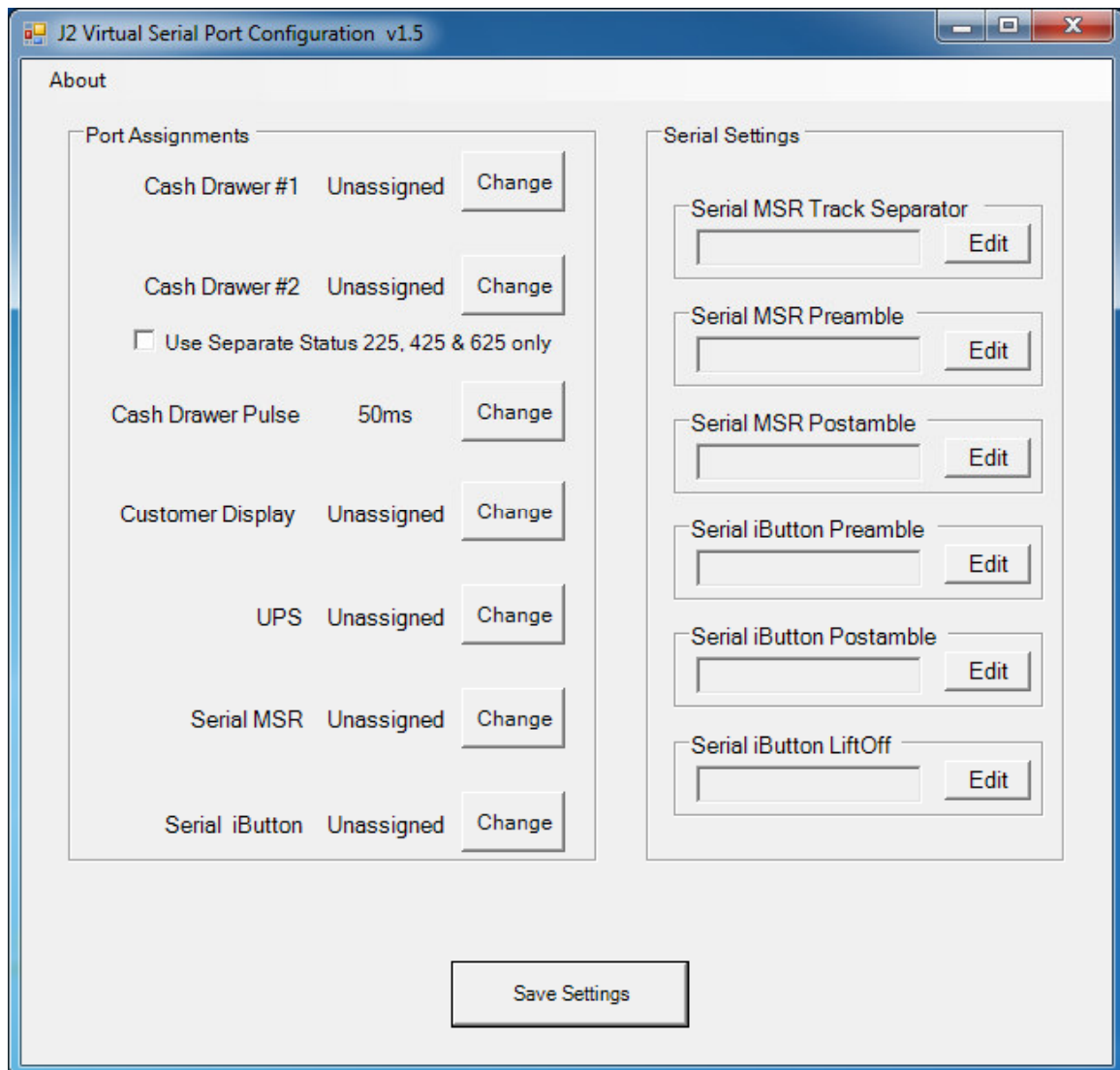
Just run the cash drawer test from whatever folder it was installed into. Use the “Use Direct I/O Port 48c” setting to test the cash drawer(s). (*see example below*)



The “Use Comm Port 10 & 11” option is to test the cash drawer you set up using the J2 virtual serial ports program. The virtual serial port program must be installed with the cash drawer virtual serial ports set to Comm 10 & 11.



## J2 Virtual Serial Ports Drivers



Virtual serial ports can be used for the cash drawers, virtual 2x20 line display on the optional 10.1 LCD, Smart UPS, MSR and iButton.

To open virtual serial cash drawer send a bell character to the Com port it is assigned too. (The bell character is the ASCII 07 hex character “Control G.”) The open/close status of the drawer may be obtained by reading the status bits of its COM port. The drawer open/close status will be reflected on the CTS and RI bits, either bit may be used. This virtual COM port driver is designed to work the same as a hardware serial cash drawer and will work with drivers for serial cash drawers.

# RAID

## RAID Overview

The 680 uses the Intel Matrix Storage Technology to allow the two internal 2.5 inch hard drives to be configured as a RAID array. The 680 supports RAID 0, RAID 1 and Intel Matrix RAID which combines the benefits of two RAID volumes in a single RAID array.

If you are not currently familiar with RAID arrays Intel has a good white paper on the subject at: <http://www.intel.com/design/chipsets/applnots/310855.htm>

There are a number of benefits to using the RAID feature.

**Protection** is one benefit. When using a RAID 1 array, data is protected by mirroring. The primary RAID volume is duplicated automatically on the second drive, a mirror image of the first. If one of the two hard drives fails the system will still keep working. The bad hard drive can be replaced while the system is running. This is called hot swapping or hot plug. The new drive will automatically be updated to a mirror image of the working drive.

**Performance** is another feature RAID can provide. When configured as a RAID 0 array the two drives in the RAID array are striped. With striping, data is split between two drives. This allows the 680 to read the data more than twice as fast as with a single drive. The performance can be more than twice as fast because the Intel RAID driver also uses the AHCI NCQ function built into the SATA drives.

**Protection and Performance** can be mixed using an Intel Matrix RAID configuration, whereby a RAID 1 and RAID 0 can be setup on the same RAID array. Mission critical data can be stored in the RAID 1 volume and data requiring performance can be stored on the RAID 0 volume.

## AHCI

AHCI stands for Advanced Host Controller Interface and is a feature of the SATA interface that allows for Hot Swapping and Native Command Queuing (NCQ). NCQ allows multiple commands to be sent to the hard drive at one time. The drive decides the best way to order the commands for the best performance from the drive. AHCI is enabled when RAID mode is selected in the BIOS setup.

To use AHCI drivers from Intel the BIOS must be set to RAID, *not AHCI*. The AHCI mode uses the same drivers as used for RAID. Follow the instruction for install the RAID drivers but set the HDD as a *Non-RAID Disk* in the RAID BIOS setup.

## Enabling RAID in the BIOS

The Intel manual for the Intel Matrix Storage Manager covers this same information given below in more detail and can be downloaded from the J2 web site. The documentation below is tailored for the 680 only.

Link: <http://www.j2retailsystems.com/support/680/RAID/>

Perform the following steps to enable the RAID option in the system BIOS:

1. Enter the BIOS Setup program by pressing the **DEL** key after the BIOS sign-on screen appears.
2. Select the **Advanced** menu, and then the **SATA Configuration** menu.
3. Switch the **Configure SATA Ports** option from SATA to **RAID**.
4. Press the **F10** key to save the BIOS settings and exit the BIOS Setup program.

## RAID Volume Creation

Perform the following steps to create a RAID volume:

1. When the Intel Matrix Storage Manager option ROM status screen appears during POST, press the **Ctrl** and **i** keys at the same time to enter the Intel Matrix Storage Manager option ROM user interface.
2. Select **Option 1: Create RAID Volume** and press the **Enter** key.
3. Use the up or down arrow keys to select the RAID level and press the **Enter** key.
4. Unless you have selected RAID 1, use the up or down arrow keys to select the stripe size and press the **Enter** key.
5. Press the **Enter** key to select the physical disks.
6. Select the appropriate number of hard drives by using the up or down arrow keys to scroll through the list of hard drives and pressing the **Space** key to select the drive. When finished, press the **Enter** key.
7. Select the volume size and press the **Enter** key.
8. Press the **Enter** key to create the volume. At the prompt, press the **Y** key to confirm volume creation.
9. Select **Option 4: Exit** and press the **Enter** key. Press the **Y** key to confirm exit.

## F6 Installation Method

**Note:** For this step you will need both a USB CD ROM and USB Floppy.

Drivers can be downloaded here: <http://www.j2retailsystems.com/support/680/RAID/>

*(continued on next page)*

Perform the following steps to install the Intel Matrix Storage Manager driver during operating system setup:

1. Press the **F6** key when prompted in the status line with the *Press F6 if you need to install a third party SCSI or RAID driver* message. This message appears at the beginning of Windows XP setup (during text-mode phase).  
**Note:** Nothing will happen immediately after pressing F6. Setup will temporarily continue loading drivers. You will then be prompted with a screen asking you to load support for mass storage device(s).
2. Press the **S** key to **Specify Additional Device**.
3. You will be prompted to *Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:* When prompted, insert the floppy disk containing the following files: IAAHCI.INF, IAAHCI.CAT, IASTOR.INF, IASTOR.CAT, IASTOR.SYS, and TXTSETUP.OEM and press the **Enter** key.
4. After pressing Enter, you should be presented with a list of available SCSI Adapters. Select your controller from the list. The 680 uses the ICH8R driver.
5. The next screen should confirm your selected controller. Press the **Enter** key again to continue.
6. At this point, you have successfully F6'd in the Intel Matrix Storage Manager driver and Windows setup should continue. Leave the floppy disk in the floppy drive until the system reboots. Windows setup will need to copy the files from the floppy again to the Windows installation folders. Once Windows setup has copied these files again, you should then remove the floppy diskette so that Windows setup can reboot as needed.
7. During Windows setup, create a partition and file system on the RAID volume as you would on any physical disk.

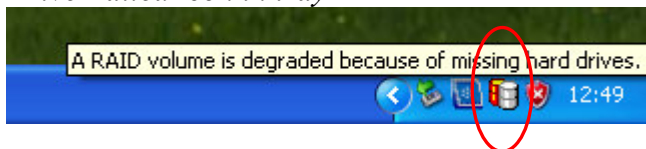
## Installing the Intel Matrix Storage Manager Software

Once XP is booted you can install the Intel Matrix Storage Manager by just running the [iata82\\_enu.exe](#) install program. Just answer "Next" to all questions and the software will install. The software should now be working. Please refer to Intel's documentation for more information at [manual70.pdf](#).

## Hot Swapping RAID 1 drives

If a RAID 1 drive fails the Matrix Storage Manager will warn the user that a drive has failed. A small Icon appears as shown to indicate a drive has failed.

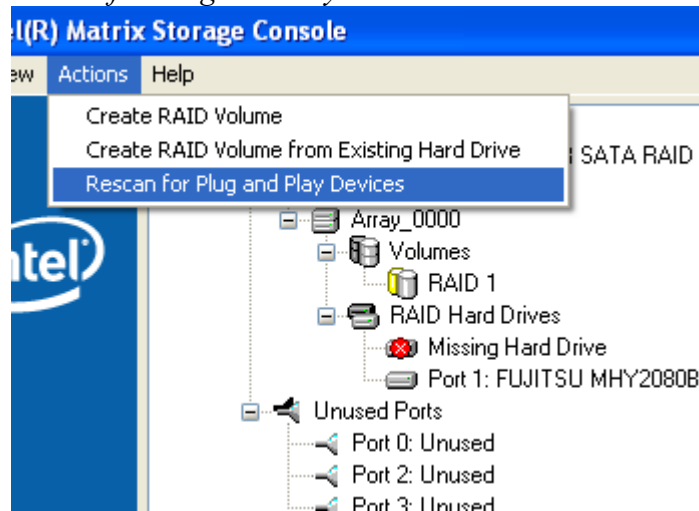
*Drive Failed Icon in tray*



If a hot spare is available, all that needs to be done is to swap the bad drive with the hot spare. Be sure to change the correct drive. SATA Ports 0 corresponds to the HDD 0, the top drive in the HDD bay and SATA Ports 1 corresponds to the HDD 1, the bottom drive in the HDD bay.

Power to the system does not need to be turned off, and the system will still operate. First remove the bad drive. After removing the bad drive insert the hot spare into the 680. In the Intel Matrix Storage Manager select Advance Mode, and under the Action tab select “Rescan for Plug and Play Devices”.

*Rescan for Plug and Play Devices screen shot*



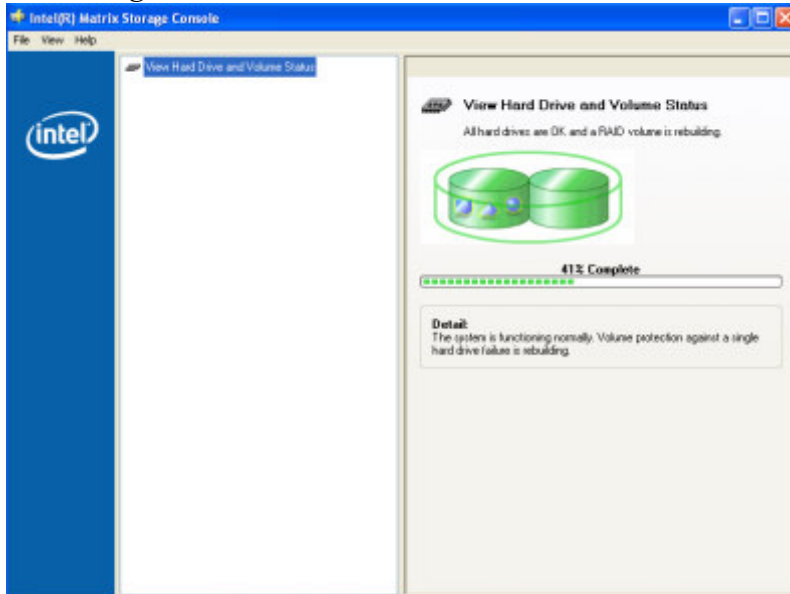
This will cause the drive to be detected by the driver.

*Drive detected*

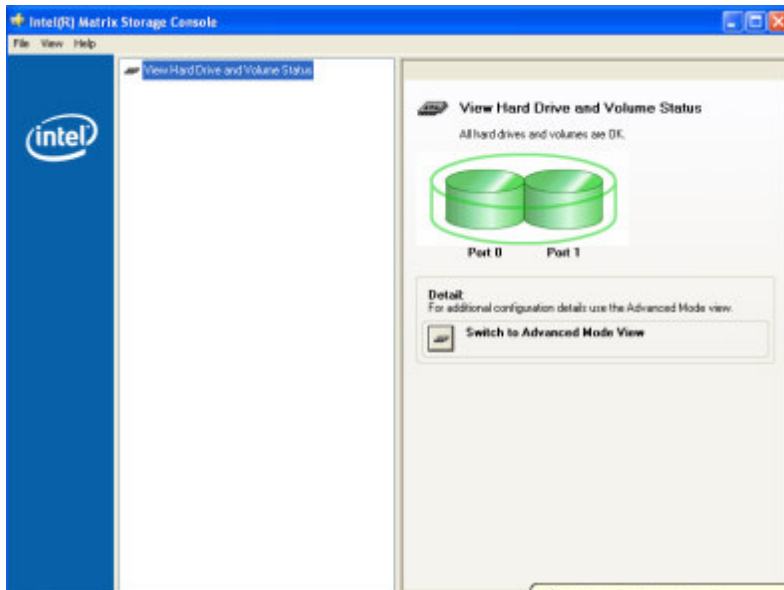


The RAID will now rebuild an image of the good drive to the hot spare.

### Rebuilding



### Rebuilt



The RAID has now mirrored the drive and the system is now protected for a drive failure.

**Note:** Please refer to J2's "Using RAID in a Point of Sale Environment" white paper for more information on using the 680 RAID function. (Available September 2008)



## Packing List

In addition to the foam packing inserts, the following contents should be found in the 680 shipping carton.

### Standard Items

1: System with Power Supply and AC cord



2: Cable Well Cover



3: Printer Power Port Cable



4: COM Port Colored Coded Cable Labels



## 680 Optional Peripherals

### MSR

#### Overview

The 680 can be ordered with a 3 track MSR. This MSR is the same as used on the J2 580/615/625/630 POS systems. The MSR mounts on the right side of the 680 and uses a front facing MSR slot. This allows the 680 unit to be placed side by side, or in tight spaces, and still be able to swipe the card. The MSR appears to the software as a wedge type MSR with all data from the MSR being sent to the keyboard port. The MSR configuration utility can be down loaded from J2 web site.

*680 with front swipe MSR*



## Installing the 680 MSR

The 680 MSR is installed by first removing the two rubber plugs for the option attachment point as shown below.

### *Remove Rubber plugs*



Then remove the MSR cover plate on the right back side of the unit by removing the two screws, as shown.

### *Remove MSR cover plate*



Connect the cable together as shown add secure the static ground wire with screw provided as shown.

*Attach cables*



Attach the MSR using the two screws at the locations shown below.

*Mounting MSR*



You may now power up the 680 and the MSR should be working. For a quick test you can open *Notepad* and swipe a card, the information should appear in *Notepad*. You can now run the J2 MSR utility if you need any custom settings for the MSR.

## Customer Display

### Overview

A 2 line by 20 character VFD customer side display is available optional for the J2 680. This customer display is the same as used on the J2 580/615/625/630 POS systems.



## Secondary Video Display

The J2 680 has the same options as available on the J2 580/615/625/630 POS systems. Secondary display of 10 inch, 12 inch 4:3 and 10.1 inch 16:9 displays are available.



## **Fingerprint Reader / MSR**

This option is the same as available on the J2 580/615/625/630 POS systems. This reader uses the Digital Personal module.



## **iButton / MSR**

This option is the same as available on the J2 580/615/625/630 POS systems.

## **680 UPS**

Available Q2 2012

## **RFID**

Available Q2 2012

## **Wall Mount Bracket**

This option is the same as available on the J2 580/615/625/630 POS systems. This bracket can be used when not using a VESA mount.

## **Pole Mount Options**

The J2 680 has the same options as available on the J2 580/615/625/630 POS systems.



## Contact Information

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#### **FCC Statement**

**This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.**

**This device complies with FCC radiation exposure limits set forth for an uncontrolled environment.**

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

- (1) this device may not cause harmful interference, and**
- (2) this device must accept any interference received, including interference that may cause undesired operation.**

#### **Caution!**

**Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**