

# Protégé Hardware Installation Manual



# Introduction:

Congratulations on your purchase of a Protégé touchscreen. This manual primarily covers the hardware features and network essentials of the Protégé screen. As you read through this manual you will learn:

1. Protégé assembly and installation
2. Hardware features
3. Connections and Wiring
4. Software options
5. FAQ Support



Main Unit



Bezel



Backbox

**NOTE:** The installation of Protégé should be performed by professional integrators. The following discussion offers guidance based on standard physical configurations.

## Assembly:

Protégé applies to most Protégé configurations with the following primary components:

- main unit – the electronics and display assembly
- snap-on front cover or bezel
- outer, rear metal housing, “Back-box” (mating screws to main unit provided)
- power supply, documentation CD, printed manual and collateral materials

Protégé is typically shipped with the Back-box and the Bezel detached from the Display Assembly. When the bezel is separated from the system, fragile elements such as the display, fine wiring cables, electronic circuitry may be exposed. Always exercise caution while supplying power and against damaging the exposed device elements when handling the Display Assembly.

The Back-box may be optional in some deployments, but may be relevant for certain installations to provide an added barrier for environmental shielding and limiting access to input/output connections. **It is strongly advised that the Back-box implementation be considered as the preferred approach. Borg will not warrant INSTALLATIONS WITHOUT THE BACK-BOX.**

### Back box Installation:

PRE-DRYWALL - Unit should be affixed to the stud inset / flush to the stud where drywall will cover the unit. One would then go in and cut out the bbox enclosure including over the 4 screw tabs. Then using **longer metal screws (not included)**, insert and screw in assembly. The outer left/right tabs on the assembly will

keep it from going into the bbox and will hold onto the drywall – so **do not cut out wider than the bbox** when cutting hole. The bezel then snaps onto the assembly for a flush mount.

POST-DRYWALL – Very near flush mount and may ultimately be easier. Pre-wire, then drywall, then score and cut out around the a bbox template (using rear), screw and affix to a stud. Now the upper/lower tabs are on the outside of the drywall, assembly goes in and its left/right tabs are on outside of drywall.

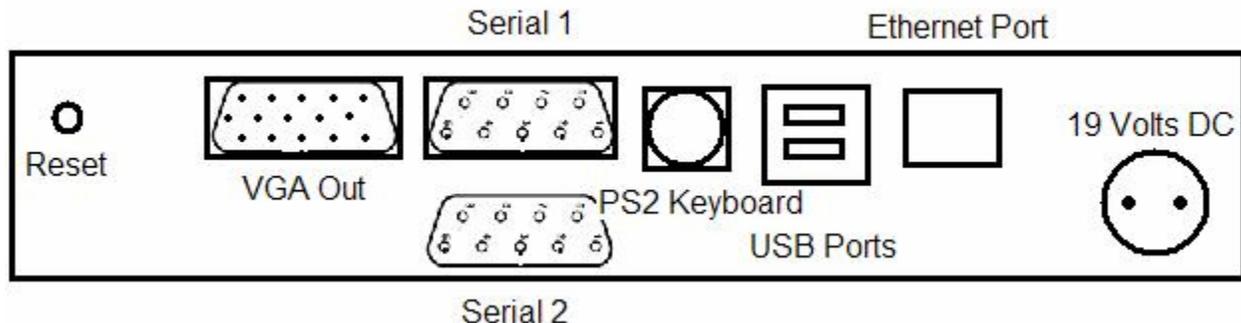
There are “knockouts” in the backbox to allow wiring (ethernet, power, serial) to be attached to the main unit. Once the backbox and wiring is in place the main unit should be attached to the backbox using the four supplied screws. Then the ribbon cable 20-pin electrical connector is attached to the bezel and the bezel snaps into the grommets on the main unit.

**DO NOT** try to pry between the display and the inner perimeter of the Bezel – breakage and scratches to your display are not covered under the product warranty; To reattach, align the Bezel carefully over the buttons on the main unit and then snap on the Bezel near the four corners – do so with (preferably protected) hands and **not** any heavy instrument.

## Hardware Features:

Protégé and NEO controllers are characterized by either an 8" or 15" (diagonal) bright TFT Display with touch input enabled. The rear of the assembly offers an optimum set of input/output ports that include:

- USB 1.1 ports x2
- 1 DC-in power jack (for 19 V input)
- 1 RJ45 port for 10/100 BaseT Ethernet
- RS-232 Serial Port x2



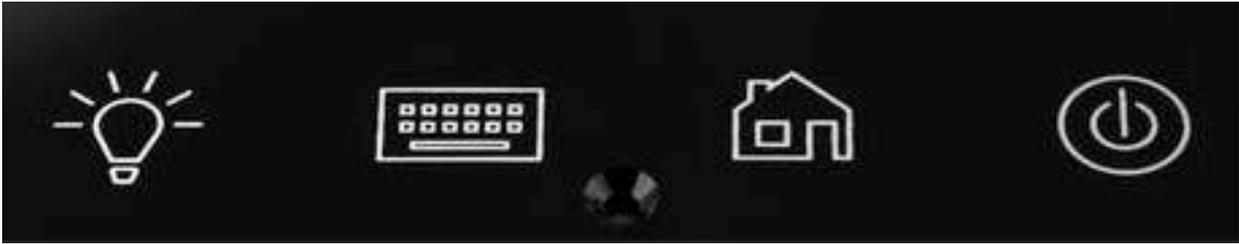
## Power Connections:

The Main Unit features a DC-in power jack. The Low Voltage (19V) side of the power supply can be extended using 2 conductor wire. Please use the following wire guages depending on extension length.

- 1-25 FT 18 AWG
- 25-65 FT 16 AWG
- 65-125 FT 14 AWG
- 125-150 12 AWG
- 150-175 10 AWG

**NOTE:** The Power Jack and Plug are keyed to allow correct polarity and be affixed with a screw-type connector insuring it stays in. Be sure to maintain correct polarity while extending the low voltage side.

## Front Panel Controls: (icons are customizable as an OEM)



The Front Panel has four Buttons which can be configured to accomplish different functions through the configuration utility (below). The **default Button Settings are as follows:**

- **Button 1** activates the screen on/off
- **Button 2** activates the keyboard in browser mode
- **Button 3** Starts the Web Browser (IE or Firefox on Linux) and it brings up a URL of choice
- **Button 4** Pressing and holding for 5 Seconds powers the unit down or up.

The LED to the right of Button 4 displays green when the unit is on and red when powered down. The Buttons can be disabled, configured, activate a sound, and launch a webpage (home page).

## Software Configuration:

Borg provides a “standard” XPe firmware image. This provides the optimal flexibility for a variety of application uses. Borg can provide custom images as needed.

### XPe:

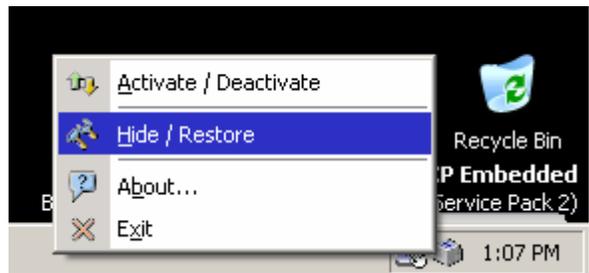
- Internet Explorer ver 7 includes plugins for Flash ver 10
- Media Player ver 10 – Screen Saver manager – User Manager (multiple user/passwords)
- .Net 2.0
- Button Monitor – configure bezel buttons to URLs, .EXE, alt+tab (toggle apps), screen saver, etc.
- Startup Folder – launches apps upon power up
- User Management – password on timeout, etc.

## Button Configuration:

If the Button Monitor is running, you will see an icon in the lower-right corner on taskbar.

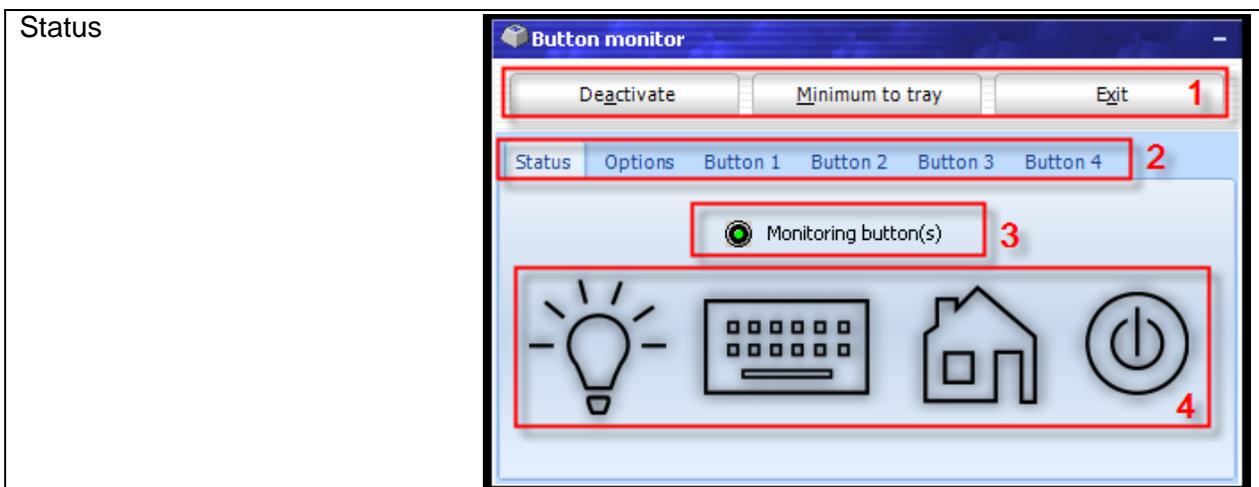


Click on the icon with mouse Left or Right button, the popup menu will be shown.



- Activate / Deactivate: Choose activate (Default) to enable the capacitive buttons monitor, or click it again to deactivate the monitor function temporary.
- Hide / Restore: To show or hide the main screen of Button Monitor.
- About: Display the current version of Button Monitor.
- Exit: Close Button Monitor. If you want to launch it again, run c:\MK-8 Button Monitor\btnMonitor.exe again.

Show the main screen of Button Monitor, we will introduce all functions in it page by page.

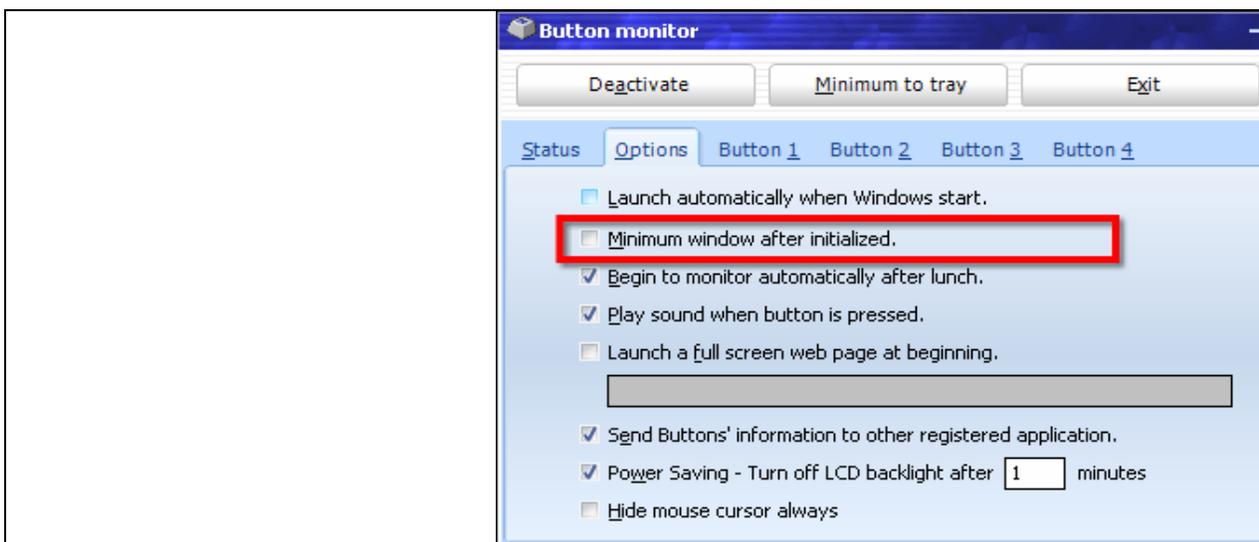


**Red Area 1:** Useful buttons, same as popup menu that mentioned above.

**Red Area 2:** Function pages, click on each page to set different properties.

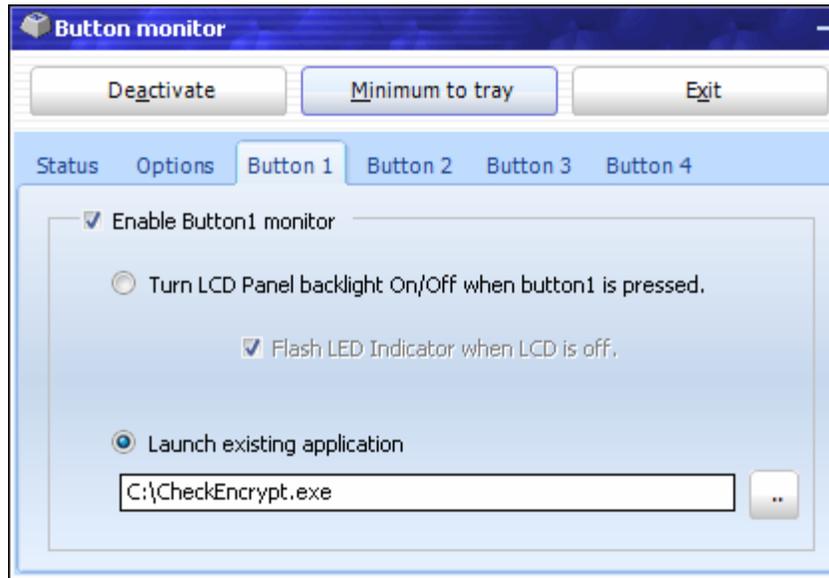
**Red Area 3:** The enable/disable indicator, it shows the current status of Button Monitor.

**Red Area 4:** A visual status indicator for each button.



- Option 1.** Launch automatically when Windows start. **Note: disable to run a proprietary application.**
- Option 2.** Begin to monitor automatically after boot up.
- Option 3.** Beep when button is pressed.
- Option 4.** Launch full screen web page at startup. Leave text edit area empty to navigate default home page.
- Option 5.** is for OEMs or developers who want to “read” the status of a button push
- Option 6.** is in lieu of the Windows Display settings – allowing for a timed screen saver and wakeup after touch or keyboard or capacitive button push

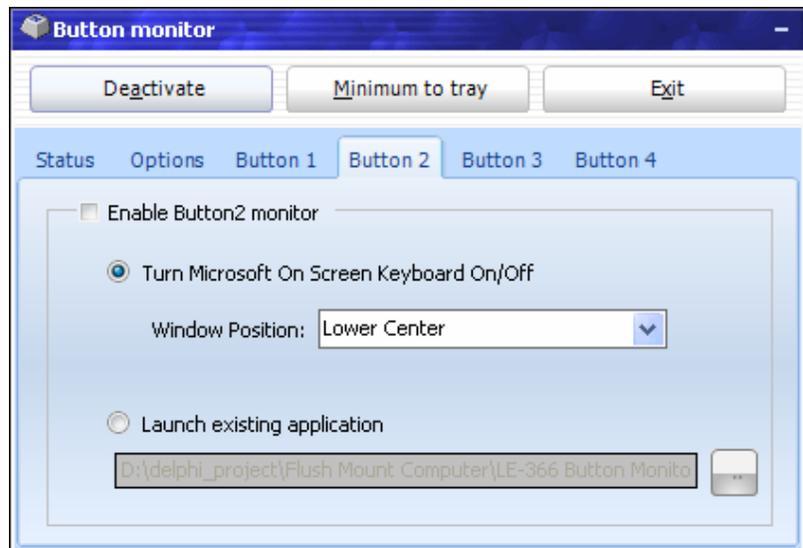
Button 1 - setting backlight



Click on “Enable Button1” checkbox to enable/disable Button1, when activated, press button1 will manually turn LCD backlight off / on, and you can click on “Flash LED Indicator when LCD is off” checkbox you want the red LED indicator on front bezel to be flashed when LCD backlight is turned off.

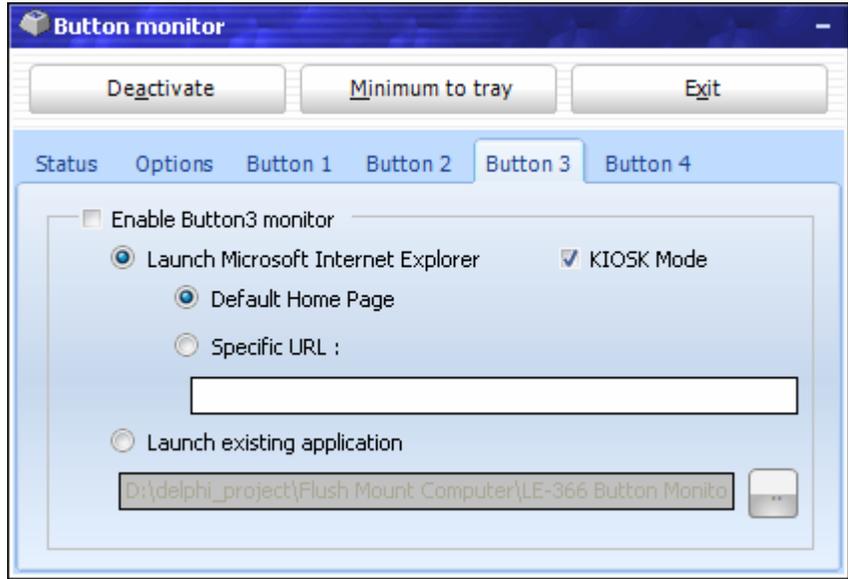
*Note. The LED flashing function works only if the SW1 on touch sensor board is turned to ON position.*

Button 2 setting keyboard



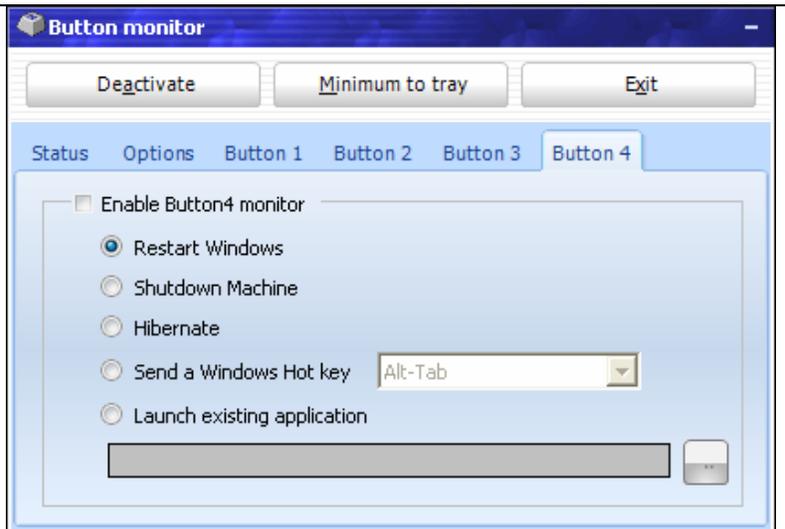
Click on "Enable Button2" checkbox to enable/disable Button2, when activated, press button2 will bring a Microsoft on-screen-keyboard (OSK) to a specific location on screen. You can turn OSK off by pressing button2 again. 9 different default locations can be selected for the OSK.

### Button 3



Click on "Enable Button3" checkbox to enable/disable Button3, when activated, press button3 will launch an Internet Explorer Window and navigate to the page you assigned. Check the "KIOSK Mode" if you want this IE window to be a full-screen (without toolbar and menu). **Navigating in kiosk mode:** Simply connect a USB keyboard and hit CTRL+ESC to get the START menu then navigate either via USB mouse or UP/DN arrows or TAB and ENTER on keyboard. Press button3 again will close the IE window that we opened earlier. Check the "Specific URL", and enter your assigned web page at the text bar below, then the IE will browse to your assigned page when "Homepage Button" is pressed.

### Button 4 setting (Power or Hot Key Button)



Click on "Enable Button4" checkbox to enable/disable Button4, when activated, pressing button 4 can shutdown, reboot immediately or act as a Hot Key from the table below. This can be VERY useful to navigate between multiple full screen applications (Alt+Tab), etc (see table below). **WARNING:** Button 4 has a dual mode whereby a single press activates the command configured above and **pressing and holding for 4 seconds will turn off the power.**

ALT+ENTER	View the properties for the selected item
ALT+F4	Close the active item, or quit the active program
ALT+SPACEBAR	Open the shortcut menu for the active window
ALT+TAB	Switch between the open items
ALT+ESC	Cycle through items in the order that they had been opened

### Windows Hot Keys supported

**Device Support:** Borg understands the following solutions may work with Protégé touchscreens but will neither guarantee nor verify the compatibility of each. The following is provided as informational purposes only. Please also visit [www.BorgDisplays.com/partners.html](http://www.BorgDisplays.com/partners.html)

### Home Control

- HAI Snaplink – Confirmed - copy Snaplink from USB stick to Start Folder on Protégé
- ELK – ElkRM see instructions. [www.elkproducts.com/products/m1/ElkRM.htm](http://www.elkproducts.com/products/m1/ElkRM.htm)
- Charmed Quark – Confirmed - Driver loaded on Protégé paths to CQC application hosted on PC
- Myro Controls – OEM - Dedicated control platform with their custom XPe image on DOM.
- Cortexa - OEM
- HomeLogic – confirmed on Pro8 and 8a, 15a
- Honeywell Vista / Envirocom – via their ICM module and kiosk mode IE.
- Crestron – confirmed using their Xpanel .exe
- Custom Home Control – Flash GUI in IE browser
- Stardraw -
- Mediallon –
- N2Nets – OEM - confirmed JAVA support (special order)
- Connected hearth – confirmed IE support

### Commercial Control

- Stardraw
- Crestron – Xpanel
- Aurora Multimedia

### Web-device Control – too many to list

- ReQuest - media servers via browser control
- Kaledioscape - media server via browser control
- Niveus – WMC server via Autonomic Mirage software client – [www.autonichome.com](http://www.autonichome.com)
- Casatools - media server via browser control – [www.casatools.com](http://www.casatools.com)
- SunPower - Solar Inverters
- FatSpaniel – Flash and HTML interfaces for solar services
- Many more untested but if you can render it on your PC, then it most likely will run on Protégé



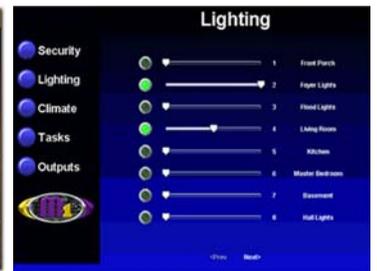
HAI



Myro



Charmed Quark



ELK

## FAQ – Features

**VGA Port:** The VGA D-Sub connector outputs exactly the same display as the internal LCD panel, thus it has two display devices with one screen layout.

**Button Monitor:** If it is not present please contact customer support to get the zipped file. Setup procedure: extract it and copy the extracted file named BtnMonitor\_setup.exe to a USB drive, insert this USB to Pro8a and run this setup file, it will create the directory and copy all necessary files for you automatically. If Button Monitor is disabled, go to Start menu and open a window for the internet, connect a USB keyboard and type in c:\ on the address line. A list comes up and I chose “c:\Button Monitor” This brings up a button monitor window and I double clicked/tapped on btnMonitor.exe That restores the button monitor and places an icon on task bar to begin configuration (See Installation Guide).

**Disable Button Monitor:** On the task bar there is a button monitor icon on the right hand side. Tap the button for a drop-down menu. Select Hide/Restore, then click “deactivate” button and then “exit”

**Screen Saver:** >Button Monitor > Options – set time delay

**Screen Resolution Pro15a** > All 15” LCDs have XGA (1024x768) resolution maximum. Be careful to set monitor properties in XPe to frequency, 1024x768 with 60Hz.

**User Mgmt:** > Start > Control Panel > User Account

**Mirror:** (Pro15a only)

**Glow Bezel:** (Pro8agl only) To test the edge glow function in QC application, first Disable Button Monitor (see FAQ), then click on “GPIO Information” in main menu and you can see a green and red square as below image, click on it will enable/disable edge glow feature for different colors. > Start > QC Application > GPIO

**Network Drive:** Our XPe image does support network drive by using TCP/IP, we have not tried Windows Home Server in our lab, but believe WHS uses Client for Microsoft Network to access and it can be connected or mapped as a network drive.

### Power Consumption:

#### Pro8 AMD **GEODE LX800** CPU:

1. Running at full power (LCD on, playing video, also playing music with its volume at maximum): 12W.
2. Idling with LCD on: 9.5W.
3. Idling with LCD off: 7.4W

#### Pro8a Intel **ATOM 1.6GHz** CPU:

1. Running at full power (LCD on, playing video, also playing music with its volume at maximum): 17.7W.
2. Idling with LCD on: 15.8W.
3. Idling with LCD off: 13W

#### Pro15a Intel **ATOM 1.6GHz** CPU:

1. Running at full power (LCD on, playing video, also playing music with its volume at maximum): 25.7W.
2. Idling with LCD on: 23.8W.
3. Idling with LCD off: 13W

**Programming API:** The new GPIO Supports Pro8a with bezel edge glow. (Use notepad to open c:\Button Monitor\style.ini, and change the value from 0 to 1 then save it.) Accepts more commands by using **POSTMESSAGE** so that programmers can control the hardware in their own application.

WM\_REDLED\_ON = WM\_USER + 12010; - Turn RED LED ON  
WM\_REDLED\_OFF = WM\_USER + 12011; - Turn RED LED OFF  
WM\_LCD\_BK\_OFF = WM\_USER + 12016; - Turn LCD Backlight off  
WM\_LCD\_BK\_ON = WM\_USER + 12017; - Turn LCD Backlight On

(Pro8a Edge Glow version only)

WM\_EDGE\_GREEN\_ON = WM\_USER + 12012; - Turn Green Edge glow LED ON  
WM\_EDGE\_GREEN\_OFF = WM\_USER + 12013; - Turn Green Edge glow LED OFF  
WM\_EDGE\_RED\_ON = WM\_USER + 12014; - Turn Red Edge glow LED ON  
WM\_EDGE\_RED\_OFF = WM\_USER + 12015; - Turn Red Edge glow LED OFF

Note. There is a sample application named c:\Button Monitor\Verify.exe can verify all POSTMESSAGE functions in Button Monitor.

### Firmware:

Media Player, Windows Explorer, User Manager, QC Hardware Test Utility  
Internet Explorer 7.0 – flash 7plugin, javascript (JVM DOM available)

Button Monitor – 4 configurable hard buttons including Application and URL launch, Screen saver, Hot Keys, Boot up modes, kiosk modes, lock down modes

## FAQ - Support

**NEO screen incomplete bootup – “X” in middle of screen:** Possible interruption or corrupt DOM. Log in and re-update. Do NOT interrupt update process.

**Protégé white LCD upon boot:** Somehow the video card settings were modified – attach a monitor to VGA port with USB mouse and go to Control Panel > Display (make sure set to 800x600) > Settings > Advanced > Intel Graphics...> Graphics Properties > Display Devices (Intel Clone) > Display Settings (800x600, 60Hz). See FAQ Detail screenshots for more information below

**Testing Bezel Glow:** Button Monitor MUST be disabled - then launch the QC program under Start menu.

**Start Folder:** All folder structures are exactly the same as Windows XP, except we hide “All Programs” and some useless link from Startup menu.

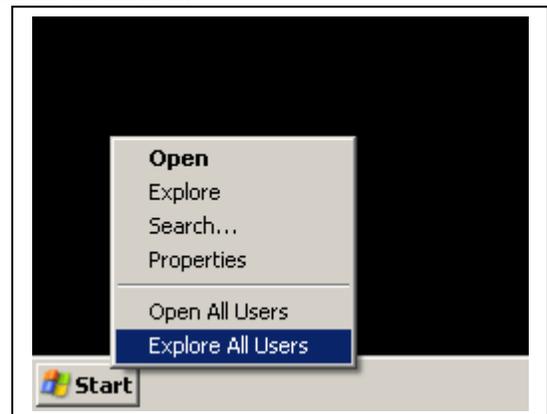
There is a fast way to access to Startup folder, move your mouse cursor to “Start” button and click Right mouse button, select “Explore All Users” will bring you to Explorer and locate to the folder.

There are two Startup folders that you can use:

1. C:\Documents and Settings\Administrator\Start Menu\Programs\Startup
2. C:\Documents and Settings\All Users\Start Menu\Programs\Startup

Websites on XPe or see the MSDN forum:

<http://social.msdn.microsoft.com/Search/enUS/?Refinement=52%2c54&Query=xp+embedded>



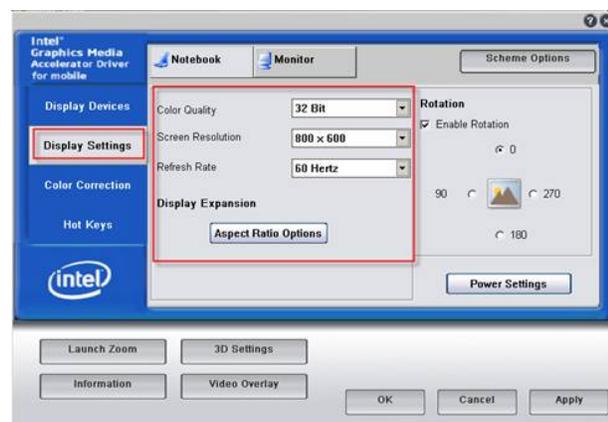
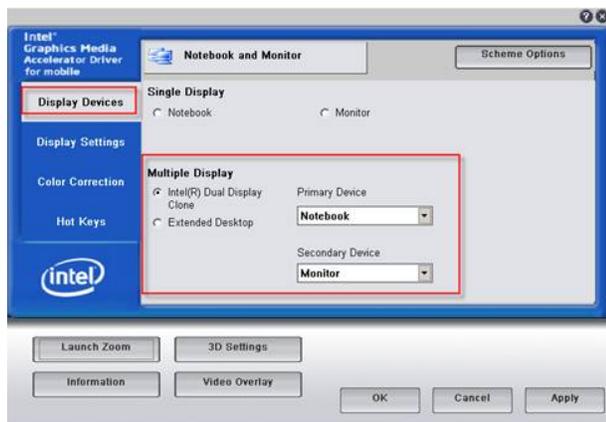
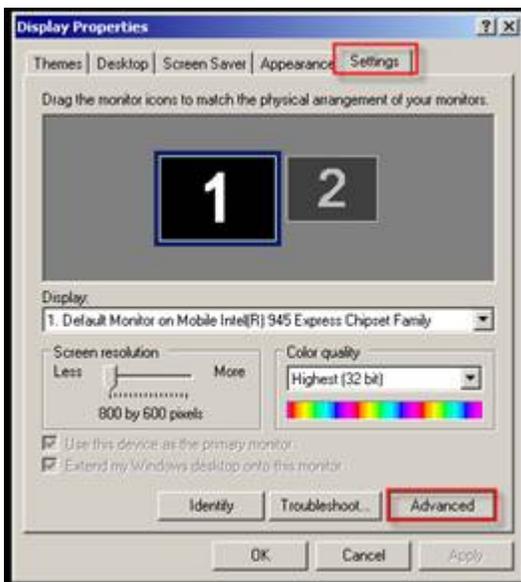
**Factory Restore:** Last resort only if an application is running and you cannot remove it or log into it.

1. Insert USB keyboard
2. Press Ctrl-Alt-Del to open Windows Security.
3. Click on “Task Manger” button.
4. When “Windows Task Manager” is showed, click on “Applications” page.
5. Click on “New Task...” button.
6. Type “explorer” then click “OK”.

Then the desktop should be restored new, go to Control Panel to see if you can remove that unused application, if you don't see an option in “Add/Remove programs”, you have to remove it manually.

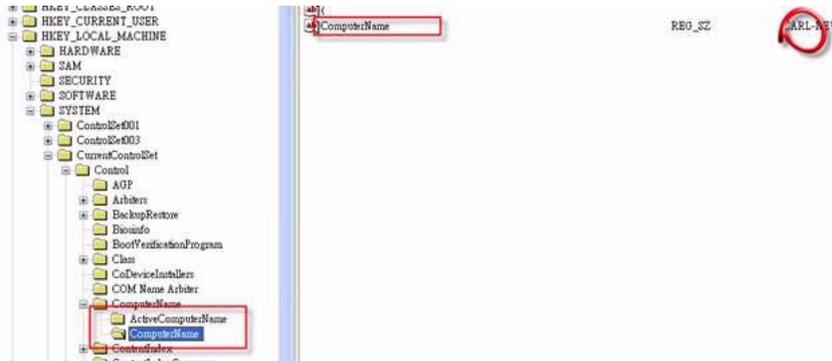
**BIOS Boot Up:** You can entry the BIOS configuration utility by using “Del” key while booting up. Here you can change what driver to boot from including a network drive.

**Correct Display Settings:** >Start > Control Panel > Display > Settings – note resolution and frequency (advanced) Select > Intel® Graphics Media Accelerator Drive for Mobile > “Graphics Properties” button



**Change “Computer” name:** To change computer name in XPe, the fastest way is to change the registry directly.

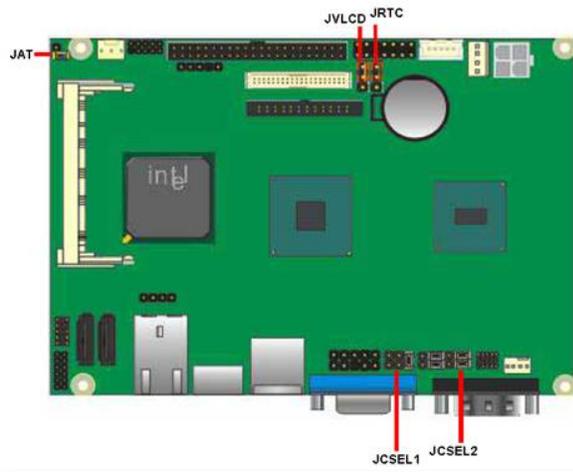
1. Click on "Start"... "Run" and type "regedit" then click OK button.
2. The computer name is stored in \HEKY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\ComputerName\ActiveComputerName, change the value (REG\_SZ) of "ComputerName" to the new name that you want.
3. Locate to \HEKY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\ComputerName\ComputerName and change the "ComputerName" item to the same name.
4. Close Registry Edit and Reboot.



Or seek a tool from SysInternals called "New\_Sid".

**Motherboard CMOS:** To clear/reset the CMOS setting and restore them to default, you can find the JREC jumper on motherboard and clear the BIOS settings.

Jumper	Function
JRTC	CMOS Operating/Clear Setting
JVLCD	LCD Panel Voltage Setting
JAT	AT Mode
JCSEL1/2	COM2 RS232/422/485 mode setting



Jumper: **JRTC**

Type: Onboard 3-pin jumper

JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operation
Default setting	

**Firmware updates:** To restore image onto Pro-8, Pro8a, Pro15a, you have to boot this machine under a pure DOS environment, the fastest way is to prepare a clean USB thumbnail disk which is SMALLER than 4GB, make it **bootable** and copy all necessary files to this USB disk (you can download a USB boot tool from <http://www.emink.com/files/usbttool.rar>)

**Downloading plugins:** Some DVRs, devices, etc will be blocked from accepting a download. XPe prohibits this by default for security reasons but can be overridden like a PC by going to Control Panel > IE Options > Security > Place the URL and hit Add, then LOW for the security setting and try again.

**Remote Tech Support:** Remote management capable. Download and run TeamViewer <http://www.teamviewer.com>. Provide us the ID and password so we can exam it remotely.

**Customer Support:** [wwalker@borgdisplays.com](mailto:wwalker@borgdisplays.com) [support@borgdisplays.com](mailto:support@borgdisplays.com)