

2010

Virtusa

Created by Dhanushka Nuwan Herath



[OLPC-HARDWARE]

This is a summarize document of the OLPC hardware tested by Dhanushka Nuwan, Ruwan Fernando, Sandun Mohottige and Johan Sahabandu. We have covered Installation, Lid, Keyboard, indicators, suspend and resume, touch pad, wireless, screen, audio, charging and discharging

Acknowledgements

We would like to thank **Mr. Dhanushka Ranganath, Mr. Chamindra De Silva, Mr.Chandana Ranasinghe, Miss. Samantha Kumarasinghe, Mr. Kapila Karunaratne, Mrs. Karthika Karunanithy, Mrs. Shanthi Karunaratna and Mr. Prasanna Gunawardana** for their continuous guidance and support for this project. Without their valuable supervision, all our efforts would have been short – sighted.

Special thanks go to the Virtusa, for basically providing us with all the facilities for this project. Besides, a number of friends had always been around to support us morally specially our team members, and without their motivation producing this project would not have been possible. We would also thank our family members who rendered us their immense support throughout this project.

Introduction

The One Laptop per Child non-profit develops a low-cost laptop. The "XO Laptop" revolutionizes how we educate the world's children. Our mission is to provide educational opportunities for the world's poorest children by giving each child a rugged, low-cost, low-power, connected laptop; and software tools and content designed for collaborative, joyful, self-empowered learning.

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Differences between XO 1.0 and XO 1.5

1. Understand of the differences

Overall, the objective is to match the XO-1 in power consumption while making aggressive suspend easier, and in price (while changing to components which are more likely to decrease in price). It is likely that both goals can be met.

2. Overview of the OLPC

- The most recent version is the OLPC XO-1.5 which targets the children of developing countries.
- The XO-1 laptop is a central focus of “One Laptop per Child”.
- After three years of development, it is in mass production, with hundred thousand of units deployed in the field, and thousands more with developers and for testing in schools all over the world.
- B-Test XO 1.5 and an over clocked XO-1.0 with both launching E-toys.
- The XO-1.5 is on the left, the over clocked XO-1.0 is on the right and Bernie Innocenti and Wayan Vota are the voices of excitement in the background.
- This will continue using the same industrial design and batteries as XO-1.

2.1 Core electronics

- A photo of the XO 1.5 Motherboard is available with annotations.

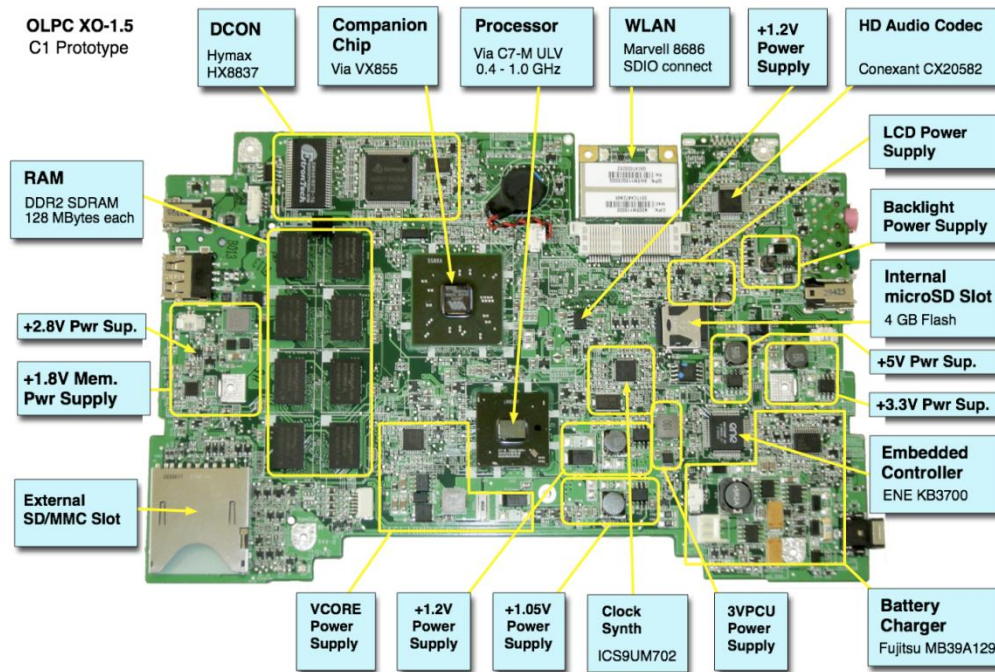


Figure 1: Core Electronics

- CPU: Via C7- M 1GHz Ultra Low Voltage x86-compatible processor with 128KB L2 cache.
- CPU clock speed: 400 MHz (1.5 W) to 1GHz (5 W), variable. The clock may be throttled back automatically if necessary to meet thermal constraints; Clock speed changes happen very quickly, as does dropping the processor voltage (0.728V in C3/C4, as compared to 0.798V in C0).
- An Intel-compatible instruction set (including MMX, SSE, SSE2 & SSE3)
- Built-in storage will be 4 GB of NAND Flash with an option for 8 GB.
- BIOS: 1 MiB SPI-interface flash ROM
- Open Firmware used to load the operating system.
- Options to pick 1GB of memory RAM
- External card slot for SD cards

3. System Block Diagram

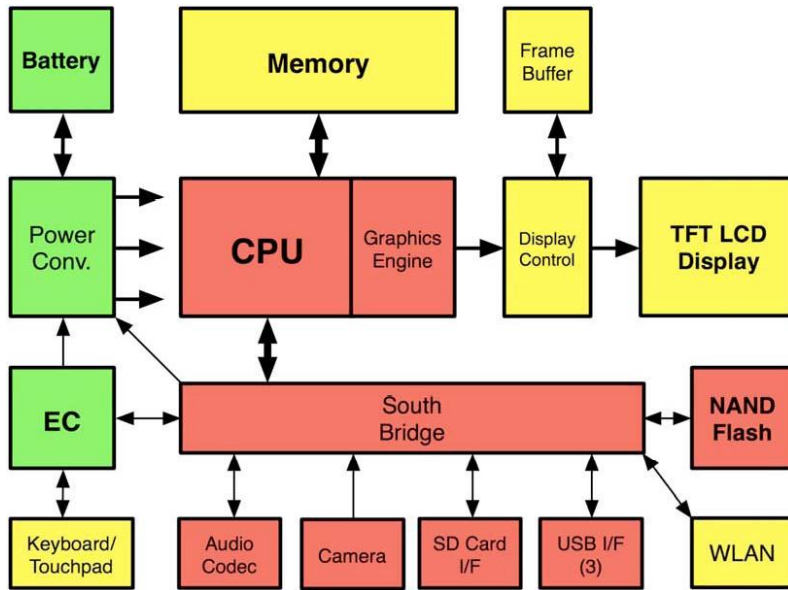


Figure 2: System Block Diagram

Comparison on XO 1.0 and XO 1.5



Figure 3: OLPC physical components

1. Comparison of Hardware Changes

Hardware	XO-1	XO-1.5
1.1 Core Electronics		
Mother Board	XO1 motherboard	XO-1.5 C1 annotated motherboard.
Processor	x86-compatible processor	Via C7- M 1GHz Ultra Low Voltage x86-compatible processor
Ram	256 MB DDR SDRAM system memory chip, running at 333MHz	Options to pick 1GB of memory RAM
Chip Set	AMD CS5536 Companion chip	AMD VX855
Bios	1024 KB SPI-interface flash ROM	1 MiB SPI-interface flash ROM
External card slot	Available	Available
Built-in storage	<ul style="list-style-type: none"> • 1 GiB of NAND Flash memory on motherboard • 1 MiB of serial Flash memory provided separately for firmware 	4 GB of NAND Flash with an option for 8 GB
CPU clock speed	433 MHz	400 MHz (1.5 W) to 1GHz (5 W)
Cache	64 KiB each L1 I and D caches; at least 128 KiB L2 cache	128KB L2 cache

1.2 Display		
Dual-mode	7.5in (19 cm) color/monochrome dual mode TFT LCD	7.5" dual-mode TFT display
Viewing area	152.4 mm x 114.3 mm	152.4 mm x 114.3 mm
1.3 Physical dimensions		
Approximate dimensions	242mm x 228mm x 32mm	242mm x 228mm x 32mm
Approximate weight	Weight: < 1.5KG	<ul style="list-style-type: none"> • XO laptop with LiFePO4 battery: 1.45KG (~3.20lbs) • XO laptop with NiMH battery: 1.58KG (~3.48lbs)
Fan	Not Available	Not Available
1.4 Integrated peripherals		
Keyboard	Water and dust proof 80+ key rubber keyboard, with 1mm stroke	80+ keys, 1.0mm stroke; sealed rubber-membrane key-switch assembly
Audio	<ul style="list-style-type: none"> • AC'97 audio subsystem • Internal stereo speakers and amplifier • Internal mono. microphone • Jack for external stereo headphone • Jack for external mono. microphone, sensor, or 	<ul style="list-style-type: none"> • HD Audio compatible audio subsystem • Internal stereo speakers and amplifier • internal monophonic microphone • jacks for stereo external headphones and

	switch	microphones
Touchpad	<ul style="list-style-type: none"> Capacitive touchpad used for pointing device 	Capacitance touchpad
Layout pictures	English, Arabic, Thai, West African (Nigeria), Portuguese, Spanish, Amharic, French, Urdu, Cyrillic, Turkish (not final), Nepali, Mongolian, Kazakh, Devanagari, Uzbek, Pashto, Dari, Pulaar (Fula), Italian	English, Arabic, Thai, West African (Nigeria), Portuguese, Spanish, Amharic, French, Urdu, Cyrillic, Turkish (not final), Nepali, Mongolian, Kazakh, Devanagari, Uzbek, Pashto, Dari, Pulaar (Fula), Italian
Camera	<ul style="list-style-type: none"> Integrated color video camera 640 x 480 resolution Full frame rate (30fps) 	<ul style="list-style-type: none"> integrated color video camera 640 x 480 resolution at 30 FPS Independent display of microphone and camera recording status the camera and device driver support disabling AGC and automatic color balancing to enable its use as a photometric sensor for educational applications
Wireless Networking	<ul style="list-style-type: none"> Integrated IEEE 802.11/b/g (2.4 GHz) wireless networking interface 	<ul style="list-style-type: none"> Integrated 802.11 b/g (2.4GHz) interface dual adjustable, rotating

	<ul style="list-style-type: none"> • Mesh networking (variant of 802.11s) supported • Capable of mesh operation when CPU is powered down 	<p>antennas support diversity reception</p> <ul style="list-style-type: none"> • Mesh networking (variant of 802.11s) supported
Status indicators	<ul style="list-style-type: none"> • Power on/off LED • Battery status LED (Dual color) • Two WI-Fi status LEDs • Hardware controlled internal Microphone in-use LED • Hardware controlled camera in-use LED 	<ul style="list-style-type: none"> • Power, battery, Wi-Fi, Flash access, visible with lid open or closed • Microphone In-Use • Camera In-Use, visible when lid is open
1.5Buttons		
Power button on the side of the display	Available	Available
Screen rotate button on the side of the display	Available	Available
Two sets of 4-direction cursor control buttons	Available	Available
Magnetic sensor detects laptop closure	Available	Available

Magnetic sensor detects use in eBook mode	Available	Available
1.6 External connectors		
DC power	<ul style="list-style-type: none"> • DC power input, from 11V to 18V, internally limited to 15W draw • Integrated charger for Ni-MH/ LiFePO4 batteries • 6 mm power input connector (1.65 mm center pin) 	<ul style="list-style-type: none"> • 6mm (1.65mm center pin) connector; 11 to 24 V input usable, -32 to +40V input tolerated (Do not use an XO-1 power supply Do not use an XO-1 power supply (which can fail if more than 17W is pulled from it); unfortunately the connector is the same) • Maximum Power Point Tracking alters voltage/current for maximum battery-charging power from solar panels
Headphone output	standard 3.5mm 3-pin switched stereo audio jack	standard 3.5mm 3-pin switched stereo audio jack
Microphone input	<ul style="list-style-type: none"> • standard 3.5mm 3-pin switched stereo microphone jack • selectable 2V DC bias • selectable sensor-input 	<ul style="list-style-type: none"> • standard 3.5mm 3-pin switched stereo microphone jack • selectable 2V DC bias • selectable sensor-input

	mode (DC or AC coupled)	mode (DC or AC coupled)
USB	<ul style="list-style-type: none"> • Three Type-A USB 2.0 connectors 	<ul style="list-style-type: none"> • Three Type-A USB 2.0 connectors • Up to 1A power supplied (total)
Flash Expansion	SD Card slot	SD Card slot
Battery	<ul style="list-style-type: none"> • 2 or 4 serial LiFePO4 AF type batteries with integrated gas gauge IC 	Panasonic ML1220 battery
1.7 Environmental specifications		
Temperature		UL certification planned to 45C in Q32007, pending 50C certification in mid-2008
Humidity		UL certification planned to IP42 (perhaps higher) when closed, the unit should seal well enough that children walking to and from school need not fear rainstorms and dust
Maximum altitude		15m to 3048m (14.7 to 10.1 PSIA) (operating), -15m to 12192m (14.7 to 4.4 PSIA) (non-operating)
Random vibration		0.75g zero-to-peak, 10Hz to 500Hz, 0.25 oct/min sweep rate (operating); 1.5g zero-to-peak,

		10Hz to 500Hz, 0.5 oct/min sweep rate (non operating)
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INSTALLATION GUIDE

1. Steps to Update the OS and Firmware

1. Check the **developer key**.
2. If the developer key is not available **download the developer key** as mentioned.
3. When you got the developer key **disable the security** as mentioned. *Do not lose the developer key.*

(When you are restarting for disable security, you must restart keep pressing the Esc key if you do not have the developer key **it won't come to the OK PROMPT**)

4. Download the **latest OS** according to the OLPC as mentioned.

(When you are restarting for Update the OS, you must restart keep pressing the Esc key if you do not have the developer key **it won't come to the OK PROMPT**)

5. Download the **latest FIRMWARE** according to the OLPC as mentioned.

(When you are restarting for Update the FIRMWARE, you must restart keep pressing the Esc key if you do not have the developer key **it won't come to the OK PROMPT**)

1.1 Check the Developer Key

Using below direction user can verify that there is a developer key or not

Pre Condition: Laptop must power ON

Steps:

1. Select "**terminal**"
2. Type "**sudo bash**"
3. Type "**cd /security**"
4. Type "**ls**"

IMPORTANT: If the tester needs to request for the developer key message will appears saying “**State update-attempt**”

1.2 Request a developer key

Pre Condition: Laptop must power ON

Steps:

1. Select activity “Browse”
2. Type URL “file:///HOME/.DEVKEY.HTML”
3. Then automatically starts the time count down. Developer recommendation time to send a developer key is around 24 hours.
4. Get a developer key according to the steps which are mentioned in the site. Then it will automatically get saved inside the folder called “security” in the OLPC and **get a copy of the developer key into the USB flash drive.**

For more Information about downloading developer key, go to:

http://wiki.laptop.org/go/Developer_key#Getting_a_developer_key_for_your_running_XO_laptop

2. Disable Security

Pre Condition:

- I. OLPC must **SAVED** the **developer key**
- II. OLPC should power OFF

Steps:

1. Power on the OLPC
2. When you hear music press Esc button
3. When it is comes to the "OK prompt" type "disable-security" and press Enter button (You should do this three times)

Outcomes of the RESTART

- ✓ When type this in first time should appear "Restarting OLPC"
- ✓ When type this in second time should appear "Writing"
- ✓ When type this in third time should appear "No wp tag"

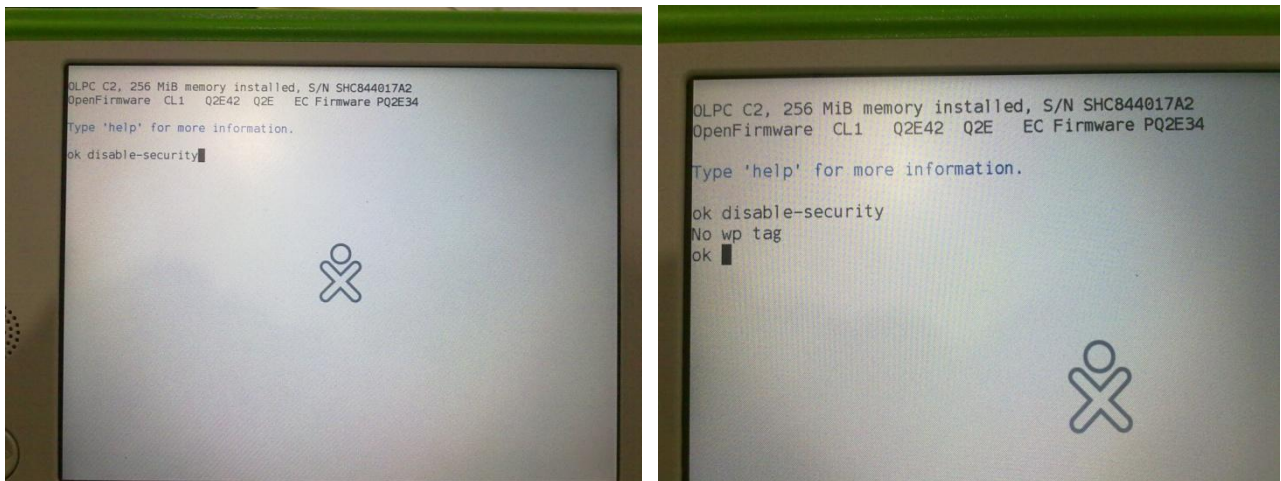


Figure 4: Disable-Security

3. Update the Firmware

You can update the firmware for the XO-1 **but no need to update for the XO-1.5**. When you are installing the OS for the XO-1.5 it will automatically get update the firmware.

1. Attach the USB storage device to your local (NOT the XO) computer.
2. Perform a clean (Full, not Quick!) format of the USB storage device using FAT32.
3. Download the firmware named *someversion*.ROM. These are compressed files, but DO NOT open them — in your browser click the right mouse button over the link and choose "Save Link/Target as..."

You can download official OS firmware from subdirectories of

<http://dev.laptop.org/pub/firmware/>

4. Your USB storage device should now contain one files (in the root) named something like: Q2E41.ROM
5. "Unmount" the USB storage device and disconnect it from your computer when it is safe to do so.
6. Plug your XO laptop into an electrical outlet.
7. Shut down the XO.
8. Connect the USB storage device to the XO Laptop and power up while keep pressing the Esc button (This is VERY important!)
9. Then it will come to the **OK PROMPT**.
10. Type help
11. Type "flash u:\Q2E41.ROM" (u is directory to the USB)
 - ✓ Should display "Writing...."
 - ✓ Restart the OLPC

```
ok flash u:\q2e41.rom
Reading u:\q2e41.rom
Got firmware version: CL1 Q
Checking integrity ...
Firmware image has bad intern
ok flash u:\q2e42.rom
Reading u:\q2e42.rom
Got firmware version: CL1 Q
Checking integrity ...
Firmware image has bad intern
ok flash u:\q3a34.rom
Reading u:\q3a34.rom
Got firmware version: CL1 Q
Checking integrity ...
No external power
ok flash u:\q3a34.rom
Reading u:\q3a34.rom
Got firmware version: CL1 Q
Checking integrity ...
SPI FLASH is type 13 - Spansi
Merging existing manufacturing
Writing
00000
```

Figure 5: Update Firmware

When a incorrect OS included inside the USB

The system normally populates this screen when we plugged the USB memory stick and boot the OLPC keep pressing game keys.

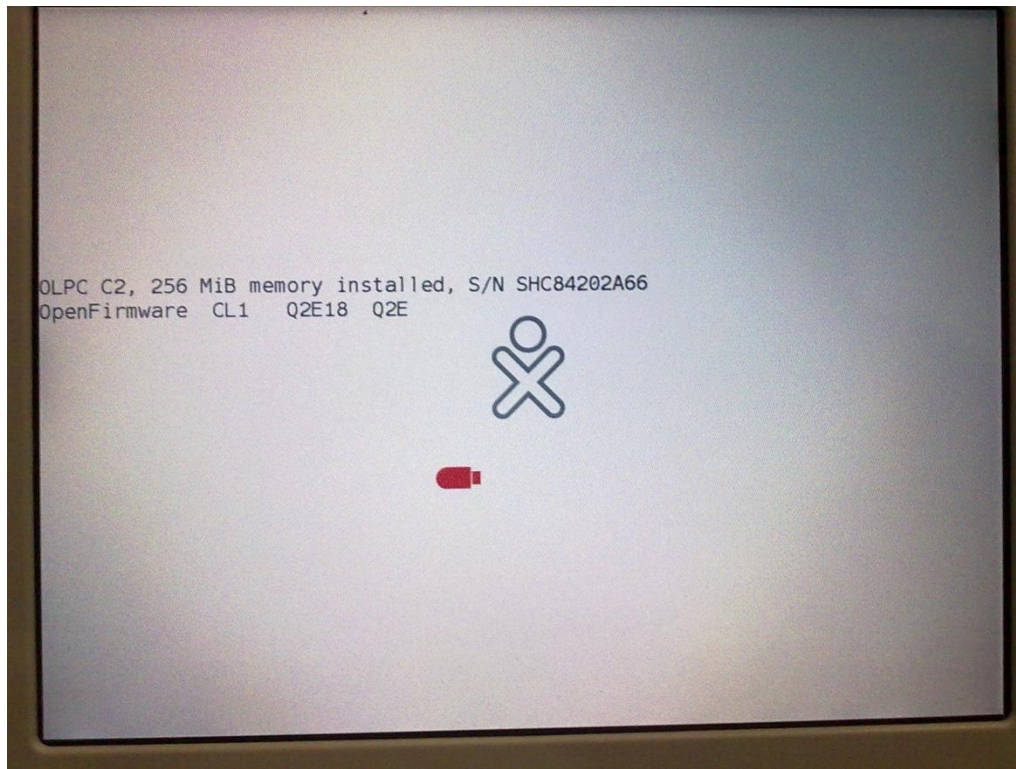


Figure 6: When an incorrect OS included inside the USB

4. Installation Process of the OS

1. Attach the USB storage device to your local (NOT the XO) computer.
2. Perform a clean (Full, not Quick!) format of the USB storage device using FAT32.
3. Download the OS image named *someversion.img* or OS116.ZD and its signatures file named fs.zip to the USB storage device. These are compressed files, but DO NOT open them — in your browser click the right mouse button over the link and choose "Save Link/Target as..."

- i. If the OLPC is XO-1 download

EX:

- OS802B5.IMG or Latest
- OS13 or latest

- ii. If the OLPC is XO-1.5 download

EX:

- OS116.ZD or latest

You can download official OS images from subdirectories

For XO-1

<http://download.laptop.org/xo-1/os/official/> or <http://dev.laptop.org/~martin/8.2.2-betas/>
and <http://dev.laptop.org/~smparrish/XO-1/builds/> (According to the OLPC)

For XO-1.5

<http://build.laptop.org/10.2.0/>

4. Your USB storage device should now contain two files according to the OLPC as a example named something like: OS802B5.IMG and OS802B5.CRC
5. Unmount the USB storage device and disconnect it from your computer when it is safe to do so.
6. Plug your XO laptop into an electrical outlet.
7. Shut down the XO.
8. Connect the USB storage device to the XO Laptop and power up while keep pressing the Esc button (This is VERY important!)

9. Then Use these steps below. **IMPORTANT: When you are restarting for disable security, update the firmware and install the latest OS you must restart keep pressing the Esc key. If not it won't come to the OK PROMPT**
10. If this is a XO-1 OLPC,
Type `copy-nand u:*.IMG`
If this is a XO-1.5 OLPC, Type `copy`
`fs-update u:*.ZD`. After completion of the OS installation, reboot the OLPC.
11. Check that you have the correct build:
12. Follow [How to check the OS and firmware versions](#).
13. Verify that the OS version matches firmware version of the image file you downloaded,
e.g. "OS802B5, firmware Q2E42"

For More Information http://wiki.laptop.org/go/Clean-install_procedure

4.1 Overall appearance of the Installation

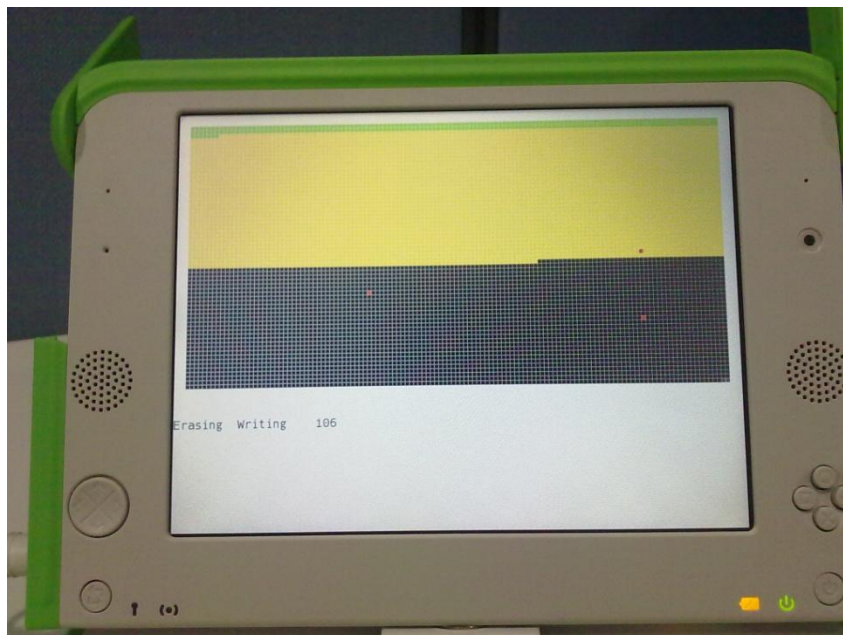


Figure 7: When staring the Installation for XO-1.0



Figure 9: When finished the installation for XO-1.0

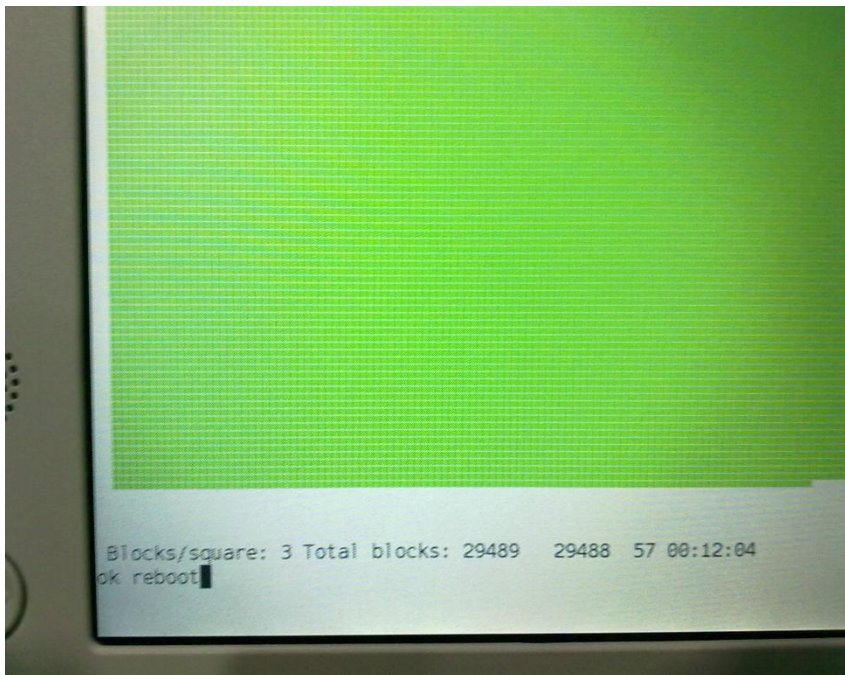


Figure 8: When finished the installation for XO-1.5

5. If User could not disable the security for XO-1

Currently does not need developer key for the XO-1.5. If the user will try to disable the security, it will appear "No wp tag". Which means it is already disable the security.

5.1 How to recognize that disable security is not activated

- ✓ If the OLPC continuously restarts (Specially with OS13)
- ✓ If the USBs are not recognizing (Specially with OSB5)
- ✓ If the indicating bulbs are not working
- ✓ Appear a screen like below

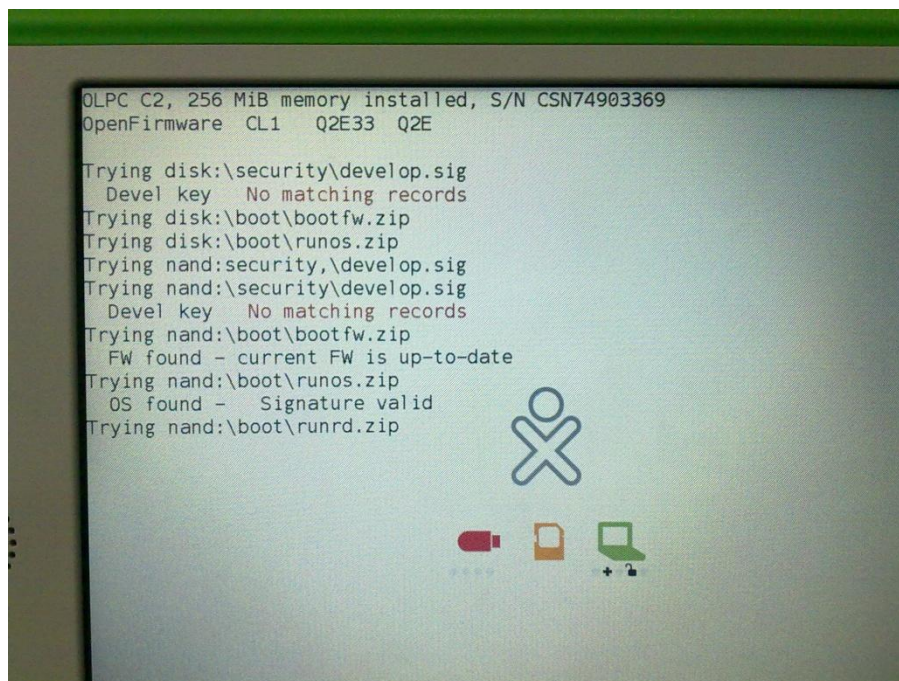


Figure 10: If the Security is not disabled

5.2 How to disable the security after user lost the developer key

First you must have a USB memory stick

1. Go to the <https://activation.laptop.org/devkey/post/> and you have to enter the “Laptop serial” and “Laptop UUID”. You can get the serial number bottom of the OLPC (remove the OLPC battery then you can see a code like “SHCxxxxxxxx”) and follow up the below steps to get the UUID.

IMPORTANT: Use normal computer to do these steps

- ✓ Go to the <https://activation.laptop.org/devkey/post/>
- ✓ For the downloading **Actos.zip** and **Runos.zip**
- ✓ Request the developer after get the UUID

5.3 Procedure to get UUID

1. Download [Actos.zip](#) and [Runos.zip](#) (its source code in fourth, if you are interested, is at <http://dev.laptop.org/git/> ; it will only run if it’s put into a signed zip file.)
2. Put these two files in a directory (in the USB memory stick) called “boot”. USB memory stick must be formatted using FAT-32 (when you buy USB memory stick expect “U2” memory sticks which probably won’t work; they contain ugly DRM stuff).
3. So your USB memory stick will contain these files (and nothing else in the boot directory):
 - ✓ boot/[Actos.zip](#) and [Runos.zip](#)
4. Insert the USB memory stick in one of the USB ports on the OLPC
5. Power it on with the power key (This will put your **Serial number and UUID** into the “*loptops.dat*” file on the USB memory stick)
6. It will display a pretty “XO” screen and then a short message like “SHFxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx; Laptop data recorded successfully”. After a few seconds it will power off itself.
7. Remove the USB memory stick.

Important: Do the above with each laptop in turn that you want to create keys for (in most cases, only one laptop). The “USB memory stick” will append the information for each new laptop to the *laptops.dat* file, so do not delete the *laptops.dat* file in between.

5.4 Request the developer key

1. Open the *laptops.dat* using normal computer and copy the UUID and enter UUID field (<https://activation.laptop.org/devkey/post/>) and press “Request Developer Key” button.
2. Then appear a message box that asking to save the developer key.
3. Create a directory inside the USB memory stick called ”security” and save the above developer.sig
4. Insert the USB memory stick in one of the USB ports on the OLPC
5. Keep pressing “Esc” button, power it on with the power key
6. It will be loaded the OK PROMPT
7. Type disable-security three times
 - ✓ When type this in first time should appear "Restarting OLPC" and restart
 - ✓ When type this in second time should appear "Writing" and restart
 - ✓ When type this in third time should appear "No wp tag" and restart
8. The developer key is not automatically copied to your laptop's internal flash memory. You can do that once you have Linux running on it, by copying `security/develop.sig` from the USB memory stick into `/security/develop.sig` in the root file system of the laptop. You'll need a root shell to do that; it can't be done from the Journal or the GUI.

IMPORTANT: If you submitted information for more than one laptop, you can then put the USB memory stick into the next laptop, and repeat the above process.

More details about the disable-security

http://wiki.laptop.org/sharedcopy.com/go/057f2ff140a0cbb0ed1036353498b58e.html#Disabling_Security

Keyboard game pad game buttons and Lid

1. Keyboard game pad buttons Description

In key board testing we used the on screen keyboard mode which is providing by the OS. It can get from the firmware prompt (OK prompt) typing ‘test keyboard’. It just tests the weather keyboard buttons working only. Then we used write activity for test weather those buttons type correct letters. Those methods are also used for the testing of game pad and game buttons. In Lid we did rotating and flap up and down by manually. And also we have tested e-book mode with the game pad and game buttons. There are six indicators. We have tested each and every indicators according to the test cases for an instance in power indicator first we switch off the laptop and checked weather that indicator is indicating and switch on and checked what is indicating. Likewise we have tested all the indicators.

1.1 Advantages

- Keyboard is very user friendly.
- Buttons on keyboard is made by rubber and it’s providing the durability of that.
- There are many buttons comparing the normal keyboard for an instance frame button, view buttons hand button etc.
- Have more alpha-numeric signs are available.
- Very attractive in kids view.
- Comparing to kids it is very easy to access.
- Easy to handle the game pad.
- Considering the game buttons. It gives shortcuts.
- We use those game buttons in installing process.
- Lid can rotate in 180 degrees.
- Indicators provide the ease on access.

1.2 Suggestions






- Touch display for e-book mode.
- Need a Print screen button.
- Hibernate the system.
- Need a password settings

OLPC Charging and Discharging

1. OLPC battery charging

The XO can be hand charged via a crank, pedal or pull-cord—or recharged by a directly connected solar panel. (Mouse over the circles in the figure above for more detailed information about the XO battery)

1.1 Indicator-light colors

-  green means the laptop is plugged in and the battery is fully charged
-  yellow/orange means the laptop is plugged in and the battery is charging
-  no light when the laptop is powered on means it is running on battery power
-  no light when the laptop is powered off means the battery is *not* recharging
-  red means the battery is low; it should be recharged

Is the power adapter plugged in both to the wall and to the laptop?

1.2 Important

(Is the battery light illuminated? (The battery light is in the shape of a battery; it is to the lower-right of the display. It should be on—green or orange—whenever the laptop is plugged in.)

I identified Battery types are as follows




-  GoldPeak NiMH - white sticker
-  GoldPeak LiFePo4 - purple sticker
-  BYD LiFePo4 - **yellow sticker**



Figure 11: Battery Pack

1.3 Battery status

In [Sugar](#), the battery icon in the frame shows a graphic for battery charge level, and if you move the pointer over it, it displays a percentage charge.

01. [NiMH](#) (could not be charged above about 45 degrees C)
02. [LiFePO4](#) (allow charging at higher temperatures)

GoldPeak NiMH - white sticker

GoldPeak LiFePo4 - purple sticker

BYD LiFePo4 - yellow sticker

The 2 major symptoms are:

- Units that will not power up when a battery is inserted even when plugged into AC
- Batteries that is not recognized /charged
 - ✓ If you plan to store a system for many weeks or months, your best strategy is to fully charge the battery and **remove** the battery from the laptop

1.3.1 What to be tested

1. Verify **EC** functionality after battery over drain (low voltage). It should reset and battery should charge correctly.
2. Verify full Battery Management System operation with full, low and absent batteries. Check especially for overcharge and undercharge behavior
3. Correct operation of battery **LED**
4. Battery status reporting to Linux
5. Process
 1. Check that the battery shows charging or charged
 2. Unplug the machine
 - Check that the battery shows present and
 - Check that the machine does not show it is plugged in
 3. Plug in the machine
 - Check that the battery shows charging
 4. Unplug the battery
 - See that the battery shows not present
 5. Reinsert the battery
 - Check that the battery shows present and charging again

OLPC AUDIO

Audio

1. Sound playback

- We can play back sound files in Brower activity.
- **Vorbis** and **Speex** are our preferred codec's for general audio and human speech. These compressed representations of audio are stored in files using the Ogg container file format. Ogg files generally have the extension .ogg.

<http://commons.wikimedia.org/wiki/File:Tromboon-sample.ogg>

1.1 Speex

- Speex is an audio codec that is part of the OGG container format. Speex is optimized for voice recording and transmission. It makes for very small file sizes for voice recording.
- The **Totem browser plug-in** files. It uses the GStreamer multimedia framework to unpack Ogg containers and decode audio and video streams.

1.1.1 What to be tested

1. Test headphone output and speakers; verify unclipped output at volume on each.
2. Test internal and external microphone input; check for good input levels without noise.
3. Analogue input test

OLPC SCREEN

1. Screen

The screen is unusual. It can be used in darkness *and* in direct sunlight. There are several ways to describe it.

- The display is 1200x900, 200 dpi. 6x4 in (152.4x101.6 mm). 6 bit deep (262k colors).
- Use normal font point sizes.
- UI elements designed for 100 dpi should be enlarged by about 1/3, or they will look smaller.
- UI elements designed for 100 dpi should be enlarged by about 1/3, or they will look smaller.
- Under different lighting conditions, the display may appear to be color, pale color, or monochrome. So check the appearance of your UI in monochrome. Use high-contrast UI elements. Pick colors with different luminance.

1.1 Our screen, described as two screens sharing an LCD

One way to think of the screen is as the combination of two separate screens, which share only an LCD glass. One screen is a normal backlit screen. The other is a normal reflective screen.

- The backlit "screen", has a backlight, which shines through a color filter, on to the 1200x900 grid. The filter gives each pixel just one color, red, green, or blue. The pixels are thus behaving like the "sub-pixels" of a normal backlit display.
- The reflective "screen" has a reflector behind the LCD grid. So room light comes in (through the LCD), bounces off the reflector, and goes back out, through the LCD. So there are 1200x900 pixels, which depend on ambient outside light to be seen.

1.2 Changing the Display Brightness

Ignore talk of "mono and color modes", and of screen resolutions other than 1200x900. We named things poorly, and *immense* confusion has resulted.

How to switch to reflective mode: press the "lower brightness" button repeatedly until the backlight is turned off.

How to switch to color mode: press the "increase brightness" button to turn the backlight on.

- Brightness keys:



OLPC Suspend

1. Suspend

1.1 Direct Suspend

Direct suspend means the user asked the host to suspend. These actions are getting same result for the above mention operating systems

There are two ways to direct suspend can be happened -Triggers are power button and Lid closure then

A) How to verify that the user can do the Direct suspend when the LID is opened?

While OLPC is in on mode following behaviors are appear to be

1. Press the power button to do the Direct Suspend
2. Verify that the OLPC screen is getting power-off
3. Verify that the OLPC is suspended when user press the power button

B) How to verify The User can do the Direct suspend when the LID is closed?

Close the Lid of OLPC to do direct suspend

You can verify that the OLPC is getting blank screen while closing it

Note – the above execution ladder are same for both the ox1.0 and xo 1.5 versions

1.2 Idle Suspend

Idle suspend is triggered by the host itself, based on inactivity of the user. Triggers are suspend mode or sleep mode by itself

A). How to verify that the idle suspend is available in xo - 1.0?

While OLPC is in on mode following behaviors are appear to be

1. Keep the OLPC without doing any function with the key board or Buttons As specified in input data column
2. Verify that the desktop is getting dark light screen
3. Verify that the Power indicator is blinking

B) How to verify that the idle suspend is available in xo1.5?

1. Keep the OLPC about 1 minute without doing any function with the key board or Buttons
2. Verify that the desktop is getting a dark Light
3. Verify that the screen is getting blank
4. Verify that the Power indicator is blinking

1.3 Availability of suspend in OLPC

Suspend	XO-1.0 with B5	XO-1.0 with OS13	XO-1.5 with OS116
Direct Suspend mode	Yes	Yes	Yes
Idle Suspend mode	Yes	Yes	Yes
Idle Sleep mode	Yes	Yes	Yes

Suggestions

Sleep mode has to be implemented for the OS 802b5

OLPC RESUME

1. Resume

Resume is what Awaken OLPC when the OLPC in suspend mode, this can happen through several triggers and to test these criteria's OLPC should keep in suspend mode then after the following actions can be performed.

- (1) Laptop lid opens,
- (2) Keyboard keys pressed,
- (3) Touchpad motion,
- (4) Game keys pressed,
- (5) Response to incoming TCP/IP packets,
- (6) Power button press.

Mainly there are two ways to resume the OLPC

- Resume from suspend mode
- Resume from sleep mode

A) How we can verify the Resume which are given as follows

While OLPC is in suspend mode

1. Press the keyboard keys
2. verify that the power indicator is lightning

B) How we can verify the Resume using the touch pad

1. Finger moving on touch Pad
2. verify that the power indicator is lightning

C) Verify the resume using Game keys

1. Desktop screen & power indicator should be getting lightning
2. Now the OLPC should be in resume mode

D) Verify the resume by pressing power button

1. Desktop screen & power indicator should be getting lightning
2. Now the OLPC should be in resume mode

E) Verify the resume by open the LID

1. Desktop screen & power indicator should be getting lightning
2. Now the OLPC should be in resume mode

1.1 Resume modes in OLPC

Precondition: OLPC must be in Suspend mode

Action	Resume mode in XO-1.0 with OS802B5	Resume mode in XO-1.0 with OS13	Resume mode in XO-1.5 with OS116
Press the key board	Yes	Yes	Yes
Touch pad use	Yes	Yes	Yes
Game key press	Yes	Yes	Yes
Press the power button	Yes	Yes	Yes
Open the Lid	Yes	Yes	Yes

Suggestions

OS13 resume triggers has to be implemented when comparing resume options according to the OS116

OLPC TOUCH PAD

1. Touch pad

There are two types of touch pads in XO 1.0 and XO 1.5 in XO 1.0 there three element touch pad and XO1.5 has one element touch pad

- XO1.0 – have three elements but use only the center element other elements which call as drawing pads are disabled by default
- XO 1.5 - have one element touch pad

Functionality of the touch pad

Touch Pad function Available	XO-1.0	XO-1.5
Single Click	No	Yes
Double Click	No	Yes
Select the option	Yes	Yes
Corners Click	No	Yes
Dragging icon with mouse button	Yes	Yes
Draw a circle in paint activity	Cannot be drawn a clear circle	Very clear circle can be draw

Common steps to test the touch pad functions

01. Verify the single click

1. Select an activity on the desktop
2. Do a single Click on the touch Pad

02. Verify the double click

1. Select an activity on the desktop by using touch pad
2. Double Click on the touch Pad

03. Verify the select the option by finger moving

1. Select the activity by finger moving
2. Click on the position on the selected activity
3. Verify that the user can select an action on the optional menu of the activity

04. Dragging an icon with pressing the mouse button

1. Open the tam jam activity
2. Select a suitable drum kit function icon on tam jam activity
3. While pressing left mouse button drag a drum kit function icon on to the jam screen
4. Verify that the icon selected is moving where it is locating to.

05. Drawing a circle in paint activity using touch pad

1. Open the paint activity
2. Select the pencil on the paint activity
3. Draw a circle on the paint activity while pressing the left mouse button

WIRELESS

1. Mesh Network in XO 1.0 and xo 1.5

Built-in Wi-Fi antennas in OLPC, that automatically creates a "mesh network" with any other XO computer within about one-third of a mile. A screen displays icons showing the other XO computers within range at any given time.

The mesh also means that if any one of the linked computers has access to the Internet, all of them will. That's important in places where Internet connections can be few and far between.

And also through the mesh network it is possible to share the activities between each other example –chat activity, distance activity

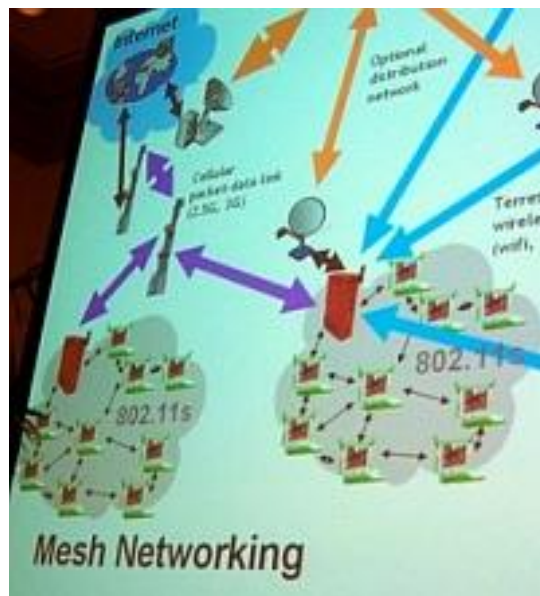


Figure 12: Mesh Network

Mesh network availability can be tested for the

1. XO 1.0 with XO 1.0 builds with 802B5
2. XO 1.0 with XO 1.0 builds with OS13
3. XO 1.5 with XO 1.5 builds with OS116

And also some of the activities can be performed as per the following test case folder link C:\QA Rigor\trunk\Batch Two\QA\Test cases

Note – XO 1.0 with OS 13 and XO 1.5 with OS116 is not able to share the activities even OLPC mesh connection is connected

Defects

Ticket #	Summary	Raised By	Component	Severity	Date Opened
1866	OLPC-Screen Rotation Functionality – Screen rotation working button is not as expected in XO1.5	Sandun	Hardware (Screen)	Minor	25/03/2010
10103	OLPC XO-1- Mouse pad – Cannot move the mouse cursor when comes to resume mode from the idle mode if programs running.	Dhanushka	Touch Pad	Major	06/04/2010
101117	OLPC-Resume – In OS13, for some user actions resume is not triggered.	Johan	Hardware	Law	15/04/2010

UNIX COMMANDS

How to get the developer key in to the USB memory stick?

Reason: If you could not disable the security and install the OS, sometimes OLPC will not be able to boot. Because of this we are getting a copy of the developer key and save in a mail or centralized place.

Steps:

Go to the Terminal

Go to the root

Type su –

Go to the security. This is the place where the developer key has being saved

Type cd /security

Check whether the developer key is available

Type ls -la

NOTE: If the developer key is available you can see *develop.sig*

Copy developer key in to the USB memory stick

Type cp /develop.sig <<SPACE>> /media/*USB memory stick name*

EX: cp /develop.sig /media/*USB memory stick name*

Important:

- ✓ Always try to use USB memory sticks without any default installed software like U3
- ✓ Do not remove the USB memory sticks without unmount